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BASELINE SURVEY

ELECTRICITY ACCESS AND SOCIO-ECONOMIC BASELINE SURVEY FOR ENERGY INFRASTRUCTURE ACTIVITIES

May 2020

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Cover photo: MSI EASE AMELA team interviewing female head of household in [Redacted], 2019.

ABSTRACT

The baseline study was implemented to capture socio-economic conditions at the start of the Afghanistan Power Transmission Expansion and Connectivity (PTEC) project. This effort was designed to be part of a quasi-experimental evaluation to measure the impact of changes in electricity access across seven dimensions. The research question aimed to investigate the current state of access to electricity, barriers to access, and presence of disproportionate levels of access. The sample encompassed two 20-kilometer zones of influence surrounding the sub-station in [Redacted] and [Redacted]. The team used a mixed methods approach, collecting primary data from households, clinics, schools and businesses through surveys, interviews, and focus groups. Additional secondary analysis was conducted using Da Afghanistan Breshna Sherkat (DABS) and Visible Infrared Imaging Radiometer Suite (VIIRS) data.

The results support a valid baseline, though 26 percent of the sample was connected to DABS electricity. When a village had access to DABS electricity, up to 80 percent of households connected to on-grid power. This suggests when DABS provided a village access to on-grid electricity, households acquired services. The primary constraint to adoption of on-grid electricity appeared to be a lack of supply; there were delays in connectivity due to limited/absent infrastructure to connect sub-station transmission lines to step-down transformers to deliver electricity to homes. Recommendations include implementation of a midline/endline to measure impact, refinement of the assumptions in the theory of change, and increased participation by DABS in data collection/data sharing.

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ACRONYMS

ACSOR	Afghan Center for Socio-Economic and Opinion Research
Afs	Afghani (Afghanistan Currency)
AMELA	Afghanistan Monitoring Evaluation and Learning Activity
ANA	Afghanistan National Army
ANP	Afghanistan National Police
AWP	Assignment Work Plan
CVM	Contingent Valuation Method
D3	Designs, Data, Decisions
DABS	Da Afghanistan Breshna Sherkat
DQC	Data Quality Control
EA	Enumerator Area
EASE-BS	Electricity Access and Socio-Economic Baseline Survey
FG	Focus Group
GIRoA	Government of the Islamic Republic of Afghanistan
GPS	Global Positioning System
HH	Household
ICT	Information and Communication Technology
IRB	Institutional Review Board
KII	Key Informant Interview
kWh	Kilowatt Hour
MAIL	Ministry of Agriculture, Irrigation, and Livestock
MOCI	Ministry of Commerce and Industries
MoE	Ministry of Education
MoPH	Ministry of Public Health
MRRD	Ministry of Rural Rehabilitation and Development
MSI	Management System International
NOAA	National Oceanic and Atmospheric Administration
OI	Office of Infrastructure
PII	Personally Identifiable Information
PTEC	Power Transmission Expansion and Connectivity
SOW	Statement of Work
USAID	United States Agency for International Development
VIIRS	Visible Infrared Imaging Radiometer Suite
ZOI	Zone of Influence

Keywords

Electricity, sub-station, baseline, socio-economic, governance and security, communication, education, health, environment, gender.

EXECUTIVE SUMMARY

EVALUATION PURPOSE AND RESEARCH QUESTIONS

This baseline was the first step in capturing the benefits and effects of the Power Transmission Expansion and Connectivity (PTEC) project[1]—increased access to electricity—on households, clinics, schools, and businesses. The United States Agency for International Development (USAID) was interested in understanding the relationship between changes in access to electricity and seven socio-economic dimensions. These included economy, governance and security, communications, education, health, environment, and gender. Each dimension was reflected by a series of indicators. The information gathered at the baseline will provide the starting conditions of the selected sample and permit USAID to compare these initial measurements to future points in time to capture socio-economic change. The audience for this report is the Office of Infrastructure (OI) and Mission units working with health, education, democracy and governance, and environmental projects, as well as others in security and economic growth. The baseline study was focused on answering the following research questions:[2]

- "What is the current state of access to electricity?"
    - What are the barriers to access?
    - Are there disproportionate levels of access?

Subsequent questions will be focused on measuring the implications of electrification. Although the baseline did not test for impact, the baseline results captured important variables for future causal testing with midline and endline data.

METHODS

The baseline study used a mixed methods approach collecting quantitative and qualitative data. Efforts in the baseline were part of a larger design, with future midline and endline data efforts planned to test the impacts of electrification.

SAMPLE

The sample consisted of households, schools, clinics, and businesses within the 20km zone of influence (ZOI) around each sub-station. All response groups were constrained by security issues, so even though

[1] See Annex A for additional information about the PTEC project.

[2] The intention of the baseline study per the statement of work (SOW) and assignment work plan (AWP) (Annex A1 and A2) was to create a "research agenda." The SOW did not provide a list of specific research questions, but the AWP shared an illustrative list of potential areas of inquiry. At the baseline, many questions with causality models were not permissible, but they will be possible with additional data collection efforts at the midline and endline. The team will present causal models specific to this study in the SOW for the midline as per discussions with USAID Afghanistan.

the team did a census[3] for schools and clinics within the 20km area, these were not all accessible during data collection. On the day of data collection, the field teams selected businesses through a random walk. Similarly, for the household sample, within a settlement an enumerator selected a household randomly during a walk-through of a village. The baseline study conducted 2,064 household surveys[4] (with 1,008 surveys in [Redacted] and 1,056 surveys in [Redacted] evenly split between male and female heads of household), 141 business surveys, 28 clinic surveys, 63 school surveys, 19 key informant interviews (KIIs), and 18 focus groups (FGs).

Figure 1. Map of village connectivity levels.

Note: The circle in the magnified detail of the map denotes the 20km ZOI. White villages denote zero connection to on-grid electricity, and darker red boxes are those villages with on-grid connection.

DATA

The baseline study collected field data from households, clinics, schools, and businesses (see Figure F-2 in Annex F). This took place over a period of approximately six weeks in the fall of 2019. Instruments used in data collection were specifically calibrated to each response group. To ensure valid data and

[3] Per the Checchi documentation, the list of schools and clinics was a census list provided by the Ministry of Education and Ministry of Public Health.

[4] Two interviews were conducted per household, for a total of 1,032 total households. The total population was determined using the Checchi Manual (see Annex B) with proposed revisions to the sample by the current team (see Annex F). Under simple random sampling with a confidence level of 95 percent, the margin of error for a frequency response will not exceed three percent. However, actual margins of error will vary based on the variance properties of each individual measure as well as the degree of clustering in the data population. The midline will include the complex margins of error for specific indicators. For purposes of this report, the robust standard errors reported in Annex M incorporate the uncertainty arising from the clustered data collection.

robust analysis, the team had multiple levels of data quality checks including pre-testing/piloting of tools, field monitoring, data re-entry checks, and tests using statistical software (see Annex J).

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The study established a valid baseline useful for future causal model testing on the impacts of the PTEC project on the communities near the [Redacted] and [Redacted] sub-stations. In response to research question one, only 26 percent of respondents were connected to Da Afghanistan Breshna Sherkat (DABS) on-grid electricity. Urban areas were more connected to DABS electricity than rural zones such as [Redacted] (Figure 1).

KEY FINDINGS

This baseline study identified correlations between electricity access and socio-economic outcomes. While correlations indicated some definite role for electricity in socio-economic development, they do not imply the causal effect of electricity.[5] Analysis of the baseline data in conjunction with midline and endline data (panel data analysis) will provide a clearer identification of specific causal effects. The following is a summary of findings by dimension:

Electricity	• DABS coverage for the 20km ZOIs was 26 percent (ranging from 53 percent in [Redacted] to 6 percent in [Redacted]). • When households had access to DABS electricity, there was almost complete adoption of the service. Household adoption of electricity was 88 percent (ranging from 94 percent in [Redacted] to 68 percent in [Redacted]). • Respondents shared their views about DABS electricity, which were overall positive. However, they stated a need to retain alternative sources of power, as the on-grid power was not always reliable or available for long enough periods of time.
Economy	• Overall, households reported a monthly income of 10,500 Afghanis (Afs). • There were no appreciable differences between connected and not connected households on economic outcomes, suggesting a valid baseline. • Connected businesses reported higher ownership of electrically powered items such as radio, television, or computer.
Governance and Security	• Conflict and insecurity appeared to have strong adverse effects on electricity access, as found in the baseline data. • Data showed a small but positive relationship between electricity access and positive assessment of government performance. • Initiatives to improve government legitimacy through service delivery were more likely to improve perception of the provincial level of government (versus national).

[5] Electricity is likely one among several factors that simultaneously interact to generate socio-economic development. In this context, the notion of a specific and independent causal effect of electricity access is less intelligible; electricity access can only be understood in conjunction with other factors, some of which will likely remain unobserved.

Information and Communication Technology	• Television/radio ownership was similar across connected and not connected households. • Connected households watched an additional 14 hours of television per week, and as households adopted on-grid electricity, media consumption appeared to shift from radio to television. • Mobile phone ownership appeared to be unaffected by on-grid connection.
Health	• Clinics depended on reliable electricity for vaccinations and other electricity-reliant services. Only 18 percent of clinics were connected to on-grid electricity. • Increased electricity access appeared to correspond with increased services to communities by health providers. The sample was too small to generalize across the ZOIs. • Data highlighted possible linkages to increased numbers of vaccinations in areas of higher connectivity. However, at the time of baseline, the difference may have been due to urban-rural factors. Further work is needed to study the trend. • Similarly, the data showed early indicators of reduced numbers of reported coughs for households connected.[6]
Education	• Schools were the slowest of the response groups to adopt on-grid electricity, with only 6.3 percent connected. • Of the connected schools, 75 percent adopted computers for both students and school staff. • As households became more connected, early data indicated parents invested in additional education for female children. Even if connected, girls were still behind boys in educational attainment.
Environment	• Connection to on-grid electricity was associated with shifts in household reliance on different energy sources for both heating and cooking. • The primary difference in heating sources was that connected households relied more on charcoal and less on animal waste. The primary difference in sources of cooking fuel was that connected households relied more on natural gas and electricity and less on all other sources of cooking fuel.
Gender	• Early findings suggested possible changes in household chore burden for men and women. Differences at baseline appeared to be attributed to urbanicity. However, the baseline may have been too early to determine the full magnitude of the effects of PTEC on gender issues at both the household and village levels.

CONCLUSIONS

Even though the PTEC project was in place for over a year at the time of baseline, only 26 percent of households in [Redacted] and [Redacted] ZOIs were connected to on-grid electricity. Results suggest connectivity was highly correlated to urban/rural differences. Three testing groups were identified to

[6] The study and data did not make a distinction among cough, flu, and the common cold. The team asked respondents about respiratory issues overall and not specific symptoms.

track over time: connected at the village level but not at the household level (not connected); connected at both the village and household levels (connected); and not connected at either the village or household level (not connected). The diversity of this sample will permit the team to conduct future impact studies. The low number of on-grid connections suggested barriers existed in permitting communities to connect to DABS service. Baseline data identified infrastructure obstacles (affecting supply not demand for service), and in particular travel costs to acquire connection.

RECOMMENDATIONS

- **RECOMMENDATION 1**: The baseline results are valid for a quasi-experimental study. Therefore, to measure causal impact of the PTEC project, the team recommends USAID capture data at midline and endline for robust impact evaluation.
- **RECOMMENDATION 2**: Create and develop causal models for each dimension and revise the theory of change. This includes reducing the number of indicators and removing the categorization of the dimensions, which is not needed. The team recommends this effort happen before the midline and in co-creation with DABS and USAID.
- **RECOMMENDATION 3**: The team suggests USAID consider integrating DABS more directly as a partner in field data collection.
- **RECOMMENDATION 4**: Conduct innovative exploratory studies on specific factors of electricity usage. This would include testing the feasibility of linking night light data with socio-economic measurements, a contingent valuation study, a segmented market study, and/or an air pollution study.
- **RECOMMENDATION 5**: Help USAID convene key stakeholders for a collaborating, learning, and adapting workshop on the results of the baseline to help prepare for the next phase of data collection (midline), gather feedback, refine causal models, and increase the utility/use of the results.
- **RECOMMENDATION 6**: Engage DABS more specifically around the objective of installing step-down transformers connecting villages to sub-station transmission lines.

NEXT STEPS

The team plans to gather additional data for the ZOIs of both sub-stations at midline (fall of 2020) and endline (tentative 2023). With input from USAID, the team will support the implementation of the above recommendations.

INTRODUCTION

The data from this baseline study are intended to be part of a longitudinal study to measure the effects of increased access to electricity on seven socio-economic dimensions. The baseline survey measured electricity access and usage and captured socio-economic conditions for a sample of households, schools, clinics, and businesses within a 20km area of two sub-stations, [Redacted] and [Redacted]. The report provides baseline values for selected indicators in anticipation of informing future evaluations of the USAID PTEC project.

PURPOSE

This baseline was the first step in capturing the benefits and effects of the PTEC project[7]—increased access to electricity—on households, clinics, schools, and businesses. USAID was interested in understanding the relationship between changes in access to electricity and seven socio-economic dimensions. These included electricity and economy, governance and security, communications, education, health, environment, and gender. Each dimension was measured by a series of indicators. The information gathered at the baseline provided the starting conditions of the selected sample and will permit USAID to compare these initial measurements to future points in time to capture socio-economic change. The audience for this report is the OI and Mission units working with health, education, democracy and governance, and environmental projects, as well as others in security and economic growth.

The report is organized as follows: (1) a section describing the purpose, background, and research questions; (2) a summary of the methods including sample, data, data collection approach, limitations, and data management; (3) findings organized by dimension; and (4) the overall conclusions and recommendations, as well as a section on next steps. The annexes provide a copy of the SOW (Annex A); instruments (Annex H); detailed information on the design, data, and analysis approach (Annexes E, F, G, I, and J); and other supporting documents. While the report illustrates the high-level findings, the annexes elaborate the details.

PROJECT BACKGROUND

INTERVENTION BACKGROUND AND DEVELOPMENT HYPOTHESIS

The project began in July 2012 and is set to finish in December 2023. PTEC works in partnership with the national electric utility, DABS, to increase access to affordable and reliable electricity by (1) expanding and improving Afghanistan's electric transmission system; (2) strengthening the ability of

[7] See Annex A for additional information about the PTEC project.

DABS to manage, operate, and maintain the national power system; and (3) promoting private sector investment in Afghanistan's energy sector.

The purpose of the Electricity Access and Socio-Economic Baseline Survey (EASE-BS) for Energy Infrastructure Activities was to gather baseline data on specific energy infrastructure activities within the PTEC project. This baseline study was focused on two sub-stations, [Redacted][8] and [Redacted]. The baseline study collected data on electricity access related to PTEC's work (1) to connect the northeastern power grid with its southeastern counterpart, and (2) to rehabilitate the existing southeastern power grid. USAID hopes to use the information collected for improved planning in the energy sector, as well as any future projects. Please refer to the EASE-BS Checchi and Company Consulting, Inc. (Checchi) manual for the intervention background and the PTEC theory of change (Annex B).

Each survey assessed the level of access to electricity in households, businesses, schools, and health facilities within the 20km zone at time of baseline. This area was pre-selected during the design phase as the area of effect; those communities within the 20km radius were likely to be impacted by change in access to electricity. This radius was determined by technical criteria related to the loss of electricity along the distribution lines; after 20km, the loss on a line was considered too great (see Annex F). By repeating these surveys periodically within the same zone, ideally on the same units that were measured at baseline, the study can test change over time of electricity access and use, as well as key socio-economic indicators. The final report will be reflective of the two sub-stations and may not be generalizable to all future sub-station electrification efforts.

LITERATURE REVIEW

In a foundational paper, Greenwood et al. (2005) developed economic models on how the advent of new services, such as electricity and piped water, lead to the proliferation of household durable goods, such as refrigerators and washing machines, and subsequently affect the labor force participation decisions of female household members. This research remained active at the time of the baseline; for example, a job market paper modeled how the relationship between electricity access and assessment of job opportunities for female household members helps explain one-third of the rise in female labor force participation in the United States between 1880 and 1960 (Vidart 2020).

While studies on electricity have shown a positive correlation between electricity and various socio-economic indicators, causation was not well established. A 2013 literature review found that the

[8] Throughout this report, the team refers to the [Redacted] station as the [Redacted] station synonymously.

empirical evidence for electricity as a causal factor in economic growth was surprisingly weak, due in part to methodological issues in the studies that existed at the time (Attigah and Mayer-Tasch 2013). By 2020, limited empirical research had been conducted on the effects of increased electricity access in Afghanistan communities. For a detailed discussion of the literature, refer to the EASE-BS manual (Annex B) and the bibliography (Annex O).

In India, Ahmad et al. (2014) found a significant positive relationship between electricity access and measures relating to household education and health. However, as with certain findings of this baseline study, Ahmad's findings were limited to rural rather than urban households. Rao (2013) estimated that improving reliable electricity service to 16 hours per day with minimal interruptions would add 0.1 percent to Indian gross domestic product.

Results from the baseline data produced information describing the status and views on access to electricity of the following stakeholders: (1) male and female heads of households, (2) business owners, (3) clinic administrators, (4) school administrators, and (5) various other government representatives (Ministry of Public Health [MoPH], Ministry of Education [MoE], DABS).

RESEARCH QUESTIONS

The baseline study was focused on answering the following research questions:

- "What is the current state of access to electricity?"
    - What are the barriers to access?
    - Are there disproportionate levels of access?

Subsequent questions focused on measuring the implications of electrification. Although the baseline did not test for impact, the baseline results captured important variables for future causal testing with midline and endline data. These questions included:

- "What is the relationship between access to electricity and socio-economic conditions?"
    - What are the implications to the expansion of the electrical grid (on households, clinics, schools, and businesses)?
    - Is the program of electrification meeting local needs?
    - How have poverty levels changed?
    - Has the introduction of electricity led to increased conflict within settlements/within households?

In addition, the team created specific areas of inquiry under each dimension. Annex C provides a "Getting to Answers Matrix" with illustrative examples of the types of research questions this longitudinal study will test after the midline and endline studies. The baseline data was collected with these questions guiding future study design.

METHODOLOGY

The baseline was a mixed-methods study aimed at gathering information on the socio-economic conditions at the start of the PTEC project. It drew on both primary and secondary data sources. The data collected at baseline were intended to be part of a larger impact study. The team will work to obtain data from the same sample at midline and endline to measure and test for change/impact.[9] Models at baseline were primarily reflective of frequencies and focused on testing relationships between the key variables. There was no causal modeling at the baseline, as causal modeling requires longitudinal data.

The team collected primary data through its subcontractor D3: Designs, Data, Decisions and D3's subsidiary company Afghan Center for Socio-Economic and Opinion Research (ACSOR). Data collection methods included surveys, interviews, and FGs. To conduct secondary data analysis, the study team used Visible Infrared Imaging Radiometer Suite (VIIRS) satellite data and DABS customer information. DABS is the Afghanistan company responsible for providing electricity to the nation and is the implementing partner for the PTEC project. Prior to any data collection, the study team acquired appropriate authorization letters from the Government of the Islamic Republic of Afghanistan (GIRoA) with help from USAID (see Annex D).

BASELINE VALIDITY

At the start of the baseline study, the PTEC project had already built the two sub-stations of interest, and various communities were connected to on-grid DABS electricity. While there was observable difference between communities connected versus those that were not connected, this difference was within tolerable ranges (0.25 standardized difference or smaller; see Table 5 for details). Results of the study (presented in the "Findings" section below) suggested a valid baseline and showed three conditions for the ZOIs in [Redacted] and [Redacted]: (1) communities with access to electricity, (2) communities not connected at either the village or household level, and (3) communities connected at the village level but not at the household level. Regarding schools, clinics, and businesses, the differences at baseline were more basic, connected versus not connected. The team was not able to gain

[9] The team will attempt to target the same clinics, schools, and businesses at midline and endline. The team has a full list of the sites and names/addresses to repeat data collection. However, the team cannot control or guarantee whether the ministries will permit a repeat of field data collection, whether participants will consent, or whether the sites will be safe enough to permit access to enumerators.

additional details on the complexity of those not connected or connected, as seen for households. For subsequent data collection efforts at midline and endline, the team will track all types of baseline conditions for the groups of interest and compare the conditions over time.

This section provides information about the design, sample, analytical approach, data analysis, instrumentation, data, data collection process, data management and quality control, and human subject research protocols. Additional details on the methodology can be found in Annex E.

DESIGN

The original design of this baseline study approved by USAID was developed by Checchi in early 2018 (see Annexes A and B). The current study team revised the design to reflect conditions at the time of baseline and to incorporate various concerns around data collection/instrumentation, sample size, and data access. The biggest changes were: (1) increased number of enumerator training days, (2) a doubled sample size of households targeted, (3) increased number of KIIs for each category, (4) revisions/updates to the field instruments including additional pilot testing, and (5) changes in FG respondent type from heads of households to clinicians and teachers. Annex A provides additional information about the changes.

The original purpose of the baseline study was to collect data around 78 indicators of interest across seven dimensions. This information would be used both to monitor the activity and to provide key variables for impact studies. The primary goal of this baseline study was to investigate the validity of the target indicators and determine their feasibility based on field data collection. The study findings identified the need to streamline the indicators and dimensions as well as narrow the study focus. Additionally, the team identified various weaknesses in the theory of change regarding the underlying assumptions within the results framework. These recommendations are discussed in the final section of this report.

SAMPLE

Per the Checchi design, the sample was selected from a predetermined 20km ZOI around each sub-station. Within the 20km radius, the team identified and selected villages to participate in the survey. For more information about this process and the overall sampling approach, see Annex F. Overall, the baseline conducted 2,064 household surveys (evenly split between male and female heads of household), 141 business surveys, 28 clinic surveys, 63 school surveys, 19 KIIs, and 18 FGs.

The survey sample for schools and clinics was a census list, provided by Checchi through consultations with the ministries. Not all schools and clinics were accessible during data collection, as some were

located in areas designated too dangerous for field teams. Field teams randomly selected businesses and households for surveys using a walk-through process. For interviews (qualitative data), the sample selected was not random but purposive. The study team gave ACSOR various offices and units to target for KIIs based on the key list provided in the original design.[10] These included government officials from the MoE and MoPH, local/community leaders, and DABS representatives. The FGs were based on a convenience sample. The study included teachers and clinicians who were willing to participate until the target number of FGs was completed.

The sampling design for the household survey took into consideration attrition of participants over time. The data included geospatial coordinates of the various households, businesses, schools, and clinics to permit the team to repeat data collection at midline and endline for causal testing.

ANALYTICAL APPROACH

The analysis examined differences between households connected to on-grid electricity and households not connected to on-grid electricity. The purpose was (a) to identify any relevant pre-treatment differences as potential threats to the validity of the impact evaluation and (b) to examine outcomes that may have been present as a possible result of connection to on-grid electricity. The study team ran regressions in R and Stata with a base set of control variables and with errors clustered by village/settlement.[11] For additional details on the models and tests run with the data to create the baseline results, see Annex G.

DATA ANALYSIS

The EASE-BS manual from Checchi provided initial guidance on the suggested analysis pathway for the data. Based on this and the actual data collected, the team was able to:

- Calculate descriptive statistics providing a summary of the conditions of the state of access to electricity in both ZOIs at baseline, as well as other variables associated with reliability, costs, and customer satisfaction.
- Calculate indicators for each dimension. The team produced a series of indicator tables for each socio-economic dimension. (For details on indicators, see Annex L.)
- Run regression models to test relationships within each dimension where appropriate.

[10] Checchi conducted multiple interviews during its design process to identify the key stakeholders and listed these in its design document/EASE Manual. See Annex B for details.

[11] The words village and settlement are used interchangeably and reference the same item—a defined community/neighborhood as outlined by the Checchi manual.

- Conduct content analysis on the qualitative data using MAXQDA for the interviews and traditional text analysis for the FG discussions.
- Conduct secondary data analysis using (a) satellite radiance data from VIIRS and (b) DABS data on billing costs.

The team used multiple tools to analyze the data including R, MAXQDA, Stata, Microsoft Excel, and ArcGIS software. Additionally, the team aggregated the data by location for comparison and analysis. The team determined a significant rural-urban effect and divided [Redacted]'s ZOI into [Redacted] rural[12] and [Redacted] urban; this was not required in [Redacted]'s ZOI, as it was primarily rural.

INSTRUMENTS

Instruments were created for each data type and each respondent group (Table 1). To view all instruments, see Annex H. Checchi originally designed the baseline instruments, and the baseline study team adapted/revised them. For additional information about the changes to the instruments, see Annex A.

Table 1. Summary of instruments used in the baseline study.

Data collection method	Tool
Surveys	Female head of household survey (HH female)
	Male head of household survey (HH male)
	School survey
	Business survey
	Clinic survey
KII protocols *(instruments were created for each respondent group, although they all shared a common pool of questions)*	Community leaders
	DABS provincial representative
	Ministry of Commerce and Industries (MOCI) district (or provincial) head
	Ministry of Rural Rehabilitation and Development (MRRD) district (or provincial) head
	Ministry of Agriculture, Irrigation, and Livestock (MAIL) district (or provincial) head
	MoPH district (or provincial) head
	MoE district (or provincial) head
Enhanced qualitative survey questions *(added to the quantitative survey as open-ended questions)*	Qualitative addition to household (HH) survey for men
	Qualitative addition to HH survey for women
	Qualitative addition to business survey
	Qualitative addition to health facility survey
	Qualitative addition to school survey

[12] This report refers to areas of [Redacted] as rural, but the landscape more closely resembles a peri-urban area, transitioning from the urban city center capital of [Redacted].

Data collection method	Tool
FG discussion guide	Clinics – clinicians
	Schools – teachers
	Business owners (mix of business types)

DATA

The team analyzed primary and secondary data. Table 2 summarizes the primary data acquired for the baseline study by data type. For information about the secondary data from DABS and VIIRS, see Annex E. For details on how each data source supported each dimension and research question, see Annex C. For information about response rates, see Annex I.

Table 2. Primary data: Summary of total cases by data type.

Data type	Total number of cases		
	[Redacted]	[Redacted]	Overall
Female HH survey	528	504	1,032
Male HH survey	528	504	1,032
Business survey	73	68	141
Clinic survey	14	14	28
School survey	38	25	63
KIIs	10	9	19
FGs	9	9	18

DATA COLLECTION

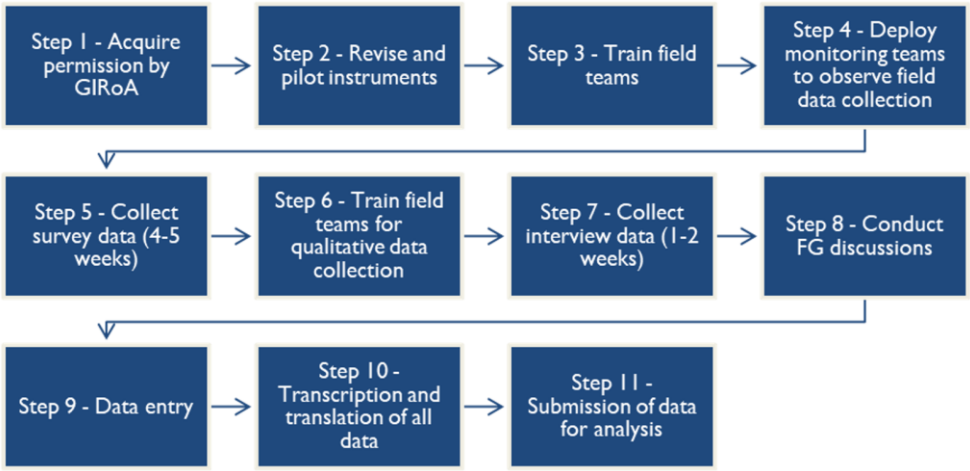
The study conducted three data collection activities: (1) surveys, (2) interviews of key stakeholders, and (3) FG discussions. D3/ACSOR, the partner and data collection firm for the baseline study, collected all field data. Although the study team had discussed using smart tablets or Short Message Service systems to gather the field data, upon further discussions with ACSOR, the team determined the only safe option for the field enumerators would be paper-based data collection. This collection method leads to increased probability of human error during data entry and data collection. [redacted]

Data Collection Timeline:

- October 6–7, 2019 – Enumerator training for surveys (eight female and eight male field staff plus one supervisor per study site)
- October 9–23, 2019 – Survey data collection
- October 29–30, 2019 – Enumerator training for enhanced surveys, FGs, and interviews
- November 9–25, 2019 – Qualitative data collection
- November 26 – December 20, 2019 – Data entry and delivery

Figure 2 summarizes the core steps in data collection. For additional details on the data collection activity and quality control, see Annexes I and J.

Figure 2. Data collection steps for EASE-BS 2019.



Data collection started with training of field staff. ACSOR brought to [Redacted] all enumerators and supervisors from [Redacted] and [Redacted]. The field staff selected for data collection were from the respective provinces. While in [Redacted] for the two-day training, the field teams reviewed the quantitative instruments, discussed possible data collection issues, and conducted several mock interviews to prepare for data collection. Each site had 16 enumerators, eight female and eight male, plus one supervisor per location. Data collection ran from late October through November 2019. For additional information about the training process and field data collection preparations, see Annex I.

DATA CAPTURE AND DATA ENTRY PROTOCOLS

The study team removed information about personally identifiable information (PII) from each survey, KII, and FG discussion. Further, the team aggregated the data to keep respondents' identities confidential and protect their privacy. All respondents were asked to provide consent at the start of any and all data collection efforts. For more information about the methods and data collection processes, see Annexes E and F.

DATA QUALITY

The team employed multiple protocols to ensure data quality. First, data quality was ensured by a creating an appropriate design for the baseline study and by including time for instrumentation calibration. The team revised and adjusted the approach of the previously approved baseline design/instruments to ensure the study would result in robust data for multiple phases of data collection. The team conducted various field tests of the instruments to ensure improved data capture (see

Annex J). Other changes to the design to ensure valid data included an increase in the number of training days for field teams, an increase in the sample size for both locations to improve the power of the sample for causal testing and for potential attrition, and changes to the instrumentation for better data capture, including changes to the translated tools.

D3/ACSOR created the next layer of protocols for quality data. To check the data from the field and ensure accurate information, the ACSOR team did up to five percent direct observation, 10 percent back-checks, and 20 percent blind data entry (double data entry). See Annex J for additional details on the back-checks. The final layer of data quality control was applied at the data analysis phase. The baseline study team conducted a careful review of the strengths and weaknesses of the data through statistical software (R). For additional information on the data management, consent, institutional review board, and data submission requirements, see Annex E.

LIMITATIONS

The following is a short summary of the primary limitations in the baseline data. For additional information concerning the limitations of the data and study, see Annex E.

- **Data errors around cost estimates** (incomplete data, response bias). When respondents were asked to estimate income in the past month and other expenditure-related questions where recall was required, there is a probability that these estimates were inflated or underrepresented true costs.
- **Pre-exposure to treatment** (connection to DABS). As various communities and households were connected to DABS (treated) already at baseline data collection, the team had a small threat to the validity of baseline results. However, because a large portion of the sample had not been connected, the team felt confident in being able to assess the PTEC impact over time.
- **Limited interview data** due to field challenges. The data are not generalizable to the entire ZOIs because of the limitations in field data collection due to security. Some areas were not accessible to the field data teams, and thus the sample is reflective of safer communities.

FINDINGS

This report presents the baseline results in the following order: (1) a summary of the key descriptive statistics reflective of the characteristics of the data (see also Annex M), and (2) findings across the seven dimensions listed in the baseline study design.

FINDINGS PER DIMENSION

For each dimension, including electricity itself (the dependent variable), this report provides a summary, detailed findings, and a discussion section. Groups labeled "treatment" refer to those with connection to DABS electricity. Those not connected at the time of the baseline study are labeled the "comparison" group. At the midline point in the study, the terms (connected/treatment versus not connected/comparison) and conditions (village-level connection, household-level connection, urbanicity, other) for these groups will be explained in further detail as the team runs causal models between connected and not connected groups in the sample.

ELECTRICITY

KEY FINDINGS FROM THE QUANTITATIVE DATA

- At the time of the baseline study, only 26.7 percent of households in the baseline sample were connected to DABS electricity, with much lower rates for clinics (17.9 percent) and schools (6.4 percent). Of the businesses in the study, only 27.7 percent were connected to on-grid electricity.
- Across the response groups, the number of DABS electricity hours provided varied greatly and ranged from 10 to 20 hours per day. Health clinics had the longest number of hours per day, and schools had the shortest period of on-grid electricity.
- Cost to connect varied greatly across the response groups and varied significantly between locations (i.e., [Redacted] urban versus [Redacted] rural versus [Redacted] rural).
- For a complete list of indicators for the electricity dimension, see Annex L. For additional findings, see Annex M.

KEY FINDINGS FROM QUALITATIVE DATA

- Qualitative data indicated customers had issues with on-grid electricity quality and availability. However, both actual and potential customers recognized the value of on-grid electricity, and potential customers generally wished to adopt on-grid connections.
- Almost all the different business respondents stated that: (1) having electricity is very important for their business, (2) electricity will increase the number of their customers and their income, and (3) with on-grid electricity they can expand their business or use technology and machinery needed to do their work.
- Urban [Redacted] businesses were using on-grid electricity, but most of the [Redacted] businesses were not connected to on-grid electricity. Those who were connected to DABS electricity were

happy with the service and stated that DABS electricity was cheaper than the private electricity that they were using at the time.

- Businesses that used solar power as a source of electricity were not happy with the voltage and strength of solar electricity. They also mentioned that generator electricity was more expensive for them to use, and they preferred on-grid electricity for their businesses.
- The availability and reliability of DABS electricity posed a challenge for businesses, according to FG data. Businesses would have liked an alternative source because DABS electricity was not reliable.
- FG respondents requested that the government protect the infrastructure for electricity. There was demand for the service, and respondents felt the government should provide all businesses with regular and stable electricity.

ON-GRID ELECTRICITY

This section examines access to on-grid electricity and the factors driving adoption. Baseline results for variables on electricity are as follows:

- The market saturation rate[13] was moderate in [Redacted] (46 percent) but low in [Redacted] (6.2 percent).
- The household adoption rate (connected households within villages that have connected to on-grid electricity) was high at 88 percent, with near-complete adoption in [Redacted] (91 percent) and moderate adoption in [Redacted] (68 percent).
- Customers generally reported two to five hours of electricity outages per day.
- Transportation and connection costs were significantly higher in [Redacted] than in [Redacted].

While the ZOI of 20km around each sub-station represented the full possible service area, there was still an access constraint within the ZOI based on whether DABS had provided step-down transformers to connect a village to the power transmission lines. Within the full possible range of a sub-station's 20km ZOI (potential customers), DABS coverage was 27 percent, but with a sharp difference between rural [Redacted] and urban or rural [Redacted]. Table 3 provides data on number of households connected at baseline.

[13] Market saturation is defined as the rate of on-grid electricity connections within the 20km service area around each sub-station.

Table 3. Household connection to DABS services, 20-kilometer service area ("potential customers").

HH connection to DABS services	Electrical sub-station, urban/rural			Total
	[Redacted] (rural)	[Redacted] (rural)	[Redacted] (urban)	
Not connected	473 93.8%	91 47.4%	193 57.4%	757 73.4%
Connected	31 6.2%	101 52.6%	143 42.6%	275 26.6%
Total	504 100%	192 100%	336 100%	1032 100%

χ^2=218.029 · df=2 · Cramer's V=0.460 · p=0.000
Source of data: EASE-BS HH male survey 2019.

While Table 3 shows the total number of possible customers that could be connected, it does not reflect actual household adoption of electricity service because there were still villages within the service area that lacked transformers to connect to transmission lines. Within only those villages that had been equipped with transformers and connected to transmission lines (feasible customers), household adoption of electricity service was 88 percent, again with a sharp break between rural [Redacted] and urban or rural [Redacted].[14] Table 4 provides information about the percentage of household connections in villages connected to transmission lines.

Table 4. Households connected to DABS electricity in villages connected to transmission lines ("feasible customers").

HH connection to DABS services	Electrical sub-station, urban/rural			Total
	[Redacted] (rural)	[Redacted] (rural)	[Redacted] (urban)	
Not connected	13 32.5%	15 12.9%	8 5.9%	36 12.3%
Connected	27 67.5%	101 87.1%	128 94.1%	256 87.7%
Total	40 100%	116 100%	136 100%	292 100%

χ^2=20.325 · df=2 · Cramer's V=0.264 · p=0.000
Source of data: EASE-BS HH male survey 2019.

Over 90 percent of customers applied for their connection at the DABS provincial office. However, the majority of customers served by the [Redacted] sub-station (55 percent) applied at the DABS district office. A few [Redacted] residents reported going through their local malak to facilitate the application.

[14] The break between [Redacted] and [Redacted] was considered to be largely a function of urban and rural settings, but it was also a function of time. The [Redacted] sub-station became operational in February 2018, while the [Redacted] sub-station became operational in October 2018.

And while most residents of [Redacted] were able to apply for a connection at the district center, they still had to travel to the provincial center to pay the connection fee.

More encouragingly, 16 percent of [Redacted] customers reported being able to pay their regular bills through a bank in the district center, rather than in the provincial center. Paying DABS bills without going to the provincial center saved [Redacted] households approximately Afs 300 in travel costs per trip.

The reported cost to connect to DABS was Afs 7,000–8,000 (median value) in [Redacted], which adheres to DABS' reported connection cost of Afs 6,000–9,000. However, in [Redacted] the median reported cost was Afs 15,000. Figure 3 shows reported connection costs by location. While the data are subject to measurement error, they may also reflect a local economy of payments to intermediaries to facilitate connections.[15] The time from application to connection was approximately three weeks in urban [Redacted], four weeks in rural [Redacted], and six to seven weeks in [Redacted] (Figure 4).

Figure 3. Reported DABS connection costs, by location.

[Redacted]

Source of data: EASE-BS HH male survey 2019.

Figure 4. Reported days to connect, by location.

[Redacted]

Source of data: EASE-BS HH male survey 2019.

Residents reported that on-grid electricity was typically disconnected for approximately four hours in a day, with higher outage time in urban [Redacted] (Figure 5).

[15] While the local economy of payments to intermediaries may include administrative corruption, there were only three reported cases of needing to provide an informal gift or payment to connect in urban [Redacted]. The reported amounts for these additional payments were modest, averaging Afs 1,250.

Figure 5. Reported on-grid electricity outage time per day, by location.

[Redacted]

Source of data: EASE-BS HH male survey 2019.

Residents reported in the survey an average bill of Afs 1,600 for the bimonthly billing period. In [Redacted], the average bill was significantly lower at Afs 807, while data indicated an average of Afs 1,385 in urban [Redacted] and Afs 2,117 in rural [Redacted]. DABS billing data covered a longer time frame and indicated the trajectory of electricity charges for households and businesses[16] from January 21, 2018, to November 20, 2019. In Figure 6, each point represents the mean electricity bill for a bimonthly billing period.

Figure 6. DABS billing by sub-station, customer, and billing period.

[Redacted]

Source of data: DABS billing data for January 2018 – November 2019 for both locations.

Customer growth was immediate in [Redacted], where the first billing period covered over 7,000 residential customers, and the number of customers peaked at over 11,000 at the time of baseline. In [Redacted], meanwhile, only a few residential customers initially enrolled, and the number grew slowly to nearly 400 (Figure 7). These trajectories resulted in low and steady percentage growth rates for [Redacted] and highly variable growth rates for [Redacted].

"Electricity is vital for us because we use it for refrigerators to keep beverages and drinks cold. We also use [it] for other purposes including for illumination [of] our shop." ([Redacted], Business)

[16] DABS provided billing data for schools, clinics, businesses, and households. The study team presented household and business data as this was more complete and therefore more likely to be reflective of the ZOI.

Figure 7. Cumulative customer growth and percentage growth rates by sub-station and customer type (residential, business).

[Redacted]

Source of data: DABS billing data for January 2018 – November 2019 for both locations.

CHARACTERISTICS OF CONNECTED AND NOT CONNECTED HOUSEHOLDS

Future data collection will track connected and not connected households over time to generate estimates of the impact of electricity access and use on the seven socio-economic thematic areas. To assess the validity of such estimates, it can be helpful to examine whether connected and not connected households differ on observable characteristics. Table 5 presents the means and mean differences of observable characteristics across households that were connected (treatment) and not connected (comparison).

While the raw difference metric gives an intuitive sense of similarity between groups, the standardized mean difference is the primary metric to formally assess the suitability of comparing treatment and comparison groups (Table 5). Following Stuart (2013), general guidance is that standardized differences up to 0.1 are acceptable (green boxes in Table 5), standardized differences between 0.1 and 0.25 are sources of concern (pink boxes), and differences exceeding 0.25 are definite threats (red boxes) to the validity of the evaluation design if the measure is also correlated with the treatment effect.

In Table 5, imbalances in the respondent's personal sense of safety (0.42), number of observed projects (0.45), and whether security is provided primarily by the Afghan National Police (0.70) were considered the measures most in need of statistical adjustment. Other imbalances that would merit adjustment included whether security has improved in the previous year (0.13), the number of shocks the household has faced in the previous year (0.13), and the average severity of said shocks (0.12).

Household size was nicely balanced across groups but will be included as a control variable to help improve the strength of impact estimates.

Table 5. Treatment and comparison balance across observable characteristics.

[Redacted]

Note: The estimates for the standardized difference were calculated from the means and through regression analysis.

There were also notable imbalances in the ethnicity of the head of household, but it was unclear whether the head of household ethnicity would also be correlated with the treatment effect. The effect of ethnicity of the head of household on treatment effects will be addressed in secondary analyses examining treatment effect heterogeneity.

Based on this comparison of treatment and comparison group characteristics, impact estimates will include statistical adjustment for personal sense of safety, observed development projects, whether security is provided by the Afghan National Police, whether security has improved in the previous year, number and severity of shocks the household faced in the previous year, and household size. Statistical adjustments may take many forms. For example, these measures could be included in the estimating equation to partition the effect of on-grid electricity and the confounding effects of group imbalances. Alternatively, these measures could be used in matching procedures to select subsets from the

treatment and comparison groups that most closely match on observed characteristics. This topic will be explored more fully in the midline and endline reports.[17]

OTHER ELECTRICITY SOURCES

Several sources of electricity were available to households: solar, generators, batteries, wind, and hydroelectric. Solar panels were ubiquitous in rural [Redacted] but less predominant in more urbanized [Redacted]. Connecting to on-grid electricity also appeared to shift household dependence on various sources of electricity. Figure M-5 (in Annex M) lists the household's reliance on various energy sources[18] for connected and not connected households.

> "Due to the availability of electricity, the number of our customers purchasing electronic equipment has increased. However, in the past we utilized solar power, which was weak and not able to operate electric equipment and machines." ([Redacted], Business)

Reliance on solar panels and heavy-duty batteries fell sharply for households connected to on-grid electricity (see Figure M-5 in Annex M)—81 percent versus 35 percent for solar and 55 percent versus 29 percent for batteries for not connected and connected households, respectively. This was largely driven by the urban/rural split for connected and not connected households, but even within rural [Redacted], reliance on solar panels for connected households fell by nearly 10 percent (not shown).[19]

> "I use solar electricity for our laboratory, microscopes, computer, and other machines and equipment, but it is weak, and sometimes it is not available. Therefore, we want to be provided with access to government electricity to expand our business and increase our income." ([Redacted], Business)

ENERGY USE

While households may report a given source of energy to be of primary or secondary importance, actual usage of such sources may provide a fuller picture of household behavior. Figure 8 shows the weekly usage of energy sources, in hours, for households connected or not connected to on-grid electricity.

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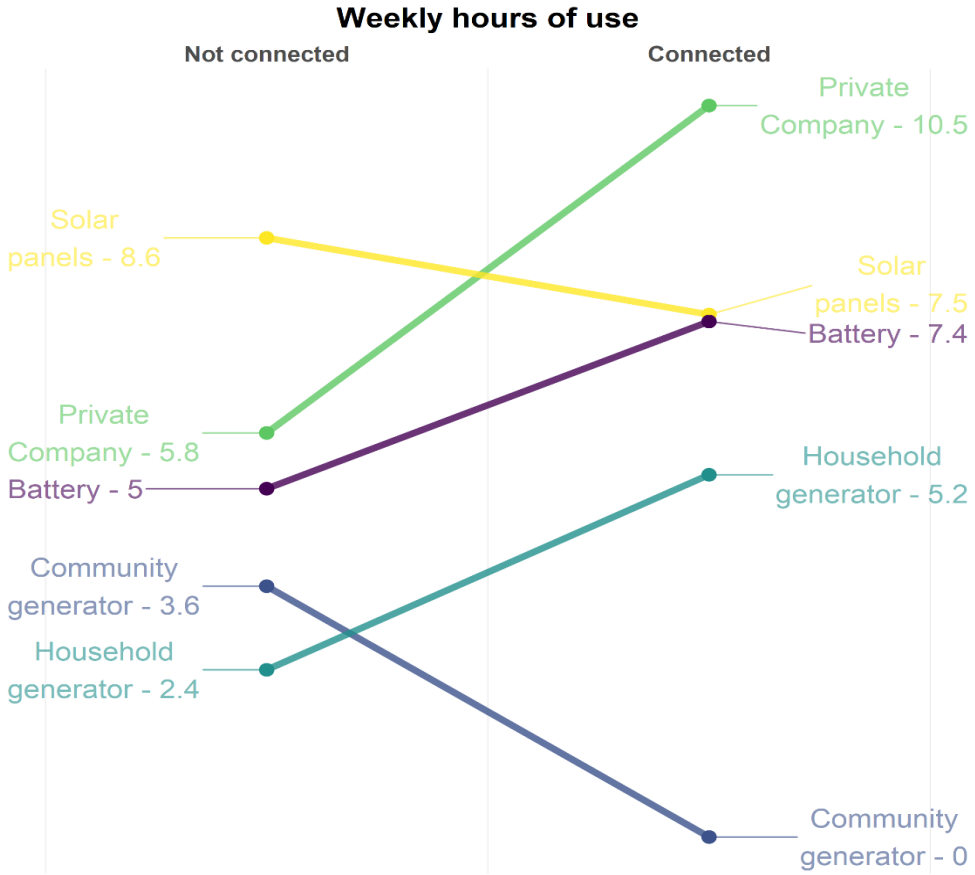
[17] This discussion assumes that currently observed imbalances between connected and not connected households will also hold among households that adopt on-grid electricity in the future. The midline and endline reports will test whether this assumption holds.

[18] Household reliance on an energy source is defined as the head of household listing a given source of electricity as one of two energy sources that are used most often.

[19] The study intended to include household reliance on on-grid electricity among the various sources, but a coding error prevented the reporting of DABS as the household's primary electricity source. If one presumes that connection to on-grid electricity is a good proxy for household reliance, then DABS as a primary electricity source would be 27 percent.

Figure 8. Household usage of energy sources, connected and not connected to on-grid electricity.



Source of data: EASE-BS HH male survey 2019.

> "We use electricity for lighting, as well as for operating equipment, diagnosing and identifying diseases and their treatment." ([Redacted], Business)

Reported usage paints a different picture of household energy reliance. While households connected to on-grid electricity reported less reliance on solar panels, batteries, and generators, they also reported higher usage of these sources. This discrepancy could reflect measurement error in usage data or could reflect more fundamental differences in the full household baskets of energy use across all sources. That is, connected households may have had a general tendency to use more energy, which would account for lower reported reliance on off-grid sources, but simultaneously higher usage relative to households that were not connected to on-grid electricity.

ENERGY COSTS

Reported cost of usage is another metric that may provide insight into actual household behavior and how that behavior may shift based on connection to on-grid electricity. Comparing energy costs was more difficult, because costs reflected a fixed investment in equipment followed by maintenance costs for usage over the useful life of the equipment. Different energy sources will reflect different fixed

investments in equipment, different maintenance costs over the life of the equipment, and different life spans for different equipment. Table 6 presents the different schedules of fixed and variable costs, quantity of equipment owned, and average age of the equipment used.

Table 6. Household energy costs, quantity, and life.

Electricity source	Ownership	Cost	Cost per item	Age (Years)	Annual maintenance	Two-year costs
Solar panels	2	12,745	6,373	2	500	13,745
Batteries	1.4	11,607	8,291	2	360	12,336
Community generator	--	--	--	--	4,440	8,880
Household generator	1	14,319	14,319	13	8,145	16,289
On-grid electricity	1	8,562	8,562	--	--	47,355

Source of data: EASE-BS male household survey data 2019.
Note: Using the mean value for each electricity source, the study team derived estimates for the values in Table 6. Ownership, cost, and age are mean estimates. Cost per item is the cost divided by the total number of items the respondents own. Annual maintenance is different by item; scales were created to produce the estimate. Two-year costs are the fixed and variable costs scaled to a two-year time period.

According to two-year cost data, households connected to on-grid electricity spent more on generators and batteries, in addition to DABS billing, but did not spend more on solar panels. This may again reflect a profile of household energy bundles in which households connected to on-grid electricity generally used more energy from all sources. Annex M further details the two-year household costs by electricity source.

SATISFACTION WITH ENERGY SOURCES

In villages that were connected to transmission lines, only 36 households (12 percent) reported not being connected to DABS electricity. Reasons for not connecting included factors of cost, process, and availability of other sources of electricity (Figure 9). For [Redacted] residents, the connection cost was prohibitive and the process perceived as difficult. For [Redacted] residents in the city center, the connection cost was prohibitive, and other sources of electricity sufficed.

> "We always use government electricity for our business, because it is cheap. However, when it is not available, we are forced to use [a] generator." ([Redacted], Business)

In villages that were not connected to transmission lines—and therefore had no opportunity to connect even though they were located within the sub-station service area—household characteristics were no longer salient factors to explain adoption. Rather, village-level characteristics may help predict whether DABS installs transformers in a given village. The critical point to bear in mind when assessing any impact estimates is that two sets of dynamics are at play—whether a village is connected via

transformers to the transmission lines (a result of DABS planning and decision-making), and whether a household within a connected village adopts on-grid electricity (a result of household decision-making).

Figure 9. Reasons for not connecting to DABS electricity service, by location.

[Redacted]

Source of data: EASE-BS HH male survey 2019.

Across connected and not connected households, the study found interesting dynamics in general satisfaction with household energy sources. Figure M-6 (in Annex M) shows household satisfaction rates for the energy sources each household employed, disaggregated by on-grid electricity users and non-users.

Only non-users of on-grid electricity relied on community generators, but satisfaction with this service was high. Among connected households, satisfaction significantly increased for batteries and household generators, and all sources were generally at parity with 60–67 percent satisfaction. One interpretation of these figures was that, for connected households, batteries and generators became a backup service to on-grid electricity, with all sources contributing to a steady source of electricity. Among not connected households, batteries and generators were much more critical to the household for any supply of electricity, and satisfaction was low due to the inadequacy of these sources to meet household needs.

RADIANCE AS A MEASURE OF ELECTRICITY USE FROM ALL SOURCES

A direct way of tracking electricity usage from any source is to examine satellite data over specific geographic areas of interest. The EASE-BS team accessed what is known as VIIRS satellite data,[20]

[20] Specifically, the study team accessed the Visible Infrared Imaging Radiometer Suite Day/Night Band night light imagery from the Earth Observation Group, National Oceanic and Atmospheric Administration National Centers for Environmental Information hosted by the Colorado School of Mines Payne Institute. The data exclude areas of cloud cover, stray light, and lunar illumination. The units of radiance are expressed as nanowatts per square centimeter per steradian (nanowatts/cm2/sr). Each reported unit of radiance represents an area of approximately 380 square meters, and corresponds to known Afghan settlements within the 20km service areas of the [Redacted] and [Redacted] sub-stations. Where appropriate, reported units of radiance are aggregated to represent an entire Afghan settlement, where each settlement, for a given unit of time, will have an estimated proportion of 0–100 percent of households connected to on-grid electricity.

collected monthly from April 2012 – April 2019. VIIRS data provide a nighttime radiated light measure that can be interpreted under certain conditions as the terrestrial illumination created using electricity to power residential, municipal, commercial, and industrial lighting. Thus, nighttime radiance information may be used as a general measure of electricity access and use, from all sources (solar panel, battery, generator, other) and for all customer types (residential, business, government).

To assess the increase in radiance that may be due to on-grid electricity, the study team assigned each village connected to sub-station transmission lines as part of a treatment group for connection to on-grid electricity. Figure 10 indicates radiance values for comparison settlements never connected to sub-station transmission lines, and for treatment settlements connected to sub-station transmission lines in February 2018 ([Redacted]) and October 2018 ([Redacted]).

Figure 10. Night light radiance for settlements within 20 kilometers of [Redacted] and [Redacted] sub-stations.

[Redacted]

Source of data: VIIRS night light data.

In Figure 10, each dot notes the average radiance of a village for a given month. Blue dots represent villages that were not yet connected to on-grid electricity at the time of the baseline study (comparison); red dots denote villages that would be connected to on-grid electricity in 2018 (treatment). The t-test statistics find for a significant difference between comparison and treatment groups after February 2018. The percent increase reflects the change in radiance after February 2018 when villages had the option to be connected by DABS.

In Figure 10, the grey vertical lines mark the time at which a treatment village was connected to the [Redacted] or [Redacted] sub-station transmission lines. There are several features to note:

- Settlements that would connect to sub-station transmission lines in 2018 were already markedly different in radiance values for the entire duration of available data.
- There was a general increase in radiance starting in mid-2016. However, settlements that would connect to sub-station transmission lines in 2018 appeared to increase in radiance output at a slightly higher rate.

- After connection to sub-station transmission lines, there was a noticeable increase in radiance among connected settlements.[21] Radiance output from not connected settlements, meanwhile, was relatively flat after experiencing an increase in radiance starting in mid-2016.
- The estimated effect of connection to sub-station transmission lines was 23 percent (confidence interval 17–30 percent). This increase was not wholly attributed to on-grid electricity, but connection to on-grid electricity appeared to be a major source of the increase in radiance after 2018.

The effect of access to on-grid electricity on emitted radiance is readily apparent in Figure 10, which often implies large statistical effects. The same effect can be seen from a heat map of connected and not connected households, paneled to reflect the periods 2012–2014, 2015–2017, and the treatment period of 2018–2019 (Figure 11).

Figure 11. Heat map of emitted radiance over time, connected and not connected villages.

[Redacted]

Source of data: VIIRS data plotted with EASE-BS HH male survey 2019.
Note: The above map depicts radiance for [Redacted]'s ZOI. For a larger version and a similar map of [Redacted]'s radiance, see Annex K.

In Figure 11, white squares represent settlements that never received access to sub-station transmission lines. For villages that received the opportunity to access on-grid electricity through connection to sub-

[21] Raw radiance values are not by themselves informative but may be compared to other benchmarks to get a sense of relative radiance levels and increases. See Annex K for an example of comparative benchmarks.

station transmission lines, the extent of household adoption of on-grid electricity is reflected by hue from light red to dark red. The background color behind each square represents the magnitude of emitted radiance captured by the VIIRS satellite data. It is easy to notice both the general increase in electrification from any source, and also the stronger increase in radiance in areas that gained access to on-grid electricity.

The application of freely available nighttime radiance satellite data represents a more cost-effective approach to assessing the direct effect of electrification on electricity output. However, it cannot explore relationships between electricity access and use and subsequent socio-economic outcomes. One possible area for further exploration is to correlate reported household income levels with radiance data, possibly enabling radiance information to also serve as a crude proxy for changes in household welfare. Future work will explore this possibility, but initial correlations offer interesting insights. The study found a moderate to strong correlation between night light radiance and household assets (0.5). However, the correlation between night light radiance and reported income was weak (0.1), suggesting an initial finding that changes in night light radiance might be able to make future predictions about changes in household assets, but would not be able to make future predictions about reported income. More formally, an analytical model in which radiance predicts household assets generated small to moderate effect sizes ranging from 0.26 in rural [Redacted] to 0.52 in [Redacted].

The midline and endline studies will provide further clarification on the feasibility of using night light radiance as a lower-cost proxy for household welfare, measured as an index of household assets.

CONCLUSIONS

- Although the [Redacted] and [Redacted] sub-stations became operational in February 2018 and October 2018, respectively, there remains a "last-mile" task of connecting villages to transmission lines via step-down transformers to deliver low-voltage electricity to customers.
- The primary constraint to adoption of on-grid electricity appeared not to be lack of demand, but rather lack of supply by DABS. For example, the [Redacted] sub-station was operational since October 2018, but only six villages were connected to the transmission lines via step-down transformers to deliver low-voltage electricity to customers at baseline. Within those six villages, adoption of on-grid electricity reached 68 percent after one year.
- At the time of the baseline study, the biggest value-add USAID might pursue to increase adoption and use of on-grid electricity was to support DABS with the purchase and installation of transformers.

- The use of night light radiance data was able to immediately confirm the increased usage of on-grid electricity, and also showed promise in serving as a proxy for changes in household assets (but not household income).

ECONOMY

This section examines how access to on-grid electricity may affect (or be affected by) household welfare and business success. Household welfare was measured by reported income, an index of household assets (see Annex M), and reported well-being. Household characteristics were also assessed as contextual information. Business success was measured by revenue, perceived success as a business, and employment.

KEY FINDINGS FROM THE QUANTITATIVE DATA

- There was no significant difference in household income between connected and not connected households.
- While there was no difference in reported household income, there was a notable difference in an index of household assets measuring wealth rather than income. This result was corroborated by differences in self-reported socio-economic status, measured on a 10-point scale.
- There were no appreciable differences in business revenue, employment, electrical item ownership, or self-perceived success across connected and not connected businesses.
- For a complete list of indicators for the dimension of economy, see Annex L. For additional findings, see Annex M.

KEY FINDINGS FROM QUALITATIVE DATA

- The [Redacted] respondents had a positive view that having on-grid electricity had affected their business, believing this service could expand their business, allow them to use new machinery, increase their income, and create more jobs in the market.
- Businesses had grown since the connection to on-grid electricity. New shops and factories that hired employees had opened in the [Redacted] market, and businessmen were investing in those areas that had on-grid electricity. Since last year, new factories and businesses had started in [Redacted] city, according to FG discussions.
- Insecurity was the biggest challenge for business growth in both districts. Besides robbery and theft, insurgents were also a major concern. Businesses could not operate in the late evening, and employees could not come to work or open their business places in the early mornings.

- Corruption was another major barrier for businesses and thus economic growth. Because of corruption in government offices, individuals could not register their business, according to FG discussions with businesses.
- FG respondents stated that high taxes for businesses in [Redacted] province were a big obstacle for them, impacting the local economy. Respondents stated that the government did not help provide a favorable environment for businesses. The data suggested communities had mixed views of the government's ability to support economic growth.

> "Security is not maintained in the area, especially along the road between [Redacted], [Redacted], and [Redacted], which we use for our supply of meat. We see from near fighting that takes place for two or three hours every day." ([Redacted], Business)

> "I am a butcher and sell meat in my shop. I use solar power but it is weak and cannot operate refrigerators for keeping meat. Sometimes, we use generator electricity, but it is very expensive and we cannot use it continuously. We want to be provided with access to government electricity which is strong enough to operate our refrigerators and other equipment that we use for keeping meat to prevent it from getting spoiled and rotten." ([Redacted], Business)

HOUSEHOLD WELFARE

Household respondents reported a median monthly income of Afs 9,000, with low to moderate variation across location. Figure 12 shows the distribution of reported monthly income.

Figure 12. Monthly household income, by location.

[Redacted]

Source of data: EASE-BS HH male survey 2019.

Monthly income across different occupations ranged from Afs 6,000 to 17,000, with occupations such as private sector, mullah, and blacksmith having much more variance than others (Figure 13).

Welfare was measured in three ways: (1) asset index (see Annexes G and M), (2) household income, and (3) self-reported economic condition. Each measure has limitations, and thus the study assessed all three and will track them over time to have a holistic and comprehensive measure of welfare. When checking for the impact of electrification on welfare, the team will assess all three metrics.

BUSINESS ACTIVITY

Reported business revenue was not appreciably different from reported household income, reflecting the small-scale nature of business activity in Afghanistan. Figure 14 shows the distribution of reported monthly revenue by location.

Figure 13. Reported monthly income, by occupation.

[Redacted]

Source of data: EASE-BS HH male survey data 2019.

Figure 14. Reported monthly business revenue, by location.

[Redacted]

Source of data: EASE-BS business survey data 2019.

"I am a carpenter, and availability of electricity is vital and very important for our workplace because all of our equipment and tools operate on power." ([Redacted], Business)

"Yes, [electricity affects employment]. Due to the availability of electricity, we expanded our business and increased the number of welding machines which operate on power." ([Redacted], Business)

"Yes, [electricity affects employment]. Since the time the area was connected to government electricity, the number of employment opportunities has increased." ([Redacted], Business)

CONCLUSIONS

- Household income at baseline was suitable for comparison at midline and endline, between connected and not connected households.
- There was likely some pre-existing treatment effect of electricity access and use and household wealth and self-reported socio-economic status.
- Metrics of business activity and success were suitable for comparison at midline and endline.

- Businesses appeared to require a longer time frame than households for electricity use and access to increase business activity and success.

GOVERNANCE AND SECURITY

This section highlights the relationship between on-grid electricity and measures of government effectiveness, legitimacy, and conflict/instability. The complete set of findings can be found in Annex M.

KEY FINDINGS FROM THE QUANTITATIVE DATA

- Connected households were 18 percentage points[22] more likely to report that "things in Afghanistan are going in the right direction."[23] A respondent's sense of personal safety had a large effect on whether the respondent perceived things to be going in the right direction. This effect was more prevalent in more rural areas.
- There was a small relationship between electricity access and positive assessments of government performance.
- An index variable encompassing citizen assessment of government performance at the district, provincial, and national levels suggested households held the provincial level of government most accountable. That is, a weighted index of government performance placed a greater weight on provincial government, and about equal weights on national and district governments.
- ----------[Redacted]----------[Redacted]----------[Redacted]----------
- For a complete list of indicators for the dimension of governance and security, see Annex L. For additional findings, see Annex M.

KEY FINDINGS FROM QUALITATIVE DATA

- All the respondents in the FG discussions agreed that having public services—such a road, clinics, electricity, and schools—had an effect on security. Some of the respondents stated that electricity would increase security, permitting people to work until late night by illuminating the streets and roads.

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[22] Percentage points are defined as a value within absolute scale between zero to 100. The reader should maintain a distinction between a percentage point change and a relative percent change, which is the percentage of the baseline value.

[23] The baseline study included a question to all respondents on their views about the direction of Afghanistan with regard to safety and governance, reflective of a standard question in The Asia Foundation Survey. This is an agreed-upon metric in Afghanistan among donors to measure the public's perception of the state of their country's security level or changes in security.

CONCLUSIONS

- Initiatives to improve government legitimacy through service delivery were more likely to improve perceptions of the provincial level of government. In the case of on-grid electricity, information about the specific roles and responsibilities of government may aid in communicating that on-grid electricity is a ministerial function emanating from the federal government.
- The economic development benefits of on-grid electricity were fragile and easily disrupted by conflict.
- Though the evidence base did not allow any conclusions, it appeared that electricity access and use did not affect conflict and instability, but rather electricity access and use were affected by conflict and instability.
- ----------[Redacted]----------
  ----------[Redacted]----------
  ----------[Redacted]----------

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

This section examines the use of media in relation to households that are connected or not connected to on-grid electricity. The complete set of findings can be found in Annex M.

KEY FINDINGS FROM THE QUANTITATIVE DATA

- Ownership of radios and televisions was approximately equal across connected and not connected households. Household usage of radio was slightly lower for not connected households, but connected households watched an additional 14 hours of television per week.
- For connected households, television displaced friends and family as the most-reported source of news and information.
- Mobile phone ownership was unaffected by connection to on-grid electricity at baseline.
- Connected households were 14 percentage points more likely to own a computer and 22 percentage points more likely to have an internet connection. Both effects were entirely driven by rural areas around the sub-stations.
- For a complete list of indicators for the ICT dimension, see Annex L. For additional findings, see Annex M.

KEY FINDINGS FROM QUALITATIVE DATA

- There was low public health awareness due to a lack of access to health messaging. People did not have access to electricity to watch health programs on television on issues such as clean water, sanitation, and personal hygiene, according to FG data.

CONCLUSIONS

- As households adopted on-grid electricity, means of media consumption shifted from radio to television.
- The urban conditions of a community played a significant role in the types and degree of communication technology present in a household. Changes in ICT indicators over time may be reflective of changes in increased access to electricity sources and stability of service.

HEALTH

This section examines the relationship between access to on-grid electricity, health clinic operations, and household behavior with respect to health outcomes.

KEY FINDINGS FROM THE QUANTITATIVE DATA

- Eighteen percent of sampled clinics were connected to on-grid electricity, ranging from 75 percent of clinics connected in [Redacted] city center to seven percent connected in [Redacted].
- All clinics in [Redacted] city center offered vaccinations, while around 20 percent of clinics in rural [Redacted] and rural [Redacted] offered vaccinations.
- Households connected to on-grid electricity were more than twice as likely to have access to healthier drinking water and sanitation.
- Households connected to on-grid electricity were more likely to have vaccinated the children in the household, but this difference was driven entirely by differences in urbanicity rather than any downstream effect of electrification.
- Households connected to on-grid electricity were 10 percentage points less likely to have had any household member experience a recurring cough or difficulty breathing in the previous month.
- Given the small sample sizes of health clinics, it was difficult to generalize findings to the broader population of health clinics within the sub-station ZOIs. Health indicators at the household level were also imprecisely estimated.
- For a complete list of indicators for the health dimension, see Annex L. For additional findings, see Annex M.

KEY FINDINGS FROM QUALITATIVE DATA

- Lack of access to electricity at the clinic level prevented staff from using medical equipment, including X-ray machines, as well as being able to conduct surgical operations (FG, [Redacted]).
- Health facilities did not have sufficient numbers of doctors, nurses, midwives, pharmacists, vaccinators, or other staff members. Clinics were not sufficiently equipped and did not have access to modern medical equipment. Supplies of medicines and drugs were limited (FG, [Redacted]).
- Public health awareness and basic hygiene practices were reported as an issue in [Redacted], with health facility staff recognizing the role that electricity can play in spreading public health messaging through media campaigns. Radio and television should pass on hygiene messages to the public to increase their awareness (FG, [Redacted]).
- The demand for on-grid electricity surpassed the supply at baseline. Even those clinics with on-grid electricity supplemented it with alternative sources of electricity due to the irregularity of on-grid power. Irregularities in the provision of on-grid electricity were stated to be common.
- Clinicians perceived a correlation between access to on-grid electricity and improved service delivery. They placed high value on the usage of electricity for health outcomes in the communities.
- Health staff considered technology and internet access to be critical for health facility operations.
- Lack of electricity affected the sharing of health data.

HEALTH FINDINGS

Health clinic services are defined by their type. The lowest service level is primary health care unit, followed by primary health care center, and then direct hospital. Table 7 shows the distribution of these clinic types in the sample.

Table 7. Health clinics sampled, by type.

Type of clinic	Electrical sub-station, urban/rural			Total
	[Redacted] (rural)	[Redacted] (rural)	[Redacted] (urban)	
Primary health care unit	2 14.3%	4 40%	1 25%	7 25%
Primary health care center	7 50%	5 50%	2 50%	14 50%
Direct hospital	5 35.7%	1 10%	1 25%	7 25%
Total	14 100%	10 100%	4 100%	28 100%

χ^2=3.086 · df=4 · Cramer's V=0.235 · Fisher's p=0.561

The data from the clinic surveys illustrated that public health care units tended to offer fewer services, with all of them lacking the ability to provide lab tests, X-rays, and dental services. Conversely, the data illustrated that a higher number of primary health care centers were able to supply a greater number of services, with direct hospitals interviewed having the greatest number of services offered. Annex M depicts the differences in health services offered by clinic type. As with services, clinics serving larger populations were more likely to be connected, and none of the community-based health care units were connected to on-grid electricity.

Table 8. On-grid electricity connection, by health clinic type.

Is your clinic connected to the DABS electricity service?	Type of clinic			Total
	Primary health care unit	Primary health care center	Direct hospital	
Yes	0 0%	3 21.40%	2 28.60%	5 17.90%
No	7 100%	11 78.60%	5 71.40%	23 82.10%
Total	7 100%	14 100%	7 100%	28 100%

χ^2=2.191 · df=2 · Cramer's V=0.280 · Fisher's p=0.548

Clinic managers reported the perceived magnitude of a range of obstacles to successful operation of the clinics. Lack of electricity ranked as a primary obstacle in areas with more community-based health care units, while insecurity ranked high in all areas.

Connection to on-grid electricity increases the feasibility of providing some services such as vaccines, which require refrigeration. Connected clinics were more likely to own a vaccine refrigerator and reported that they offer vaccinations as a service, though the effect was concentrated among primary health care centers and in [Redacted] city center.

There were also correlations between clinic on-grid electricity connection, clinic measures of service delivery related to on-grid electricity, and household measures of health such as vaccinated children, incidence of sickness, and the persistence of coughing or difficulty breathing. However, these correlations were imprecisely estimated and must be investigated more rigorously (using longitudinal data) at midline and endline.

CONCLUSIONS

- Despite the high level of reliance on solar energy, the popular choice for health facilities remained on-grid electricity (FG data). Clinics required higher voltage levels and perceived on-grid electricity as

a cheaper power source. However, for clinics to fully benefit from on-grid electricity, uninterrupted and stable electricity supplies would need to be guaranteed. Vaccines are by nature unstable and need to be refrigerated at constant temperatures to maintain their efficacy. A sudden loss or drop in voltage of electricity to refrigerators risks damaging vaccines. For the foreseeable future, even those clinics with access to on-grid electricity still need to have an alternative energy source.

- Lack of electricity directly affected the professional development of health staff. It prevented staff from using the internet to update their knowledge and formation.
- The use of alternative energy sources, such as diesel generators and coal fires, appeared to be linked to poor health outcomes. According to interviews and FG discussions with clinics, there appeared to be increased respiratory illness in communities that relied on generators for their electricity needs.
- The services clinics could provide were directly connected to power sources and the reliability of those power sources.

> "Unavailability of electricity prevents us from using technology and the internet to update and further our knowledge and education." (FG, Clinics)

EDUCATION

This section examines the relationship between household education and access to electricity, as well as school-based measures related to on-grid electricity connection.

KEY FINDINGS FROM THE QUANTITATIVE DATA

- Schools were slow to adopt on-grid electricity connections, with only 6.3 percent of schools connected.
- Of the few schools that were connected to on-grid electricity, 75 percent adopted computers for student, teacher, or administrator use.
- As households adopted on-grid electricity, early evidence suggested that they invested in more education for female children of the household. However, even in connected households, male children still had at least one more year of completed education than female children.
- For a complete list of indicators for the education dimension, see Annex L. For additional findings, see Annex M.

KEY FINDINGS FROM QUALITATIVE DATA

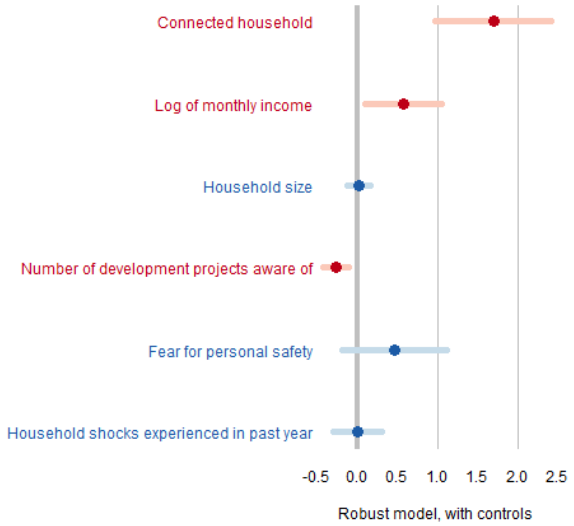
- Security and computers were among the biggest areas of discussion for educators during field data collection (see Figure M-32 in Annex M).

- Baseline data suggested that boys and girls might have different levels of benefits when households connect to on-grid electricity. Although the baseline study was too early in the process to test for impact, the data highlighted that as households adopted on-grid electricity, they invested in more education for female children. This could lead to a huge change in the education level of young girls who are already starting behind boys in years of schooling.

EDUCATION FINDINGS

Baseline data suggested that households that chose to connect to on-grid electricity also invested in more education for their children, primarily female children. Estimates ranged from 0.56 additional years of completed education for female household members aged 6–24 to 1.84 additional years of education (see Annex M). Male children typically had twice as much education as female children, with six years of completed education for males compared to three years of completed education for females. However, connected households invested in nearly an entire year of additional education for female children, while male children continued to gain no more than elementary school education.

Figure 15. Model output, completed education for female household members aged 6–24.



Source of data: EASE-BS HH female survey 2019.
Note: Robust models did not include the sampling location as a control variable. This robust model included a set of controls with errors clustered to the village.

Figure 15 plots a regression model for girls' education, after controlling for various potential confounds. This effect was reflected across all sampling locations, but more noticeable in [Redacted] city center, where education would be expected to have a higher perceived value due to general urbanization. Figure M-31 (in Annex M) shows that the average treatment effect (increase in completed education for female household members aged 6–24) is 0.66. This effect ranged from 0.29 in [Redacted] city center to 0.98 in rural [Redacted].

CONCLUSIONS

- Connected households invested in nearly an entire year of additional education for female children, while male children continued to gain no more than elementary school education.
- Additional time periods of data collection will test the change in educational attainments by gender over time and whether increased access to electricity is the primary driver in that change.

ENVIRONMENT

This section examines the relationship between environment indicators and on-grid electricity connection.

KEY FINDINGS FROM THE QUANTITATIVE DATA

- Connection to on-grid electricity was associated with shifts in household reliance on different energy sources for both heating and cooking.
- The primary difference in heating sources was that connected households relied more on charcoal and less on animal waste. The primary difference in sources of cooking fuel was that connected households relied more on natural gas and electricity, and less on all other sources of cooking fuel.
- There were also notable differences by sampling location. Among connected households, reliance on electricity for both heat and cooking fuel was nonexistent in [Redacted] but increased significantly in [Redacted]. [Redacted] households also relied more on firewood and crop residue, while [Redacted] residents relied more on natural gas.
- For a complete list of indicators for the environment dimension, see Annex L. For additional findings, see Annex M.

KEY FINDINGS FROM QUALITATIVE DATA

- Interviews and FGs suggested respondents associated fossil fuel with health issues and were aware of air quality problems. They stated the air quality to be the worst in the winter. Most households used brush and dung to heat their homes.

ENVIRONMENT FINDINGS

The data indicated that firewood was the primary source of heating fuel for respondents (see Figure M-35 in Annex M). Not connected households reported a higher incidence of using animal dung, trash, and crop residue. Connected households used charcoal as their second highest source of heating fuel. Additionally, coal was a popular heating source for those with on-grid electricity (45.8 percent) compared to those not connected (14.1 percent). The data showed some possible trends in heating source preferences as households increase their access to on-grid electricity.

> "Yes, when people use coal to keep warm, the smoke from coal is creating a lot of problems for people." (Community Leader)

Regarding questions for households on their sources of fuel for cooking, the data showed some drastic differences between connected and not connected respondents. Figure M-36 (in Annex M) illustrates that connected households relied almost solely on gas as their cooking fuel source (90.2 percent); those not connected showed more diversity in their fuel preferences for cooking. Although gas was popular as

a cooking fuel (56 percent), crop residue (49 percent) and firewood (34.4 percent) were also commonly used by households not connected to the grid at the baseline period. At baseline, the data showed stark differences between those already connected and those not connected, but the explanation for this difference could not yet be attributed to the PTEC project. It is likely the differences at baseline largely reflected the urban–rural differences in the sample. However, those differences may provide insight on preferences when customers are connected and suggest a trajectory for what households might use for cooking fuel as they become connected.

CONCLUSIONS

- Most households used firewood as a cooking source, and the data showed little difference between those connected versus not connected to DABS electricity at baseline. This may suggest that even with the advantages of on-grid electricity (i.e., reduction in time collecting firewood, safety in trips for fuel), there were barriers to shifting to an alternative fuel source. At the time of the baseline study, the cost of using on-grid electricity might have been perceived as too high.
- The patterns of cooking and heating may have reflected the price of electricity, making it prohibitive to change household behavior and preferences. Nevertheless, individuals have been using wood and other fuel sources for cooking and heating for decades. Even if on-grid power were cheap, it may take other incentives to persuade people to use DABS electricity for cooking and heating. People may retain perceptions about the value of other sources of fuel, even when the cost of on-grid electricity becomes low enough. The study team will investigate this issue further over time.
- Air quality was a challenge in Afghanistan, with some of the worst levels globally. The readings of quality were national averages based on a few urban areas. There was a possibility some communities had better air quality than others. The indicators at baseline did not capture the variables critical to understanding environmental conditions—water and air quality.

GENDER

This section examines the relationship between on-grid electricity and measures of gender equity. The complete set of findings can be found in Annex M.

KEY FINDINGS FROM THE QUANTITATIVE DATA

- Regardless of electricity access, households in [Redacted] generally reported spending four to six more hours per day on household chores than those in [Redacted]. Households connected to on-grid electricity reported spending 4.7 fewer hours per day on common household tasks. However, this effect was limited to [Redacted] and was absent in [Redacted].

- The reduction in time spent on household chores was driven entirely by adult males. Boys and females in connected households reported a slight increase in time spent on household chores.
- Females who were connected were 15.1 percentage points less likely to have a home-based income-generating activity. Among females who did have an income-generating activity, 44 percent reported that electricity helped with their income-generating activity.
- Females from connected households were 34 percentage points more likely to have the opinion that women should be allowed to work outside the home, and 26 percentage points more likely to think women should be allowed to vote in elections.
- Females from connected households were 16 percentage points more likely to report that the communities they lived in supported sons and daughters choosing their own spouses.
- For a complete list of indicators for the gender dimension, see Annex L. For additional findings, see Annex M.

KEY FINDINGS FROM QUALITATIVE DATA

- FGs suggested female respondents had demand for on-grid electricity to support their income-generating activities, including ironing, cooking, tailoring, and other power-dependent efforts.

CONCLUSIONS

- Although time spent on chores appeared to differ for those connected versus not connected to grid electricity, the early difference at baseline appeared to be related to urbanicity. This difference may be clearer or change across the sample over time. It is likely baseline measurements were too early to fully capture gender effects (if any existed).
- As access increases across both sites, the study will be able to capture changes in hours of household chores, usage of electricity for business, and larger socio-cultural impacts of the views on gender roles.

CONCLUSIONS

The baseline results are valid for a time-series study, and USAID may conduct viable impact studies. To ensure a robust study to measure the benefits and impact of the PTEC project, a midline and endline are required. The baseline results addressed the first research question of interest, *"What is the current state of access to electricity?"* and whether disproportionate levels of access existed across the [Redacted] and [Redacted] sub-stations. The baseline found very low numbers of connectivity to on-grid electricity (26 percent across both sites), even though access had been in place for more than two years. This may be an indication of the speed at which DABS was able to connect a village to the grid. There was still

unknown information regarding potential physical barriers from the grid itself and the ability to provide enough power once households were connected. The team also did not have data on the types and number of power cuts for the ZOIs, also a barrier to access. Conversations with key stakeholders indicated infrastructure barriers affecting the speed at which villages were able to be connected. The reasons for those barriers were unknown at baseline but will continue to be an area of investigation for the team. Demand was present for on-grid electricity; however, there were cost implications to access. Households in more urban areas had lower costs to connect to DABS electricity compared to respondents in rural communities. The design of the PTEC project at the time of the baseline did not consider the variance in cost to connect and how this factor could hinder access to on-grid electricity. Rural communities faced large hurdles to obtain the DABS service. They incurred significant travel costs to get connected initially. This may impact the sustainability of the service and the rates at which people/businesses default on their monthly payments. Ease of access to pay a bill was not factored into the PTEC project but likely also affected the rates of connection.

Even though the data showed clear demand for the service, respondents shared some concerns over the reliability of DABS electricity, both in the number of consistent hours of service and in the reliability of the service (to be available when needed). Households, clinics, schools, and businesses preferred a varied number of power sources. Future research should consider looking at how an energy portfolio changes within a situation with increased access to on-grid power. Understanding the factors that lead to a household's switching from a more polluting source of energy (brush, dung) to a cleaner source (solar, on-grid) could have large implications in the health of the family. The evaluation did not specifically address this question, but the team recommends future work consider this areas of inquiry.

Although the study provided a valid baseline, various issues emerged regarding the underlying assumptions about the causal linkages between electricity and the socio-economic dimensions. This included weaknesses in the theory supporting the indicators and absent explicit causal models.

RECOMMENDATIONS

Although robust programmatic recommendations cannot be provided at baseline (these are provided at the endline at the completion of the impact study), the team had several suggestions to improve the study. The following are highlights of the proposed recommendations identified by the team; the full recommendations and next steps can be found in Annex N.

RECOMMENDATION 1: The baseline results are valid for a time-series study. Therefore, to measure causal impact of the PTEC project, the team recommends USAID capture data at midline and

endline for robust impact evaluation. To measure change on socio-economic variables of interest by increased electricity access/use, USAID should: (a) gather midline and endline data for [Redacted] and [Redacted] sub-stations in 2020 and 2023 using the same data collection methods used at baseline (minus some changes to the number of variables collected); (b) track and measure the same households, businesses, schools, and clinics over time; and (c) select a subsample of households to track qualitatively over time with a different approach from the one taken at baseline.

RECOMMENDATION 2: Create and develop causal models for each dimension and revise the theory change. This includes reducing the number of indicators and removing the categorization of the dimensions, which is not needed. The team recommends that this effort happen before the midline and in co-creation with DABS and USAID. As the team implemented the field work and analyzed the data, the results suggested some data required for certain indicators were problematic and not needed (i.e., irrelevant). In part this was due to the data limitations (i.e., poor recall by respondent to permit profit calculations). The baseline has identified unnecessary indicators that may be dropped, including the under-five mortality rate[24] and other indicators that may lead the respondent to provide unreliable data.

RECOMMENDATION 3: The team suggests USAID consider integrating DABS more directly as a partner in field data collection. This can help DABS improve the utility of its data and build capacity in monitoring and evaluation. DABS has data that are likely being undervalued and underutilized; a partnership could help provide opportunities for additional analysis. The data DABS shared for this baseline was very helpful in expanding the team's knowledge about connection costs directly impacting access to on-grid electricity.

RECOMMENDATION 4: Conduct innovative exploratory studies of specific factors on electricity usage. This would include testing the feasibility of linking night light data with socio-economic measurements. The team would explore new methods to investigate on-grid electricity usage, value, and externalities (i.e., non-market valuation, experimental economics methods, and air quality studies).

RECOMMENDATION 5: Help USAID convene key stakeholders for a collaborating, learning, and adapting workshop on the results of the baseline to help prepare for the next phase of data collection (midline), gather feedback, refine causal models, and increase the utility/use of the results. This meeting would also discuss the next steps in terms of additional studies.

[24] Future data collection efforts in this study will investigate the utility of using secondary data from USAID's Demographic and Health Surveys more applicable to variables associated with maternal and neonatal health.

RECOMMENDATION 6: Engage DABS more specifically around the objective of installing step-down transformers connecting villages to sub-station transmission lines.

NEXT STEPS AND INNOVATIVE OPPORTUNITIES

The learning component of the baseline permitted the team to envision creative and innovative ways to measure the impact of the PTEC project. The team proposes (for the midline and endline) additional data collection efforts—with cost efficiencies—to provide USAID a more comprehensive/holistic measure of the PTEC impacts. As part of the midline data efforts and to augment the findings of how the PTEC activity is affecting the targeted beneficiaries, the team proposes the following innovative "add-on" efforts for USAID:

- **Continuation of the night light data analysis**. The hope is to compare these findings to the field data collected. If these perform similarly, the team may be able to provide USAID with an alternative monitoring method for electrification projects.
- **Contingent valuation study or other non-market valuation study** (i.e., travel cost method). Costs on electricity exist and are being collected by DABS. To better understand how a community might perceive electricity and benefit from this service (including non-use benefits), the team proposes the addition of a small contingent valuation method (CVM) study. By measuring benefits through CVM, the team could potentially conduct a cost-benefit analysis of the PTEC project upon completion.
- **Segmented market study**. The team proposes testing price ranges for electricity through donor funds to offer a rebate scheme for household and business connections, with experimental variation in the rebate amount to trace out the demand curve. The core benefit of adding this market segmentation study would be to reliably identify the determinants of demand and use those determinants to maximize uptake, including the critical cost point to maximize uptake and identify the most efficient subsidy. This can help identify which groups might be opting out of accessing and buying electricity based on cost versus other barriers.
- **Air pollution study**. To identify the full benefits of the PTEC project on health, it is important to understand the relationship between changes in cleaner energy (i.e., on grid-electricity) and health benefits. The team proposes capturing primary air pollution data on a subsample of households, businesses, clinics, and schools through sensors measuring actual air quality over time. The data will improve understanding about levels of air pollution, and how programs/projects may help address this issue affecting especially vulnerable groups like children and elderly populations.

ANNEXES

ANNEX A. STATEMENT OF WORK AND ASSIGNMENT WORK PLAN

ANNEX B. CHECCHI MANUAL FOR EASE

ANNEX C. GETTING TO ANSWERS MATRIX (GTA)

ANNEX D. LETTER OF AUTHORIZATION FOR DATA COLLECTION

ANNEX E. DATA METHODS AND LIMITATIONS

ANNEX F. SAMPLING

ANNEX G. MODELS

ANNEX H. INSTRUMENTS

ANNEX I. DATA COLLECTION PROCESSES

ANNEX J. DATA QUALITY CONTROL

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OFFICE OF INFRASTRUCTURE (OI)
&
OFFICE OF PROGRAM AND PROJECT DEVELOPMENT (OPPD)

STATEMENT OF WORK (SOW)

ELECTRICITY ACCESS AND SOCIO-ECONOMIC BASELINE SURVEY OF [redacted] TRANSMISSION LINE AND SUBSTATIONS

I. PROGRAM INFORMATION

Program/Project Name:	[redacted] – [redacted] Transmission Lines and substations
Contractor:	DABS
Total Estimated Cost:	[redacted]
Life of Program/Project:	July 2012 – April 2020
Active Provinces:	Areas of influence along transmission line and substations in [redacted] and [redacted]
Mission Development Objective (DO):	DO 1: Sustainable Agriculture-Led Economic Growth Expanded (IR 1.1 Employment Opportunities increased; Sub-IR 1.1.1 Access to Electricity Increased)
Linkage to Standard Program Structure (SPS):	Program Area 4.4 (Infrastructure), Element 4.4.1 (Modern Energy Services)

II. INTRODUCTION

The USAID Power Transmission Expansion and Connectivity (PTEC) Project, in partnership with the national electric utility Da Afghanistan Breshna Sherkat (DABS), is increasing access to electricity by (1) expanding and improving Afghanistan's electric transmission system; (2) strengthening the ability of DABS to manage, operate and maintain the national power system; and (3) promoting private sector investment in Afghanistan's energy sector. USAID support includes on-budget assistance. These funds are transferred to the Afghan government to build its capacity for using its own budgeting, procurement, implementation, and oversight functions to deliver results.

The Electricity Access and Socio-Economic Baseline Survey (EASE-BS) and methodology were developed and piloted under a previous SOW carried out by Checchi and Company Consulting Inc. under the Services Under Program & Project Office for Results Tracking – Phase II (SUPPORT-II) Contract. The purpose of this SOW is to implement the designed survey to collect baseline data that will be used to measure changes in electricity access and socio-

economic conditions over time in the areas around substations constructed as part of the PTEC project, each designated as a Zone of Influence (ZOI).

The design of EASE-BS consists of defined indicators, the survey methodology, survey tools, and a field procedures manual. Using this methodology, tools, procedural manual and survey instruments, the Contractor will collect the necessary data, analyze the data, and prepare a baseline report. This data collection survey will be done for [redacted] – [redacted] Transmission Lines and two substation ZOI(s) as delineated by the design team and described in this SOW.

III. BACKGROUND & PROJECT DESCRIPTION

More than four decades of conflict and lack of investment and maintenance have taken a heavy toll on Afghanistan's infrastructure. Although the Afghan government has pledged to improve its energy sector, the country's energy infrastructure remains inadequate and is unable to support high levels of economic growth. Only about 30% of Afghans have access to electricity, Afghanistan ranks 175th out of 215 countries in a World Bank index of electricity access. Limited access to electricity is a barrier to development in Afghanistan and is one of the biggest obstacles to private sector business development in Afghanistan. Numerous studies establish unidirectional causality between economic growth and electricity consumption; they show that an increase in electricity can lead to increased Gross Domestic Product (GDP) and improve other socio-economic and political indicators.

PTEC helps to address Afghanistan's challenges in the energy sector and is implemented in three different components:

1. **Energy Infrastructure:** Primarily on-budget assistance to DABS to build, expand, and improve Afghanistan's electricity transmission system;

2. **Energy Commercialization:** Primarily on-budget technical assistance and capacity building to strengthen ability of DABS to manage, operate and maintain the national power system as a corporatized utility; and,

3. **Private Sector Energy Development:** Primarily off-budget mechanisms to attract private sector investment in Afghanistan's energy sector.

This Electricity Access and Socio-Economic Baseline Survey only applies to two activities under the first component, energy infrastructure being built or improved by DABS with USAID on-budget assistance. The EASEBS will collect baseline data on electricity access as it relates to DABS on-budget assistance from USAID to: (1) connect the northeastern power grid with its southeastern counterpart, and (2) rehabilitate the existing southeastern power grid. Specifically, USAID's on-budget assistance will result in the following construction:

1. [redacted] – [redacted] *Transmission Lines:* Construction of a 111 km, 220-kV transmission line from [redacted] to [redacted]
2. [redacted] – [redacted] *Substations:* Construction of two substations at [redacted] and [redacted]

DABS will work to expand and improve local distribution networks being constructed or rehabilitated as part of the PTEC activity, thus it will be necessary to differentiate between direct improvements from this activity and the improvements that DABS continues on its

own through the regular course of its work. Please see additional guidance under Baseline Considerations and Approach below.

The Contractor for SUPPORT II conducted the pilot exercise, which tested both the qualitative and quantitative survey instruments and the focus group discussion questionnaire. The pilot survey team replicated the conditions related to sampling, identified the boundaries of the pilot ZOIs, and ensured the surveys were applied to conditions that might be encountered in the actual survey. The team constructed simulated ZOIs in areas that provide appropriate diversity of conditions: this includes both rural and urban locations, both Dari and Pashto speaking areas, and within and outside zones with access to on-grid electricity. The type of information provided to enumerators mirrored the sampling conditions of the actual baseline, and at least one of the areas was sampled on the border of a simulated ZOI, to ensure that the tools and processes in place were sufficient for guiding enumerators in locating ZOI boundaries while in the field. The Contractor prepared a report on the results of the pilot exercise, documenting the recommended adjustments to the survey methods and instruments. The tools and manual are updated accordingly.

IV. PURPOSE AND SCOPE

The purpose of the Electricity Access and Socio-Economic Baseline Survey is:

1. To gather baseline qualitative and quantitative data by implementing the survey methodology and tools in the two (2) designated zones of influence;
2. To determine the baseline values for selected indicators;
3. To inform future evaluations of the PTEC Project and energy sector planning.

Through this SOW, the Contractor shall perform three related tasks: (1) select and subcontract a data collection team and implement the baseline data collection; (2) provide oversight of all field data collection; and (3) analyze the collected qualitative and quantitative data and prepare a baseline report for USAID describing the data collection and analysis process, the analytic results of the entire baseline survey effort, and any recommendations for subsequent survey waves.

The Contractor will use a set of methods and instruments developed for a repeated cross-sectional survey, and will, as part of the baseline report, document the process and suggest further refinements for the purpose of supporting future survey waves (with care to avoid any adjustments that will compromise data comparability). This baseline will provide the basis of comparison for periodic data collection surveys that will be repeated sequentially in the future as the energy infrastructure becomes operational, providing before-and-after data sets as the Energy Infrastructure on-budget activities progress.

V. BASELINE SURVEY CONSIDERATIONS & APPROACH

The baseline survey will be conducted in the zone-of-influence around each of two electrical substations: one in [redacted] district (in [redacted] province) and one in [redacted] province (in [redacted] district).

Zone-of-Influence: The zone-of-influence (ZOI) consists of a 20km radius around each of the two substations (i.e. [redacted] and [redacted]), excluding neighboring provinces. This

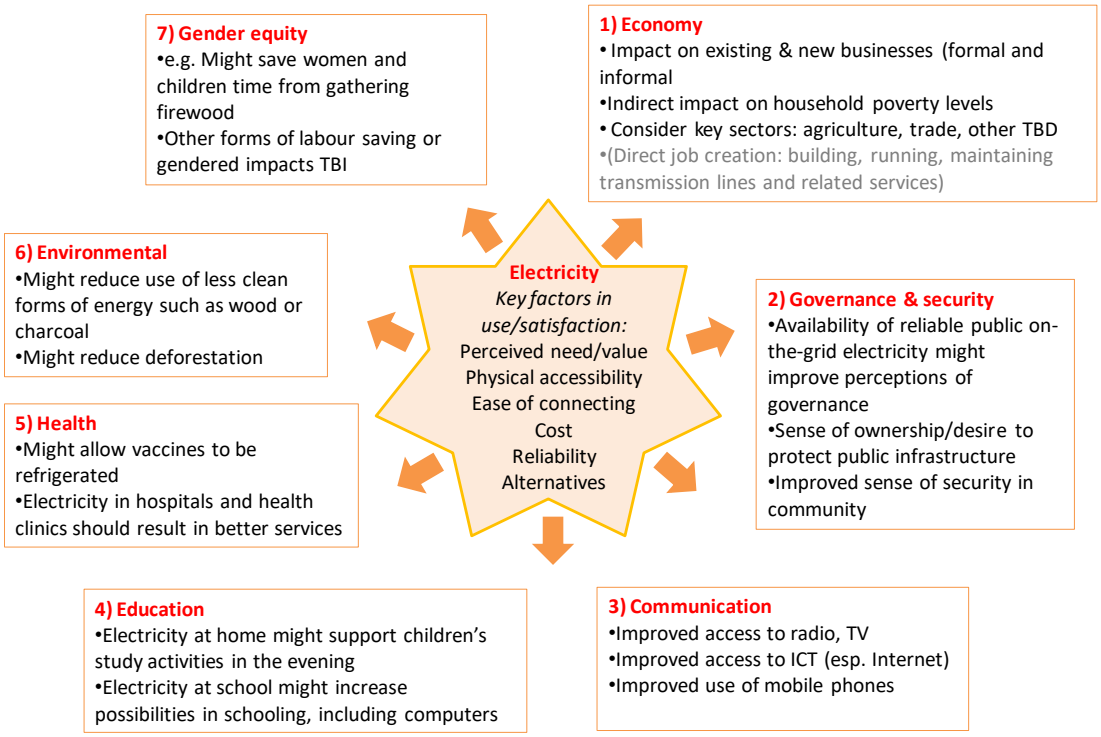
radius represents the outer geographic limit of service for each substation according to the DABS planning department. Within each radius, DABS plans to increase its capacity to serve more customers, until it reaches full capacity in about four years. (Please see Chapter 5 of the EASESBS Manual for a full description of the ZOI, explaining how it was defined and how to define it for future substations.)

As of May 2019, DABS reported that the [redacted] substation is already energized and has a current capacity of 30 megawatts serving up to about 11,025 customers. It is also worth mentioning that the [redacted] Deiseal generator-sourced electricity is off and the number of consumers on this platform is zero. DABs plans to increase the number of its customers in [redacted] and provide up to 20,000 new connections over the next five years.

At [redacted], the distribution network has a current capacity of 20 megawatts serving up to 400 customers, according to DABS' reports. DABS plans to increase the number of its customers in Sayedabad and provide up to 20,000 new connections over the next five years.

Overall approach:

This baseline survey is to be carried out using a framework and tools that have already been designed with the specifications for this purpose. The framework is shown in the figure below.



Initial framework for identifying areas of impact

The study tools include both quantitative and qualitative data forms, gathered from a variety of sources and methods. This is intended to result in a robust snapshot of the current state of affairs, providing a baseline for further comparison.

Quantitative data is used to populate indicators related to electricity delivery and socioeconomic, governance and security factors of interest upon which it might impact. Some quantitative indicators act as intermediate indicators of electricity use, which provides further evidence to interpret observed correlations. For example, the study tracks key health indicators such as child mortality rates, and also tracks how many health centers have electricity and the ways that electricity has been used to deliver health services.

Qualitative data provides further detail and explanation to aid in interpretation of quantitative data. The simplest and most direct way this is done is through qualitative-enhanced surveys, which are quantitative surveys with a number of simple open-ended questions added in. For example, when respondents are asked to rate their satisfaction with the cost of electricity, the qualitative-enhanced survey version asks them to briefly explain their rating. These surveys take longer to conduct and analyze, and are only to be applied to a small subgroup of the total sample population.

Type of tool:	**Type of respondent:**					
	Household	Business	School	Health center	Government Department	Community leader
Quantitative survey	X	X	X	X		
Qualitative survey questions	X	X	X	X		
Focus group[1]	X	X				
Key Informant Interview					X	X

Sampling:
All sampling occurs within the ZOI, defined as the total 20km radius around each substation (excluding neighboring provinces). This ZOI remains consistent across all subsequent surveys. The definition of the ZOI is predicated on the assumption that, while some households, businesses and institutions are direct clients of DABS and others are not, there will also be a cumulative impact on all residents of the area, whereas even those who do not have a direct connection may benefit if the presence of electricity has an overall stimulating effect on the local economy, improves the quality and availability of government social services, or influences governance and security.

Quantitative Sampling: The quantitative sampling strategy depends on the ability to get a complete population frame for each target. A specific sampling protocol for each of the four surveys has been developed as a separate document, attached as an annex to this SOW.

Indicative sampling numbers for the quantitative surveys:

[1] During the early phases of data collection the Assessment Team will review the efficacy of the focus groups, and may revise the composition of the qualitative data collection to include more in-depth interviews and less focus groups. This aligns with findings from the Checchi pilot phase report which found that focus group were difficult to conduct, and often yielded data that was less useful than anticipated.

Target population: (within ZOI)	Estimated population size	Sample n	Sampling method
Survey[2]		2000	Stratified cluster (urban/rural strata, 36 EAs of 15 HH each)
Businesses	40 formal, about 200 informal[3]	40 formal, 87 informal = 127 total	All known registered businesses plus transect walks
Health facilities	30	30	Full population
Schools	68	68	Full population
All sites		*2225*	

Qualitative Sampling: Qualitative sampling is purposive, and aims to collect a sufficient amount and variety of data to provide a rich contextual picture allowing for description of the current situation and interpretation of quantitative indicators.

Qualitative data targets:

Qualitative Data	[redacted]	[redacted]	**Both**
Focus Group Discussions			
Household– Men	3	3	6
Household– Women	3	3	6
Business owners (mix of business types)	3	3	6
ALL FGDs	***9***	***9***	***18***
Qualitative-Enhanced Surveys			
Qualitative addition to HH survey for men	13	19	32
Qualitative addition to HH survey for women	13	19	32
Qualitative addition to business survey	7	7	14
Qualitative addition to health facility survey	6	6	12
Qualitative addition to Schools survey	5	5	10
ALL QE Surveys	***44***	***56***	***100***
Key Informant Interviews (semi-structured)			
Community Leaders	3	4	7
DABS Provincial Representative	1	1	2
Other Stakeholders	4	4	8
MOCI District (or Provincial) Head	1	1	2
MRRD District (or Provincial) Head	1	1	2
MAIL District (or Provincial) Head	1	1	2
MoPH District (or Provincial) Head	1	1	2
ALL KIIs	***12***	***13***	***25***

[2] The figure of 2000 is reflective of 1000 households, with two interviews per household; one male head of household and one female head of household.

[3] This assumes that about 80% of businesses are informal/unregistered, although the true proportion is unknown.

Data collection:
The Contractor will conduct data collection and analysis following the guidelines set out in the design documents, to be further elaborated as needed.

Training:
The Contractor is responsible for training and supervising qualitative and quantitative field researchers to ensure appropriate methods and data quality. This will be done in line with the training manuals developed during the design phase. The training will take place before the implementation of the baseline survey.

Data Treatment and Analysis Plan:
The Contractor will prepare a data treatment and analysis plan that includes the following:

- Indications of how data will be collected, including appropriate protocols for data collection through mobile technology vs. paper-based questionnaires;
- Descriptions of data quality checks that will be built into data entry processes, testing and data cleaning to ensure logical consistency and coherence within and across records, as well as manipulations, conditional tests, and combinations of data to create new variables;
- Identification of the software to be used for all steps of data entry, data cleaning, and analysis; and,
- Specification of how the data sets will be anonymized to protect individual confidentiality
- This plan will be added to the study design toolkit for application/consistency in follow-on studies.

Data Analysis:
The quantitative and qualitative data will be analyzed in parallel with each other. Responses from the quantitative survey will be analyzed and summarized to provide baseline data for all required indicators. Statistical analysis will explore correlations between data points of interest, particularly between electricity delivery/use and specific aspects thereof, and socioeconomic indicators.

Qualitative analysis will focus on providing descriptive context for the current situation regarding electricity access and use within the ZOI, and stakeholder perceptions regarding electricity delivery and use. It will also be used in conjunction with quantitative analysis to provide a potential explanation of observed correlations, with clear reference to the evidence base and limitations.

Process documentation:
It is expected that various issues and challenges, varying from conceptual and logistical to analytical, will arise during field data collection, and will be resolved by the Contractor staff and the Subcontractor survey field team over the course of the survey. The team should carefully process and document these issues and the solutions, both to advise future teams and to ensure consistency of application in the tools. This process documentation should be both noted in the final baseline survey report and amended to the existing training and/or field manuals.

Assumptions and Risks:
Both [redacted] and [redacted] have ongoing security issues, and the security situation is known to be volatile and subject to sudden changes. At the time of writing this SOW, the study sites appear to be largely accessible to local enumerators, with more limited accessibility to national field monitors. Around the [redacted] ZOI, female enumerators and focus group facilitators will not be able to access all sites/populations. The volatility of the area poses some risk to the study, as it is predicated on the assumption of continued/sufficient access. The study depends heavily on the subcontractor's ability to recruit enumerators who are both able to access these areas within [redacted] and/or [redacted], and possess sufficient skill sets to carry out the required data collection. A further risk is that, because the ZOIs are relatively small, it will be difficult to substitute or come up with an alternative if the enumeration areas within the ZOIs become inaccessible.

VI. EXISTING INFORMATION SOURCES

The following relevant documents are available for the baseline survey team and are attached to this SOW:

- Design documents prepared by the Contractor including electricity access and socio-economic baseline survey methodology, tools, and field procedures manual.

VII. SURVEY TEAM COMPOSITION

All team members must be familiar with the USAID Evaluation Policy and survey research methods and instruments. The survey team should have knowledge of, and experience in, a) designing and fielding questionnaires and surveys, b) statistical analysis and sampling, and c) knowledge of electricity distribution and use in developing countries. The team should be composed of:

1. Survey Team Leader: This individual will serve as team leader for the duration of data collection field work and analysis. S/he will be the primary point of contact between USAID and the survey team and have responsibility for preparation and submission of all deliverables. This is an expatriate position with a minimum of ten (10) years of research management experience including mixed methods design, data collection and analysis. S/he must have data collection, sampling techniques, statistical analysis, and baseline survey experience with USAID and/or other similar programs. H/she must possess a Master's or higher degree, have excellent communication and writing skills in English, and be willing to travel to provincial locations as identified by USAID, security permitting. Previous Afghanistan or similar conflict environment experience is preferred.

2. Quantitative Survey Specialist: This individual will be responsible for oversight and coordination of the quantitative survey field work and analysis of the survey data. This is an expatriate position and the incumbent must have five (5) years of experience in designing, managing, leading, and coordinating representative quantitative surveys in developing countries (with a preference for experience in conflict countries). S/he must have extensive experience in quantitative questionnaire sample design, analysis, and data management. S/he must have knowledge and experience on software for statistical analysis and data entry. S/he must have a Master's degree in any discipline but statistics, survey methodology, or epidemiology will receive preference.

3. Qualitative Study Specialist: This individual will be responsible for managing and supervising the qualitative study; overseeing the training of qualitative study team members; analyzing and interpreting quantitative results for use in the qualitative study; and integrating qualitative findings with quantitative data. The incumbent must have five (5) years of experience in designing, managing, leading, and coordinating qualitative surveys in developing countries. S/he must have extensive experience in designing and conducting qualitative studies as a part of mixed-methods studies and integrating qualitative findings with quantitative survey data. S/he should have excellent writing and organization skills and a demonstrated ability to deliver a high-quality written product. S/he must have a Master's degree in any discipline.

4. Two Afghan Researchers: The incumbents (male and/or female), each with a relevant university degree, should have experience in survey research involving development activities, including gender and socio-economic impact. Each must have excellent English language and writing skills and the ability to translate from Dari/Pashto; and be willing and able to travel to survey sites. The researchers should be willing to travel to the site and oversight the process of data collection and sampling to be used by the subcontractor whenever required.

5. Field Supervisors and Survey Enumerators: Recruitment of enumerators and supervisors will take into consideration the need for mix of men and women in order to facilitate data collection from women and girls. The Contractor may subcontract these field personnel (see below).

   Subcontracting of data collection:
   If the Contractor plans to subcontract a local statistical and/or survey firm or institution, the Contractor must consider the approach to directing and effectively managing the Subcontractor. The Contractor must provide the criteria used for identifying and hiring the firm(s) selected for specific activities. In addition, the Contractor must describe the proposed firm's relevant experience and capacity to manage and conduct assigned activities for both the quantitative and qualitative components. The Contractor must include a description of the subcontracted firm's management of staff for supervision, training, data collection, and data entry activities.

VIII. ILLUSTRATIVE SCHEDULE

The EASE-BS team is expected to perform all tasks described in the SOW, including the collection, cleaning, and analysis of the baseline survey data and the preparation of a baseline report for USAID describing the data collection and analysis process, the analytic results of the entire baseline survey effort, and any recommendations for subsequent survey waves.

An estimated Level of Effort (LOE) distribution is provided below for all positions. The estimated LOE table is illustrative; the Contractor is required to propose a final breakdown of actual individual LOE deemed necessary to perform all tasks and provide all deliverables.

Illustrative LOE Table:

Activity:	Team Leader	Quant. Expert	Qual. Expert	National Researcher Quantitative	National Researcher Qualitative	GIS Specialist
Planning & doc review (include data quality protocol)	5	6	3	-	-	-
Expat travel in/out	12	12	12	-	-	-
Briefings to USAID (in-, mid-, end-)	2	2	2	2	2	-
Drafting and Finalization of work plan	4	3	3	2	2	-
Training for Field Enumerators	1	1	1	1	1	-
Quantitative data collection	-	4	-	28	0	-
Qualitative data collection	-	-	3	0	28	-
Quantitative data cleaning	1	2	-	4	0	-
Qualitative data type-up & translation	-	-	4	0	4	-
Data analysis [quantitative and qualitative] and preliminary report drafting	13	23	11	7	7	15
Presentation and final report write-up	10	4	3	1	1	-
Revisions to final report	7	2	2	0	0	-
Total	**55**	**59**	**44**	**45**	**45**	**-**

Note: LOE for subcontracted survey supervisors and enumerators to be determined. It is anticipated that the subcontract will be awarded on a firm fixed price basis with payment tied to deliverables and not to LOE.

In-country/Remote LOE Table

Position	Remote Prep	Travel to/from Kabul	In-Country	Remote Work	Total
Team Lead	3	6	26	29	**55**
Quantitative Specialist	3	6	35	24	**59**
Qualitative Specialist	3	4	23	21	**44**
National Quantitative Specialist	0	0	45	0	**32**
National Qualitative Specialist	0	0	45	0	**32**

IX. DELIVERABLES AND REPORTING REQUIREMENTS

1. **In-brief:** After arrival of survey team in the country, the team shall schedule in-brief within 24 hours to discuss the methodology, schedule, draft work plan, and make any adjustments to the SOW if necessary.
2. **Work Plan:** The team's draft work plan will be transmitted to USAID one day prior to the in-brief. The work plan should include contact details and work plans for the in-country or remote work of the team, and schedule for collection and analysis of baseline.
3. **Mid-brief:** The contractor is expected to hold a mid-brief with USAID to discuss the status of activities mainly the progress on the data collection, including any potential challenges. To accomplish this the team will present a 'data walk' as the mid-brief providing a summary of the data collected (i.e. total households reached, KIIs completed, and FGs conducted). The team will provide highlights on the data to date including some highlights from the interviews.
4. **PowerPoint and Exit Presentation:** The contractor is expected to hold a final exit presentation to discuss the summary of findings from the analysis of the baseline survey.
5. **Draft Baseline Survey Report**: The draft baseline survey report should be consistent with the guidance provided in Section XIII: "Final Report Format." The report will address each of the issues and questions identified in the SOW and any other factors the team considered, including recommendations for implementing future periodic surveys. The submission date for the draft survey report will be decided during the mid-term or exit briefing and submitted to USAID. Once the initial draft baseline survey report is submitted, USAID will review it and get back to contractor with consolidated feedback within **10 working days**.
6. **Draft Baseline Survey Report Revisions:** The contractor will then have **five working days** to make appropriate edits and revisions to the draft and re-submit the revised final draft report to USAID.
7. **USAID Review of Draft Baseline Survey Report Revisions:** USAID will have **seven working days** after the submission of the revised draft to again review and send comments.
8. **Final Report:** The contractor will be asked to take no more than **ten days** to respond/incorporate the final comments from USAID. The contractor will then submit the final report to USAID. The Final Report should include all elements described in **ADS 201, USAID Evaluation Report Requirements,** listed below. All project data and records (dataset, supporting documents such as code books, data dictionaries, scope and methodology used to collect and analyze the data) will be submitted in full and should be in electronic form in easily readable format, organized and documented to be submitted to the USAID Development Data Library and for use by those not fully familiar with the project or baseline & periodic survey, and owned by USAID. The survey report should represent a thoughtful, well-researched, and well-organized effort to objectively evaluate the strategy, project, or activity. It should include recommendations for future periodic survey implementation.

X. MANAGEMENT

MSI-AMELA will identify and hire the survey team, pending the Contracting Officer's Representative's (COR's) concurrence and Contracting Officer approval. The Contractor

will organize other meetings as identified during the course of the survey, in consultation with USAID/Afghanistan and other stakeholders. MSI will be responsible for all logistical support required for the baseline survey team, including arranging accommodation, security, office space, computers, Internet access, printing, communication, and transportation.

The survey team will officially report to MSI-AMELA management. MSI-AMELA is responsible for all direct coordination with USAID/Afghanistan Office of Program and Project Development (OPPD), through the Contracting Officer's Representative (COR) [redacted] and Activity Manager [redacted].

XI. FINAL REPORT FORMAT

The length of the final report should be within 30-40 pages in length, excluding cover page, table of content, acronyms, executive summary and annexes. It must be written in English, using Gill Sans MT 11-point font, multiple 1.5 spacing, and be consistent with USAID branding policy. The reports should be structured as follows:

1. Cover Page. Include enough information on the cover of the final report so that a reader can immediately understand the scope, purpose, findings, and recommendations. The survey cover must:
    a. Include a title block in USAID light blue background color;
    b. Include the words "Baseline Survey" at the top of the title block and center the report title underneath. The title also should include the words "baseline survey;"
    c. Include the following statement across the bottom of the cover page: "This publication was produced at the request of the United States Agency for International Development. It was prepared independently by [list authors and organizations involved in the preparation of the report]. For an internal baseline and periodic survey team, use the following statement: "This publication was produced at the request of [USAID/Mission or OU] and prepared by an internal baseline survey team comprised of [list authors and affiliation];
    d. Feature one high-quality photograph representative of the project being evaluated and include a brief caption on the inside front cover describing the image with photographer credit;
    e. State the month and year of report publication (e.g., when final and approved by USAID Operating Unit)
2. Title Page
3. Table of Contents
4. List of any acronyms, tables and/or figures
5. Acknowledgements or Preface (optional)
6. Executive Summary (3-5 pages): This section should represent a concise and accurate statement of the most critical elements of the report.
7. Introduction
    a. Description of the project for which baseline survey is conducted, including goal and expected results
    b. Brief statement on purpose of the baseline survey, plus a list of the baseline survey questions

c. Description of the methods used in the baseline and periodic survey (such as desk/document review, interviews, site visits, surveys, etc.), the rationale and location for field visits (if any), and a description of the numbers and types of respondents
d. Limitations to the survey, with particular attention to the limitations associated with the survey methodology (selection bias, recall bias, unobservable differences between comparator groups, etc.)

8. Findings should be specific, concise, and supported by strong quantitative and qualitative evidence.
    a. Findings should be presented as analyzed facts, evidence, and data and not based on anecdotes, hearsay, or simply the compilation of people's opinions.
    b. Describe findings, focusing on each of the survey questions and providing gender disaggregation where appropriate.
    c. If survey findings assess person-level outcomes or impact, they should be separately assessed for both males and females.
    d. Survey findings should be presented as analyzed facts, evidence, and data and not based on anecdotes, hearsay, or the compilation of people's opinions.
9. Conclusions. Conclusions should be specific, concise, and supported by strong quantitative or qualitative evidence. Conclusions are value statements drawn from the data gathered during the baseline survey.
10. Recommendations
    a. Recommendations should be actionable, practical and specific statements for existing programming and for the design and performance of future programming.
    b. Each recommendation should be supported by a specific set of findings.
    c. Include recommended future objectives and types of activities based on lessons learned.
11. Annexes
    e. Baseline and periodic survey Scope of Work: If the SOW was revised over the course of the survey, the survey report should include the updated SOW as an Annex rather than the original SOW. The Contracting Officer's Representative of the survey must agree upon, in writing, all modifications to the SOW, whether in technical requirements, survey questions, survey team composition, methodology, or timeline.
    f. Methodology description (include any pertinent details not captured in the report)
    g. Copies of all data collection and analysis tools used, such as questionnaires, checklists, survey instruments, and discussion guides
    h. List of critical and key documents reviewed
    i. Schedule of meetings and sources of information (If confidentiality is a concern, the team should discuss and agree upon an approach with USAID.)
    j. Notes from key interviews, focus group discussions and other meetings
    k. Documentation of any changes to the SOW or survey process
    l. Statement of differences (if applicable), regarding significant unresolved differences of opinion by funders, implementers, and/or members of the baseline survey team.
    m. All sources of information—properly identified and listed.
    n. Signed disclosures of conflicts of interest from survey team members
    o. Summary information about survey team members, including qualifications, experience, and role on the team

p. Survey reports must conform to USAID branding requirement

12. One- or two-page briefer of findings, recommendations and lessons learned

XII. OVERALL REPORTING GUIDELINES

The final reports should address the purpose in the statement of work and be written in highly professional English, free of grammatical and typographical errors, and with professional formatting. Annexes should be free of personally-identifiable information (PII), and any/all information that may compromise the privacy and protection of survey participants will be reviewed by USAID for potential redaction/removal.

Any modifications to the statement of work must be agreed upon in writing by the USAID COR.

XIII. DISSEMINATION REQUIREMENTS

As per ADS 201, the assessment team will work with USAID to create a plan for dissemination of the final survey report(s). The This plan should cover information about the audiences with whom the report will be shared, as well as potential workshops to optimize use of the report amongst its intended audience. The plan will cover how the final report(s) will be disseminated. It is expected that the plan should co-created prior to the submission of the first draft report.

ELECTRICITY ACCESS AND SOCIO-ECONOMIC BASELINE SURVEY FOR ENERGY INFRASTRUCTURE ACTIVITIES

AFGHANISTAN MONITORING, EVALUATION, AND LEARNING ACTIVITY (AMELA)

September 28, 2019

Revised: March 2, 2020

ELECTRICITY ACCESS AND SOCIO-ECONOMIC BASELINE SURVEY FOR ENERGY INFRASTRUCTURE ACTIVITIES

AFGHANISTAN MONITORING, EVALUATION, AND LEARNING ACTIVITY (AMELA)

Work Order Number	AMELA-C1-001
AWP Number	AWP-AMELA-C1-001-EASEB
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ACRONYMS

ACSOR	Afghan Center for Socio-Economic and Opinion Research
AMELA	Afghanistan Monitoring, Evaluation and Learning Activity
AWP	Assignment Work Plan
CCN	Cooperating Country National
COR	Contracting Officer's Representative
IP	Implementing Partner
M&E	Monitoring and Evaluation
MSI	Management Systems International
OCI	Organizational Conflict of Interest
SOW	Statement of Work
STTA	Short-Term Technical Assistance
USAID	United States Agency for International Development

PURPOSE

The assessment work plan (AWP) is an addendum to the EASEBS (Electricity Access and Socio-Economic Baseline Survey) design documents prepared by previous EASEBS teams under the preceding SUPPORT II contract. The EASEBS manual and accompanying instruments completed by the previous team contain the design and methodological details to complete the study. Because the design work was completed under the preceding contract, this document summarizes salient points of existing documentation, and focuses on clarifications, operationalization, additions or revisions to the original design the new evaluation team has deemed necessary to complete the work as outlined in the SOW. Per the request of the mission, the team is implementing the approved design.

The survey for this assignment will take baseline measurements of electricity access and usage and socioeconomic conditions in the communities under study. The data from this survey is intended to be used in subsequent time series surveys to form a longitudinal data set[1]. Subsequent data collection will require new SOWs. The study is designed to provide baseline values for selected indicators in anticipation of informing future evaluations of the USAID Power Transmission Expansion and Connectivity (PTEC) Project and to inform energy sector planning.

The baseline data that will be used to measure changes in electricity access and socioeconomic conditions over time in the areas around substations constructed as part of the PTEC project. The study should provide evidence to examine how improvements in electricity infrastructure changes socioeconomic conditions in communities. An important aspect of this study is crafting the empirical underpinnings of a research agenda for the sector.

While studies on electricity have shown a positive correlation between electricity and various socioeconomic indicators, causation is not unidirectional, and outcomes are influenced by a variety of other factors. A 2013 literature review finds that the empirical evidence for electricity as a causal factor in economic growth is surprising weak, due in part to methodological issues in the studies that do exist.[2] For a detailed discussion of the literature refer to the EASEBS manual.

Little research has been conducted on the effects of introducing electricity in the Afghanistan context. Results from the baseline data will produce information describing the status and views on access to electricity of the following stakeholders: 1) male and female head of households, 2) business owners, 3) clinic administrators, 4) school administrators, and 5) various other government representatives (Ministry of Health, Ministry of Education, DABS). The team intends to test the various research questions and hypotheses outlined in this document.

Each survey assesses the current level of access to electricity in households, businesses, schools, and health facilities within the zone. The survey also collects data on a raft of socioeconomic indicators. By repeating these surveys periodically within the same zone, ideally on the same units that were measured at baseline, the study will test change over time of both electricity access and use, and key socio-

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[1] For any causal testing on the impact of the electrification activity on socioeconomic changes, time series data and thus subsequent data collection on the same sample will be required under USAID ADS to conduct impact studies.

[2] Attigah, B. and Mayer-Tasch, L. 2013. The Impact of Electricity Access on Economic Development – A Literature Review. In: Mayer-Tasch, L. and Mukherjee, M. and Reiche, K. (eds.), Productive Use of Energy. (PRODUSE): Measuring Impacts of Electrification on Micro-Enterprises in Sub-Saharan Africa. Eschborn

economic indicators. The research team hopes the time series data will be able to detect and study inter-relationships between access to electricity and socio-economic conditions, thus strengthening the evidence base as to how access to electricity effects these factors. The final report will be reflective of the two sub-stations and may not be generalizable to all future sub-station electrification efforts.

INTERVENTION BACKGROUND AND DEVELOPMENT HYPOTHESIS

The PTEC Project began in July 2012 and is set to finish in April 2020. PTEC works in partnership with the national electric utility Da Afghanistan Breshna Sherkat (DABS), aiming to increase access to electricity by (1) expanding and improving Afghanistan's electric transmission system; (2) strengthening the ability of DABS to manage, operate and maintain the national power system; and (3) promoting private sector investment in Afghanistan's energy sector.

The purpose of the EASEBS is to gather data on specific energy infrastructure activities within the PTEC Project. It will collect baseline data on electricity access as it relates to DABS on-budget assistance from USAID to (1) connect the northeastern power grid with its southeastern counterpart, and to (2) rehabilitate the existing southeastern power grid. The information collected will be used for energy sector planning, as well as any future project evaluations.

The first baseline study, to be carried out on two substations (in [redacted] and [redacted]) in 2019, is the first of a series of baseline and periodic studies intended to be carried out in zones-of-influence around each substation along the [redacted] transmission line and the upgraded SEPS transmission lines and substations. Aside from the intended surveys to be conducted under this SOW in the two above mentioned areas, it is anticipated that subsequent baseline studies will be carried out after the additional substations are constructed (or upgraded) and before they are connected to new customers.

This first baseline survey is intended to inform future research efforts and may occur in parallel to the wider electrification agenda implemented through the PTEC project. At present it is expected that baseline surveying will be undertaken in zones around electrical substations, at the time just prior or soon after the substations begin providing services, up until the time that they reach maximum capacity (typically 4 to 5 years later).

Please refer to the EASEBS manual for the intervention background and the PTEC Theory of Change.

EVALUATION DESIGN AND METHODOLOGY

According to the manual the "EASEBS is a longitudinal study that allows for comparison over time within zones-of-influence, from a baseline condition in which no or few customers are connected to the national grid on the newly expanded or upgraded transmission lines, to intermediate and full-capacity conditions at two years and four years post baseline." The study will provide baseline values for selected indicators related to energy access and usage and socioeconomic conditions.

Supporting the quantitative data will be qualitative data that will provide contextual detail and explanation to aid in interpretation of quantitative data. Ultimately the synthesis of the various data sets will be used to help describe the socioeconomic conditions in the zones of influence and explain how the introduction of electricity affects socioeconomic factors. The research will involve multiple data collection efforts as electricity becomes more available and commonly used among communities and will

aim to contribute to the evidence base about the interrelationship between electricity and socioeconomic progress aimed at broader development objectives.

The EASEBS survey will collect data on 78 indicators[3]. The data for these indicators largely comes from the surveys, except for indicators on electricity usage and access, and the numbers of businesses, schools, and health centers within the zone of influence (ZOI), which will come from government ministries.

Table 1 summarizes how many indicators fall into which thematic area and causal level.[4]

Table 1: Number of Study Indicators

Thematic Area		Indicator level			Subtotal
		Independent	Intermediate	End	
0	Electricity	8			8
1	Economy		4	8	12
2	Governance & security	1		6	7
3	Communication/ICT		11		11
4	Education	1	7	3	11
5	Health		9	5	14
6	Environment		5	2	7
7	Gender		2	6	8
	Subtotal by indicator level:	10	38	30	78

EASEBS APPROACH

In addition to this AWP, and the revisions to the survey instruments made by the MSI team, the EASEBS evaluation design and methodology is contained across the following design documents from Checchi's manual:

- EASEBS manual

[3] The total of 78 indicators is derived from the initial Checchi design. During the final phase of confirming research questions and then ensuring that the instruments can examine the research questions, the AMELA team may update the indicators based on any refinements to the instruments. Any changes will be presented during data walk.

[4] The indicators are classified by thematic area and level of causal chain: independent means they are directly related to electricity delivery/access, so are seen to be potentially causal under this theory; intermediate means they are related to use or a direct result of electricity use, and 'end' means they represent a broader socioeconomic outcome, which might in part be influenced by electricity. Although this categorization reflects the ToC, it is important to note that these indicators, by themselves, can only show correlations between these indicators, most of which will come from comparisons between baseline and follow-on surveys. Correlation cannot be assumed to be causation. Based on the data, the team will determine if and where causality testing can be conducted. For specific stations where the treatments (program) was already in place during the baseline, the team may need to use innovative models to ascertain and measure the effects of increased access on the target outcome variables (socioeconomic dimensions in a household/community). The sample size will also directly influence which statistical testing will be permissive; although there are methods to work with small samples which still produce valid robust causal testing, the team will add further details on the extent to which statistical testing can be conducted post-data collection.

- Annex CSO Sample Design for Household survey and radius map
- Annex full indicator list
- EASEBS Sampling Plan (AMELA)
- Qualitative and Quantitative tools

The manual, which was drafted by the previous assessment team, consists of four parts:

- Part I: Introduction and Study Framework—four chapters—study purpose, framework, indicators, and overview of methodology

- Part II: Sampling—three chapters: Zone-of-Influence, Quantitative Sampling and Qualitative Sampling

- Part III: Data Collection—nine chapters, covers all aspects of quantitative and qualitative field work, with guidance for field supervisors and enumerators

- Part IV: Analysis—two chapters providing guidance on quantitative and qualitative analysis.

Together, these documents and this plan, provide a comprehensive guide to the EASEBS study design, the data collection and data analysis methods to be used, and the implementation requirements for the field work.

At the completion of the analysis, MSI will discuss with USAID the benefits of building a "manual to conducting an electrification assessment" as part of a potential capacity building exercise for DABs, and other stakeholders.

AMELA TEAM DESIGN INPUTS

AMELA inherited the EASEBS study from the previous MEL contractor, with the study design already approved, and the evaluation team is tasked to implement the approved design. To operationalize the study, however, and to ensure that the quality of the work meets MSI standards and USAID needs, the Assessment Team recommends the following clarifications and alterations to the design.

CHANGES AND ADDITIONS

INCREASED TRAINING FOR ENUMERATORS AND FIELD TEAMS

More days of training for the enumerators and field teams is recommended to ensure accurate data collection from 1 day to 3 days (max), with minimal expected budget impact. Based on extensive baseline studies, impact evaluations, and other assessments requiring large teams for third-party field data collection, the AMELA team's experience recommends an additional 2 days of training to the 1 day estimated in the original, approved design. Thus, a total of 3 days training for all field teams; the team will start with two days of training to prepare field teams for the quantitative data collection (surveys). A third day of training will be used for qualitative training. This will ensure all field teams are aligned and clear on the procedures and instruments to collect data, practice and created mitigation plans for unanticipated events (i.e. change in access to a household due to security, weather, impacts of elections, and population migration). The cost to this change should be minimal. Other issues which affect data quality and thus require the 3 days estimates for training in field teams include turnover in field teams. Those trained at the beginning of data collection are not always the same enumerators through the

entire process. The team will always work to ensure field team continuity, but as with prior work to this baseline, the AMELA team has found this issue to be quick common but also easily mitigated. The additional time for training ensures there is time in the field prep phase to train additional field staff due to attrition in team members.

INCREASED SAMPLE SIZE

After discussion with USAID / Afghanistan's Office of Infrastructure it was decided to increase the sample size to 1000 households, from 540 households. This was because the AMELA team feels that the original design underestimated the likely levels of attrition that will occur from baseline to subsequent follow up surveys, and the negative affects this would have on the ability of the study to infer the relationships between variables. The increase in the sample size will mitigate expected attrition and increase the capacity of later analysis to detect and describe statistical relationships between changes in electricity access and socioeconomic variables. The total number of household surveys will change to also reflect the team captures both male and female perspectives within a household. This signifies 2 survey per household for a total of 2,000 surveys (1,000 households). During the team's meeting with USAID at the in-brief this was clarified and approved. The team feels the diversity of data across gender is critical in understanding the variance in benefits to men and women.

Because the sample is very small and specific to two locations, the team, to ensure valid testing of data, will need to ensure that attrition of respondents (household participants) is minimized. Losing respondents (i.e., not finding them available during the day of data collection) with this small sample will have significant impact on the ability to test for impact over time. The team will need to ensure that the field staff can address attrition. This may mean field enumerators have to return to the household for data collection on multiple occasions, extending field data collection period and/or level of effort per enumerator. This is expected to have a small impact on the budget.

CLARIFICATIONS: FURTHER OPERATIONALIZATION OF PROCESSES AND TASKS

The AMELA team recommends additional revisions to the definitions of the target indicators (with an impact on the budget of zero). The suggested changes are detailed by indicator in Table 2 through Table 9. These indicators, as stated in the original design and approved by USAID, form the backbone of the research agenda which will emerge from this baseline study.

Table 2: Electricity Indicators

Indicator No.	Definition	Unit	Source(s)	Indicator level	Suggested Revision or clarification
0.10	% of potential clients connected to DABS	%	All surveys except HH (F)	Independent	Request administrative data from DABS to triangulate with HH data
0.20	Reported tariff rate	As.	All except HH (F)	Independent	▪ Request photos of electricity bills rather than rely on respondent recall of tariff rate. ▪ Request administrative data from DABS to triangulate with HH data

Indicator No.	Definition	Unit	Source(s)	Indicator level	Suggested Revision or clarification
0.30	Reported payment for the last billing period	Afs.	All except HH (F)	Independent	Request photos of electricity bills rather than rely on respondent recall of tariff rate
0.40	Reported number of hours electricity provided in last 24 hours	Hours	All except HH (F)	Independent	None
0.50	Reported length of time required to connect	Days	All except HH (F)	Independent	None
0.60	Reported cost of connecting (purchasing meter etc.)	Afs.	All except HH (F)	Independent	None
0.70	Reported use of back-up/alternative system	%	All except HH (F)	Independent	None
0.80	Reported level of client satisfaction with DABS' provided electricity	Likert-scale	All except HH (F)	Independent	None

Table 3: Economic Indicators

Indicator No.	Definition	Unit	Source(s)	Indicator level	Suggested Revision or Clarification
1.01	Estimated household income, past month	Afs.	HH (m)	End	Additional question on electricity use in businesses that are the main source of household income
1.02	Livestock owned by household	animals	HH (m)	End	None
1.03	Land owned by household, in jeribs	Jeribs	HH (m)	End	None
1.04	# of businesses started in last 2 years	Integer	biz, MoCI and ACCI data (for formal businesses)	End	None
1.05	% of businesses reporting increased profits, compared to previous year	%	Biz	End	None

Indicator No.	Definition	Unit	Source(s)	Indicator level	Suggested Revision or Clarification
1.06	% of businesses reporting decreased expenses, compared to previous year	%	Biz	End	None
1.07	Average number of employees	Employees	Biz	End	None
1.08	Average number of days employed casual workers in last month	Days	Biz	End	None
1.09	Average number of items powered by electricity owned by business	Items	Biz	Intermediate	None
1.10	Reported impact of electricity on Business expenses	likert-scale	Biz	Intermediate	None
1.11	Reported impact of electricity on business income	likert-scale	Biz	Intermediate	None
1.12	Reported impact of electricity on number of employees	likert-scale	Biz	Intermediate	None

Table 4: Governance and Security Indicators

Indicator No.	Definition	Unit	Source(s)	Indicator level	Suggested Revision or clarification
2.01	% of operations suspending operations due to security	%	Biz, health, school	End	None
2.02	% of operations targeted by theft, arson or vandalism	%	Biz, health, school	End	None
2.03	% of operations reporting crime and disorder as an obstacle or major obstacle	%	Biz, health, school	End	None
2.04	% of operations reporting insecurity as an obstacle or major obstacle	%	Biz, health, school	End	None
2.05	% of operations reporting corruption at DABS (re. connectivity)	%	Biz, health, school	End	None
2.06	% of HHs reporting security is better than in previous years	%	HH	End	None
2.07	% of HHs reporting damage to electricity infrastructure within their community	%	HH	Intermediate	None

Table 5: Communication and ICT Indicators

Indicator No.	Definition	Unit	Source(s)	Indicator level	Suggested Revision or clarification
3.01	% of HHs owning TVs	%	HH	Intermediate	None
3.02	% of HHs with respondent who watched TV in last 24 hours	%	HH	Intermediate	None
3.03	% of HHs owning radios	%	HH	Intermediate	None
3.04	% of HHs with respondents who listened to the radio in last 24 hours	%	HH	Intermediate	None
3.05	% of HHs with respondents who used a mobile phone in the last 24 hours	%	HH	Intermediate	Additional question on % of women and men who communicated via social media in the last week
3.06	% of HHs with respondents who used internet via smart phone in the last 24 hours	%	HH	Intermediate	None
3.07	% of HHs with respondents who used computer in the last 24 hours	%	HH	Intermediate	None
3.08	% of households/businesses owning mobile telephones	%	HH(m), biz	Intermediate	None

Indicator No.	Definition	Unit	Source(s)	Indicator level	Suggested Revision or clarification
3.09	% of HHs/businesses owning smart phones	%	HH(m), biz	Intermediate	None
3.10	% of respondents owning computers	%	All	Intermediate	None
3.11	% of respondents with access to Internet	%	Biz, School, Health	Intermediate	None

Table 6: Education Indicators

Indicator No.	Definition	Unit	Source(s):	Indicator level	Suggested Revisions or Clarifications
4.01	# of schools	School	Min. of Education EMIS data	End	None
4.02	% of schools with electricity	%	School	Intermediate	None
4.03	# of students enrolled	%	School, HH	End	None
4.04	# of students graduated (last academic year)	Student	School, HH	End	None
4.05	% of schools with administrative computers	%	School	Intermediate	None
4.06	% of schools with computer classes	%	School	Intermediate	None
4.07	% of students attending schools with electricity	%	School	Intermediate	None
4.08	Reported impact of electricity on the quality of instruction	Likert-scale	School	Intermediate	None
4.09	Reported impact of electricity on school attendance rates	Likert-scale	School	Intermediate	None
4.10	Reported impact of electricity on security at the school	Likert-scale	School	Intermediate	None
4.11	Reported impact of electricity on student learning outcomes	Likert-scale	School	Intermediate	None

Table 7: Health Indicators

Indicator No.	Definition	Unit	Source(s):	Indicator level	Suggested Revisions or Clarifications
5.01	Number of hospitals, clinics and health posts	Health center	MoPH and/or CSO (secondary data)	End	None
5.02	% of hospitals, clinics and health posts with electricity	%	Health	Intermediate	None
5.03	% of children under 2 vaccinated since birth	%	HH (f)	End	None
5.04	% of health facilities offering vaccines	%	Health	End	None
5.05	Age 5 and under mortality rate	per 1000 live births	HH (m)	End	None
5.06	Rate of respiratory illness reported in last month	%	HH, health	End	None
5.07	% of health facilities offering emergency services	%	health	Intermediate	None
5.08	% of health facilities reporting electricity supply adequate to meet requirements	%	health	Intermediate	None
5.9	% of HHs with access to piped water	%	HH (m)	End	None
5.10	% of HHs with flush toilet/latrine	%	HH (m)	End	None
5.11	reported impact of electricity on health facility expenses	likert-scale	Health	Intermediate	None
5.12	reported impact of electricity on health facility's capacity to respond to medical emergencies	likert-scale	Health	Intermediate	None
5.13	reported impact of electricity on health facility's capacity to provide maternal and neo-natal care	likert-scale	Health	Intermediate	None
5.14	reported impact of electricity on health facility's quality of care	likert-scale	Health	Intermediate	None

Table 8: Environmental Indicators

Indicator No.	Definition	Unit	Source(s):	Indicator level	Suggested Revisions or Clarifications
6.01	% of respondents reporting poor indoor air quality	%	HH (m), biz	End	None
6.02	% of respondents reporting poor outdoor air quality	%	HH (m), biz	End	None
6.03	% of respondents reporting wood or charcoal as heating source	%	All except HH (f)	Intermediate	None
6.04	% of respondents reporting kerosene as heating source	%	All except HH (f)	Intermediate	None
6.05	% of respondents reporting use of diesel generators	%	All except HH (f)	Intermediate	None
6.06	% of HHs reporting wood or charcoal as a cooking fuel	%	HH	Intermediate	None
6.07	% of HHs reporting kerosene as a cooking fuel	%	HH	Intermediate	None

Table 9: Gender Equity Indicators

Indicator No.	Definition	Unit	Source(s):	Indicator level	Suggested Revision or Clarification
7.01	Hours per day required for common household tasks	Hours	HH	Intermediate	None
7.02	Girls' school attendance	%	HH, school	End	None
7.03	Hours per day girls under 15 spend on HH chores	%	HH	End	None
7.04	Reduction in time reported in HH chores due to electricity	Hours	HH	Intermediate	None
7.05	number (and percentage) of businesses owned by women	# & %	business	End	None
7.06	number of female employees (% of employees who are women)	%	business	End	None
7.07	% of women reporting home-based income generating activity	%	HH	End	None

Indicator No.	Definition	Unit	Source(s):	Indicator level	Suggested Revision or Clarification
7.08	% of women reporting electricity has helped with their income generating activity	%	HH	Intermediate	None

A more detailed listing of the indicators and what specific survey questions are associated with each one can be found in manual and the complete indicator list. In addition, the chapter on quantitative analysis contains a section on calculating the values of these indicators, operationalizing each variable and measurement.

OPERATIONALIZING DATA COLLECTION AND ANALYSIS

The EASEBS Manual and accompanying instruments go into detail about the data collection, data analysis methods, sampling framework, and questions to be used in the survey. As such the following section focuses on two aspects:

- A summary of the data collection processes and sampling framework
- A summary of the data analysis methodology for the baseline.

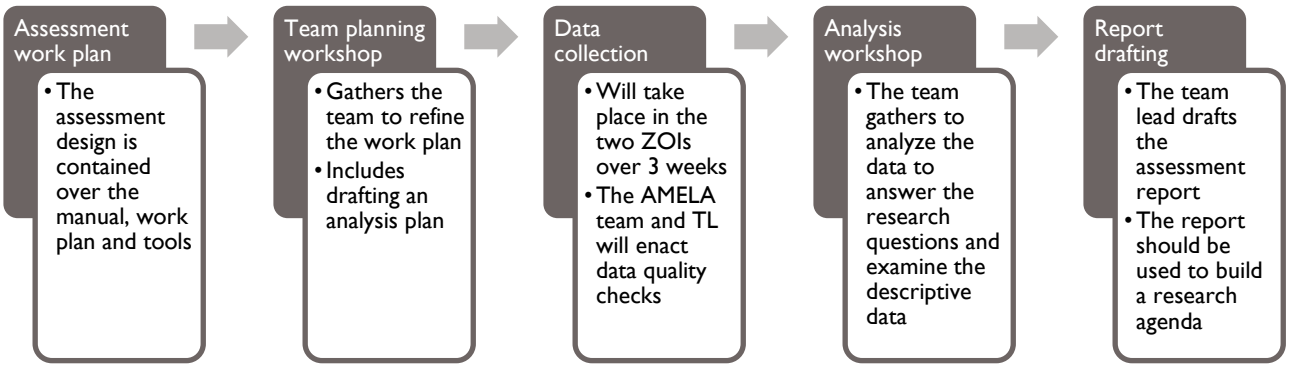
The protocols that will govern the data collection process, as well the schedule and the logistical details of data collection is detailed in the EASEBS manual.

The instructions are also mindful that this is a baseline, so that the findings should be preserved for comparative analysis in subsequent data collection rounds for the generation of conclusions about the influence of electricity on communities in Afghanistan. Although the protocols will be standardized to ensure comparative analysis, a key challenge for the assessment team will be carrying out mitigation to ensure continuity in surveying the same household at multiple points in time.

ASSESSMENT PROCESS

Figure 1 describes the baseline assessment process.

Figure 1. Baseline Assessment Process



DATA COLLECTION

The study will use a variety of data types (i.e., quantitative, qualitative, primary, and secondary) collected from various sources (e.g., households, community and business leaders, and Ministry officials) through a range of methods (e.g., household survey, document review, group interviews, and key informant interviews).

The household survey will provide Quantitative data to populate indicators related to electricity delivery and socioeconomic, governance and security factors of interest upon which it might impact. Some quantitative indicators act as intermediate indicators of electricity use, which provides further evidence to interpret observed correlations. For example, the study tracks key health indicators such as child mortality rates and tracks how many health centers have electricity and the ways that electricity has been used to deliver health services.

In support of the survey will be Qualitative data collection. The qualitative data will be collected through three methods: informant interviews, enhanced survey questionnaires (which have open-ended questions) and focus group discussions. For each type of data collection method and each type of respondent, separate tools have been developed. A total of 14 tools have been created for qualitative data collection including 6 tools for key informant interview, 5 for enhanced survey questionnaires and 3 for focus group discussions. Copies of each tool are to be found in the Manual.

Table 10 shows which tools will be used for which groups of respondents.

Table 10. Tool Type and Respondent Type

Type of tool:	Household	Business	School	Health Center	Gov't Dep't	Community leader
Quantitative survey	X	X	X	X		
Qualitative survey questions	X	X	X	X		
Focus group[5]	X	X				
Key Informant Interview					X	X

QUANTITATIVE DATA COLLECTION

Table 11 shows the number of households to be surveyed in the quantitative component by the various geographic units and strata. The manual provides a full explanation of the quantitative data collection, including the instruments, and data collection process.

[5] Per conversations with prior Checchi team members, ACSOR field experts from Afghanistan, and the team's own collective data collection experience in baselines, there is high probability focus groups will be difficult to implement. This is part due to the constraint individuals might have in gathering in public either due to safety concerns or personal views. The team proposes the piloting of 1 FG to assess the viability of the approach and data quality. Pending this, the team may revisit this method with USAID and offer additional KIIs and/or targeted group focus groups, such as an FG with teachers to help augment data around the relationship between increased access to electricity and student performance. Similarly, the team may recommend an FG of practioners at clinics to capture their unique understand and perspectives about the benefits of changes in access for improved health outcomes.

Table 11. Household survey samples.

Province	District	Sampling Strategy	N (House-hold)
[redacted]	[redacted]	Stratified cluster within 20 km of each substation	500Male and 500 Female surveys (500 households/1000 surveys)
[redacted]	[redacted]	Stratified cluster within 20 km of each substation	500 Male and 500 female household surveys (500 households/1000 surveys)
Grand totals			[6]1000households/2000 surveys (1000 Male and 1000 Female surveys)

Table 12 shows the breakdown of the survey for businesses, health clinics and schools.

Table 12: Distribution of non-household survey

Type	Province & District	Sampling Strategy	N (non-household)
Formal Business	[redacted]	All known registered business	40
	[redacted]		
Informal business	[redacted]	Transect walks. Estimated 127 informal businesses	87
	[redacted]		
Clinics	[redacted]	All know clinics in selected area	30
	[redacted]		
Schools	[redacted]	All know schools in selected area	68
	[redacted]		

QUALITATIVE DATA COLLECTION

The qualitative data collection numbers are provided in Table 12. Per the team's discussion with USAID, the baseline has increased the total number of surveys, which has led the team to slightly alter the size of the qualitative samples. The team is increasing the number of enhanced household surveys, for both male and female respondents from 50 to 64. Similarly, for business, clinics, and schools, the team has

[6] This includes 2 interviews per household. One with a male head of household, and one with a female head of household, for a total of 2000 individuals.

increased the number of enhanced surveys from 10 to 14, 8 to 12, and 8 to 10, respectively. The new total number of enhanced surveys is 100. Regarding the changes in sample numbers for the various key informant groups, the number of KIIs increased, community leaders from 6 to 7 and add other stockholders 8 KIIs. The total number of KIIs increased to 25 as the team felt the need to anticipate additional key stakeholders, unknown prior to data collection, but discovered during field work. This permits the activity to be adaptive to new field information as it is gathered and ensures the team can capture the most accurate/complete information.

Table 13: Qualitative Data Targets

Qualitative Data	[redacted]	[redacted]	Both
Focus Group Discussions (FGD			
Community members – Men	3	3	6
Community members – Women	3	3	6
Business owners (mix of business types)	3	3	6
Total number FGD participants OR FGs?	9	9	18
Qualitative-Enhanced Surveys			
Qualitative addition to HH survey for men	13	19	32
Qualitative addition to HH survey for women	13	19	32
Qualitative addition to business survey	7	7	14
Qualitative addition to health facility survey	6	6	12
Qualitative addition to Schools survey	5	5	10
ALL QE Surveys	44	56	100
Key informant interviews (KIIs) ~~(semi-structured)~~			
Community Leaders	3	4	7
DABS Provincial Representative	1	1	2
Other Stakeholders	4	4	8
MOCI District (or Provincial) Head	1	1	2
MRRD District (or Provincial) Head	1	1	2
MAIL District (or Provincial) Head	1	1	2
MoPH District (or Provincial) Head	1	1	2
ALL KIIs	12	13	25

SAMPLING

The annex EASEBS Sampling Framework includes the list of HH by enumerator area (EA), and a comprehensive explanation of the sampling approach to be used for this survey. The sampling framework was crafted with the assistance of the Afghanistan Central Statistics Office. The new sample calculations yielded a representative sample of 500 residential households for each ZOI. Two people, one male and one female, will be surveyed from each household.

The ZOI is the area of service at maximum capacity around each of the substations to be surveyed. This ZOI remains consistent across all subsequent surveys. The definition of the ZOI is predicated on the assumption that, while some households, businesses and institutions are direct clients of DABS and others are not, there will also be a cumulative impact on all residents of the area, whereas even those who do not have a direct connection may benefit if the presence of electricity has an overall stimulating effect on the local economy, improves the quality and availability of government social services, or influences governance and security. These distinctions lead naturally to an analytical approach based on differential access among DABS clients and the possibility of spillover effects on non-DABS clients in the ZOI. Furthermore, tracking non-DABS clients in the ZOI may provide opportunity for creating treatment and comparison/spillover groups in the ZOI over time.

- Quantitative sampling: Quantitative sampling protocols are set out for four populations in the ZOI: households, businesses, schools, and health facilities.

- Qualitative SAMPLING: Qualitative sampling is purposive and aims to provide enough and variety of data to provide a rich contextual picture allowing for description of the current situation and interpretation of quantitative indicators.

Further details on sampling protocols and target numbers for each sample type are laid out in Part II of this manual.

DATA ANALYSIS

The EASEBS manual provides comprehensive detail about the analysis strategy for the assessment. The team will use the data collected for two primary analytical purposes:

- **Describe the current state of access to the electricity**, as well as other variables associated reliability, costs and customer satisfaction. This set of questions concerns the direct impact of an expanded electricity grid. These questions are vital for addressing issues around the quality of expansion and the efficiency with which expansion takes place. The analysis for this dimension of the study can be addressed mostly by analyzing the descriptive statistics.

- **Examine development implications of expanding an electrical grid**. These questions concern building up a better evidence base as to whether and how linking up to the electrical grid changes households, businesses, schools, health facilities, and ultimately communities. This component requires more nuanced statistical methods. Analysis may include Inferential statistics including Chi-square tests and correlation tests to explore relationships between survey variables in the which development hypotheses often assume a relationship, such as between electrification and increased economic activity. This will help identify the strength and direction of associations between variables in future waves of survey.

The study is collecting baseline data in anticipation for future comparison of data that has been yet to be collected. As the manual explains, the surveys are designed to gather a rich tapestry of data, allowing for numerous options for exploration and analysis. The research design adopted here allows for shifting interests and expectations as the study evolves over time. By using GIS coordinates and tracking the same respondent units (key informants, households, or establishments), the surveys are set up to be used as panel data. The GIS coordinates fix the locations of households, businesses, health facilities, and

schools, so they are easy to visit a second and third time. The sampling design for the household survey has taken into consideration attrition of participants over time. Thus, survey results should remain robust over the various iterations of the survey.

The assessment team are reviewing the need for IRB Human Research review.

QUALITATIVE ANALYSIS AND DATA SYNTHESIS

After the culmination of data collection, the team will reconvene for a data analysis workshop. This will allow the team to analyze all the various data streams to generate initial findings, and then using these respective sets of findings to craft a research agenda for the subsequent phases of the EASE research. The research agenda should be organized according to the eight research dimensions: electricity, economic, governance and security, communications/ICT, education, health, environmental, and gender.

In analyzing the data, the Team will:

- Order the descriptive data from the survey to provide summary statistics for variables across the survey dimensions.
- Conduct bivariate analysis to examine the association between variables, including by demographic characteristics, rural and urban splits, and education and income cohorts.
- Identify cross tabs for future survey waves
- When appropriate, combine related measures to create individual indices, for example on education or health. The analysis will utilize what is known as a factor analysis routine to examine the patterns of correlations among a set of indicators to create a single weighted basket which gives strongest emphasis to the most suitable indicators. This will in turn guide subsequent choices in taking a simple mean or sum of indicator values (a factor-based index score) or standardizing the selected variables to have a mean of zero and standard deviation of one (a factor score). The result will be a data-driven method of identifying the fewest number of indices that sufficiently describe the seven research dimensions of interest (per Table 1). Use of these indices in analysis will stabilize variance, improve precision, and generally aid in the effort to generate robust inferences addressing the research questions.

ANALYTICAL APPROACH

As the first data point in what is expected to be a longitudinal study of key informants, households, and establishments, analysis at the baseline stage will be limited to examining the existing levels of electricity access and usage as treatment and the seven identified research dimensions as outcomes. The baseline analysis will present bivariate relationship between a treatment and an outcome, both in raw form as well as after adjusting for observable characteristics that may also affect the relationship.

Analytically, generating the bivariate relationships will be computed according to the following regression of the form

$$(1.1)\ y_{ij} = \beta_0 + \beta_1 Treatment_{ij} + X_{ij} + u_{ij},$$

where y_{ij} is any of the seven research outcomes of interest for unit (individual, household, or establishment) *i* in zone of influence *j*. β_0 is the baseline value of the outcome (across all ZOIs, but could also be disaggregated by each ZOI), β_1 is the effect of electricity access or usage on the outcome for unit I in ZOI j, X_{ij} is a set of control variables to better isolate the bivariate relationship between electricity and a research outcome, and u_{ij} is a theoretical construct highlighting that there will always be unobserved features absent from the estimating equation that may also affect the bivariate relationship.

If the analysis is interested primarily in the effect of switching a unit from no electricity access to some positive level of access, then the treatment variable becomes zero and the analysis will simply present the baseline value of the outcomes, disaggregated by the control variables of interest. However, contextual data drawn from The Asia Foundation survey of 2018 suggests that while the electricity grid extends to only 30 percent of rural households, over 50 percent of rural households rely on solar panels. Fewer than 10 percent of households (7.1 percent rural, 2.7 percent urban) have zero access to electricity, as Table 13 shows.

Table 14. Main Sources of Electricity for Households

	CSO Geographic Code		
What is the main source of electricity supply in this household?	**Rural**	**Urban**	**Total**
Power from the grid/city power	28.9 %	79.5 %	38.7 %
Generator owned or rented by this household	2.2 %	0.7 %	1.9 %
Community generator	2.6 %	0.8 %	2.2 %
Solar panels	53.4 %	15.1 %	46 %
Battery	5.8 %	1 %	4.9 %
There is no electricity in this household	7.1 %	2.7 %	6.2 %
Don't know (vol.)	0.1 %	0.1 %	0.1 %
Total	100 %	100 %	100 %

Note: $\chi 2=2541.636$ · df=6 · Cramer's V=0.411 · Fisher's p=0.000

This suggest that it would be more appropriate to regard the treatment variable as a baseline level of electricity usage that can be zero or positive. This would render β_1 in the estimating equation a multivalued variable, enabling examination of the relationship of the level of electricity service and the level of a research outcome of interest. For example, Figure 2 shows this relationship from TAF 2018.

Figure 2. Electricity Access and Monthly Income, TAF Survey 2018

[Redacted]

Though the visual relationship is indeterminate, there is a statistical relationship between electricity service and monthly income. A simple analytical model (for illustration purposes only) indicates that an additional hour of electricity service is associated with an additional 72 Afs in monthly income, but with a sharp divergence by locality. Rural households earn only three additional Afs in monthly income per additional hour of electricity service, while urban households earn 158 additional Afs in monthly income per additional hour of electricity service.

Subsequent analysis will examine survey information on electricity access and usage in the context of a second data collection round and examining the change in electricity access or usage and subsequent levels or changes in a research outcome of interest. This will enable better planning and setting expectations about the statistical power of information on electricity access and usage to detect changes in a research outcome (assuming that such a relationship exists to detect).

In order to make the research agenda manageable the Team have created an initial set of research questions for each of the dimensions. These are shown in table 14. The research questions are a mix of theories of change and development assumptions that deserve in-depth analysis in the Afghan context.

The research agenda will be a combination of initial findings regarding the 78 indicators across eight dimensions (see tables 2–9), analysis of the relationships between these variables, and drafting provisional conclusions for the research questions that are attached to each of these dimensions, and the topics and questions which emerge from the ongoing analysis within dimensions and across dimensions. As the data is collected, new areas of inquiry may emerge of value to USAID. The team will ensure the process is adaptive to provide opportunities during the baseline activity and subsequent data collection points in time (midline, endline) for useful, relevant, and innovative analysis

The final report should be a mix of summative findings related to the indicators, provisional conclusions for the research questions that will require further study, and recommendations for further research

from later survey iterations. Because of the 30-page limit on USAID reports, much of the data analysis, and findings will be annexed. The top line report will be structured by dimension and present top line findings and conclusions and the recommendations for the next phase of study.

RESEARCH QUESTIONS

Table 14 presents provisional lines of research that the assessment team may pursue during the analysis phase of the assessment. Table 14 provides a starting point for a research agenda that is hopefully being launched by this baseline study. A more detailed research matrix mapping out the research questions for each of the dimensions, along with sources of data, is being developed as part of the design process. During the team planning workshop before data collection, the team will use the indicator sheets from the assessment manual to develop an analysis plan for the below questions.

Table 15. Illustrative Research Questions by Dimension[7]

Dimension	Questions
Electricity	▪ Is the program of electrification meeting local needs? ▪ What are the relevant cost points of uptake and usage? ▪ How does cost affect perceptions of affordability and accessibility for intended beneficiaries?
Economic	▪ How do businesses benefit from increased access to electricity? ▪ How do poverty levels change over time as households gain access to electricity? (potential analysis in mid and end line surveys) ▪ Do informal businesses move into the formal economy as they gain access to electricity? (potential analysis in mid and end line surveys) ▪ What does increased access to electricity do to overall business activity in the community? (potential analysis in mid and end line surveys) ▪ Has increased access and use of electricity change business investment? (potential analysis in mid and end line surveys)
Governance and security	▪ Do any groups within the community feel marginalized because of the local extensions in the national power system? ▪ Does the local community feel closer links to the central government due to improved services? ▪ Has the introduction of improved electricity services created tensions between groups within the community? ▪ Has the introduction of electricity affected the attitudes and behaviors of anti-government forces in any way? (potential analysis in mid and end line surveys) ▪ Have local communities used improved electricity services to improve communal spaces?
Communication and ICT	▪ Are households, business, schools and clinics using social media and web-based applications? ▪ Has electricity changed media consumption? (potential analysis in mid and end line surveys) ▪ Has electricity changed how people get access to news? (potential analysis in mid and end line surveys) ▪ Has electricity changed household purchasing of electrical goods? (potential analysis in mid and end line surveys)

[7] The team will determine the feasibility of the specific research questions after initial data is shared from the field. The team will provide an in-depth table, Getting-to-Answers Matrix, in the annex of the final report clarifying the source of the data for each testable research question/hypotheses.

Dimension	Questions
Education	▪ Where are schools using electricity with increased access? ▪ What types of barriers do schools encounter to access electricity? ▪ What are the expectations of use for schools? ▪ Are learning outcomes improved for students as their homes get electricity? (potential analysis in mid and end line surveys)
Health	▪ What are the health benefits for clinics and hospitals – and ultimately communities – with in the supply of electricity? (potential analysis in mid and end line surveys) ▪ Has electrification changed food storage, preparation, cooking and diet in any way? (potential analysis in mid and end line surveys) ▪ Has electrification improved living conditions for families? (potential analysis in mid and end line surveys) ▪ Are families switching to electricity as their source of power for food preparation, heating, and other household needs? (potential analysis in mid and end line surveys)
Environmental	▪ Has electrification changed practices that contribute to household air quality (potential analysis in mid and end line surveys)? ▪ How are families cooking their food? (potential analysis in mid and end line surveys) ▪ What are the sources of fuel for households?
Gender Equity	▪ What type of household chores do men and women currently carry out in a household? ▪ What are their expectations about the increased access to electricity on labor division with a household? ▪ How are males and female students utilizing electricity to meet school requirements? ▪ Does electrification have any effect on women's expectations about gender roles and paid employment? (potential analysis in mid and end line surveys) ▪ Has electrification changed household behavior, the division of labor and how women spend their day? (potential analysis in mid and end line surveys) ▪ Has electrification had any effect on how women get information and their access to information? ▪ Has electrification had any effect on men's attitudes and behaviors about women's roles? (potential analysis in mid and end line surveys)

LEARNING AGENDA AND KNOWLEDGE TRANSFER

Given that this assessment is intended to progress a research agenda, AMELA is proposing to use the initial findings to convene a research workshop inviting researchers and institutions from the energy sector to discuss how research should accompany the work of the Government of Afghanistan to strengthen the national electrical grid, and the support given to these efforts by the donor community. This workshop would also provide a forum to discuss how the process of the baseline survey can be best captured and catalogued for the wider sector as part of a CLA strategy.

LIMITATIONS AND BIASES

CHANGES IN CIRCUMSTANCES COMPROMISE THE CAPACITY TO ACCESS RESPONDENTS IN LATER SURVEYS

The areas transited by the transmission line, and where the substations are expected to be located are known to have ongoing security issues, and the security situation is known to be volatile and subject to sudden changes. At the outset of each baseline and follow-up study, an assessment of existing security risk must be carried out and mitigation strategies must be developed if and as required. The volatility of these areas poses some risk to the study, as it is predicated on the assumption of continued/sufficient access. A further risk is that, because the service areas around substations are relatively small, it will be difficult to substitute or come up with an alternative if these areas become inaccessible.

Given that this study is the first phase in a planned longitudinal study there are risks associated with being unable to contact the same family and household or respondent over the years of expected data collection. The Assessment team will endeavor to maintain understanding around the risks of family mobility, and changes in access to regions as circumstances change.

TYPES OF BIAS

The Assessment will survey respondent's attitudes and behavior across eight broad categories of life and depending on the data may attempt to draw conclusions about how access and use of electricity changes affects aspects of these socio-economic dimensions. Team will mitigate bias in the assessment using standard approaches within the field of social science and evaluation.

There are various common types of biases likely to be present in this baseline including:

Response Bias [recall, social desirability] – the team will test instrumentation through pre-testing in the field and from conversations with field teams regarding their experience with the target response groups. Pre-testing will help reveal which questions are problematic to the respondent including multiple interpretation of the question, problematic phrasing or wording affecting the clarity of the question, survey fatigue, and other common issues in data collection.

Instrumentation Bias [this is often specific to each type of instrument and in theory we should have a list of issues for each one and how we addressed them]

Sample Selection Bias

Selection bias in the sample can lead to distorted interpretations of the findings, which could otherwise be outliers or representative of a very small group. This in turn can lead to erroneous recommendations with negative impacts.

LIMITATIONS

The final survey report will include a section on the limitations of the analysis in regard to generalizability of the findings. Importantly it must be kept in mind that the baseline data is primarily intended to be used as the foundation data for change over time analysis and any analysis as to the inter-relationships between variables must be interpreted with this caveat.

GENDER CONSIDERATIONS

Consistent with USAID requirements and guidance,[8] this evaluation will assess gender aspects across each dimension, where appropriate, and report sex-disaggregated data. Additionally, the samples and instruments have been designed to reflect the variation in the samples with regard to the type of respondent (male, female, business owner, school administrator, clinic administrator). Specifically, the questions for men and women are focused on capturing the differences across the genders with respect to the household access to electricity.

[8] See: USAID's Gender Equality and Female Empowerment Policy; Automated Directives System (ADS) 200: Program Cycle Operational Policy; and ADS 205: Integrating Gender Equality and Female Empowerment in USAID's Program Cycle

DATA MANAGEMENT PLAN

PROTOCOLS FOR ETHICAL RESEARCH AND INFORMED CONSENT

Following USAID and U.S. government ethical requirements as well as standards of care for human subjects, the evaluation team will ensure that all participants are aware of their rights to participate in this baseline study. Survey, KII and FGD respondents are volunteers and have the right to: (1) decline participation with no reprisal, (2) stop the survey/interview/FGD at any time, (3) request clarification on any of the survey/KII/FGD questions, (4) skip or decline to answer any survey, interview or FGD question, and (5) have their information kept private with all personal identifiers removed from the evaluation analysis and reporting. Each participant will be required provide verbal consent to participate before any data collection activity. Per MSI protocols regarding human subject research, the team has requested and received approval to conduct human subject research for the baseline study. A copy of the approved protocol will be included in an annex in the final report.

DATA QUALITY ASSURANCE

To ensure the data is of the highest quality, the team will ensure the instrumentation is pre-tested and calibrated appropriately. The team will collect and analyze data following standards to mitigate bias from respondents, sample selection, and other sources of error. The team has two layers of protocols to ensure data quality we have two layer of data quality check 1) data collection firm will do 5% of direct observation and 10% of back checks on the field 2) AMELA national STTAs will do direct observation and back checks on the field during and after data collection. Details for these processes will be provided in the annexes of the final report.

DATA CAPTURE AND DATA ENTRY PROTOCOLS

The team will responsibly collect and analyze primary and secondary data and will verify the data for informed consent. Verbal or written informed consent will be acquired and used for each primary data collection method. Personal identifying information will be stripped from each KII and FGD and aggregated to keep respondent identity confidential and protect their privacy. The data entry firm will do 20% double data entry for quantitative data to ensure the accuracy of data entry.

DATA MANAGEMENT, STORAGE, AND TRANSFER PROTOCOLS

The team will systematically organize and archive all primary and secondary data collected and analyzed during the baseline for future reuse and audit. The team will protect all personally identifiable, proprietary, and other sensitive information per the informed consent documentation and applicable privacy laws. The data collected and analyzed will be stored on a secure MSI server in such a way that it can be understandable, transparent, and efficient for future use, review, and sharing. This will ensure that all data are easily captured, and that members of the evaluation team have immediate access to the data as necessary. All data will be sorted and organized according to the mechanism used to generate it (e.g., FGD transcripts, KII notes). Access to the final dataset will be restricted and managed by the MSI baseline team.

The final baseline data and information will be sorted and converted to the appropriate formats and shared with USAID per ADS 579 requirements and guidelines. When shared, the evaluation team will strip interview data of personal identifiers. The quantitative data will be uploaded to the DDL per

USAID requirements. Based on the informed consent documentation and in consultation with the COR, the access level of the data set will be labeled as public, restricted public, or non-public per the USAID development data library requirements. The approved final report will be submitted to USAID's Development Experience Clearinghouse (DEC) in accordance with ADS 540 following approval of the Contracting Officer's Representative (COR).

DELIVERABLES

Deliverables for this assignment are listed below.

Detailed Methodology, Data Collection Tools, and Data Collection and Analysis Plans: During the team planning workshop the methodology in the AWP may be updated and revised as needed at the end of the workshop. AMELA will submit any revised methodology, data collection tools, and data collection and analysis plans to the AMELA COR for approval, at the end of the workshop and before the start of field work.

Data Collection Completion Report: At the conclusion of data collection, AMELA will submit to the AMELA COR a final data collection schedule indicating dates and locations of data collection activities and persons or groups interviewed, if relevant.

Midpoint Briefing – Data Walk: TBD need to add

Debriefing with USAID/Afghanistan of Findings, Conclusions, and Recommendations: At or near the conclusion of data analysis, the AMELA assignment team will present the major findings, conclusions, and recommendations to USAID/Afghanistan. As appropriate, the team will consider USAID comments during the debriefing when writing the draft report.

Draft Report: The draft report will answer the assignment questions and will include findings, conclusions, and recommendations across the components/sub-components. AMELA will submit the draft report (not to exceed 30 pages) to the AMELA COR for USAID/Afghanistan review and comment. The AMELA COR will submit all comments to the draft report to AMELA within 2–3 months of receiving the draft report.

Final Report: The final report will address all of USAID/Afghanistan's comments. AMELA will finalize the report and submit it to the AMELA COR for approval within 2–3 weeks.

One-page Brief: AMELA will develop a brief of the key (qualitative and quantitative) findings, conclusions, and recommendations related to the assignment question, for the use of USAID/Afghanistan decision makers and other relevant stakeholders. This document will be written in English and may be translated and disseminated as desired by USAID/Afghanistan. AMELA will submit the document to the AMELA COR after the final report is approved.

Presentation(s) to USAID/Afghanistan: AMELA will deliver presentation(s) of the final report to USAID/Afghanistan, implementing partners, and other relevant stakeholders, if desired by USAID/Afghanistan. Per this workplan and the SOW the team will provide the following presentations:

1) In-brief, 2) mid-brief/data walk, 3) FCR, and 4) other mission briefings (to be determined based on need and budget availability).

Raw Data: First, per the requirements of all open data for submission to USAID, the team will remove all PII to ensure the privacy and safety of the participants. Specifically, for this study in a country considered high risk, the team will take extra care with ensuring responses are kept anonymous to the those outside the immediate team[9]. PII information, such as the geocodes of homes, business, clinics, and schools will be uncoupled from responses when share with USAID, and when presented clustered/collapsed to safeguard respondents. According to ADS 579, USAID Development Data, all quantitative data collected for this assignment will be submitted to USAID/Afghanistan in electronic format within 30 days of completion following the DDL the required formats. Qualitative data will be delivered if appropriate as 1) the coded segments used in analysis extracted from MAXQDA in an Excel format, or 2) tally sheets, as applicable to the analysis guarding all respondent's identity.

Development Experience Clearinghouse (DEC) Review: When the report is finalized, USAID/Afghanistan may conduct a DEC review of the report. The AMELA COR will share the DEC version of the report with AMELA for final editing, formatting, and uploading to the DEC.

SCHEDULE OF ACTIVITIES AND LEVEL OF EFFORT

Table 15 describes the roles and responsibilities of the proposed assignment team members. Table 17 gives scheduling details for each position. Table 18 summarizes LOE by position.

Table 16. Assignment Staffing with Roles and Responsibilities

Position	Status	Roles and Responsibilities
Team lead	Expat STTA	The team leader for the duration of data collection field work and analysis, s/he will be the primary point of contact between USAID and the survey team and have responsibility for preparation and submission of all deliverables. This is an expatriate position with a minimum of 10 years of research management experience including mixed methods design, data collection and analysis. S/he must have data collection, sampling techniques, statistical analysis, and baseline survey experience with USAID and/or other similar programs. H/she must possess a master's or higher degree, have excellent communication and writing skills in English, and be willing to travel to provincial locations as identified by USAID, security permitting. Previous Afghanistan or similar conflict environment experience is preferred.
Sector specialist (quantitative)	Expat STTA	Responsible for oversight and coordination of the quantitative survey field work and analysis of the survey data. This is an expatriate position and the incumbent must have 5 years of experience in designing, managing, leading, and coordinating representative quantitative surveys in developing countries (with a preference for experience in conflict countries). S/he must have extensive experience in quantitative questionnaire sample design, analysis, and data management. S/he must have knowledge and experience on software for statistical analysis and data entry. S/he must have a master's degree in any discipline but statistics, survey methodology, or epidemiology will receive preference.

[9] Only team members working directly on the baseline will have access to geocoded data. The team will add further data protections by limiting access to complete data rosters (house geocodes coupled with responses/individuals) to 2-3 staff maximum, storing data with using encrypted formats, and keeping all data in secure servers per USAID regulations.

Position	Status	Roles and Responsibilities
Sector specialist (qualitative)	Expat STTA	Responsible for managing and supervising the qualitative study; overseeing the training of qualitative study team members; analyzing and interpreting quantitative results for use in the qualitative study; and integrating qualitative findings with quantitative data. The incumbent must have 5 years of experience in designing, managing, leading, and coordinating qualitative surveys in developing countries. S/he must have extensive experience in designing and conducting qualitative studies as a part of mixed-methods studies and integrating qualitative findings with quantitative survey data. S/he should have excellent writing and organization skills and a demonstrated ability to deliver a high-quality written product. S/he must have a master's degree in any discipline.
Quantitative data analyst	EXPAT STTA	Assisting the Quant Sector Specialist as requested. The primary Quantitative Sector Specialist will be responsible for creating the models necessary for data analysis, while the Quantitative Data Analysis will help with the cleaning and linking of five datasets that will allow the team to examine the seven dimensions and 78 indicators[10] to be examined under this baseline evaluation. S/he will be responsible for preparation of descriptive statistics tables, indicator tables, and creation of and formatting of graphs. Additionally, this person will be responsible for cleaning and linking secondary datasets that were received from DABS that includes 10,000 households in [Redacted] and 400 households in [Redacted]. This role will be instrumental in ensuring the data is ready to be entered into the models developed by the Quantitative Sector Specialist.
Two national researchers	STTA Local	The incumbents (male and/or female), each with a relevant university degree, should have experience in survey research involving development activities, including gender and socioeconomic impact. Each must have excellent English language and writing skills and the ability to translate from Dari/Pashto; and be willing and able to travel to survey sites. The researchers should be willing to travel to the site and oversight the process of data collection and sampling to be used by the subcontractor whenever required.

[10] See Table 1: Number of Study Indicators

Table 17: Projected Assignment Schedule and Level of Effort

Activity	Location	Deliverables	Tentative Schedule	Team Lead (STTA)	Sector Specialist (Quantitative Expert)	Sector Specialist (Qualitative Expert)	Quantitative Data Analyst (STTA)	Research Assistant	Research Assistant	GIS Specialist
Domestic and international travel (non-field)	[Redacted]	Team leader for TWP and trainings and sector specialist for data analysis and presentation	Sep 01 2019 – Mar 10 2020	12	12	12		0	0	0
Document review	[Redacted]	Matrix of findings from the review	Aug 28– Sep 19 2019	5	3	1		3	3	0
Team planning workshop and field work prep	[Redacted]	Data collection plan, Instruments, data analysis plan and enumerator training	Sep 22–Oct 12 2019	12	12	5		7	7	0
Fieldwork (including travel and transcription)	[Redacted]	Data entry, transcription and translation completion report	Oct 13–Nov 30, 2019	2	3	5		28	28	0
Initial Analysis and data walk presentation	[Redacted]	Analysis workshop findings, Data walk presentation for USAID	Dec 01 2019– Jan 20 2020	14	16	0		0	0	5
Data synthesis and report drafting	[Redacted]	FCR presentation for USAID o/a Feb 5th Ideation workshop for midline and endline o/a Feb 6th Draft report due March 25th	Jan 21–March 25 2020	20	23	8	10	7	7	15
Final report revision	[Redacted]	Final report due May 14 One-page brief	March 26 – May 14, 2020	17	10	2		0	0	0
Total assignment LOE				**82**	**79**	**33**	**10**	**45**	**45**	**20**

Table 18: LOE Summary by Position (Days)

Status	Position	LOE
STTA	Team lead	82
STTA (Quan)	Sector expert	79
STTA (Qual)	Sector expert	33
STTA	Quantitative data analyst	10
Research assistant	Local expert	45
Research assistant	Local expert	45
GIS specialist	Sector expert	20
Total LOE		**314**

COST ESTIMATE

Table 18 gives a breakdown of assignment costs by line-item.

Table 8. Assignment Cost Breakdown

Category	Amount
Direct labor	[Redacted]
Other direct costs	[Redacted]
Subcontractor	[Redacted]
Grand total	[Redacted]

Note: Total cost estimates do not include cross-cutting costs, indirect costs, or the MSI fee.

AMELA COR APPROVAL

[COR will indicate approval by signing below or indicating "approval" by return email].

Contracting Officer's Representative (COR)	Date
_____	_____

ANNEX B. CHECCHI MANUAL FOR EASE

ELECTRICITY ACCESS & SOCIO-ECONOMIC BASELINE SURVEY (EASE-BS) MANUAL

DRAFT 1.0 FEBRUARY 20, 2018

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Electricity Access & Socio-Economic Baseline Survey Manual

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LIST OF ACRONYMS

ACCI	Afghanistan Chamber of Commerce & Industries
CSO	Central Statistics Office
DABS	Da Afghanistan Breshna Sherkat
DRRD	Department of Rural Rehabilitation and Development
EAs	Enumeration Areas
FGD	Focus Group Discussion
HH	Household
IRC	International Rescue Committee
KII	Key Informant Interview
MoCI	Ministry of Commerce and Industry
MoE	Ministry of Education
MoPH	Ministry of Public Health
NEPA	National Environmental Protection Agency
PTEC	Power Transmission Expansion and Connectivity
SCA	Swedish Committee for Afghanistan
ToC	Theory of Change
ZOI	Zone of Influence

PART I: INTRODUCTION AND STUDY FRAMEWORK

CHAPTER 1: INTRODUCTION & BACKGROUND

Overview

The electricity access and socio-economic survey (EASES) is a longitudinal survey containing both quantitative and qualitative components. It is designed to be carried out at baseline and periodic intervals in zones around electrical substations, at the time just prior or soon after the substations begin providing services, up until the time that they reach maximum capacity (typically 4 to 5 years later). Each survey assesses the current level of access to electricity in households, businesses, schools, and health facilities within the zone. It further assesses socioeconomic indicators and links between electricity use and these indicators. By repeating these surveys periodically within the same zone, the surveys further provide comparative information about how both access to electricity, use of electricity, and broader socioeconomic indicators have changed.

This manual describes the overall design of EASES, including the study framework, indicators, and methodology. It further describes sampling protocols and specific quantitative and qualitative tools, and how to deploy these in the field. Finally, it provides an overview of how to analyze this data, during the baseline and during subsequent periodic surveys. It aims to serve as a complete package to allow survey teams to consistently replicate the survey at different times and at different locations, with a clear understanding of the rationale and logic that inform the study design.

Background to the Study Design

Afghanistan's energy infrastructure is limited and is unable to support high levels of economic growth. Only about 30% of Afghans have access to electricity, Afghanistan ranks 175th out of 215 countries in a World Bank index of electricity access. Limited access to electricity is a barrier to development in Afghanistan and is one of the biggest obstacles to private sector business development in Afghanistan. Numerous studies establish unidirectional causality between economic growth and electricity consumption, implying that an increase in electricity can lead to increased Gross Domestic Product (GDP) and improve other socio-economic and political indicators.

The USAID Power Transmission Expansion and Connectivity (PTEC) Project began in July 2012 and is set to finish in April 2020. PTEC works in partnership with the national electric utility Da Afghanistan Breshna Sherkat (DABS), aiming to increase access to electricity by (1) expanding and improving Afghanistan's electric transmission system; (2) strengthening the ability of DABS to manage, operate and maintain the national power system; and (3) promoting private sector investment in Afghanistan's energy sector.

EASES is intended to be used to gather data on certain energy infrastructure activities within the PTEC Project. It will collect baseline data on electricity access as it relates to DABS on-budget assistance from USAID to (1) connect the northeastern power grid with its southeastern counterpart, and to (2) rehabilitate the existing southeastern power grid. All of the information collected will be used for energy sector planning, as well as any future project evaluations.

The first baseline study, to be carried out on two substations (in [redacted] and [redacted]) in 2018, is the first of a series of baseline and periodic studies intended to be carried out in zones-of-influence around each substation along the [redacted]-[redacted] transmission line and the upgraded SEPS transmission lines and substations. Subsequent baseline studies will be carried out after the additional substations are constructed (or upgraded) and before they are connected to new customers.

In total, EASES is expected to be applied to over 600 kilometers of newly constructed transmission lines and eleven substations along a transmission corridor from [redacted] through [redacted] and up to Kajaki. This endeavor includes the following:

1. [redacted] – [redacted] *Transmission Lines:* Construction of a 111 km, 220-kV transmission line from [redacted]
2. [redacted] – [redacted] *Substations:* Construction of two substations at [Redacted and [redacted]
3. [redacted] – [redacted] *Transmission Lines:* Construction of a 400 k, 220-kV transmission line from [redacted] to [redacted]
4. [redacted] – [redacted] *Substations:* Construction of five substations at [redacted], [redacted], [redacted], [redacted], and [redacted] East
5. *South East Power System (SEPS) Transmission Lines:* Construction of 114 km of 110-kV transmission lines between [Redacted East to [redacted], [redacted] to [redacted], [redacted] to [redacted], and [redacted] to [redacted]
6. *SEPS Substations:* Construction of four substations at [redacted], [redacted], [redacted], and [redacted], plus additional improvements and relay work

DABS plans to build out or improve local distribution networks from substations being constructed or rehabilitated as part of the PTEC Energy Infrastructure activities. This is beyond the scope of Energy Infrastructure activities per se, but the local distribution networks are necessary to achieve the full potential impact of the PTEC Energy Infrastructure activities and are thus taken into account in setting the Zone-of-Influence (as explained in Chapter 5).

Structure of the Manual

This manual consists of four parts:

Part	Chapters
Part I: Introduction and Study Framework	Four chapters, covers study purpose, framework, indicators, and overview of methodology
Part II: Sampling	Three chapters: Zone-of-Influence, Quantitative Sampling & Qualitative Sampling
Part III: Data Collection	Nine chapters, covers all aspects of quantitative and qualitative field work, with guidance for field supervisors and enumerators
Part IV: Analysis	Two chapters providing overall guidance on quantitative and qualitative analysis

Together, these parts provide a comprehensive presentation of the EASES study design and how to implement it. In practice, this manual can be used as a reference by anyone involved in an EASES baseline or follow-up study. In particular, the part on data collection is extensive and can be used as a stand-alone guide to field procedures.

CHAPTER 2: FRAMEWORK & THEORY-OF-CHANGE

The initial Statement-of-Work draft for the first EASES baseline survey explains that USAID-Afghanistan hypothesizes that electricity can play a central role in stimulating wider development. The USAID-Afghanistan hypothesis states that:

> "[I]f Afghanistan increases access to electricity, provides equitable access to financial services, increases competitiveness of businesses and entrepreneurs, and increases regional trade, then employment opportunities for Afghan citizens will be increased. Support to electricity infrastructure, business and commerce policy environment, the finance industry and trade institutions will create a base of stable, employment-generating enterprises. These opportunities and industries will generate revenue for the Afghan government, enabling service provision and Afghan-led sustainable development."

As such, this survey is focused on documenting the degree to which this hypothesis is borne out by evidence, and to the degree possible, quantifying some of the associated development benefits. While the theory-of-change (ToC) is already strongly implied by the hypothesis above, it has been further refined and grounded by a literature review and consultations with stakeholders from [redacted] and [redacted] (where the first two substations are located), as well as the data from the initial piloting of the survey tools.

Literature Review

While studies on electricity have shown a positive correlation between electricity and various socioeconomic indicators, causation is not unidirectional and outcomes are influenced by a variety of other factors. A 2013 literature review finds that the empirical evidence for electricity as a causal factor in economic growth is surprising weak, due in part to methodological issues in the studies that do exist.[1]

Fan et al find evidence for indirect benefits from electricity: namely, that those living in an area where on-grid electricity is available can benefit even if they are not direct clients, for example by having access to a health clinic with electricity.[2] The notion of indirect access is a component of the definition of Zone-of-Influence (see Chapter 5). [redacted] and [redacted]'s 2008 study provides a framework that gave inspiration to the EASES framework (although similar frameworks exist in a number of studies).[3] The authors found positive correlations between electricity and a number of socioeconomic indicators, including literacy rates. Rao et al conducted a study comparing various systems and sources of electricity in Nepal and India, including on-grid and off-grid, and found that while electricity use was found to lead to a range of positive socio-economic outcomes, the characteristics of the electric system and mode of delivery were also important determinants.[4] Similar observations were made in a 2014 study of socioeconomic impacts of electricity access in the Amazon.[5] This has direct implications for the EASES

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[1] Attigah, B. and Mayer-Tasch, L. 2013. The Impact of Electricity Access on Economic Development – A Literature Review. In: Mayer-Tasch, L. and Mukherjee, M. and Reiche, K. (eds.), Productive Use of Energy. (PRODUSE): Measuring Impacts of Electrification on Micro-Enterprises in Sub-Saharan Africa. Eschborn.

[2] Fan, JL., Tang, BJ., Yu, H. et al. 2015. Impacts of socioeconomic factors on monthly electricity consumption of China's sectors. Natural Hazards 75: 2039.

[3] Kanagawa, Makoto and Toshihiko Nakata. 2008. Assessment of access to electricity and the socio-economic impacts in rural areas of developing countries. Energy Policy 36.

[4] Rao, Narasimha D., Anjana Agarwal and Davida Wood. 2015. Impacts of small-scale electricity systems. A study of rural communities in Nepal and India. World Resources Institute.

[5] Valera, Roberto, André Mocelina, Roberto Zillesa, Edila Mouraba and Claudeise S.Nascimento. June 2014. Assessment of socioeconomic impacts of access to electricity in Brazilian Amazon: case study in two communities in Mamirauá Reserve. Energy for Sustainable Development 20, Pages 58-65.

study, especially given the wide variety of electrical sources and systems encountered during the design consultations.

These studies on socioeconomic impacts of electricity provide some ideas and insights for the types of impacts that might be expected. For health, the capacity to refrigerate vaccines was singled out as particularly important in one study.[6] A number of studies found that in areas where families are depending on firewood or charcoal, switching to electricity can reduce pollution, deforestation, and labor time for those collecting and preparing it: most usually women and children.

Specific to Afghanistan, there are no completed studies on the socioeconomic impacts of electricity. However, a number of broader studies and surveys provide insight as to the current status of electricity systems in Afghanistan and consumer perspectives. The Asia Foundation's 2017 Survey of the Afghan People found that, although the availability of electricity has been increasing throughout the country, based on the government's expansion of the grid, only 12% of Afghans reported their electricity was improving, while 43% say it has gotten worse, a trend repeated from earlier years. This suggests that there are serious issues in the accessibility and/or quality of available electricity, and that existing on-grid systems are being overtaxed. The World Bank's Doing Business in Afghanistan 2017 report likewise notes challenges in the reliability of electricity, the speed and cost of getting a connection (for businesses), and the transparency of tariffing, which it grades a zero (the lowest possible mark). Again, this suggests that the baseline and ongoing studies will need to track specific components of electricity delivery as well as impacts, to understand the interaction between the two.

Some studies of the impact of electricity utilities have included not just the impact of use, but also the impact of delivery/implementation. As a major public investment, these undertakings typically create huge direct economic benefits from job creation. This is not within the scope of the baseline and longitudinal surveys but is an important point to remember when seeking to account for the full impact of the PTEC investment.

Design Consultations

During the EASES design phase, the design team consulted with the national electricity provider, DABS, the USAID Office of Infrastructure, and a range of people representing potential user perspectives through a number of semi-structured interviews. Government officials were also able to provide some provincial level statistics on the current use of electricity by households, schools, health facilities and businesses, and broad observations about the state of infrastructure. The purpose of these consultations was to ground-truth the design as it had initially emerged from the literature review and ensure that relevant aspects of electricity access and use were captured in the survey tools and flagged for consideration during analysis.

[6] Kanagawa & Nakata, 2008.

Table 1:Summary of Design Consultations

Level	Consultations with:
National	USAID, DABS, Ministry of Commerce and Industry (MoCI), Afghanistan Chamber of Commerce & Industries (ACCI), National Environmental Protection Agency (NEPA)
[redacted]	DABS, Swedish Committee for Afghanistan (SCA), Provincial Department of Education, Wardak University, private hospital, carpenter, Department of Rural Rehabilitation and Development (DRRD), Mayor of Maidan Shahr, Provincial Hospital, 2 welders, Provincial Dept. of Public Health, photography business, Wardak CCI, Provincial Dept. of Economy, 2 community elders, Teacher Training College (TTC)
[redacted]	DABS, International Rescue Committee (IRC), CARE International

Key findings and considerations from the consultations

Even areas which are currently receiving on-grid electricity, such as [redacted] in [redacted] Province, report problems with the strength and duration at which this electricity is available. Alternatives are widely in use but are reported to be problematic: diesel generators are widely used but are expensive and polluting. The strength of on-grid electricity in most places where it is available was so low that it was apparently only useful for powering lights and could not run even basic office equipment such as a printer.

In health facilities, where electricity is critical, there is typically a primary and a back-up system: such as solar plus diesel generator.

Most people consulted were aware that more reliable electricity should be on its way due to the new transmission lines and substations. They saw this primarily as a positive development that should have numerous positive socioeconomic impacts. Their predictions for the type of impacts largely mirrored those already documented in the literature. There was more emphasis on the potential of electricity to increase girls' enrollment in school, primarily by reducing the time their household duties would take. Improvements in air quality by moving away from diesel generators were also hoped for, as air quality is a major concern for many.

Despite this, there were some broadly voiced concerns about the way in which the coming electricity service expansion would come, especially given the volatile security situation. Namely, people consistently noted that insufficient consultation and communication on the part of DABS could lead to conflicts within the communities and increase a risk of vandalism of electricity infrastructure. This could occur if one group felt it was being unfairly excluded from benefits, or had to unfairly shoulder some of the burden of the new infrastructure by, for example, giving up land. Past experience has shown that communities are extremely sensitive to such perceived transgressions.

A related theme raised by a number of institutional and governmental representatives was related to the placing of transmission line poles and towers. In some cases, they reported that these poles and towers had been placed very close to homes, schools and other areas, and people voiced concerns about health impacts. Some of those consulted said that they knew people had tried to raise these issues with DABS but had not been successful, or had not felt listened to. While this does not directly relate to access, it could have an impact on community ownership and protection of the infrastructure.

These findings suggest the need to pay particular attention to specific factors in how electricity is delivered which will also influence who uses the electricity, how much, and for what. These factors will often be mutually influential, and this must be taken into consideration when analyzing data. For example, when on-grid electricity is highly unreliable, it can greatly increase the risk of business ventures

that would need to rely on it to operate. This may cause businesses to invest in alternatives, if they can. Likewise, the relationship between electricity and security is likely to be complex and multi-directional.

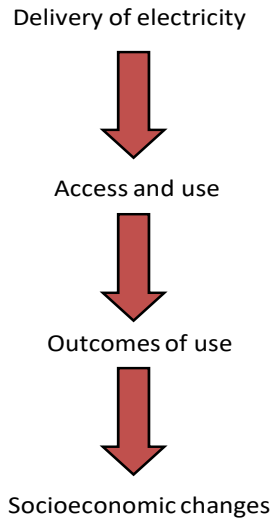
Table 2: Factors Influencing Who Uses Electricity and How Much

Factor:	Description:
Perceived need/value	Perspective of potential clients towards the potential and actual utility of electricity available
Physical accessibility	Includes the physical infrastructure as available to potential clients
Ease of connecting to the grid	Different procedures may be required for businesses and households, or depending on location. The World Bank's "Doing Business" report describes the procurement of electricity for businesses in Afghanistan, for example, to generally be a long and expensive process.
Reliability	If electricity is highly unreliable, it will be unsuited for many purposes and creates risk for some uses (e.g. cold storage, or risk of equipment damage due to power surges)
Alternatives	Many areas/potential clients may have alternative forms of energy, including off-grid sources of electricity or alternative energy sources (charcoal for burning): they will assess these in comparison to on-grid electricity in deciding what to use. Some clients may be able to combine energy sources to create back-up systems.
Cost	Cost of using electricity

The EASEBS Conceptual Framework and Theory-of-Change

As shown in Figure 1 below, the means by which electricity is theorized to lead to change can be described as a simple causal chain, whereas the delivery of electricity (in this case, through an on-grid power distribution infrastructure) leads to access and use of the electricity, the use leads to immediate outcomes in relationship to numerous potential applications, and these in turn can play a role in leading to broader socioeconomic changes.

Figure 1: Causal chain

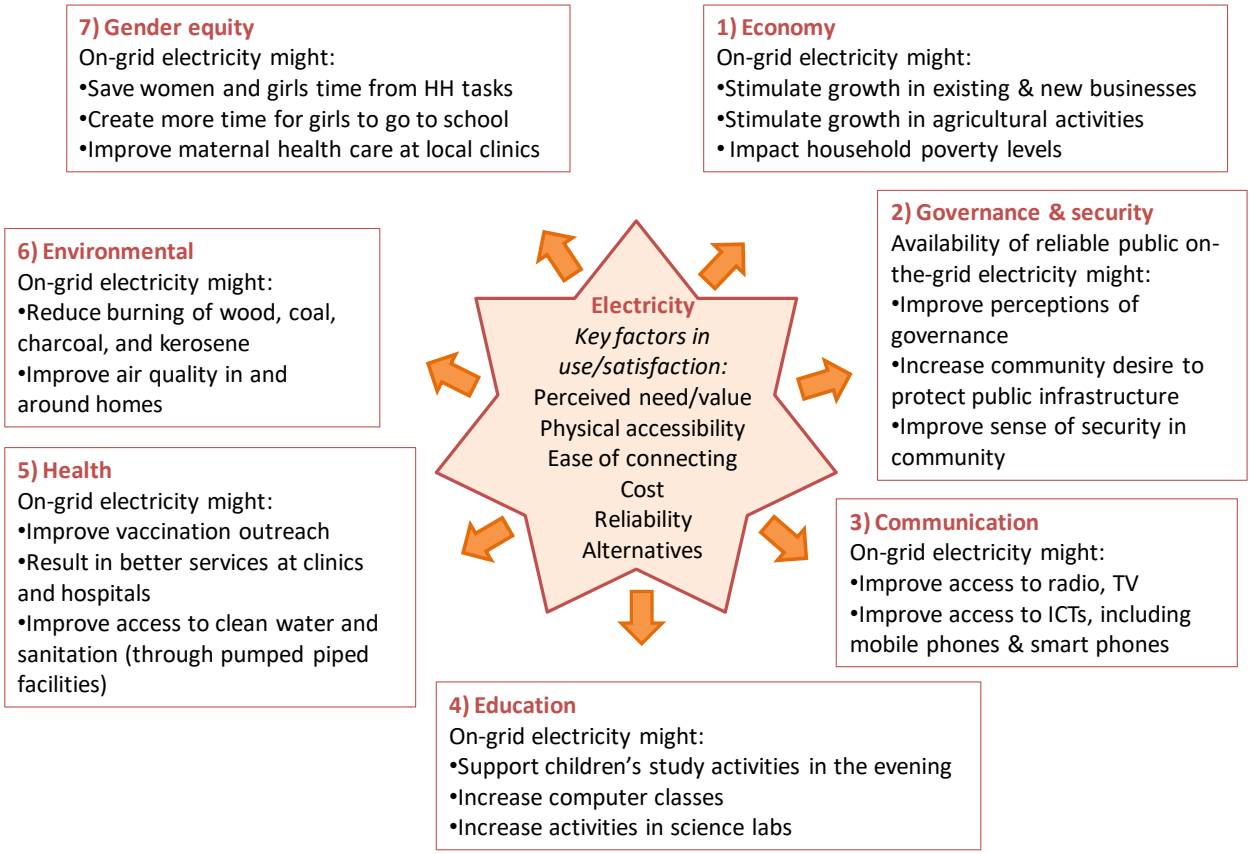


For example, if electricity delivered through a substation on the main transmission line allows small agro-processing businesses to access and use electricity, this can lead to higher rates of production at higher quality and lower price, leading to increased sales, increased operations, motivating others to enter into the same business, and potentially contributing to increased employment, income and prosperity within the region.

Practically, as noted in the literature review and consultations above, the characteristics of the electricity delivered will shape how and to what degree people are able to access and use it, while numerous other factors will also play into the degree to which people are able to leverage the potential benefits of electricity, as well as having a direct impact on socioeconomic indicators. The issue of greatest concern for most people in the consultations is regional security. Whilst on-grid electricity might help improve security by improving local perceptions of governance, the greater concern is that insecurity might not only pose a direct threat to electricity infrastructure, but also constrain the economic activities of businesses, as well as some social services, such as students' (and especially girls') ability to safely attend school.

Because electricity is a means to many potential ends, the conceptual framework considers potential causation in a range of directions of noted interest and potential import with regards to development. The framework is shown in Figure 2.

Figure 2: Framework for identifying potential areas of use and impact



As Figure 2 shows, the framework considers seven broad areas where electricity access has the potential to have useful applications and potential positive impacts. These areas have been determined largely from the literature and in consultation with USAID (i.e. the area of interest on governance and security is otherwise not much discussed within the literature, and yet has obvious importance in Afghanistan). The consultations largely vindicated the initial choice of broad thematic areas, while noting some specific applications or pathways through which electricity is expected or hoped to have a positive impact.

The characteristics of electricity delivery and use, and perceptions surrounding these, are shown in the center of the framework, and are considered as key analytic factors in shaping the independent/causal variable of electricity.

While this framework posits electricity as a causal variable, proving causation empirically is always a challenge, especially when an end condition is brought about by a combination of factors, as will be the case in almost all of these conditions. The methodology overview (Chapter 4) explains more on how the study design addresses this challenge.

CHAPTER 3: INDICATORS

EASES tracks 78 indicators. The data for all of these indicators comes from surveys, with the exception of indicators on the numbers of businesses, schools and health centers within the ZOI, which will come from the relevant government ministries.

The general criteria followed for determining these indicators is that they are measurable (therefore, by definition, quantitative), clearly defined, that they can be reliably derived from readily available data, and where relevant, that they follow already agreed conventions or protocols on measurement (such as under 5 child mortality rates). This means that they are already well tested, and also that data may more easily be compared with other sources, such as national rates.

The indicators trace the items of interest as laid out in the study framework described above. Namely, the indicators follow the causal chain assumed by the theory-of-change (ToC) from electricity delivery to use and broader impact across the seven thematic areas within the framework (economy, governance and security, communication/ICT, education, health, environment, and gender). The indicators are classified by which thematic area they fall into, and also what level of the causal chain they fall into: independent means they are directly related to electricity delivery/access, so are seen to be potentially causal under this theory; intermediate means they are related to use or a direct result of electricity use, and 'end' means they represent a broader socioeconomic outcome, which might in part be influenced by electricity. Although this categorization reflects the ToC, it is important to note that these indicators, by themselves, can only show correlations between these indicators, most of which will come from comparisons between baseline and follow-on surveys. Correlation cannot be assumed to be causation, which is why the further qualitative component of this study is also critical.

The table below summarizes how many indicators fall into which thematic area and causal level.

Table 3: Summary of study indicators (number of)

By thematic area:	**By indicator level**			***Subtotal by thematic area***
	independent	intermediate	end	
0 Electricity	8			*8*
1 Economy		4	8	*12*
2 Governance & security	1		6	*7*
3 Communication/ICT		11		*11*
4 Education	1	7	3	*11*
5 Health		9	5	*14*
6 Environment		5	2	*7*
7 Gender		2	6	*8*
Subtotal by indicator level:	***10***	***38***	***30***	***78***

A few notes on the table and the distribution of indicators: all indicators related to electricity are, by definition, independent or causal indicators, as they are related to the way electricity is being distributed and delivered, including customer satisfaction perceptions. All indicators related to communication/ICT are considered intermediate, as radios, TVs, mobile phones and computers are themselves versatile tools and means to various ends, which are fully dependent on electricity.

Qualitative data is particularly important at getting at perceptions around governance and security, which are often sensitive and thus difficult to meaningfully capture in a survey. Relatively greater emphasis on these areas has therefore been placed in the qualitative tools, and especially the focus group discussion guides and community leader interview guide.

All four surveys contain some questions in addition to those explicitly drawn on by or equated to one of the indicators. This is to provide further analytical and interpretive power to the surveys and provide the survey teams more options in terms of analysis. This proves particularly useful if a correlation between indicators warrants further exploration with related factors, for example, or if interests or expectations shift slightly over the course of the study.

The following tables list the indicators by number, giving a definition, unit of measurement, categorical breakdown if any, and source of the data. In almost all cases, the source of the data is a survey. In the tables, the surveys are referred to as follows: "HH (M)" is the household survey for men, "HH (F)" is the household survey for women, "biz" is the business survey, "school" is the school survey, and "health" is the health facilities survey.

Table 4: Electricity Indicators

Ind#	Definition	Unit	Breakdown	Source(s):
0.10	% of potential clients connected to DABS	%	By client type: household, business, school, health center	all surveys except HH (F)
0.20	Reported tariff rate	Afs.	Average, by client type	all except HH (F)
0.30	Reported payment for the last billing period	Afs.	Average, by client type	all except HH (F)
0.40	Reported number of hours electricity provided in last 24 hours	Hours	Average, by client type	all except HH (F)
0.50	Reported length of time required to connect	Days	Average, by client type	all except HH (F)
0.60	Reported cost of connecting (purchasing meter etc.)	Afs.	Average, by client type	all except HH (F)
0.70	Reported use of back-up/alternative system	%	By client type, and by source of alternative electricity (none, solar, wind, generator, hydro, other)	all except HH (F)
0.80	Reported level of client satisfaction with DABS' provided electricity	likert-scale	By client type, subcategories for satisfaction (reliability, cost, strength, overall)	all except HH (F)

Table 5: Economic Indicators

Ind#	Definition	Unit	Breakdown	Source(s):
1.01	Estimated household income, past month	Afs.	by income source (agriculture, non-agricultural own business, employment, remittances)	HH (m)
1.02	Livestock owned by household	animals	livestock type and number	HH (m)
1.03	Land owned by household, in jeribs	Jeribs	irrigated, non-irrigated and total	HH (m)
1.04	# of businesses started in last 2 years	Integer	Get formal business data from MoCI and ACCI	biz, MoCI and ACCI data (for formal businesses)

1.05	% of businesses reporting increased profits, compared to previous year	%	None	biz
1.06	% of businesses reporting decreased expenses, compared to previous year	%	None	biz
1.07	average number of employees	Employees	sex of employees	biz
1.08	average number of days employed casual workers in last month	Days	sex of employees	biz
1.09	average number of items powered by electricity owned by business	Items	None	biz
1.10	reported impact of electricity on business expenses	likert-scale	None	biz
1.11	reported impact of electricity on business income	likert-scale	None	biz
1.12	reported impact of electricity on number of employees	likert-scale	None	biz

Table 6: Governance and Security Indicators

Ind#	Definition	Unit	Breakdown	Source(s):
2.01	% of operations suspending operations due to security	%	by respondent type	Biz, health, school
2.02	% of operations targeted by theft, arson or vandalism	%	by respondent type	Biz, health, school
2.03	% of operations reporting crime and disorder as an obstacle or major obstacle	%	by respondent type	Biz, health, school
2.04	% of operations reporting insecurity as an obstacle or major obstacle	%	by respondent type	Biz, health, school
2.05	% of operations reporting corruption at DABS (re. connectivity)	%	by respondent type	Biz, health, school
2.06	% of HHs reporting security is better than in previous years	%	by sex of respondent	HH
2.07	% of HHs reporting damage to electricity infrastructure within their community	%	by sex of respondent	HH

Table 7: Communication/ICT Indicators

Ind#	Definition	Unit	Breakdown	Source(s):
3.01	% of HHs owning TVs	%	None	HH
3.02	% of HHs with respondent who watched TV in last 24 hours	%	male, female, overall	HH
3.03	% of HHs owning radios	%	male, female, overall	HH
3.04	% of HHs with respondents who listened to the radio in last 24 hours	%	male, female, overall	HH
3.05	% of HHs with respondents who used a mobile phone in the last 24 hours	%	male, female, overall	HH

3.06	% of HHs with respondents who used internet via smart phone in the last 24 hours	%	male, female, overall	HH
3.07	% of HHs with respondents who used computer in the last 24 hours	%	male, female, overall	HH
3.08	% of households/businesses owning mobile telephones	%	By respondent type	HH(m), biz
3.09	% of HHs/businesses owning smart phones	%	By respondent type	HH(m), biz
3.10	% of respondents owning computers	%	By respondent type	All
3.11	% of respondents with access to Internet	%	By respondent type	Biz, School, Health

Table 8: Education Indicators

Ind#	Definition	Unit	Breakdown	Source(s):
4.01	# of schools	School	by school type	Min. of Education EMIS data
4.02	% of schools with electricity	%	by school type	School
4.03	# of students enrolled	%	By school type and student sex	school, HH
4.04	# of students graduated (last academic year)	Student	By school type and student sex	school, HH
4.05	% of schools with administrative computers	%	by school type	school
4.06	% of schools with computer classes	%	by school type	school
4.07	% of students attending schools with electricity	%	by school type	school
4.08	reported impact of electricity on the quality of instruction	likert-scale	by school type	School
4.09	reported impact of electricity on school attendance rates	likert-scale	by school type	School
4.10	reported impact of electricity on security at the school	likert-scale	by school type	School
4.11	reported impact of electricity on student learning outcomes	likert-scale	by school type	School

Table 9: Health Indicators

Ind#	Definition	Unit	Breakdown	Source(s):
5.01	Number of hospitals, clinics and health posts	Health center	by type of health service, # of beds	MoPH and/or CSO (secondary data)
5.02	% of hospitals, clinics and health posts with electricity	%	by type of health service, # of beds, type of electricity	health
5.03	% of children under 2 vaccinated since birth	%	by gender	HH (f)
5.04	% of health facilities offering vaccines	%	by type of health center	health
5.05	Age 5 and under mortality rate	per 1000 live births	by sex	HH (m)

5.07	Rate of respiratory illness reported in last month	%	by sex, age category	HH , health
5.08	% of health facilities offering emergency services	%	by type of health center	health
5.09	% of health facilities reporting electricity supply adequate to meet requirements	%	by type of health center	health
5.10	% of HHs with access to piped water	%		HH (m)
5.11	% of HHs with flush toilet/latrine	%		HH (m)
5.12	reported impact of electricity on health facility expenses	likert-scale	by type of health center	health
5.13	reported impact of electricity on health facility's capacity to respond to medical emergencies	likert-scale	by type of health center	health
5.14	reported impact of electricity on health facility's capacity to provide maternal and neo-natal care	likert-scale	by type of health center	health
5.15	reported impact of electricity on health facility's quality of care	likert-scale	by type of health center	health

Table 10: Environmental Indicators

Ind#	Definition	Unit	Breakdown	Source(s):
6.01	% of respondents reporting poor indoor air quality	%	by respondent type	HH (m), biz
6.02	% of respondents reporting poor outdoor air quality	%	by respondent type	HH (m), biz
6.04	% of respondents reporting wood or charcoal as heating source	%	by respondent type	all except HH (f)
6.05	% of respondents reporting kerosene as heating source	%	by respondent type	all except HH (f)
6.06	% of respondents reporting use of diesel generators	%	by respondent type	all except HH (f)
6.07	% of HHs reporting wood or charcoal as a cooking fuel	%	Urban/rural	HH
6.08	% of HHs reporting kerosene as a cooking fuel	%	Urban/rural	HH

Table 11: Gender Equity Indicators

Ind#	Definition	Unit	Breakdown	Source(s):
7.01	Hours per day required for common household tasks	Hours	total, by task type, by responsible person	HH
7.02	Girls' school attendance	%	Type of school	HH, school
7.03	Hours per day girls under 15 spend on HH chores	%	Urban/rural	HH
7.04	Reduction in time reported in HH chores due to electricity	Hours	total, by task type	HH
7.05	number (and percentage) of businesses owned by women	# & %	Any woman owner, 100% women owned	business
7.06	number of female employees (% of employees who are women)	%	permanent, casual	business

7.07	% of women reporting home-based income generating activity	%	by type of activity	HH
7.08	% of women reporting electricity has helped with their income generating activity	%	by type of activity	HH

A more detailed listing of the indicators and what specific survey questions are associated with each one can be found in the annexes. In addition, the chapter on quantitative analysis contains a section on calculating the values of these indicators, reducing the risk of any ambiguity of interpretation.

CHAPTER 4: OVERVIEW OF METHODOLOGY

EASES is a longitudinal study that allows for comparison over time within zones-of-influence, from a baseline condition in which no or few customers are connected to the national grid on the newly expanded or upgraded transmission lines, to intermediate and full-capacity conditions at two years and four years post baseline.

To ensure that comparisons are valid, the study employs a consistent set of tools and indicators. The indicators were introduced in the previous chapter. The tools include quantitative surveys, plus qualitative-enhanced editions of the same, focus group discussion guides, and key informant interview guides. EASES employs both quantitative and qualitative data forms, gathered from a variety of sources and methods. This is intended to result in a fairly robust snapshot of the current state of affairs at each survey point, providing for comparison with previous and/or later points-in-time.

A Quick Overview of EASEBS Tools, Sampling, Data Collection and Analysis

Quantitative data is used to populate indicators related to electricity delivery and socioeconomic, governance and security factors of interest upon which it might impact. Some quantitative indicators act as intermediate indicators of electricity use, which provides further evidence to interpret observed correlations. For example, the study tracks key health indicators such as child mortality rates, and also tracks how many health centers have electricity and the ways that electricity has been used to deliver health services.

Qualitative data provides further detail and explanation to aid in interpretation of quantitative data. The simplest and most direct way this is done is through qualitative-enhanced surveys: these are quantitative surveys with a number of simple open-ended questions added in. For example, when respondents are asked to rate their satisfaction with the cost of electricity, the qualitative-enhanced survey version asks them to briefly explain their rating. These surveys take longer to conduct and analyze and are only to be applied to a small subgroup of the total sample population.

	Type of respondent:					
Type of tool:	Household	Business	School	Health center	Government Department	Community leader
Quantitative survey	X	X	X	X		
Qualitative survey questions	X	X	X	X		
Focus group	X	X				

Key Informant Interview	X	X

Sampling:
All sampling occurs within the zone-of-influence (ZOI), which is the total area of service at maximum capacity around each of the substations to be surveyed. This ZOI remains consistent across all subsequent surveys. The definition of the ZOI is predicated on the assumption that, while some households, businesses and institutions are direct clients of DABS and others are not, there will also be a cumulative impact on all residents of the area, whereas even those who do not have a direct connection may benefit if the presence of electricity has an overall stimulating effect on the local economy, improves the quality and availability of government social services, or influences governance and security.

Quantitative Sampling: Quantitative sampling protocols are set out for four key populations within the ZOI: households, businesses, schools, and health facilities.

Qualitative Sampling: Qualitative sampling is purposive, and aims to provide a sufficient amount and variety of data to provide a rich contextual picture allowing for description of the current situation and interpretation of quantitative indicators.

Further details on sampling protocols and target numbers for each sample type are laid out in Part II of this manual.

Data collection:
The data collection will follow the guidelines set out in Part III of this manual. Qualitative and quantitative field researchers will be trained separately and supervised by respective experts to ensure appropriate methods and data quality. This will be done in line with the training manuals developed during the design phase.

Data Analysis: The quantitative and qualitative data will be analyzed in parallel. Responses from the quantitative survey will be analyzed and summarized to provide baseline data for all required indicators. Statistical analysis will explore correlations between data points of interest, particularly between electricity delivery/use and specific aspects thereof, and socioeconomic indicators.

Qualitative analysis will focus on providing descriptive context for the current situation regarding electricity access and use within the ZOI, and stakeholder perceptions regarding electricity delivery and use. It will also be used in conjunction with quantitative analysis to provide a potential explanation of observed correlations, with clear reference to the evidence base and limitations.

Analysis is discussed in more detail in Part IV of this manual.

Process documentation: Each time that the EASES survey is conducted in an area, and especially during baseline surveys, which are being conducted in a new area for the first time, the survey team should also document the process and make notes, which should be recorded and shared with subsequent teams, as an annex to this manual.

Assumptions and Risks: The areas transited by the transmission line, and where the substations are expected to be located are known to have ongoing security issues, and the security situation is known to be volatile and subject to sudden changes. At the outset of each baseline and follow-up study, an

assessment of existing security risk must be carried out and mitigation strategies must be developed if and as required. The volatility of these areas poses some risk to the study, as it is predicated on the assumption of continued/sufficient access. A further risk is that, because the service areas around substations are relatively small, it will be difficult to substitute or come up with an alternative if these areas become inaccessible.

Planning Longitudinally

A number of factors considered in the study vary seasonally. These include agricultural and other income activities, heating and cooling activities, and demands on electrical use. To allow for most accurate comparability, therefore, it is important to conduct the study at the same time of year each time. If this is not possible for any reason, the study team will need to carefully mitigate this in the data collection and analysis. However, even with mitigation, the comparative results would be less certain (i.e. it would be harder to be sure that any changes observed represented a broader trend rather than a seasonal variation).

As [redacted] and [redacted] substations are already connected and are receiving customers, it is important to conduct the baseline survey for these as soon as possible. The likely dates are from March-June 2018. This means follow-up surveys should happen during the same window in 2020 and again in 2022, when DABS expects to near capacity for the substation. Ideally, another survey in 2024 would capture these substations when they have been running for some time. Having at least three points of time as comparison helps to trace trends and gather stronger evidence for the possible causal role of on-grid electricity in co-occurring socio-economic changes.

Based on consultations with USAID and DABS, it appears that the other substations along the main transmission line from [redacted] to [redacted] are due to be completed by 2019, which means that the baseline surveys for these substations should be completed early that year also. The recommended EASES timeline in Figure 3 is based on these consultations. However, it will need to be adjusted if there are significant delays to the new substations.

Figure 3: Suggested Timeline for EASES surveys

[Redacted]

While consistency is key across the surveys, it is also assumed that each study team will be highly skilled and fully competent in conducting large-scale quantitative and qualitative studies. While the ZOI defined

at baseline must be kept consistent (as much as possible in line with security considerations), the situation in Afghanistan means that there may be some unavoidable need to adjust to realities – such as security risks, unforeseen delays, etc. When and if this happens, teams must fully and transparently document such adjustments and account for the likely impact on the integrity of the data.

All full data sets collected during each survey should be securely kept, with due consideration given to the confidentiality of respondents, so that subsequent study teams can draw directly on the raw data for comparative analysis as needed.

The first baseline study, to be carried out at [redacted] and [redacted], is also the first time that these tools have been fully deployed. As such, it also acts as somewhat of a test case. The study team conducting this study should carefully document the process and make additions or adjustments to this manual as needed.

PART II: SAMPLING

CHAPTER 5: ZONE-OF-INFLUENCE

Defining the Zone-of-Influence (ZOI)

The zone-of-influence (ZOI) is the broadest analytical unit for this study, defined as the zone-of-service at full capacity for the electricity substation(s) under consideration. The overall aim of the study is to compare the ZOI at baseline, when on-grid electricity service is not yet delivered (or is being delivered to minimal customers), with the ZOI at periodic intervals, with the final period being at the period when the substation has achieved is maximum delivery capacity.

What this looks like in practice will be shaped in part by the geographic and political boundaries around the substation, as well as the population density. In most cases, we assume that even at full capacity, not everyone within the ZOI will be connected to on-grid electricity (although this assumption is most likely to hold true for households, and is hopefully not true for institutions such as hospitals). The proportion of customers will increase from a low percentage of the population at baseline to a high percentage of the population at maximum capacity. At each stage, it will be possible to compare customers receiving on-grid electricity to households, businesses, and institutions not receiving electricity. To some degree, the latter serve as a comparison or control group. However, the notion of ZOI suggests that they are not a true control, because they might also receive indirect benefits from the availability and use of electricity in their community. For example, a household that does not have electricity may nonetheless benefit from improved health services at a clinic that has electricity. Thus, changes in indicators across the whole ZOI are also of interest, with the hypothesis that on-grid electricity provision can lead to positive socioeconomic changes across the whole population.

Once the ZOI is defined for a specific substation, or set of substations, it **must remain fixed throughout the study and for all subsequent follow-up surveys** so that indicator values at different points of time can be compared.

General Guidelines for Setting the Zone-of-Influence

Setting the ZOI has been based largely on input from the electricity company, DABS, with regards to how they plan their service area. For each baseline study (i.e. the first time the survey is conducted at a new substation or set of substations), DABS, and particularly its planning department, should be consulted about its planned timeline and strategy for rolling out its distribution network around the substation.

There are four key factors to consider when setting the ZOI:

1. Radius of service
2. Maximum capacity and projected maximum number of clients
3. Distribution network and the effect of geographic and political boundaries
4. Expected timeline for reaching maximum capacity

Radius of service: This will usually be the most important factor shaping the service area around a substation, and therefore the ZOI, except in situations where the population density is high. Usually, this is determined by technical criteria related to the loss of electricity along the distribution lines. After a distance of about 20km, the loss on the line is considered too great.

Maximum capacity and projected maximum number of clients: DABS plans to increase the power capacity of the distribution network at each substation over time. As capacity increases, the

number of clients the station can serve also increases. DABS calculates about how much energy each client requires, and based on that, how many clients it can serve before the power supply is overstretched. In the initial consultations for this design process, DABS officials have stated that they do not prioritize clients within the potential service radius. However, in cases where the substation is located near a densely populated area, it would make sense for DABS to prioritize service distribution to this area, which should be taken into account when designating the ZOI.

Distribution network and the effect of geographic and political boundaries: DABS' engineers survey the area around the substation and plan how to build out the grid. This is also determined in part by geographic and political boundaries. The survey team should obtain DABS' survey documents, including maps showing the planned infrastructure for the distribution network, to identify more precisely where, within the radius of maximum service, the lines will be placed.

Expected timeline for reaching maximum capacity: This factor is again based on DABS' planned projections. It does not directly impact the ZOI designation, but should be taken into account when planning follow-up surveys.

The ZOI for [redacted] & [redacted] Substations

Following the above guidelines in setting the ZOI for [redacted] and [redacted] substations:

Radius of service: For each of the two substations, DABS reports the radius of service is 20km, and they expect to reach clients anywhere within this radius, based on demand (i.e. they will not pre-emptively prioritize a particular area within this ZOI.

- **Maximum capacity and projected maximum number of clients:** For [redacted], DABS reports plans to extend the distribution network to 25 megawatts over the next four years, which would serve up to about 25,000 to 30,000 customers. For [redacted], DABS plans to expand to a maximum capacity of 20 megawatts over the next four years, serving up to about 20,000 customers.

- **Distribution network and the effect of geographic and political boundaries:** DABS initially reported that provincial boundaries did not play a role in determining the service area. Based on the survey maps that were later provided to the study team, the distribution network for the [redacted] substation is limited to [redacted] province, whereas the distribution network for the [redacted] substation is limited to [redacted] province. Thus, while the radius of service includes other provinces, these are excluded from the actual service area, and thus the ZOI.

- **Expected timeline for reaching maximum capacity:** For both substations, DABS projects it will achieve maximum capacity within four to five years.

In addition, it should be noted that both of these substations should already be connected with some clients by the time of the baseline study. While the ideal scenario for a baseline is to conduct it before the study condition is achieved, the fact that it will take DABS four to five years to fully roll out reduces the importance of this. As of mid-January 2018, DABS reported that the [redacted] substation was already energized and was expected to be connected to the distribution network within a few weeks, which has a current capacity of 7.5 megawatts. The 8,500 customers already on this network were previously receiving electricity provided via generators, at a higher tariff rate. At [redacted], the

distribution network has a current capacity of 1.3 megawatts, sufficient to connect about 1,000 customers, according to DABS' estimates.

It should also be noted that many households, businesses, schools and health facilities in these areas are using a variety of off-grid electricity sources. As such, the comparison between baseline and future conditions will often not be between 'no electricity' and 'electricity', but between on-grid and off-grid forms of electricity, considering the reasons why people connect or do not connect.

CHAPTER 6: QUANTITATIVE SAMPLING

This chapter describes the protocols that apply to the sampling for the four EASES surveys: households, businesses, health facilities, and schools. The protocols take into consideration best practices, circumstances particular to countries in conflict, and conditions specific to the area of Afghanistan. General considerations for the Zone of Influence, the target population, and the sample frame and sample are discussed, as are specific special considerations. Each survey sampling protocol is then discussed in detail. Specific sample frames and maps are included in the annexes.

Population, Sample Frame, and Sample

The quantitative component of EASES consists of four surveys, targeting for different populations: households, businesses, health facilities, and schools. The target populations for each of the surveys are set by the ZOI, as described in Chapter 5. Populations under consideration are:

1. All households within the ZOI (N_{hh})
2. All businesses with the ZOI (N_b)
3. All health facilities within the ZOI (N_h)
4. All schools within the ZOI (N_s)

Samples drawn from these four target populations are:

1. Household sample within the ZOI (n_{hh})
2. Business sample within the ZOI (n_b)
3. Health facility sample within the ZOI (n_h)
4. School sample from within the ZOI (n_s)

Constraints on sampling: Security and missing population data

There two considerations particular to Afghanistan that are important to note. One concern is the lack of information from which to formulate sample frames for some of the target populations. The second concerns violent political circumstances which affect sample selection and the safety of interviewees and enumerators.

Ideally, when setting a sample, we should first enumerate the entire population that we are drawing from, so that we can know how large it is, and draw a true random sample. For government schools and health facilities, identifying such a population is possible, since the respective ministries keep records on both that can be used for this purpose.[7] For households and businesses, setting the sample frame is somewhat more challenging, as discussed further below.

Again, ideally we should be able to select any member of a population and draw data. However, insecurity throughout the target regions has implications for the selection of units from within the sample frame. It is possible that a specific area will be unreachable for any given period due to insecurity, which can affect sampling. In a longitudinal study, this is especially problematic. For instance, a Census Enumeration Area selected as a geographical boundary from which to draw a cluster sample at time one (T_1), may become a no-go area at time two (T_2).

Both of these considerations shape the sample frames and the sample sizes.

[7] Note this assumes that both the Ministry of Education and the Ministry of Public Health have accurate records on the number, type and location of schools and health facilities respectively.

School Sampling Protocol

For the [redacted]/[redacted] Baseline Survey:
For the initial baseline survey of [redacted] and [redacted] substations, the school sampling frame is based on a database of schools from evaluation work done by Checchi's [redacted] team in 2017. This list, in turn, is based on data obtained from the Ministry of Education (MoE). Schools are mapped according to GIS coordinates for each school, also provided by the MoE, and since verified by Checchi. There are 68 schools in the database with GIS. Schools in ZOI B ([redacted]) that fall within [redacted] should be excluded.

It is recommended that the survey sample include all schools with GIS coordinates. It is standard practice, when target populations are small, to have sample sizes approximate the population size. As the current GIS list is assumed to be comprehensive, the final sample is expected to be in the region of 68 schools. (See the list attached to this protocol.)

For future surveys:
For future surveys, a full database of schools with GIS coordinates within and around the ZOI should be obtained from the MoE. This should then be mapped against the ZOI to determine a final list of schools falling within the ZOI. These schools should include primary, secondary, teacher training colleges, vocational schools and Islamic schools.

Where the total population of schools is small (i.e. below 100), the full population should be included in the sample. Once the population reaches 100 or above, a random sample at a confidence level of 95% can be calculated.

Hospitals and Clinics Sampling Protocol

For the [redacted]/[redacted] Baseline Survey:
The hospital and clinic sampling frame consists of 30 facilities within the two 20 km ZOIs. These are facilities for which there is GIS information and they include provincial hospitals, basic health centers, comprehensive health centers, district hospitals, drug addiction treatment centers, sub-health centers, and a catch-all category called "other." As this information dates to 2008, it should be updated from additional sources. As with schools, and according to standard practice, the sample selection should match the target population. In other words, all hospitals and clinics for with there is GIS information should be surveyed.

For future surveys:
For future surveys, a full database of health facilities with GIS coordinates within and around the ZOI should be obtained from the MoPH. This should then be mapped against the ZOI to determine a final list of schools falling within the ZOI. These should include all types of health facilities.

As with the schools, where the total population of health facilities is small, the full population should be included in the sample. Once the population reaches 100 or above, a random sample at a confidence level of 95% can be calculated.

Business Survey Protocol

The business survey sampling frame presents particular challenges. Nation-wide surveys of Afghanistan have selected geographical areas according to enumeration boundaries and then surveyed those regions to build survey frames. The challenge of time and resources precludes such an approach for EASES. True sampling frames, or reliable databases from which to build frames, do not exist for Afghanistan. This is

due in part to the large extent to which the economy is one of mostly informal businesses. Estimates put the informal economy at anywhere between 70 and 90 percent. Formal sampling frames will not work in such circumstances. However, because most economic activity occurs in the informal economy, capturing information on the informal economy is important to the baseline survey.

Defining formal and informal businesses: Businesses are required to register with a division of the Ministry of Commerce and Industry, the Afghanistan Central Business Registry. Most do not. Businesses are also required to register with the local government. Most do not, as evident in a pilot study of the survey instrument. Some businesses become members of professional associations or align themselves with the Afghanistan Chamber of Commerce and Industry. In the working definition adopted for the purposes of this study, a formal business is one that is listed with any one of these agencies (i.e. the Central Business Registry, local government, or any ACCI affiliate).

To capture both the formal and informal economy, EASES will adopt a two-fold protocol: one focused on formal businesses, and one on informal businesses.

For the [redacted]/[redacted] Baseline Survey:
A list of formal businesses, with contact details, should be drawn from the Ministry of Commerce and Industry, the Afghanistan Chamber of Commerce and Industry, and if possible, the local municipal authorities. Businesses on these lists will not have GIS coordinates and each business will need to be contacted for their location and to ensure that the business falls with the ZOI. All businesses that are included on a list and that fall within the ZOI should be surveyed.

Informal businesses can be surveyed by having enumerators follow transect walks through the same EAs used for the household survey. In their transect walks, enumerators should conduct interviews with every nth business encountered until the sample number for the EA is fulfilled. GIS coordinates, as well as the owner's name and contact information, should be captured with each interview to ensure enumerators in the future can return to the same establishments. The total sample should include about eight informal businesses for each formal business surveyed. This reflects the approximate ratio of the two types of business.

First, a frame can be built from existing lists. A sampling frame is thus being constructed from a list supplied by the Chamber of Commerce and Industries (currently a list of 22 businesses) and from a list supplied by the Ministry of Commerce and Industry (a list promised but not yet received). These lists are not GIS specific and the locations of businesses will have to be established through phone calls to ensure that they fall within the respective Zones of Influence. All businesses on the final list should be surveyed and they form part of the sample of formal businesses. In addition, businesses located in the [redacted] [redacted] and [redacted] business parks should be surveyed. DABS estimates that there are 60 factories within the business parks that are awaiting future connection.

For informal businesses, the suggested sampling protocol should be the following. Enumerators will use the same census enumeration areas (EAs) that were randomly selected for the household survey (see the section on the household survey for details). Enumerators will do a transect walk through the EAs, starting at points randomly selected using a grid system, from maps supplied by the CSO. For rural areas, every third business will be selected, until the enumerator has surveyed a total of two businesses. As there are 34 rural EAs in the household sample, this will result in a total sample size for rural, informal businesses at 68. There are four urban EAs. For the urban EAs, enumerators will follow a similar randomize selection procedure: transect walks through communities, with starting points set randomly. For urban areas, every third business will be selected until four businesses have been surveyed for each EA. There are four urban EAs, thus resulting in 16 businesses surveyed. These

procedures will result in a sample size for informal businesses at 84. As the number of businesses listed in the [redacted] business park is based on an unreliable source, the suggested sampling would be for enumerators to visit the park and sample every second business. Should the estimated number of businesses be close to correct, this will result in a total of 30 businesses being sampled. It is estimated that, from the list of 22 businesses registered with national associations, 10 fall within ZOI A and ZOI B. The total sample, including those businesses considered formal, will be approximately 124. The informal/formal proportions (based on a loose definition of formal and informal) for the sample will thus reflect the national estimated ratio of 9 to 1.

Household Survey Sampling Protocol

The sampling frame for the household survey was provided by CSO, in consultation with the quantitative expert.

The following is an edited CSO's description of their sampling frame, the frame from which the sample is randomly selected: "The sampling frame used for the assessment is the subset of the updated version of the Household Listing Frame prepared in 2003-2004 and updated in 2015. . . CSO disposes an electronic file consisting of 4,926 Urban Enumeration Areas (EA) in the 33 provinces. An EA is a geographic area consisting of a convenient number of dwelling units which serve as counting units for the census. The frame file contains information about the location (province, center of province, [redacted] and control area), the type of residence (urban and rural), and the estimated number of residential households for each of the 4,517 EAs. Satellite maps are also available for each EA which delimit the geographic boundaries of the EA. The EA sizes are rough estimates and quite homogenous, with an average of 203 households per EA."

This sampling frame is the basis of the sample selection. Thirty-six clusters were randomly selected from two strata (urban and rural EAs), for both ZOI A and ZOI B. The urban and rural EAs are the primary sampling units (PSU) and the households within the EAs are the secondary sampling units (SSU).

Thirteen rural EAs were proportionally selected from the [redacted] substation area (ZOI A) and 19 rural AEs were for the [redacted] substation ZOI. In addition, four urban EAs were selected from the [redacted] ZOI. From within each EA, a cluster of 15 households will be selected. This gives a total of 540 households in the overall sample. CSO has also prepared a systematic random table for selecting the 15 household from within each cluster, as well as maps from which to enumerate the households within each cluster. These maps will also give direction to enumerators for the baseline survey and again for enumerators returning to the same households for the T_2 survey. More details on the CSO process for sample selection is contained in an annex.

Sampling Methodology for Future Substations

It is recommended that a similar sampling methodology to that describe above be used for future substations as they come online in Afghanistan.

Sample size can be set, and a stratified cluster sample can be drawn, using data from the Central Statistics Office (CSO). Afghanistan is divided into Enumeration Areas (EAs) by the CSO and each EA has a known number of households and set geographical boundaries. The EAs make for a convenient sampling frame, and CSO can delineate the EAs that fall within the ZOI. It is then possible to randomly and proportionally select rural and urban EAs within the ZOI, and from within the EAs select clusters of households. Where households are already numbered by CSO, the CSO random selection table can be used to select the households to be surveyed. (Their random selection table is attached to this report.) Where households are not already numbered, a numbered grid can be overlaid on the CSO aerial maps

and, drawing from a random number table, a section of the grid can be selected as a starting point. A transect walk can then be made across the EA, with the enumerator selecting every nth household to survey until the required number for the cluster is reached. GIS coordinates should be taken for each households surveyed. This will enable enumerators to return to the same households at Time 2, to conduct a second survey.

Sample size considerations should follow standard formulas and practice. For Afghanistan, however, the reliance of EAs as a sampling frame means that calculations of sample size and random selection are done by the CSO. This is because EA information is regarded as confidential and proprietary. Additional considerations in setting sample size are the survey design, attrition over time, and refusal rates. Refusal rates are relatively low in Afghanistan (one to three percent), and thus of minor concern. What is important to the Afghanistan context is political insecurity and violence. EAs can quickly and easily move in and out of being no-go areas. Sample size and EA selection should take these factors into account. A good estimate would be to inflate sample size by about 10 percent. A number of EAs should be held in reserve and only used when other areas become dangerous for enumerators and interviewees. As these studies are set up to look at changes over time, they are longitudinal. By using GIS coordinates, the assumption is that enumerators will return to households after a period of time to conduct a second survey. The surveys are, therefore, panel data surveys. There is attrition of households over time with panel data surveys. An inflated sample will compensate for that attrition.

CHAPTER 7: QUALITATIVE SAMPLING & SELECTION CRITERIA

Guiding principles

Unlike quantitative data, there are no clear formulas for determining a specific required number of qualitative data points. Depending upon the research purpose, a single interview might suffice, or sometimes qualitative studies involve hundreds of data points. Generally speaking, gathering and analysing qualitative data is much more time intensive than dealing with quantitative data, and so there is a practical reason to set limits.

While the term 'survey' is more strongly associated with quantitative data and statistical analysis, in qualitative terms, 'survey' suggests a scan of the topical landscape to identify key defining features and themes. In a survey study such as this one, the aim is to identify key contextual considerations as well as possible explanations for trends and patterns observed in the quantitative data. The qualitative sampling targets are set with this aim in mind. The qualitative sample targets are also purposive: they meet specific criteria aimed to get as diverse and complete an assessment of the situation as possible.

These principles are applied specifically to the ZOI for the [redacted] and [redacted] substations under PTEC, which also serve as an example for setting samples for future baseline and follow up studies.

Qualitative Samples for the [Redacted] & [Redacted] Substations

As with the quantitative surveys, the qualitative sampling occurs within the ZOI, with the exception of some KIIs, which are at the relevant district and provincial level. The sampling occurs in relation to each substation, rather than the whole ZOI, which allows for an extra layer of comparison and triangulation.

The table below shows the data targets per specific tool and target group.

Table 12: Qualitative data targets

Qualitative Data	[redacted]	[redacted]	Both
Focus Group Discussions			
Community members – Men	3	3	6
Community members – Women	3	3	6
Business owners (mix of business types)	3	3	6
ALL FGDs	***9***	***9***	***18***
Qualitative-Enhanced Surveys			
Qualitative addition to HH survey for men	10	15	25
Qualitative addition to HH survey for women	10	15	25
Qualitative addition to business survey	5	5	10
Qualitative addition to health facility survey	4	4	8
Qualitative addition to Schools survey	4	4	8
ALL QE Surveys	***33***	***43***	***76***
Key Informant Interviews (semi-structured)			

Community Leaders	3	3	6
DABS Provincial Representative	1	1	2
MOCI District (or Provincial) Head	1	1	2
MRRD District (or Provincial) Head	1	1	2
MAIL District (or Provincial) Head	1	1	2
MoPH District (or Provincial) Head	1	1	2
ALL KIIs	***7***	***7***	***16***

General Guidelines for Qualitative Samples

Sampling for Focus Group Discussions plus Community Leader KII:
For each substation, three surrounding communities should be selected. If the substation includes urban and rural populations, then the selection should represent the relative balance between the two: i.e. if most people near the substation are urban, two communities should be urban, and one rural. If most people near the substation are rural, then two communities selected should be rural and one urban. If all the communities within the service of the substation are either urban or rural, then obviously all communities selected will share this characteristic. Otherwise, the communities should be geographically spread out, for the greatest potential for diverse perspectives.

Within each selected community, the community leaders should be approached for permission and to assist organizing the FGDs, in accordance to predefined selection criteria (see Chapter 16 for details on FGD selection criteria). A community leader will also be interviewed. Three FGDs will be conducted: one with men of the community, one with women of the community, and another with community business owners and/or managers. Where the community does not have enough business owners identified to organize an FGD (for example, if it is in a very remote rural area), a second location can be substituted just for businesses, but the other FGDs should go ahead.

Sampling for Qualitative Enhanced Surveys
The sampling for these surveys is fairly straight-forward. A small proportion of the total quantitative sample should receive this survey in place of the regular quantitative survey. This is roughly based on population size: that is, more qualitative-enhanced surveys will be carried out for the household surveys than for the business surveys, and the smallest number will be for the school and health facility surveys, since the quantitative sample size is also less for these surveys. However, unlike the quantitative surveys, the number does not need to be exact. For the [redacted] and [redacted] substations, about 25 households per substation should be more than sufficient, for a total of 50. This represents about 8% of the total sample. The proportion for the other surveys is higher, although the actual number is slightly lower. The aim is to get enough data to help contextualize and interpret findings from the regular quantitative surveys, and to ask respondents about some issues for which closed-ended questions are not well suited.

For schools and health facilities, the sampling should further balance out different known categories of respondents. For example, primary schools, secondary schools, and vocational training centers within the ZOI should all receive the QE survey.

Sampling for Key Informant Interviews (KIIs):
The sampling for the KIIs is purposive, and there are specific questionnaires for each respondent type. All the key informants, with the exception of the community leader, are government employees, or an employee of DABS. The only issue to be determined by the study team is whether the representative

should be at the provincial or district level. For DABS, the person to be interviewed is the provincial head. For the four line ministry staff, the district representative should be preferred where possible. However, in some cases, there may not be a district representative, or the person might not be available, in which case the provincial staff member should be interviewed.

PART III: DATA COLLECTION

CHAPTER 8: QUANTITATIVE DATA COLLECTION

As a longitudinal study, the electricity access and socio-economic survey (EASES), has both quantitative and qualitative components. This chapter, and the following four chapters, outline the quantitative data collection sections, general requirements with regards to these sections, and specific instructions for the four individual surveys. The quantitative surveys are a household survey (with sections for male and female heads of household), a business survey, a school survey, and health facility survey. These instruments will be used to conduct baseline surveys and, thereafter, periodic surveys spread over four to five years. The surveys assess access to electricity around substations prior to customers receiving service, and then over time as the service areas reach capacity. Besides assessing access, the surveys measure socioeconomic change as it relates to access to electricity. This and the following four chapters are intended as a guide to trainers, supervisors and enumerators as they go about collecting and entering the quantitative data.

This chapter outlines the commonalities across all four surveys and discusses the characteristics of good enumerators and supervisors. It discusses, in general terms, entry into the community, safety, and the general parameters of the surveys that enumerators need to convey to the people they interview.

Common to all four surveys are the Zone of Interest (ZOI), the population size, and the sample. The Zone of Interest is set as a geographical boundary around the electrical substations of interest. The populations of interest are then defined as all schools, health facilities, businesses, and households within that boundary. Different methods are then used to select the samples to be surveyed.

In the case of households, the Central Statistics Office's census enumeration areas (EA) form the framework from which households are selected. From a list of all the EAs that fall within the ZOI, random sample selection methods are used to choose a set number of EAs. From within the EAs, clusters of households are randomly selected to make up the full sample size. These, and only these households are then surveyed.

For schools and health facilities, the sample selection is slightly different. Lists of schools that fall within the ZOI are put together from various sources. These lists contain GIS coordinates, thus making it easier for enumerators to find the schools. As the population of schools within ZOIs is small in number, all schools are surveyed. Health facilities follow a similar pattern.

As most businesses in Afghanistan are informal, the sampling procedure is different. The surveys of businesses are drawn in two ways. One is through the construction of a list. Businesses that are licensed or registered with government bodies at the national or provincial level are added to the list. Also included in the list are business registered with professional bodies and with the Afghanistan Chamber of Commerce. This list then constitutes businesses that are regarded as formal. Informal businesses are those that do not make the list. These are businesses that operate at the street level as vendors, or as shops or firms in more permanent locations. The category also includes businesses run out of people's homes or business activities conducted on farms. To survey these businesses, enumerators do a transect walk across the same EAs as those used in the household survey. For the business survey, however, enumerators are required to select businesses to interview according to a set pattern. For instance, the first business encountered on the transect walk is surveyed, the next two businesses encountered are skipped, and the following business is then surveyed.

Field Staff

The criteria for hiring good enumerators is essential to gathering quality data. Enumerators are the point people of the study as they have direct interaction with the subjects of the surveys. Their actions and behavior have a direct impact on the accuracy of information gathered.

Enumerators should, therefore, make a good first impression. For this appearance and a professional manner are important. Enumerators should be neat and clean. They should be good listeners. Enumerators should be patient with interviewees. They should take their time: accuracy is more important than speed. But enumerators should be sensitive to the time needs of interviewees, and to questions interviewees may find upsetting or intrusive. They should not cut interviewees short. Without prompting, enumerators should encourage active participation. They should remain neutral at all times and for all questions. Enumerators should never express their own opinions, and they should never make assumptions about interviewees.

Enumerators should try to conduct interviews in as private a setting as possible. This may be particularly important in areas where political violence is a factor. But it is also a strategic consideration in minimizing other household members from interjecting. In the context of Afghanistan, enumerators should have a good knowledge of the local situation. Having well-trained local enumerators would be of great benefit.

Besides having experience in conducting interviews, enumerators should be fluent in the language of the interviewee. It is preferable that they be native speakers. Language aside, enumerators should be able to read questions exactly the same way to each respondent using neutral tones.

Ideally, field supervisors should be drawn from the ranks of experienced enumerators. Experience in the field allows supervisors to fully understand the role of enumerator. Experienced supervisors will have the knowledge to deal with commonly encountered situations that enumerators will face. Experience will let supervisors anticipate where difficulties may arise.

Experienced supervisors are better able to schedule enumerators, and they are better able to gauge where and when enumerators should be conducting their interviews. Supervisors control the schedule. Supervisors check the quality of the work of enumerators by randomly checking the interviews of enumerators. Along with those doing data entry, supervisors are the last line of defense in catching potentially faulty data.

It is anticipated that interviews for EASES will be conducted using PDAs or cell phones. This method of data gathering drastically reduces user errors in data entry. To ensure quality data, results should be entered as soon after collection as possible. Enumerators should be encouraged to transmit data frequently and, if PDAs are used, enumerators should have the ability to back up their data frequently. Lastly, enumerators, supervisors, and data entry staff should receive extensive, in-person training before each survey instrument is used.

Entering the Field & Safety Concerns

Enumerators should have a good knowledge of the local conditions. There are enormous benefits to using a locally based enumerator. When first entering the field, enumerators should check in with local leaders. In doing so, they should explain the purpose of the study, the length and nature of the interviews, and the random selection process involved in coming up with lists of households. Enumerators should explain how long the team anticipates they will be in the community, the number of

households, schools, businesses, or health clinics that will be interviewed, and the length of time the interviews will take. Return visits and reasons for the return should also be explained. Enumerators should explain to local leaders the intended use of the results, the confidentiality offered to interviewees, and the benefits of the study. The long-term, community-wide benefits can be explained, but the fact that there are no immediate benefits to interviewees should also be stressed. These factors should be similarly explained for business, school, and health interviews.

The safety of enumerators and of interviewees is of paramount importance. In the context of Afghanistan, the health and safety of fieldworkers and interviewees is of prime importance. If areas are considered high risk, enumerators should be discouraged from entering them. As sample sizes are inflated to take into consideration the security situation, this should not be problematic. If, once in a community, enumerators feel threatened in any way whatsoever, they should terminate interviews and withdraw from the area immediately. The study is designed to have substitute enumeration areas and replacement households, so withdrawing for the sake of safety is not an issue. Enumerators should inform supervisors immediately if they terminate an interview and withdraw for safety reasons. Enumerators and supervisors should consult beforehand as to the safety of a particular area before the interview process starts. If a particular area is problematic, a substitute area will be available.

Explaining the Survey to Interviewees

On first approaching interviewees, enumerators need to inform them upfront who is doing the survey and for what reason. Interviewees should be given the name and location of the administering organization, and they should be told that the survey is on behalf of USAID. Interviewees, for household surveys, should be informed that they were selected randomly, and that there is a strong likelihood they will be revisited in 18 months to two years for a second interview. They should be informed that there may be a third interview after that. Enumerators should make it clear to interviewees that there is no compensation for taking part in the survey and that any benefits to the interviewee will be indirect. Enumerators must explain that the material will be used in aggregate form and that it is to be used exclusively for the purpose of tracking access to electricity and how household, school, health facility, and business conditions may change based on access to electricity. Enumerators should avoid expressing this statement in either a positive or negative way. In order not to bias the information gathered, it is vital the enumerators present the survey in a neutral way. They should, under no circumstances, suggest that access to electricity is a good or bad thing.

Interviewees should be told how long the survey takes.

Consent and Confidentiality

Two elements common to the four surveys are consent and confidentiality. All four surveys require enumerators to start with reading a consent statement. No interviewee should feel compelled to take part in the survey. It should also be stressed that interviewees are free at any time and for any reason to stop the interview and decline to continue further. Enumerators should impress on interviewees that their information is confidential and will only be used for purposes of the study. The identity of the interviewee will only know to the enumerator and data analyst. There should be no compulsion to complete an interview. It is imperative that enumerators are clear as to the time it takes to complete each interview. A skilled enumerator should be able to perceive when an interviewee is distressed by the questions or the process, and the enumerator should immediately allow the interviewee the space to withdraw.

The following chapters give detailed information on standard procedures for the specific surveys.

CHAPTER 9: HOUSEHOLD SURVEY FOR MEN

This chapter gives specific instructions about the Electricity Access Baseline Household Survey for Males, one of four surveys in the study. The chapter gives specific instructions on selection of the households, how to approach households, and how to track households over the course of the survey. The chapter discusses safety concerns, how to get consent from interviewees, and how to conduct the interview in general. The modules of the survey are discussed as are specific questions that may prove problematic.

This instrument will be used to conduct a baseline survey and, thereafter, periodic surveys spread over four to five years. The surveys assess access to electricity around substations prior to customers receiving service, and then over time as the service areas reach capacity. Besides assessing access, the surveys measure socioeconomic change within households as it relates to access to electricity.

In the case of households, the Central Statistics Office's census enumeration areas (EA) form the framework from which households are selected. From a list of all the EAs that fall within the Zone of Interest (ZOI), random sample selection methods are used to choose a set number of EAs. From within the EAs, clusters of households are randomly selected to make up the full sample size. Enumerators will be assigned a list of households to interview within the selected EAs. These, and only these households are then surveyed. Under no circumstances should enumerators substitute households for any reason. The following section describes the process.

Approaching Households

Enumerators are to approach the households on their specific list only. The order in which these households are approached is unimportant. However, only households listed are to be approached for interviews.

The first section of the survey, Section A, Introduction and Request for Consent, list a number of identifiers for each household selected. The household identification code will be a number made up of the census enumeration number and the household's number within that particular EA. The survey will be date and time stamped and the GIS coordinates will be captured by the PDA or the cell phone. It is vital that GIS data be accurately captured. The intention of this study is to return to these same households a number of times over a number or years. To make this possible, GIS information needs to be accurately captured.

Selecting a time of day during which to do the interviews is important. For the Male Household Survey, it imperative that a responsible male, preferably the household head, is the subject of the interview. This means selecting a time of day when such members are in or near the household and have the time to conduct the interview. The enumerator's discretion will be the best guide for making this decision. Selecting a responsible male interviewee is also largely at the discretion of the enumerator. Responsible male interviewee can be interpreted to mean an older male, the main income earner of the household, or the male recognized by other members of the household as the person who heads the household. Careful inquiry by the enumerator will elicit this information.

Question A1 and A1a should be completed at this time. Responses to A1a should be self-evident. If a responsible male adult or household head is not at home, enumerators should check for a time to return. On the third visit, enumerators should regard the household as a no response. Enumerators should then check with field supervisors as to the need for a substitute household. Responses 1, 2, and 3 should also be reported to field supervisors. In these cases, enumerators will be given a substitute

household. For return visits, appointments need to be made and enumerators need to be clear with interviewees as to when the best day and times for returns are.

On first approaching a household, enumerators need to inform potential interviewees upfront who is doing the survey and for what reason. Interviewees should be given the name and location of the administering organization, and they should be told that the survey is on behalf of USAID. Interviewees should be informed that their household was selected randomly, and that there is a strong likelihood they will be revisited in 18 months to two years for a second interview. They should be informed that there may be a third interview after that. Enumerators should make it clear to interviewees that there is no compensation for taking part in the survey and that any benefits to the interviewee will be indirect.

Enumerators must explain that the material will be used in aggregate form and that it is to be used exclusively for the purpose of tracking access to electricity and how household conditions may change based on access to electricity. Enumerators should avoid expressing this statement in either a positive or negative way. In order not to bias the information gathered, it is vital the enumerators present the survey in a neutral way. They should, under no circumstances, suggest that access to electricity is a good or bad thing.

The final step of this introduction is to let interviewees know how long the interview will take. In the case of the male household survey, interviewees should be informed that the interview will take between 30 and 45 minutes.

Safety

In the context of Afghanistan, the health and safety of fieldworkers and interviewees is of prime importance. If areas are considered high risk, enumerators should be discouraged from entering them. Enumerators and supervisors should consult beforehand as to the safety of a particular area before the interview process starts. If a particular area is problematic, a substitute area will be made available. Sample sizes are inflated to take into consideration the security situation. If, once in a community, enumerators feel threatened in any way whatsoever, they should terminate interviews and withdraw from the area immediately. The study is designed to have substitute enumeration areas and replacement households, so withdrawing for the sake of safety is not an issue. Enumerators should inform supervisors immediately if they terminate an interview and they should withdraw from the area.

Consent

No interviewee should feel compelled to take part in the survey. It should also be stressed that interviewees are free at any time and for any reason to stop the interview and decline to continue further. Enumerators should impress on interviewees that their information is confidential and will only be used for purposes of the study. The identity of the interviewee will only know to the enumerator and data analyst. There should be no compulsion to complete an interview. A skilled enumerator should be able to perceive when an interviewee is distressed by the questions or the process, and the enumerator should immediately allow the interviewee the space to withdraw.

Conducting the interview

Enumerators should speak slowly and clearly. There is no need to rush. It is more important that interviewees understand the questions than it is to complete the survey in a required time. Enumerators should be prepared to repeat questions, but enumerators should never second guess or anticipate answers. Enumerators should, however, be sensitive to the time needs of interviewees, and to questions interviewees may find upsetting or intrusive. They should not cut interviewees short. Without prompting, enumerators should encourage active participation. They should remain neutral at all times

and for all questions. Enumerators should never express their own opinions, and they should never make assumptions about interviewees.

Enumerators should try to conduct interviews in as private a setting as possible. This may be particularly important in areas where political violence is a factor. But it is also a strategic consideration in minimizing other household members from interjecting. In the context of Afghanistan, enumerators should have a good knowledge of the local situation. Having well-trained local enumerators would be of great benefit.

Section B: Basic Information about the Respondent.

This is set of four straightforward questions. For B4, it is important that this information be noted down correctly as it may prove crucial for return visits. Enumerators should read back phone numbers to interviewees to ensure they have correctly noted the number.

Section C: House and Surroundings

C2. Do you own or rent the house? Response 3. Gravi
Enumerators should take care to define this word to interviewees. The word is Dari/Pashto term and it refers to the practice where someone exchanges an interest-free loan of a lump sum of money for the use of the borrower's house. Before soliciting a response, enumerators should make sure that interviewees have the same understanding of the definition offered.

C4. What is the main source of drinking water for the household? Households may have multiple sources of water. Enumerators should stress that this question asks about the *main* source of drinking water.

C6. Enumerators should ensure that answers are in minutes.

C8. Do you share this toilet facility with other households?
Enumerators need to take care that this question is understood to mean other *households* and not other members of the interviewee's household.

C10. What is the main source of heating for this house in winter?
As with C4, the emphasis of this question is on *main* source.

C11a. About how often did your household use a diesel generator for household power in the last week?
Enumerators should be careful that they do not get responses that apply to petrol generators. This distinction should be clear to the interviewee.

C11b. Again, the question asks about diesel generators, not petrol.

C12. How would you rate the air quality inside your house during the winter?
As with other questions where interviewees are giving a subjective opinion, enumerators should not force answers. Give the interviewee time to respond and double check to ensure the interviewee is certain about the response.

Section D: Electricity

D1. Do you receive electricity service from DABS?
Enumerators should make sure that responses to this question are accurate. An unobtrusive check around the household is one way to double check. Enumerators need to ensure that interviewees are certain that their source of electricity is from DABS and not from DABS by another source.

D8. [If yes to D1] For how many hours, in the last 24 hours, has DABS electricity been connected/available? _____ Hours
It may help to repeat this question to interviewees.

D9. As with earlier scale questions, interviewees should be given time to answer these questions. If prompting is needed, enumerators should read the entire list of possible responses. Under no circumstances read only a partial section of the list.

D10. [If no to D1] Why is household not receiving electricity from DABS?
If responses 1 through 7 are not appropriate, it is important that enumerators capture the "other" category precisely. Use descriptive phrases that are brief but concise.

D13. What is this other source of electricity?
Again, capturing the "other" category is important. Have the interviewee describe as fully as possible the other source of electricity. It is appropriate here to ask additional questions to arrive at an accurate description.

D14. D14. [If yes to D11] Who owns the source of electricity?
As with D10 and D13, getting a concise but accurate description is vital. Prompts and additional questions would be appropriate here.

D17. For each of the items listed in the table below, please answer:
Double checking each answer is appropriate here. Enumerators should repeat each answer interviewees give before entering the response.

Section E: Demographic and Educational Information

The necessity of this module needs to be explained to interviewees. The enumerator should remain neutral while explaining that the survey seeks to understand changes in households over time as they gain access to electricity. This should not be explained as a good or bad thing. Enumerators need to remain neutral while explaining that education levels are of interest to the study.

E3. For each boy and man in your household 6 years or older, please answer the following questions:
This is another instance where enumerators need to read back and double check responses. Enumerators should make sure, by frequently repeating the questions, that the interviewee is not forgetting someone or some sections of the household. It is also important that the interviewee understand the cutoff age of 6. Again, frequent prompts about age, where appropriate will help.

E4. How many deaths have there been in this household in the last 5 years?
This is a particularly sensitive question. Enumerators can prepare interviewees for the question by stating beforehand: "I am about to ask a sensitive question. It is, however, important to the study, to find out this information." Enumerators might also use this opportunity to remind interviewees that they are under no obligation to answer questions they do not want to answer.

Section F: Household Labor and Income

As with Module E, this module needs upfront explanation. Enumerators should stress that income is a sensitive topic to some people but that the information is important to the study. Enumerators should stress too that this information is confidential. Only the enumerator and the data analyst will be privy to the information and that the information will only be used as aggregated information across all the households surveyed.

F9. Can you estimate how much was the total amount household members made through agriculture and livestock over the last 12 months?
It may be difficult for interviewees to come up with a number for this question. Enumerators are reminded at this point that patience is especially important. This is a question too that could be repeated.

F12. What sort of business?
Responses under "other" require precise description. Enumerators should ask interviewees to describe this work so that the response is accurate.

F13. Does your household income fluctuate depending on the season?
Enumerators may prompt interviewees by running through the seasons.

Section G: Governance and Security

This Module will prove to be problematic for some interviewees as the relationship between security, governance, and access to electricity may be an obscure one. Enumerators should explain, as neutrally as possible, that the project seeks to understand how having electricity may change people's lives. Again, no "for the better, or for the worse" should be implied. Simply put, does electricity change people's lives.

G1. This year, how is the security in your community compared to previous years?
This is another question they may prove sensitive. It should be prefaced with an explanation that the question is a sensitive one, the response will be held in confidence, and that the interviewee has the option not to respond. Once this has been stated, the question can be asked, with the enumerator using a neutral tone.

Section H: Communication and Information

Which of the following have you done the following in the last 24 hours?
This is a straightforward question, needing little explanation.

Concluding the interview
The end of the interview is a good time to go back over why the household was selected, the possibility of being interviewed again, the confidentiality guarantee, and the fact that there are no short-term benefits to the interviewee. Enumerators should thank interviewees for their time and for taking part in the survey.

CHAPTER 10: HOUSEHOLD SURVEY FOR WOMEN

This chapter gives specific instructions about the Electricity Access Baseline Household Survey for Women. The chapter gives specific instructions on selection of the households, how to approach households, and how to track households over the course of the survey. The chapter discusses safety concerns, how to get consent from interviewees, and how to conduct the interview in general. The modules of the survey are discussed as are specific questions that may prove problematic.

This instrument will be used to conduct a baseline survey and, thereafter, periodic surveys spread over four to five years. The surveys assess access to electricity around substations prior to customers receiving service, and then over time as the service areas reach capacity. Besides assessing access, the surveys measure socioeconomic change within households as it relates to access to electricity.

In the case of the household survey for women, the Central Statistics Office's census enumeration areas (EA) form the framework from which households are selected. From a list of all the EAs that fall within the Zone of Interest (ZOI), random sample selection methods are used to choose a set number of EAs. From within the EAs, clusters of households are randomly selected to make up the full sample size. Enumerators will be assigned a list of households to interview within the selected EAs. These, and only these households are then surveyed. Under no circumstances should enumerators substitute households for any reason. The survey for women is a section of the overall household survey. As such, each survey is part of the survey in which the household head was questioned.

Approaching Households

Enumerators are to approach the households on their specific list only. The order in which these households are approached is unimportant. However, only households listed are to be approached for interviews. Thus, the household surveys for women should be a matched list of the list of surveys given to me.

The first section of the survey, Section A, Introduction and Request for Consent, list a number of identifiers for each household selected. The household identification code will be a number made up of the census enumeration number and the household's number within that particular EA. The survey will be date and time stamped and the GIS coordinates will be captured by the PDA or the cell phone. It is vital that GIS data be accurately captured. The intention of this study is to return to these same households a number of times over a number or years. To make this possible, GIS information needs to be accurately captured. It is also imperative that both the GIS coordinates for the survey for men and the survey for women match.

Selecting a time of day during which to do the interviews is important. For the Household Survey for Women, it important that a responsible female is the subject of the interview. This means selecting a time of day when such members are in or near the household and have the time to conduct the interview. The enumerator's discretion will be the best guide for making this decision. Selecting a responsible female interviewee is also largely at the discretion of the enumerator. Responsible female interviewee can be interpreted to mean an older female, a woman married to the main income earner of the household, or a woman recognized by other members of the household as the person who has the authority within the household to answer questions about the household. Careful inquiry by the enumerator will elicit this information.

Question A1 and A1a should be completed at this time. Responses to A1a should be self-evident. If a responsible female adult is not at home, or is otherwise engaged, enumerators should check for a time to return. On the third visit, enumerators should regard the household as a no response for the

women's survey. Enumerators should then check with field supervisors as to the need for a substitute household. However, as far as possible, men's and women's surveys should be paired. Responses 1, 2, and 3 should also be reported to field supervisors. In these cases, enumerators will be given a substitute household. For return visits, appointments need to be made and enumerators need to be clear with interviewees as to when the best day and times for returns are. In the men's survey is done before the women's, then supervisors should check lists to ensure that enumerators are not sent to households not located, vacant, or destroyed. It should also be left to the discretion of supervisors as to whether male and female enumerators visit households together or separately.

On first approaching a household, enumerators need to inform potential interviewees upfront who is doing the survey and for what reason. Interviewees should be given the name and location of the administering organization, and they should be told that the survey is on behalf of USAID. Interviewees should be informed that their household was selected randomly, and that there is a strong likelihood they will be revisited in 18 months to two years for a second interview. They should be informed that there may be a third interview after that. Enumerators should make it clear to interviewees that there is no compensation for taking part in the survey and that any benefits to the interviewee will be indirect.

Enumerators must explain that the material will be used in aggregate form and that it is to be used exclusively for the purpose of tracking access to electricity and how household conditions may change based on access to electricity. Enumerators should avoid expressing this statement in either a positive or negative way. In order not to bias the information gathered, it is vital the enumerators present the survey in a neutral way. They should, under no circumstances, suggest that access to electricity is a good or bad thing.

The final step of this introduction is to let interviewees know how long the interview will take. In the case of the female household survey, interviewees should be informed that the interview will take between 30 and 45 minutes.

Safety

In the context of Afghanistan, the health and safety of fieldworkers and interviewees is of prime importance. If areas are considered high risk, enumerators should be discouraged from entering them. Enumerators and supervisors should consult beforehand as to the safety of a particular area before the interview process starts. If a particular area is problematic, a substitute area will be made available. Sample sizes are inflated to take into consideration the security situation. If, once in a community, enumerators feel threatened in any way whatsoever, they should terminate interviews and withdraw from the area immediately. The study is designed to have substitute enumeration areas and replacement households, so withdrawing for the sake of safety is not an issue. Enumerators should inform supervisors immediately they terminate an interview and they should withdraw from the area. In the case of the women's survey, especial care should be taken in how questions are presented.

Consent

No interviewee should feel compelled to take part in the survey. It should also be stressed that interviewees are free at any time and for any reason to stop the interview and decline to continue further. Enumerators should impress on interviewees that their information is confidential and will only be used for purposes of the study. The identity of the interviewee will only know to the enumerator and data analyst. There should be no compulsion to complete an interview. A skilled enumerator should be able to perceive when an interviewee is distressed by the questions or the process, and the enumerator should immediately allow the interviewee the space to withdraw.

Conducting the interview

Enumerators should speak slowly and clearly. There is no need to rush. It is more important that interviewees understand the questions than it is to complete the survey in a required time. Enumerators should be prepared to repeat questions, but enumerators should never second guess or anticipate answers. Enumerators should, however, be sensitive to the time needs of interviewees, and to questions interviewees may find upsetting or intrusive. They should not cut interviewees short. Without prompting, enumerators should encourage active participation. They should remain neutral at all times and for all questions. Enumerators should never express their own opinions, and they should never make assumptions about interviewees.

Enumerators should try to conduct interviews in as private a setting as possible. This may be particularly important in areas where political violence is a factor. But it is also a strategic consideration in minimizing other household members from interjecting. If a female interviewee is being questioned while doing domestic work, the enumerator should ensure that the work doesn't interfere with the flow of the interview. The enumerator, in such circumstances, may request a return visit. If other people in the household are interjecting, then the enumerator should also consider returning at a more appropriate time or moving the interviewee to a quieter location. In both of these situations, discretion and patience is advised.

Section B: Basic Information about the Respondent.

This is set of four straightforward questions. For B4, it is important that this information be noted down correctly as it may prove crucial for return visits. Enumerators should read back phone numbers to interviewees to ensure they have correctly noted the number. If interviewees are reluctant to give phone numbers, enumerators should not press the issue. Rather, move on to the next questions.

Section C: Electricity

C1. Do you receive electricity service from DABS?
Enumerators should make sure that responses to this question are accurate. An unobtrusive check around the household is one way to double check. Enumerators need to ensure that interviewees are certain that their source of electricity is from DABS and not from DABS by another source.

C2. How satisfied are you with the following aspects of the electricity you receive through DABS?
As with earlier scale questions, interviewees should be given time to answer these questions. If prompting is needed, enumerators should read the entire list of possible responses. Under no circumstances read only a partial section of the list.

Section D: Communication and Information

Section E: Demographic and Educational Information

The necessity of this module needs to be explained to interviewees. The enumerator should remain neutral while explaining that the survey seeks to understand changes in households over time as they gain access to electricity. This should not be explained as a good or bad thing. Enumerators need to remain neutral while explaining that education levels are of interest to the study.

E3. For each girl and woman in your household 6 years or older, please answer the following questions:
This is another instance where enumerators need to read back and double check responses. Enumerators should make sure, by frequently repeating the questions, that the interviewee is not

forgetting someone or some sections of the household. It is also important that the interviewee understand the cutoff age of 6. Again, frequent prompts about age, where appropriate will help. It may be necessary to remind interviewees that this set of questions applies to girls and women only, and not boys.

Section F: Health and Food Security

This module may prove to be problematic for some interviewees as the relationship between health and food may be an obscure one. Enumerators should explain, as neutrally as possible, that the project seeks to understand how having electricity may change people's lives. Again, no "for the better, or for the worse" should be implied. Simply put, does electricity change people's lives in terms of health and in terms of food availability. Enumerators should not quantify this. Do not frame the explanation as one in which health is improving or food is more abundant. Remaining neutral ensures that the enumerator does not introduce bias.

F2. How many vaccines did each of these children receive since they were born?
It may be necessary for enumerators to give a quick description of what is meant by "vaccine." Enumerators should be patient with interviewees for this question. It is important that the interviewee fully understand what is being asked before a response is recorded. Enumerators need to double check the question is understood and then double check the response. This should be done without being condescending.

F3. Have any members of the household had breathing difficulties and/or a recurring cough in the last week?
Again, enumerators need to take time to explain this question. Interviewees need to understand that the question is looking for persistency. The occasional cough does not qualify. Again, make sure the question is understood before soliciting a reply.

Section G: Gender

As with Module E and F, this module needs upfront explanation. Enumerators should stress that gender is a sensitive topic to some people but that the information is important to the study. Enumerators should stress too that this information is confidential. Only the enumerator and the data analyst will be privy to the information and that the information will only be used as aggregated information across all the households surveyed.

G4. [If answered "less than a year" or "about a year" to E3], answer the questions for each of the following tasks:
Enumerators need to read each section twice, carefully, to the interviewee. Answers need to be double checked.

G5. What is the main type of fuel your household uses for cooking?
The emphasis in this question is on *main*. For "other," enumerators need to get a detailed description, but this should be entered as precise and concise answers.

Section H: Governance and Security

This module will prove to be problematic for some interviewees as the relationship between security, governance, and access to electricity may be an obscure one. Enumerators should explain, as neutrally as possible, that the project seeks to understand how having electricity may change people's lives. Again,

no "for the better, or for the worse" should be implied. Simply put, does electricity change people's lives in terms of governance and security.

G1. This year, how is the security in your community compared to previous years?
This is another question they may prove sensitive. It should be prefaced with an explanation that the question is a sensitive one, the response will be held in confidence, and that the interviewee has the option not to respond. Once this has been stated, the question can be asked, with the enumerator using as neutral a tone as possible.

Concluding the interview

The end of the interview is a good time to go back over why the household was selected, the possibility of being interviewed again, the confidentiality guarantee, and the fact that there are no short-term benefits to the interviewee. Enumerators should thank interviewees for their time and for taking part in the survey.

CHAPTER 11: BUSINESS SURVEY

This chapter gives specific instructions about the Electricity Access Baseline Survey for Businesses. The chapter gives specific instructions on the two-part selection of the businesses included in the survey, how to approach business owners or managers, and how to track businesses over the course of the survey. The chapter discusses safety concerns, how to get consent for interviews, and how to conduct the interview in general. Specific questions that may prove problematic in the various modules are discussed.

This instrument will be used to conduct a baseline survey of businesses and, thereafter, periodic surveys spread over four to five years. The surveys assess access to electricity around substations prior to customers receiving service, and then over time as the service areas reach capacity. Besides assessing access, the surveys measure socioeconomic change within households as it relates to access to electricity.

Approaching Businesses

As most businesses in Afghanistan are informal, the sampling procedure is different from that of the household surveys. The surveys of businesses are drawn in two ways. One is through the construction of a list. Businesses that are licensed or registered with government bodies at the national or provincial level are added to the list. Also included in the list are businesses registered with professional bodies and with the Afghanistan Chamber of Commerce. This list then constitutes businesses that are regarded as formal. Enumerators will be given names and locations of businesses to survey based on this list. All of these businesses should be surveyed. Under no circumstances should enumerators substitute businesses for any reason.

Informal businesses are those that do not make the list, and they form part of the second sampling procedure. These are businesses that operate at the street level as vendors, or as shops or firms in more permanent locations. The category also includes businesses run out of people's homes or business activities conducted on farms. To survey these businesses, enumerators do a transect walk across the same enumeration areas (EAs) as those used in the household survey. For the business survey, however, enumerators are required to select businesses to interview according to a set pattern. Enumerators will be supplied with a map of the EA. A randomly selected predetermined point will indicate to the enumerator where they will start. The enumerator will also be given a direction in which to walk. Enumerators are then required to survey the first business they encounter. Once the survey is completed, enumerators are required to continue along the preselected path. The next two businesses encountered are skipped. The third business is then surveyed. When two surveys have been done, the enumerator will have completed all the surveys needed for that particular EA.

Safety

In the context of Afghanistan, the health and safety of fieldworkers and interviewees is of prime importance. If areas are considered high risk, enumerators should be discouraged from entering them. Enumerators and supervisors should consult beforehand as to the safety of a particular area before the interview process starts. If a particular area is problematic, a substitute area will be made available. Sample sizes are inflated to take into consideration the security situation. If, once in a community, enumerators feel threatened in any way whatsoever, they should terminate interviews and withdraw from the area immediately. The study is designed to have substitute enumeration areas and replacement businesses, so withdrawing for the sake of safety is not an issue. Enumerators should inform supervisors immediately they terminate an interview and they should withdraw from the area.

Consent

No interviewee should feel compelled to take part in the survey. It should also be stressed that interviewees are free at any time and for any reason to stop the interview and decline to continue further. Enumerators should impress on interviewees that their information is confidential and will only be used for purposes of the study. Business owners may be concerned that enumerators are visiting their businesses on behalf of the government. Enumerators should assure owners or managers that this is a survey separate from government and that any information they share will not be divulged to any government entity. The identity of the interviewee will only be known to the enumerator and data analyst. There should be no compulsion to complete an interview. A skilled enumerator should be able to perceive when an interviewee is distressed by the questions or the process, and the enumerator should immediately allow the interviewee the space to withdraw.

Conducting the interview

Enumerators should speak slowly and clearly. There is no need to rush. It is more important that interviewees understand the questions than it is to complete the survey in a required time. Enumerators should be prepared to repeat questions, but enumerators should never second guess or anticipate answers. Do not rush. Enumerators should, however, be sensitive to the time needs of interviewees, and to questions interviewees may find upsetting or intrusive. They should not cut interviewees short. Without prompting, enumerators should encourage active participation. They should remain neutral at all times and for all questions. Enumerators should never express their own opinions, and they should never make assumptions about interviewees.

Timing is particularly important when interviewing business owners. In all likelihood, enumerators will be impinging on work time. Enumerators should try to be as accommodating as possible to work around owners or managers time constraints. This may mean rescheduling interviews to a more convenient time.

Interviews should be conducted in as private a setting as possible. This may be difficult for businesses with a lot of activity or traffic. Again, enumerators need to be sensitive to these situations and rescheduling should always be an option. For informal businesses, three attempts should be made to complete an interview. After this, enumerators should consult with field supervisors who will suggest alternatives.

Enumerators should emphasize to interviewees that the interview will take between 30 and 45 minutes. Enumerators should also ascertain whether it is possible to conduct the interview there-and-then, or whether a more suitable time should be scheduled.

Section A: Introduction and Request for Consent

A2 Getting the owner or phone manager's phone number is important. This will facilitate follow-up, should that be necessary.

Section B: Information on the Business

B3. Which sector/industry is your business?
This is a best fit category and enumerators should be careful to parse out what sector a business most fits. Businesses may turn out to be multi-sector. In such cases, enumerators should discuss with owners or managers which category covers most activities. This will be the category to enter. With "other," enumerators should get details descriptions but entries should be concise.

B4. What was/were your main product(s) or service(s) in the last year?
Some interviewees may be eager to list many products and services. The emphasis of the question is on *main*.

B7. How many people are permanently employed by your business (at this location)?
The emphasis is on permanent for this question.

B11. What were the total business expenses in the last month?
Enumerators should be patient while waiting for a response to this question. It is possible some business owners or managers will need time to calculate these expenses. Enumerators should not prompt interviewees, but give them the time and space they need to answer.

B13. How much revenue does this business earn in a typical month?
These types of questions are difficult for respondents to answer. As with other sensitive questions, the enumerator should preface the question with a statement along these lines: "The following question is a sensitive question. You are not obliged to answer, and you may skip the question. However, the information is very important to our study and we would be most appreciative of an answer. Please be aware, too, that all your answers are treated in the strictest of confidence and are only known to me and the person who analyzes the data."

Section C: Electricity

C2. In reference to that application for an electrical connection, approximately how many days did it take to obtain it from the day of the application to the day the service was received?
This question should be repeated carefully before recording a response. Enumerators need to be sure the question is fully understood.

C7. [If yes to C1] In reference to that application for an electrical connection, was an informal gift or payment expected or requested?
This may also be regarded as a sensitive question. Preface it with a statement suggesting the question may be sensitive. Also remind the interviewee that all answers are treated as confidential.

C15. Please describe these other sources:
Care should be taken with this question. As with other table like questions, enumerators should repeat what was asked to make sure the question is fully understood. Only then record the answer.

C16. [If yes to C14] How satisfied are you with the following aspects of your primary non-DABS electricity source?
Enumerators should be careful not to prompt. Give interviewees time to respond.

C17. This question is to help us understand whether the electricity you have is helping you run your equipment. For each of the items listed in the table below, please answer:
As with question 15, make sure the questions are clearly understood before recording responses.

Section D: Governance and Security

This section will prove to be problematic for some interviewees as the relationship between security, governance, and access to electricity may be an obscure one. Enumerators should explain, as neutrally as possible, that the project seeks to understand how having electricity may change the context in which businesses operate. Again, no "for the better, or for the worse" should be implied.

G1. This year, how is the security in your community compared to previous years?
This is another question that may prove sensitive. It should be prefaced with an explanation that the question is a sensitive one, the response will be held in confidence, and that the interviewee has the option not to respond. Once this has been stated, the question can be asked, with the enumerator using a neutral tone.

Section E: Environment and Ambient Health

E2. How often does your business use a diesel generator?
The emphasis is on diesel and enumerators need to make sure this is clear to interviewees.

E3. How would you rate the air quality inside the area of business during the winter?
Enumerators should be careful in asking this question. This is a possibility it may be taken as an indictment of business practices. Enumerators should assure interviewees that this is not the case.

E7. [If yes to E6] What is the improved water source?
Enumerators should get as much detail as possible and then enter a precise response.

Concluding the interview
The end of the interview is a good time to go back over why the business was selected, the possibility of being interviewed again, the confidentiality guarantee, and the fact that there are no short-term benefits to the interviewee. Enumerators acknowledge that business owners or managers are busy people and they should thank interviewees for their time and for taking part in the survey.

CHAPTER 12: SCHOOL SURVEY

Section B: Basic Descriptive Information

This is set of straightforward questions. For B3e. Although GPS coordinates will already be on file for the school, it is important that this information be collected again as a means of verification.

Section C: Electricity

C2. In reference to that application for an electrical connection, approximately how many days did it take to obtain it from the day of the application to the day the service was received?
C3. Did the school pay a connection fee?
C4. How much did the school pay?
C6. How much did the transformer cost?

These are detail questions. Administrators may be tempted to guess. Enumerators should preempt any guessing by suggesting to administrators that they may want to check their records. Enumerators should allow administrators the time to do so.

C7. In reference to that application for an electrical connection, was an informal gift or payment expected or requested?

This may be a difficult question to answer. Enumerators should anticipate this difficulty and preface the question by first stating: "This may be a difficult question to answer. However, your answer is important to our study and your answer will be treated in the strictest confidence."

C16. Please describe these other sources [of electricity]:
As with table-type questions, enumerators should ask each question twice to ensure that it is understood. Answers should be repeated back to the interviewee before being entered.

C17. How satisfied are you with the following aspects of your primary non-DABS electricity source?
Allow administrators ample time to decide. If asked to repeat an item in the list, repeat the entire list rather than just one or two items.

Section D: Governance and Security

This section will prove to be problematic for some administrators as the relationship between security, governance, and access to electricity may be an obscure one. Enumerators should explain, as neutrally as possible, that the project seeks to understand how having electricity may change peoples' lives. Again, no "for the better, or for the worse" should be implied. Simply put, does electricity change people's lives.

D1. At any time in the last 12 months, have you ever had to close the school because of insecurity?

Enumerators should anticipate that this may be a difficult question to ask. They should preface the question by first stating: "This may be a difficult question to answer. However, your answer is important to our study and your answer will be treated in the strictest confidence."

Section E: Education

E2. Number of graduates [most recent academic year]:
Encourage and allow administrators time to check records.

E5. In the last year, has any electrical equipment at the school been damaged due to unstable voltage?
Encourage and allow administrators time to check records or consult with colleagues.

E8a. through E8d.
Allow administrators time to consider their options. If asked to repeat sections, repeat all options on the list instead.

Section F: Environment and Sanitation

F8. Are these sufficient for the number [of bathrooms] for students?
Allow time to expand but make sure entered responses are descriptive but concise.

Concluding the interview

The end of the interview is a good time to go back over why the business was selected, the possibility of being interviewed again, the confidentiality guarantee, and the fact that there are no short-term benefits to the interviewee. Enumerators acknowledge that school administrators are busy people and they should thank interviewees for their time and for taking part in the survey.

CHAPTER 13: HEALTH FACILITY SURVEY

This chapter gives specific instructions about the Electricity Access Baseline Household Survey for Health Facilities, on how to approach them, and how to track them over the course of the survey. The chapter discusses safety concerns, how to get consent from Health Facilities, and how to conduct the interview in general. The modules of the survey are discussed as are specific questions that may prove problematic.

This instrument will be used to conduct a baseline survey and, thereafter, periodic surveys spread over four to five years. The surveys assess access to electricity around substations prior to customers receiving service, and then over time as the service areas reach capacity. Besides assessing access, the surveys measure change within Health Facilities as it relates to access to electricity.

There are 30 facilities to interview on the Health Facilities List. These are facilities for which there is GIS information and they include provincial hospitals, basic health centers, comprehensive health centers, district hospitals, drug addiction treatment centers, sub-health centers, and a catch-all category called "other." All of the hospitals and clinics should be surveyed.

The following section describes the process of approaching health facilities.

Approaching Health Facilities

Before enumerators visit facilities, the organization administering the survey will contact the health facility or their relevant controlling authority for permission to conduct the survey. These authorities may be the Ministry of Health, private organizations, or other bodies. Written permissions will be sought from health facilities before enumerators visit. Once permissions are granted, visits should be scheduled by field supervisors who will then assign an enumerator. Field supervisors should ensure that authorized administrators only are selected as interviewees. Selected administrators should have a good knowledge of the workings of the facility.

Selecting a time of day during which to do the interviews is important. Hospitals and clinics can be busy and chaotic places. Scheduling a time when an administrator can answer questions without interruption is an important consideration.

At the start of the interview, enumerators need to inform the selected administrator upfront who is doing the survey and for what reason. Interviewees should be given the name and location of the administering organization, and they should be told that the survey is on behalf of USAID. Interviewees should be informed that their facility is one of 30 being interviewed, and that there is a strong likelihood they will be revisited in 18 months to two years for a second interview. They should be informed that there may be a third interview after that. This should all be done despite the fact that administrators will already have been informed as to the nature of the survey by field supervisors. Enumerators should make it clear to administrators that there is no compensation for taking part in the survey and that any benefits to the interviewee will be indirect.

Enumerators must explain that the material will be used in aggregate form and that it is to be used exclusively for the purpose of tracking access to electricity and how health facilities may change based on access to electricity. Enumerators should avoid expressing this statement in either a positive or negative way. In order not to bias the information gathered, it is vital the enumerators present the survey in a neutral way. They should, under no circumstances, suggest that access to electricity is a good or bad thing.

The final step of this introduction is to let administrators know how long the interview will take. Administrators should be informed that the survey will take between 30 and 45 minutes to complete. If this time frame proves to be an obstacle, enumerators should offer to reschedule at a more convenient time.

Safety

In the context of Afghanistan, the health and safety of fieldworkers and interviewees is of prime importance. If areas are considered high risk, enumerators should be discouraged from entering them. In the case of the health facility interviews, field supervisors should ascertain whether the area in which the facility is located is safe before sending out an enumerator.

Consent

In the case of schools, the consent statement should be read despite the fact that permission will have been granted beforehand. It is important that the administrators understand that they can terminate the interview at any stage.

Conducting the interview

Enumerators should speak slowly and clearly. They should not, however, be condescending. There is no need to rush. It is more important that interviewees understand the questions than it is to complete the survey in a required time. Enumerators should be prepared to repeat questions, but enumerators should never second guess or anticipate answers. Enumerators should, however, be sensitive to the time needs of school administrators, and to questions administrators may find upsetting or intrusive. They should not cut interviewees short. Without prompting, enumerators should encourage active participation. They should remain neutral at all times and for all questions. Enumerators should never express their own opinions, and they should never make assumptions about interviewees.

Section A: Introduction and Request for Consent

2c. Enumerators should make sure they get a phone number as this will be important to any follow-up.

Section B: Basic Descriptive Information

This is set of straightforward questions. For B5e. It is important that GPS information be collected as a means of verification.

Section C: Electricity

C2. In reference to that application for an electrical connection, approximately how many days did it take to obtain it from the day of the application to the day the service was received?

C3. Did the health facility have to pay a connection fee?

C4. How much did the health facility pay for the connection fee?

C6. How much did the transformer cost?

These are detail questions. Administrators may be tempted to guess. Enumerators should preempt any guessing by suggesting to administrators that they may want to check their records. Enumerators should allow administrators the time to do so.

C7. In reference to that application for an electrical connection, was an informal gift or payment expected or requested?

This may be a difficult question to answer. Enumerators should anticipate this difficulty and preface the question by first stating: "This may be a difficult question to answer. However, your answer is important to our study and your answer will be treated in the strictest confidence."

C9 to C12
Enumerators should allow administrators the time to check records.

C16. Please describe these other sources [of electricity]:
As with table-type questions, enumerators should ask each question twice to ensure that it is understood. Answers should be repeated back to the interviewee before being entered.

C17. How satisfied are you with the following aspects of your primary non-DABS electricity source?
Allow administrators ample time to decide. If asked to repeat an item in the list, repeat the entire list rather than just one or two items.

Section D: Governance and Security
This section will prove to be problematic for some administrators as the relationship between security, governance, and access to electricity may be an obscure one. Enumerators should explain, as neutrally as possible, that the project seeks to understand how having electricity may change peoples lives. Again, no "for the better, or for the worse" should be implied. Simply put, does electricity change people's lives.

D1. At any time in the last 12 months, have you ever had to close the health facility because of insecurity?

Enumerators should anticipate that this may be a difficult question to ask. They should preface the question by first stating: "This may be a difficult question to answer. However, your answer is important to our study and your answer will be treated in the strictest confidence."

Section E: Health Services

E1. How many patients has this health facility served in the last month?
Allow and encourage administrators time to check records.

E2. How many patients in the last month reported respiratory problems? Allow and encourage administrators time to check records before proceeding to E3.

E8. Which of the following does this health facility have?
For responses to "Other," encourage administrators to give descriptions but be brief in recording responses.

Section F: Environment and Sanitation
E12a to E12d
Give administrators time to reflect before recording their responses.

Concluding the interview
The end of the interview is a good time to go back over why the business was selected, the possibility of being interviewed again, the confidentiality guarantee, and the fact that there are no short-term benefits to the interviewee. Enumerators acknowledge that health facility administrators are busy people and they should thank interviewees for their time and for taking part in the survey.

CHAPTER 14: QUALITATIVE DATA COLLECTION

Overview

As mentioned in Chapter 7 of this manual, the qualitative data will be collected through three methods: informant interviews, enhanced survey questionnaires and focus group discussions. For each type of data collection method and each type of respondent, separate tools have been developed. A total of 14 tools have been developed for qualitative data collection including 6 tools for key informant interview, 4 for enhanced survey questionnaires and 3 for focus group discussions. The table below presents the list of all tools for be used for qualitative data collection. Each of the data collection methods and corresponding tools is discussed in detail in the subsequent chapters.

Table 13: Qualitative Data Collection Tools

Data Collect Method	Type of Respondent
Key Informant Interviews	Ministry of Education (MoEd)
	Ministry of Public Health (MoPH)
	Ministry of Commerce and Industry (MoCI)
	Ministry of Agriculture, Irrigation and Livestock
	Da Aghanistan Breshna Sherkat (DABS)
	Community Leader
Enhanced Qualitative Survey Questionnaire	Household (Men and Women)
	Businesses
	Schools
	Health facilities
Focus Group Discussion	Men
	Women
	Businesses

Overall Guidance for Field Supervisors & Trainers

Some of the key areas to consider for field supervisors and trainers are as follows:

- The trainers should introduce the field researchers to the background and purpose of EASES during the training. This will help the field team better understand the data collection tools and get rich data from the field.
- It is important all the data collection tools are clear to the field team and they understand all questions. All tools are translated in both Pashto and Dari. In the training sessions, the trainers should ensure the participants develop a good understand of the tools. This could be achieved at a minimum through role play where one field researcher takes the role of interviewer (for KII) or facilitator (for FGD) and other field researchers take the role of respondents.
- It is expected that the field team would be familiar with qualitative data collection methods. Trainers should assess the field team members' understanding of different qualitative methods are and how to collect information. It would be helpful to include a refresher module on qualitative data collection techniques in the training program.
- Whenever possible, the FGD guides and qualitative-enhanced surveys should be practiced in the field during the training period. When the FGD discussion guides are trialled in the field, the supervisors should make sure that are the wording of questions is clear and appropriate for the

target groups, and that the length of the FGDs does not go much beyond two hours. If any issues are found, they should be discussed with the EASES study team, which can make necessary changes to the tools based on the feedback.

- Since the timeline for data collection is tight, the field trainers should plan for training sessions in advance so that data is collected in a timely fashion.
- Given the fluid security situation in Afghanistan, the field supervisors may need to allow some flexibility for changing locations for data collection, since security situation may drastically change from the planning stage to actual fieldwork. However, all location changes should be communicated to the EASES team leader, and follow any agreed protocols.
- The field team should be cognizant of cultural sensitivities to certain issues in data collection locations. Field team should be flexible enough to ask question in the culturally appropriate manner.
- The field supervisors should ensure that the field team clearly understands the criteria for selection of participants for key informant interviews, enhanced survey questionnaires and FGDs. This is important because if the data is not captured from the right source it would be useless.
- The field supervisor should ensure that that the field team captures the participants' information and consent on the sign-up sheet for FGDs.
- The field supervisors should ensure that highest quality field notes are available to the study team. Some general guidelines for note-keeping are given below.

General Guidelines for Note-keeping & Recordings

- Notes should be written as completely as possible during the interviews or focus group discussions.
- Where it is possible to make audio recordings of interviews or FGDs, this should be done as a back-up method, with the knowledge and consent of all present.
- Notes should be cleaned up and transcripts should be completed immediately following the interviews while they are still fresh in memory.
- Where an interview or FGD has been recorded, inserting "time stamps" in notes can help the note-keeper track the recording. This means that if the note keeper inserts indications of how much time has elapsed since the recorder has been switched on. For example, "time stamps" can be inserted in the margin of the notes at every 5 minutes of the interview. This will enable to quickly know at what point in time the note keeper needs to go back to the recording to complete or verify notes.
- The notes during interviews and focus group discussions should be written as completely as possible and recordings should only be used as a back-up to complete or verify your notes.
- It is likely that some key informants will be accompanied by other technical staff during interviews. In such cases, if and when the key informant turns to these staff, the note takers should note who responds, even though their answers will be attributed to the key informant.
- Transcripts of interviews should be as close to being "verbatim" as possible. This means note takers write down the exact words interviewers use in posing questions and the exact words that respondents use in answering the questions.
- Note takers should note the questions that interviewers ask as they are asked, no matter if the question corresponds or not to those contained in the interview guides.
- The note-keeper should share the first draft transcripts with the interviewer so that the interviewer can compare them with them with his or her notes and make corrections if needed.

- Notes should be submitted to the field supervisor as soon as possible after data collection so the field supervisor can review for completeness and provide feedback.
- If the note-takers are comfortable enough with English, they may wish to take their notes directly in English. Otherwise, they can take their notes in Dari or Pashto, and the notes should be translated later. If the note-taker is not the translator but speaks English, the note-taker should review the translation to make sure that it accurately represents their intended meaning.

CHAPTER 15: KEY INFORMANT INTERVIEWS

General Guidelines to Semi-Structured Interviews

Key Informant Interviews are useful for learning about the perspectives of individuals and are an effective qualitative method for getting people to talk about their personal feelings, opinions and experiences. This study includes interviews with six types of individuals. These include employees of four government line ministries at provinces and/or districts i.e., Ministry of Public Health (MoPH), Ministry of Agriculture, Irrigation and Livestock (MAIL), Ministry of Commerce and Industry (MoCI) and Ministry of Education (MoEd). In addition, interviews will also be conducted with DABS officials at respective districts/provinces and community leaders in selected villages.

There are specific interview guides for each of the six respondent types. The interview guides for the each of the four line ministry (MoPh, MoED, MAIL & MoCI) employees have three sections under the heading of "Electrical Services", "Governmental Services" and "Public Electricity Services, Governance and Security", which has the same set of questions across all the four interview guides. In addition, each of the four interview guides have a section that asks specific questions related to the line department i.e., Public Health, Public Education, Agriculture Livestock and Irrigation, and Commerce and Industry. It is expected that the KIIs with respective government officials will provide an overall status of health, agriculture, business and education in their respective districts (zone of influence) and any effects of electricity thereon. The interview guide for DABS mainly includes questions on the current status of electricity in the area. KIIs with community leaders are expected to provide rich information about any impact of electricity at village level.

Identifying the Correct People

All the key informants, with the exception of the community leader, are government employees, or an employee of DABS. These government employees are representatives of:

- Ministry of Public Health (MoPH);
- Ministry of Education (MoEd);
- Ministry of Commerce and Industry (MoCI);
- Ministry of Agriculture, Irrigation and Livestock (MAIL); and,
- Da Afghanistan Breshna Sherkat.

The only issue to be determined by the study team is whether the representative should be at the provincial or district level. For DABS, the person to be interviewed is the provincial head. For the four line ministry staff, the district representative should be preferred where possible. However, in some cases, there may not be a district representative, or the person might not be available, in which case the provincial staff member should be interviewed. Once the intended informants in the government departments are identified, the interviewer should schedule prior appointments via phone and/or emails to make sure that they are available for interviews. Based on our past experience in Afghanistan, the government employees may not readily talk to the field team and ask for an official letter from USAID stating the purpose of the visit. It is expected that USAID will provide such a letter before the start of qualitative data collection and the interviewer can present the letter to the government employees.

As mentioned in Chapter 7, the community leaders will be selected from the three surrounding communities the substation. If the substation includes urban and rural populations, then the selection should represent the relative balance between the two: i.e. if most people near the substation are urban, two communities should be urban, and one rural. If most people near the substation are rural, then two communities selected should be rural and one urban. If all the communities within the service of the

substation are either urban or rural, then obviously all communities selected will share this characteristic. Otherwise, the communities should be geographically spread out, for the greatest potential for diverse perspectives.

Introduction and Consent

The interviewer should introduce him or herself at the start of the interview and mention the name of the organization s/he works for. The interviewer should then state the purpose of the interview and explain why this interview is important. Based on the past experience of the consultants, the government may require an official letter from USAID stating the purpose of the visit. It is expected that USAID will provide such a letter before the start of qualitative data collection and the interviewer can present the letter to the government employees. The interviewer should ask for permission to participate in the interview and make clear to the informant that if s/he would like to skip any question or would like to remain anonymous on any question.

Explanation of Interview Questions

In the section below, the questions from all the six interview guides are included. The first part presents the explanation of the general questions for government line departments which are common to all the four interview guides (MoEd, MoPH, MoCI & MAIL) followed by specific questions for each line ministry. The questions for DABS and community leaders are also explained. These explanations are intended to provide clarification to and enhance understanding of the field team. At times the explanations include illustrative answers that could help in clarification of the questions. Please note that the actual answer may be completely different from the ones provided here. The field team is advised to remain neutral throughout the discussion and should refrain from leading the participants to any particular response. Some of the questions are straight forward and does not need any explanation and therefore the spaces have been left blank.

General Questions for Government Departments (MoEd, MoPH, MoCI & MAIL)

No.	QUESTION	EXPLANATION
	C. ELECTRICAL SERVICES	
C1	Do you receive metered electricity service from DABS?	"Metered electricity service" means whether the office has an electricity meter installed by DABS.
C2	[If yes to C1] In what year did you begin receiving this service? _____	State the year in which the meter was installed in the office by DABS.
C3	C3. [If yes to C1] How long did it from the time you applied to the time you received the service? _____days	State the time in days it took after the application for installation of a meter was submitted to DABS and the meter was installed in this office.
C4	C4. [If yes to C1] Did you have to pay a connection fee?	"Connection fee" refers to the fee required by DABS for installation of new electricity meters. It does not include any other types of payments such as gifts or bribes.
C5	C5. [If yes to C4] How much was the connection fee? _____	State the amount payed for the connection fees paid to DABS and any other amount paid on top such as gifts for DABS employees etc.

C5	Overall, were you satisfied with the process of connecting to DABS? Why or why not?	The "process of connecting to DABS" may include getting the application forms; payment for the new connection; approvals from DABS; installation of transformers; installation of meters; and, connectivity to electricity.
C6	[If yes to C1] What tariff do you currently pay per KWH? _____	Kilowatt-hour is a unit of electricity consumption.
C7	[If yes to C1] How much did you pay on your last electricity bill? _____	DABS billing cycle is usually for two months i.e., customers are billed for two months of electricity use. Please ask how much was paid for their last electricity bill.
C8	[If yes to C1] For how many hours, in the last 24 hours, has DABS electricity been connected/available? _____	The office could be using other sources of electricity such as solar or generators. Please ask specifically about the number of hours the office was connected to electricity provided by DABS. This could also be determined by subtracting the number of hours of load-shedding from 24 (if the respondents reply in terms of load-shedding).
C9	[If yes to C1] How satisfied are you with the following aspects of the electricity you receive through DABS? [1 -very satisfied | 2. somewhat satisfied | 3 – neutral | 4 - somewhat unsatisfied | 5 - very unsatisfied]	This question corresponds to the sub-questions below. The respondents should rate from 1-5 their level of satisfaction with the particular aspect of electricity in the sub-questions below. Please ask the respondent to provide reasons for their rating i.e., reasons for satisfaction or dissatisfaction
C9.1	The cost of electricity? _____ Please explain your rating.	The respondents should rate their level of satisfaction with the amount of money they spend on DABS provided electricity. They should state reasons for their satisfaction or dissatisfaction.
C9.2	The strength/voltage of electricity? _____ Please explain your rating.	The respondents should rate their level of satisfaction with quality (i.e., strength/voltage) of electricity they receive from DABS provided electricity. They should state reasons for their satisfaction or dissatisfaction.
C9.3	The regularity of electricity (i.e. number of hours per day)? _____ Please explain your rating.	The respondents should rate their level of satisfaction with regularity of electricity. Regularity of electricity means the number of hours they are connected to DABS provided electricity in a day. They should state reasons for their satisfaction or dissatisfaction.
C9. 4	Overall satisfaction with electricity? _____ Please explain your rating.	The respondents should rate their level of overall satisfaction with the DABS provided electricity. They should also state reasons for their satisfaction or dissatisfaction.
C10	[If no to C1] Why is your office not receiving electricity from DABS? 1. It is not available in this area 2. The cost to connect is too expensive	In case the office is not using on-grid electricity from DABS you can ask reason from the list below i.e., from C10.1 to C10 .88.

	3. The process of connecting is too complicated/lengthy 4. The cost of monthly electricity is too expensive 5. They are no longer taking new customers 6. Satisfied with existing electrical system 7. Don't need electricity 8. Other (please specify) _____ 88. Don't know 99. Refused	
C11	Do you have any other source of electricity? YES ☐ [Go to next question] NO ☐ [Go to next section]	Any other source of electricity in addition to DABS on-grid electricity such solar power, generator etc. It is also possible that office is not connected to DABS provided on-grid electricity and is solely relying on other sources.
C12	[If yes to C11] Is this non-DABS electricity your primary source of electricity or is it a back-up? 1. Primary 2. Back-up	"Primary source" means that office usually relies on this source for electricity and sometimes or never uses DABS provided electricity. "Back-up" means that office usually relies on DABS provided on-grid electricity but sometimes uses other sources of electricity when the need arises.
C13	[If yes to C11] What is the source of this (non-DABS) electricity? 1. Solar 2. Wind 3. Diesel generator 4. Hydro-electric 5. Other (please specify) _____ 88. Don't know	If the office is using electricity other than DABS provided on-grid electricity, please select from the list.
C14	[If yes to C11] Who owns the source of electricity? 1. My office 2. The community 3. A local business person 4. A larger business 5. Other (please specify) 88. Don't know	Source of electricity means solar power, generator, hydro power etc. Please specify who owns these sources. For example if the office is receiving electricity from a generator which is could be owned by the office, individual business person or a community.
C15	[If yes to C11] How many times in the last week have you used this system? _____	Please state the number of times the "other source" of electricity was used by this office. For example the office used office owned generator 5 times during the week etc.
C16	C16. [If yes to C11] How satisfied are you with the following aspects of your non-DABS electricity source?	This question corresponds to the sub-questions below (C16.a to C16.d). The respondents should rate from 1-5 their level of satisfaction with the particular aspect

	[1 -very satisfied | 2. somewhat satisfied | 3 – neutral | 4 - somewhat unsatisfied | 5 - very unsatisfied]	of electricity **(from non-DABS source)** in the sub-questions below. Please ask the respondent to provide reasons for their rating i.e., reasons for satisfaction or dissatisfaction
C16. a	The cost of electricity? _____ Please explain your rating.	The respondents should rate their level of satisfaction with the amount of money they spend on electricity from non-DABS sources. They should state reasons for their satisfaction or dissatisfaction.
C16. b	The strength/voltage of electricity? _____ Please explain your rating.	The respondents should rate their level of satisfaction with quality (i.e., strength/voltage) of electricity they receive from non-DABS sources. They should state reasons for their satisfaction or dissatisfaction.
C16. c	The regularity of electricity (i.e. number of hours per day)? _____ Please explain your rating.	The respondents should rate their level of satisfaction with regularity of electricity. Regularity of electricity means the number of hours they are connected to electricity from non-DABS sources in a day. They should state reasons for their satisfaction or dissatisfaction.
C16. d	Overall satisfaction with electricity? _____ Please explain your rating.	The respondents should rate their level of overall satisfaction with the electricity from non-DABS sources. They should also state reasons for their satisfaction or dissatisfaction.
C16. Q	If you have both on-grid (DABS) electricity and an alternative source, which one do you prefer, and why?	If prompts are needed: Which source was easy to connect to? Which source was cheaper? Which source was reliable?
D	*GOVERNMENT SERVICES*	
1.	How long have your offices been in their current location?	State the number of months or years the office has been located at the current location. For example the office was established 3 years ago.
1.	How many staff are working from this office? Men:___ Women:_____	State the number of men and women working for the department/directorate/ministry in the building where the office space is located. For example 10 men and 5 women working for the education department in this building.
2.	What are the responsibilities of and services provided by this office?	
3.	What interactions, if any, does this office have with members of the public?	
4.	Has the availability (or lack) of electricity in the office had any effect on this office's work? Please explain.	Possible effects of electricity of office work could include better lighting, ability to use computers/printers, heating in winters, cooling in summers etc.
5.	Has the availability (or lack) of electricity in the office had any effect on this office's relation with the public? Please explain.	Possible effects of electricity on public relations could include the use of phones, computers etc. to address or record public demands or complaints.
E	*PUBLIC ELECTRICITY SERVICES, GOVERNANCE AND SECURITY*	

1.	How would you describe the overall availability and quality of electricity as currently available to the public in the area surrounding the nearest DABS substation: [or a specific constituency]: a. The overall availability of electricity? Please explain. b. The cost of electricity? Please explain. c. The strength/voltage of electricity? Please explain. d. The regularity of electricity (i.e. number of hours per day)? Please explain. i. Does this vary by season? (i.e. winter vs. summer)	Based on the informant's knowledge of the area, s/he can talk about the number of people connected to either DABS provided on-grid electricity or other sources. S/he can also talk about what people generally feel about the availability, cost, quality (strength/voltage) and regularity of electricity.
2.	Do you think the availability of electricity has had any influence, whether negative or positive, on public perceptions of government? Please explain.	For example the availability of electricity could lead to positive public perceptions and confidence in government and vice versa.
3.	Do you think the availability of electricity has had any influence, whether negative or positive, on overall levels of security? Please explain.	For example lighting at nights could lead to fewer instances of street crimes and vandalism.
4.	Are you aware of anyone deliberately damaging or destroying electricity infrastructure in this district? If so, please describe.	Electricity infrastructure includes poles, towers, transformers, grid stations, electricity meters, etc.
5.	Are you aware of any incidents in which the public has prevented people damaging or destroying electricity infrastructure, or otherwise protected electricity infrastructure in this district? If so, please describe.	For example if the community is guarding the electricity towers and/or transformers etc.

Ministry of Education (Specific Questions)

No.	Question	Explanation
F.	*PUBLIC EDUCATION*	
1.	Over the last year, have there been any changes, whether positive or negative, to education access in this district for: [These could include changes in number of schools, number of teachers, enrolment rates, etc.] a. Primary school students? (Classes 1 to 6)	For example the number of operational schools could have increased due to establishment of new schools or revamping of old schools. Changes in number of teachers could be due to recruitment policy etc. Enrollment rates could change due to changes in security situation. Also explore if there were any changes due to access to electricity.

	b. Middle school students? (Classes 7, 8, 9) c. High school students? (Classes 10,11,12) d. Students in Community Based Education (CBE) schools? e. Vocational institute students? f. Any other type of student? If so, please explain what these changes are and why you think they occurred.	
2.	Over the last year, have there been any changes, whether positive or negative, to educational outcomes in this district for: a. Primary school students? (Classes 1 to 6) b. Middle school students? (Classes 7, 8, 9) c. High school students? (Classes 10,11,12) d. Students in Community Based Education (CBE) schools? e. Vocational institute students? f. Any other type of student? If yes, please explain what these changes are and why you think they occurred.	Educational outcomes here refers to any evidence of better student outcomes, and could include, for example, improvements in grades, increases in completion rates, evidence of increased continuation in education or, for vocational students, improved employment or self-employment outcomes afterwards.
3.	At present, what do you think is the biggest issue facing schools in this district? Please explain.	Possible answers could include security, lack of qualified staff, lack of proper medical equipment, lack of funds, lack of electricity etc.
4.	Over the last year, what has been the biggest positive change in schooling in this district? Please explain.	What was the change? Why is it the biggest positive change?
5.	How many schools are in the area within the 20km radius surrounding the [NAME OF] electrical substation? [show map with substation and surrounding communities marked] a. Has the number of schools in this area increased, decreased, or stayed the same in the last year? b. If the number has increased, how many have been built? c. If the number has decreased, by how many? Why?	20 km radius is important because it forms the zone of influence for each substation (for the purpose of this study). Please show the map surrounding the substation any changes in number of schools and the reasons thereof.
6.	How many schools in this area have electricity provided by this substation?	State the number of schools receiving electricity from this substation within 20 km radius.

7.	How many schools in this area have their own or back-up electrical systems?	State the number of schools having their own or back-up electrical systems within 20 km radius of this substation. Back-up electrical system could be solar power or generator.
8.	Have you observed any decentralization of educational services in this area? Why or why not? Has the availability (or lack) of electricity played any role in this? Please explain.	If any educational services (schools, classes, certain kinds of classes) are becoming more spread out and common, especially in rural areas?
9.	Do you think that the presence (or lack) of electricity in schools has had any effect on enrollment and/or attendance for students? a. For girls? b. For boys? c. If yes, what effects have you observed? What is the evidence for these changes?	
10.	Do you think that the presence (or lack) of electricity in schools has had any effect on educational attainment for students? a. For girls? b. For boys? If yes, what effects have you observed? What is the evidence for these changes?	Educational attainment is the highest grade/level completed within the educational system. For example more boys and girls are completing secondary schools etc.
11.	Within this district, is computer teaching part of the teaching? If yes, from what class? a. How many secondary schools are currently offering computer training? b. In your opinion, what is the quality of this training? Please explain. c. What effect, if any, does the availability (or lack) of electricity from the nearby substation have on this?	
12.	Within this district, how many secondary or high schools have science labs? a. In your opinion, what is the quality of these science labs? Please explain. b. How important is electricity for the functioning of these science labs? Please explain.	Science labs for conducting practical exercises related to physics, chemistry and biology curriculum.

13.	Within this district, how many schools use computers for administration and record keeping? a. In your opinion, how effective are schools' current administration and record keeping practices? b. What effect, if any, does the availability (or lack) of electricity from the nearby substation have on this?	Administration and record keeping practices are effective when all importation information related to financial management, accounting, procurement, human resources is stored either manually or electronically and is readily available when needed by management.
14.	Have any schools in this district had to close down due to security over the past year? If so please explain.	If the answer is yes please ask: how many times it happened? For how long the school remained closed? How did that affect the students?
15.	Do you think the presence or absence of electricity at schools has had any effect on security of schools in this district? Please explain.	For example better lighting at night could result in few cases of vandalism at schools.
16.	Do you think the presence or absence of electricity at schools has had any effect on the sense of community ownership of schools in this district? Please explain?	
17.	Do you have any other comments regarding electricity and education?	Final question that allows the respondent to say anything else related to electricity and education.

Ministry of Public Health (Specific Questions)

No.	Question	Explanation
F	*PUBLIC HEALTH*	
1.	Over the last year, have there been any changes, whether positive or negative, to health access in this district for: a. Men/boys? b. Women/girls? c. Children under the age of 15? If so, please explain what these changes are and why you think they occurred.	For example positive change could be availability emergency medical services, availability of vaccines, access to medical equipment (such as X-ray machines, ultrasound machine, neonatal incubator, ECG machine etc.)
2.	Over the last year, have there been any changes, whether positive or negative, to health outcomes (i.e. improvements in treatment and/or prevention of sickness) in this district for: d. Men/ boys? e. Women/ girls? f. Children under the age of 15?	For example, positive changes in health outcomes could include improvement health services for treatment of illnesses through medication and availability of medical equipment. Improvement in prevention of sickness could occur through use of preventive vaccinations.

	If so, please explain what these changes are and why you think they occurred.	
3.	At present, what do you think is the biggest issue facing public health in this district? Please explain.	Possible answers could include security, lack of qualified staff, lack of proper medical equipment, lack of funds, lack of electricity etc.
4.	Over the last year, what has been the biggest positive change in public health in this district? Please explain.	What was the change? Why is it the biggest positive change?
5.	How many health facilities are in the 20km radius area surrounding the electrical substation? [show map with substation and surrounding communities marked] g. Has the number of health facilities in this area increased, decreased, or stayed the same in the last year? h. If the number has increased, how many have been built? i. If the number has decreased, by how many? Why?	20 km radius is important because it forms the zone of influence for each substation (for the purpose of this study). Please show the map surrounding the substation any changes in number of schools and the reasons thereof.
6.	What percentage of existing health facilities in this area have electricity provided by this substation?	State the percentage of health facilities receiving electricity from this substation within 20 km radius.
7.	What percentage of existing health facilities in this area have their own or back-up electrical systems?	State the percentage of health facilities having their own or back-up electrical systems within 20 km radius of this substation. Back-up electricity system could include solar power and/or generators.
8.	Have you observed any decentralization of health services in this area? Why or why not? Has the availability (or lack) of electricity played any role in this? Please explain.	If any health services (health clinics, BHUs etc) are becoming more spread out and common, especially in rural areas?
9.	How would you rate the effectiveness of vaccination programs in this area? Please explain your answer. Has the availability (or lack) of electricity played any role in this? Please explain.	For first part of the question, please state weather the vaccination programs were highly effective/moderately effective/not effective in this area.
10.	How would you rate the effectiveness of medical emergency response services in	For first part of the question, please state weather the medical emergency response services were

	this area? Please explain your answer. Has the availability (or lack) of electricity played any role in this? Please explain.	highly effective/moderately effective/not effective in this area.
11.	Has the availability (or lack) of electricity in public health facilities had any other effect on public health? Please explain.	
12.	Are you aware of any effects, whether positive or negative, that the existing public electricity system has had on air quality in this area?	For example the quality of air could improve if people start use on-grid electricity from DABS instead of using diesel generators.
13.	Are you aware of any effects, whether positive or negative, that the existing public electricity system has had on household access to safe water?	For example if people using on-grid electricity to pump clean and safe water.
14.	Are you aware of any effects, whether positive or negative, that the existing public electricity system has had on household sanitation?	
15.	Does the existing electricity system have any other effects on public health, whether positive or negative? Please explain your answer.	
16.	Are you aware of any health concerns in this area posed by electricity lines and related infrastructure? If so, please describe. What, if anything, is being done in response to these concerns?	For example, if people are concerned about health hazards posed by the transmission lines due to their close proximity to population.

Ministry of Commerce and Industry (Specific Questions)

No.	Question	Explanation
F.	*COMMERCE AND INDUSTRY*	
1.	About how many businesses are operating in this district?	An estimate of all types of businesses including formal and informal businesses. For the purpose of this study, formal businesses are those that at a minimum are registered with any agency (or office) such as MoCI, Afghanistan Centralized Business Registration (ACBR), Afghanistan Chamber of Commerce and Industry (ACCI), etc. Business that are not formal are informal
1.a	Do you know how many of these businesses are registered with MoCI? About how many are informal (i.e. Not registered with MoCI)?	Please state the number if known.
1.b	What sectors are these businesses working in?	Sectors could include manufacturing, construction, retail, wholesale, transportation and storage, accommodation and food service, information and communication, education, health, repair of motor vehicles and motorbikes, mobile repairing, carpentry factory, metal factory etc.

1.c	What are the main challenges these businesses face?	Possible challenges could include lack of public infrastructure, high cost of electricity, security situation etc.
2.	In the past year, are you aware whether new businesses have started in this district?	State the number of new businesses if known.
2.a	If yes, in what sectors?	Sectors could include manufacturing, construction, retail, wholesale, transportation and storage, accommodation and food service, information and communication, education, health, repair of motor vehicles and motorbikes, mobile repairing, carpentry factory, metal factory etc.
2.b	What factors do you think were most important in influencing these businesses to start?	For example new businesses could have started due to improvement in security situation, access to electricity or provision of other incentives by the government etc.
3.	In the past year, are you aware of businesses that have closed in this district?	Please state the number of businesses that were closed (if known).
3.a	If yes, in what sectors?	
3.b	What factors do you think were most important in influencing these businesses to close?	For example businesses could have closed due to adverse security situation, lack of access to electricity or withdrawal of incentives by the government etc.
4.	In the last year, have employment opportunities in this district generally increased, decreased, or stayed the same?	
4.a	Please explain your answer and the evidence for this.	Give examples for any increase or decrease in employment opportunities. Specifically, you can mention the sectors which contributed to increase or decrease in employment.
4.b	What factors do you think have been most important in shaping employment opportunities?	"Factors" in this questions means the reasons that contributed to changes in employment opportunities. These changes could be because of changes in overall conditions such as startup or closing of businesses, changes in security situation etc. Also explore if access to electricity was one of the factors.
	For the following questions, we are focusing on the area locating in a 20 km radius of the [NAME] electricity substation. [Show map with the substation and Zone-of-Influence]	
5.	Are there any business parks either existing or planned within this area?	
5.a	Can you describe the electricity supply in this/these business park(s): i. Is it on-grid? ii. Is it adequate for the needs of businesses? Why or why not?	For example the business parks do not have access to DABS provided on-grid electricity or it is unreliable and weak for the business.
6.	Where are the main commercial areas within this area? Can you please describe	Commercial areas are locations where businesses are located e.g., markets, business centers etc.

	these commercial areas: how big are they? What sorts of commercial activities take place there?	
6.a	Can you describe the electricity supply in this/these commercial area(s): i. Is it on-grid? ii. Is it adequate for the needs of businesses? Why or why not?	This is in reference to "Where are the main commercial areas within this area? Can you please describe these commercial areas: how big are they? What sorts of commercial activities take place there?"
7.	Do you know about what percentage of businesses in this area have electricity?	State the percentage if known.
7.a	What are the sources? (own generator, solar, on-grid, community hydropower etc.) Which ones are most common?	This is in reference to "Do you know about what percentage of businesses in this area have electricity?"
7.b	In general, do businesses face any challenges in getting connected to on-grid electricity? If so, please explain.	For example challenges in terms of submission of application, payment for new meter, approval of documents, connectivity to transformers etc.
7.c	Is there a standard pay rate (for electricity) for businesses connecting to the grid? If so, what is it?	The pay rate is equal to the cost of 1 kilowatt-hour (Kwh) use of electricity by the business.
7.d	In your opinion, is the current cost of electricity to businesses satisfactory? Why or why not?	Whether or not the business person is happy with what s/he pays for electricity.
7.e	Are you satisfied with the reliability of electricity that businesses are getting? Why or why not?	Whether or not the business person is happy with strength/voltage of electricity.
8.	Can you describe what effect having electricity (or not having electricity) has on the businesses in this district/province?	Availability or unavailability of electricity can affect a business in several ways. Some of the areas in which a business could be affected are given as sub-questions 8.a-d.
8.a	Ability to operate and compete?	How availability or unavailability of electricity affects the operation of the business? Does that have any effect on the competitiveness of the business? (Does that make the business more or less competitive?)
8.b	Ability to work in specific sectors?	This is in reference to "Can you describe what effect having electricity (or not having electricity) has on the businesses in this district/province?"
8.c	Job creation?	This is in reference to "Can you describe what effect having electricity (or not having electricity) has on the businesses in this district/province?
8.d	Income generation?	This is in reference to "Can you describe what effect having electricity (or not having electricity) has on the businesses in this district/province?
9.	What changes, if any, would you hope to see in the electricity supply in the future?	
10.	What concerns, if any, do you have about the electricity supply in the future? Please explain. How would you like to see these addressed?	

Ministry of Agriculture, Irrigation and Livestock (Specific Questions)

No.	Question	Explanation
F	*AGRICULTURE, IRRIGATION AND LIVESTOCK*	
1.	Can you describe the typical situation of those working in agriculture in this district?	For example, whether the landholdings are small, medium or large? What types of crops are grown? How are the lands irrigated? What is the financial status of most farmers?
2.	What are this district's main agricultural products?	Please state the main crops in the districts. If there are any processed fruits and vegetables, please mention them too.
3.	How important is livestock and poultry rearing to people in this district? a. What sort of livestock is most commonly owned here?	For example livestock could be an important source of milk and meat for the household. Poultry could provide an additional source of income for women by selling eggs etc.
4.	What are the main difficulties that the people of this district working in agriculture face?	For example there is not enough water for irrigation or cold storages to store fruits and vegetables.
5.	What are the main difficulties that the people of this district rearing livestock face?	For example there are no reliable veterinary services available in the area.
6.	What percentage of rural households in this district have access to irrigated land?	Please state the percentage if known.
7.	How are people in this district irrigating their land? (i.e. through canal water, spring water, tube wells, etc.) a. Is electricity being used to pump water for irrigation? b. If yes, about what percentage of people are able to use electricity for this purpose? c. If yes, what sources of electricity are most people using for this? [mark all that apply] i. Solar ii. Diesel generator iii. Electrical generator iv. On-grid power v. Other (please specify): _____ _____ _____ d. What are the main factors affecting people's ability to use electricity to pump water for igation?	Please state what is the main source of irrigation is this district. • 7.a. is a close-ended question and requires a "yes" or "no" answer. • For 7.b please state the percentage of people using electricity for water pumps to irrigate their lands. • For 7.c please choose the source of electricity from the list. • Possible answers for 7.d includes lack of access to electricity, high cost of installing a pump, extremely low water table to pump etc.
8.	About what percentage of rural households have livestock?	Please state the percentage if known.

9.	What does DAIL do to support livestock vaccination?	
10.	Do you know about what percentage of livestock in this district is vaccinated? a. Poultry? b. Sheep? c. Goats? d. Cattle?	Please state the percentage if known.
11.	For those people who do not vaccinate their livestock, what are the reasons why?	Possible reasons include unavailability of vaccines (due to storage issues), high cost of vaccines etc.
12.	In this district, how are vaccines stored? a. Are there any challenges related to the cold storage of vaccine? If so, what are these? b. Is the current electricity supply adequate for this? Why or why not?	Possible answer includes unavailability of cold storage of vaccines. It is also possible that cold storage is available but could not be used due to unavailability of electricity.
13.	Are there any cold storage facilities available in this district? a. If yes: i. How many? ii. Are these public or private facilities? iii. Who uses the facility/facilities? iv. How is the cold storage powered? v. Is the electricity powering the cold storage affordable for its users? vi. Is the electricity powering the cold storage reliable? vii. Is the voltage adequate? b. If no, why not?	

14.	Are there any agro-processing facilities available in this district? a) If yes: i. How many? ii. Are these public or private facilities? iii. Who uses the facility/facilities? iv. How is the agro-processing powered? v. Is the electricity powering the agro-processing affordable for its users? vi. Is the electricity powering the agro-processing reliable? vii. Is the voltage adequate? b) If no, why not?	An agro-processing facility is any place where agricultural products are processed. For example, agro-processing activities can include washing, drying, sorting, juicing, packing, etc.
15.	Overall, how have agricultural activities in this district changed over the last 12 months?	
16.	Overall, what is the most important effect that the availability (or lack) of electricity has had on agriculture and livestock activities in this district?	
17.	Any other comments?	This allows the respondent to say anything else related to the topic that s/he thinks is important

Da Afghanistan Breshan Sherkat (DABS) (All Questions)

No.	Question	Explanation
1.	What is the current status of PTEC activities?	If prompts are needed: What is the status of completion of transmission lines? What is the status of completion of substation? What is the status of completion of distribution networks?
2.	What is the status of the distribution network for this substation [specify name of substation]? a. How much electricity is distributed through this substation? b. How many household customers are connected to this substation? c. How many business and industrial customers are connected to this substation? d. How many educational institutions are connected to this substation?	Through the electricity distribution network clients (household/businesses) are connected to the substations. The distribution network may include distribution lines, electricity poles, transformers etc.

	e. How many health centers/hospitals are connected to this substation? f. How much area (in km) does this substation serve? g. Up to what radius around the substation? h. Are there any plans for expansion of distribution network within the next two years? What are they? i. When do you expect the distribution network to be at full capacity? i. What month and year? ii. How many customers? iii. How much electricity? iv. Up to what radius around the substation?	
3.	Can you describe the process DABS uses to expand the distribution infrastructure? a. What is the process of community consultation? b. What is the policy and process for acquiring and compensating private land? c. How well have these processes worked? d. Have there been any difficulties encountered? What were these? How did you overcome them?	
4.	Is DABS currently taking new customers in this area, or are you at full capacity? a. If you are at full capacity, how quickly did this happen, from the time you last expanded capacity until the time you reached the maximum number of customers? b. When will be the next time you will expand your capacity and be able to take new customers? c. Is this going according to plan? Why or why not?	

5.	What would you estimate the amount of loss/leakage of power to be on this distribution network? a. What are the main causes? b. Is unregulated/black market use of the power lines an issue on this distribution network? If so, how do you address this?	Loss/leakage of power could be due to power thefts or faults in the distribution network (e.g. faulty transformer, broken cables etc.).
6.	What is the process for new customers to get connected? a. Does this vary by customer type? If so, please explain the categories of customer type, and the process for each. b. Who pays for the transformers/cables/meters?	The most common categories of customers according to DABS are household, business, industry and government.
7.	What is the cost of electricity (per kilowatt-hour) for each type of customer? Has it changed in the last one year?	Please state the unit rate for kilowatt-hour in Afs.
8.	How reliable is the electricity distributed from this substation? a. Does the reliability and quality of electricity vary across different type of customers (e.g., domestic, business, industry, government etc.)? b. Does the reliability and quality vary by time of day, time of week or time of year? Please describe. c. How do you monitor this?	
9.	How do you get customer feedback or monitor customer satisfaction?	Is there any mechanism to monitor customer feedback such as customer satisfaction surveys? Is any data gathered by DABS' customer service centers?
10.	What can you tell us about customer satisfaction (for customers receiving electricity from this substation)? What are the main concerns or complaints of customers?	For example customers are highly-satisfied /moderately-satisfied/unsatisfied with DABS services.
11.	Have there been incidents of damage to electricity infrastructure in the last 12 months? a. If yes, how many? Please describe what happened and why in each instance.	Electricity infrastructure includes substations, grid-stations, electricity meters, poles and towers etc.

	b. Do you have any suggestions for reducing/avoiding such incidents in the future?	
12.	13. Any other comments?	Final question that allows the respondent to say anything else related to the topic that he thinks is important.

Community Leader (All Questions)

No.	Question	Explanation
A.	*AVAILABILITY AND QUALITY OF ELECTRICITY*	
1.	Are people in this community using electricity from DABS? Why or why not?	For example people use DABS provided electricity because it is cheaper and more reliable. They can also say that they are not using it because it is not available in their area or the cost of getting a connection is too high etc.
2.	For people who are using DABS, how often is the electricity available?	Availability of electricity here means the number of hours electricity is available to a household during 24 hours.
3.	Does the availability of DABS electricity change over the seasons? Please explain.	"Change over the seasons" mean whether there is any difference in electricity supply during summer and winters. For example in cold areas demand for electricity may increase in the winters which could lead to load-shedding.
4.	Are people using electricity from other (non-DABS) sources? If so, what are these sources? Why are people using these?	Other sources could include generators, solar power, hydropower etc.
5.	Is the electricity available meeting your community's needs? Why or why not?	For example, whether the community uses electricity for lighting, cooking, heating cooling, washing etc.
6.	Are there any problems with the electricity supply in your community? If yes, what are they?	For example, there are too many electricity outages or the electricity voltage is not strong enough
7.	Is the way that DABS has distributed electricity in your area fair and transparent?	This question aims at finding out whether or not there were instances of corruption or payments over and above the DABS specified fees.
8.	Are people in your community happy with DABS? Why or why not?	Please ask for reasons for whether people are satisfied or unsatisfied with DABS.
9.	Does DABS give electricity to everyone equally? If not, how do they decide who gets electricity? Is this fair?	You can ask about how DABS decide to give electricity. Are there any cases of corruption or payments above the DABS specified fees? Is the electricity distribution fair among the poor and the powerful?
10.	What do you know about the way DABS consulted with the community about where to put in poles and towers? Do you	Did DABS consult the community before installing the poles and towers? If yes, did take into account the consultation when they decided where to

	think this was a good process? Why or why not?	install the poles and towers? How does the community feel about it?
11.	What do you know about the way DABS compensated land owners when they used their land for infrastructure? Has this resulted in any conflict? If so, could such conflict have been avoided?	To install the poles and towers, DABS used lands owned by community and/or individuals. DABS may or may not have paid for acquiring those lands. Please explore whether DABS have paid for acquiring these lands and what does the community feel about it.
B.	*Economic Structure/Employment*	
1.	What effect has the current situation with electricity affect rearing livestock/poultry in your community?	
2.	How does the current situation with electricity affect irrigation of agricultural lands in your community?	For example the availability of electricity encouraged the farmers to use tube-wells for irrigation of agricultural lands.
3.	Is there any cold storage in your area? Can you tell me if it works well? Who uses it?	For example, the availability or unavailability of electricity may affect the usage of cold storage in the area.
4.	Are there any food processing plants in your area? Can you tell me if it works well? Who uses it?	For example, the availability or unavailability of electricity may affect the usage of processing plants in the area.
5.	Has the number of businesses in the community changed in the last few years? If yes, why? Did the situation with electricity have any effect on this? How?	Has the number of businesses increased/decreased/remained the same? Was it because of any changes in electricity supply? Give examples of how that happened.
6.	Has the number of jobs available changed in the last few years? If yes, why? Did the situation with electricity have any effect on this? How?	Has the number of jobs increased/decreased/remained the same? Was it because of any changes in electricity supply? Give examples of how that happened.
7.	Has electricity had any other effects on the economy in your community? Please explain.	This question allows the respondent to say anything else related to the effects of electricity on economy that he thinks are important.
	C. EDUCATION	
1.	How would you describe the schools in your community? a. Are there enough schools for all the boys and girls of school-going age? b. How is the quality of education?	
2.	Has the current situation with electricity had any effect on school enrollment rates? a. For boys? For girls? b. At primary school? c. At secondary level?	For example, the schools are warmer in winter and cooler in summers which motivates the parents to send children to schools.
3.	Does it have any effect on the quality of teaching at the schools? Please explain.	For example due to availability of electricity, students are able to use computers and lab

		equipment for science classes (i.e., physics chemistry and biology).
4.	Does availability of electricity have any other effect on education in this community? Please explain.	This question allows the respondent to say anything else related to the effects of electricity on education of children that s/he thinks are important.
D.	*Health*	
1.	How would you describe the health services in your community? a. Are there enough clinics and health posts in your community? b. How is the quality of health care?	
2.	Has the situation with electricity had any effect on the availability of health services in your area? (This might include new services, less distance to travel to services, longer hours of availability, etc.) Please explain.	Possible effects on electricity might include new health services, less distance to travel to services, longer hours of availability, etc.
3.	Has the situation with electricity had an effect on the quality of health services in your community? Please explain.	Has the quality of health services improved/deteriorated/remained the same? For example, the availability of electricity might allow the use of medical or surgical equipment that were not previously used etc.?
4.	Does availability of electricity have any other effects on health in this community? Please explain?	This question allows the respondent to say anything else related to the effects of electricity on health in the community that s/he thinks are important.
E.	*Governance and Security*	
1.	How is security in your community? Please explain.	
2.	Would you say that security in your community is getting better or getting worse? What is causing these changes?	
3.	What are the major challenges to community security?	
4.	In your experience, does having electricity affect security in your community? How?	For example, better lighting at night could reduce instances of vandalism.
5.	Have there been any incidents of damage or destruction of public infrastructure in this community? a. What happened? b. Why did it happen? c. Can anything be done to prevent this in the future? How? By whom?	Destruction of public infrastructure includes damages to government buildings, schools, hospitals, electricity poles and towers etc.

6.	What role do you think the community should take in protecting public infrastructure, including the electricity lines? a. Is your community currently doing this? Why or why not? b. Can you give me an example of when the community has done this?	Please encourage the respondent to speak freely about any initiatives the community has taken in terms of protecting public infrastructure. Please also explore what are the possible areas where community can take more effective role in protecting public infrastructure including electricity infrastructure.
F.	Environment	
1.	How is the air quality in your community? a. Are there ever times when the air is polluted? b. Are there ever times when people have problems breathing?	
2.	Have you noticed any changes in air quality in your community? a. If yes, is it getting better or worse? b. Over what time period? c. What do you think is causing this?	For example the use of electricity may have reduced the use of generators and burning fuels. Please explore what respondent feels about this and whether or not this has had any effect on the quality of air.
3.	Do people in your area use diesel generators? Has there been any change in how much people are using diesel generators? a. If yes, are they using them more or less? b. Over what time period?	Diesel generators could cause harmful emissions that affect the air quality people breath, resulting in numerous diseases. Please explore what the respondent thinks about this and whether or not they have been affected.
4.	How does the current situation with electricity impact air quality in your area?	For example, has the air quality improved/deteriorated/remained the same with the current electricity situation?
	G. GENERAL	
1.	Is there any other way that electricity has affected the lives of people in this community?	This question allows the respondent to say anything else related to the effect of electricity on lives of people in the community that he thinks are important.
2.	Anything else you would like to say?	Final question that allows the respondent to say anything else related to the topic that he thinks is important.

CHAPTER 16: QUALITATIVE ENHANCED SURVEYS

What are Qualitative-Enhanced Surveys?

The four surveys in this study (household, business, school and hospital) all have quantitative and closed-ended questions. This means that the answers can be described and analyzed statistically. However, it also limits the sorts of responses that people are able to give.

Qualitative enhanced surveys are extended versions of the same surveys that have a number of open-ended qualitative questions added in. These questions allow the interviewees to answer in their own words and to explain their responses to closed-ended questions.

Because qualitative answers take longer to analyse, and cannot be described statistically, we don't need to ask them of everyone. However, by asking them of a small proportion of the total number of respondents in each survey sample, we can gain insights that help us to interpret some of the quantitative data and relationships that we see in the quantitative survey analysis.

For this reason, each quantitative survey has a qualitative-enhanced edition, containing about 20 additional open-ended questions. These questions usually relate to an existing quantitative question, and share the same number, with a 'Q' at the end to indicate that they are qualitative.

For example, in the household survey for men, one of the questions in the Qualitative-Enhanced edition follows a closed-ended question about the reason the household is not connected to electricity from DABS:

"D10Q. Can you explain a bit more about why you are not connected to DABS? How does this affect your household?"

Most questions ask for further explanation, or else they ask something that is hard to categorize and quantify.

How to Ask Questions & Record Answers

The qualitative enhanced questions are normally simple and straight-forward. You can ask them as written. Make sure that you understand their meaning well yourself and ask if anything is not clear. That way, if the question isn't clear to the respondent, you'll be able to explain it well.

Listen carefully to the respondent's answer. If the respondent's answer isn't clear to you, ask a clarifying question. If the respondent's answer seems to indicate that he or she did not understand the original question, clarify and re-ask. If the respondent's answer is short, you might be able to write it down verbatim. Otherwise, you can summarize the main point. You only need to write a sentence or two at most. If you need to summarize the respondent's answer (because he took some time to explain himself, for example), then read back what you have written to her or him, and check that you have correctly captured the main meaning or idea.

If you are writing by hand onto a hard copy, make sure your handwriting is legible to others. It is a good idea to review your surveys not long after you have completed them to make sure that everything is clearly noted.

Data entry/data cleaning

When it comes to entering the data into a computer, you want to fix spelling errors and otherwise copy the answer as it is written.

Likewise, with translation, the translation should be as clear as possible to the original, as you do not want to lose any meaning.

Explanation of questions (subdivided by survey)

In this section, the open-ended questions that are included in the qualified-enhanced editions of each of the five survey tools are listed by question number. Where relevant, a brief explanation of the question is given.

Household Survey (male):

There are 18 QE questions in this survey, in addition to the regular closed-ended survey questions.

Q#	Text	Explanation
C14Q.	Has your current electricity situation had any effect on the air quality in or around your house? Please explain.	For example, through allowing the household to switch to a cleaner form of heating fuel or cooking fuel?
D3Q.	Were you satisfied with the process of connecting to DABS? Why or why not?	If prompts are needed: Did it seem fair or unfair? Fast or slow? Easy or difficult? Complicated or simple?
D9.aQ	Please explain?	In reference to D9 "How satisfied are you with the following aspects of the electricity you receive through DABS? a. The cost of electricity?"
D9.bQ	Please explain?	In reference to D9 "How satisfied are you with the following aspects of the electricity you receive through DABS? b. The strength/voltage of electricity?"
D9.cQ	Please explain?	In reference to D9 "How satisfied are you with the following aspects of the electricity you receive through DABS? c. The regularity of electricity (i.e. number of hours per day)?"
D9.dQ	Please explain?	In reference to D9 "How satisfied are you with the following aspects of the electricity you receive through DABS? d. Overall satisfaction with electricity?"
D10Q.	Can you explain a bit more about why you are not connected to DABS? How does this affect your household?	
D16Q.	If you have both on-grid (DABS) electricity and an alternative source, which one do you prefer, and why?	
E3Q.	Has your current electricity situation had any effect on the ability of the children in this house to go to school? Please explain.	If prompts are needed, does it affect security, or does it free up their time?
E4Q.	Has your current electricity situation had any effect on the ability of any	For example, does having electric light at night help them to study?

	students in this house to study? Please explain.	
F9Q.	Does your current electricity situation have any effect on your agricultural work? Please explain.	
F12Q.	Does your current electricity situation have any effect on your non-agricultural work or business? Please explain.	
F15Q.	Does your current electricity situation have any effect on the fluctuations in your household income? Please explain.	
G1Q.	Has the current electricity situation in the community had any effect on local security? Please explain.	If prompts are needed, can ask if it has made it better, worse, or had no effect? Do some people feel left out, or feel the service is not fair? Are people happy with DABS?
G4Q.	Do you know why this happened?	In reference to G4: "Has anyone damaged the electricity infrastructure in your community within the last year?"
H6Q.	Has your current electricity situation had any effect on the ability of household members to get information? Please explain.	For example, if they are using TV, radio, internet or phone more often?
H7Q.	Has your current electricity situation had any effect on the ability of household members to communicate? Please explain.	For example, if they are using phone, WhatsApp, or email more often?
I1Q.	Any other comments?	Final question that allows the respondent to say anything else related to the topic that he or she thinks is important.

Household Survey (female):

Q#	Text	Explanation
G4Q.	Do you have any girls between the ages of 6 and 18 living in this household? Yes [Go to G4QA] No [Go to G5]	This is a closed-ended question, and it is asked here because the following open-ended questions are only applicable if the answer to this question is 'yes' and there are school-aged girls living in the household.
G4QA.	[If yes to G4Q] Does your current electrical situation affect their ability to go to school? Please explain.	If the respondent needs explanation, possible ways electricity might affect girls' ability to go to school would be: if it improves security (e.g. through street lighting), or if it saves them time in doing household chores.
G4QB.	[If yes to G4Q] Does your current electrical situation affect their ability to study? Please explain.	If the respondent needs explanation, possible ways electricity might affect girls' ability to study could be by providing a light source for studying after the sun sets.

G4QC.	[If yes to G4Q] Does your current electrical situation affect their lives in any other way? Please explain.	
G5Q.	Why do you use this kind of fuel?	This is in reference to G5 "What is the main type of fuel your household uses for cooking?"
G6Q.	[If yes to G6] Can you please describe your income generating activities?	G6 asks if the respondent has any income-generating activities she does in the home.
G7QA.	If having electricity helps you with your activities, can you please describe how?	Prompts here can include: Does it help you save money? Does it help you save time? Does it help you do something you wouldn't be able to do without it?
G7QB.	What other effect, if any, does your current electrical situation have on your life? Please explain.	
H1Q.	Has the current electricity situation in the community had any effect on local security? Please explain.	
H4Q.	Do you know why this happened?	In reference to H4: "Has anyone damaged the electricity infrastructure in your community within the last year?
I1Q	Any other comments?	Final question that allows the respondent to say anything else related to the topic that she thinks is important.

Business Survey:

Q#	Text	Explanation
B10Q	If your monthly expenses have changed compared to the previous year, why?	Follows on from B10. When asking this, be aware that questions about expenses and income can be sensitive so be diplomatic, and don't push if the person doesn't want to answer.
B12Q	If your revenue has changed compared to the previous year, why?	Follows on from B12. When asking this, be aware that questions about expenses and income can be sensitive so be diplomatic, and don't push if the person doesn't want to answer.
B14Q	Can you briefly explain why?	In reference to B14: "Comparing this year to last year, how is your business doing?"
C7Q	Overall, were you satisfied with the process of connecting to DABS? Why or why not?	
C12.1Q	Please explain?	In reference to C12 "How satisfied are you with the following aspects of the electricity you receive through DABS? 1. The cost of electricity?
C12.2Q	Please explain?	In reference to C12 "How satisfied are you with the following aspects of the electricity you receive through DABS? 2. The strength/voltage of electricity?
C12.3Q	Please explain?	In reference to C12 "How satisfied are you with the following aspects of the electricity you receive through DABS? 3. The regularity of electricity (i.e. number of hours per day)?

C12.4Q	Please explain?	In reference to C12 "How satisfied are you with the following aspects of the electricity you receive through DABS? 4. Overall satisfaction with electricity?
C13Q	Can you explain a bit more about why you are not connected to DABS? How does this affect your business?	
C16Q	If you have both on-grid (DABS) electricity and an alternative source, which one do you prefer, and why?	
C23aQ	Please explain?	In reference to C23 "What effect, if any, has your current electricity situation had on your business? a. Expenses?
C23bQ	Please explain?	In reference to C23 "What effect, if any, has your current electricity situation had on your business? b. Income?
C23cQ	Please explain?	In reference to C23 "What effect, if any, has your current electricity situation had on your business? c. size of operations?
C23dQ	Please explain?	In reference to C23 "What effect, if any, has your current electricity situation had on your business? d. number of people you employ
C23Q	Are there any other effects, positive or negative, that the current electricity situation has had on your business? Please explain.	
D3Q	Please explain?	In reference to D3. "How big an obstacle is crime and disorder to the current operations of this establishment?"
D4Q	Please explain?	[In reference to D4. "How big an obstacle is political instability to the current operations of this establishment?"
D5Q	Do you think that the provision of government (DABS) electricity in this area has had any effect on stability in this area? Please explain.	This question is open, so the person might answer that DABS has had a positive effect, or a negative effect. Please get the person to clearly explain why they think this. For example, has something specific happened?
F1Q	Any other comments?	Final question that allows the respondent to say anything else related to the topic that he or she thinks is important.

Health Facility Survey:

Q#	Text	Explanation
C7Q	Overall, were you satisfied with the process of connecting to DABS? Why or why not?	
C13.1Q	Please explain?	In reference to C13 "How satisfied are you with the following aspects of the electricity you receive through DABS? 1. The cost of electricity?
C13.2Q	Please explain?	In reference to C13 "How satisfied are you with the following aspects of the electricity you receive through DABS? 2. The strength/voltage of electricity?

C13.3Q	Please explain?	In reference to C13 "How satisfied are you with the following aspects of the electricity you receive through DABS? 3. The regularity of electricity (i.e. number of hours per day)?
C13.4Q	Please explain?	In reference to C13 "How satisfied are you with the following aspects of the electricity you receive through DABS? 4. Overall satisfaction with electricity?
C14Q	Can you explain a bit more about why you are not connected to DABS? How does this affect your health facility?	This is asked only to those who answered 'no' when asked if they are connected to DABS, following a closed-ended question on the reasons why.
C20Q	If you have both on-grid (DABS) electricity and an alternative source, which one do you prefer, and why?	
D3Q	Please explain?	In reference to D3. "How big an obstacle is crime and disorder to the current operations of this establishment?"
D4Q	Please explain?	[In reference to D4. "How big an obstacle is political instability to the current operations of this establishment?"
D5Q	Do you think that the provision of government (DABS) electricity in this area has had any effect on stability in this area? Please explain.	This question is open, so the person might answer that DABS has had a positive effect, or a negative effect. Please get the person to clearly explain why they think this. For example, has something specific happened?
E12aQ	Please explain?	In reference to E12a "What effect, if any, does your current electricity situation have on this health facility's expenses? "
E12bQ	Please explain?	In reference to E12b "What effect, if any, has your current electricity situation had on your health facility's capacity to respond to medical emergencies?"
E12cQ	Please explain?	In reference to E12c "What effect, if any, has your current electricity situation had on your health facility's capacity to provide maternal and neonatal care?"
E12dQ	Please explain?	In reference to E12d "What effect, if any, has your current electricity situation had on your health facility's overall quality of care?"
E12Q	Are there any other effects, positive or negative, that the current electricity situation has had on your health facility? Please explain.	
E13Q	Which equipment? Please explain.	In reference to E13 "Is there any medical equipment that is not being used due to lack of electricity?"
F9Q.	Has your current electrical situation had any impact on the level of comfort in the health facility (i.e. temperature,	

	air quality, or other)? Please explain your answer.	
F10Q.	Has your current electrical situation had any impact on hygiene and sanitation in the health facility? Please explain your answer.	
G1Q	Any other comments?	Final question that allows the respondent to say anything else related to the topic that he or she thinks is important.

School Survey:

Q#	Text	Explanation
C7Q	Overall, were you satisfied with the process of connecting to DABS? Why or why not?	
C13.1Q	Please explain?	In reference to C13 "How satisfied are you with the following aspects of the electricity you receive through DABS? 1. The cost of electricity?
C13.2Q	Please explain?	In reference to C13 "How satisfied are you with the following aspects of the electricity you receive through DABS? 2. The strength/voltage of electricity?
C13.3Q	Please explain?	In reference to C13 "How satisfied are you with the following aspects of the electricity you receive through DABS? 3. The regularity of electricity (i.e. number of hours per day)?
C13.4Q	Please explain?	In reference to C13 "How satisfied are you with the following aspects of the electricity you receive through DABS? 4. Overall satisfaction with electricity?
C14Q	Can you explain a bit more about why you are not connected to DABS? How does this affect your school?	This is asked only to those who answered 'no' when asked if they are connected to DABS, following a closed-ended question on the reasons why.
C20Q	If you have both on-grid (DABS) electricity and an alternative source, which one do you prefer, and why?	
D3Q	Please explain?	In reference to D3. "How big an obstacle is crime and disorder to the current operations of this establishment?"
D4Q	Please explain?	[In reference to D4. "How big an obstacle is political instability to the current operations of this establishment?"
D5Q	Do you think that the provision of government (DABS) electricity in this area has had any effect on stability in this area? Please explain.	This question is open, so the person might answer that DABS has had a positive effect, or a negative effect. Please get the person to clearly explain why they think this. For example, has something specific happened?

E3Q	In your opinion, is the computer training effective in preparing students to use computers? Why or why not?	
E6Q	Which equipment? Why were you unable to run it?	In reference to E6 "In the last month, have you had problems running any required equipment at the school due to limited or unstable electrical supply?"
E8aQ	Please explain?	In reference to What effect, if any, does your current electricity situation have on the quality of instruction?
E8bQ	Please explain?	In reference to E8b "What effect, if any, does your current electricity situation have on school attendance rates?"
E8cQ	Please explain?	In reference to E8c "What effect, if any, does your current electricity situation have on security at the school?"
E8dQ	Please explain?	In reference to E8d "What effect, if any, does your current electricity situation have on student learning outcomes?"
E8Q	Are there any other effects, positive or negative, that the current electricity situation has had on your school? Please explain.	
F9Q.	Has your current electrical situation had any impact on the level of comfort in the school (i.e. temperature, air quality, or other)? Please explain your answer.	
F10Q.	Has your current electrical situation had any impact on hygiene and sanitation in the school? Please explain your answer.	
G1Q	Any other comments?	Final question that allows the respondent to say anything else related to the topic that he or she thinks is important.

CHAPTER 17: FOCUS GROUP DISCUSSIONS

Selection Criteria for Men and Women in the Community

Given below are the criteria for selection of men and women in each village:

- Each focus group should consist of 6 to 12 participants
- Focus groups will be single-sex (i.e. all men or all women)
- All participants should be over the age of 18
- All participants should be members of one of the households served in the community
- Each participant should belong to a different household (i.e. no two participants should belong to the same household)
- Participants should represent a variety of ages: i.e. some younger, some older, and some in the middle
- Participants should not include leader of the community, chair of the CDC or the head of local shura. The view of the community leader will be recorded through a separate key informant interview.

Organizing Groups for FGDs with Men and Women

As mentioned in Chapter 7, three villages will be identified for FGDs in each zone of influence. In each of the three villages identified, FGDs will be conducted with both men and women. Within each selected community, the community leaders should be approached for permission and to assist organizing the FGDs, in accordance to predefined selection criteria. It should also be noted that before the FGDs are organized, the field team should conduct KII with the village community leader (or elder). The purpose of this KII is two folds: a) the views of the community leader will be recorded in the interview and thus should not be allowed to participate in the FGD; and, b) the field team should request help of the community leader in selecting participants for FGDs. Based on the predefined criteria, the field team would request the community leader to assemble male and female participants from the community.

At the beginning of the focus group discussion, explain the purpose of the focus group, and ask each member to introduce himself or herself. Confirm that participants meet the selection criteria. If a participant does not, politely ask them to leave. Once the participants have been finally screened and consent has been given, register each person's name and written consent (or an 'x' if they cannot write). Please also ask the participants if they would be permit recording of the FGD.

Selection Criteria for FGDs with Business Owners or Managers

Given below is the selection criteria for participants of the FGD with businesses:

- Each focus group should consist of 6 to 12 participants
- All participants should be over the age of 18
- All participants should be representatives (either owners or managers) of businesses in or near to the village or neighborhood where the FGDs with households (men and women) are conducted.
- Each participant should belong to a different business. (e.g., company, shop, factory)
- Each participant should be the owner or manager of the business.
- There shouldn't be more than two participants from the same sector. For example, if participants from mobile repair shops are selected, their number should not exceed two. In places where there are not enough businesses from different sectors to meet this criterion, this should be noted by the research team and an exception can be made.

Organizing Groups for FGDs with Business

After the villages where FGDs with community and KII with community leader will be conducted are identified, the field team shall explore any market or business center close to the village. If there is no market or business center close to the village, an alternate commercial area shall be identified within the zone of influence. Once the area is the selected, a representative of the field team will visit the market one or two days prior to the scheduled date of FGD. Based on the criteria mentioned above the field team will identify businesses in the market or business center. The field team will introduce themselves to the manager or owner of the business and explain to them the purpose of FGD. The owner or manger should be requested to participate in the FGD and if they agree an appointment for the intended date, time and venue should be scheduled. The field team should ensure that scheduled date is not a Friday or a public holiday to ensure maximum participation. A convenient and cost effect venue should be chosen for FGD that could at accommodate 10-14 people.

At the beginning of the focus group discussion, explain the purpose of the focus group, and ask each member to introduce him or herself. Confirm that participants meet the selection criteria. If a participant does not, politely ask them to leave. Once the participants have been finally screened and consent has been given, register each person's name and written consent (or an 'x' if they cannot write). Please also ask the participants if they would be permit recording of the FGD.

General Guidelines to Facilitating FGDs

Some general guidelines for facilitating FGDs are as follows:

- Create a relaxed atmosphere so that all participants feel comfortable. They are sharing their ideas and you are interested in what they have to say.
- At the beginning, explain how long the discussion will take (up to 2 hours) and that you want to hear from everybody, and that you will be managing the time. In case the discussion goes off topic, you will bring it on topic.
- Some people want to talk all the time, and some people are very quiet. Part of your job is to keep people on topic and make sure that everyone has a chance to speak. If someone speaks for a long time, you can politely say that, due to time, we need to also hear from other people. For some questions, you can ask each person for their opinion, or specifically ask for the opinion of someone who hasn't yet spoken. Pay attention to the mood of the group: facilitation is an art!
- As you ask open-ended questions, listen carefully so you can decide when and how to follow up. When someone says something that seems interesting or important, you can ask follow up questions. When someone says something that is general or vague, you can ask follow up questions.
- Sometimes, a question will already have been answered by the time you get to it. You can ask people if they have anything else to add on the topic, or if time is limited, you can skip the question.
-

Note-keeping and Data Management

- Note everything in as much detail as possible during the focus group.
- After the focus group, go over your notes and add in details. Ask the facilitator to review your notes and add anything that you missed or forgot.
- If you miss something, you can listen to the recording to add it in.

Explanation of Interview Questions

In the section below, questions from all the three FGDs guides are included. All questions are accompanied by prompts. The prompts are intended to guide the facilitator where s/he does not get a good response on the main questions. They are also intended to help the facilitator to probe for more information where necessary.

These explanations are intended to provide clarification to and enhance understanding of the field team. At times the explanations include illustrative answers that could help in clarification of the questions. Please note that the actual answer may be completely different from the ones provided here. The field team is advised to remain neutral throughout the discussion and should refrain from leading the participants to any particular response.

Some of the questions in the interview guides are straight forward and does not need any explanation; therefore, the spaces have been left blank.

QUESTIONS FOR MALE AND FEMALE COMMUNITY MEMBERS

Questions	Explanation
Availability and Quality of Electricity	
5. What electricity is currently available in your area?	Whether or not people in the community have access to electricity. If so, what is the source e.g., whether they are using electricity from DABS or any other source. Additional areas to explore are given in the prompts following the question.
a) Are people using electricity from DABS? Why or why not?	For example people can say they use DABS provided electricity because it is cheaper and more reliable. They can also say that they are not using it because it is not available in their area or the cost of getting a connection too high etc.
b) For people who are using DABS, how often is the electricity available?	Availability of electricity here means the number of hours electricity is available to a household during 24 hours.
c) Does the availability of DABS electricity change over the seasons?	"Change over the seasons" mean whether there is any difference in electricity supply during summer and winters. For example in cold areas demand for electricity may increase in the winters which could lead to load shedding.
d) Are people using electricity from other (non-DABS) sources? If so, what are these sources? Why are people using these?	Other sources could include generators, solar power, hydropower etc.
e) Is the electricity available meeting your community's needs? Why or why not?	For example, whether the community uses electricity for lighting, cooking, heating cooling, washing etc.
f) Are there any problems with the electricity supply in your community? If yes, what are they?	For example, if there are too many electricity outages or the electricity voltage is not strong enough.

Questions	Explanation
Economic Structure/Employment	
6. What effect has the current situation with electricity had on agriculture in your community?	For example, whether the agricultural practices have improved/deteriorated/remained the same with the current electricity situation.
a) How does it affect rearing livestock/poultry?	Means whether the availability or unavailability of electricity had any effect on rearing livestock/poultry.
b) How does it affect irrigation of agricultural lands?	Means whether the availability or unavailability of electricity had any effect on irrigation of agricultural lands.
Education	
7. What effect does the current situation with electricity have on the education of your children?	"Current situation with electricity" here means whether or not electricity is available to children at schools and homes. The question explores the ways in which electricity can affect children's education.
a) Does it affect whether your children go to school? For boys? For girls?	For example, the schools are warmer in winter and cooler in summers and students are inclined to go to schools.
b) Does it have any effect on the quality of teaching at the schools?	For example students are able to use computers and lab equipment for science classes.
c) Does it affect your children's study at home? For boys? For girls?	For example having electric light at night help children to study at homes?
d) Any other effect?	This question allows the respondent to say anything else related to the effects of electricity on education of children that he thinks are important
Health	
8. What effect does the current situation with electricity have on your ability to access health services?	"Current situation with electricity" here means whether or not electricity is available to health centers/hospitals. The question explores the ways in which electricity can affect community access to health centers/hospitals.
a) Has the situation with electricity had any effect on the availability of health services in your area? Please explain.	This might include new services, less distance to travel to services, longer hours of availability, etc.
b) Has the situation with electricity had an effect on the quality of health services in your area? Please explain.	Has the quality of health services improved/deteriorated/remained the same? For example, the availability of electricity might enable the use of medical or surgical equipment which were not previously used etc.?
c) Can you share a story or example of using health services where electricity was important?	For example, the participants could be encouraged to share personal experiences of using health services and sharing stories where things may have changed due availability of electricity.

Questions	Explanation
9. What effect does the current situation with electricity have on health in your household?	"Current situation with electricity" here means whether or not electricity is available households. The question explores the ways in which electricity can affect health in community.
a) Does having electricity have any effect on your household's access to safe drinking water?	For example if people using on-grid electricity to pump clean and safe water.
b) Does having electricity have any effect on your household's access to water for bathing and cleaning? Please explain.	For example if people using on-grid electricity to pump water.
c) Any other effects?	This question allows the respondent to say anything else related to the effects of electricity on health in community household that he thinks are important.
Governance and Security	
10. How is security in your community? Please explain?	For example, has the security situation improved/deteriorated/remained the same in the last few years?
a) How safe do you (or other members) feel in your community?	
b) What are the major challenges to community security?	
11. In your experience, does having electricity affect security in your community?	For example, better lighting at night could reduce instances of vandalism.
a) How does having electricity affect safety in the community?	For example, better lighting at night could reduce instances of vandalism.
b) Are there any positive effects? Please explain.	This is in reference to "In your experience, does having electricity affect security in your community?"
c) Are there any negative effects? Please explain.	This is in reference to "In your experience, does having electricity affect security in your community?"
12. Have there been any incidents of damage or destruction of public infrastructure in this community?	Destruction of public infrastructure includes damages to government buildings, schools, hospitals, electricity poles and towers etc.
a) When did it happen?	This is in reference to "Have there been any incidents of damage or destruction of public infrastructure in this community?" Please specify the year or specify how long ago it happened.
b) What happened?	This is in reference to "Have there been any incidents of damage or destruction of public infrastructure in this community?" Please ask about the actual incident e.g., if it was related to damage to school, health facility, electricity infrastructure or something else.

Questions	Explanation
c) Why did it happen?	This is in reference to "Have there been any incidents of damage or destruction of public infrastructure in this community?" Please ask about the reasons behind the incident.
d) Can anything be done to prevent this in the future? How? By whom?	This is in reference to "Have there been any incidents of damage or destruction of public infrastructure in this community?" For example, how could such incidents be prevented in future?
13. What role do you think the community should take in protecting public infrastructure, including the electricity lines?	Please encourage the participants to speak freely about any initiatives they have taken in terms of protecting public infrastructure. Please also explore what are the possible areas where community can take more effective role in protecting public infrastructure including electricity infrastructure.
a) Is your community currently doing this? Why or why not?	This is in reference to "what role do you think the community should take in protecting public infrastructure, including the electricity lines?"
b) Can you give me an example of when the community has done this?	This is in reference to "what role do you think the community should take in protecting public infrastructure, including the electricity lines?"
Environment	
14. How does the current situation with electricity affect air quality in your area?	For example, has the air quality improved/deteriorated/remained the same with the current electricity situation?
a) Do people in your area use diesel generators? If so, how does this affect the air quality? How does this affect the people?	Diesel generators could cause harmful emissions that affect the air quality people breath, resulting in numerous diseases. Please explore what the participants think about this and whether or not they have been affected.
b) Do people in this area burn fuel (coal, wood, kerosene) that affects the air quality?	Burning fuel (such as coal, wood, kerosene) could cause harmful emissions that affect the air quality people breath, resulting in numerous diseases. Please explore what the participants think about this and whether or not they have been affected.
c) Is there any change in air quality due to electricity provided by DABS?	For example the use of electricity may have reduced the use of generators and burning fuels. Please explore what participants feel about this and whether or not this has had any effect on the quality of air.
	General
13. Is there any other way that electricity has affected your lives?	This question allows the respondent to say anything else related to the effect of electricity on their lives that he thinks are important.

Questions	Explanation
14. Anything else you would like to say?	Final question that allows the respondent to say anything else related to the topic that he thinks is important.

ADDITIONAL QUESTIONS FOR THE MEN'S FGD

Questions	Explanation
Availability and Quality of Electricity	
15. Is the way that DABS has distributed electricity in your area fair and transparent?	This question aims at finding out whether or not there were instances of corruption or payments over and above the DABS specified fees.
a) Are people in your community happy with DABS? Why or why not?	Please ask for reasons if people are satisfied or unsatisfied with DABS.
b) What do you know about the way DABS consulted with the community about where to put in poles and towers?	Did DABS consult the community before installing the poles and towers? If yes, did DABS take into account the consultation when they decided where to install the poles and towers? What does the community feel about it?
c) What do you know about the way DABS compensated land owners when they used their land for infrastructure?	To install the poles and towers, DABS used lands owned by community and/or individuals. DABS may or may not have paid for acquiring those lands. Please explore whether DABS have paid for acquiring these lands and what does the community feel about it.
d) Do you think this was a good process? Why or why not?	"Process" here refers to the process of compensating land owners in 2.c i.e., "What do you know about the way DABS compensated land owners when they used their land for infrastructure?"
e) Does DABS give electricity to everyone equally? If not, how do they decide who gets electricity? Is this fair?	You can ask about how DABS decide to give electricity. Are there any cases of corruption or payments above the DABS specified fees? Is the electricity distribution fair among the poor and the powerful?
Economic Structure/Employment	
c) Is there any cold storage in your area? ○ Can you tell me if it works well? ○ Do you use it? Why or why not?	For example, the availability or unavailability of electricity may affect the usage of cold storage in the area.
d) Are there any food processing plants in your area? ○ If yes, can you tell me if they work well? ○ Are they helpful in your community?	For example, the availability or unavailability of electricity may affect the usage of processing plants in the area.

Questions	Explanation
○ Do you sell any produce to them? Why or why not?	
16. What effect has the current situation with electricity had on businesses and income activities?	For example, whether the business and income generating activities have improved/deteriorated/remained the same with the current electricity situation.
a) Has the number of businesses changed in the last few years? If yes, why? Did the situation with electricity have any effect on this? How?	Has the number of businesses increased/decreased/remained the same? Was it because of any changes in electricity supply? Give examples of how that happened.
b) Has the number of jobs available changed in the last few years? If yes, why? Did the situation with electricity have any effect on this? How?	Has the number of jobs increased/decreased/remained the same? Was it because of any changes in electricity supply? Give examples of how that happened.
c) Has electricity had any other effects on the economy in your community? Please explain.	This question allows the respondent to say anything else related to the effects of electricity on economy that he thinks are important.

ADDITIONAL QUESTIONS FOR THE WOMEN'S FGD

Questions	Explanation
Availability and Quality of Electricity	
1. What electricity is currently available in your area?	
d) Is the way that DABS has distributed electricity in your area fair and transparent? Explain?	This question aims at finding out whether there were instances of corruption or payments over and above the DABS specified fees. Also, whether the electricity is fairly distributed among the poor and the powerful?
Economic Structure/Employment	
2. What effect has the current situation with electricity had on agriculture in your community?	
c) Has it had any effect on your own agriculture or gardening? Please explain?	Means whether the availability or unavailability of electricity had any effect on any kitchen garden that you owned.
3. What effect has the current situation with electricity had on income-generating activities? (These could be selling food, plants, milk, eggs, tailoring, etc.)	For example, whether the income generating activities for women have improved/deteriorated/remained the same with the current electricity situation.
a) Do you have any income-generating activity, either in your	This is in reference to "what effect has the current situation with electricity had on income-generating activities? (These could be selling food, plants, milk, eggs, tailoring, etc.)"

Questions	Explanation
home or outside your home? If so, what do you do?	
b) Do you know any women who have income-generating activities? If so, what are these?	This is in reference to "what effect has the current situation with electricity had on income-generating activities? (These could be selling food, plants, milk, eggs, tailoring, etc.)"
c) Does having electricity have any effect on your or other women's income-generating activities? Please explain.	
Household Tasks	
12. For those people who have electricity in their homes, how does this affect their household tasks?	For example the availability of electricity makes the life of women more comfortable due to use of electricity for household tasks such as cooking, heating, washing etc.
a) What are the common household tasks that women here have to do every day?	Household tasks could include cooking, washing, cleaning, collecting firewood, collecting water etc.
b) About how long do women spend on each of these tasks?	Please ask how much time in hours is spend on each task.
c) Does having electricity make any difference to the time spent on each of these tasks? Please explain.	For example do women spend less time on cooking, washing, cleaning and other tasks after availability of electricity.
d) Does having electricity make any difference to the way you do these tasks? Please explain.	For example if women have more free time after having electricity, how do they spend that free time?

QUESTIONS FOR BUSINESS OWNERS AND/OR MANAGERS

Questions	Explanation
Status & Quality of Electricity Received	
1. What is your business's current source of electricity?	State whether the business is receiving electricity from DABS or other sources such as generators, solar, hydropower.
a) What is the main source of electricity for your business?	If the business is using electricity from multiple sources, please state which one it uses the most. For example the main source could be electricity from DABS or if DABS electricity is not available then the main source could be electricity from diesel generators etc.
b) Why do you use this source?	This is with reference to "What is your business's current source of electricity?"
c) Are you satisfied with it? Why or why not?	This is with reference to "What is your business's current source of electricity?"
d) Do you have a back-up source of electricity? Why or why not?	This is with reference to "What is the main source of electricity for your business?" A back source should be different from the main source and would only be used if the

Questions	Explanation
	main source is not available. For example, where the main source of electricity for a business is DABS provided electricity, the business can have a diesel generator as a back-up.
e) If you don't use electricity from DABS (on-grid electricity), why not?	For example, DABS on-grid electricity may not be available in the area or the cost of installation may be too high (next question).
2. If you are using on-grid electricity, can you share your experience of getting a new connection?	The process of "getting a new connection" may include getting the application forms; payment for the new connection; approvals from DABS; installation of transformers; installation of meters; and, connectivity to electricity.
a) Is it easy or difficult to get a new connection?	This is in reference to "If you are using on-grid electricity, can you share your experience of getting a new connection?"
b) What are the main issues that you come across in getting connected?	This is in reference to "If you are using on-grid electricity, can you share your experience of getting a new connection?"
c) Was getting connected affordable for your business?	Was the money you spent on getting the new connection justified? Did you pay more than the fees specified by DABS?
d) How long did it take? Was this reasonable?	Ask for the number of days it took to get the new connection. Ask for the reasons if it too long.
e) Was the process of getting connected fair and transparent?	You can ask about how DABS decide to give electricity. Were there any cases of corruption or payments above the DABS specified fees?
3. How important is electricity for your business?	For example, the business may use equipment or machinery that could not operate without electricity. Or the business may just need electricity for lights and heating (or cooling).
a) Does the quality/strength of electricity affect your business? How?	For example, due to low voltage the business is not able to use equipment or machinery.
b) Does the reliability of electricity affect your business? How?	For example, the business can suffer a great deal if there are too many electricity outages.
c) Does the strength or reliability of electricity vary by season, day, or time of day? If yes, please explain. How does this affect your business?	"Vary by season" mean whether there is any difference in electricity supply or strength during summer and winters. For example in cold areas demand for electricity may increase in the winters which could lead to load shedding. Similarly, electricity supply can change during day or night or any particular hour.
d) How cost effective is your current source of electricity for your business?	For example, whether the current source is the cheapest source of electricity.
	Economy
4. Has the availability of electricity had any effect on the number of jobs in your area?	For example the number of jobs may have increase/decreased/ remained the same.

Questions	Explanation
a) Has your business employed more people because of electricity? Please explain.	For example, the business has grown in size and needs more people to operate.
b) Do you know of other businesses that have grown or employed more people because of electricity?	Please ask if these businesses are connected to the substation in that area. What type or sectors are these businesses in?
5. Has the availability of electricity affected how much money your business makes?	For example has the profitability of the business increased/decreased/remained the same.
a) Does it affect productivity?	This is in reference to "Has the availability of electricity affected how much money your business makes?" Has the productivity increased/decreased/remained the same?
b) Does it affect your business expenses? Please explain.	This is in reference to "Has the availability of electricity affected how much money your business makes?" Has the business expenses increased/decreased/remained the same?
6. Has electricity contributed to growth of business/industry in your area?	Growth implies if business have grown in size, e.g., a small business turning into a medium or large business. Growth also implies if new businesses/industry have entered the market.
a) Do you know if new businesses have started up in the last year?	Please ask what types of businesses have started? What sectors? How many (if known)?
b) Do you think the availability of electricity is causing more businesses to start? Why or why not?	For example, if an area gets electricity and businessmen become aware of that, then they might decide to move businesses to that location.
c) Has the availability of electricity had any other influence on the growth of your industry?	
d) Do you think electricity has had any negative effects on businesses? Please explain.	
Governance/Security	
7. How would you describe the security situation in your area?	For example, has the security situation improved/deteriorated/remained the same in the last few years?
a) How does the current security situation affect your business?	This is in reference to "How would you describe the security situation in your area?"
b) Do you think the availability, or lack, of public services has any impact on security? Please explain.	For example availability of better lighting can night could result in fewer cases of vandalism.
8. Can you tell about any incidents of damage or destruction to public infrastructure, including electricity infrastructure?	Destruction of public infrastructure includes damages to government buildings, schools, hospitals, electricity poles and towers etc.

Questions	Explanation
a) If there was an incident, what happened and why?	This is in reference to "Can you tell about any incidents of damage or destruction to public infrastructure, including electricity infrastructure?"
b) What was the response of the community?	This is in reference to "Can you tell about any incidents of damage or destruction to public infrastructure, including electricity infrastructure?"
c) Is there something the government or community could do to reduce such incidents in the future?	This is in reference to "Can you tell about any incidents of damage or destruction to public infrastructure, including electricity infrastructure?" For example, how could such incidents be prevented in future?
9. Has the provision of electricity through DABS (on-grid electricity) had any influence on what people think about the government?	Has the perception of the community regarding the government improve/deteriorated/remained the same.
a) What do people think about electricity provided by DABS?	
b) Overall, do you think that the current situation with electricity in this area has had a positive influence on what people think about government, or a negative influence? Please explain.	
Communication and Information	
10. Do you use a mobile phone for your business? a) How important is this for your business? Please explain.	The respondents may or may not use a mobile phone for their business. Possible uses of mobile phone for a business including connecting with buyers/sellers/customers/clients etc.
11. Do you use the internet for your business? a) How important is this for your business? Please explain.	The respondents may or may not using internet for their business. Possible uses of mobile phone for a business including connecting with buyers/sellers/customers/clients etc.
Environment	
12. Does availability of electricity affect the working conditions at your business? (i.e. heating, cooling, noise, air quality, etc.)	For example, working conditions could improve with on-grid electricity through better heating and cooling of workspace, better air quality and reduced noise etc.
a) What are the effects of your current source of electricity on your working conditions?	Have the working conditions improved/deteriorated/ remained the same? Give examples?
b) Are there any health hazards related to using your current source of electricity?	For example, the transmission lines for DABS on-grid electricity are too close to business vicinity which can result in health hazards. Or the business uses diesel generators that cause harmful emission.

PART IV: ANALYSIS

CHAPTER 18: QUANTITATIVE ANALYSIS

The quantitative component of the electricity access and socio-economic study (EASES) consists of a set of surveys to assess changes in access, usage, and prevailing socioeconomic conditions for four groups (households, businesses, schools, and health clinics) within geographically defined Zones of Influence, as the electrical grid spreads out across Afghanistan. The surveys are designed to be used initially in a longitudinal study of two substations in [redacted] and [redacted], starting with a baseline study (March-June 2018), and then followed by surveys at regular intervals, most likely in 2020, 2022, and 2024. It is anticipated that the tools will then be used as future substations in other provinces come online. As such, the surveys are set up to capture changes that may be attributed to electricity access, and to assess changes over time within households, businesses, schools, and health clinics. What follows is a description of possible ways of analyzing the data collected in the surveys for the baseline and subsequent surveys.

As Chapter 4, Overview of Methodology, suggests, electricity can play a central role in stimulating wider development. While proving causal links may be tenuous, there is enough evidence to suggest that access to electricity is a central component of a developing economy. For instance:

How do poverty levels change over time as households gain access to electricity?

Do businesses move into the formal economy as they gain access to electricity?

What are the health outcomes for communities as clinics and hospitals link up to the grid?

Are learning outcomes improved for students as their homes get electricity?

The surveys used here will contribute to these debates, as well as offer an assessment of electrification as it spreads throughout Afghanistan.

The surveys are designed to gather a rich tapestry of data, allowing for numerous options for exploration and analysis. The research design adopted here allows for shifting interests and expectations as the study evolves over time. By using GIS coordinates and a specific sampling design, the surveys are set up to be used as panel data. The GIS coordinates fix the locations of households, businesses, health facilities, and schools, so they are easy to visit a second and third time. The sampling design for the household survey has taken into consideration attrition of participants over time. Thus, survey results should remain robust over the various iterations of the survey.

Areas of inquiry are synchronized across the four surveys so that each of the four groups are asked questions on the same topics. The variables are grouped into eight thematic areas that form the core of the analysis. Each area contains a number of indicators, of which there are 78. The domains are:

Electricity indicators (8)
Economic Indicators (12)
Governance and security indicators (7)
Communication indicators (11)
Education indicators (11)
Health indicators (15)

Environmental indicators (8)
Gender equity indicators (8)

The thematic areas, and their associated indicators, give direction to quantitative analysis and they will result in consistency of analysis over the various survey iterations. However, the variables and their thematic areas give flexibility to the statistician in answering a variety of questions from a number of different angles.

There are scores of possible questions related to electricity access, its use, and the changes that may be associated with gaining access. There are some questions, however, that are central to the study and it is these questions the quantitative tools primarily address. The central key questions can be broken down into two components.

One component concerns those variables associated with ease of access, reliability, costs, and customer satisfaction. This set of questions concerns the direct impact of an expanded electricity grid. These questions are vital for addressing issues around the quality of expansion and the efficiency with which expansion takes place. The questions in this component can be addressed mostly by analyzing the descriptive statistics. However, in some instances more robust statistical analysis may suggest changes to program design.

The second component addresses more the development implications of expanding an electrical grid. These questions concern changes over time to households, businesses, schools, and health facilities as they link up to the grid. This component requires more nuanced statistical methods.

A lot can be learned from basic descriptive statistics. For instance, questions related to cost can be answered by comparing mean reported monthly charges with those charges reported by the electrical authority. The first order of business in any analysis is to run the descriptive statistics. In the case of EASES, what are the summary statistics for all the variables across all of the surveys? What are the frequencies, the modes, medians and means? These results then form the basis for comparison across groups and then across time. This information is also crucial to analyzing some basic elements of access to electricity at one point in time. Descriptive data gives the analyst a deep picture of the characteristics of households, businesses, schools, and clinics within the Zone of Influence. For an electrification process, the analyst starts to get a good picture of such things as reliability, cost effectiveness, coverage, and costs. Questions such as “How satisfied are you with the following aspects of the electricity you receive through DABS?” are easily answered from the aggregate summary data. Answers to questions of reliability and quality of electricity are thus readily available.

From creating basic summary statistics, and analyzing the summary statistics, the analyst can move on to an expanded tool box. There are a multitude of tools to tease out the relationships between variables, whether they be nominal, ordinal, or interval-ratio. From these tests analysts can start to look at relationships or correlations between variables. Analysts can ask: When one variable changes what happens to another? The tests are governed by the nature of the variables and the analyst’s end goals.
For bivariate relationships, test can measure the association between variables. Depending on the nature of the variable, researchers can look at whether there is a positive or negative association and how strong that association might be. Tests include Alpha, Gamma, and Lambda tests, and Pearsons r (for interval-ratio variables). For instance, a researcher can investigate whether there is a relationship between levels of satisfaction of a business in DABS-supplied electricity, and the fee paid for being hooked up to the grid.

More complex sets of relationships are examined by using multivariate tools. In these cases, the analyst can look at more than two variables at a time. An example would be examining the relationships between household access to electricity, and the hours of domestic work done by boys and girls. The researcher can ask: Do boys and girls who live in houses that have electricity do less domestic work than those who live in houses without electricity? And, who puts in more hours of work across this divide: boys or girls?

Using these tools, there are a number of exciting prospects to examine from data sets gathered by the four survey instruments. The uses and availability of electricity can be analyzed across the eight areas of interest and their associated indicators. Some interesting characteristics to explore would be urban and rural locations, distance from substations (as calculated by GIS coordinates), and age, gender, and education demographics. The eight areas of interest and their indicators are a key framework for guiding any analysis around a theory of change in both usage and impact of electrification. The areas of interest are key too to the next step: constructing indices.

Creating indices is an essential next step in both baseline and second stage data analysis. Indices are composite measures built up from conceptually similar or coherent sets of indicators. Again, the theory of change-driven areas of interest in this electricity access and socio-economic survey methodology, form the core around which indices can be constructed.

To construct indices, analysts can choose from a number of tools, including factor analysis, principle component analysis, and cluster analysis. These tools allow analysts to test which indictors show the most similarities and which are the most different. The tools allow the analyst to construct a single index from multiple indictors. Thus, a single index can be constructed from the data on the multiple questions regarding education. In fact, an index can be constructed from each of the areas of interest: security, gender, environment, and so on.

Additional indices can also be put together from the indictors. For example, by using the Alkire Foster method, a multidimensional poverty index can be created. Such an index would be crucial to understanding socioeconomic change within households over time, and is the dependent variable in the following example.

Regression models would be the essential final components of any electricity access and socio-economic study using the methodology proposed in this manual. Such models should be used in the analysis of the baseline data, and then at each iteration of the study.

Two possible regressions are discussed here. One suggested equation looks at how access to electricity might be related to poverty levels. Regression analysis allows a statistician to estimate relationships among variables and also, as a central part of inferential statistics, to make predictions based on the results. Regression analysis tells the researcher what independent variables have a statistically significant relationship to the dependent variable, the direction of that relationship, and the strength. Regressions also give an indication of what a set of independent variables contribute to the overall change and the degree to which other factors not in the regression model might contribute — those factors that are unexplained by the model.

An example of a regression for the baseline would be one that answers this question: What is the relationship between household poverty levels (dependent variable) and access to electricity (dummy variable for has or doesn’t have electricity), urban/rural location, and household perceptions of security.

Thus: $Pov = \alpha + \beta Access + \beta Location + \beta Security$

A similar relationship can be studied over time through an approximation of the Double-Difference Method. An approximation because the research methodology used here does not include a control group. Over time, the change in poverty levels can be tracked and the contributions of a set of independent variables to that change can be analyzed. Thus, the means can be compared over two periods to analyze what the contribution was to the change in means. The difference in the mean of a poverty measure for houses with electricity (HPE) at Time One (T1) and Time Two (T2) can be compared to the difference in the mean of houses without electricity (HPW) at T1 and Time T2. The subscript C represents the calculated change in the mean.

$HPE_{T2} - HPE_{T1} = HPE_C$
$HPW_{T2} - HPW_{T1} = HPW_C$
$HPE_C - HPW_C$ = change attributed to electrification.

Thus, the change in the mean of household poverty for a house with electricity, minus the change in the mean of household without electricity, is the overall change that can be attributed (with many caveats) to the electrification program.

The above are offered as examples; there are many other possibilities.

CHAPTER 19: CALCULATING INDICATOR VALUES

This chapter contains instructions and notes for calculating the figures for each indicator, including which surveys and question numbers to draw from. Most of these calculations are straight-forward, but a few involve drawing from multiple questions, as noted below.

For all calculations, N is the total number of surveys for which a valid answer was received, excluding "don't know" and "no response" answers.

Likewise, all averages are calculated excluding "don't know" and "no response" answers.

0. Electricity Indicators

Ind #	Indicator definition	Unit	Break down	Source(s): HH (M)	Biz	Health	School
0.10	% of potential clients connected to DABS	%	By client type: household, business, school, health facility	D1	C8	C8	C8
0.20	Reported tarriff rate	Afs.	Average, by client type	D6	C9	C10	C10
0.30	Reported payment for the last billing period	Afs.	Average, by client type	D7	C10	C11	C11
0.40	Reported number of hours electricity provided in last 24 hours	hours	Average, by client type	D8	C11	C12	C12
0.50	Reported length of time required to connect	days	Average, by client type	D3	C2	C2	C2
0.60	Reported cost of connecting (purchasing meter etc.)	Afs.	Average, by client type	D5	C4+C6	C4+C6	C4+C6
0.70	Reported use of back-up/alternative system		By frequency of use	D11, D15	C14	C15	C15
0.80	Reported level of client satisfaction with DABS' provided electricity	likert-scale rating (0-4)	By client type, subcategories for satisfaction (reliability, cost, strength, overall)	D9	C12	C13	C13

0.10 % of potential clients connected to DABS

Question(s)	Do you receive electricity service from DABS? 1. Yes 2. No. 88. Don't know 99. No response
Notes on calculating value	Calculate per survey/client type: household, business, school, health centre (Sum of respondents answering yes to this question)/N

0.20 Reported tariff rate

Question(s)	What tariff do you currently pay per KWH? _____ Afghanis

Notes on calculating value	Average amount in Afghanis, by client type

0.30 Reported payment for the last billing period

Question(s)	How much did you pay on your last electricity bill? _____ Afghanis
Notes on calculating value	Average amount in Afghanis, by client type

0.40 Reported number of hours electricity provided in last 24 hours

Question(s)	For how many hours, in the last 24 hours, has DABS electricity been connected/available? _____ hours
Notes on calculating value	Average number of hours (fractions permissible), by client type

0.50 Reported length of time required to connect

Question(s)	HH (M): How long (in days) did it take from the time you applied to the time you received the service? Biz/School/Health: In reference to that application for an electrical connection, approximately how many days did it take to obtain it from the day of the application to the day the service was received? 1. Days:_____ 2. Still waiting
Notes on calculating value	Average number of days by client type. For biz/school/health surveys, calculate "still waiting" category and report separately. e.g. Businesses: av. 32 days, 7% of respondents still waiting

0.60 Reported cost of connecting (purchasing meter etc.)

Question(s)	HH (M): How much was the connection fee? _____ Afghanis Biz/School/Health: C4. How much did you pay? _____Afghanis (in reference to the connection fee) C6. How much did you pay? _____Afghanis (in reference to transformer purchase)
Notes on calculating value	Report by client, in Afghanis. The process of connecting is different for institutional clients than households. For households, report average of D5. For businesses, schools, and health facilities, report average of C4+C6.

0.70 Reported use of back-up/alternative system

Question(s)	HH (M): Do you have any other source of electricity? What is this other source of electricity? 1. Solar 2. Wind 3. Generator

	4. Hydro-electric 5. Other (please specify) _____ 88. Don't know 99. No response Biz/Health/School: Do you have any other source of electricity? Please describe these other sources: Source: | A. Do you ever use this source? [1:yes; 0:no] | B. Is this your primary source of electricity? [1:yes; 0:no] | C. Who owns this source of electricity? [use codes below] | D. How many days in the last week did you use this source of electricity? [0-7, 88: don't know] C15a. Solar C15b. Wind C15c. Generator C15d. Hydro-electric C15e. Other: _____ Codes for C: This institution; 2: Community; 3: Local business person; 4: Larger business; 5: Other; 88: Don't know
Notes on calculating value	Report by respondent type (HH, biz, school, health) and by source of electricity (none, solar, wind, generator, hydro-electric, other), with percentages for each.

0.80 Reported level of client satisfaction with DABS' provided electricity

Question(s)	How satisfied are you with the following aspects of the electricity you receive through DABS? [1 -very satisfied | 2. somewhat satisfied | 3 – neutral | 4 - somewhat unsatisfied | 5 - very unsatisfied] 1. The cost of electricity? 2. The strength/voltage of electricity? 3. The regularity of electricity (i.e. number of hours per day)? 4. Overall satisfaction with electricity?
Notes on calculating value	By client type, subcategories for satisfaction (cost, strength, regularity, overall) Calculate the mean value for each response. *E.g. Business: Cost – 2 (somewhat satisfied); Strength – 4 (somewhat unsatisfied); Regularity – 2 (somewhat satisfied); Overall -3 (neutral)*

1. Economic Indicators

Ind #	Indicator definition	Unit	Break down	HH (M)	Biz
1.01	Estimated household income, past month	Afs.	by income source (agriculture, non-agricultural own business, employment, remittances)	Sum of F3, F9, F12A	

1.02	Livestock owned by household	Integer	livestock type and number	F17	
1.03	Land owned by household, in jeribs	Integer	irrigated, non-irrigated and total	F16	
1.04	# of businesses started in last 2 years	Integer	by sector, size, get formal business data from MoCI and ACCI		B2
1.05	% of businesses reporting increased profits, compared to previous year	%	by sector, size		B12
1.06	% of businesses reporting decreased expenses, compared to previous year	%	by sector, size		B10
1.07	average number of employees	Integer	by sector of business, sex of employees		B7
1.08	average number of days employed casual workers in last month	Integer	by sector of business, sex of employees		B8a
1.09	average number of items powered by electricity owned by business	Integer	by sector, size		C17+ C18
1.10	reported impact of electricity on business expenses	likert-scale	by sector, size		C23a
1.11	reported impact of electricity on business income	likert-scale	by sector, size		C23b
1.12	reported impact of electricity on number of employees	likert-scale	by sector, size		C23c

1.01 Estimated household income, past month

Question(s)	HH (M): F3: Can you estimate how much money the household received from all relatives living outside the household in the last month? _____ Afghanis F6: Can you estimate how much was the total amount all household members made through this employment in the last month? _____ Afghanis F9: Can you estimate how much was the total amount household members made through agriculture and livestock over the last 12 months? _____ Afghanis F12A: Can you estimate how much was the total amount all household members made through this non-agricultural work in the last month? _____ Afghanis
Notes on calculating value	All figures reported in Afs. Average (mean), by income source (agriculture, non-agricultural own business, employment, remittances): Agriculture: Mean of F9/12 Non-agricultural own business: Mean of F12A Employment: Mean of F6 Remittances: Mean of F3

1.02 Livestock owned by household

Question(s)	How many poultry and livestock do members of this household own? (write 00 for none, 88 for don't know, 99 for no response) 1. Cattle _____ 2. Goats and sheep _____ 3. Poultry (chicken, ducks, turkeys) _____
Notes on calculating value	Calculate average for each type (Cattle, goat and sheep, poultry)

1.03 Land owned by household in jeribs

Question(s)	How many jeribs of land do members of this household own that are: (write 00 for none, 88 for don't know, 99 for no response) 1. Rain-fed: _____ 2. Irrigated: _____ 3. Overall Total: _____
Notes on calculating value	Calculate average for each type (irrigated, non-irrigated and total)

1.04 # of businesses started in last 2 years

Question(s)	In what year did your business start? (Use Persian calendar) _____
Notes on calculating value	Count how many businesses within sample opened within two years based on reported start year. Also calculate as a percentage. Note that because we don't have a formal population frame for all businesses, this only provides a rough approximation, and should be treated as such, rather than being statistically valid. This data should also be gathered from MoCI and ACCI for businesses that are registered with them. Report by source: • Survey: Number, % • MoCI: Number of businesses in ZOI registered with MoCI in last two years • ACCI: Number of businesses in ZOI registered with ACCI in last two years

1.05 % of businesses reporting increased profits, compared to previous year

Question(s)	Comparing the monthly revenue this year to the previous year, is it less, the same, or more? 1. Much less 2. Slightly less 3. The same 4. Slightly more 5. Much more

	88. Don't know 99. No response
Notes on calculating value	Calculate the percentage of businesses reporting "4. Slightly more" and "5. Much more". Report separately and together. *e.g. Slightly more: 23%; Much more: 7%; Total businesses reporting increased revenue: 30%*

1.06 % of businesses reporting decreased expenses, compared to previous year

Question(s)	Comparing the monthly expenses this year to the previous year, is it less, the same, or more? 1. Much less 2. Slightly less 3. The same 4. Slight more 5. Much more 88. Don't know 99. No response
Notes on calculating value	Calculate the percentage of businesses reporting "4. Slightly less" and "5. Much less". Report separately and together.

1.07 Average number of employees

Question(s)	How many people are permanently employed by your business (at this location)? Male: _____ Female: _____ 88. Don't know 99. No response
Notes on calculating value	Calculate average number of male, female, and total average.

1.08 average number of days employed casual workers in last month

Question(s)	How many days did your business hire casual/temporary workers in the last month (at this location)? Days: _____ [If '0' go to B9] 88. Don't know

	99. No response [Go to B9]
Notes on calculating value	Average number of days.

1.09 Average number of items powered by electricity owned by business

Question(s)

This question is to help us understand whether the electricity you have is helping you run your equipment. For each of the items listed in the table below, please answer:

- How many of the items your business has?
- Has this item been used with your primary electrical power source in the last week?
- Has this item been used with another power source in the last week?

1.

Item:	1. Number of items in business:	2. Used with primary electric source in last week	3. Used with another power source in last week
a. Mobile phone			
b. Smart phone (mobile phone with internet access)			
c. Computer			
d. Printer			
e. Internet connection			
f. Refrigerator or cold storage			
g. Air conditioner			
h. Electric heater			

C18. Does your business depend on any special equipment that runs on electricity?

YES ☐ [Go to next question]

NO ☐ [Go to C20]

C19. [If yes to C18] Please list this equipment.

_____

Notes on calculating value: Count total items in C17 (column one) plus total number of items listed in C19. Average.

1.10 Reported impact of electricity on business expenses

Question(s)	What effect, if any, does your current electricity situation have on your business expenses: 1. Greatly increases 2. Slightly increases 3. No effect 4. Slightly reduces 5. Greatly reduces 88. Don't know 99. No response
Notes on calculating value	Calculate median value, excluding "don't know" and "no response."

1.11 Reported impact of electricity on business income

Question(s)	What effect, if any, does your current electricity situation have on your business income? 1. Greatly increases 2. Slightly increases 3. No effect 4. Slightly reduces 5. Greatly reduces 88. Don't know 99. No response
Notes on calculating value	Calculate median value, excluding "don't know" and "no response."

1.12 Reported impact of electricity on number of employees

Question(s)	What effect, if any, does your current electricity situation have on the number of people you employ? 1. Greatly increases 2. Slightly increases 3. No effect 4. Slightly reduces 5. Greatly reduces 88. Don't know 99. No response
Notes on calculating value	Calculate median value, excluding "don't know" and "no response."

2. Governance & Security Indicators

Ind #	Indicator definition	Unit	Break down	HH (M)	HH (F)	Biz	Health	School
2.01	% of operations suspending operations due to security	%	By respondent type			D1	D1	D1
2.02	% of operations targeted by theft, arson or vandalism	%	By respondent type			D2	D2	D2
2.03	% of operations reporting crime and disorder as an obstacle or major obstacle	%	By respondent type			D3	D3	D3
2.04	% of operations reporting insecurity as an obstacle or major obstacle	%	By respondent type			D4	D4	D4
2.05	% of operations reporting corruption at DABS (re. connectivity)	%	By respondent type			C7	C7	C7
2.06	% of HHs reporting security is better than in previous years	%	by sex of respondent	G1	H1			
2.07	% of HHs reporting damage to electricity infrastructure within their community	%	by sex of respondent	G4	H4			

2.01 % of operations suspending operations due to security

Question(s)	At any time in the last 12 months, have you had to suspend business operations because of insecurity? 1. Yes, once 2. Yes, for a day in total 3. Yes for more than a day and less than a week 4. Yes more than a week, less than a month 5. Yes, for more than a month 6. No 88. Don't know 99. Refused
Notes on calculating value	Calculate and report total "yes" responses (i.e. options 1, 2, 3, 4, and 5) as percentage of total responses. Report by respondent type.

2.02 % of operations targeted by theft, arson or vandalism

Question(s)	At any time in the last 12 months, has your business been targeted by thieves, vandals or arsonists? 1. Yes, once 2. Yes, more than once 3. No

	88. Don't know 99. Refused
Notes on calculating value	Calculate and report total "yes" responses (i.e. options 1 and 2) as percentage of total responses. Report by respondent type.

2.03 % of operations reporting crime and disorder as an obstacle or major obstacle

Question(s)	How big an obstacle is crime and disorder to the current operations of this establishment? 1. No obstacle 2. Minor obstacle 3. Moderate obstacle 4. Major obstacle 5. Very severe obstacle 88. Don't know 99. Refused
Notes on calculating value	Calculate and report percentage of respondents who selected any of options 3, 4 or 5. Report by respondent type.

2.04 % of operations reporting insecurity as an obstacle or major obstacle

Question(s)	How big an obstacle is political instability to the current operations of this establishment? 1. No obstacle 2. Minor obstacle 3. Moderate obstacle 4. Major obstacle 5. Very severe obstacle 88. Don't know 99. Refused
Notes on calculating value	Calculate and report percentage of respondents who selected any of options 3, 4 or 5. Report by respondent type.

2.05 % of operations reporting corruption at DABS (re. connectivity)

Question(s)	In reference to that application for an electrical connection, was an informal gift or payment expected or requested? 1. Yes 2. No 88. Don't know 99. Refused
Notes on calculating value	Calculate and report percentage of respondents who selected "Yes". Report by respondent type.

2.06 % of HHs reporting security is better than in previous years

Question(s)	This year, how is the security in your community compared to previous years? 1. Much worse 2. Slightly worse 3. The same 4. Slightly better 5. Much better 88. Don't know 99. No response
Notes on calculating value	Calculate percentage of respondents who selected either 4 "slightly better" or 5 "much better". Report by sex of respondent

2.07 % of HHs reporting damage to electricity infrastructure within their community

Question(s)	Has anyone damaged the electricity infrastructure in your community within the last year? 1. Yes 2. No 88. Don't know 99. No response
Notes on calculating value	Calculate percentage of respondents who selected "Yes". Report by sex of respondent

3. ICT/Communication Indicators

Ind #	Indicator definition	Unit	Break down	HH (M)	HH (F)	Biz	Health	School
3.01	% of HHs owning TVs	%	None	D17b				
3.02	% of HHs with respondent who watched TV in last 24 hours	%	male, female, overall	H1	D1			
3.03	% of HHs owning radios	%	male, female, overall	D17a				
3.04	% of HHs with respondents who listened to the radio in last 24 hours	%	male, female, overall	H2	D2			
3.05	% of HHs with respondents who used a mobile phone in the last 24 hours	%	male, female, overall	H3	D3			
3.06	% of HHs with respondents who used internet via smart phone in the last 24 hours	%	male, female, overall	H4	D4			
3.07	% of HHs with respondents who used computer in the last 24 hours	%	male, female, overall	H5	D5			
3.08	% of households/businesses owning mobile telephones	%	by respondent type	D17c		17a		
3.09	% of HHs/businesses owning smart phones	%	by respondent type	D17b		17b		
3.10	% of respondents owning computers	%	by respondent type	D17e		17c	E8.1	E4.1, E4.2

3.11	% of respondents with access to Internet	%	by respondent type			17 e	E8.2	E4.3

3.01 % of HHs owning TVs

Question(s)	For each of the items listed in the table below, please answer: • How many of the items your household has? • Has this item been used with your primary electrical power source in the last week? • Has this item been used with another power source in the last week? 2.

Item:	**1. Number of items in household:**	**2. Used with primary electric source in last week**	**3. Used with another power source in last week**
a. Radio			
b. Television			
c. Mobile phone			
d. Smart phone (mobile phone with internet access)			
e. Computer			
f. Refrigerator			
g. Fan			
h. Oven			
i. Microwave oven			
j. Air conditioner			
k. Electric heater			
l. Washing machine			
m. Water heater			
n. Iron			
o. Other:_____			

Notes on calculating value	Calculate the percentage of respondents responding 1 or more in the first column for D17b "Television"

3.02 % of HHs with respondent who watched TV in last 24 hours

Question(s)	Which of the following have you done the following in the last 24 hours? [select all that apply, use code 88=don't know and 99=no response] 1. Watched TV? 2. Listened to the radio? 3. Used a mobile phone? 4. Used a smart phone to access the internet? 5. Used a computer?
Notes on calculating value	Calculate the % of respondents who selected option 1 "watched TV". Report by sex.

3.03 % of HHs owning radios

Question(s)	See 3.01 above.
Notes on calculating value	Calculate the percentage of respondents responding 1 or more in the first column for D17a "radio"

3.04 % of HHs with respondents who listened to the radio in last 24 hours

Question(s)	Which of the following have you done the following in the last 24 hours? [select all that apply, use code 88=don't know and 99=no response] 1. Watched TV? 2. Listened to the radio? 3. Used a mobile phone? 4. Used a smart phone to access the internet? 5. Used a computer?
Notes on calculating value	Calculate the % of respondents who selected option 2 "listened to the radio". Report by sex.

3.05 % of HHs with respondents who used a mobile phone in the last 24 hours

Question(s)	Which of the following have you done the following in the last 24 hours? [select all that apply, use code 88=don't know and 99=no response] 1. Watched TV? 2. Listened to the radio? 3. Used a mobile phone? 4. Used a smart phone to access the internet? 5. Used a computer?
Notes on calculating value	Calculate the % of respondents who selected option 3 "used a mobile phone". Report by sex.

3.06 % of HHs with respondents who used internet via smart phone in the last 24 hours

Question(s)	Which of the following have you done the following in the last 24 hours? [select all that apply, use code 88=don't know and 99=no response] 1. Watched TV? 2. Listened to the radio? 3. Used a mobile phone? 4. Used a smart phone to access the internet? 5. Used a computer?
Notes on calculating value	Calculate the % of respondents who selected option 4 "used a smart phone to access the internet". Report by sex.

3.07 % of HHs with respondents who used computer in the last 24 hours

Question(s)	Which of the following have you done the following in the last 24 hours? [select all that apply, use code 88=don't know and 99=no response]

	1. Watched TV? 2. Listened to the radio? 3. Used a mobile phone? 4. Used a smart phone to access the internet? 5. Used a computer?
Notes on calculating value	Calculate the % of respondents who selected option 5 "used a computer". Report by sex.

3.08 % of households/businesses owning mobile telephones

Question(s)	For HH(m), See 3.01 above. For biz survey: C17. This question is to help us understand whether the electricity you have is helping you run your equipment. For each of the items listed in the table below, please answer: • How many of the items your business has? • Has this item been used with your primary electrical power source in the last week? • Has this item been used with another power source in the last week? 3.

Item:	1. Number of items in business:	2. Used with primary electric source in last week	3. Used with another power source in last week
a. Mobile phone			
b. Smart phone (mobile phone with internet access)			
c. Computer			
d. Printer			
e. Internet connection			

Notes on calculating value	For HHs, calculate the percentage of respondents in HH(m) responding 1 or more in the first column for D17c "mobile telephone" For biz, calculate the percentage of respondents in biz responding 1 or more in the first column for C17a "mobile phone". Report by respondent type.

3.09 % of HHs/businesses owning smart phones

Question(s)	For HH(m), See 3.01 above. For biz, see 3.08 above.
Notes on calculating value	For HHs, Calculate the percentage of respondents in HH(m) responding 1 or more in the first column for D17d "smart telephone"

	For biz, calculate the percentage of respondents in biz responding 1 or more in the first column for C17b "smart phone". Report by respondent type.

3.10 % of respondents owning computers

Question(s)	For HH(m), See 3.01 above. For biz, see 3.08 above. For health: Which of the following does this health facility have? [circle all that apply] 1. Computers for administration: How many? _____ 2. Internet connection For school: E4. Which of the following equipment does this school have? [circle all that apply] 1. Computers for administration: How many? _____ 2. Computers for use in classes: How many? _____ 3. Internet connection 4. Printers: How many? _____ 5. Equipment for science labs that is powered by electricity
Notes on calculating value	For HHs, Calculate the percentage of respondents in HH(m) responding 1 or more in the first column for D17e "computer" For biz, calculate the percentage of respondents in biz responding 1 or more in the first column for C17c "computer". For health, calculate the percentage of respondents responding 1 or more for E8.1 "computers for administration". For schools, calculate the percentage of respondents responding 1 or more for either/or option 1 "Computers for administration" and option 2 "computers for use in classes". Report by respondent type.

3.11 % of respondents with access to Internet

Question(s)	For biz, see 3.08 above. For school and health surveys, see 3.10 above.
Notes on calculating value	For each, calculate the percentage of respondents who selected "internet connection". Report by respondent type.

4. Education Indicators

Ind #	Indicator definition	Unit	Break down	HH (M)	HH (F)	School
4.01	# of schools	Integer	by school type; Source: Ministry of Education EMIS data			

4.02	% of schools with electricity	%	by school type			C8, C15
4.03	# of students enrolled	%	By school type and student sex	E3	E3	E1
4.04	# of students graduated (last academic year)	Integer	By school type and student sex	E3	E3	E2
4.05	% of schools with administrative computers	%	by school type			E4.1
4.06	% of schools with computer classes	%	by school type			E3
4.07	% of students attending schools with electricity	%	by school type			E1, C8, C15
4.08	reported impact of electricity on the quality of instruction	likert-scale rating	by school type			E8a
4.09	reported impact of electricity on school attendance rates	likert-scale rating	by school type			E8b
4.10	reported impact of electricity on security at the school	likert-scale rating	by school type			E8c
4.11	reported impact of electricity on student learning outcomes	likert-scale rating	by school type			E8d

4.01 # of schools

Question(s)	N/A – this information must be obtained through the Ministry of Education.
Notes on calculating value	Approach the Ministry of Education and ask them for the EMIS data, including GIS coordinates. Use the GIS coordinates to confirm the number of schools within the ZOI. Report the number of schools within the ZOI by school type.

4.02 % of schools with electricity

Question(s)	C8. Do you receive electricity from DABS? C15. Do you have any other (non-DABS) source of electricity?
Notes on calculating value	Calculate the percentage of schools reporting either C8 or C15. Report by school type.

4.03 # of students enrolled

Question(s)

E3f and E3g:

For persons age 6-24		
f. Did <name> attend school in the last year?	g. During the last school year, which level and grade did <name> attend?	
If 'no', go to next person	i). Level	ii). Grade

Notes on calculating value	% By school type and student sex

	Use HH (m) to calculate values for boys and male youth and HH (f) to calculate values for girls and female youth. For each sex, calculate the number of household members ages 6-24: Not enrolled Enrolled in primary Enrolled in lower secondary Enrolled in upper secondary Enrolled in Teacher college Enrolled in Technical college Enrolled in University Enrolled in Islamic school NB: Data from the school survey is not reported, but captured for triangulation purposes.

4.04 # of students graduated (last academic year)

Question(s)	E2. Number of graduates [most recent academic year]: Male:_____ Female:_____
Notes on calculating value	Calculate the total and average number (per school) directly from school survey E2, report by school type and student sex.

4.05 % of schools with administrative computers

Question(s)	E4. Which of the following equipment does this school have? [circle all that apply] 1. Computers for administration: How many? _____ 2. Computers for use in classes: How many? _____
Notes on calculating value	Calculate the percentage of schools reporting at least one administrative computer. Report by school type.

4.06 % of schools with computer classes

Question(s)	E3. Does this school offer computer training to students? ☐ YES [Go to next question] ☐ NO [Go to E4]
Notes on calculating value	Calculate the percentage of schools answering yes to E3. Report by school type.

4.07 % of students attending schools with electricity

Question(s)	E1. Number of students: Male:_____ Female:_____ C8. Do you receive electricity from DABS? C15. Do you have any other (non-DABS) source of electricity?
Notes on calculating value	Use the responses from C8 and C15 to categorize schools into those with electricity and those without. Calculate the number of students in each category using the data from E1. Report by school type and student sex.

4.08 reported impact of electricity on the quality of instruction

Question(s)	E8a. What effect, if any, does your current electricity situation have on the quality of instruction? 1. Strongly positive 2. Slightly positive 3. No effect 4. Slightly negative 5. Strongly negative 88. Don't know 99. No response
Notes on calculating value	Calculate median value, excluding "don't know" and "no response." Report by school type.

4.09 reported impact of electricity on school attendance rates

Question(s)	E8b. What effect, if any, does your current electricity situation have on school attendance rates? 1. Strongly positive 2. Slightly positive 3. No effect 4. Slightly negative 5. Strongly negative 88. Don't know 99. No response
Notes on calculating value	Calculate median value, excluding "don't know" and "no response." Report by school type.

4.10 reported impact of electricity on security at the school

Question(s)	E8c. What effect, if any, does your current electricity situation have on security at the school? 1. Strongly positive 2. Slightly positive 3. No effect 4. Slightly negative 5. Strongly negative 88. Don't know 99. No response
Notes on calculating value	Calculate median value, excluding "don't know" and "no response." Report by school type.

4.11 reported impact of electricity on student learning outcomes

Question(s)	E8d. What effect, if any, does your current electricity situation have on student learning outcomes? 1. Strongly positive 2. Slightly positive 3. No effect 4. Slightly negative 5. Strongly negative 88. Don't know 99. No response
Notes on calculating value	Calculate median value, excluding "don't know" and "no response." Report by school type.

5. Health Indicators

Ind #	Indicator definition	Unit	Break down	HH (M)	HH (F)	Health
5.01	Number of hospitals, clinics and health posts	Health center	by type of health facility			
5.02	% of hospitals, clinics and health posts with electricity	%	by type of health facility, type of electricity			C8
5.03	% of children under 2 vaccinated since birth	%	by gender		F1, F2	
5.04	% of health facilities offering vaccines	%	by type of health facility			E4
5.05	Under 5 mortality rate	per 1000 live births	by sex	E5		
5.07	Rate of respiratory illness reported in last month	%	by sex, age category		F3, F4	E2, E3
5.08	% of health facilities offering emergency services	%	by type of health facility			E6
5.09	% of health facilities reporting electricity supply adequate to meet requirements	%	by type of health facility			E7
5.10	% of HHs with access to piped water	%	Urban/rural	C4		
5.11	% of HHs with flush toilet/latrine	%	Urban/rural	C7		
5.12	reported impact of electricity on health facility expenses	likert-scale	by type of health facility			E12a
5.13	reported impact of electricity on health facility's capacity to respond to medical emergencies	likert-scale	by type of health facility			E12b
5.14	reported impact of electricity on health facility's capacity to provide maternal and neo-natal care	likert-scale	by type of health facility			E12c
5.15	reported impact of electricity on health facility's overall quality of care	likert-scale	by type of health facility			E12d

5.01 Number of hospitals, clinics and health posts

Question(s)	This data does not come from the surveys, but should be obtained from the MoPH, with GIS coordinates to map onto the defined ZOI for the study. If GIS coordinates are not available, this can also be calculated by the name of the district and nearest settlement.
Notes on calculating value	Report numbers by type of health facility.

5.02 % of hospitals, clinics and health posts with electricity

Question(s)	C8. Does this health facility receive electricity from DABS? C15. Do you have any other sources of electricity?
Notes on calculating value	Calculate the percentage of health facilities reporting either C8 or C15. Report by type of health facility.

5.03 % of children under 2 vaccinated since birth

Question(s)	F1. How many children under the age of two years are in this household? 1. Male: ___ 2. Female: _____ F2. How many vaccines did each of these children receive since they were born? 1. Male: ___ 2. Female: _____
Notes on calculating value	Calculate percentage of children under two that received at least one vaccine. Report by sex.

5.04 % of health facilities offering vaccines

Question(s)	E4. Does this health facility provide vaccinations? ☐ Yes ☐ No
Notes on calculating value	Calculate the percentage of health facilities answering yes. Report by type of health facility.

5.05 5 years and under mortality rate

Question(s)

E1. What is the total number of people who live in this household? _____ male _____ female

E2.How many of them are over 6 years or older? ____ male ___female

E4. How many deaths have there been in this household in the last 5 years? _____

If '0' go to Section F.

E5. Can you please give the age, gender, and year of death of the deceased?

	Age	Male or Female	Year of Death
1			
2			
3			

	4			
	5			

Notes on calculating value	A: Count the number of deceased identified between the ages of 0 and 5. B: Count the total number of people who live in the household, subtract the number listed as 6 or older. Divide A by B. Multiply by 1000 for the rate per 1000 live births. Report by sex.

5.07 Rate of respiratory illness reported in last month

Question(s)	F3. Have any members of the household had breathing difficulties and/or a recurring cough in the last month? 1. Yes 2. No [Go to D6] 88. Don't know [Go to D6] 99. No response [Go to D6] F4. [If yes to F3] How many? _____
Notes on calculating value	Calculate from HH (m) and HH (f) by dividing the number given in HH (f) F4 by the total number of household members reported in HH (m) E1. Report as number per household. Can triangulate with data provided by health centers: totals reported in E2 or estimates from E3, calculated against the total population for the ZOI.

5.08 % of health facilities offering emergency services

Question(s)	E6. Does this health facility offer emergency medical services?
Notes on calculating value	Calculate percentage of 'yes' responses. Report by type of health facility.

5.09 % of health facilities reporting electricity supply adequate to meet requirements
E7

Question(s)	E7. Has electricity supply been adequate to provide all required medical services?
Notes on calculating value	Calculate percentage of 'yes' responses. Report by type of health facility.

5.10 % of HHs with access to piped water

Question(s)	What is the main source of drinking water for the household? 1. Piped water/tap 2. Protected well with a handpump 3. Protected well without a handpump 4. Protected spring 5. Protected karez 6. Unprotected well 7. Unprotected spring 8. Stream/river 9. Lake/dam/pond 10. Other (please specify) _____ 88. Don't know [Go to C6] 99. No response [Go to C6]

Notes on calculating value	Calculate percentage of respondents who select option 1 "piped water/tap". Report by urban/rural.

5.11 % of HHs with flush toilet/latrine
C7

Question(s)	C7. What kind of toilet do members of your household use? 1. Flush toilet or latrine 2. Ventilated improved pit latrine 3. Composting toilet 4. Pit latrine (non-ventilated) 5. Dry vault toilet 6. No facility: bush/field 8. Other (please specify) _____ 88. Don't know 99. No response
Notes on calculating value	Calculate percentage of respondents who select option 1 "flush toilet or latrine". Report by urban/rural.

5.12 Reported impact of electricity on health facility expenses

Question(s)	E12a. What effect, if any, does your current electricity situation have on this health facility's expenses? 1. Greatly increases expenses 2. Slightly increases expenses 3. No effect 4. Slightly reduces expenses 5. Greatly reduces expenses 88. Don't know 99. No response/not applicable
Notes on calculating value	Calculate median value, excluding "don't know" and "no response." Report by type of health facility.

5.13 Reported impact of electricity on health facility's capacity to respond to medical emergencies

Question(s)	E12b. What effect, if any, does your current electricity situation have on this health facility's capacity to respond to medical emergencies? 1. Greatly increases 2. Slightly increases 3. No effect 4. Slightly reduces 5. Greatly reduces 88. Don't know 99. No response/not applicable
Notes on calculating value	Calculate median value, excluding "don't know" and "no response." Report by type of health facility.

5.14 Reported impact of electricity on health facility's capacity to provide maternal and neo-natal care

Question(s)	E12c. What effect, if any, does your current electricity situation have on this health facility's capacity to provide maternal and neo-natal care? 1. Greatly increases 2. Slightly increases 3. No effect 4. Slightly reduces 5. Greatly reduces 88. Don't know 99. No response/not applicable
Notes on calculating value	Calculate median value, excluding "don't know" and "no response." Report by type of health facility.

5.15 Reported impact of electricity on health facility's overall quality of care

Question(s)	E12d. What effect, if any, does your current electricity situation have on this health facility's overall quality of care? 1. Greatly increases 2. Slightly increases 3. No effect 4. Slightly reduces 5. Greatly reduces 88. Don't know 99. No response/not applicable
Notes on calculating value	Calculate median value, excluding "don't know" and "no response." Report by type of health facility.

6. Environment Indicators

Ind #	Indicator definition	Unit	Break down	HH (M)	HH (F)	Biz	Health	School
6.01	% of respondents reporting poor indoor air quality	%	by respondent type (HH, business, school, health facility)	C12		E3		
6.02	% of respondents reporting poor outdoor air quality	%	by respondent type (HH, business, school, health facility)	C13, C14		E4, E5		
6.03	% of respondents reporting wood or charcoal as heating source	%	by respondent type (HH, business, school, health facility)	C10		E1	F1	F1
6.04	% of respondents reporting kerosene as heating source	%	by respondent type (HH, business, school, health facility)	C10		E1	F1	F1
6.05	% of respondents reporting use of diesel generators	%	by respondent type (HH, business, school, health facility)	C11		E2	F1a	F2

6.06	% of HHs reporting wood or charcoal as a cooking fuel	%	none		G5			
6.07	% of HHs reporting kerosene as a cooking fuel	%	none		G5			

6.01 % of respondents reporting poor indoor air quality

C12 E3

Question(s)	How would you rate the air quality inside your [house/business] during the winter? 1. Very poor 2. Poor 3. Ok 4. Good 5. Very good
Notes on calculating value	Calculate the percentage of total respondents who selected either option 1 "very poor" or option 2 "poor". Report by respondent type (i.e. household, business)

6.02 % of respondents reporting poor outdoor air quality

Question(s)	How would you rate the air quality outside your [home/business] in winter? 1. Very poor 2. Poor 3. Ok 4. Good 5. Very good How would you rate the air quality outside your [home/business] in summer? 1. Very poor 2. Poor 3. Ok 4. Good 5. Very good
Notes on calculating value	For each of these two questions, calculate the percentage of total respondents who selected either option 1 "very poor" or option 2 "poor". Report by respondent type (HH, business) and season (winter, summer)

6.03 % of respondents reporting wood or charcoal as heating source

Question(s)	What is the main source of heating for this [house/business, etc.] in winter? 1. No heating 2. Firewood 3. Animal dung 4. Crop residue 5. Trash 6. Charcoal or coal 7. Gas, kerosene 8. Electricity 9. Other (please specify)

Notes on calculating value	Calculate the percentage of total respondents who selected any of options 2 to 6. Report by respondent type (HH, business, health facility, school)

6.04 % of respondents reporting kerosene as heating source

Question(s)	What is the main source of heating for this [house/business, etc.] in winter? 1. No heating 2. Firewood 3. Animal dung 4. Crop residue 5. Trash 6. Charcoal or coal 7. Gas, kerosene 8. Electricity 9. Other (please specify)
Notes on calculating value	Calculate the percentage of total respondents who selected option 7. Report by respondent type (HH, business, health facility, school)

6.05 % of respondents reporting use of diesel generators

C11 E2 F1a F2

Question(s)	HH (m): C11a. About how often did your household use a diesel generator for household power in the last week? _____ times C11b. Does your household use a diesel generator for irrigation? 1. Yes 2. No 88. Don't know 99. No response Biz/School/Health: E2. How often in the last month did this [INSTITUTION] use a diesel generator? _____ [write '0' for "never", '88' for "don't know"]
Notes on calculating value	For HHs, calculate the percentage of respondents who answered more than 0 for C11a and/or "yes" for C11b. For biz, school and health, calculate the percentage of respondents who answered more than zero. Report results by respondent type (i.e. HH, business, school, health facility).

6.06 % of HHs reporting wood or charcoal as a cooking fuel

Question(s)	What is the main type of fuel your household uses for cooking? 1. Firewood 2. Animal dung 3. Charcoal or coal 4. Gas, kerosene 5. Electricity 6. Other (please specify) _____

	88. Don't know 99. No response
Notes on calculating value	Calculate the percentage of respondents who select any of options 1 to 3. Report results by urban/rural.

6.07 % of HHs reporting kerosene as a cooking fuel
G5

Question(s)	What is the main type of fuel your household uses for cooking? 1. Firewood 2. Animal dung 3. Charcoal or coal 4. Gas, kerosene 5. Electricity 6. Other (please specify) _____ 88. Don't know 99. No response
Notes on calculating value	Calculate the percentage of respondents who select option 4. Report results by urban/rural.

7. Gender Equity Indicators

Ind #	Indicator definition	Unit	Break down	HH (F)	Biz	School
7.01	Hours per day required for common household tasks	hours	total, by task type, by responsible person	G1		
7.02	Girls' school attendance	%		E3		E1, C8
7.03	Hours per day girls under 15 spend on HH chores	%		G1		
7.04	Reduction in time reported in HH chores due to electricity	hours	total, by task type	G4		
7.05	Number of businesses owned by women (& %)	%	sole owner, partner		B6	
7.06	number of female employees (% of employees who are women)	%	permanent, casual		B7, B8b	
7.07	% of women reporting home-based income generating activity	%	by type of activity	G6		
7.08	% of women reporting electricity has helped with their income generating activity	%	by type of activity	G7		

7.01 Hours per day required for common household tasks

Question(s)

G1. In your household, how many hours per day do household members spend on the following tasks:

Task:	Men (older than 15 years)		Women (older than 15 years)		Girls (15 years and below)		Boys (15 years and below)	
	b.# of men	c.Hours per day	d.# of women	e.Hours per day	f.# of girls	g.Hours per day	h.# of boys	i.Hours per day
Collecting firewood/fuel								

Collecting water								
Washing clothes								
Preparing meals								
Washing up after meals								
Looking after livestock or poultry								
Working in the garden								

Notes on calculating value

For each task type, calculate the average number of hours (fractions are permissible) these tasks take for each group of people. This can be presented in table format.

e.g. of a results table

Task:	Men	Women	Girls	Boys	Total
Collecting firewood/fuel	0.2	1.5	1.8	0.3	3.8
Collecting water	0.1	2.2	1.2	1.4	4.9
Washing clothes	0.2	2.0	.5	0.2	2.9
Preparing meals	0	3.0	2.0	0	5
Washing up after meals	0	1.0	2.3	0	3.3
Looking after livestock or poultry	2.7	3.7	1.2	3.8	11.4
Working in the garden	0.2	2.0	1.0	0	3.2

7.02 Girls' school attendance

Question(s)

HH (f) E3:

For persons age 6-24		
f. Did <name> attend school in the last year?	g. During the last school year, which level and grade did <name> attend?	
If 'no', go to next person	i). Level	ii). Grade

Notes on calculating value

Note HH (f) E3 also captures each person's age in the first column, women answer specifically about women and girls in the household.
For each girl from 6 to 15 years of age (inclusive), count the total number enumerated within the household, and the total number which were reported to attend school in the last year (column f), and the reported level of school (column g.i). Use these to calculate the percentage of girls from age 6 to 15 who were enrolled in school in the last year, by level.
Report these figures.

	NB: In the school survey, E1 captures the number of female students registered. This can be used to triangulate, but might not be able to capture the age range.

7.03 Hours per day girls under 15 spend on HH chores

Question(s)	See 7.01 above.
Notes on calculating value	These values were already calculated as part of 7.01, but are highlighted here as being particularly relevant to girls' school attendance. One theory is that if electricity reduces girls' time on household chores, they are more likely to attend school. Report on the relevant column (girls 15 years and below).

7.04 Reduction in time reported in HH chores due to electricity

Question(s)	G4. [If answered "less than a year" or "about a year" to E3], answer the questions for each of the following tasks:

Task:	a. Is this a regular task in your household? [1:yes; 0: no]	b. Who usually does this task? (see codes below)	c. How much time did the task take before you had electricity? (hours/day)	d. How much time does the task take now? (hours/day)	e. Why does it take less time now? (see codes below)
1. Collecting firewood/fuel					
2. Collecting water					
3. Washing clothes					
4. Preparing meals					
5. Washing up after meals					
6. Looking after livestock or poultry					
7. Working in the garden					
8. Other (please specify):					

G4b codes: 1: men older than 15 years, 2: women older than 15 years, 3: boys 15 years or below, 4: girls 15 years or below; 5: varies
G4e codes: 1: no longer have to do this; 2: can travel less distance; 3: can use a machine; 4: other

Notes on calculating value	For each task, calculate the number of hours saved by having electricity. i.e. Subtract the value of column d "How much time does the task take now?" from column c "How much time did the task take before you had electricity?" Total the hours saved. Report both the total and by task type. Note that longitudinal comparisons of G1 in HH (f) can show if household chore times are reducing within the ZOI. Question G4 in HH (f) asks household members directly if electricity has impacted their chore times, but is only asked of women in HHs which received electricity about a year ago or less. As such the number of respondents is likely to be small, and the statistical validity weaker. It can be used as an addendum to analysis of G1.

7.05 Number of businesses owned by women (& %)

Question(s)	B6. How many people own this business? Male: _____ Female: _____
Notes on calculating value	Calculate the number and percentage of businesses that record at least one female owner. Calculate the number and percentage of businesses that are 100% female owned (i.e. no male owners) Report both.

7.06 number of female employees (% of employees who are women)

Question(s)	B7. How many people are permanently employed by your business (at this location)? Male: _____ Female: _____ B8b. What was the total number of casual/temporary workers that your business hired in the last month (at this location)? Male: _____ Female: _____
Notes on calculating value	From biz survey B7, calculate the total number of female employees, divide by the total number of reported employees to calculate the percentage. From biz survey B8b, calculate the total number of female casual workers hired over the last month, divide by the total number of reported casual workers hired to calculate the percentage. Report numbers and percentages for both female workers and casual workers.

7.07 % of women reporting home-based income generating activity
G6

Question(s)	G6. Do you have any income-generating activities that you do from your house? G7. [If yes to G6] G7a. What kind of activity: (select all that apply) G7b. For each activity you do, does having electricity help you with this activity? Enter 88 if Don't Know. Enter 99 if No response G7a. Activity: | G7b Does electricity help?

		[use codes below]
	1. Handicrafts	
	2. Food preparation or processing	
	3. Carpet weaving	
	4. Tailoring	
	5. Washing clothes for neighbors	
	6. Selling produce (fruit or vegetables) from garden	
	7. Rearing livestock	
	8. Rearing poultry	
	9. Other (please specify) _____	
Notes on calculating value	Calculate the percentage of women who answer yes to HH (f) G6. For those women who answer yes, calculate the percentage of women in each type of activity listed in G7.	

7.08 % of women reporting electricity has helped with their income generating activity

Question(s)	See 7.07 above.
Notes on calculating value	Calculate the number of women reporting each type of income-generating activity listed in G7 above, and calculate the percentage who report that electricity has helped with their activity. Report by activity-type and the overall percentage of women engaged in an income-generating activity who report electricity has helped. Note that these numbers might be too low to generalize statistically to the whole population (as this question only applies to a subgroup of households).

CHAPTER 20: QUALITATIVE ANALYSIS

Qualitative data in this study consist of data collected through key informant interviews, focus groups and enhanced survey questionnaires. Qualitative data are analyzed by systematically looking for themes and patterns. The study team should employ rigorous analytical methods appropriate to the qualitative data that is collected.

For the qualitative-enhanced surveys, analysis consists largely of reviewing the answers to open-ended questions (which are expected to consist of short phrases and sentences) and summarizing into categories of similar answers. These categories can then be summarized quantitatively, in terms of frequency, as well as frequency of association.
For the key informant interviews and focus group discussions the evaluation team should employ a more structured approach to analysis by identifying key themes, coding responses according to these themes, and reporting frequencies and other quantitative summaries of responses when possible and appropriate.

When possible, the team should conduct comparative analysis across various groups of stakeholders to ensure triangulation of data sources. Qualitative data analysis should help in contextualizing the study framework, considering plausible explanations for correlations and triangulating with quantitative data. Coding for themes can be done using any method or software preferred by the survey team: atlas.ti, nvivo, or the use of highlights or comments within Word, or copying text into a spreadsheet based on identified themes are all tried and proven methods of qualitative analysis, and should produce comparable results.

Contextualizing the Framework with Data from KIIs

The analysis of data from key informant interviews particularly with relevant employees is expected to provide overall background information and help contextualize the study framework. While the quantitative data will provide micro level data from households, business, health centers and schools, the qualitative data from key informant interviews will provide context for overall district including household, businesses, health facilities and schools.

For instance, one key area in the study framework is education. Let's say we want to understand how electricity affects student's attendance at schools, the school survey has a questions that asks:
E8b. What effect, if any, does your current electricity situation have on school attendance rates?

6. *Strongly positive*
7. *Slightly positive*
8. *No effect*
9. *Slightly negative*
10. *Strongly negative*
88. *Don't know*
99. *No response*

Now an analysis of data for this question from the sample schools will reveal something like this: X% of the schools reported "strongly positive" effects of electricity on school attendance and Y% reported "slightly negative" effects and so on. This answer needs to be analysed in light of the schools' responses on their electricity status. Thus, it can be subcategorized to say how many schools connected to on-grid electricity report their electricity situation having a slightly or strongly positive effect on school attendance, in comparison to schools with other electricity sources, and schools with no electricity sources. These data tell us the extent that electricity is perceived to affect attendance rates in a

particular area but does not let us "why" or "how" and the overall context is missing. The KII guide for the Department of Education has the following question:

Over the last year, have there been any changes, whether positive or negative, to education access in this district for: [These could include changes in number of schools, number of teachers, enrolment rates, etc.]

a. *Primary school students? (Classes 1 to 6)*
b. *Middle school students? (Classes 7, 8, 9)*
c. *High school students? (Classes 10,11,12)*
d. *Students in Community Based Education (CBE) schools?*
e. *Vocational institute students?*
f. *Any other type of student?*

If so, please explain what these changes are and why you think they occurred.

Assuming the head of district education department is knowledgeable about the status of education in the particular district, s/he can provide a rich context as to why school enrollment or attendance rates might have changed. For example, perhaps one part of the ZOI was affected by insecurity and some schools experienced lowered attendance, which would override any effects related to electricity.

Triangulating Qualitative and Quantitative Data

In research, triangulation means validation of data through cross verification from two or more sources or methods. Comparing data across sources and methods increases the validity and reliability of research findings. The qualitative data collected in EASEBS should provide triangulation through both sources and methods. Given below is an example how similar question from four different sources and methods could help us triangulate findings about the reliability and quality of electricity for businesses.

Business Survey:

C16. [If yes to C8] How satisfied are you with the following aspects of the electricity you receive through DABS?

[1 -very satisfied | 2. somewhat satisfied | 3 – neutral | 4 - somewhat unsatisfied | 5 - very unsatisfied]

1. *The cost of electricity?* _____
2. *The strength/voltage of electricity?* _____
3. *The regularity of electricity (i.e. number of hours per day)?* _____
4. Overall satisfaction with electricity? _____

Business Qualitative-Enhanced Survey:

Includes follow-up open-ended questions:

C16. [If yes to C8] How satisfied are you with the following aspects of the electricity you receive through DABS?

[1 -very satisfied | 2. somewhat satisfied | 3 – neutral | 4 - somewhat unsatisfied | 5 - very unsatisfied]

1. *The cost of electricity?* _____
   Please explain your rating?
2. *The strength/voltage of electricity?* _____
3. *Please explain your rating?*
4. *The regularity of electricity (i.e. number of hours per day)?* _____
5. *Please explain your rating?*
6. *Overall satisfaction with electricity?* _____

7. *Please explain your rating?*

Business FGD:

How important is electricity for your business?

e) *Does the quality/strength of electricity affect your business? How?*

f) *Does the reliability of electricity affect your business? How?*

g) *Does the strength or reliability of electricity vary by season, day, or time of day? If yes, please explain. How does this affect your business?*

h) *How cost effective is your current source of electricity for your business?*

Department of Commerce and Industry

How would you describe the overall availability and quality of electricity as currently available to the public in the area surrounding the nearest DABS substation: [or a specific constituency]:

e. *The overall availability of electricity? Please explain.*

f. *The cost of electricity? Please explain.*

g. *The strength/voltage of electricity? Please explain.*

h. *The regularity of electricity (i.e. number of hours per day)? Please explain.*

   i. *Does this vary by season? (i.e. winter vs. summer)*

Considering Most Plausible Explanations for Correlations

While the quantitative data provides us with numerical frequencies (or percentages) and correlations, they fail to provide explanations for "how" or "why" a phenomenon occurred. Most critically, they cannot show causation. The analysis of qualitative data can help interpret any trends or correlations arising from quantitative data by providing greater explanation and context, including plausible causal relations.

ANNEX C. GETTING TO ANSWERS MATRIX (GTA)

Per the baseline recommendations to USAID, the evaluation team with USAID stakeholders will review and edit the theory of change, results framework, and research agenda before midline data collection. The questions in the matrix will likely be revised for more specific causal model testing and therefore reduced in number and size.

Table C-1. Getting-to-answers matrix.[25]

Dimensions	Research question	Definition	Data source
Electricity	• What is the current state of access to electricity? • What are the barriers to access? • Are there disproportionate levels of access? *The following questions may be considered at the midline:* • How have poverty levels changed? • Has the introduction of electricity led to increased conflict within settlements/within households? • Is the program of electrification meeting local needs? • What are the relevant cost points of uptake and usage? • How does cost affect perceptions of affordability and accessibility for intended beneficiaries? • What are the implications to the expansion of the electrical grid?	• Increased access to electricity will lead to increased use/consumption of electricity • Increased use of electricity will lead to increased use of electrical appliances/technology • Increased cost to electricity/energy will decrease use	• Survey • Enhanced Survey (ES) • Key Informant Interview (KII) • Focus Group Discussion (FGD)
Economic	• How do businesses benefit from increased access to electricity? • What is the effect of electricity on livelihoods? *The following questions may be considered at the midline:* • How do poverty levels change over time as households gain access to electricity? • Do informal businesses move into the formal economy as they gain access to electricity? • What does increased access to electricity do to overall business activity in the community? • Has increased access and use of electricity changed business investment?	• Increased access to electricity will increase business hours of productivity • Increased access to electricity will increase productivity for farmers (livelihoods)	

[25] The baseline has limitations on the questions that can be answered at this time. Some questions require time-series data that is currently not available. These questions will be considered and reviewed at the midline as the team creates formal causal models.

Dimensions	Research question	Definition	Data source
Governance and Security	• Do any groups within the community feel marginalized because of the local extensions in the national power system? • Does the local community feel closer links to the central government due to improved services? • Has the introduction of improved electricity services created tensions between groups within the community? *The following questions may be considered at the midline:* • Has the introduction of electricity affected the attitudes and behaviors of anti-government forces in any way? • Have local communities used improved electricity services to improve communal spaces?	• Groups with negative perceptions of the local power extensions will have lower levels of consumption compared to those with more positive views of the electrification project • Individuals with positive experiences accessing DABS electricity will have more positive views of the government services compared to those with more negative experiences accessing electricity • Areas with more security will have different levels of electricity use/consumption compared to areas with less security • Areas with higher use/consumption of electricity will be areas with low levels of conflict	
Communication and ICT	• Are households, business, schools and clinics using social media and web-based applications? *The following questions may be considered at the midline:* • Has electricity changed media consumption? • Has electricity changed how people get access to news? • Has electricity changed household purchasing of electrical goods?	• Individuals with higher consumption/use will state using social media/web-based applications more than those with lower consumption/use of electricity • Clinics storing and sharing electronic real-time HMIS data could strengthen early warning mechanisms for disease outbreaks	
Education	• Where are schools using electricity with increased access? • What types of barriers do schools encounter to access electricity? • What are the expectations of use for schools? • Does access to electricity have any effect on teacher/ health facility worker professional development? *The following question may be considered at the midline:* • Are learning outcomes improved for students as their homes get electricity?	• Schools with fewer barriers to access will state having higher levels of student attendance • Schools will increase the number of hours of lighting with increased access to electricity • Increased access to electricity will be correlated with increase use by teachers of online resources/social media use at school to support teaching	

Dimensions	Research question	Definition	Data source
Health	• What are the health benefits for clinics and hospitals – and ultimately communities – with in the supply of electricity? • What types of barriers do the clinics and hospital encounter due to limited/ no access to electricity? *The following questions may be considered at the midline:* • Has electrification changed food storage, preparation, cooking and diet in any way? • Has electrification improved living conditions for families? • Are families switching to electricity as their source of power for food preparation, heating, and other household needs?	• Clinics with increased use/consumption of electricity will be positively correlated with respondents stating to increased viable vaccines • Clinics with increased access to electricity for will be positively correlated with the number of services available to patients • Clinics with higher use/consumption of electricity will have more positive views of the government as a provider of services when compared to those with lower consumption/use of electricity	
Environmental	• How are families cooking their food? • What are the sources of fuel for households? *The following question may be considered at the midline:* • Has electrification changed practices that contribute to household air quality?	• Households with high consumption/use of electricity will change (positive or negative) use in the amounts of consumption for other energy sources more than households with less consumption/use of electricity	
Gender Equity	• What type of household chores do men and women currently carry out in a household? • What are their expectations about the increased access to electricity on labor division with a household? • How are males and female students utilizing electricity to meet school requirements? *The following questions may be considered at the midline:* • Does electrification have any effect on women's expectations about gender roles and paid employment? • Has electrification changed household behavior, the division of labor and how women spend their day? • Has electrification had any effect on how women get information and their access to information? • Has electrification had any effect on men's attitudes and behaviors about women's roles?	• Households with increased access to electricity will state increased access to cell phones • Female heads of households will report higher access of phone use with increased use/consumption of electricity compared to men heads of households • Women will state more positive views on increased access to electricity when compared to men • Girls in households will state having more time to do schools work with increase use/consumption compared to boys of similar grade • Households with girls will state higher consumption levels of electricity for lighting then households with boys	

ANNEX D. LETTER OF AUTHORIZATION FOR DATA COLLECTION

To protect the personal information of AMELA team members, USAID staff, and DABS executives, MSI has removed from the final report the letter of authorization for data collection. The letter is available from MSI upon request.

ANNEX E. DATA METHODS AND LIMITATIONS

SECONDARY DATA

DABS shared additional billing data with the team for secondary analysis. Also, the study conducted analysis using night light explained in Annex K.

RESPONSE RATE

The response rate is the number of complete interviews divided by the number of interviews plus the number of non-interviews plus all cases of unknown eligibility. The cooperation rate is the proportion of all cases interviewed of all eligible participants ever contacted. The refusal rate is the proportion of all potentially eligible cases in which a participant refuses to do an interview or breaks off an interview. The contact rate measures the proportion of all cases in which the participant responsible and associated with the provided phone number was reached by the survey. Table E-1 provides the following outcome rates for the survey: the response rate, cooperation rate, refusal rate, and contact rate.[26]

Table E-1: Formulas and rates.[27]

Disposition Rate Formulas	Percent
Response Rate 3 (RR): I/((I+P) + (R+NC+O) + e*(UH+UO))	82.67%
Cooperation Rate 1 (COOP): (I/(I+P)+R+O)	96.62%
Refusal Rate 2 (REF): R/((I+P)+(R+NC+O) + e(UH + UO))	2.40%

Source: ACSOR report on field data collection.

INSTRUMENTATION REVISIONS

At the in-brief meeting with the USAID OI team on September 3, 2019, the AMELA EASE-BS team presented concerns over the size of the sample. The AMELA EASE-BS team recommended an increase in the sample size to accurately test the relationships outlined in the Checchi design approved by USAID and to have a higher probability of success in securing the data required to respond to the statement of work (SOW). USAID authorized the team to increase the sample size. Based on the in-brief discussion, the EASE-BS evaluation team also was permitted to recheck all the quantitative and qualitative instruments; the team revised and edited the tools to ensure they would be accurate and appropriate for the selected samples. The major changes are listed below:

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[26] D3 uses the rates published by the American Association for Public Opinion Research (AAPOR). See AAPOR, *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Survey, 6th edition (AAPOR, 2009).*

[27] I = Interviews, E = Eligible (temporary code, not part of final calculation), R = Refusal, NC = Non-Contact, NE = Not Eligible, UH= Unknown Eligibility, O=other.

1. **Formatting:** To improve response rates, the team revised the formatting of the survey and questions.
2. **Question order:** To improve the flow of the surveys and protocols, the team altered the question order on some of the instruments.
3. **Translations:** The team worked with ACSOR to review translated versions and made updates/changes to all pre-translated instruments. The team both matched the changes made to the instruments and revised some problematic translations to make them understandable to local villagers.
4. **Wording/phrasing:** The team made some edits to the phrasing of some of the more complex questions to ensure the translation into all three languages was appropriate and per the recommendations of team members with local knowledge and expertise in Dari and Pashto. A few questions were dropped, as they presented data collection issues (respondents would have difficulty answering the questions, recall issues, or issues with having accurate information to respond to the questions).
5. **Efficiency:** Because within the household both male and female respondents would be asked questions for the baseline survey, the team split some of the questions between the genders to reduce the burden on the respondents.
6. **Relationship testing:** After the in-brief meeting with USAID, the team had further guidance on Mission needs. Responding to these, the team made small revisions to ensure that it could carry out the requested analysis.
7. **New questions added:** To respond to the new design and dimensions from the SOW, the team added some new questions.
8. **Questions removed:** After pilot testing of the questionnaire, the team decided to remove some questions that do not provide data used for analysis.

DATA MANAGEMENT

Following USAID and U.S. Government ethical requirements, as well as standards of care for human subjects, the evaluation team applied required protocols for consent and human subject research. Survey, key informant interview (KII), and focus group discussion (FGD) respondents were asked to volunteer for the study and read their rights including the right to: (1) decline participation with no reprisal; (2) stop the survey/interview/FGD at any time; (3) request clarification on any of the survey/KII/FGD questions; (4) skip or decline to answer any survey, interview, or FGD question; and (5) have their information kept private, with all personal identifiers removed from the evaluation analysis and reporting. For information regarding consent protocols within each instrument, please see Annex H.

Each participant gave verbal consent to participate in the baseline study at the beginning of each survey, interview, or FGD. Per MSI policy regarding human subject research, the team submitted and received approval to conduct human subject research for the baseline study.[28]

The team has kept the data within firewall-protected systems and limited access to the data to only core team members (fewer than three individuals). Data access has remained restricted. Only one individual can make changes to the data and maintains the integrity of the data throughout the duration of the activity. To protect data on personally identifiable information (PII), the team has assigned numerical identifiers to each case/respondent. The names of individuals and their households/locations (most of which had geo-markers) were removed from the data and kept in a separate file. Data analysis was conducted only on the responses excluding PII. The team will protect all personally identifiable, proprietary, and other sensitive information per the informed consent documentation and applicable privacy laws.

The final baseline data and information will be sorted and converted to the appropriate formats and shared with USAID per ADS 579 requirements and guidelines. The quantitative data will be uploaded to the Development Data Library (DDL) per USAID requirements after the final report has been approved by USAID. Upon further discussion with USAID, the team and USAID will determine jointly the level of access to the data as it will still be part of an ongoing evaluation (midline and endline to occur in the coming two years).

DATA LIMITATIONS

The data has various limitations. First, the results may not be generalizable, as they reflect the communities within safer areas/zones. The field teams had to exclude multiple villages from the sample due to active military and Taliban activities. Particularly in [Redacted], various schools and clinics were in areas inaccessible to the teams because of Taliban activities and army exercises. Thus, the data presented in the baseline is reflective of respondents only in secure areas. Security issues directly impacted the ability of the field teams to access respondents. The study selected households randomly in villages safe for data collection. **Sampling bias** is a significant issue in the data, reflective of the common constraints of data collection in Afghanistan.

The second limitation relates to **human error** from both the respondents and the survey team. Regarding types of possible error in respondents' answers, the team believes this is likely to be highest

[28] Although not included in this annex, a copy of this form can be requested by USAID from the AMELA team. All MSI projects require approval by the MSI Ethics Review Board prior to any data collection, regardless of data effort.

for estimates around wealth, such as household income, energy costs, and other similar estimations. The team worked to control this source of bias by pre-testing the instruments and calibrating them to each response group. There is likely to also be some data entry error affecting the findings as data was collected on paper and entered manually. The field data collection team and data entry staff had checks in place to test for quality, but likely not all types of error were caught through the data quality checks. (See Annex J for additional information on data quality.)

Third, because of security, as mentioned at the start, the field teams were limited in where they could collect data. This affected the **sample size**. Originally, the team had planned to access a much larger number of schools and clinics, as stated in the AWP. However, during implementation, many of the sample targets were not safe for teams to visit and were excluded from the study.

Another limitation lies in the roster of schools, clinics, and businesses, which may not encompass the true number within the ZOI. The team attempted to confirm the lists with the community leaders while in the field. However, many schools, for example, are **informal and not registered** officially with the Ministry of Education (MoE). Thus, the sample is going to reflect the government's list with its existing limitations.

In addition, the field teams faced several other obstacles during data collection. Access to some communities was restricted to a specific number of hours per day, **slowing down the data collection** and impacting the final sample numbers. In one case, the field team was detained by the military for several hours, and then released unharmed due to their work. Data from female heads of households was not always permitted and so this final sample is only reflected of those areas with more liberal communities.

ANNEX F. SAMPLING

ZONE OF INFLUENCE[29]

During the baseline survey, the EASE-BS team followed the guidance that was established under the Checchi Manual. No changes were brought to how they defined ZOIs, and how the ZOI were set for [Redacted] and [Redacted]. For further information on the ZOIs, see Chapter 5: Zone-of-Influence in Checchi's Manual (Annex B). The two ZOIs are illustrated below in Figure F-1.

Figure F-1. Map of Afghanistan showing the two baseline sites and their 20-kilometer zones of influence.

[Redacted]

Figure F-2. Total number of surveys, interviews, and focus groups comprising the baseline data collected in the field between October and November 2019.

Figure F-2 outlines the number of data collection points for the baseline. The following sections outline the sampling approach based on stakeholder types and ZOI.

[29] ZOI was defined by Checchi during the design of the baseline in 2018.

QUANTITATIVE SAMPLING

The sampling framework for this study was informed by both work done by Checchi as well as the EASE-BS team's estimations and input from the field team. The quantitative component of EASE-BS consists of four surveys, targeting for different populations: households, businesses, health facilities, and schools. The target populations for each of the surveys are set by the ZOI.

HOUSEHOLD SURVEY SAMPLING PROTOCOL

The sampling frame for the household survey was provided by the Central Statistics Organization (CSO), in consultation with the Checchi's quantitative expert.

According to the Checchi manual (available in Annex B):

> "The following is an edited CSO's description of their sampling frame, the frame from which the sample is randomly selected: "The sampling frame used for the assessment is the subset of the updated version of the Household Listing Frame prepared in 2003-2004 and updated in 2015. . . CSO disposes an electronic file consisting of 4,926 Urban Enumeration Areas (EA) in the 33 provinces. An EA is a geographic area consisting of a convenient number of dwelling units which serve as counting units for the census. The frame file contains information about the location (province, center of province, [Redacted] and control area), the type of residence (urban and rural), and the estimated number of residential households for each of the 4,517 EAs. Satellite maps are also available for each EA which delimit the geographic boundaries of the EA. The EA sizes are rough estimates and quite homogenous, with an average of 203 households per EA."
>
> "This sampling frame is the basis of the sample selection. Thirty-six clusters were randomly selected from two strata (urban and rural EAs), for both ZOI A and ZOI B. The urban and rural EAs are the primary sampling units (PSU) and the households within the EAs are the secondary sampling units (SSU)."

After discussion during the in-brief with USAID / Afghanistan's Office of Infrastructure it was decided to increase the sample size to 1000 households, from 600 households. This was because the AMELA team felt the original design underestimated the likely levels of attrition that will occur from baseline to subsequent follow up surveys, and the negative effects this would have on the ability of the study to infer the relationships between variables. The increase in the sample size will mitigate expected attrition and increase the capacity of analysis at midline and endline to detect and describe statistical relationships between changes in electricity access and socio-economic variables. The total number of household surveys changed to also reflect both male and female perspectives within a household. This signifies two surveys per household for a total of 2,000 surveys (1,000 households). During the team's in-brief meeting with USAID this was clarified and approved. The team felt the diversity of data across gender is critical in understanding the variable in benefits to men and women.

The tables below show the sample change on household distribution from the original design to the new baseline sampling frame:

Table F-1. Checchi's sampling for household distribution.

Province	District	ZOI	Distribution of EA			Household distribution		
			EA rural	EA urban	Total	Rural	Urban	Total
[Redacted]	[Redacted]	20 km of each sub-station	17	0	17	255	0	255
[Redacted]	[Redacted]	20 km of each sub-station	19	4	23	285	60	345
Grand totals					40			600

Table F-2. New sample for baseline.

Province	District	ZOI	Sampling point			Household distribution		
			EA rural	EA urban	Total	Rural	Urban	Total
[Redacted]	[Redacted]	20 km of each sub-station	61	0	61	488	0	488
[Redacted]	[Redacted]	20 km of each sub-station	22	42	64	176	336	512
Grand totals					125			1,000[30]

The survey sampling point distribution was selected by ACSOR/D3 (AMELA's contractor for data collection) based on the security situation of each ZOI. The EASE-BS team provided ACSOR/D3 with a list of 300 enumerator areas (EAs), or villages, and based on the recommendations of ACSOR/D3 field managers and field supervisors, 61 villages were selected for [Redacted] district and 64 villages were selected in [Redacted] district. As the security situation of both districts was not good during that time, the team selected some villages (40 in [Redacted] and 35 in [Redacted]) as replacements in case the originally selected villages were not accessible during the survey. Each village was selected as a sampling point for the study.

[30] This includes two interviews per household, one with a male head of household and one with a female head of household, for a total of 2000 individuals.

Household selection:

Within each sampling point, eight households were surveyed. In each household, two interviews were conducted: one with the male head of household and one with the female head of household. Household selection was based on random walk of the village. Once the team arrived at the village and obtained permission from the head of the village (malik) to conduct the survey, the enumerator team leader would find a specific area or sign in the village (such as a mosque, center of the village, Shura office, school, or clinic) and randomly select one side to walk (north, south, east, west). In cities or urban areas, each fifth house was selected for the survey, and in rural areas, each third house was selected.

The team collected GPS coordinates from each sampling point. Table F-3 shows a list of villages surveyed for EASE-BS.

Table F-3. EASE-BS sampled village list.

SP#	Province	Urban/rural status	District	Sampled village	Replaced village	Reason
1	[Redacted]	Rural	[Redacted]	[Redacted]		
2	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
3	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
4	[Redacted]	Rural	[Redacted]	[Redacted]		
5	[Redacted]	Rural	[Redacted]	[Redacted]		
6	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
7	[Redacted]	Rural	[Redacted]	[Redacted]		
8	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
9	[Redacted]	Rural	[Redacted]	[Redacted]		
10	[Redacted]	Rural	[Redacted]	[Redacted]		
11	[Redacted]	Rural	[Redacted]	[Redacted]		
12	[Redacted]	Rural	[Redacted]	[Redacted]		
13	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
14	[Redacted]	Rural	[Redacted]	[Redacted]		
15	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
16	[Redacted]	Rural	[Redacted]	[Redacted]		
17	[Redacted]	Rural	[Redacted]	[Redacted]		
18	[Redacted]	Rural	[Redacted]	[Redacted]		
19	[Redacted]	Rural	[Redacted]	[Redacted]		
20	[Redacted]	Rural	[Redacted]	[Redacted]		

SP#	Province	Urban/rural status	District	Sampled village	Replaced village	Reason
21	[Redacted]	Rural	[Redacted]	[Redacted]		
22	[Redacted]	Rural	[Redacted]	[Redacted]		
23	[Redacted]	Rural	[Redacted]	[Redacted]		
24	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
25	[Redacted]	Rural	[Redacted]	[Redacted]		
26	[Redacted]	Rural	[Redacted]	[Redacted]		
27	[Redacted]	Rural	[Redacted]	[Redacted]		
28	[Redacted]	Rural	[Redacted]	[Redacted]		
29	[Redacted]	Rural	[Redacted]	[Redacted]		
30	[Redacted]	Rural	[Redacted]	[Redacted]		
31	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
32	[Redacted]	Rural	[Redacted]	[Redacted]		
33	[Redacted]	Rural	[Redacted]	[Redacted]		
34	[Redacted]	Rural	[Redacted]	[Redacted]		
35	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
36	[Redacted]	Rural	[Redacted]	[Redacted]		
37	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
38	[Redacted]	Rural	[Redacted]	[Redacted]		
39	[Redacted]	Rural	[Redacted]	[Redacted]		
40	[Redacted]	Rural	[Redacted]	[Redacted]		
41	[Redacted]	Rural	[Redacted]	[Redacted]		
42	[Redacted]	Rural	[Redacted]	[Redacted]		
43	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
44	[Redacted]	Rural	[Redacted]	[Redacted]		
45	[Redacted]	Rural	[Redacted]	[Redacted]		
46	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
47	[Redacted]	Rural	[Redacted]	[Redacted]		
48	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
49	[Redacted]	Rural	[Redacted]	[Redacted]		
50	[Redacted]	Rural	[Redacted]	[Redacted]		
51	[Redacted]	Rural	[Redacted]	[Redacted]		
52	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	
53	[Redacted]	Rural	[Redacted]	[Redacted]		

SP#	Province	Urban/rural status	District	Sampled village	Replaced village	Reason
54	[Redacted]	Rural	[Redacted]	[Redacted]		
55	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
56	[Redacted]	Rural	[Redacted]	[Redacted]		
57	[Redacted]	Rural	[Redacted]	[Redacted]		
58	[Redacted]	Rural	[Redacted]	[Redacted]		
59	[Redacted]	Rural	[Redacted]	[Redacted]		
60	[Redacted]	Rural	[Redacted]	[Redacted]		
61	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
62	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
63	[Redacted]	Rural	[Redacted]	[Redacted]		
64	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
65	[Redacted]	Rural	[Redacted]	[Redacted]		
66	[Redacted]	Urban	[Redacted]	[Redacted]		
67	[Redacted]	Rural	[Redacted]	[Redacted]		
68	[Redacted]	Rural	[Redacted]	[Redacted]		
69	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
70	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
71	[Redacted]	Urban	[Redacted]	[Redacted]		
72	[Redacted]	Urban	[Redacted]	[Redacted]		
73	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
74	[Redacted]	Urban	[Redacted]	[Redacted]		
75	[Redacted]	Urban	[Redacted]	[Redacted]		
76	[Redacted]	Urban	[Redacted]	[Redacted]		
77	[Redacted]	Urban	[Redacted]	[Redacted]		
78	[Redacted]	Urban	[Redacted]	[Redacted]		
79	[Redacted]	Rural	[Redacted]	[Redacted]		
80	[Redacted]	Rural	[Redacted]	[Redacted]		
81	[Redacted]	Urban	[Redacted]	[Redacted]		
82	[Redacted]	Urban	[Redacted]	[Redacted]		
83	[Redacted]	Rural	[Redacted]	[Redacted]		
84	[Redacted]	Urban	[Redacted]	[Redacted]		
85	[Redacted]	Urban	[Redacted]	[Redacted]		
86	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]

SP#	Province	Urban/rural status	District	Sampled village	Replaced village	Reason
87	[Redacted]	Rural	[Redacted]	[Redacted]		
88	[Redacted]	Rural	[Redacted]	[Redacted]		
89	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
90	[Redacted]	Urban	[Redacted]	[Redacted]		
91	[Redacted]	Urban	[Redacted]	[Redacted]		
92	[Redacted]	Rural	[Redacted]	[Redacted]		
93	[Redacted]	Rural	[Redacted]	[Redacted]		
94	[Redacted]	Urban	[Redacted]	[Redacted]		
95	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
96	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
97	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
98	[Redacted]	Urban	[Redacted]	[Redacted]		
99	[Redacted]	Urban	[Redacted]	[Redacted]		
100	[Redacted]	Urban	[Redacted]	[Redacted]		
101	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
102	[Redacted]	Urban	[Redacted]	[Redacted]		
103	[Redacted]	Rural	[Redacted]	[Redacted]		
104	[Redacted]	Urban	[Redacted]	[Redacted]		
105	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
106	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
107	[Redacted]	Urban	[Redacted]	[Redacted]		
108	[Redacted]	Urban	[Redacted]	[Redacted]		
109	[Redacted]	Rural	[Redacted]	[Redacted]		
110	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
111	[Redacted]	Urban	[Redacted]	[Redacted]		
112	[Redacted]	Rural	[Redacted]	[Redacted]		
113	[Redacted]	Rural	[Redacted]	[Redacted]	[Redacted]	[Redacted]
114	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
115	[Redacted]	Urban	[Redacted]	[Redacted]		
116	[Redacted]	Rural	[Redacted]	[Redacted]		
117	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
118	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
119	[Redacted]	Urban	[Redacted]	[Redacted]		

SP#	Province	Urban/rural status	District	Sampled village	Replaced village	Reason
120	[Redacted]	Rural	[Redacted]	[Redacted]		
121	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
122	[Redacted]	Urban	[Redacted]	[Redacted]		
123	[Redacted]	Urban	[Redacted]	[Redacted]		
124	[Redacted]	Urban	[Redacted]	[Redacted]	[Redacted]	[Redacted]
125	[Redacted]	Urban	[Redacted]	[Redacted]		

SCHOOL SAMPLING PROTOCOL

According to the Checchi manual (available in Annex B):

> "For the initial baseline survey of [Redacted] and [Redacted] substations, the school sampling frame is based on a database of schools from evaluation work done by Checchi's [Redacted] team in 2017. This list, in turn, is based on data obtained from the Ministry of Education (MoE). Schools are mapped according to GIS coordinates for each school, also provided by the MoE, and since verified by Checchi. There are 68 schools in the database with GIS. Schools in ZOI B ([Redacted]) that fall within [Redacted] should be excluded.
>
> "It is recommended that the survey sample include all schools with GIS coordinates. It is standard practice, when target populations are small, to have sample sizes approximate the population size. As the current GIS list is assumed to be comprehensive, the final sample is expected to be in the region of 68 schools."

As the list was prepared by Checchi in 2017, during the actual survey the teams couldn't find some of the schools mentioned in the list. Overall data was collected from 63 school within the ZOI in both provinces. The EASE-BS team collected the new and updated list of schools from District Education Departments (DEDs) in both provinces that could be used for the future surveys.

HOSPITALS AND CLINICS SAMPLING PROTOCOL

The hospital and clinic sampling frame consist of 30 facilities within the two 20 km ZOIs. These are facilities for which there is GIS information and they include provincial hospitals, basic health centers, comprehensive health centers, district hospitals, drug addiction treatment centers, sub-health centers, and a catch-all category called "other." As this information dates to 2008, it should be updated from additional sources. As with schools, and according to standard practice, the sample selection should match the target population. Based on the Checchi approach, a census for all hospitals and clinics for with GIS information would be surveyed. AMELA eliminated any hospital or clinic that was in an insecure area and also included newly identified facilities during the data collection process.

Checchi prepared the list in 2017 based on the available 2008 health datasets. The team could only find and collect data from 28 health facility during the actual survey. AMELA team collected updated lists of health facilities from the department of public health in each province; these lists can be used in the midline and endline surveys.

BUSINESS SURVEY PROTOCOL

AMELA did not received a list of businesses from Checchi. As such, the EASE-BS team decide that during the random walk in each sampling point the enumerator team leader would list the businesses randomly select business to be interviewed. In each sampling point the teams could do one business interview. In the rural areas where businesses were not available, the team tried to conduct an interview with the nearest business to the village or sampling point. Overall 141 business were interviewed, including both registered and non-registered business.

QUALITATIVE SAMPLING AND SELECTION CRITERIA

For detailed information on Checchi's guiding principles and qualitative samples for the [Redacted] and [Redacted] sub-stations, see Chapter 7 in the Checchi manual (available in Annex B). The EASE-BS team did not propose any changes to the proposed approach.

ANNEX G. MODELS

The data captured in the baseline is setting up the conditions for a causal model in which the team will test the impact of change in access to electricity on multiple key socio-economic variables. The tables in this annex present a "treatment" and "comparison" group. The treatment group consists of those respondents who have been exposed, meaning they have received on-grid electricity. Respondents in the comparison group have had no exposure, meaning they have not received on-grid electricity.

The baseline analysis presents a bivariate relationship between a treatment and an outcome, both in raw form and after adjusting for observable characteristics that may also affect the relationship. Analytically, the bivariate relationships will be computed according to the following regression:

(0.1) $y_{ij} = \beta_0 + \beta_1 Treatment_{ij} + X_{ij} + u_{ij},$

where y_{ij} is any of the seven research outcomes of interest for unit (individual, household, or establishment) *i* in zone of influence (ZOI) *j*. β_0 is the baseline value of the outcome (across all ZOIs, but could also be disaggregated by each ZOI), β_1 is the effect of electricity access or usage on the outcome for unit *i* in ZOI *j*, X_{ij} is a set of control variables to better isolate the bivariate relationship between electricity and a research outcome, and u_{ij} is a theoretical construct highlighting that there will always be unobserved features absent from the estimating equation that may also affect the bivariate relationship.

If the analysis is interested primarily in the effect of switching a unit from no electricity access to some positive level of access, then the treatment variable becomes zero and the analysis will simply present the baseline value of the outcomes, disaggregated by the control variables of interest. However, contextual data drawn from The Asia Foundation (TAF) survey of 2018 suggests that, while the electricity grid extends to only 30 percent of rural households, over 50 percent of rural households rely on solar panels. Fewer than 10 percent of households (7.1 percent rural, 2.7 percent urban) have zero access to electricity, as Table G-1 shows.

Table G-1. Main sources of electricity for households.

What is the main source of electricity supply in this household?	CSO geographic code		Total
	Rural	Urban	
Power from the grid/city power	28.9%	79.5%	38.7%
Generator owned or rented by this household	2.2%	0.7%	1.9%
Community generator	2.6%	0.8%	2.2%
Solar panels	53.4%	15.1%	46%
Battery	5.8%	1%	4.9%
There is no electricity in this household	7.1%	2.7%	6.2%
Don't know (vol.)	0.1%	0.1%	0.1%
Total	100%	100%	100%

Note: $\chi 2$=2541.636 · df=6 · Cramer's V=0.411 · Fisher's p=0.000

Source of data: EASE-BS HH Male survey 2019

This suggests that it would be more appropriate to regard the treatment variable as a baseline level of electricity usage that can be zero or positive. This would render β_1 in the estimating equation a multivalued variable, enabling examination of the relationship of the level of electricity service and the level of a research outcome of interest. For example, Figure G-1 shows this relationship from TAF 2018.

Figure G-1. Electricity access and monthly income.

[Redacted]

Source: TAF Survey 2018.

Though the visual relationship is indeterminate, there is a statistical relationship between electricity service and monthly income. A simple analytical model (for illustration purposes only) indicates that an additional hour of electricity service is associated with an additional 72 Afs in monthly income, but with a sharp divergence by locality. Rural households earn only three additional Afs in monthly income per additional hour of electricity service, while urban households earn 158 additional Afs in monthly income per additional hour of electricity service.

For additional information about any of the models, statistical analysis, or assumptions please contact the team.

ANNEX H. INSTRUMENTS

SUMMARY OF CHANGES TO THE INSTRUMENTS

At the in-brief meeting with the USAID OI team on September 3, 2019, the AMELA EASE-BS team presented concerns over the size of the sample. The team recommended an increase in the sample size to accurately test the relationships outlined in the Checchi design approved by USAID and to have a higher probability of success in securing the data required to respond to the SOW. USAID authorized the team to increase the sample size. Based on the in-brief discussion, the EASE-BS team decided to recheck all the quantitative and qualitative instruments; the team revised and edited the tools to ensure they would be accurate and appropriate for the selected samples. The major changes are listed below:

- **Formatting:** To improve response rates, the team revised the formatting of the survey and questions.
- **Question order**: To improve the flow of the surveys and protocols, the team altered the question order in some of the instruments.
- **Translations:** The team worked with ACSOR to review translated versions and made updates/changes to all pre-translated instruments. The team both matched the changes made to the instruments and revised some problematic translations to make them understandable to local villagers.
- **Wording/phrasing**: The team made some edits to the phrasing of some of the more complex questions to ensure the translation to all three languages was appropriate and per the recommendations of team members with local knowledge and expertise in Dari and Pashto. A few questions were dropped as they presented data collection issues (respondents would have difficulty answering the questions, recall issues, or issues with having accurate information to respond to the questions).
- **Efficiency**: Because within the household both male and female respondents would be asked questions for the baseline survey, the team split some of the questions between the genders to reduce the burden on the respondents.
- **Relationship testing**: After the in-brief meeting with USAID, the team had further guidance on Mission needs. Responding to these, the team made small revisions to ensure that it could carry out the requested analysis.
- **New questions added:** To respond to the new design and dimensions from the SOW, the team added some new questions.
- **Questions removed:** After pilot testing of the questionnaire, the team decided to remove some questions that do not provide data used for analysis.

DATA COLLECTION TOOLS

I. QUANTITATIVE TOOLS:

A. ELECTRICITY ACCESS BASELINE - HOUSEHOLD SURVEY (MALES)

CONTENTS

A. Survey Management 2

B. Electricity 4

State provided electricity (DABS) 4

Other sources of electricity 9

C. Household and Personal characteristics 14

D. Household income and assets 19

E. Services 22

F. Governance and Security 24

G. Media use 26

A. SURVEY MANAGEMENT

M-1. Respondent Identification Number [Idno]

I-1. Interview Number in Sample Point: ___ ___

(Write in number from contact sheet written in the "Interview Number")

I-2. Kish Grid Number: ___ ___

M-5. Sampling Point/District Where the

Interview Was Completed: ___ ___ ___ [sampt]

M-6b. CSO Geographic Code

1. Rural **2.** Urban

M-7. Province[province]

1. Kabul	9. Khost	17. Kunduz	25. Farah
2. Kapisa	10. Ningarhar	18. Balkh	26. Nimroz
3. Parwan	11. Laghman	19. Samangan	27. Helmand
4. Wardak	12. Kunar	20. Juzjan	28. Kandhar
5. Logar	13. Nooristan	21. Sar-I-Pul	29. Zabul
6. Ghazni	14. Badakhshan	22. Faryab	30. Uruzgan
7. Paktia	15. Takhar	23. Badghis	31. Ghor
8. Paktika	16. Baghlan	24. Herat	32. Bamyan
			33. Panjshir
			34. Dehkondi

M-8. Year of Interview: 2019[year]

M-9. Month of Interview [month]

1. January	4. April	7. July	10. October
2. February	5. May	8. August	11. November
3. March	6. June	9. September	12. December

M-10. Date of Interview: __ __ [date]

M-11. Day of Week of Interview (24) [day]

1. Friday
2. Saturday
3. Sunday
4. Monday
5. Tuesday
6. Wednesday
7. Thursday

M-12. Interviewer Code: __ __ __ __ __ __ [intcode]

M-13. Interview Completed on the … [intcomp1]

1. First Contact
2. Second Contact
3. Third Contact

M-14. Supervisor Code: ___ ___ ___ [supcode]

M-15. Record Time (using 24 hour clock) Interview Began: __ __: __ __ [intbegin]

(Record Time Began Starting With W-1)

M-16. Record Time (using 24 hour clock) Interview Ended: __ __:__ __ [intend]

(Fill in all four data positions)

M-17. Record Length of Interview in Minutes: ___ ___ [length]

M-18. Date Formatted Field: SEPT2019[MOYR]

M-19. Keypuncher Code __ __ [Keypunch]

M-20. Language of Interview [lang]

1. Pashto
2. Dari
3. Other

M-21. Coder Code __ __

M-22. Language of the questionnaire[langQQ]

1. Pashto
2. Dari

Assalam o Alakum, my name is _____ (and this is _____). We work for the Afghan Center for Socioeconomic and Opinion Research (ACSOR), an independent research organization working in Afghanistan. We are here on behalf of USAID to conduct a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts your community. If you agree to participate in this study, we would like to ask you a few questions. Because electricity affects all parts of our lives, I will also be asking you some questions about work, health, education, communication and security. You are free to skip any question that you do not want to answer. We will treat everything you say here with confidentiality. The interview will last about 30 minutes.

A1. Do you agree to be interviewed for this purpose?

B. ELECTRICITY

STATE PROVIDED ELECTRICITY (DABS)

B1. Is your household connected to the DABS electricity service?

1. Yes
2. No → B19

_____

98. Refused (vol) →B19

99. Don't know (vol) →B19

B2. Where did you submit the application for a DABS connection?

1. DABS office in district center
2. DABS office in provincial center
3. Other:

_____

98. Refused (vol)

99. Don't know (vol)

B3. How did you pay the connection fee?

1. Through mobile phone
2. Bank office in district center
3. Bank office in provincial center
4. Other:

_____

98. Refused (vol)

99. Don't know (vol)

B4. How much did it cost to connect to the DABS electricity service?

Afghanis:

_____

98. Refused (vol)

99. Don't know (vol)

B5. Was an informal gift or additional payment expected, in order to connect to the DABS electricity service?

1. Yes
2. No → B8

_____

98. Refused (vol) →B8

99. Don't know (vol) →B8

B6. Did you provide the expected gift or additional payment?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

B7. What was the approximate value of the informal gift or additional payment?
Afghanis:

_____

98. Refused (vol)

99. Don't know (vol)

B8. To the best of your memory, in what year and month did your household **receive** a connection to the DABS electricity service?
[Enumerator: if respondent has difficulty with recall, approximate month is acceptable]

B8a: Year:
B8b: Month:

_____

98. Refused (vol)

99. Don't know (vol)

B9. To the best of your memory, about how many days did it take between the time you **applied** for a connection to the DABS electricity service and when you **received** a connection to the DABS electricity service?

Days:

_____

98. Refused (vol)

99. Don't know (vol)

B10. How much was your most recent DABS electricity bill?

Afghanis:

_____

98. Refused (vol)
99. Don't know (vol)

B11. For documentation purposes, may we see your most recent DABS billing statement?

1. Yes
2. No → B14
3. Unavailable → B14

_____

98. Refused (vol) → B14

99. Don't know (vol) → B14

[Enumerator: take picture of DABS billing statement. If the shown statement is the most recent statement, confirm that reported amount is same as what is on bill]

B12. With your permission, we'd like to look at your household's usage and billing data by consulting DABS records. We will not share this information with anyone but use it only for purposes of statistical analysis.

Do you permit us to check your household's usage and billing history with DABS?

1. Yes
2. No → B14

_____

98. Refused (vol) → B14

99. Don't know (vol) → B14

B13. Thank you for your permission. In order to locate your household's usage and billing information with DABS, we will write down the meter number and customer number from your bill.

B13a Meter number:

B13b Customer number:

98. Refused (vol)

99. Don't know (vol)

B14. How do you typically pay your DABS electricity bills?

1. Through mobile phone → B16
2. Through an intermediary → B16
3. Bank in the district center
4. Bank in the provincial center
5. Other: → B16

_____

98. Refused (vol) → B16

99. Don't know (vol) → B16

B15. How much does it usually cost to travel to the bank to pay your DABS electricity bill?

Afghanis:

_____

98. Refused (vol)

99. Don't know (vol)

B16. Consider the last few weeks of your household's use of DABS electricity service. On a typical day during the week (Sunday – Thursday), about how many hours of DABS electricity service does the household use?

Hours:

_____

98. Refused (vol)

99. Don't know (vol)

B17. Consider the last few weeks of your household's use of DABS electricity service. On a typical day during the weekend (Friday – Saturday), about how many hours of DABS electricity service does the household use?

Hours:

_____

98. Refused (vol)

99. Don't know (vol)

B18. Overall, how satisfied are you with the DABS electricity service?

1. Not at all satisfied
2. A little satisfied
3. Somewhat satisfied
4. Very satisfied

_____

98. Refused (vol)

99. Don't know (vol)

B19. To the best of your memory, in what year and month did your **village** receive a connection to the government source of electricity?

[Enumerator: if respondent has difficulty with recall, approximate month is acceptable]

B19a: Year:

B19b: Month:

_____

98. Refused (vol)

99. Don't know (vol)

B20. [Enumerator ask if B1 is 2, 98 or 99] Why is your household not connected to the DABS electricity service? I will read you some possible reasons. Please select which reasons apply to your household, and also please explain any other reasons that I don't mention.

B20 –	Other electricity service	Yes	No	Not asked	Refused (vol)	Don't know (vol)
1	The cost of connection is too high	1	2	97	98	99
2	The process of getting a connection is too difficult	1	2	97	98	99
3	The cost of electricity service is too high	1	2	97	98	99
4	I am satisfied with the other sources of electricity	1	2	97	98	99
5	This is a rental property and the landlord has not connected	1	2	97	98	99
6	Other reason (specify):	1	2	97	98	99
7	Other reason (specify):	1	2	97	98	99

OTHER SOURCES OF ELECTRICITY

B21. Now I will read to you a list of different sources of electricity. As I read each one, please tell me if your household uses that sources of electricity or not. Do you use [ITEM]?

B21 –	Other electricity service	Yes	No	Refused (vol)	Don't know (vol)
1	Private company	1	2	98	99
a.	If yes, company name:				
2	Household generator	1	2	98	99
3	Community generator	1	2	98	99
4	Solar panels	1	2	98	99
5	Battery	1	2	98	99
6	Wind	1	2	98	99
7	Hydro-electric	1	2	98	99
8	Neighbor	1	2	98	99
9	Other source (specify):	1	2	98	99
10	Other source (specify):	1	2	98	99

B22. [Ask if B21 have more than 2 response]: Of the sources of electricity, you have mentioned, could you identify the two most important sources of electricity for the household?

B22a First electricity source:

B22b Second electricity source:

B22 _	Other electricity service
1	DABS
2	Private company
3	Household generator
4	Community generator
5	Solar panels
6	Battery
7	Wind
8	Hydro-electric
9	Neighbor
10	Other:
11	Other:

B23. Consider the last few weeks of your household's use of all other (non-DABS) sources of electricity. On a typical day during the week (Sunday – Thursday), about how many hours of other electricity sources does the household use?

[Enumerator: only complete for sources selected in B22. For B26-B31, select response 97 if the source was not selected in B22]

Source	Hours (work week)	Not asked	Refused (vol)	Don't know (vol)
Other private grid		97	98	99
Household generator		97	98	99
Community generator		97	98	99
Solar panels		97	98	99
Battery		97	98	99
Wind		97	98	99
Hydro-electric		97	98	99
Other:		97	98	99

B24. Consider the last few weeks of your household's use of all other (non-DABS) sources of electricity. On a typical day during the weekend (Friday – Saturday), about how many hours of other electricity sources does the household use?

Source	Hours (weekend)	Not asked	Refused (vol)	Don't know (vol)
Other private grid		97	98	99
Household generator		97	98	99
Community generator		97	98	99
Solar panels		97	98	99
Battery		97	98	99
Wind		97	98	99
Hydro-electric		97	98	99
Other:		97	98	99

B25. About how many times did your household use a generator for household power in the last week?

1. Never
2. 1-2 times
3. 3-4 times
4. 5-7 times
5. At least 8 times

_____

98. Refused (vol)

99. Don't know (vol)

B26. Does your household use generator for irrigation?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

B27. [Ask if in B21_2 code 1 was selected] What are the costs associated with the household's use of the household generator?

	B27a Generator purchase cost (Afghanis)	B27b Generator rental cost (Afghanis)	B27c Generator age (years)	B27d Fuel cost, Winter (monthly Af)	B27e Fuel cost, Spring (monthly Af)	B27f Fuel cost, Summer (monthly Af)	B27g Fuel cost, Autumn (monthly Af)
1							
2							
3							

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B28. [Ask if in B21_3 code 1 was selected] What are the costs associated with the household's use of the community generator?

	Cost item	B28a Cost, Winter (monthly Afghanis)	B28b Cost, Spring (monthly Afghanis)	B28c Cost, Summer (monthly Afghanis)	B28d Cost, Autumn (monthly Afghanis)
1					
2					
3					

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B29. [Ask if in B21_4 code 1 was selected] What are the costs associated with the household's use of solar panels?

	B29a Number of solar panels	B29b Solar panel purchase cost (Afghanis)	B29c Solar panel rental cost (monthly Afghanis)	B29d Solar panel age (years)	B29e Solar panel maintenance cost (annual Af)	B29f Solar panel replacement cost (annual Af)
1						
2						
3						

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B30. [Ask if in B21_5 code 1 was selected] What are the costs associated with the household's use of batteries?

	B30a Number of batteries	B30b Battery purchase cost (Afghanis)	B30c Battery rental cost (monthly Afghanis)	B30d Battery age (years)	B30e Battery maintenance cost (annual Af)	B30f Battery replacement cost (annual Af)
1						
2						
3						

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B31. [Ask if in B21_6 code 1 was selected] What are the costs associated with the household's use of wind-powered electricity?

	Cost item	B31a Cost, Winter (monthly Afghanis)	B31b Cost, Spring (monthly Afghanis)	B31c Cost, Summer (monthly Afghanis)	B31d Cost, Autumn (monthly Afghanis)
1					
2					
3					

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B32. [Ask if in B21_7 code 1 was selected] What are the costs associated with the household's use of hydro-electric electricity?

	Cost item	B32a Cost, Winter (monthly Afghanis)	B32a Cost, Spring (monthly Afghanis)	B32a Cost, Summer (monthly Afghanis)	B32a Cost, Autumn (monthly Afghanis)
1					
2					
3					

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B33. Overall, how satisfied are you with each household source of non-DABS electricity?

		Not at all satisfied	A little satisfied	Somewhat satisfied	Very satisfied	Not asked	Refused (vol)	Don't know (vol)
a.	Private company	1	2	3	4	97	98	99
b.	Household generator	1	2	3	4	97	98	99
c.	Community generator	1	2	3	4	97	98	99
d.	Solar panels	1	2	3	4	97	98	99
e.	Battery	1	2	3	4	97	98	99
f.	Wind	1	2	3	4	97	98	99
g.	Hydro-electric	1	2	3	4	97	98	99
h.	Other:	1	2	3	4	97	98	99

C. HOUSEHOLD AND PERSONAL CHARACTERISTICS

C1. How many years have you lived in this house?

Years lived in house:

_____

98. Refused (vol)

99. Don't know (vol)

C2. Do you own or rent the house?

1. Own
2. Rent
3. *Gravi*[1]
4. Living in the house of a friend or relative (not paying rent)

_____

98. Refused (vol)

99. Don't know (vol)

C3. How many rooms are in this house?

1. 1
2. 2
3. 3
4. 4
5. 5+

_____

98. Refused (vol)
99. Don't know (vol)

[1] This is a Dari/Pashto term referring to a practice where someone exchanges an interest-free loan of a lump sum of money for the use of the borrower's house.

C4. What are the exterior walls of this house constructed from?

1. Fired brick/stone
2. Concrete
3. Wood
4. Mud bricks/mud
5. Stone/mud
6. Other (specify):

_____

98. Refused (vol)

99. Don't know (vol)

C5. What is the roof of this house constructed from?

1. Concrete
2. Wood
3. Tin/metal
4. Mud bricks/mud
5. Other (specify):

_____

98. Refused (vol)

99. Don't know (vol)

C6. What is the main source of drinking water for the household?

1. Open well - public
2. Open well - private
3. Hand pump - public
4. Hand pump - private
5. Bored wells (motorised/hand pump)
6. Spring - unprotected
7. Spring - protected
8. Piped - private
9. Piped - municipal
10. Kariz
11. River, lake, channel, pool, drainage
12. Water tanker
13. Other:

_____

98. Refused (vol)

99. Don't know (vol)

C7. How long does it take to complete one round of water collection (i.e. to go to the water source, get water, and come back to your house)?

Minutes:

_____

98. Refused (vol)

99. Don't know (vol)

C8. What kind of toilet do members of your household use?

1. Flush toilet or latrine
2. Ventilated improved pit latrine
3. Composting toilet
4. Pit latrine (non-ventilated)
5. Dry vault toilet
6. No facility: bush/field
7. Other:

_____

98. Refused (vol)

99. Don't know (vol)

C9. Do you share this toilet facility with other households?

1. Yes
2. No

_____

98. Refused (vol)
99. Don't know (vol)

C10. What does the household use to heat the home during winter? Does the household use [item]?

C10_	Household source of heat	Yes	No	Refused (vol)	Don't know (vol)
1	Firewood	1	2	98	99
2	Animal dung	1	2	98	99
3	Crop residue	1	2	98	99
4	Trash	1	2	98	99
5	Charcoal / coal	1	2	98	99
6	Kerosene / oil	1	2	98	99
7	Gas	1	2	98	99
8	Electricity	1	2	98	99
9	Other source (specify):	1	2	98	99
10	Other source (specify):	1	2	98	99

C11. [Ask if C10 is more than 2 response] Of the sources of heat you have mentioned, could you identify the two sources of heat the household uses the most often?

	Source of heat
1	Firewood
2	Animal dung
3	Crop residue
4	Trash
5	Charcoal / coal
6	Kerosene / oil
7	Gas
8	Electricity
9	Other source (specify):
10	Other source (specify):

a. First source of heat:

b. Second source of heat:

C12. What ethnic group do you belong to?

1. Pashtun
2. Tajik
3. Uzbek
4. Hazara
5. Turkmeni
6. Baloch
7. Kirghiz
8. Nuristani
9. Aimak
10. Arab
11. Pashaye
12. Sadat
13. Qezelbash
14. Gujar
15. Wakhi

_____

98. Refused (vol)
99. Don't know (vol)

C13. Have any of your children married in the last two years?

1. Yes
2. No → D1

_____

98. Refused (vol) → D1
99. Don't know (vol) → D1

C14. Did your household give or receive payment (*walwar*) as part of the marriage arrangement?

1. Yes
2. No → D1

_____

98. Refused (vol) → D1
99. Don't know (vol) → D1

C15. About how much in Afghanis was given or received as part of the marriage arrangement?

C15a. Son (given):

C15b. Daughter (received):

_____

98. Refused (vol)
99. Don't know (vol)

D. HOUSEHOLD INCOME AND ASSETS

D1. What is the head of household's main occupation? *(Mark only one answer)*

1. Farmer (own land)
2. Farm laborer (other's land)
3. Shopkeeper
4. Teacher
5. Trader
6. Civil Servant (excluding teacher)
7. Daily Laborer
8. Raises livestock (maldari)
9. Driver
10. Military
11. Mechanic
12. Cleaner
13. No occupation
14. Jobless
15. Retired
16. Other:

_____

98. Refused (vol)

99. Don't know (vol)

D2. Can you estimate the household's total monthly household income from all sources? You may also report annual income, if that's easier.

D2a Total household monthly income (Afs):

D2b Total household annual income (Afs):

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

D3. How would this household classify its economic situation these days? On this ladder, with the top of the ladder being very comfortable and the bottom being extremely poor, where would you place your household?

1 2 3 4 5 6 7 8 9 10

_____

98. Refused (vol)

99. Don't know (vol)

10 Very comfortable
9
8
7
6
5
4
3
2
1 Extremely poor

D4. How many jeribs of land does this household own?

Total jeribs owned:

_____

98. Refused (vol)

99. Don't know (vol)

D5. [Ask if in D4 respondent have land] in percentage terms, about how much of your land is irrigated?

Percentage of land irrigated:

_____

98. Refused (vol)

99. Don't know (vol)

D6. I will read you a list of items. For each item, please tell me how many the household owns.

D6_	Household item	Quantity owned
1	Cow	
2	Bull	
3	Goat	
4	Sheep	
5	Chicken	
6	Duck	
7	Turkey	
8	Horse	
9	Bicycle	
10	Motorcycle	
11	Car	
12	Truck	
13	Rickshaw	
14	Tractor	
15	Radio	
16	Television (B&W)	
17	Television (Color)	

D6_	Household item	Quantity owned
18	Computer	
19	Mobile phone	
20	Electric fan	
21	Electric iron	
22	Stove / Gas burner	
23	Buckets / Pots	
24	Metal cooking pots	
25	Sewing machine	
26	Table / chair	
27	Refrigerator	
28	Irrigation pump	

E. SERVICES

E1. We'd like to know your current level of satisfaction with various government services. I will read a list of services. For each service, please indicate how satisfied you are with the quality of that service in your community.

	Service	Not at all satisfied	A little satisfied	Somewhat satisfied	Very satisfied	Refused (vol)	Don't know (vol)
a.	Drinking Water	1	2	3	4	98	99
b.	Sanitation Services	1	2	3	4	98	99
c.	School facilities and services	1	2	3	4	98	99
d.	Roads and bridges	1	2	3	4	98	99
e.	Public spaces	1	2	3	4	98	99

E2. I will read a list of different types of projects. For each type, please report whether you noticed this type of project being implemented in your area in the last 12 months.

	Project type	Yes	No	Refused (vol)	Don't know (vol)
a.	Construction or repair of roads or bridges	1	2	98	99
b.	Construction or repair of schools	1	2	98	99
c.	Drinking water project (wells, hand pumps, tank, reservoir)	1	2	98	99
d.	Irrigation project	1	2	98	99
e.	Electricity	1	2	98	99
f.	Health project (hospital, clinic, doctor visits)	1	2	98	99
g.	Agriculture projects	1	2	98	99
h.	Construction or repair of factories	1	2	98	99
i.	Construction or repair of mosques	1	2	98	99
j.	Reconciliation with Anti-Government Elements	1	2	98	99
k.	Other:	1	2	98	99
l.	Other:	1	2	98	99

E3. In the past 12 months, have you or anyone in your household visited a hospital or clinic for any health-related reasons or medical treatment?

1. Yes
2. No → F1

_____

98. Refused (vol) → F1

99. Don't know (vol) → F1

E4. Was it related to a respiratory illness?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

E5. How satisfied were you with the services you received at the hospital or clinic?

1. Not at all satisfied
2. A little satisfied
3. Somewhat satisfied
4. Very satisfied

_____

98. Refused (vol.)

99. Don't know (vol.)

F. GOVERNANCE AND SECURITY

F1. Overall, based on your own experience, do you think things in Afghanistan today are going in the right direction, or do you think they are going in the wrong direction?

1. Right direction
2. Wrong direction

_____

98. Refused (vol)

99. Don't know (vol)

F2. Thinking of the different levels of government in Afghanistan, do you think that overall the [insert item], is doing a very bad job, somewhat bad job, somewhat good job or a very good job?

		A very bad job	Somewhat bad job	Somewha t good job	Very good job	Refused (vol)	Don't know (vol)
a.	National government	1	2	3	4	98	99
b.	Provincial government	1	2	3	4	98	99
c.	District government	1	2	3	4	98	99

F3. Which group would you say is most responsible for providing security in this village? And the second most?

F3a. First mention:

F3b. Second mention:

1. National Army
2. Local Police
3. National Police
4. Local Commanders
5. Arbakai
6. Taliban
7. Da'esh/ISIS/Islamic State Group

_____

98. Refused (vol.)

99. Don't know (vol.)

F4. How often do you fear for your own personal safety or security or for that of your family? Would you say you never, sometimes, often, or always fear for you and your family's safety?

1. Never
2. Sometimes
3. Often
4. Always

_____

98. Refused (vol)

99. Don't know (vol)

F5. When comparing this year to last year, do you feel security is worse, the same, or better?

1. Worse
2. The same
3. Better

_____

98. Refused (vol)

99. Don't know (vol)

G. MEDIA USE

G1. Do you listen to radio programs?

1. Yes
2. No → G4

_____

98. Refused (vol)

99. Don't know (vol)

G2. About how many days a week do you listen to radio programs?

Days (1-7):

_____

98. Refused (vol)

99. Don't know (vol)

G3. About how many hours in a day do you listen to radio programs?

Hours (1-24):

_____

98. Refused (vol)

99. Don't know (vol)

G4. Do you watch television?

1. Yes
2. No → G7

_____

98. Refused (vol) → G7

99. Don't know (vol) → G7

G5. About how many days a week do you watch television?

Days (1-7):

_____

98. Refused (vol)

99. Don't know (vol)

G6. About how many hours in a day do you watch television?

Hours (1-24):

_____

98. Refused (vol)

99. Don't know (vol)

G7. Do people in this area have access to internet, either through a cable connection or cellular data?

1. Yes
2. No → G9

_____

98. Refused (vol)

99. Don't know (vol)

G8. Does this household have access to internet, either through a cable connection or cellular data?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

G9. We are interested in how the household receives news and other information. I will read a list of sources of news and information. For each source, please indicate how often the household hears news and information.

		Never	Rarely	Sometimes	Often	Refused (vol)	Don't know (vol)
a.	Radio	1	2	3	4	98	99
b.	Television	1	2	3	4	98	99
c.	Internet	1	2	3	4	98	99
d.	Mosque	1	2	3	4	98	99
e.	Community Shuras	1	2	3	4	98	99
f.	Friends and family	1	2	3	4	98	99

DEMOGRAPHICS

That completes the main part of the survey. These last questions are just for statistical purposes so that we can be sure we are speaking to a wide range of people.

D-7. How old are you? (Record actual age; if respondent doesn't know or refuses, please estimate)

Write Response: ___ ___

D-8. What is the highest level (grade) of school you have completed, not including schooling in Islamic madrasa? (calculate the highest level into years)

(INTERVIEWER: If none, write down zero)

_____ (write down number of years)

97. Informal schooling at home or at a literacy class

98. Refused

99. Don't know

RECORD THE TIME (USING 24 HOUR CLOCK) INTERVIEW WAS COMPLETED AND THE LENGTH OF THE INTERVIEW

(M-16 AND M-17)

Read Closing Statement to the Respondent:

"Thank you for participating in our survey. Do you have any questions? In the next few days my supervisor may contact you to evaluate the quality of my work and answer any other questions you may have. To help him do that, could I have your name and address?"

Respondent Information: Name: _____

Address: _____

Phone number_____

Interviewer Certification: "I certify that I have completed this interview according to the instructions provided me by the Afghan Center for Socio-economic and Opinion Research."

_____ _____

Signed Date

D16. Thank you so much for participating in this study. We will be conducting follow up interviews and we would like to contact you again for a follow up interview. Do we have your permission to contact you again for the follow up survey?

1. Yes **(CONFIRM CONTACT INFORMATION; COLLECT OTHER CONTACT NUMBERS)**
2. No

D-17. (Interviewer code): Record number of people present for the interview (excluding the interviewer). Please record the number of people present from each of the three generational categories listed below. If nobody was present from a particular category, enter "0."

a) Junior (children, young people) ____ ____

b) Adults (peers, friends) ____ ____

c) Elders ____ ____

D-18. (Interviewer code): Which of the following statements do you think best describes the level of comprehension of the survey questionnaire by the respondent?

1. The respondent understood all of the questions
2. The respondent understood most of the questions
3. The respondent understood most of the questions but with some help.
4. The respondent had difficulty understanding most of the questions, even with help from me

D-19. (Interviewer code): Which of the following statements best describes the level of comfort or unease that the respondent had with the survey questionnaire?

1. The respondent was comfortable (at ease) with the entire questionnaire
2. The respondent was comfortable with most of the questions
3. The respondent was comfortable with only some of the questions
4. The respondent was generally uncomfortable with the survey questionnaire

<u>To Be Completed By The Supervisor:</u>

D-20. Was the interview subject to quality control/back-check?

1. Yes
2. No

D-21. Method of quality control/back-check

1. Direct supervision during interview
2. Back-check in person by supervisor
3. Back-check from the central office
4. Quality controlled by non-ACSOR monitoring team
5. Not applicable

D-22. Back Checker ID: ____ ____ ____ ____

999: NA

B. ELECTRICITY ACCESS BASELINE - HOUSEHOLD SURVEY FOR WOMEN

CONTENTS

A. Survey management 2
B. Household Information 4
C. Income Generation 6
D. Gender 7
E. HEALTH 8
F. Media use 11
G. Shocks 13
DEMOGRAPHICS 14

A. SURVEY MANAGEMENT

M-1. Respondent Identification Number [Idno]

I-1. Interview Number in Sample Point: ___ ___

(Write in number from contact sheet written in the "Interview Number")

I-2. Kish Grid Number: ___ ___

M-5. Sampling Point/District Where the

Interview Was Completed: ___ ___ ___ [sampt]

M-6b. CSO Geographic Code

1. Rural **2.** Urban

M-7. Province[province]

1. Kabul	9. Khost	17. Kunduz	25. Farah
2. Kapisa	10. Ningarhar	18. Balkh	26. Nimroz
3. Parwan	11. Laghman	19. Samangan	27. Helmand
4. Wardak	12. Kunar	20. Juzjan	28. Kandhar
5. Logar	13. Nooristan	21. Sar-I-Pul	29. Zabul
6. Ghazni	14. Badakhshan	22. Faryab	30. Uruzgan
7. Paktia	15. Takhar	23. Badghis	31. Ghor
8. Paktika	16. Baghlan	24. Herat	32. Bamyan
			33. Panjshir
			34. Dehkondi

M-8. Year of Interview: 2019[year]

M-9. Month of Interview [month]

1. January	4. April	7. July	10. October
2. February	5. May	8. August	11. November
3. March	6. June	9. September	12. December

M-10. Date of Interview: __ __ [date]

M-11. Day of Week of Interview (24) [day]

1. Friday	4. Monday	7. Thursday
2. Saturday	5. Tuesday	
3. Sunday	6. Wednesday	

M-12. Interviewer Code: __ __ __ __ __ __ [intcode]

M-13. Interview Completed on the … [intcomp1]

1. First Contact
2. Second Contact
3. Third Contact

M-14. Supervisor Code: ___ ___ ___ [supcode]

M-15. Record Time (using 24 hour clock) Interview Began: __ __: __ __ [intbegin]

(Record Time Began Starting With W-1)

M-16. Record Time (using 24 hour clock) Interview Ended: __ __:__ __ [intend]

(Fill in all four data positions)

M-17. Record Length of Interview in Minutes: ___ ___ [length]

M-18. Date Formatted Field: SEPT2019[MOYR]

M-19. Keypuncher Code __ __ [Keypunch]

M-20. Language of Interview [lang]

1. Pashto
2. Dari
3. Other

M-21. Coder Code __ __

M-22. Language of the questionnaire[langQQ]

1. Pashto
2. Dari

Assalam o Alakum, my name is _____ (and this is _____). We work for the Afghan Center for Socioeconomic and Opinion Research (ACSOR), an independent research organization working in Afghanistan. We are here on behalf of USAID to conduct a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts your community. If you agree to participate in this study, we would like to ask you a few questions. Because electricity affects all parts of our lives, I will also be asking you some questions about work, health, education, communication and security. You have the right to skip any question, stop at any time, and ask for clarification if you don't understand the question. We will treat your responses as confidential information. We anticipate this interview will last between 30 and 45 minutes.

A2. Do you agree to be interviewed for this purpose?

B. HOUSEHOLD INFORMATION

Now I would like to ask you some questions about yourself and the members of your household… going from the oldest member of your household to youngest member of your household can you please tell me… [INTERVIEWER REPEAT B2-B13 for everyone in the household; including children]

B2. What is your oldest family member's name? / And what is the next oldest person's name?

B3. Mark Gender

B4. MARK GENDER FOR THAT FAMILY MEMBER

B5. And how old is [FAMILY MEMBER]?

B6. What is [FAMILY MEMBER] relationship to the head of the household?

B7. What is [FAMILY MEMBER] marital status?

B8. (IF MARRIED, WIDOWED SEPARATED OR DIVORCED ASK:) How old was [FAMILY MEMBER] when they got married?

B9. What was the highest grade level in school did [FAMILY MEMBER] complete?

B10. Did [FAMILY MEMBER] Attend Islamic school?

B11. Is [FAMILY MEMBER] currently attending school?

B12. (IF ATTENDING SCHOOL ASK) What is the final level or grade does [FAMILY MEMBER] expect to finish?

HH Member ID (MID)	Name	Respondent 1 Male resp. 2 Fem resp. 96 NA	Sex Male 1 Female 2	Age	Relation to Head of Household	Marital status	Age at wedding	Highest grade completed	Attended Islamic school? 1 Yes 2 No	Currently attending school? 1 Yes 2 No	Daily hours spent on school work?	Expected / Hoped for grade completion?
#	Text	Code ↑	Code ↑	#	Code B6↓	Code B7↓	Number	Code B9↓	Code ↑	Code↑	Number	Code B9↓
B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13

Module B Code List							
Code B6 Relation to head of household	Response	Code B7 Marital status	Response	Code B9 Grade completed	Response	Code B9 Grade completed	Response
Head of household (HH)	1	Married	1	No education	0	Grade 8	8
Spouse of HH	2	Never married	2	Grade 1	1	Grade 9	9
Child of HH	3	Widowed	3	Grade 2	2	Grade 10	10
In-law child of HH	4	Divorced	4	Grade 3	3	Grade 11	11
Grandchild of HH	5	Separated	5	Grade 4	4	Grade 12	12
Parent of HH	6			Grade 5	5	Teacher college	13
Sibling of HH	7			Grade 6	6	Technical college	14
Extended family of HH	8			Grade 7	7	University or higher	15

C. INCOME GENERATION

C1. Do you have any income-generating activities?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

C2. I will read some income-generation activities. For each activity, please report approximately how many hours per day you spend on that activity, and approximately how much income you receive per month for this activity (please note its ok to say none, and not spend any hours).

	Task	Hours	Monthly income (Afs)
a.	Handicrafts		
b.	Food preparation and sale		
c.	Carpet weaving		
d.	Tailoring		
e.	Washing clothes for neighbors		
f.	Selling produce (fruits or vegetables)		
g.	Rearing livestock		
h.	Rearing poultry		
i.	Other:		

C3. How helpful is access to electricity in conducting these activities?

1. Not at all helpful
2. A little bit helpful
3. Moderately helpful
4. Very helpful

_____

98. Refused (vol)

99. Don't know (vol)

D. GENDER

D1. We'd like to understand how you spend your day. I will read a list of common tasks. For each task, please identify how many hours household members spend per day to complete the task. Household members will be organized by men older than 15, women older than 15, boys 15 or younger, and girls 15 or younger.

	Task	1. Men (16+)	2. Women (16+)	3. Boys (up to 15)	4. Girls (up to 15)
a.	Collecting firewood / fuel				
b.	Collecting water				
c.	Washing / ironing clothing				
d.	Preparing meals				
e.	Washing up after meals				
f.	Looking after livestock or poultry				
g.	Working in the garden and field				
h.	Other (specify):				

D2. Some people say that women should be allowed to work outside the home, while others say that women should not be allowed to work outside of the home. What is your opinion on this?

1. Women should be free to work outside the home
2. Women should not work outside the home

_____

98. Refuse to answer

99. Don't know

D3. Do you think women should be allowed to vote in the elections?

1. Yes
2. No

_____

98. Refuse to answer

99. Don't know

D4. What do you think is the best age for a girl to get married?

Age:

_____

98. Refuse to answer

99. Don't know

D5. In your community, is it possible for daughters who come of age to choose their own marriage partners? If you are unsure, consider the situation for your own family only.

1. Yes
2. No

_____

98. Refuse to answer

99. Don't know

D6. What do you think is the best age for a boy to get married?

Age:

_____

98. Refuse to answer

99. Don't know

D7. In your community, is it possible for sons who come of age to choose their own marriage partners? If you are unsure, consider the situation for your own family only.

1. Yes
2. No

_____

98. Refuse to answer

99. Don't know

E. HEALTH

E1. Are any of the children in the household vaccinated?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

E2. In the last few months, has any member of your household gotten sick such that they couldn't do their daily work?

1. Yes
2. No → F5

_____

98. Refused (vol)

99. Don't know (vol)

E3. What was their illness?

1. Cold / respiratory
2. Stomach / digestive
3. Fall / injury
4. Other (specify):
5. Other (specify):

_____

98. Refused (vol)

99. Don't know (vol)

E4. How many days of work did you lose due to mentioned illness?

Number of days:

_____

98. Refused (vol)

99. Don't know (vol)

E5. Does any member of your household smoke (Cigarette, shisha…)?

1. Yes
2. No

_____

98. Refuse to answer

99. Don't know

E6. Have any members of the household had breathing difficulties and/or a recurring cough in the last month?

1. Yes
2. No

_____

98. Refuse to answer

99. Don't know

E7. In the past month, what sources of cooking fuel has the household used? Has the household used [item]?

E7_	Household source of cooking fuel	Yes	No	Refused (vol)	Don't know (vol)
1	Animal dung	1	2	98	99
2	Brush / twigs	1	2	98	99
3	Firewood	1	2	98	99
4	Crop residue / trash	1	2	98	99
5	Charcoal / coal	1	2	98	99
6	Kerosene / oil	1	2	98	99
7	Gas	1	2	98	99
8	Electricity	1	2	98	99
9	Other source (specify):	1	2	98	99
10	Other source (specify):	1	2	98	99

E8. [Ask if E7 is more than 2 response] Of the sources of cooking fuel you have mentioned, could you identify the two sources of cooking fuel the household uses the most often?

E8a First source of cooking fuel:

E8b Second source of cooking fuel:

	Cooking fuel
1	Animal dung
2	Brush / twigs
3	Firewood
4	Crop residue / trash
5	Charcoal / coal
6	Kerosene / oil
7	Gas
8	Electricity
9	Other source (specify):
10	Other source (specify):

E9. What does the household use to heat the home during winter? Does the household use [item]?

E9_	Household source of heat	Yes	No	Refused (vol)	Don't know (vol)
1	Firewood	1	2	98	99
2	Animal dung	1	2	98	99
3	Crop residue	1	2	98	99
4	Trash	1	2	98	99
5	Charcoal / coal	1	2	98	99
6	Kerosene / oil	1	2	98	99
7	Gas	1	2	98	99
8	Electricity	1	2	98	99
9	Other source (specify):	1	2	98	99
10	Other source (specify):	1	2	98	99

E10. [Ask if E9 is more than 2 response] Of the sources of heat you have mentioned, could you identify the two sources of heat the household uses the most often?

E10a First source of heat:

E10b Second source of heat:

	Source of heat
1	Firewood
2	Animal dung
3	Crop residue
4	Trash
5	Charcoal / coal
6	Kerosene / oil
7	Gas
8	Electricity
9	Other source (specify):
10	Other source (specify):

F. MEDIA USE

F1. Do you listen to radio programs?

1. Yes
2. No → F4

_____

98. Refused (vol)

99. Don't know (vol)

F2. About how many days a week do you listen to radio programs?

Days (1-7):

_____

98. Refused (vol)

99. Don't know (vol)

F3. About how many hours in a day do you listen to radio programs?

Hours (1-24):

_____

98. Refused (vol)

99. Don't know (vol)

F4. Do you watch television?

1. Yes
2. No → G7

_____

98. Refused (vol)

99. Don't know (vol)

F5. About how many days a week do you watch television?

Days (1-7):

_____

98. Refused (vol)

99. Don't know (vol)

F6. About how many hours in a day do you watch television?

Hours (1-24):

_____

98. Refused (vol)

99. Don't know (vol)

F7. Do you own a mobile phone?

1. Yes
2. No → F9

_____

98. Refused (vol)

99. Don't know (vol)

F8. About how many hours in a day do you use your mobile phone, or the mobile phone belonging to someone else in the household?

Hours (1-24):

_____

98. Refused (vol)

99. Don't know (vol)

F9. I will read a list of sources of news and information. For each source, please indicate how often the household hears news and information.

		Never	Rarely	Sometimes	Often	Refused (vol)	Don't know (vol)
a.	Radio	1	2	3	4	98	99
b.	Television	1	2	3	4	98	99
c.	Internet	1	2	3	4	98	99
d.	Mosque	1	2	3	4	98	99
e.	Community Shuras	1	2	3	4	98	99
f.	Friends and family	1	2	3	4	98	99

G. SHOCKS

Interviewer Read: I would now like to ask you a few additional questions regarding experiences your household may have encountered in the past year.

	[Item]	**G3**. Has Occurred in previous 12 months?	**G4.** As a result of this shock, was there a decline in your household's …				**G5.** How did your household cope with the shock?
			G4a. Income	**G4b.** Assets	**G4c.** Food production	**G4d.** Food purchased	**G5a.** First Coping
		1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	CLIENT TO PROVIDE CODE LIST 98 Ref. 99 D.K.
A	Unusually high levels of crop pests and disease						
B	Unusually high levels of livestock disease						
C	Unusually high prices for agricultural inputs						
D	Unusually low prices for agricultural output (crops)						

	[Item]	**G3**. Has Occurred in previous 12 months?	**G4.** As a result of this shock, was there a decline in your household's …				**G5.** How did your household cope with the shock?
			G4a. Income	**G4b.** Assets	**G4c.** Food production	**G4d.** Food purchased	**G5a.** First Coping
		1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	CLIENT TO PROVIDE CODE LIST 98 Ref. 99 D.K.
E	Illness or injury to income earner(s) household member(s)						
F	Illness or injury to other household member(s)						
G	Theft of money/valuables/non-agricultural assets						
H	Theft of agricultural assets/output (crops or livestock)						
I	Victim of violence / violent crime						
J	Death of income earner(s)						

	[Item]	**G3**. Has Occurred in previous 12 months?	**G4.** As a result of this shock, was there a decline in your household's …				**G5.** How did your household cope with the shock?
			G4a. Income	**G4b.** Assets	**G4c.** Food production	**G4d.** Food purchased	**G5a.** First Coping
		1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	1 Yes 2 No 98 Ref. 99 D.K.	CLIENT TO PROVIDE CODE LIST 98 Ref. 99 D.K.
K	Death of other household member(s)						
L	Drought / irregular rain						
M	Floods						
N	Landslides / erosion						
O	Fire / Tornado / Earthquake						
P	Crop destroyed by wild animal like monkey or pig						
Q	Other (Specify) 1:						
R	Other (Specify) 2:						

DEMOGRAPHICS

That completes the main part of the survey. These last questions are just for statistical purposes so that we can be sure we are speaking to a wide range of people.

D8. How old are you? (Record actual age; if respondent doesn't know or refuses, please estimate)

Write Response: ___ ___

D9. For statistical purposes only, can you estimate your average monthly household income?

1. Less than 2,000 Afs
2. 2,001 – 3,000 Afs
3. 3,001 – 5,000 Afs
4. 5,001 – 10,000 Afs
5. 10,001 – 15,000 Afs
6. 15,001 – 20,000 Afs
7. 20,001 – 25,000 Afs
8. 25,001 – 40,000 Afs
9. More than 40,000 Afs

98. Refused (vol.)

99. Don't know (vol.)

D10. What is the highest level (grade) of school you have completed, not including schooling in Islamic madrasa? (calculate the highest level into years)

(INTERVIEWER: If none, write down zero)

_____ (write down number of years)

97. Informal schooling at home or at a literacy class

98. Refused

99. Don't know

D11. Which ethnic group do you belong to?

Write response record first mention: _____

1. Pashtun
2. Tajik
3. Uzbek
4. Hazara
5. Turkmeni
6. Baloch
7. Kirghiz
8. Nuristani
9. Aimak
10. Arab
11. Pashaye
12. Sadat
13. Qezelbash
14. Gujar
15. Wakhi

96. Other (vol.):_____

98. Refused (vol.)

99. Don't know (vol.)

RECORD THE TIME (USING 24 HOUR CLOCK) INTERVIEW WAS COMPLETED AND THE LENGTH OF THE INTERVIEW

(M-16 AND M-17)

Read Closing Statement to the Respondent:

"Thank you for participating in our survey. Do you have any questions? In the next few days my supervisor may contact you to evaluate the quality of my work and answer any other questions you may have. To help him do that, could I have your name and address?"

Respondent Information: Name: _____

Address: _____

Phone number: _____

Interviewer Certification: "I certify that I have completed this interview according to the instructions provided me by the Afghan Center for Socio-economic and Opinion Research."

_____ _____

Signed Date

D-6. Thank you so much for participating in this study. We will be conducting follow up interviews and we would like to contact you again for a follow up interview. Do we have your permission to contact you again for the follow up survey?

1. Yes **(CONFIRM CONTACT INFORMATION; COLLECT OTHER CONTACT NUMBERS)**
2. No

D13. (Interviewer code): Record number of people present for the interview (excluding the interviewer). Please record the number of people present from each of the three generational categories listed below. If nobody was present from a particular category, enter "0."

a) Junior (children, young people) ____ ____

b) Adults (peers, friends) ____ ____

c) Elders ____ ____

D14. (Interviewer code): Which of the following statements do you think best describes the level of comprehension of the survey questionnaire by the respondent?

1. The respondent understood all of the questions
2. The respondent understood most of the questions
3. The respondent understood most of the questions but with some help.
4. The respondent had difficulty understanding most of the questions, even with help from me

D15. (Interviewer code): Which of the following statements best describes the level of comfort or unease that the respondent had with the survey questionnaire?

1. The respondent was comfortable (at ease) with the entire questionnaire
2. The respondent was comfortable with most of the questions
3. The respondent was comfortable with only some of the questions
4. The respondent was generally uncomfortable with the survey questionnaire

<u>To Be Completed By The Supervisor:</u>

D16. Was the interview subject to quality control/back-check?

1. Yes
2. No

D17. Method of quality control/back-check

1. Direct supervision during interview
2. Back-check in person by supervisor
3. Back-check from the central office
4. Quality controlled by non-ACSOR monitoring team
5. Not applicable

D18. Back Checker ID: ____ ____ ____ ____

9996: NA

C. ELECTRICITY ACCESS BASELINE - BUSINESS SURVEY

A. BUSINESS IDENTIFICATION

M-1. Respondent Identification Number [Idno]

I-1. Interview Number in Sample Point: ___ ___

(Write in number from contact sheet written in the "Interview Number")

M-5. Sampling Point/District Where the

Interview Was Completed: ___ ___ ___ [sampt]

M-6b. CSO Geographic Code

1. Rural **2.** Urban

M-7. Province[province]

1. Kabul	9. Khost	17. Kunduz	25. Farah
2. Kapisa	10. Ningarhar	18. Balkh	26. Nimroz
3. Parwan	11. Laghman	19. Samangan	27. Helmand
4. Wardak	12. Kunar	20. Juzjan	28. Kandhar
5. Logar	13. Nooristan	21. Sar-I-Pul	29. Zabul
6. Ghazni	14. Badakhshan	22. Faryab	30. Uruzgan
7. Paktia	15. Takhar	23. Badghis	31. Ghor
8. Paktika	16. Baghlan	24. Herat	32. Bamyan
			33. Panjshir
			34. Dehkondi

M-8. Year of Interview: 2019[year]

M-9. Month of Interview [month]

1. January	4. April	7. July	10. October
2. February	5. May	8. August	11. November
3. March	6. June	9. September	12. December

M-10. Date of Interview: __ __ [date]

M-11. Day of Week of Interview (24) [day]

1. Friday
2. Saturday
3. Sunday
4. Monday
5. Tuesday
6. Wednesday
7. Thursday

M-12. Interviewer Code: __ __ __ __ __ __ [intcode]

M-13. Interview Completed on the … [intcomp1]

1. First Contact
2. Second Contact
3. Third Contact

M-14. Supervisor Code: ___ ___ ___ [supcode]

M-15. Record Time (using 24 hour clock) Interview Began: __ __: __ __ [intbegin]

(Record Time Began Starting With W-1)

M-16. Record Time (using 24 hour clock) Interview Ended: __ __:__ __ [intend]

(Fill in all four data positions)

M-17. Record Length of Interview in Minutes: ___ ___ [length]

M-18. Date Formatted Field: OCT2019[MOYR]

M-19. Keypuncher Code __ __ [Keypunch]

M-20. Language of Interview [lang]

1. Pashto
2. Dari
3. Other

M-21. Coder Code __ __

M-22. Language of the questionnaire[langQQ]

1. Pashto
2. Dari

Assalam o Alakum, my name is _____ (and this is _____). We work for the Afghan Center for Socioeconomic and Opinion Research (ACSOR), an independent research organization working in Afghanistan. We are here on behalf of USAID to conduct a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts your community. If you agree to participate in this study, we would like to ask you a few questions. Because electricity affects all parts of our lives, I will also be asking you some questions about work, health, education, communication and security. You are free to skip any question that you do not want to answer. We will treat everything you say here with confidentiality. The interview will last about 30 minutes.

M-23. Do you agree to be interviewed for this purpose?

A. BUSINESS INFORMATION

A1. Business name:

A2. Is your business registered or a member of any of the following organizations the central business Registry, local government, or any Afghanistan Chamber of Commerce and Industry (CCI) affiliate?

1. Yes
2. No

_____

98 Refused

99. Don't Know

A3. In what year did your business start? (Use Persian calendar) (YEAR-Mon)

a. Year:
b. Month:

_____

98. Refused (vol)

99. Don't know (vol)

A4. Which sector/industry is your business?

1. Manufacturing
2. Construction
3. Retail/Shop
4. Wholesale trade
5. Transportation and storage
6. Accommodation and Food Service
7. Information and communication
8. Education
9. Health
10. Repair of motor vehicles and motorbikes
11. Other service activities
12. Other (specify):

_____

98. Refused (vol)

99. Don't know (vol)

A5. What was/were your main product(s) or service(s) in the last year?

A5a First mention:

A5b Second mention:

A5c Third mention:

_____

98. Refused (vol)

99. Don't know (vol)

A6. Is this business:

1. Located in a rented premise
2. Located in a borrowed premise
3. Run out of a home
4. Mobile or located on the street
5. Owns the location
6. Other (specify):

_____

98. Refused (vol)
99. Don't know (vol)

A7. What is the main source of drinking water for the business?

1. Open well - public
2. Open well - private
3. Hand pump - public
4. Hand pump - private
5. Bored wells (motorised/hand pump)
6. Spring - unprotected
7. Spring - protected
8. Piped - private
9. Piped - municipal
10. Kariz
11. River, lake, channel, pool, drainage
12. Water tanker
13. No water source for business
14. Other:

_____

98. Refused (vol)

99. Don't know (vol)

A8. What does the business use for heat during winter? Does the business use [item]?

A7_	Source of heat	Yes	No	Refused (vol)	Don't know (vol)
1	Firewood	1	2	98	99
2	Animal dung	1	2	98	99
3	Crop residue	1	2	98	99
4	Trash	1	2	98	99
5	Charcoal / coal	1	2	98	99
6	Kerosene / oil	1	2	98	99
7	Gas	1	2	98	99
8	Electricity	1	2	98	99
9	Other source (specify):	1	2	98	99
10	Other source (specify):	1	2	98	99

A9. [Ask if in A8 is more than 2 response] Of the sources of heat you have mentioned, could you identify the two sources of heat the business uses the most often?

A9a First source of heat:

A9b Second source of heat:

	Source of heat
1	Firewood
2	Animal dung
3	Crop residue
4	Trash
5	Charcoal / coal
6	Kerosene / oil
7	Gas
8	Electricity
9	Other source (specify):
10	Other source (specify):

A10. How many people own this business?

A10a Male:
A10b Female:

_____

98. Refused (vol)

99. Don't know (vol)

A11. How many people are permanently employed by your business (at this location)?

A11a Male:
A11b: Female:
_____

98. Refused (vol)

99. Don't know (vol)

A12. How many days did your business hire casual/temporary workers in the last month (at this location)?

Days:
_____ [if "0" go to A14]

98. Refused (vol) →A14

99. Don't know (vol) →A14

A13. What was the total number of casual/temporary workers that your business hired in the last month (at this location)?

A13a Male:
A13b Female:
_____

98. Refused (vol)

99. Don't know (vol)

A14. How many days in a week does your business normally operate?

Days:
_____

98. Refused (vol)

99. Don't know (vol)

A15. In a working day, how many hours does your business normally operate?

Hours:
_____

98. Refused (vol)

99. Don't know (vol)

A16. What were the total sales (revenue) of this business last month?

Afghanis:

_____

98. Refused (vol)

99. Don't know (vol)

A17. What were the total expenses of this business last month?

Afghanis:

_____

98. Refused (vol)

99. Don't know (vol)

A18. How successful do you consider your business? Is that not at all successful, a little successful, somewhat successful, or very successful?

1. Not at all successful
2. A little successful
3. Somewhat successful
4. Very successful

_____

98. Refused (vol)

99. Don't know (vol)

A19. Comparing this year to last year, how is your business doing?

1. Much worse
2. Worse
3. The same
4. Better
5. Much better

_____

98. Refused (vol)

99. Don't know (vol)

A20. What are the biggest obstacles to the success of your business? I will read a list of topics. For each topic, please report whether it is not an obstacle, a small obstacle, a moderate obstacle, or a big obstacle.

		Not an obstacle	Small obstacle	Moderate obstacle	Big obstacle	Refused (vol)	Don't know (vol)
a.	Security	1	2	3	4	98	99
b.	Crime / violence	1	2	3	4	98	99
c.	Political instability	1	2	3	4	98	99
d.	Corruption	1	2	3	4	98	99
e.	Water service	1	2	3	4	98	99
f.	Electricity service	1	2	3	4	98	99
g.	Land issues	1	2	3	4	98	99
h.	Government regulations / bureaucracy	1	2	3	4	98	99
i.	Other:	1	2	3	4	98	99

B. ELECTRICITY

STATE PROVIDED ELECTRICITY (DABS)

B1. Is your business connected to the DABS electricity service?

1. Yes
2. No → B19

_____

98. Refused (vol) →B19

99. Don't know (vol) →B19

B2. Where did you submit the application for a DABS connection?

1. DABS office in district center
2. DABS office in provincial center
3. Other:

_____

98. Refused (vol)

99. Don't know (vol)

B3. How did you pay the connection fee?

1. Through mobile phone
2. Bank office in district center
3. Bank office in provincial center
4. Other:

_____

98. Refused (vol)

99. Don't know (vol)

B4. How much did it cost to connect to the DABS electricity service?

Afghanis:

_____

-98. Refused (vol)

-99. Don't know (vol)

B5. Was an informal gift or additional payment expected, in order to connect to the DABS electricity service?

1. Yes
2. No → B8

_____

98. Refused (vol) → B8

99. Don't know (vol) → B8

B6. Did you provide the expected gift or additional payment?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

B7. What was the approximate value of the informal gift or additional payment?

Afghanis:

_____

-98. Refused (vol)

-99. Don't know (vol)

B8. To the best of your memory, in what year and month did your business **receive** a connection to the DABS electricity service?

[Enumerator: if respondent has difficulty with recall, approximate month is acceptable]

B8a. Year:
B8b. Month:

_____

98. Refused (vol)

99. Don't know (vol)

B9. To the best of your memory, about how many days did it take between the time you **applied** for a connection to the DABS electricity service and when you **received** a connection to the DABS electricity service?

Days:

_____

98. Refused (vol)

99. Don't know (vol)

B10. How much was your most recent DABS electricity bill?

Afghanis:

_____

-98. Refused (vol)
-99. Don't know (vol)

B11. For documentation purposes, may we see your most recent DABS billing statement?

1. Yes
2. No →B14
3. Unavailable →B14

_____

98. Refused (vol) →B14

99. Don't know (vol) →B14

[Enumerator: take picture of DABS billing statement. If the shown statement is the most recent statement, confirm that reported amount is same as what is on bill]

B12. With your permission, we'd like to look at your business's usage and billing data by consulting DABS records. We will not share this information with anyone, but use it only for purposes of statistical analysis.

Do you permit us to check your business's usage and billing history with DABS?

1. Yes
2. No → B14

_____

98. Refused (vol) → B14

99. Don't know (vol) → B14

B13. Thank you for your permission. In order to locate your business's usage and billing information with DABS, we will write down the meter number and customer number from your bill.

B13a Meter number:

B13b Customer number:

B14. How do you typically pay your DABS electricity bills?

1. Through mobile phone → B16
2. Through an intermediary → B16
3. Bank in the district center
4. Bank in the provincial center
5. Other:

_____

98. Refused (vol) → B16

99. Don't know (vol) → B16

B15. How much does it usually cost to travel to the bank to pay your DABS electricity bill?

Afghanis:

_____

-98. Refused (vol)

-99. Don't know (vol)

B16. Consider the last few weeks of your business's use of DABS electricity service. On a typical day during the week (Sunday – Thursday), about how many hours of DABS electricity service is available?

Hours:

_____

98. Refused (vol)

99. Don't know (vol)

B17. Consider the last few weeks of your business's use of DABS electricity service. On a typical day during the weekend (Friday – Saturday), about how many hours of DABS electricity service is available?

Hours:

_____

98. Refused (vol)

99. Don't know (vol)

B18. Overall, how satisfied are you with the DABS electricity service?

1. Not at all satisfied
2. A little satisfied
3. Somewhat satisfied
4. Very satisfied

_____

98. Refused (vol)

99. Don't know (vol)

B19. [Ask if in B1 code of "2, 98 or 99" is selected] Why is your business not connected to the DABS electricity service? I will read you some possible reasons. Please select which reasons apply to your business, and also please explain any other reasons that I don't mention.

B19 –	Other electricity service	Yes	No	Refused (vol)	Don't know (vol)
1	The cost of connection is too high	1	2	98	99
2	The process of getting a connection is too difficult	1	2	98	99
3	The cost of electricity service is too high	1	2	98	99
4	I am satisfied with the other sources of electricity	1	2	98	99
5	This is a rental property and the landlord has not connected	1	2	98	99
6	Other reason (specify):	1	2	98	99
7	Other reason (specify):	1	2	98	99

OTHER SOURCES OF ELECTRICITY

B20. [Ask all] Now I will read to you a list of different sources of electricity. As I read each one, please tell me if your business uses that sources of electricity or not. Does your business use [ITEM]?

B21_	Other electricity service	Yes	No	Refused (vol)	Don't know (vol)
1	Private company	1	2	98	99
2	Own generator	1	2	98	99
3	Community generator	1	2	98	99
4	Solar panels	1	2	98	99
5	Battery	1	2	98	99
6	Wind	1	2	98	99
7	Hydro-electric	1	2	98	99
8	Neighbor	1	2	98	99
9	Other source (specify):	1	2	98	99
10	Other source (specify):	1	2	98	99

B21. [Ask if B20 is more than 2 response] Of the sources of electricity you have mentioned, could you identify the two most important sources of electricity for the business?

B21a First electricity source:

B21a Second electricity source:

B22 _	Other electricity service
1	DABS
2	Private company
3	Own generator
4	Community generator
5	Solar panels
6	Battery
7	Wind
8	Hydro-electric
9	Neighbor
10	Other:
11	Other:

B22. Consider the last few weeks of your business's use of all other (non-DABS) sources of electricity. On a typical day during the week (Sunday – Thursday), about how many hours of other electricity sources does the business use?

[Enumerator: only complete for sources selected in B21. For B26-B31, select response 97 if the source was not selected in B21]

Source	Hours (work week)	Not asked	Refused (vol)	Don't know (vol)
Other private grid		97	98	99
Own generator		97	98	99
Community generator		97	98	99
Solar panels		97	98	99
Battery		97	98	99
Wind		97	98	99
Hydro-electric		97	98	99
Other:		97	98	99

B23. Consider the last few weeks of your business's use of all other (non-DABS) sources of electricity. On a typical day during the weekend (Friday – Saturday), about how many hours of other electricity sources does the business use?

Source	Hours (weekend)	Not asked	Refused (vol)	Don't know (vol)
Other private grid		97	98	99
Own generator		97	98	99
Community generator		97	98	99
Solar panels		97	98	99
Battery		97	98	99
Wind		97	98	99
Hydro-electric		97	98	99
Other:		97	98	99

B24. What are the costs associated with the business's use of its own generator? [only ask if the response for B20_2 is "Yes"]

	B24a Generator purchase cost (Afghanis)	B24b Generator rental cost (Afghanis)	B24c Generator age (years)	B24d Fuel cost, Winter (monthly Af)	B24e Fuel cost, Spring (monthly Af)	B24f Fuel cost, Summer (monthly Af)	B24g Fuel cost, Autumn (monthly Af)
1							
2							
3							

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B25. What are the costs associated with the business's use of the community generator? [only ask if the response for B20_3 is "Yes"]

	B25a Cost item	B25b Cost, Winter (monthly Afghanis)	B25c Cost, Spring (monthly Afghanis)	B25d Cost, Summer (monthly Afghanis)	B25e Cost, Autumn (monthly Afghanis)
1					
2					
3					

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B26. What are the costs associated with the business's use of solar panels? [only ask if the response for B20_4 is "Yes"]

	B26a Number of solar panels	B26b Solar panel purchase cost (Afghanis)	B26c Solar panel rental cost (monthly Afghanis)	B26d Solar panel age (years)	B26e Solar panel maintenance cost (annual Af)	B26f Solar panel replacement cost (annual Af)
1						
2						
3						

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B27. What are the costs associated with the business's use of batteries? [only ask if the response for B20_5 is "Yes"]

	B27a Number of batteries	B27b Battery purchase cost (Afghanis)	B27c Battery rental cost (monthly Afghanis)	B27d Battery age (years)	B27e Battery maintenance cost (annual Af)	B27f Battery replacement cost (annual Af)
1						
2						
3						

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B28. What are the costs associated with the business' use of wind-powered electricity? [only ask if the response for B20_6 is "Yes"]

	B28a Cost item	B28b Cost, Winter (monthly Afghanis)	B28c Cost, Spring (monthly Afghanis)	B28d Cost, Summer (monthly Afghanis)	B28e Cost, Autumn (monthly Afghanis)
1					
2					
3					

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B29. What are the costs associated with the business's use of hydro-electric electricity? [only ask if the response for B20_7 is "Yes"]

	B29a Cost item	B29b Cost, Winter (monthly Afghanis)	B29c Cost, Spring (monthly Afghanis)	B29d Cost, Summer (monthly Afghanis)	B29e Cost, Autumn (monthly Afghanis)
1					
2					
3					

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

B30. Overall, how satisfied are you with each business source of non-DABS electricity?

		Not at all satisfied	A little satisfied	Somewhat satisfied	Very satisfied	Not asked	Refused (vol)	Don't know (vol)
a.	Own generator	1	2	3	4	97	98	99
b.	Community generator	1	2	3	4	97	98	99
c.	Solar panels	1	2	3	4	97	98	99
d.	Battery	1	2	3	4	97	98	99
e.	Wind	1	2	3	4	97	98	99
f.	Hydro-electric	1	2	3	4	97	98	99
g.	Other:	1	2	3	4	97	98	99

B31. I will read you a list of items. For each item, please report how many the business owns, or which you personally own but use for business purposes. Please also identify any other devices the business uses that requires electricity, which we did not ask about.

B31 _	Item	Quantity owned
1	Radio	
2	Mobile phone	
3	Television (B&W)	
4	Television (Color)	
5	Computer	
6	Electric fan	
7	Electric iron	
8	Sewing machine	
9	Refrigerator	
10	Other (specify):	
11	Other (specify):	
12	Other (specify):	
13	Other (specify):	
14	Other (specify):	

B32. In the past month, how often have you had problems running the equipment required for your business due to limited or unstable electrical supply?

1. Never
2. Once or twice in the last month
3. 3-7 times in the last month
4. At least 8 times in the last month

_____

98. Refused (vol)

99. Don't know (vol)

B33. In the past year, have you experienced damage to equipment due to unstable voltage?

1. Yes
2. No → C1

_____

98. Refused (vol) → C1

99. Don't know (vol) → C1

B34. Can you estimate the costs to repair or replace the damaged equipment?

Afghanis:

_____
-98. Refused (vol)
-99. Don't know (vol)

C. SERVICES

C1. We'd like to know your current level of satisfaction with various government services. I will read a list of services. For each service, please indicate how satisfied you are with the quality of that service in your community.

	Service	Not at all satisfied	A little satisfied	Somewhat satisfied	Very satisfied	Refused (vol)	Don't know (vol)
a.	Drinking Water	1	2	3	4	98	99
b.	Sanitation Services	1	2	3	4	98	99
c.	School facilities and services	1	2	3	4	98	99
d.	Roads and bridges	1	2	3	4	98	99
e.	Public spaces	1	2	3	4	98	99

C2. I will read a list of different types of projects. For each type, please report whether you noticed this type of project being implemented in your area in the last 12 months.

	Project type	Yes	No	Refused (vol)	Don't know (vol)
a.	Construction or repair of roads or bridges	1	2	98	99
b.	Construction or repair of schools	1	2	98	99
c.	Drinking water project (wells, hand pumps, tank, reservoir)	1	2	98	99
d.	Irrigation project	1	2	98	99
e.	Electricity	1	2	98	99
f.	Health project (hospital, clinic, doctor visits)	1	2	98	99
g.	Agriculture projects	1	2	98	99
h.	Construction or repair of factories	1	2	98	99
i.	Construction or repair of mosques	1	2	98	99
j.	Reconciliation with Anti-Government Elements	1	2	98	99
k.	Other:	1	2	98	99
l.	Other:	1	2	98	99

D. GOVERNANCE AND SECURITY

D1. Overall, based on your own experience, do you think things in Afghanistan today are going in the right direction, or do you think they are going in the wrong direction?

1. Right direction
2. Wrong direction

_____

98. Refused (vol)

99. Don't know (vol)

D2. Thinking of the different levels of government in Afghanistan, do you think that overall the [insert item], is doing a very bad job, somewhat bad job, somewhat good job or a very good job?

		A very bad job	Somewhat bad job	Somewha t good job	Very good job	Refused (vol)	Don't know (vol)
a.	National government	1	2	3	4	98	99
b.	Provincial government	1	2	3	4	98	99
c.	District government	1	2	3	4	98	99

D3. Which group would you say is most responsible for providing security in this village? And the second most?

D3a. First mention:

D3b. Second mention:

1. National Army
2. Local Police
3. National Police
4. Local Commanders
5. Arbakai
6. Taliban
7. Da'esh/ISIS/Islamic State Group

_____

98. Refused (vol.)

99. Don't know (vol.)

D4. How often do you fear for your own personal safety or security or for that of your family? Would you say you never, sometimes, often, or always fear for you and your family's safety?

1. Never
2. Sometimes
3. Often
4. Always

_____

98. Refused (vol)

99. Don't know (vol)

D5. When comparing this year to last year, do you feel security is worse, the same, or better?

1. Worse
2. The same
3. Better

_____

98. Refused (vol)

99. Don't know (vol)

That completes the main part of the survey. These last questions are just for statistical purposes so that we can be sure we are speaking to a wide range of people.

D-7. How old are you? (Record actual age; if respondent doesn't know or refuses, please estimate)

Write Response: ___ ___

D-8. What is the highest level (grade) of school you have completed, not including schooling in Islamic madrasa? (calculate the highest level into years)

(INTERVIEWER: If none, write down zero)

_____ (write down number of years)

97. Informal schooling at home or at a literacy class

98. Refused

99. Don't know

RECORD THE TIME (USING 24 HOUR CLOCK) INTERVIEW WAS COMPLETED AND THE LENGTH OF THE INTERVIEW

(M-16 AND M-17)

Read Closing Statement to the Respondent:

"Thank you for participating in our survey. Do you have any questions? In the next few days my supervisor may contact you to evaluate the quality of my work and answer any other questions you may have. To help him do that, could I have your name and address?"

Respondent Information: Name: _____
Address: _____

Phone number: _____

Interviewer Certification: "I certify that I have completed this interview according to the instructions provided me by the Afghan Center for Socio-economic and Opinion Research."

_____ _____

Signed Date

D10. Thank you so much for participating in this study. We will be conducting follow up interviews and we would like to contact you again for a follow up interview. Do we have your permission to contact you again for the follow up survey?

1. Yes **(CONFIRM CONTACT INFORMATION; COLLECT OTHER CONTACT NUMBERS)**
2. No

D-11. (Interviewer code): Record number of people present for the interview (excluding the interviewer). Please record the number of people present from each of the three generational categories listed below. If nobody was present from a particular category, enter "0."

a) Junior (children, young people) ____ ____

b) Adults (peers, friends) ____ ____

c) Elders ____ ____

D-12. (Interviewer code): Which of the following statements do you think best describes the level of comprehension of the survey questionnaire by the respondent?

1. The respondent understood all of the questions
2. The respondent understood most of the questions
3. The respondent understood most of the questions but with some help.
4. The respondent had difficulty understanding most of the questions, even with help from me

D-13. (Interviewer code): Which of the following statements best describes the level of comfort or unease that the respondent had with the survey questionnaire?

1. The respondent was comfortable (at ease) with the entire questionnaire
2. The respondent was comfortable with most of the questions
3. The respondent was comfortable with only some of the questions
4. The respondent was generally uncomfortable with the survey questionnaire

To Be Completed By The Supervisor:

D-14. Was the interview subject to quality control/back-check?

1. Yes
2. No

D-15. Method of quality control/back-check

1. Direct supervision during interview
2. Back-check in person by supervisor
3. Back-check from the central office
4. Quality controlled by non-ACSOR monitoring team
5. Not applicable

D-16. Back Checker ID: ____ ____ ____ ____

9996: NA

D. ELECTRICITY ACCESS BASELINE - CLINICS SURVEY

A. SURVEY MANAGEMENT

M-1. Respondent Identification Number [Idno]

I-1. Interview Number in Sample Point: ___ ___

(Write in number from contact sheet written in the "Interview Number")

M-5. Sampling Point/District Where the Interview Was Completed: ___ ___ ___ [sampt]

M-6b. CSO Geographic Code

1. Rural **2.** Urban

M-7. Province[province]

1. Kabul	9. Khost	17. Kunduz	25. Farah
2. Kapisa	10. Ningarhar	18. Balkh	26. Nimroz
3. Parwan	11. Laghman	19. Samangan	27. Helmand
4. Wardak	12. Kunar	20. Juzjan	28. Kandhar
5. Logar	13. Nooristan	21. Sar-I-Pul	29. Zabul
6. Ghazni	14. Badakhshan	22. Faryab	30. Uruzgan
7. Paktia	15. Takhar	23. Badghis	31. Ghor
8. Paktika	16. Baghlan	24. Herat	32. Bamyan
			33. Panjshir
			34. Dehkondi

M-8. Year of Interview: 2019[year]

M-9. Month of Interview [month]

1. January	4. April	7. July	10. October
2. February	5. May	8. August	11. November
3. March	6. June	9. September	12. December

M-10. Date of Interview: __ __ [date]

M-11. Day of Week of Interview (24) [day]

1. Friday
2. Saturday
3. Sunday
4. Monday
5. Tuesday
6. Wednesday
7. Thursday

M-12. Interviewer Code: __ __ __ __ __ __ [intcode]

M-13. Interview Completed on the … [intcomp1]

1. First Contact
2. Second Contact
3. Third Contact

M-14. Supervisor Code: ___ ___ ___ [supcode]

M-15. Record Time (using 24 hour clock) Interview Began: __ __: __ __ [intbegin]

(Record Time Began Starting With W-1)

M-16. Record Time (using 24 hour clock) Interview Ended: __ __:__ __ [intend]

(Fill in all four data positions)

M-17. Record Length of Interview in Minutes: ___ ___ [length]

M-18. Date Formatted Field: OCT2019[MOYR]

M-19. Keypuncher Code __ __ [Keypunch]

M-20. Language of Interview [lang]

1. Pashto
2. Dari
3. Other

M-21. Coder Code __ __

M-22. Language of the questionnaire[langQQ]

1. Pashto
2. Dari

Assalam o Alakum, my name is _____ (and this is _____). We work for the Afghan Center for Socioeconomic and Opinion Research (ACSOR), an independent research organization working in Afghanistan. We are here on behalf of USAID to conduct a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts your community. If you agree to participate in this study, we would like to ask you a few questions. Because electricity affects all parts of our lives, I will also be asking you some questions about work, health, education, communication and security. You are free to skip any question that you do not want to answer. We will treat everything you say here with confidentiality. The interview will last about 30 minutes.

M-23. Do you agree to be interviewed for this purpose?

M-24. Respondent info:

a. Clinic name:
b. Respondent name:
c. Respondent position:
d. Type of clinic:
    1. Primary Health Care Unit (PCHU)
    2. Primary Health Care Center (PHCC)
    3. Direct Hospital (DC)

A. CLINIC INFORMATION

A1. In what year did your clinic open? (Use Persian calendar) (YEAR-Mon)

a. Year:
b. Month:

_____
98. Refused (vol)
99. Don't know (vol)

A2. Please tell us what type of services your health facility offers?

A2 –	Other electricity service	Yes	No	Refused (vol)	Don't know (vol)
1	Surgery	1	2	98	99
2	Laboratory tests (i.e. blood work, cultures, other)	1	2	98	99
3	X-rays	1	2	98	99
4	Advanced X-rays (i.e. MRI, CAT Scan, ultrasound, PET Scan)	1	2	98	99
5	Neo-natal care	1	2	98	99
6	Obstetrics and Gynecology (i.e. pregnancy care, female healthcare, other)	1	2	98	99
7	Specialized Medicine (i.e. cancer treatment, endocrinology, dermatology, neurology, other)	1	2	98	99
8	Family Medicine and Basic Healthcare Services	1	2	98	99
9	Public Health Services	1	2	98	99
10	Emergency Services	1	2	98	99
11	Dental Services	1	2	98	99
12	Other (specify):	1	2	98	99
13	Other (specify):	1	2	98	99

_____

98. Refused (vol)

99. Don't know (vol)

A3. How many patients has this health facility served in the last month?

A3a. Male:

A3b. Female:

_____

98. Refused (vol)
99. Don't know (vol)

A4. Which of the following does this health facility have? [circle all that apply]

A4_	Item	Quantity owned
1	Computer/laptop/tablet	
2	Printer	
3	Vaccine refrigerator	
4	Blood refrigerator	
5	Food refrigerator	
6	Suction machine	
7	ECG machine	
8	Phototherapy machine	
9	Fetal heart monitoring machine	
10	Ultrasound machine	
11	X-ray machine	
12	Neo-natal incubator	
13	Radio	
14	Mobile phone	
15	Television (B&W)	
16	Television (Color)	
17	Electric fan	
18	Electric iron	
19	Sewing machine	
20	Other (specify):	
21	Other (specify):	
22	Other (specify):	
23	Other (specify):	

A5. How many people are permanently employed by the clinic (at this location)?

a. Male:
b. Female:

_____

98. Refused (vol)

99. Don't know (vol)

A6. How many days in a week does the clinic normally operate?

Days:

_____

98. Refused (vol)

99. Don't know (vol)

A7. In a working day, how many hours does your clinic normally operate?

Hours:

_____

98. Refused (vol)

99. Don't know (vol)

A8. How many patients in the last month reported respiratory problems?

a. Male:
b. Female:

_____
98. Refused (vol)
99. Don't know (vol)

A9. Does this health facility provide vaccinations?

1. Yes
2. No →C1

_____
98. Refused (vol) →C1
99. Don't know (vol) →C1

A10. If yes, have there been any problems with keeping vaccines at the required temperature?

1. Yes
2. No

_____
98. Refused (vol)
99. Don't know (vol)

C. ELECTRICITY

STATE PROVIDED ELECTRICITY (DABS)

C1. Is your clinic connected to the DABS electricity service?

1. Yes
2. No → C11

_____

98. Refused (vol) → C11

99. Don't know (vol) → C11

C2. How much did it cost to connect to the DABS electricity service?

Afghanis:

_____

-98. Refused (vol)

-99. Don't know (vol)

C3. To the best of your memory, in what year and month did your clinic **receive** a connection to the DABS electricity service?

[Enumerator: if respondent has difficulty with recall, approximate month is acceptable]

C3a. Year:
C3b. Month:

_____

98. Refused (vol)

99. Don't know (vol)

C4. To the best of your memory, about how many days did it take between the time you **applied** for a connection to the DABS electricity service and when you **received** a connection to the DABS electricity service?

Days:

_____

98. Refused (vol)

99. Don't know (vol)

C5. How much was your most recent DABS electricity bill?

Afghanis:

_____

-98. Refused (vol)

-99. Don't know (vol)

C6. For documentation purposes, may we see your most recent DABS billing statement?

1. Yes
2. No →C9
3. Unavailable →C9

_____

98. Refused (vol) → C9

99. Don't know (vol) → C9

[Enumerator: take picture of DABS billing statement. If the shown statement is the most recent statement, confirm that reported amount is same as what is on bill]

C7. With your permission, we'd like to look at your clinic's usage and billing data by consulting DABS records. We will not share this information with anyone, but use it only for purposes of statistical analysis.

Do you permit us to check your clinic's usage and billing history with DABS?

1. Yes
2. No → C9

_____

98. Refused (vol) → C9

99. Don't know (vol) → C9

C8. Thank you for your permission. In order to locate your business's usage and billing information with DABS, we will write down the meter number and customer number from your bill.

a. Meter number:

b. Customer number:

_____

98. Refused (vol)
99. Don't know (vol)

C9. Consider the last few weeks of the clinic's use of DABS electricity service. On a typical work day, about how many hours of DABS electricity service is available?

Hours:

_____

98. Refused (vol)

99. Don't know (vol)

C10. Overall, how satisfied are you with the DABS electricity service?

1. Not at all satisfied
2. A little satisfied
3. Somewhat satisfied
4. Very satisfied

_____

98. Refused (vol)

99. Don't know (vol)

C11. [only ask if in C1 code of 2, 98 and 99 is selected] Why is your clinic not connected to the DABS electricity service? I will read you some possible reasons. Please select which reasons apply to your business, and also please explain any other reasons that I don't mention.

C11 –	Other electricity service	Yes	No	Refused (vol)	Don't know (vol)
1	The cost of connection is too high	1	2	98	99
2	The process of getting a connection is too difficult	1	2	98	99
3	The cost of electricity service is too high	1	2	98	99
4	I am satisfied with the other sources of electricity	1	2	98	99
5	Other reason (specify):	1	2	98	99
6	Other reason (specify):	1	2	98	99

_____

98. Refused (vol)

99. Don't know (vol)

OTHER SOURCES OF ELECTRICITY

C12. [Ask all] Now I will read to you a list of different sources of electricity. As I read each one, please tell me if your clinic uses that source of electricity or not. Does your clinic use [ITEM]?

C12 –	Other electricity service	Yes	No	Refused (vol)	Don't know (vol)
1	Private company	1	2	98	99
2	Own generator	1	2	98	99
3	Community generator	1	2	98	99
4	Solar panels	1	2	98	99
5	Battery	1	2	98	99
6	Wind	1	2	98	99
7	Hydro-electric	1	2	98	99
8	Neighbor	1	2	98	99
9	Other source (specify):	1	2	98	99
10	Other source (specify):	1	2	98	99

C13. [only ask if C12 is more than 2 response] Of the sources of electricity you have mentioned, could you identify the two most important sources of electricity for the clinic?

C13 _	Other electricity service
1	DABS
2	Private company
3	Own generator
4	Community generator
5	Solar panels
6	Battery
7	Wind
8	Hydro-electric
9	Neighbor
10	Other:
11	Other:

a. First electricity source:

b. Second electricity source:

_____

98. Refused (vol)

99. Don't know (vol)

C14. Consider the last few weeks of the clinic's use of all other (non-DABS) sources of electricity. On a typical work day, about how many hours of other electricity sources does the clinic use?

[Enumerator: only complete for sources selected in C12.]

Source	Hours (work week)	Not asked	Refused (vol)	Don't know (vol)
Other private grid		97	98	99
Own generator		97	98	99
Community generator		97	98	99
Solar panels		97	98	99
Battery		97	98	99
Wind		97	98	99
Hydro-electric		97	98	99
Other:		97	98	99

C15. [Only ask if the response for C12_2 is "Yes"] What are the costs associated with the clinic's use of its own generator?

	C15a Generator purchase cost (Afghanis)	C15b Generator rental cost (Afghanis)	C15c Generator age (years)	C15d Fuel cost, Winter (monthly Af)	C15e Fuel cost, Spring (monthly Af)	C15f Fuel cost, Summer (monthly Af)	C15g Fuel cost, Autumn (monthly Af)
1							
2							
3							

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

C16. [Only ask if the response for C12_3 is "Yes"] What are the costs associated with the clinic's use of the community generator?

	C16a Cost item	C16b Cost, Winter (monthly Afghanis)	C16c Cost, Spring (monthly Afghanis)	C16d Cost, Summer (monthly Afghanis)	C16e Cost, Autumn (monthly Afghanis)
1					
2					
3					

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

C17. [Only ask if the response for C12_4 is "Yes"] What are the costs associated with the clinic's use of solar panels?

	C17a Number of solar panels	C17b Solar panel purchase cost (Afghanis)	C17c Solar panel rental cost (monthly Afghanis)	C17d Solar panel age (years)	C17e Solar panel maintenance cost (annual Af)	C17f Solar panel replacement cost (annual Af)
1						
2						
3						

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

C18. [Only ask if the response for C12_5 is "Yes"] What are the costs associated with the clinic's use of batteries?

	C18a Number of batteries	C18b Battery purchase cost (Afghanis)	C18c Battery rental cost (monthly Afghanis)	C18d Battery age (years)	C18e Battery maintenance cost (annual Af)	C18f Battery replacement cost (annual Af)
1						
2						
3						

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

C19. [Only ask if the response for C12_6 is "Yes"] What are the costs associated with the clinic's use of wind-powered electricity?

	C19a Cost item	C19b Cost, Winter (monthly Afghanis)	C19c Cost, Spring (monthly Afghanis)	C19d Cost, Summer (monthly Afghanis)	C19e Cost, Autumn (monthly Afghanis)
1					
2					
3					

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

C20. [Only ask if the response for C12_7 is "Yes"] What are the costs associated with the clinic's use of hydro-electric electricity?

	C20a Cost item	C20b Cost, Winter (monthly Afghanis)	C20c Cost, Spring (monthly Afghanis)	C20d Cost, Summer (monthly Afghanis)	C20e Cost, Autumn (monthly Afghanis)
1					
2					
3					

_____

97. Not asked

98. Refused (vol)

99. Don't know (vol)

C21. Overall, how satisfied are you with each clinic's source of non-DABS electricity?

		Not at all satisfied	A little satisfied	Somewhat satisfied	Very satisfied	Not asked	Refused (vol)	Don't know (vol)
a.	Other private grid	1	2	3	4	97	98	99
b.	Own generator	1	2	3	4	97	98	99
c.	Community generator	1	2	3	4	97	98	99
d.	Solar panels	1	2	3	4	97	98	99
e.	Battery	1	2	3	4	97	98	99
f.	Wind	1	2	3	4	97	98	99
g.	Hydro-electric	1	2	3	4	97	98	99
h.	Other:	1	2	3	4	97	98	99

C22. In the past month, how often have you had problems running the equipment required for your clinic due to limited or unstable electrical supply?

1. Never → 24
2. Once or twice in the last month
3. 3-7 times in the last month
4. At least 8 times in the last month

_____

98. Refused (vol) → 24

99. Don't know (vol) → 24

C23. Is there a service you wish your clinic could provide but cannot due to limited or unstable provision of electricity?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

C24. In the past year, have you experienced damage to equipment due to unstable voltage?

1. Yes
2. No → D1

_____

98. Refused (vol) → D1

99. Don't know (vol) → D1

C25. Can you estimate the costs to repair or replace the damaged equipment?

Afghanis:

_____

-98. Refused (vol)

-99. Don't know (vol)

D. ENVIRONMENT AND SANITATION

D1. What does the clinic use for heat during winter? Does the clinic use [item]?

D1_	Source of heat	Yes	No	Refused (vol)	Don't know (vol)
1	Firewood	1	2	98	99
2	Animal dung	1	2	98	99
3	Crop residue	1	2	98	99
4	Trash	1	2	98	99
5	Charcoal / coal	1	2	98	99
6	Kerosene / oil	1	2	98	99
7	Gas	1	2	98	99
8	Electricity	1	2	98	99
9	Other source (specify):	1	2	98	99
10	Other source (specify):	1	2	98	99

D2. [Only ask if D1 is more than 2 response] Of the sources of heat you have mentioned, could you identify the two sources of heat the clinic uses the most often?

	Source of heat
1	Firewood
2	Animal dung
3	Crop residue
4	Trash
5	Charcoal / coal
6	Kerosene / oil
7	Gas
8	Electricity
9	Other source (specify):
10	Other source (specify):

a. First source of heat:

b. Second source of heat:

_____

98. Refused (vol)

99. Don't know (vol)

D3. About how many times did the clinic use a generator for in the last week?

1. Never
2. 1-2 times
3. 3-4 times
4. 5-7 times
5. At least 8 times

_____

98. Refused (vol)

99. Don't know (vol)

D4. What were the total expenses of this clinic last month?

Afghanis:

_____

98. Declined (vol)

99. Don't know (vol)

D5. How much did the clinic receive in user fees last month?

Afghanis:

_____

98. Declined (vol)

99. Don't know (vol)

D6. Does this clinic use electric lighting?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

D7. Does the clinic have an internet connection?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

F. GOVERNANCE AND SECURITY

F1. At any time in the last 12 months, has the clinic ever had to close because of insecurity?

1. No
2. Yes, once
3. Yes, for a day in total
4. Yes, for more than a day and less than a week
5. Yes, more than a week, less than a month
6. Yes, for more than a month

_____

98. Refused (vol)
99. Don't know (vol)

F2. At any time in the last 12 months, has this clinic ever been targeted by thieves, vandals or arsonists?

1. No
2. Yes, once
3. Yes, more than once

_____

98. Refused (vol)
99. Don't know (vol)

F3. What are the biggest obstacles for the successful operation of the clinic? I will read a list of topics. For each topic, please report whether it is not an obstacle, a small obstacle, a moderate obstacle, or a big obstacle.

		Not an obstacle	Small obstacle	Moderate obstacle	Big obstacle	Refused (vol)	Don't know (vol)
a.	Security	1	2	3	4	98	99
b.	Crime / violence	1	2	3	4	98	99
c.	Political instability	1	2	3	4	98	99
d.	Corruption	1	2	3	4	98	99
e.	Water service	1	2	3	4	98	99
f.	Electricity service	1	2	3	4	98	99
g.	Land issues	1	2	3	4	98	99
h.	Government regulations / bureaucracy	1	2	3	4	98	99
i.	Provision of equipment / supplies	1	2	3	4	98	99
j.	Other:	1	2	3	4	98	99

That completes the main part of the survey. These last questions are just for statistical purposes so that we can be sure we are speaking to a wide range of people.

D-7. Respondent Gender: (Don't read)

1. **Male**
2. **Female**

D- 8. How old are you? (Record actual age; if respondent doesn't know or refuses, please estimate)

Write Response: ___ ___

D-9. What is the highest level (grade) of school you have completed, not including schooling in Islamic madrasa? (calculate the highest level into years)

(INTERVIEWER: If none, write down zero)

_____ (write down number of years)

97. Informal schooling at home or at a literacy class

98. Refused

99. Don't know

RECORD THE TIME (USING 24 HOUR CLOCK) INTERVIEW WAS COMPLETED AND THE LENGTH OF THE INTERVIEW

(M-16 AND M-17)

Read Closing Statement to the Respondent:

"Thank you for participating in our survey. Do you have any questions? In the next few days my supervisor may contact you to evaluate the quality of my work and answer any other questions you may have. To help him do that, could I have your name and address?"

Respondent Information: Name: _____

Address: _____

Phone number:_____

Interviewer Certification: "I certify that I have completed this interview according to the instructions provided me by the Afghan Center for Socio-economic and Opinion Research."

_____ _____

Signed Date

D10. Thank you so much for participating in this study. We will be conducting follow up interviews and we would like to contact you again for a follow up interview. Do we have your permission to contact you again for the follow up survey?

1. Yes **(CONFIRM CONTACT INFORMATION; COLLECT OTHER CONTACT NUMBERS)**
2. No

D-11. (Interviewer code): Record number of people present for the interview (excluding the interviewer). Please record the number of people present from each of the three generational categories listed below. If nobody was present from a particular category, enter "0."

a) Junior (children, young people) _____ _____

b) Adults (peers, friends) _____ _____

c) Elders _____ _____

D-12. (Interviewer code): Which of the following statements do you think best describes the level of comprehension of the survey questionnaire by the respondent?

1.The respondent understood all of the questions
2.The respondent understood most of the questions
3.The respondent understood most of the questions but with some help.
4.The respondent had difficulty understanding most of the questions, even with help from me

D-13. (Interviewer code): Which of the following statements best describes the level of comfort or unease that the respondent had with the survey questionnaire?

1.The respondent was comfortable (at ease) with the entire questionnaire
2.The respondent was comfortable with most of the questions
3.The respondent was comfortable with only some of the questions
4.The respondent was generally uncomfortable with the survey questionnaire

<u>To Be Completed By The Supervisor:</u>

D-14. Was the interview subject to quality control/back-check?

1. Yes

2. No

D-15. Method of quality control/back-check

1. Direct supervision during interview
2. Back-check in person by supervisor
3. Back-check from the central office
4. Quality controlled by non-ACSOR monitoring team
5. Not applicable

D-16. Back Checker ID: ____ ____ ____ ____

9996: NA

E. ELECTRICITY ACCESS BASELINE - SCHOOLS SURVEY

CONTENTS

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A. SURVEY MANAGEMENT

Survey Management Information

M-1. School Identification Number [Idno]

M-5. Sampling Point/District Where the
Interview Was Completed: ___ ___ ___ [sampt]

M-6b. CSO Geographic Code
1. Rural **2.** Urban

M-7. Province[province]

1. Kabul	9. Khost	17. Kunduz	25. Farah
2. Kapisa	10. Ningarhar	18. Balkh	26. Nimroz
3. Parwan	11. Laghman	19. Samangan	27. Helmand
4. Wardak	12. Kunar	20. Juzjan	28. Kandhar
5. Logar	13. Nooristan	21. Sar-I-Pul	29. Zabul
6. Ghazni	14. Badakhshan	22. Faryab	30. Uruzgan
7. Paktia	15. Takhar	23. Badghis	31. Ghor
8. Paktika	16. Baghlan	24. Herat	32. Bamyan
			33. Panjshir
			34. Dehkondi

M-8. Year of Interview: 2019[year]

M-9. Month of Interview [month]

1. January	4. April 7. July	10. October	
2. February	5. May	8. August	11. November
3. March	6. June	9. September	12. December

M-10. Date of Interview: __ __ [date]

M-11. Day of Week of Interview (24) [day]

1. Friday
2. Saturday
3. Sunday
4. Monday
5. Tuesday
6. Wednesday
7. Thursday

M-12. Interviewer Code: __ __ __ __ __ __ [intcode]

M-13. Interview Completed on the … [intcomp1]

1. First Contact
2. Second Contact
3. Third Contact

M-14. Supervisor Code: ___ ___ ___ [supcode]

M-15. Record Time (using 24 hour clock) Interview Began: __ __: __ __ [intbegin]

(Record Time Began Starting With W-1)

M-16. Record Time (using 24 hour clock) Interview Ended: __ __:__ __ [intend]

(Fill in all four data positions)

M-17. Record Length of Interview in Minutes: ___ ___ [length]

M-18. Date Formatted Field: OCT2019[MOYR]

M-19. Keypuncher Code __ __ [Keypunch]

M-20. Language of Interview [lang]

1. Pashto
2. Dari
3. Other

M-21. Coder Code __ __

M-22. Language of the questionnaire[langQQ]

1. Pashto
2. Dari

[INTERVIEWER PLEASE FILL OUT QUESTION M23-M24 ABOUT THE SCHOOL BUILDING]

M-23. Is the school mostly made of the following materials?

1. Concrete
2. Wood
3. Mud
4. Other

M-24. Does the school building have shade?

1. Yes
2. No

My name is [STATE NAME]. I work for [ACSOR…]. We are conducting a survey to understand the relationship between access to on-grid electricity on the economy and community well-being. Our study is gathering information from schools, clinics, businesses and households. Your school was selected because it is located within 20 kilometers of a new substation. Our study will visit all the schools within this radius to participate in our study. With permission of the Ministry of Education, we are reaching out to all the schools in that area, including yours.

Would you be willing to participate in this survey? This is a completely volunteer activity. The survey has various questions about your school characteristics, energy needs, sources of power, and other questions related to school activities.

As a participant in this survey, you have the right to stop at any time, decline to answer any of the questions, and the information you provide will kept confidential. The interview will last approximately 20 minutes. We will not use your name in any of the reports or share it with any other groups.

1. Do we have your consent to conduct the survey?
   - ☐ YES
   - ☐ NO

2. Respondent info:
   a. School name:
   b. Respondent name:
   c. Respondent position:

A. SCHOOL CHARACTERISTICS

A1. What grades does the school include? Does the school include [item]?

A1_	Grade level (grades)	Yes	No	Refused (vol)	Don't know (vol)
1	Primary school (1-6)	1	2	98	99
2	Secondary school (7-9)	1	2	98	99
3	Higher secondary school (10-12)	1	2	98	99
4	Madrassa (1-14)	1	2	98	99
5	Darul Uloom	1	2	98	99
6	Darul Hifaz	1	2	98	99
7	Vocational education (10-12)	1	2	98	99
8	Vocational education (13-14)	1	2	98	99
9	Other source (specify):	1	2	98	99
10	Other source (specify):	1	2	98	99

A2. What year was the school built? [Persian calendar YEAR-MON]

A2a Year:

A2b Month:

_____

98. Refused (vol)

99. Don't know (vol)

A3. In which shifts does your school operate? Does your school operate in the [item] shift?

A3_	School shift	Yes	No	Refused (vol)	Don't know (vol)
1	Morning	1	2	98	99
2	Afternoon	1	2	98	99
3	Evening	1	2	98	99
4	Other source (specify):	1	2	98	99

A4. How many classrooms does the school have?

Classrooms:

_____

98. Refused (vol)

99. Don't know (vol)

A5. How many students are enrolled in the school? Please try to answer by number of boys and number of girls.

A5a. Boys:

A5b. Girls:

_____

98. Refused (vol)

99. Don't know (vol)

A6. To the best of your knowledge, what is the most typical number of students per class?

Students per class:

_____

98. Refused (vol)

99. Don't know (vol)

A7. What is your biggest electrical need? [one respond]

1. Lighting the school
2. For computers/copy machines/refrigeration
3. For TV/radio
4. Other (specify):

_____

98. Refused (vol)
99. Don't know (vol)

B. ELECTRICITY

STATE PROVIDED ELECTRICITY (DABS)

B1. Is the school connected to the DABS electricity service?

1. Yes
2. No → B11

_____

98. Refused (vol) → B11

99. Don't know (vol) → B11

B2. To the best of your memory, in what year and month did the school **receive** a connection to the DABS electricity service?

[Enumerator: if respondent has difficulty with recall, approximate month is acceptable]

a. Year:
b. Month:

_____

98. Refused (vol)

99. Don't know (vol)

B3. To the best of your memory, about how many days did it take between the time the school **applied** for a connection to the DABS electricity service and when the school **received** a connection to the DABS electricity service?

Days:

_____

98. Refused (vol)

99. Don't know (vol)

B4. How much did it cost to connect to the DABS electricity service?

Afghanis:

_____

98. Refused (vol)

99. Don't know (vol)

B5. How much was your most recent DABS electricity bill?

Afghanis:

_____

96. Not applicable (vol)
98. Refused (vol)
99. Don't know (vol)

B6. For documentation purposes, may we see your most recent DABS billing statement?

1. Yes
2. No → B9
3. Unavailable → B9

_____

98. Refused (vol) → B9

99. Don't know (vol) → B9

[Enumerator: take picture of DABS billing statement. If the shown statement is the most recent statement, confirm that reported amount is same as what is on bill]

B7. With your permission, we'd like to look at the school's usage and billing data by consulting DABS records. We will not share this information with anyone but use it only for purposes of statistical analysis.

Do you permit us to check the school's usage and billing history with DABS?

1. Yes
2. No → B9

_____

98. Refused (vol) → B9

99. Don't know (vol) → B9

B8. Thank you for your permission. In order to locate the school's usage and billing information with DABS, we will write down the meter number and customer number from your bill.

a. Meter number:
b. Customer number:

_____

98. Refused (vol)
99. Don't know (vol)

B9. Consider the last few weeks of the school's use of DABS electricity service. On a typical school day, about how many hours of DABS electricity service is available?

Hours:

_____

98. Refused (vol)

99. Don't know (vol)

B10. Overall, how satisfied are you with the DABS electricity service?

1. Not at all satisfied
2. A little satisfied
3. Somewhat satisfied
4. Very satisfied

_____

98. Refused (vol)

99. Don't know (vol)

B11. [only ask if B2 is code 2, 98 or 99] Why is the school not connected to the DABS electricity service? I will read you some possible reasons. Please select which reasons apply to the school, and also please explain any other reasons that I don't mention.

B11_	Other electricity service	Yes	No	Not asked	Refused (vol)	Don't know (vol)
1	The cost of connection is too high	1	2	97	98	99
2	The process of getting a connection is too difficult	1	2	97	98	99
3	The cost of electricity service is too high	1	2	97	98	99
4	I am satisfied with the other sources of electricity	1	2	97	98	99
5	This is a rental property and the landlord has not connected	1	2	97	98	99
6	Other reason (specify):	1	2	97	98	99
7	Other reason (specify):	1	2	97	98	99

OTHER SOURCES OF ELECTRICITY

B12. [Ask all] Now I will read to you a list of different sources of electricity. As I read each one, please tell me if the school uses that sources of electricity or not. Does the school use [ITEM]?

B12 –	Other electricity service	Yes	No	Refused (vol)	Don't know (vol)
1	Private company	1	2	98	99
2	Own generator	1	2	98	99
3	Community generator	1	2	98	99
4	Solar panels	1	2	98	99
5	Battery	1	2	98	99
6	Wind	1	2	98	99
7	Hydro-electric	1	2	98	99
8	Neighbor	1	2	98	99
9	Other source (specify):	1	2	98	99
10	Other source (specify):	1	2	98	99

B13. [only ask if B13 have more than 2 response] Of the sources of electricity, you have mentioned, could you identify the two most important sources of electricity for the school?

B13 _	Other electricity service
1	DABS
2	Private company
3	Own generator
4	Community generator
5	Solar panels
6	Battery
7	Wind
8	Hydro-electric
9	Neighbor
10	Other:
11	Other:

a. First electricity source:

b. Second electricity source:

_____

98. Refused (vol)

99. Don't know (vol)

B14. Consider the last few weeks of the school's use of all other (non-DABS) sources of electricity. On a typical school day, about how many hours of other electricity sources does the school use?

[Enumerator: only complete for sources selected in B14]

Source	Hours (work week)	Not asked	Refused (vol)	Don't know (vol)
Other private grid		97	98	99
Own generator		97	98	99
Community generator		97	98	99
Solar panels		97	98	99
Battery		97	98	99
Wind		97	98	99
Hydro-electric		97	98	99
Other:		97	98	99

C. SCHOOL ASSETS AND NEEDS

C1. I will read you a list of items. For each item, please report how many the business owns, or which you personally own but use for business purposes. Please also identify any other devices the business uses that requires electricity, which we did not ask about.

C1_	Item	Quantity owned
1	Radio	
2	Mobile phone	
3	Television (B&W)	
4	Television (Color)	
5	Computer (administration use)	
6	Computer (student use)	
7	Electric fan	
8	Printer	
9	Electric-powered science equipment	
10	Refrigerator	
11 A	Air conditioning units	
12	Projector	
13	Other (specify):	
14	Other (specify):	
15	Other (specify):	
16	Other (specify):	
17	Other (specify):	

C2. In the last year, has any electrical equipment at the school been damaged due to unstable voltage/power surges?

1. No
2. Yes, minor damage
3. Yes, major damage

_____

98. Refused (vol)
99. Don't know (vol)

C3. In the last month, has the school had problems running any equipment due to limited or unstable electrical supply?

1. Never
2. Once a week or less
3. 2-3 times a week
4. 4-6 times a week
5. At least once a day

_____

98. Refused (vol)
99. Don't know (vol)

C4. Does this school use electric lighting?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

C5. Does the school have an internet connection?

1. Yes
2. No

_____

98. Refused (vol)

99. Don't know (vol)

E. ENVIRONMENT & SANITATION

E1. What does the school use to heat the school during winter? Does the school use [item]?

E1_	Source of heat	Yes	No	Refused (vol)	Don't know (vol)
1	Firewood	1	2	98	99
2	Animal dung	1	2	98	99
3	Crop residue	1	2	98	99
4	Trash	1	2	98	99
5	Charcoal / coal	1	2	98	99
6	Kerosene / oil	1	2	98	99
7	Gas	1	2	98	99
8	Electricity	1	2	98	99
9	Other source (specify):	1	2	98	99
10	Other source (specify):	1	2	98	99

E2. [only ask if E1 is more than two response] Of the sources of heat you have mentioned, could you identify the two sources of heat the school uses the most often?

	Source of heat
1	Firewood
2	Animal dung
3	Crop residue
4	Trash
5	Charcoal / coal
6	Kerosene / oil
7	Gas
8	Electricity
9	Other source (specify):
10	Other source (specify):

a. First source of heat:

b. Second source of heat:

E3. About how many times did the school use a generator for power in the last week?

1. Never
2. 1-2 times
3. 3-4 times
4. 5-7 times
5. At least 8 times

_____

98. Refused (vol)

99. Don't know (vol)

F. GOVERNANCE AND SECURITY

F4. At any time in the last 12 months, has the school ever had to close because of insecurity?

1. No
2. Yes, once
3. Yes, for a day in total
4. Yes, for more than a day and less than a week
5. Yes, more than a week, less than a month
6. Yes, for more than a month

_____
98. Refused (vol)
99. Don't know (vol)

F5. At any time in the last 12 months, has this school ever been targeted by thieves, vandals or arsonists?

1. No
2. Yes, once
3. Yes, more than once

_____
98. Refused (vol)
99. Don't know (vol)

F6. How big an obstacle is crime and disorder to the current operations of this school?

1. No obstacle
2. Minor obstacle
3. Moderate obstacle
4. Major obstacle

_____
98. Refused (vol)
99. Don't know (vol)

F7. What are the biggest obstacles to the successful operation of the school? I will read a list of topics. For each topic, please report whether it is not an obstacle, a small obstacle, a moderate obstacle, or a big obstacle.

		Not an obstacle	Small obstacle	Moderate obstacle	Big obstacle	Refused (vol)	Don't know (vol)
a.	Security	1	2	3	4	98	99
b.	Crime / violence	1	2	3	4	98	99
c.	Political instability	1	2	3	4	98	99
d.	Corruption	1	2	3	4	98	99
e.	Water service	1	2	3	4	98	99
f.	Electricity service	1	2	3	4	98	99
g.	Land issues	1	2	3	4	98	99
h.	Government regulations / bureaucracy	1	2	3	4	98	99
i.	Other:	1	2	3	4	98	99

That completes the main part of the survey. These last questions are just for statistical purposes so that we can be sure we are speaking to a wide range of people.

D-7. Respondent gender: (don't read)

1- Male
2- Female

D-8.How old are you? (Record actual age; if respondent doesn't know or refuses, please estimate)

Write Response: ___ ___

D-9. What is the highest level (grade) of school you have completed, not including schooling in Islamic madrasa? (calculate the highest level into years)

(INTERVIEWER: If none, write down zero)

_____ (write down number of years)

97. Informal schooling at home or at a literacy class

98. Refused

99. Don't know

RECORD THE TIME (USING 24 HOUR CLOCK) INTERVIEW WAS COMPLETED AND THE LENGTH OF THE INTERVIEW

(M-16 AND M-17)

Read Closing Statement to the Respondent:

"Thank you for participating in our survey. Do you have any questions? In the next few days my supervisor may contact you to evaluate the quality of my work and answer any other questions you may have. To help him do that, could I have your name and address?"

Respondent Information: Name: _____

Address: _____

Phone number: _____

Interviewer Certification: "I certify that I have completed this interview according to the instructions provided me by the Afghan Center for Socio-economic and Opinion Research."

_____ _____

Signed Date

D10. Thank you so much for participating in this study. We will be conducting follow up interviews and we would like to contact you again for a follow up interview. Do we have your permission to contact you again for the follow up survey?

1. Yes **(CONFIRM CONTACT INFORMATION; COLLECT OTHER CONTACT NUMBERS)**
2. No

D-11. (Interviewer code): Record number of people present for the interview (excluding the interviewer). Please record the number of people present from each of the three generational categories listed below. If nobody was present from a particular category, enter "0."

a) Junior (children, young people) ____ ____

b) Adults (peers, friends) ____ ____

c) Elders ____ ____

D-12. (Interviewer code): Which of the following statements do you think best describes the level of comprehension of the survey questionnaire by the respondent?

1.The respondent understood all of the questions
2.The respondent understood most of the questions
3.The respondent understood most of the questions but with some help.
4.The respondent had difficulty understanding most of the questions, even with help from me

D-13. (Interviewer code): Which of the following statements best describes the level of comfort or unease that the respondent had with the survey questionnaire?

1. The respondent was comfortable (at ease) with the entire questionnaire
2. The respondent was comfortable with most of the questions
3. The respondent was comfortable with only some of the questions
4. The respondent was generally uncomfortable with the survey questionnaire

<u>To Be Completed By The Supervisor:</u>

D-14. Was the interview subject to quality control/back-check?

1. Yes
2. No

D-15. Method of quality control/back-check

1. Direct supervision during interview
2. Back-check in person by supervisor
3. Back-check from the central office
4. Quality controlled by non-ACSOR monitoring team
5. Not applicable

D-16. Back Checker ID: ____ ____ ____ ____

9996: NA

II. QUALITATIVE TOOLS:

A. KEY INFORMANT INTERVIEW GUIDES

INTERVIEW GUIDE FOR BUSINESSES

A. INTRODUCTION AND REQUEST FOR CONSENT

KII(BS) 1. Date:
KII(BS) 2. Name of interviewer:
KII(BS) 3. Name of note taker (if the interview is not recorded):
KII(BS) 4. Name of province:
KII(BS) 5. Name of district:
KII(BS) 6. Name of village (or town and neighborhood):
KII(BS) 7. GIS coordinates:
KII(BS) 8. Start time of interview:
KII(BS) 9. End time of interview:

My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION]. We are conducting a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts the area surrounding the substation. I would like to ask you a few questions about the current status on the substation and distribution network. You are free to skip any question that you do not want to answer. We can mark anything (or everything) you say as anonymous, so they will not be attributed in the final report. The interview will last about 60 minutes.

KII(DED) 10. Do you agree to be interviewed for this purpose?

1. Yes
2. No

KII(DED) 11. Would you like your comments to be anonymous?

1. Yes
2. No
3. Only parts as marked

KII(DED) 12. Do you give permission to audio record this interview?

1. Yes
2. No (If no, the responses will be recorded by the notetaker)

B. CONTACT INFORMATION

KII(DED) 13. Name:

KII(DED) 14. Position:

KII(BS) 15. Business Type:

KII(BS) 16. Is this person the owner of the business?

KII(BS) 17. How many employees does this business have?

KII(BS) 18. What year did this business start?

KII(BS) 19. Name of substation/province:

KII(BS) 20. District:

KII(BS) 21. Contact phone #:

KII(BS) 22. Contact email:

C. STATUS & QUALITY OF ELECTRICITY RECEIVED

KII(BS) 23. What is the main source of electricity for your business at present?

a. Why do you use this source?
b. Are you satisfied with it? Why or why not?
c. Do you have a back-up source of electricity? Why or why not?
d. If you don't use electricity from DABS (on-grid electricity), why not?

KII(BS) 24. If you are using on-grid electricity, can you share your experience of getting a new connection?

a. Was it easy or difficult to get a new connection?
b. What are the main issues that you came across in getting connected?
c. Was getting connected affordable for your business?
d. Was the process of getting connected fair and transparent?

KII(BS) 25. How important is electricity for your business?

a. Does the quality/strength of electricity affect your business? How?
b. Does the reliability of electricity affect your business? How?
c. Does the strength or reliability of electricity vary by season, day, or time of day? If yes, please explain. How does this affect your business?

KII(BS) 26. What affect does DABS electricity have on your ability to use electrical equipment for your business? (*Prompt which equipment i.e fridges, electric drills, computers etc.)*

KII(BS) 27. How cost effective is your current source of electricity for your business?

D. ECONOMY

KII(BS) 28. Has the availability of electricity had any effect on your business? (*Prompt employed more people, increased your income, decreased your costs)*

KII(BS) 29. Do you think electricity has had any negative effects on businesses? Please explain.

E. COMMUNICATIONS AND INFORMATION

KII(BS) 30. Do you use a mobile phone for your business?

a. How important is this for your business? Please explain.

KII(BS) 31. Do you use the internet for your business?

a. How important is this for your business? Please explain.

F. ENVIRONMENT

KII(BS) 32. Does availability of electricity affect the working conditions at your business? (i.e. heating, cooling, noise, air quality, etc.)

KII(BS) 33. What are the effects of your current source of electricity on your working conditions?

KII(BS) 34. Are there any health hazards related to using your current source of electricity?

G. PUBLIC ELECTRICITY SERVICES, GOVERNANCE AND SECURITY

KII(BS) 35. Do you think the availability of electricity has had any impact, whether negative or positive, on public perceptions of government? *(Please explain)*

KII(BS) 36. Do you think the availability of electricity has had any influence, whether negative or positive, on overall levels of security? (*Please explain)*

KII(BS) 37. Are you aware of anyone deliberately damaging or destroying electricity infrastructure in this district? (*If so, please describe)*

KII(BS) 38. Are you aware of any incidents in which the public has prevented people damaging or destroying electricity infrastructure, or otherwise protected electricity infrastructure in this district? (*If so, please describe)*

KII(BS) 39. Any other comments?

The End

EASEBS INTERVIEW GUIDE FOR COMMUNITY LEADERS

A. INTRODUCTION AND REQUEST FOR CONSENT

KII(CL) 1. Date:
KII(CL) 2. Name of interviewer:
KII(CL) 3. Name of note taker (if the interview is not recorded):
KII(CL) 4. Name of province:
KII(CL) 5. Name of district:
KII(CL) 6. Name of village (or town and neighborhood):
KII(CL) 7. GIS coordinates:
KII(CL) 8. Start time of interview:
KII(CL) 9. End time of interview:

My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION]. We are conducting a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts the area surrounding the substation. I would like to ask you a few questions about the current status on the substation and distribution network. You are free to skip any question that you do not want to answer. We can mark anything (or everything) you say as anonymous, so they will not be attributed in the final report. The interview will last about 60 minutes.

KII(CL) 10. Do you agree to be interviewed for this purpose?

1. Yes
2. No

KII(CL) 11. Would you like your comments to be anonymous?

1. Yes
2. No
3. Only parts as marked

KII(CL) 12. Do you give permission to audio record this interview?

1. Yes
2. No

B. CONTACT INFORMATION

KII(CL) 13. Name:
KII(CL) 14. Position:
KII(CL) 15. Department:
KII(CL) 16. Name of substation/province:
KII(CL) 17. District:
KII(CL) 18. Contact phone #:
KII(CL) 19. Contact email:

A. AVAILABILITY AND QUALITY OF ELECTRICITY

KII(CL) 20. Are people in this community using electricity from DABS? Why or why not?

KII(CL) 21. What is the process for households to connect to DABS electricity? What are the steps involved and what are the obstacles?

KII(CL) 22. When did your village receive a central connection? (Month and year)

KII(CL) 23. For people who are using DABS, how often is the electricity available?

KII(CL) 24. Does the availability of DABS electricity change over the seasons? Please explain.

KII(CL) 25. Are there times during the week where you have to use other sources of electricity because the DABS electricity is not working? If yes, how often does this happen and what other source do you use?

KII(CL) 26. What do people in the community use electricity for? (Lights, cooking, cleaning, TV, internet, homework etc.)

KII(CL) 27. Can you give me a specific example of difficulties/ issues you have faced with DABS in the last one year?

KII(CL) 28. Are people using electricity from other (non-DABS) sources? If so, what are these sources? Why are people using these?

KII(CL) 29. Is DABS electricity available meeting your community's needs? Why or why not?

KIII(CL) 30. Is there a contact person in DABS that you can speak to who can provide you with information if you have a problem with your electricity connection? If yes, please explain the process

KII(CL) 31. Is the way that DABS has distributed electricity in your area fair and transparent?

KII(CL) 32. Are people in your community happy with DABS? Why or why not?

KII(CL) 33. What do you know about the way DABS consulted with the community about where to put in poles and towers? Do you think this was a good process? Why or why not?

KII(CL) 34. What do you know about the way DABS compensated landowners when they used their land for infrastructure? Has this resulted in any conflict? If so, could such conflict have been avoided?

B. ECONOMIC STRUCTURE/EMPLOYMENT

KII(CL) 35. What effect does the current situation with electricity have on rearing livestock/poultry in your community?

KII(CL) 36. How does the current situation with electricity affect irrigation of agricultural lands in your community?

KII(CL) 37. Is there any cold storage that requires electricity in your area? Can you tell me if it works well? Who uses it?

KII(CL) 38. Has the number of jobs available changed in the last few years? If yes, why? Did the situation with electricity have any effect on this? How?

KII(CL) 39. Has electricity had any other effects on the economy in your community? Please explain.

C. EDUCATION

KII(CL) 40. How would you describe the schools in your community?

a. Are there enough schools for all the boys and girls of school-going age?
b. How is the quality of education?
c. Do all school age boys and girls attend school in your community? If not, why not?

KII(CL) 41. Has the current situation with electricity had any effect on school enrollment and attendance rates?

a. For boys? For girls?

KII(CL) 42. Does availability of electricity have any other effect on education in this community? Please explain.

D. HEALTH

KII(CL) 43. How would you describe the health services in your community?

a. Are there enough clinics and health posts in your community?
b. How is the quality of health care?
c. Are there enough drugs available in the clinics and health posts?

KII(CL) 44. Has the situation with electricity had any effect on the availability and quality of health services in your area? (*Prompt this might include new services, less distance to travel to services, longer hours of availability, availability of onsite diagnostic testing etc.)* Please explain.

KII(CL) 45. Does availability of electricity have any other effects on health in this community? Please explain?

D. GOVERNANCE AND SECURITY

KII(CL) 46. How is security in your community? Please explain.

KII(CL) 47. Would you say that security in your community is getting better or getting worse? What is causing these changes?

KII(CL) 48. Do you think that having electricity makes you feel safer? Please explain

KII(CL) 49. Have there been any incidents of damage or destruction of public infrastructure in this community?

a. What happened?
b. Why did it happen?
c. Can anything be done to prevent this in the future? How? By whom?

KII(CL) 50. What role do you think the community should take in protecting public infrastructure, including the electricity lines?

a. Is your community currently doing this? Why or why not?
b. Can you give me an example of when the community has done this?

E. ENVIRONMENT

KII(CL) 51. Do you think that the air you breath in your community is clean? (*Prompt indoor and outdoor)*

a. Are there ever times when it is not clean?
b. Are there ever times when people have problems breathing?

KII(CL) 52. Do people in your area use diesel generators? Has there been any change in how many people are using diesel generators?

a. If yes, are they using them more or less?
b. Over what time period?

F. GENERAL

KII(CL) 53. In what ways does have access to on grid electricity make your life better? Please give specific examples

KII(CL) 54. Are there any negative impacts of having on grid electricity? Please give specific examples

KII(CL) 55. Are you ever worried that having access to other technologies (for example the TV, computer, internet, mobile) may have harmful consequences for your community?

KII(CL) 56. Is there any other way that electricity has affected the lives of people in this community?

The End

EASE-BS INTERVIEW GUIDE FOR DABS

A. INTRODUCTION AND REQUEST FOR CONSENT

KII(DABS) 1. Date:
KII(DABS) 2. Name of interviewer:
KII(DABS) 3. Name of note taker (if the interview is not recorded):
KII(DABS) 4. Name of province:
KII(DABS) 5. Name of district:
KII(DABS) 6. Name of village (or town and neighborhood):
KII(DABS) 7. GIS coordinates:
KII(DABS) 8. Start time of interview:
KII(DABS) 9. End time of interview:

My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION]. We are conducting a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts the area surrounding the substation. I would like to ask you a few questions about the current status on the substation and distribution network. You are free to skip any question that you do not want to answer. We can mark anything (or everything) you say as anonymous, so they will not be attributed in the final report. The interview will last about 60 minutes.

KII(DABS) 10. Do you agree to be interviewed for this purpose?

1. Yes
2. No

KII(DABS) 11. Would you like your comments to be anonymous?

1. Yes
2. No
3. Only parts as marked

KII(DABS) 12. Do you give permission to audio record this interview?

1. Yes
2. No (If no, the responses will be recorded by the notetaker)

B. CONTACT INFORMATION

KII(DABS) 13. Name:
KII(DABS) 14. Position:
KII(DABS) 15. Department:
KII(DABS) 16. Name of substation/province:
KII(DABS) 17. District:
KII(DABS) 18. Contact phone #:
KII(DABS) 19. Contact email:

C. ALL QUESTIONS

KII(DABS) 20. What is the status of the distribution network for this substation [enumerator - please name the substation] related to the province?

a. When did this substation begin operations? (Prompt month/year)
b. How much electricity is distributed through this substation? (Prompt kilowatts)
c. How many household customers are connected to this substation? (# of villages and # of HHs)
d. How many business customers and industrial customers are connected to this substation?
e. How many educational institutions (schools/ universities/ technical vocational) are connected to this substation?
f. How many health centers/hospitals are connected to this substation?
g. How much area (in km) does this substation serve? (radius around substation)

D. PROJET INFO

KII(DABS) 21. What are the plans for expansion of distribution network within the next two years? What are they?

a. When do you expect the distribution network to be at full capacity?
    i. What month and year?
    ii. How many customers?
    iii. How much electricity?
    iv. Up to what radius around the substation?
    v. What barriers are you currently facing in your substation?
    vi. What are the barriers you are facing for expansion?

KII(DABS) 22. Can you describe the process DABS uses to expand the distribution infrastructure?

a. What is the process of community consultation?
b. What is the policy and process for acquiring and compensating private land?
c. How well have these processes worked?
d. Have there been any difficulties encountered? What were these? How did you overcome them?

KII(DABS) 23. What would you estimate the amount of loss/leakage of power to be on this distribution network?

a. What are the main causes?
b. Is unregulated/black market use of the power lines an issue on this distribution network? If so, how do you address this?

KII(DABS) 24. How reliable is the electricity distributed from this substation?

a. Does the reliability and quality of electricity vary across different type of customers (e.g., domestic, business, industry, government etc.)?
b. Do you have a set schedule for the distribution of electricity?
c. Does the reliability and quality vary by time of day, time of week or time of year? Please describe.
d. How do you monitor this?

KII(DABS) 25. How many staff do you have working in this project? Can you describe whether they are skilled or unskilled?

KII(DABS) 26. Do you keep data on the performance of the substation?

KII(DABS) 27. How do you track efficiency/ demand/ use in area?

E. NEW CUSTOMERS AND BILLING

KII(DABS) 28. Is DABS currently taking new customers in this area, or are you at full capacity?

a. If you are at full capacity, how quickly did this happen, from the time you last expanded capacity until the time you reached the maximum number of customers?
b. When will be the next time you will expand your capacity and be able to take new customers?
c. Is this going according to plan? Why or why not?

KII(DABS) 29. What is the process for new customers to get connected?

a. Does this vary by customer type? If so, please explain the categories of customer type, and the process for each.
b. Who pays for the transformers/cables/meters?

KII(DABS) 30. What is the cost of electricity (per kilowatt-hour) for each type of customer? Has it changed in the last one year?

a. How do you get customer feedback or monitor customer satisfaction?
b. What happens when a customer defaults on a payment? Please describe the process
c. What can you tell us about customer satisfaction (for customers receiving electricity from this substation)? What are the main concerns or complaints of customers?

F. SECURITY

KII(DABS) 31. Have there been incidents of damage to electricity infrastructure in the last 12 months? *(Prompt If yes, what was damaged? Please describe what happened and why in each instance)*

KII(DABS) 32. Do you have any suggestions for reducing/avoiding such incidents in the future?

KII(DABS) 33. Has there ever been any damage to the electricity grid in your substation? *(Prompt When did this happen? (Please describe the incident). Who was responsible for the damage? How often does this happen?)*

KII(DABS) 34. Any other comments?

Thank you!

EASE-BS INTERVIEW GUIDE FOR THE DEPARTMENT OF AGRICULTURE, IRRIGATION & LIVESTOCK (DISTRICT OR PROVINCIAL LEVEL)

A. INTRODUCTION AND REQUEST FOR CONSENT

KII(DAIL) 1. Date:
KII(DAIL) 2. Name of interviewer:
KII(DAIL) 3. Name of note taker (if the interview is not recorded):
KII(DAIL) 4. Name of province:
KII(DAIL) 5. Name of district:
KII(DAIL) 6. Name of village (or town and neighborhood):
KII(DAIL) 7. GIS coordinates:
KII(DAIL) 8. Start time of interview:
KII(DAIL) 9. End time of interview:

My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION]. We are conducting a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts the area surrounding the substation. I would like to ask you a few questions about the current status on the substation and distribution network. You are free to skip any question that you do not want to answer. We can mark anything (or everything) you say as anonymous, so they will not be attributed in the final report. The interview will last about 60 minutes.

KII(DAIL) 10. Do you agree to be interviewed for this purpose?

1. Yes
2. No

KII(DAIL) 11. Would you like your comments to be anonymous?

1. Yes
2. No
3. Only parts as marked

KII(DAIL) 12. Do you give permission to audio record this interview?

1. Yes
2. No

B. CONTACT INFORMATION

KII(DAIL) 13. Name:
KII(DAIL) 14. Position:
KII(DAIL) 15. Department:
KII(DAIL) 16. Name of substation/province:
KII(DAIL) 17. District:
KII(DAIL) 18. Contact phone #:
KII(DAIL) 19. Contact email:

C. ELECTRICAL SERVICES

KII(DAIL) 20. Do you receive metered electricity service from DABS? *(Prompt please explain why or why not)*

1. Yes
2. No

KII(DAIL) 21. In what year did you begin receiving this service? (*Month/ Year*)

KII(DAIL) 22. How long did it take from the time you applied to the time you received the service? (*Days*)

KII(DAIL) 23. Did the department have to pay a connection fee?

1. Yes
2. No

KII(DAIL) 24. How much was the connection fee?

KII(DAIL) 25. Overall, was your department satisfied with the process of connecting to DABS? Why or why not?

KII(DAIL) 26. DO you know what tariff you currently pay per KWH?

KII(DAIL) 27. Do you know how much the departments last electricity bill was?

KII(DAIL) 28. For how many hours, in the last 24 hours, has DABS electricity been connected/available?

KII(DAIL) 29. How satisfied are you with the following aspects of the electricity you receive through DABS?
(Prompt with cost of electricity, strength/ voltage, regularity. Please ask why or why not for each answer?)

KII(DAIL) 30. Do you have any other source of electricity? (*Prompt please give details about what is the source of the electricity including if it is primary source or back source and who owns the source of electricity?)*

KII(DAIL) 31. How many times in the last week have you used this system? (*Hours per day; days per week)*

KII(DAIL) 32. How satisfied are you with the following aspects of the electricity you receive through non-DABS source?
(Prompt with cost of electricity, strength/ voltage, regularity. Please ask why or why not for each answer?)

KII(DAIL) 33. If you have both on-grid (DABS) electricity and an alternative source, which one do you prefer, and why or why not?

D. GOVERNMENT SERVICES

KII(DAIL) 34. How many staff are working from this office? Men:___ Women:____

KII(DAIL) 35. What are the responsibilities and services provided by this office?

KII(DAIL) 36. What does your department use electricity for? (*Prompt use of computers, printers, other office equipment etc.)*

KII(DAIL) 37. Has the availability (or lack) of electricity in the office had any effect on this office's work? Please explain.

E. AGRICULTURE, IRRIGATION & LIVESTOCK

KII(DAIL) 38. Can you describe the typical situation of a farming household in this province/ district? (*Prompt daily wage workers, landowners, seasonal workers etc.)*

KII(DAIL) 39. What are this district's main agricultural products and livestock products? (*Prompt per season/ district and province. Is agriculture or livestock products the main source of income in your province/ district?*)

KII(DAIL) 40. What are the main barriers that the people of this district working in agriculture and livestock face? (*Please explain the challenges you face in different seasons for agriculture and livestock)*

KII(DAIL) 41. About what percentage of the farmers in this district own the land they work on and rent the land they work on?

KII(DAIL) 42. About what percentage of rural households in this district have access to irrigated land?

KII(DAIL) 43. How are people in this district irrigating their land? *(Prompt through canal water, spring water, tube wells, etc.)*

KII(DAIL) 44. About what percentage of people in this district use electricity for irrigation? (*Prompt specify what they are using electricity for)*

KII(DAIL) 45. What sources of electricity are most people using for this? (Prompt solar, diesel generator, on-grid power, other)

a. What source of electricity do they use the most and why? (*Prompt availability, cost etc.)*

KII(DAIL) 46. What are the main factors affecting people's ability to use electricity to pump water for irrigation?

KII(DAIL) 47. About what percentage of rural households own livestock?

KII(DAIL) 48. Does the DAIL provide vaccinations? (Please describe how you provide vaccinations to the livestock owners?)

KII(DAIL) 49. Are there any challenges related to the cold storage of vaccine? If so, what are these? (*Is there enough electricity to maintain the fridge, what type of fridge is it etc.)*

KII(DAIL) 50. Are there any cold storage facilities available in this district? (Prompt for crops, meat etc.

a. If yes:
    i. How many?
    ii. Are these public or private facilities?
    iii. Who uses the facility/facilities?
    iv. How is the cold storage powered?
    v. Is the electricity powering the cold storage affordable for its users?
    vi. Is the electricity powering the cold storage reliable?
    vii. Is the voltage adequate?
b. If no, why not?

KII(DAIL) 51. Are there any agro-processing facilities available in this district?

a. If yes:
    i. How many?
    ii. Are these public or private facilities?
    iii. Who uses the facility/facilities?
    iv. How is the agro-processing powered?
    v. Is the electricity powering the agro-processing affordable for its users?
    vi. Is the electricity powering the agro-processing reliable?
    vii. Is the voltage adequate?
b. If no, why not?

KII(DAIL) 52. Overall, how have agricultural activities in this district changed over the last 12 months? (*Prompt describe the changes)*

KII(DAIL) 53. Overall, what is the most important effect that the availability (or lack) of electricity has had on agriculture and livestock activities in this district?

F. PUBLIC ELECTRICITY SERVICES, GOVERNANCE AND SECURITY

KII(DAIL) 54. Do you think the availability of electricity has had any impact , whether negative or positive, on public perceptions of government? *(Please explain)*

KII(DAIL) 55. Do you think the availability of electricity has had any influence, whether negative or positive, on overall levels of security? (*Please explain)*

KII(DAIL) 56. Are you aware of anyone deliberately damaging or destroying electricity infrastructure in this district? (*If so, please describe)*

KII(DAIL) 57. Are you aware of any incidents in which the public has prevented people damaging or destroying electricity infrastructure, or otherwise protected electricity infrastructure in this district? (*If so, please describe)*

KII(DAIL) 58. Any other comments?

EASE-BS INTERVIEW GUIDE FOR DEPARTMENT OF COMMERCE & INDUSTRY (PROVINCIAL & DISTRICT LEVEL)

A. INTRODUCTION AND REQUEST FOR CONSENT

KII(DoCI) 1. Date:
KII(DoCI) 2. Name of interviewer:
KII(DoCI) 3. Name of note taker (if the interview is not recorded):
KII(DoCI) 4. Name of province:
KII(DoCI) 5. Name of district:
KII(DoCI) 6. Name of village (or town and neighborhood):
KII(DoCI) 7. GIS coordinates:
KII(DoCI) 8. Start time of interview:
KII(DoCI) 9. End time of interview:

My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION]. We are conducting a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts the area surrounding the substation. I would like to ask you a few questions about the current status on the substation and distribution network. You are free to skip any question that you do not want to answer. We can mark anything (or everything) you say as anonymous, so they will not be attributed in the final report. The interview will last about 60 minutes.

KII(DoCI) 10. Do you agree to be interviewed for this purpose?

1. Yes
2. No

KII(DoCI) 11. Would you like your comments to be anonymous?

1. Yes
2. No
3. Only parts as marked

KII(DoCI) 12. Do you give permission to audio record this interview?

1. Yes
2. No

B. CONTACT INFORMATION

KII(DoCI) 13. Name:
KII(DoCI) 14. Position:
KII(DoCI) 15. Department:
KII(DoCI) 16. Name of substation/province:
KII(DoCI) 17. District:
KII(DoCI) 18. Contact phone #:
KII(DoCI) 19. Contact email:

C. ELECTRICAL SERVICES

KII(DoCI) 20. Do you receive metered electricity service from DABS? *(Prompt please explain why or why not)*

1. Yes
2. No

KII(DoCI) 21. In what year did you begin receiving this service? (*Month/ Year*)

KII(DoCI) 22. How long did it take from the time you applied to the time you received the service? (*Days*)

KII(DoCI) 23. Did the department have to pay a connection fee?

1. Yes
2. No

KII(DoCI) 24. How much was the connection fee?

KII(DoCI) 25. Overall, was your department satisfied with the process of connecting to DABS? Why or why not?

KII(DoCI) 26. DO you know what tariff you currently pay per KWH?

KII(DoCI) 27. Do you know how much the departments last electricity bill was?

KII(DoCI) 28. For how many hours, in the last 24 hours, has DABS electricity been connected/available?

KII(DoCI) 29. How satisfied are you with the following aspects of the electricity you receive through DABS?
(Prompt with cost of electricity, strength/ voltage, regularity. Please ask why or why not for each answer?)

KII(DoCI) 30. Do you have any other source of electricity? (*Prompt please give details about what is the source of the electricity including if it is primary source or back source and who owns the source of electricity?)*

KII(DoCI) 31. How many times in the last week have you used this system? (*Hours per day; days per week)*

KII(DoCI) 32. How satisfied are you with the following aspects of the electricity you receive through non-DABS source?
(Prompt with cost of electricity, strength/ voltage, regularity. Please ask why or why not for each answer?)

KII(DoCI) 33. If you have both on-grid (DABS) electricity and an alternative source, which one do you prefer, and why or why not?

D. GOVERNMENT SERVICES

KII(DoCI) 34. How many staff are working from this office? Men:___ Women:____

KII(DoCI) 35. What are the responsibilities and services provided by this office?

KII(DoCI) 36. What does your department use electricity for? (*Prompt use of computers, printers, other office equipment etc.)*

KII(DoCI) 37. Has the availability (or lack) of electricity in the office had any effect on this office's work? Please explain.

E. COMMERCE AND INDUSTRY

Enumerator – please ensure that all questions are answered in relation to the district ([redacted] – [redacted] *District and* [redacted] – [redacted] *Centre).*

KII(DoCI) 38. About how many businesses are operating in this district?

a. Do you know how many of these businesses are registered with MoCI? About how many are informal (i.e. Not registered with MoCI)?
b. What sectors are these businesses working in?
c. How many of these businesses were registered in the last year? (*Prompt which sectors?)*
d. What factors do you think were most important in influencing these businesses to start?
e. What are the main challenges these businesses face?

KII(DoCI) 39. In the past year, are you aware of businesses that have closed in this district?

a. If yes, in what sectors?
b. What factors do you think were most important in influencing these businesses to close?

KII(DoCI) 40. In the last year, have employment opportunities in this district generally increased, decreased, or stayed the same? (*Please explain why or why not)*

For the following questions, we are focusing on the area locating in a 20 km radius of the [NAME] electricity substation. [Show map with the substation and Zone-of-Influence].

KII(DoCI) 41. Are there any business parks either existing or planned within this area?

a. Can you describe the electricity supply in this/these business park(s) *(prompt is it on-grid?)*
b. Is it adequate for the needs of businesses? Why or why not?

KII(DoCI) 42. Where are the main commercial areas within this area? (*Prompt describe these commercial areas: how big are they? What sorts of commercial activities take place there?*)

a. Can you describe the electricity supply in this/these commercial area(s) (Prompt is it on-grid and adequate for business's needs?)

KII(DoCI) 43. Do you know about what percentage of businesses in this area have electricity?

a. What are the sources? (own generator, solar, on-grid, community hydropower etc.) Which ones are most common?
b. In general, do businesses face any challenges in getting connected to on-grid electricity? (*If so, please explain)*
c. Is there a standard pay rate (for electricity) for businesses connecting to the grid? (*If so, what is it?)*
d. In your opinion, is the current cost of electricity to businesses satisfactory? (*Why or why not?)*
e. Are you satisfied with the reliability of electricity that businesses are getting? (*Why or why not?)*

KII(DoCI) 44. Can you describe what effect having DABS electricity (or not having DABS electricity) has on the businesses in this district?

a. Ability to operate and compete?
b. Ability to work in specific sectors?
c. Job creation?
d. Income generation?
e. Ability to open during nighttime hours?
f. Ability to access clients in other countries or work remotely (through internet)?

KII(DoCI) 45. Do you think there are any benefits to having DABS electricity compared to other sources (solar, diesel generator, wind) of electricity? (*Prompt cost, availability, voltage, stability etc.)*

KII(DoCI) 46. What changes, if any, would you hope to see in the DABS electricity supply in the future?

KII(DoCI) 47. What concerns, if any, do you have about the DABS electricity supply in the future? Please explain. How would you like to see these addressed?

F. PUBLIC ELECTRICITY SERVICES, GOVERNANCE AND SECURITY

KII(DoCI) 48. Do you think the availability of electricity has any impact, whether negative or positive, on public perceptions of government? *(Please explain)*

KII(DoCI) 49. Do you think the availability of electricity has had any influence, whether negative or positive, on overall levels of security? (*Please explain)*

KII(DoCI) 50. Do you think that the availability of electricity will make businesses and investors feel more secure?

KII(DoCI) 51. Are you aware of anyone deliberately damaging or destroying electricity infrastructure in this district? (*If so, please describe)*

KII(DoCI) 52. Are you aware of any incidents in which the public has prevented people damaging or destroying electricity infrastructure, or otherwise protected electricity infrastructure in this district? (*If so, please describe)*

KII(DoCI) 53. Any other comments?

INTERVIEW GUIDE FOR DEPARTMENT OF EDUCATION (DISTRICT OFFICE)

A. INTRODUCTION AND REQUEST FOR CONSENT

KII(DED) 1. Date:
KII(DED) 2. Name of interviewer:
KII(DED) 3. Name of note taker (if the interview is not recorded):
KII(DED) 4. Name of province:
KII(DED) 5. Name of district:
KII(DED) 6. Name of village (or town and neighborhood):
KII(DED) 7. GIS coordinates:
KII(DED) 8. Start time of interview:
KII(DED) 9. End time of interview:

My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION]. We are conducting a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts the area surrounding the substation. I would like to ask you a few questions about the current status on the substation and distribution network. You are free to skip any question that you do not want to answer. We can mark anything (or everything) you say as anonymous, so they will not be attributed in the final report. The interview will last about 60 minutes.

KII(DED) 10. Do you agree to be interviewed for this purpose?

1. Yes
2. No

KII(DED) 11. Would you like your comments to be anonymous?

1. Yes
2. No
3. Only parts as marked

KII(DED) 12. Do you give permission to audio record this interview?

1. Yes
2. No

B. CONTACT INFORMATION

KII(DED) 13. Name:
KII(DED) 14. Position:
KII(DED) 15. Department:
KII(DED) 16. Name of substation/province:
KII(DED) 17. District:
KII(DED) 18. Contact phone #:
KII(DED) 19. Contact email:

C. ELECTRICAL SERVICES

KII(DED) 20. Do you receive metered electricity service from DABS? *(Prompt please explain why or why not)*

1. Yes
2. No

KII(DED) 21. In what year did you begin receiving this service? (*Month/ Year*)

KII(DED) 22. How long did it take from the time you applied to the time you received the service? (*Days*)

KII(DED) 23. Did the department have to pay a connection fee?

1. Yes
2. No

KII(DED) 24. How much was the connection fee?

KII(DED) 25. Overall, was your department satisfied with the process of connecting to DABS? Why or why not?

KII(DED) 26. DO you know what tariff you currently pay per KWH?

KII(DED) 27. Do you know how much the departments last electricity bill was?

KII(DED) 28. For how many hours, in the last 24 hours, has DABS electricity been connected/available?

KII(DED) 29. How satisfied are you with the following aspects of the electricity you receive through DABS?
(Prompt with cost of electricity, strength/ voltage, regularity. Please ask why or why not for each answer?)

KII(DED) 30. Do you have any other source of electricity? (*Prompt please give details about what is the source of the electricity including if it is primary source or back source and who owns the source of electricity?)*

KII(DED) 31. How many times in the last week have you used this system? (*Hours per day; days per week)*

KII(DED) 32. How satisfied are you with the following aspects of the electricity you receive through non-DABS source?
(Prompt with cost of electricity, strength/ voltage, regularity. Please ask why or why not for each answer?)

KII(DED) 33. If you have both on-grid (DABS) electricity and an alternative source, which one do you prefer, and why or why not?

D. GOVERNMENT SERVICES

KII(DED) 34. How many staff are working from this office? Men:___ Women:____

KII(DED) 35. What are the responsibilities and services provided by this office?

KII(DED) 36. What does your department use electricity for? (*Prompt use of computers, printers, other office equipment etc.)*

KII(DED) 37. Has the availability (or lack) of electricity in the office had any effect on this office's work? Please explain.

E. PUBLIC EDUCATION

KII(DED) 38. Over the last year, have there been any changes, whether positive or negative, to education access in this district for: (*These could include changes in number of schools, number of teachers, enrolment rates, attendance rates etc. If so, please explain what these changes are and why you think they occurred. Please differentiate between primary, secondary, highschool, CBE, Vocational, Madrassa)*

a. Girls access
b. Boys access

KII(DED) 39. Over the last year, have there been any changes, whether positive or negative, to quality of education (*these could include an increase or decrease in number of children passing from one grade to the next, changes in student grades etc.*) in this district for: (*These could include changes in number of schools, number of teachers, enrolment rates, attendance rates etc. If so, please explain what these changes are and why you think they occurred. Please differentiate between primary, secondary, highschool, CBE, Vocational, Madrassa)*

a. Girls access
b. Boys access

KII(DED) 40. About what percentage of the teachers in your area have obtained:

a. Secondary School
b. High School
c. Teacher Training School (14 grade)
d. Bachelor

KII(DED) 41. Do you think having access to DABS electricity will have any impact on the ability of teachers to access further trainings or formal study?

KII(DED) 42. Do you think have DABS electricity effects your ability to provide new trainings for teachers? (*Trainings online, new methods of teaching, printers, projectors etc.)*

KII(DED) 43. At present, what do you think is the biggest challenge facing schools in this district? Please explain.

KII(DED) 44. Over the last year, what has been the biggest positive change in schooling in this district? Please explain.

KII(DED) 45. How many schools are in the area within the 20km radius surrounding the [NAME OF] electrical substation? [show map with substation and surrounding communities marked]

a. Has the number of schools in this area increased, decreased, or stayed the same in the last year?
b. If the number has increased, how many have been built and who built them?
c. If the number has decreased, by how many? Why?

KII(DED) 46. How many schools in this area have electricity provided by this substation? Which type of schools receive electricity?

KII(DED) 47. How many schools in this area have their own or back-up electrical systems? Which type of schools?

KII(DED) 48. How many villages in this district have decentralized educational services? And why? (Community Based Education/ Elhaqya)

KII(DED) 49. Why do you think electricity is important for schools?

KII(DED) 50. Do you think that the presence (or lack) of electricity in schools has had any effect on enrollment and/or attendance for students?

a. For girls?
b. For boys?
c. If yes, what effects have you observed? What is the evidence for these changes?

KII(DED) 51. Do you think that the presence (or lack) of electricity in schools has had any effect on educational attainment (have grades increased/ decreased with the availability of electricity, are students staying in school for longer than before etc.) for students? If yes, what effects have you observed?

a. For girls?
b. For boys?

KII(DED) 52. Do you think that having DABS electricity in the household positively effects students school grades and ability to enhance their knowledge? (*Access to other resources/ platforms through computer and internet, lighting for night study etc.*)

KII(DED) 53. About what percentage of schools in the district have computers, projectors, LCD, science labs for classrooms? Which types of schools? (*Prompt please ask each item -computer, projector etc.- separately*)

a. What effect, if any, does the availability (or lack) of electricity from the nearby substation have on this?

KII(DED) 54. Within this district, how many schools use computers for administration and record keeping?

KII(DED) 55. What effect, if any, does the availability (or lack) of electricity from the nearby substation have on education?

KII(DED) 56. Do you have any other comments regarding electricity and education?

E. PUBLIC ELECTRICITY SERVICES, GOVERNANCE AND SECURITY

KII(DED) 57. Do you think the availability of electricity has any impact, whether negative or positive, on public perceptions of government? *(Please explain)*

KII(DED) 58. Do you think the availability of electricity has had any influence, whether negative or positive, on overall levels of security? (*Please explain)*

KII(DED) 59. Do you think that the availability of electricity will make schools more secure?

KII(DED) 60. Are you aware of anyone deliberately damaging or destroying electricity infrastructure in this district? (*If so, please describe)*

KII(DED) 61. Are you aware of any incidents in which the public has prevented people damaging or destroying electricity infrastructure, or otherwise protected electricity infrastructure in this district? (*If so, please describe)*

KII(DED) 62. Have any schools in this district had to close down due to security over the past year? If so please explain.

KII(DED) 63. Any other comments?

The End

INTERVIEW GUIDE FOR DEPARTMENT OF PUBLIC HEALTH (DISTRICT OFFICE)

A. INTRODUCTION AND REQUEST FOR CONSENT

KII(DoPH) 1. Date:
KII(DoPH) 2. Name of interviewer:
KII(DoPH) 3. Name of note taker (if the interview is not recorded):
KII(DoPH) 4. Name of province:
KII(DoPH) 5. Name of district:
KII(DoPH) 6. Name of village (or town and neighborhood):
KII(DoPH) 7. GIS coordinates:
KII(DoPH) 8. Start time of interview:
KII(DoPH) 9. End time of interview:

My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION]. We are conducting a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts the area surrounding the substation. I would like to ask you a few questions about the current status on the substation and distribution network. You are free to skip any question that you do not want to answer. We can mark anything (or everything) you say as anonymous, so they will not be attributed in the final report. The interview will last about 60 minutes.

KII(DoPH) 10. Do you agree to be interviewed for this purpose?

1. Yes
2. No

KII(DoPH) 11. Would you like your comments to be anonymous?

1. Yes
2. No
3. Only parts as marked

KII(DoPH) 12. Do you give permission to audio record this interview?

1. Yes
2. No (If no, the responses will be recorded by the notetaker)

B. CONTACT INFORMATION

KII(DoPH) 13. Name:
KII(DoPH) 14. Position:
KII(DoPH) 15. Department:
KII(DoPH) 16. Name of substation/province:
KII(DoPH) 17. District:
KII(DoPH) 18. Contact phone #:
KII(DoPH) 19. Contact email:

C. ELECTRICAL SERVICES

KII(DoPH) 20. Do you receive metered electricity service from DABS? *(Prompt please explain why or why not)*

1. Yes
2. No

KII(DoPH) 21. In what year did you begin receiving this service? (*Month/ Year*)

KII(DoPH) 22. How long did it take from the time you applied to the time you received the service? (*Days*)

KII(DoPH) 23. Did the department have to pay a connection fee?

1. Yes
2. No

KII(DoPH) 24. How much was the connection fee?

KII(DoPH) 25. Overall, was your department satisfied with the process of connecting to DABS? Why or why not?

KII(DoPH) 26. DO you know what tariff you currently pay per KWH?

KII(DOPH) 27. Do you know how much the departments last electricity bill was?

KII(DoPH) 28. For how many hours, in the last 24 hours, has DABS electricity been connected/available?

KII(DoPH) 29. How satisfied are you with the following aspects of the electricity you receive through DABS?
(Prompt with cost of electricity, strength/ voltage, regularity. Please ask why or why not for each answer?)

KII(DoPH) 30. Do you have any other source of electricity? (*Prompt please give details about what is the source of the electricity including if it is primary source or back source and who owns the source of electricity?)*

KII(DoPH) 31. How many times in the last week have you used this system? (*Hours per day; days per week)*

KII(DoPH) 32. How satisfied are you with the following aspects of the electricity you receive through non-DABS source?
(Prompt with cost of electricity, strength/ voltage, regularity. Please ask why or why not for each answer?)

KII(DoPH) 33. If you have both on-grid (DABS) electricity and an alternative source, which one do you prefer, and why or why not?

D. GOVERNMENT SERVICES

KII(DoPH) 34. How many staff are working from this office? Men:___ Women:____

KII(DoPH) 35. What are the responsibilities and services provided by this office?

KII(DoPH) 36. What does your department use electricity for? (*Prompt use of computers, printers, other office equipment etc.)*

KII(DoPH) 37. Has the availability (or lack) of electricity in the office had any effect on this office's work? Please explain.

E. PUBLIC HEALTH

KII(DoPH) 38. At present, what do you think are the biggest challenges facing public health in this district? Please explain (*Prompt issues with vaccinations/ disease outbreaks/ high infant and mother mortality rates etc)*

a. Men/boys?
b. Women/girls?
c. Children under the age of 15?

KII(DoPH) 39. What do you think the main barriers are for the health facility at present? (*Prompt not enough health facilities, lack of medicines, no electricity for refrigeration, equipment, lack of qualified doctors, not enough funding etc.)*

KII(DoPH) 40. Over the last year, have there been any changes, whether positive or negative, to health outcomes (i.e. improvements in treatment and/or prevention of sickness) in this district for (Please provide details):

a. Men/ boys?
b. Women/ girls?
c. Children under the age of 15?

KII(DoPH) 41. Has the number of health facilities in this area increased, decreased, or stayed the same in the last year? (*Prompt If the number has increased, how many have been built/ rehabilitated? If the number has decreased, by how many and why? Including NGOs)*

KII(DoPH) 42. About what percentage of existing health facilities in this area have electricity provided by this substation?

KII(DoPH) 43. About what percentage of existing health facilities in this area have other sources of energy? (*Prompt solar, wind, diesel generator etc. and is this the primary source or secondary source?*)

F. PUBLIC HEALTH SERVICES

KII(DoPH) 44. What types of health services are not available in this district?

KII(DoPH) 45. Does your department provide vaccination programs in this area? (*If yes, how many? If no, why not?)*

KII(DoPH) 46. Do health facilities in this district offer vaccinations? (*If yes, how many and what type of vaccinations? If no, why not?)*

KII(DoPH) 47. Do you think there are any barriers to the provision of vaccinations in this area? (*Prompt not enough vaccines, parents don't want to vaccinate their children, no refrigeration for storing vaccines?)*

KII(DoPH) 48. Do women in this area usually give birth in health facilities or at home? What do you think the reasons for this choice are?

KII(DoPH) 49. Does your office collect IDSR (integrated disease surveillance and response data)? If yes, please explain where you get the data from and what you do with it

KII(DoPH) 50. Do you know if Basic Package of Health Services (BPHS) / Essential package of Health Services (EHS) are contracted out in the district? If yes, please provide information

KII(DoPH) 51. Does your office keep data on primary health care, for example, number of births/ deaths/ number of children vaccinated? If yes, do you store this information electronically? (*Prompt HMIS – Health Management Information System data*)

KII(DoPH) 52. In the last 12 months, how many live births and how many infant and mother deaths have occurred in this district? (*Please explain what the reasons were*)

KII(DoPH) 53. Has the availability (or lack) of electricity in public health facilities had any other effect on public health? Please explain.

KII(DoPH) 54. Do you conduct outreach programs in the district? If yes, please what type of outreach and who conducted it?

G. ENVIRONMENTAL AND SANITATION

KII(DoPH) 55. In your opinion what are the effects of the public electricity system on air quality in this area? (*Prompt air quality indoor and outdoor*)

KII(DoPH) 56. Are you aware of any effects, whether positive or negative, that the existing public electricity system has had on household water and sanitation? (*Prompt flush toilets, electrical water pumps)*

KII(DoPH) 57. Does the existing electricity system have any other effects on public health, whether positive or negative? Please explain your answer.

KII(DoPH) 58. Are you aware of any health concerns in this area posed by electricity lines and related infrastructure? If so, please describe. What, if anything, is being done in response to these concerns?

H. PUBLIC ELECTRICITY SERVICES, GOVERNANCE AND SECURITY

KII(DED) 59. Do you think the availability of electricity has any impact, whether negative or positive, on public perceptions of government? *(Please explain)*

KII(DED) 60. Do you think the availability of electricity has had any influence, whether negative or positive, on overall levels of security? (*Please explain)*

KII(DED) 61. Do you think that the availability of electricity will make schools more secure? (*Please explain why or why not).*

KII(DED) 62. Are you aware of anyone deliberately damaging or destroying electricity infrastructure in this district? (*If so, please describe)*

KII(DED) 63. Are you aware of any incidents in which the public has prevented people damaging or destroying electricity infrastructure, or otherwise protected electricity infrastructure in this district? (*If so, please describe)*

KII(DED) 64. Have any health facilities in this district had to close down due to security over the past year? (*If so please explain.)*

KII(DED) 63. Any other comments?

The End

EASE-BS INTERVIEW GUIDE FOR DEPARTMENT OF REHABILITATION & DEVELOPMENT (PROVINCIAL & DISTRICT LEVEL)

A. INTRODUCTION AND REQUEST FOR CONSENT

KII(DRRD) 1. Date:
KII(DRRD) 2. Name of interviewer:
KII(DRRD) 3. Name of note taker (if the interview is not recorded):
KII(DRRD) 4. Name of province:
KII(DRRD) 5. Name of district:
KII(DRRD) 6. Name of village (or town and neighborhood):
KII(DRRD) 7. GIS coordinates:
KII(DRRD) 8. Start time of interview:
KII(DRRD) 9. End time of interview:

My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION]. We are conducting a study to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts the area surrounding the substation. I would like to ask you a few questions about the current status on the substation and distribution network. You are free to skip any question that you do not want to answer. We can mark anything (or everything) you say as anonymous, so they will not be attributed in the final report. The interview will last about 60 minutes.

KII(DRRD) 10. Do you agree to be interviewed for this purpose?

1. Yes
2. No

KII(DRRD) 11. Would you like your comments to be anonymous?

1. Yes
2. No
3. Only parts as marked

KII(DRRD) 12. Do you give permission to audio record this interview?

1. Yes
2. No (If no, the responses will be recorded by the notetaker)

B. CONTACT INFORMATION

KII(DRRD) 13. Name:
KII(DRRD) 14. Position:
KII(DRRD) 15. Department:
KII(DRRD) 16. Name of substation/province:
KII(DRRD) 17. District:
KII(DRRD) 18. Contact phone #:
KII(DRRD) 19. Contact email:

C. ELECTRICAL SERVICES

KII(DRRD) 20. Do you receive metered electricity service from DABS? *(Prompt please explain why or why not)*

1. Yes
2. No

KII(DRRD) 21. In what year did you begin receiving this service? (*Month/ Year*)

KII(DRRD) 22. How long did it take from the time you applied to the time you received the service? (*Days*)

KII(DRRD) 23. Did the department have to pay a connection fee?

1. Yes
2. No

KII(DRRD) 24. How much was the connection fee?

KII(DRRD) 25. Overall, was your department satisfied with the process of connecting to DABS? Why or why not?

KII(DRRD) 26. DO you know what tariff you currently pay per KWH?

KII(DRRD) 27. Do you know how much the departments last electricity bill was?

KII(DRRD) 28. For how many hours, in the last 24 hours, has DABS electricity been connected/available?

KII(DRRD) 29. How satisfied are you with the following aspects of the electricity you receive through DABS?
(Prompt with cost of electricity, strength/ voltage, regularity. Please ask why or why not for each answer?)

KII(DRRD) 30. Do you have any other source of electricity? (*Prompt please give details about what is the source of the electricity including if it is primary source or back source and who owns the source of electricity?)*

KII(DRRD) 31. How many times in the last week have you used this system? (*Hours per day; days per week)*

KII(DRRD) 32. How satisfied are you with the following aspects of the electricity you receive through non-DABS source?
(Prompt with cost of electricity, strength/ voltage, regularity. Please ask why or why not for each answer?)

KII(DRRD) 33. If you have both on-grid (DABS) electricity and an alternative source, which one do you prefer, and why or why not?

D. GOVERNMENT SERVICES

KII(DRRD) 34. How many staff are working from this office? Men:___ Women:____

KII(DRRD) 35. What are the responsibilities and services provided by this office?

KII(DRRD) 36. What does your department use electricity for? (*Prompt use of computers, printers, other office equipment etc.)*

KII(DRRD) 37. Has the availability (or lack) of electricity in the office had any effect on this office's work? Please explain.

E. RURAL COMMUNITIES

KII(DRRD) 38. How many rural communities are you responsible for in this district?

KII(DRRD) 39. What types of projects do you provide in the communities? (*Prompt livelihoods, rehabilitation of infrastructure, skills training etc.*)

KII(DRRD) 40. What electricity projects have you provided to these communities? Please provide details

KII(DRRD) 41. How do you prioritize which projects to fund? Pleas describe the process

KII(DRRD) 42. In your opinion, what are the most requested projects for the communities?

KII(DRRD) 43. How many of these communities received community generators? How many, month/year

a. How many and in which communities are the generators still functioning?
b. Of those that are not functioning, why not?

KII(DRRD) 44. Does your department have any future plans to provide electricity projects in your district?

KII(DRRD) 45. Do you know of any other electricity projects being run in these communities? (*Prompt hydro, solar etc. and who is running the projects? Please give details)*

KII(DRRD) 46. In your opinion, do the rural communities want to have on grid electricity? Please explain

KII(DRRD) 47. In your opinion, what do you think are the barriers to providing on grid electricity?

KII(DRRD) 48. In your opinion, what is the best source of electricity for rural communities and why? (*Prompt solar, hydro, on grid, affordability, accessibility, ability to maintain etc.)*

F. PUBLIC ELECTRICITY SERVICES, GOVERNANCE AND SECURITY

KII(DRRD) 49. Do you think the availability of electricity has any impact, whether negative or positive, on public perceptions of government? *(Please explain)*

KII(DRRD) 50. Do you think the availability of electricity has had any influence, whether negative or positive, on overall levels of security? (*Please explain)*

KII(DRRD) 51. Do you think that the availability of electricity will make rural communities feel more secure?

KII(DRRD) 52. Are you aware of anyone deliberately damaging or destroying electricity infrastructure in this district? (*If so, please describe)*

KII(DRRD) 53. Are you aware of any incidents in which the public has prevented people damaging or destroying electricity infrastructure, or otherwise protected electricity infrastructure in this district? (*If so, please describe)*

KII(DRRD) 54. Any other comments?

The End

B. FOCUS GROUP INTERVIEW GUIDES

FOCUS GROUP DISCUSSION FACILITATORS GUIDE

PREPARATION

Criteria for selection of participants

Two facilitators from ACSOR (interviewer and note taker).

Please select 6 – 8 participants for each focus group. If possible, please select male and female participants.

Businesses

Formal/ informal; combination of different types of businesses.

Schools

ACSOR to request the DED at the District level to select teachers from schools around the district to participate in the focus group discussion. Participants should include a combination of primary and high school teachers.

Health Facilities

ACSOR to request the MoPH at the District level to select clinic staff from clinics around the district to participate in the focus group discussions. Participants should include a combination of doctors, nurses, health care workers, trained birth attendants etc.

Best Practice

- Make sure participants know your goals and objectives before getting started.
- Number the participants and ensure you attribute comments to the correct participant.
- Remain neutral and impartial.
- Ensure that all participants have an equal opportunity to comment (be aware of individuals who try to lead the discussion).
- Take the time to do a focus group right — before, during and after the gathering takes place.
- Ice Breaker – set the tone by asking as easy question to help participants get to know each other, such as asking their names and what association and/or company they are with.
- Main and transition questions – begin asking the questions you have prepared, keeping the discussion flowing based on topic.
- Follow up with comments and/or questions that are brought up during the focus group.

IMPLEMENTATION

Introduction Facilitator(s): (5 minutes)

- Welcome and thank you for sharing your time today.
- My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION].
- We are conducting a focus group discussion to understand the impact of access to on-grid electricity on the economy and community well-being.
- My team members are [INSERT team names and members introduce themselves and their roles]
- We are part of the Evaluation team for the EASE-BS Program.
- You are here today because were identified you as electricity users.
- Our goal today is to have a conversation with you about your experience as businesses/ teachers/ health facility workers and the effects of electricity on your jobs.
- There are no right or wrong comments.
- The information you provide will be collapsed and responses will be stripped of your name/personal identifiers hence I will only have summaries of comments as a group

Introduction of the Attendees: (10 minutes)

- Share your name and your business/ health facility/ school
- Ice breaker

Review Agenda: (10 minutes)

Review process

- First, we will start with introductions – which we already completed
- Then I will ask the group a series of questions and we will have a discussion and makes some notes together
- For each question:
  - We will record as a group the answers
  - We will then write out and summarize as a group
- There will be one break, at the half-way mark of the Focus Group where we can have snacks and drinks
- I will also open the session for questions you might for each other
- Finally, we will close the focus group, some final comments/videos and or thoughts

Logistics

- Paper and pens
- Sticky notes
- Recorder/video/voice
- Note taker
- Facilitator

EASE-BS SIGN IN SHEET FOR FOCUS GROUP DISCUSSION PARTICIPANTS

Name	Gender	Contact Details	Type of FDG	Type of business/ HF/ School	Position	District	Province	Permission to be interviewed	Permission to record the FDG

EASE-BS FOCUS GROUP DISCUSSION WITH BUSINESSES (DISTRICT LEVEL)

A. INTRODUCTION AND REQUEST FOR CONSENT

FGD(BUS) 1. Date:
FGD(BUS) 2. Name of interviewer:
FGD(BUS) 3. Name of note taker (if the focus group discussion is not recorded):
FGD(BUS) 4. Name of province:
FGD(BUS) 5. Name of district:
FGD(BUS) 6. Name of village (or town and neighborhood):
FGD(BUS) 7. GIS coordinates:
FGD(BUS) 8. Start time of focus group discussion:
FGD(BUS) 9. End time of focus group discussion:

My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION]. We are conducting a focus group discussion to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts the area surrounding the substation. I would like to ask you a few questions about the current status on the substation and distribution network. You are free to skip any question that you do not want to answer. We can mark anything (or everything) you say as anonymous, so they will not be attributed in the final report. The focus group discussion will last about 2 hours.

FGD(BUS) 10. Do you agree to be interviewed for this purpose?

1. Yes
2. No

FGD(BUS) 11. Would you like your comments to be anonymous?

1. Yes
2. No
3. Only parts as marked

FGD(BUS) 12. Do you give permission to audio record this focus group discussion?

1. Yes
2. No (If no, the responses will be recorded by the notetaker)

B. CONTACT INFORMATION

FGD(BUS) 13. Total number of Participants: Male_____ and Female_____
FGD(BUS) 14. Name of substation/province:
FGD(BUS) 15. District:

Questions	Prompts
Status and Quality of Electricity	
FDG(BUS) 16. How important is electricity for your business?	a) What source of electricity do you use and how cost effective is your current source of electricity for your business? b) What do you use electricity for? c) Have you been able to expand your business because of access to electricity? Please explain (Ability to open during nighttime hours? Ability to access clients in other countries or work remotely (through internet) d) Has having electricity had any effect on your ability to trade with other businesses? Please explain
Electricity and Economy	
FGD(BUS) 17. Has the availability of electricity had any effect on the number of jobs in your area?	a) Has your business employed more people because of electricity? Please explain. b) Do you know of other businesses that have grown or employed more people because of electricity?
FGD(BUS) 18. Has the availability of electricity affected how much money your business makes?	a) Does it affect productivity? b) Does it affect your business expenses? Please explain.
FGD(BUS) 19. Has electricity contributed to growth of business/industry in your area?	a) Do you know if new businesses have started up in the last year? b) Do you think the availability of electricity is causing more businesses to start? Why or why not? c) Has the availability of electricity had any other influence on the growth of your industry? d) Do you think electricity has had any negative effects on businesses? Please explain.
Electricity and Governance & Security	
FGD(BUS) 20. How would you describe the security situation in your area?	a) How does the current security situation affect your business? Do you think the availability, or lack, of public services has any impact on security? Please explain.
FGD(BUS) 21. Can you tell about any incidents of damage or destruction to public infrastructure, including electricity infrastructure?	a) If there was an incident, what happened and why? b) What was the response of the community? c) Is there something the government or community could do to reduce such incidents in the future?

Questions	Prompts
FGD(BUS) 22. In your opinion, do you think that the government is providing a supportive environment for businesses? Please explain	a) What are the main barriers to (i) opening and (ii) running a business? b) How difficult is it to register a new business? c) Are taxes for businesses very high?
Electricity and Communications	
FGD(BUS) 23. Do you use a technology for your business?	a) Which type of technology (mobile phone, internet, email etc.) b) What do you use it for? c) What other ways to communicate for business purposes? (word of mouth, telephone etc.)
FGD(BUS) 24. Any other comments you would like to add?	

Thank you for your time!

EASE-BS FOCUS GROUP DISCUSSION WITH HEALTH FACILITY STAFF (DISTRICT LEVEL)

A. INTRODUCTION AND REQUEST FOR CONSENT

FGD(HF) 1. Date:
FGD(HF) 2. Name of interviewer:
FGD(HF) 3. Name of note taker (if the focus group discussion is not recorded):
FGD(HF) 4. Name of province:
FGD(HF) 5. Name of district:
FGD(HF) 6. Name of village (or town and neighborhood):
FGD(HF) 7. GIS coordinates:
FGD(HF) 8. Start time of focus group discussion:
FGD(HF) 9. End time of focus group discussion:

My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION]. We are conducting a focus group discussion to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts the area surrounding the substation. I would like to ask you a few questions about the current status on the substation and distribution network. You are free to skip any question that you do not want to answer. We can mark anything (or everything) you say as anonymous, so they will not be attributed in the final report. The focus group discussion will last about 2 hours.

FGD(HF) 10. Do you agree to take part in the focus group discussion for this purpose?

1. Yes
2. No

FGD(HF) 11. Would you like your comments to be anonymous?

1. Yes
2. No
3. Only parts as marked

FGD(HF) 12. Do you give permission to audio record the focus group discussion?

1. Yes
2. No (If no, the responses will be recorded by the notetaker)

B. CONTACT INFORMATION

FGD(HF) 13. Total number of Participants: Male_____ and Female_____
FGD(HF) 14. Name of substation/province:
FGD(HF) 15. District:

Questions	Prompts
Health Services	
FDG(HF) 16. Can you describe the status of the health facilities in the district?	a) Who funds your health facilities? (Government/ NGO etc) b) Do you have enough trained staff in the clinic? (Doctors/ nurses/ trained birth attendants/ community health workers) c) Are there any community outreach programs (basic health messaging) conducted in the district by the health facilities? d) Do you have enough supplies of medicines? If not, how often do you run out of medicines? e) If your clinic offers vaccinations, do you have cold storage available onsite? Please describe. f) If your clinic does not offer vaccinations, why not?
Electricity and Health	
FGD(HF) 17. Do you think having electricity affects health in the district? Please explain.	a) Higher or lower >5 and mothers mortality rates b) Use of equipment to provide better services c) Electricity for onsite operations d) Refrigeration for drugs, vaccines, blood etc. e) Electricity for sterilization and biohazard disposal f) Lighting for onsite operations/ late night appointments g) Mobile clinics (handheld electrical devices (BP machines/ mini fridges etc.)
FGD(HF) 18. Do you think that having diesel generators/ wood & charcoal fires can negatively affect health in households? Please explain	a) More or less respiratory illnesses b) More or less eye illnesses
FGD(HF) 19. Can you share a story or example of using health services where electricity was important?	
FGD(HF) 20. What effect do you think electricity has on water and sanitation in the district?	a) Cases of diarrhea or water borne diseases? b) Do you think that people in the district follow basic hygiene practices? c) Do you conduct any community outreach campaigns on basic hygiene messaging? d) Flush toilets – better sanitation e) Water pumps – clean drinking water

Questions	Prompts
Electricity and Education	
FGD(HF) 21. What effect has the current situation with electricity had on the education of health staff?	a) Does it affect your professional development in any way? Please explain b) Do you have access to technology that can help you further your knowledge? For example, online courses or creating an online community of practice c) What about mobile phones and internet? Are you able to contact a doctor for advice if you are unable to help a patient?
FGD(HF) 22. Do you think that electricity access in health facilities could help reduce the high staff turnover rate? Please explain?	a) Increase in knowledge staff through more learning opportunities b) Better equipped health facilities with stable electricity supplies will attract high caliber staff
Electricity and Document Control	
FGD(HF) 23. Do you think electricity is important for storing and managing health information in the district? Please explain	a) Managing and storing HMIS (Health Management Information System) data using computers b) Managing and storing IDSR (Integrated Disease Surveillance and Response) data in real time to respond more quickly to disease outbreaks c) Having computers and internet access means you can share district level information with MoPH and receive alerts from MoPH in real time.
FGD(HF) 24. Any other comments you would like to add?	

Thank you for your time

EASE-BS FOCUS GROUP DISCUSSION WITH HEALTH SCHOOL STAFF (DISTRICT LEVEL)

A. INTRODUCTION AND REQUEST FOR CONSENT

FGD(Sc) 1. Date:
FGD(Sc) 2. Name of interviewer:
FGD(Sc) 3. Name of note taker (if the focus group discussion is not recorded):
FGD(Sc) 4. Name of province:
FGD(Sc) 5. Name of district:
FGD(Sc) 6. Name of village (or town and neighborhood):
FGD(Sc) 7. GIS coordinates:
FGD(Sc) 8. Start time of focus group discussion:
FGD(Sc) 9. End time of focus group discussion:

My name is [STATE NAME]. I work for [STATE NAME OF ORGANIZATION]. We are conducting a focus group discussion to understand the impact of access to on-grid electricity on the economy and community well-being. The goal of this study is to better understand how access to electricity impacts the area surrounding the substation. I would like to ask you a few questions about the current status on the substation and distribution network. You are free to skip any question that you do not want to answer. We can mark anything (or everything) you say as anonymous, so they will not be attributed in the final report. The focus group discussion will last about 2 hours.

FGD(Sc) 10. Do you agree to take part in the focus group discussion for this purpose?

1. Yes
2. No

FGD(Sc) 11. Would you like your comments to be anonymous?

1. Yes
2. No
3. Only parts as marked

FGD(Sc) 12. Do you give permission to audio record this focus group discussion?

1. Yes
2. No (If no, the responses will be recorded by the notetaker)

B. CONTACT INFORMATION

FGD(Sc) 13. Total number of Participants: Male_____ and Female_____
FGD(Sc) 14. Name of substation/province:
FGD(Sc) 15. District:

Questions	Prompts
School Services	
FDG(Sc) 16. Can you describe the status of the schools in the district?	a) In this district, how many schools are there? b) Who funds the schools? (Government/ NGO etc) c) Are there villages that have no access to schools? d) Do you have enough trained teachers for all the schools? e) What about the condition of the school buildings? f) How long is a typical school day/ year? g) Do schools have electricity? If yes, for how many hours per day h) Can you tell me about the community schools? How do these operate?
Electricity and Education	
FGD(Sc) 17. Do you think having electricity can lead to improvement in education in the district? Please Explain	a) Enrollment rates b) Retention rates c) Higher grades d) Access to technology and new methodologies and resources e) Use of equipment like projectors, computers, science lab equipment that uses electricity etc.
FGD(Sc) 18. Do you think having electricity in the home affects education of students (boys and girls)? Please explain	a) Lighting in the home means longer study hours b) Using electricity for household chores means more free time for studying c) Cleaner indoor air means students are sick less often and do not miss school
FGD(Sc) 19. Do you think that boys and girls have equal access to education in your district? Please explain your answer	a) Enrollment rates for boys vs girls b) Retention rates for boys vs girls c) Poverty leads to the need for children to work d) Schools are too far away from the home
FGD(Sc) 20. What do you think are the biggest barriers for boys and girls to obtaining an education?	a) Boys – work in the fields, too expensive b) Girls – early marriage, work in the house, custom
FGD(Sc) 21. Can you share a story or example of when you were teaching where electricity was important?	

Questions	Prompts
Electricity and Teacher Education	
FGD(Sc) 22. What effect do you think electricity has on the education of teachers?	a) Does it affect your professional development in any way? Please explain b) Do you have access to technology that can help you further your knowledge? For example, online courses or creating an online community of practice c) What about mobile phones and internet? Are you able to connect with other teachers to share resources and methodologies?
Electricity and Governance & Security	
FGD(Sc) 23. How confident do you feel that the government can protect you and the children while you are in school?	a) Why do you feel this way? b) What can the government do to improve your sense of well-being?
FGD(Sc) 24. Can you tell me about a time when schools in this district were closed because of insecurity or damage to the school? Please give details	a) Which school was closed? b) How long was the school closed for? c) What happened? d) Who was responsible?
FGD(Sc) 25. Do you think access to electricity has any effect on security in the schools?	a) Mobile phones to receive security information b) TV/ radios to receive information about possible threats c) Lighting and alarms in the schools to deter thieves
FGD(Sc) 26. Any other comments you would like to add?	

Thank you for your time

III. MONITORING TOOLS:

MSI-AMILA

ELECTRICITY ACCESS AND SOCIO-ECONOMIC BASELINE SURVEY (EASE-BS) DIRECT OBSERVATION

This form should be completed for every Household Interview that is observed and monitored by MSI-AMELA staff.

Section 1: General information:

Household Enumeration ID:	**Enumerator Name and Code** _____
Province: _____	**District:** _____
Village Name: _____	**Date:** _____
Monitor Name:	

Section 2: Greetings and Introduction:

The ACSOR supervisor/team members will do the introduction.

Does the surveyor….	**Answer** **1. Yes** **2. No** **97. Not applicable**	**Correct Answer**
1. …accurately recite the script and explain the purpose of the interview?		1
2. … [consent from respondent] tell the respondent s/he is free to refuse to answer any question or state that s/he does not know an answer?		1

3. Were there other people observing [present in the room] the interview?

1. Yes 2. No

4. (if question 3 is yes) How many people were there? _____

Section 2: Survey Questions

A. [Problematic question] Which questions were not clear to the respondent or made the respondent feel uncomfortable?		Reason
Question Number	Coding: 1) question not clear, 2) respondent uncomfortable	

B. For which questions did the surveyor express his opinion or explain incorrectly?	
Question Number	Reason

Section 3: Reflection Questions

Questions 5 through 13 should be answered after the end of the interview.

5. *This question should be answered after the end of the interview.* If the interviewer/enumerator made any of the following errors: such as not asking for clarifications when necessary, expressing his/her opinion, pressuring the respondent to answer, not clarifying any question, please explain:

9. Did the interviewer ask the questions without appearing to judge whether the answers were right or wrong?

1. Yes 2. No 3. could not tell

10. Did the interviewer circle any answers without asking a question or hearing a response to a question (other than observation-only questions)?

1. Yes 2. No

11. Which of the following statements best describes the level of comfort or unease that the respondent had with the survey questionnaire overall?

1. The respondent was comfortable (at ease) with the entire questionnaire

2. The respondent was comfortable with most of the questions

3. The respondent was comfortable with only some of the questions

4. The respondent was generally uncomfortable with the survey questionnaire

12. Did the respondent seemed comfortable with the length (time to complete the survey) of the survey?

1. Yes 2. No

13. Did the respondent ask the enumerator any questions? If Yes please write:

14: What is your general impressions from this interview:

EASE-BS BACK CHECK FORM

Section 1: Management Information: This section to be complete from ACSOR contact sheets (Please ask ACSOR supervisor to provide you the contact sheets)

1. Province Name: _____
2. District Name: _____
3. Village Name: _____
4. Date of ACSOR field work: _____
5. Date of Back check: _____

Please collect this information from ACSOR supervisor before your departure to the village:

ACSOR household ID	Name of Head of household	Address of the house

Section 2: Village Elders' Consent and Feedback about ACSOR Surveyors

Instructions for AMELA researchers: The village will pre-selected by EASEBS team, once you have collected the section one information from ACSOR supervisor, first contact with village elder for his permission.

A. First Village Elder Consent and Feedback

Assalam o Alakum, my name is _____. I am working with ACSOR team that last week they come to your village to collect data from household about the electricity access in your village. We would like to confirm with you whether the ACSOR surveyors visited your village. We have just a few questions about your experience interacting with them. This will only take a few minutes. We really appreciate your time.

1. Couldn't meet with Malik or village elders? >> Go to 1st household

2. Will you take the time to speak with us?

1. Yes 2. No

3. Did a survey firm come to this village last week asking to survey your village?

1. Yes 2. No 3- Don't know

4. Do you have any concerns about how the surveyors behaved in the village?

1. Yes 2. No 96. NA

5. Did you have any concern about the survey overall [activity in general]?

6. **(If yes for Q4 or and Q5)** What are your concerns?

_____

_____

_____

6. Can we have your permission to visit several households in the village that were interviewed to ask them a few questions about their experience with the surveyors?

1. Yes 2. No

Section 3: Household Shadowing:

From the list of households provided by ACSOR supervisor please select 5 house randomly (write all household ID, put them in a pocket and select 5 houses for shadowing).

Household 1

I. Management Information

Household number from ACSOR form: ____ ____

II. Consent for Shadowing Interview

After recording the management information please knock on the door and explain the purpose of your visit by reading out loud:

Assalam o Alakum, my name is _____. I am working with ACSOR team that last week they come to your village to collect data from household about the electricity access in your village. We would like to confirm with you whether the ACSOR surveyors visited your village. We have just a few questions about your experience interacting with them. This will only take a few minutes. We really appreciate your time.

Will you take the time/willing to speak with us?

1. Yes 2. No

III. Validation Interview

1. Did a surveyor visit your household and conduct an interview with you last week?

1. Yes 2. No **(if no, say thank you and end the interview)**

2. Did the surveyor ask for your consent before beginning the interview?

1. Yes 2. No

3. Were the surveyors/enumerator male and female or only male?

1. Male and female
2. Only male

4. Did the female surveyor interview with the female head of household?

1. Yes 2. No

5. Were you comfortable during the interview?

1. Yes 2. No

5a. **(only if no in Q3)** If you did not feel comfortable, why?

_____

6. Overall, did you think the questions in the survey were clear?

1. Yes 2. No

7. Do you have any concern about the behavior of the surveyor in your household?

1. Yes 2. No

8. If Yes please explain why?

_____

_____

Household 2

I. Management Information

Household number from ACSOR form: _____ _____

II. Consent for Shadowing Interview

After recording the management information please knock on the door and explain the purpose of your visit by reading out loud:

Assalam o Alakum, my name is _____. I am working with ACSOR team that last week they come to your village to collect data from household about the electricity access in your village. We would like to confirm with you whether the ACSOR surveyors visited your village. We have just a few questions about your experience interacting with them. This will only take a few minutes. We really appreciate your time.

Will you take the time/willing to speak with us?

1. Yes 2. No

III. Validation Interview

1. Did a surveyor visit your household and conduct an interview with you last week?

1. Yes 2. No **(if no, say thank you and end the interview)**

2. Did the surveyor ask for your consent before beginning the interview?

1. Yes 2. No

3. Were the surveyors/enumerator male and female or only male?

1. Male and female
2. Only male

4. Did the female surveyor interview with the female head of household?

2. Yes 2. No

5. Were you comfortable during the interview?

1. Yes 2. No

5a. **(only if no in Q3)** If you did not feel comfortable, why?

_____

6. Overall, did you think the questions in the survey were clear?

1. Yes 2. No

7. Do you have any concern about the behavior of the surveyor in your household?

1. Yes 2. No

8. If Yes please explain why?

_____

_____

Household 3

I. Management Information

Household number from ACSOR form: _____ _____

II. Consent for Shadowing Interview

After recording the management information please knock on the door and explain the purpose of your visit by reading out loud:

Assalam o Alakum, my name is _____. I am working with ACSOR team that last week they come to your village to collect data from household about the electricity access in your village. We would like to confirm with you whether the ACSOR surveyors visited your village. We have just a few questions about your experience interacting with them. This will only take a few minutes. We really appreciate your time.

Will you take the time/willing to speak with us?

1. Yes 2. No

III. Validation Interview

1. Did a surveyor visit your household and conduct an interview with you last week?

1. Yes 2. No **(if no, say thank you and end the interview)**

2. Did the surveyor ask for your consent before beginning the interview?

1. Yes 2. No

3. Were the surveyors/enumerator male and female or only male?

1. Male and female
2. Only male

4. Did the female surveyor interview with the female head of household?

3. Yes 2. No

5. Were you comfortable during the interview?

1. Yes 2. No

5a. **(only if no in Q3)** If you did not feel comfortable, why?

_____

6. Overall, did you think the questions in the survey were clear?

1. Yes 2. No

7. Do you have any concern about the behavior of the surveyor in your household?

1. Yes 2. No

8. If Yes please explain why?

_____

_____

ANNEX I. DATA COLLECTION PROCESSES

According to the Checchi manual (available in Annex B):

> "The criteria for hiring good enumerators is essential to gathering quality data. Enumerators are the point people of the study as they have direct interaction with the subjects of the surveys. Their actions and behavior have a direct impact on the accuracy of information gathered.
>
> "Enumerators should, therefore, make a good first impression. For this appearance and a professional manner are important. Enumerators should be neat and clean. They should be good listeners. Enumerators should be patient with interviewees. They should take their time: accuracy is more important than speed. But enumerators should be sensitive to the time needs of interviewees, and to questions interviewees may find upsetting or intrusive. They should not cut interviewees short. Without prompting, enumerators should encourage active participation. They should remain neutral at all times and for all questions. Enumerators should never express their own opinions, and they should never make assumptions about interviewees.
>
> "Enumerators should try to conduct interviews in as private a setting as possible. This may be particularly important in areas where political violence is a factor. But it is also a strategic consideration in minimizing other household members from interjecting. In the context of Afghanistan, enumerators should have a good knowledge of the local situation. Having well-trained local enumerators would be of great benefit.
>
> "Besides having experience in conducting interviews, enumerators should be fluent in the language of the interviewee. It is preferable that they be native speakers. Language aside, enumerators should be able to read questions exactly the same way to each respondent using neutral tones."

For the EASE-BS study, AMELA hired the Afghan Center for Socio-Economic and Opinion Research (ACSOR) to conduct data collection in the field. ACSOR, with more than 10 years of experience in the field of data collection in Afghanistan, has a wide network of enumerators in each province. The firm trains locals in each province to conduct data collection. For EASE-BS, all enumerators came from the provinces and districts where they worked, so they were familiar with the culture and spoke the local languages.

QUANTITATIVE DATA COLLECTION

The quantitative data was collected from male and female heads of households, businesses, clinics, and schools.

For quantitative data collection, ACSOR conducted two days of training for enumerators to familiarize them with the EASE-BS questionnaire. ACSOR trained a total of 34 field staff to collect data in two provinces. The table below shows the number of enumerators by province.

Table I-1. Quantitative enumerators by province.

Province	*Male enumerators*	*Female enumerators*	*Supervisors*
[Redacted]	8	8	1
[Redacted]	8	8	1
Total	16	16	2

The AMELA team prepared and provided two lists for each province: (1) a sampled village was randomly selected within the zone of influence (ZOI), and (2) a reserve list was randomly selected in the ZOI. If the sampled village was not secure, the team could select the alternative village for the survey. For each province, ACSOR assigned one supervisor and 16 enumerators (8 males and 8 females).

Household selection criteria:

Household selection was based on random walk of the village. Upon arrival in a village, the enumerator would obtain permission from the head of the village (malik) to conduct the survey. Enumerators would then find a specific area or sign in the village (i.e., mosque, center of the village, Shura office, school, clinic) and randomly select a direction to walk. In cities or urban areas, each fifth house was selected for the survey, and in rural areas, each third house was selected.

The AMELA EASE-BS team provided ACSOR with a list of schools and clinics. At the end of the household survey, the male enumerator would reach out to the schools and clinics and collect data from them. Businesses would be randomly selected during the random walk for the household survey.

Data entry:

After all data collection was completed, the enumerators sent all the hard copies to ACSOR's main office in [Redacted]. ACSOR's data entry team coded all the questionnaires, entered the data into the database, and cleaned the data.

QUALITATIVE DATA COLLECTION

Once the quantitative data collection ended, the ACSOR team selected the top enumerators to take part in qualitative training. ACSOR conducted two days of training for 14 enumerators from the two provinces. The table below shows the number of qualitative enumerators per province.

Table I-2. Qualitative enumerators by province.

Province	*Male enumerators*	*Female enumerators*	*Supervisors*
[Redacted]	3	3	1
[Redacted]	3	3	1
Total	6	6	2

Selection criteria for qualitative interviews:

The qualitative interviewees were pre-selected by the evaluation team. The qualitative data was collected through three methods: (1) key-informant interviews, (2) focus group discussions, and (3) enhanced interviews. For each method of data collection and each type of respondent, the EASE-BS evaluation team developed separate tools.

The table below presents the list of all tools for qualitative data collection.

Table I-3. Tools for qualitative data collection.

Data collection method	Type of respondent
Key informant interview	Community leaders
	DABS provincial representative
	MOCI district (or provincial) head
	MRRD district (or provincial) head
	MAIL district (or provincial) head
	MoPH district (or provincial) head
	MOE district (or provincial) head
Enhanced qualitative survey questionnaire	Qualitative addition to HH survey for men
	Qualitative addition to HH survey for women
	Qualitative addition to business survey
	Qualitative addition to health facility survey
	Qualitative addition to school survey
Focus group discussion	Clinics – clinicians
	Schools – teachers
	Business owners (mix of business types)

Transcription and translation:

At the end of the qualitative data collection, the ACSOR team received all the recorded data. The team transcribed the data into the local languages and then translated the transcripts into English.

ACSOR/D3 Methods Report

Field Dates:
Oct 09 to 23, 2019 & Nov 09 to 25, 2019

Sample Size:
Households (HH) = 2,000
Business =141
Clinics = 28
Schools =63

Research Provider:
ACSOR
D3 Project Manager:
[Redacted]

Overview

EASES is a longitudinal survey containing both quantitative and qualitative components. It is designed to be carried out at baseline and periodic intervals in zones around electrical substations, at the time just prior or soon after the substations begin providing services, up until the time that they reach maximum capacity (typically 4 to 5 years later). Each survey assesses the current level of access to electricity in households, businesses, schools, and health facilities within the zone. It further assesses socioeconomic indicators and links between electricity use and these indicators. By repeating these surveys periodically within the same zone, the surveys further provide comparative information about how both access to electricity, use of electricity, and broader socioeconomic indicators have changed.

Project Schedule

Project Phases	*Start Date*	*End Date*	*Comments*
Translation	*Sept 23, 2019*	*Oct 05, 2019*	
Briefings	*Oct 05, 2019*	*Oct 07, 2019*	*Quantitative briefing*
	Oct 29, 2019	*Oct 30, 2019*	*Qualitative briefing*
Fieldwork	*Oct 09, 2019*	*Oct 23, 2019*	*Quantitative fieldwork*
	Nov 09, 2019	*Nov 25, 2019*	*Qualitative fieldwork*
Quality Control	*Oct 09, 2019*	*Nov 25, 2019*	
Data Processing	*Nov 02, 2019*	*Dec 10, 2019*	*On rolling bases*
Translation	*Sept 23, 2019*	*Oct 05, 2019*	
Briefings	*Oct 05, 2019*	*Oct 07, 2019*	*Quantitative briefing*

Design Effect

HH Men Survey - Assuming a Design Effect of 5.7341 and p= 0.5, at the 95 % CI level with n= 1032 the resulting complex MOE is 7.31 %.
HH Women Survey - Assuming a Design Effect of 2.6048 and p= 0.5, at the 95 % CI level with n= 1032 the resulting complex MOE is 4.93 %.
Business Survey - Assuming a Design Effect of 0.9368 and p= 0.5, at the 95 % CI level with n= 141 the resulting complex MOE is 8.06 %.
Please note that the Clinic and Schools surveys do not have a design effect as they were a census.

Field Implementation

Sample Disposition

This section describes the sample disposition which is another diagnostic tool to understand the validity of the sample. Final disposition codes, call outcome rates, and response rates contribute to an understanding of the presence of potential survey error.

This section contains:

- A detailed and comprehensive set of survey dispositions recoded into the six major types of American Association of Public Opinion Research (AAPOR) survey case dispositions.
- The formulas for calculating response rates, cooperation rates, and contact rates.
- A report of the final outcome rates for the evaluation of this survey according to the AAPOR Standards for Minimal Disclosure requirements (Part III of the Code of Professional Ethics and Practices).

Rate Calculations

The American Association of Public Opinion Researchers (AAPOR) publishes four different types of rate calculations used in AAPOR reporting (response rates, contact rates, cooperation rates, and refusal rates). D3 and ACSOR use AAPOR's Response Rate 3, Cooperation Rate 1, Refusal Rate 2, and Contact Rate 2 as their standards. Intercept interviews are treated the same as standard interviews for the purposes of calculating response rates.

Acronyms used in the formulas are below:

I	=	Complete Interview
P	=	Partial Interview
R	=	Refusal and break-off
NC	=	Non-contact
O	=	Other
UH	=	Unknown if household/occupied household unit
UO	=	Unknown, other
e	=	Estimated proportion of cases of unknown eligibility that are eligible

$$\text{Response Rate 3} = \frac{I}{(I + P) + (R + NC + O) + e\,(UH + UO)}$$

$$\text{Cooperation Rate 1} = \frac{I}{(I + P) + R}$$

$$\text{Refusal Rate 2} = \frac{R}{(I + P) + (R + NC + O) + e\,(UH + UO)}$$

$$\text{Contact Rate 2} = \frac{(I + P) + R + O}{(I + P) + R + O + NC + e\,(UH + UO)}$$

Final Disposition Codes

The survey cases are divided into six main types of AAPOR disposition groups: completed interviews, partial interviews, cases of unknown eligibility, non-contacts, refusals, and cases of ineligible interviews. Table 4 provides the final disposition classifications of the Household Survey.

Table 4: Interview Status: Final Disposition Codes and Definitions

ACSOR Code	AAPOR Code	Description	Totals
Completed Interviews			
1	1.0/1.10	Interview was successfully completed	1000
Partial Interviews			
10	1.200	During interview, selected respondent refused (General)	1
11	1.200	During interview, selected respondent was not feeling informed to answer the questions	0
12	1.200	During interview, selected respondent got angry because of a question	0
13	1.200	During interview, selected respondent preferred head of household be interviewed	0
14	1.200	During interview, selected respondent was in a hurry/no time	1
		Total Partials	2
Unknown Eligibility			
20	3.130	No answer at door	26
21	3.200	No adults (18+) after three visits	42
22	3.170	Unable to access building or house	8
23	3.210	Outright refusal at the door	45
		Total Unknown Household	121
Non-contacts			
24	2.210	Selected respondent never available for interview	35
25	2.250	Selected respondent long-term absence for the fieldwork period	23
		Total Non-contacts	58
Others			
26	2.300	Selected respondent not allowed to participate in the survey	4
35	2.310	Selected respondent deceased	0
36	2.320	Selected respondent physically or mentally unable to complete the interview	0
37	2.332	Selected respondent unable to complete interview in languages available	0
90	4.900	Other	4
		Total Others	

ACSOR Code	AAPOR Code	Description	Totals
Refusals			17
30	2.11	Selected respondent refuses (General)	0
31	2.11	Selected respondent not feeling informed to answer the questions	1
32	2.11	Selected respondent got angry because of the subject matter	2
33	2.11	Selected respondent prefers head of household to be interviewed	9
34	2.11	Selected respondent in a hurry/no time	29
		Total Refusals	
Not Eligible			
40	4.700	Does not meet screening criteria/not eligible for interview	46
41	4.500	Non-residential (business)/abandoned home	46
		Total Not Eligible	1260
Total		**Total Sampled Households**	1000

The response rate is the number of complete interviews divided by the number of interviews plus the number of non-interviews plus all cases of unknown eligibility. The cooperation rate is the proportion of all cases interviewed of all eligible participants ever contacted. The refusal rate is the proportion of all cases in which a participant refuses to do an interview, or breaks-off an interview of all potentially eligible cases. The contact rate measures the proportion of all cases in which the participant responsible and associated with the provided phone number was reached by the survey. Table 5 provides the following outcome rates for the survey: the response rate, cooperation rate, refusal rate, and contact rate.[31]

Table 5: Formulas and Rates[32]

Disposition Rate Formulas	Percent
Response Rate 3 (RR): I/((I+P) + (R+NC+O) + e*(UH+UO))	82.67%
Cooperation Rate 1 (COOP): (I/(I+P)+R+O)	96.62%
Refusal Rate 2 (REF): R/((I+P)+(R+NC+O) + e(UH + UO))	2.40%

[31] D3 uses the rates published by AAPOR. See AAPOR, *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Survey, 6th edition* (AAPOR, 2009).

[32] I = Interviews, E = Eligible (temporary code, not part of final calculation), R = Refusal, NC = Non-Contact, NE = Not Eligible, UH= Unknown Eligibility, O=other

SP#	Province	District	Village	Reason for Replacement
2	[Redacted]	[Redacted]	[Redacted]	[Redacted]
3	[Redacted]	[Redacted]	[Redacted]	[Redacted]
6	[Redacted]	[Redacted]	[Redacted]	[Redacted]
8	[Redacted]	[Redacted]	[Redacted]	[Redacted]
13	[Redacted]	[Redacted]	[Redacted]	[Redacted]
15	[Redacted]	[Redacted]	[Redacted]	[Redacted]
24	[Redacted]	[Redacted]	[Redacted]	[Redacted]
31	[Redacted]	[Redacted]	[Redacted]	[Redacted]
35	[Redacted]	[Redacted]	[Redacted]	[Redacted]
37	[Redacted]	[Redacted]	[Redacted]	[Redacted]
43	[Redacted]	[Redacted]	[Redacted]	[Redacted]
46	[Redacted]	[Redacted]	[Redacted]	[Redacted]
48	[Redacted]	[Redacted]	[Redacted]	[Redacted]
52	[Redacted]	[Redacted]	[Redacted]	[Redacted]
55	[Redacted]	[Redacted]	[Redacted]	[Redacted]
61	[Redacted]	[Redacted]	[Redacted]	[Redacted]
62	[Redacted]	[Redacted]	[Redacted]	[Redacted]
64	[Redacted]	[Redacted]	[Redacted]	[Redacted]
69	[Redacted]	[Redacted]	[Redacted]	[Redacted]
70	[Redacted]	[Redacted]	[Redacted]	[Redacted]
73	[Redacted]	[Redacted]	[Redacted]	[Redacted]
86	[Redacted]	[Redacted]	[Redacted]	[Redacted]
89	[Redacted]	[Redacted]	[Redacted]	[Redacted]
95	[Redacted]	[Redacted]	[Redacted]	[Redacted]
96	[Redacted]	[Redacted]	[Redacted]	[Redacted]
97	[Redacted]	[Redacted]	[Redacted]	[Redacted]
101	[Redacted]	[Redacted]	[Redacted]	[Redacted]
105	[Redacted]	[Redacted]	[Redacted]	[Redacted]

SP#	Province	District	Village	Reason for Replacement
106	[Redacted]	[Redacted]	[Redacted]	[Redacted]
110	[Redacted]	[Redacted]	[Redacted]	[Redacted]
113	[Redacted]	[Redacted]	[Redacted]	[Redacted]
114	[Redacted]	[Redacted]	[Redacted]	[Redacted]
117	[Redacted]	[Redacted]	[Redacted]	[Redacted]
118	[Redacted]	[Redacted]	[Redacted]	[Redacted]
121	[Redacted]	[Redacted]	[Redacted]	[Redacted]
124	[Redacted]	[Redacted]	[Redacted]	[Redacted]

References

The American Association for Public Opinion Research. 2011. *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 7th edition*. AAPOR.

EASE-BS Quantitative Training Workshop
AMELA Team

Dates: 6/Oct/2019 and 7/Oct/2019
Duration: 2 days
Venue: ACSOR Training Room
Trainer: [Redacted]
MSI- AMELA participants: Hamidullah Gharibzada – Mohammad Hamed Shirzah – Zahra Wahidy

[Redacted]

Photo: Female enumerator from [Redacted] province is answering to a question from trainer.

Introduction:

The training is for the Electricity Access and Socio-Economic Baseline Survey (EASE-BS) for the national electric utility Da Afghanistan Breshna Sherkat (DABS). EASEBS is a longitudinal survey containing both quantitative and qualitative components. It is designed to be carried out at baseline and periodic intervals in zones around electrical substations. Each survey assesses the current level of access to electricity in households, businesses, schools, and health facilities within the zone. The two-day training is designed to train supervisors and enumerators on sampling, household selection, quantitative questionnaire of male and female head of household, business, school and health facilities questionnaire. The training is hold on the ACSOR office training room with two ACSOR trainers.

Participants:

Below table show the number of participants per province and gender:

Province	*Male enumerator*	*Female enumerator*	*Supervisor*
[Redacted]	8	8	1
[Redacted]	8	8	1
Total	16	16	2

Meeting with ACSOR team:

We arrived in ACSOR office at 9:00 AM and meet with the head of ACSOR [Redacted]. He introduced us with the ACSOR trainers and project manager, we talked about official letters for field data collection teams and agenda of training. I have submitted all the official letters to ACSOR team, and they discussed the content with the field team. At the end they accepted the letter for provincial DABS and ministry of education (we have the scan copy, they asked for the original letter of MOE). [Redacted] requested that their team cannot process the letter within the ministries, he asked us to process the letters of ministry of health and ACCI.

1st day morning training session:

The training started by the remarks [Redacted] head of ACSOR and he has given general information as follow:

- How to do Survey
- Why this survey is important for ACSOR office: he mentioned that this is their first project with MSI- AMELA and he asked the surveyors to do their best to make this survey reliable
- The survey data should collect accurately and if they find anyone didn't collect the survey in the field or select their own idea as a respond, the ACSOR office will fire him or her from the work.
- Talked about the security of the provinces, security of field team also importance of each individual security and safety.

Sampling:

The trainer started the training with the sampling section, as follow:

- Each supervisor will have a list of villages and based on that they can assigned their team daily to each village
- Each team is 1 male and 1 female and in one day they will survey one village.
- In each village 1 team will survey 8 household (Male and female)
- Once the team entered to the village they will first talk to the Malik (head of the village) and then find specific point in the village such as center of the village, mosque, school, shora office …. And then in each pocket of the questionnaire mentioned that you should go to north, south, east or west.
- Random walk: in the villages the surveyor should select each 3rd house for interview it means that they should count 1,2 and interview the 3ed house. In the cities the team should select each 5th house.
- Definition of household and head of household: clearly defined for the enumerators.

Male head of household questionnaire:

The trainer started with the MHH questionnaire and explained each question for the enumerators. The enumerators shared their questions with the trainer, and he answered all the questions. For some of the questions MSI-AMELA team shared their field pilot experience with the ACSOR teams.

Issues on MHH need follow up:

There were some issues raised in the questionnaire that we promised to ask the team and will tell the answers on the second day of the training:

1. Question B1: The ACSOR team translated the skip of this question to B19 in English version it is B20. The reason they changed the skip pattern was that there is possibility that the household don't have electricity, but village is connected to electricity.

Action: Talked to [Redacted] and we agreed with ACSOR team. The skip should go to B19

2. Skip before question B20 - B21: The ACSOR team is saying for now if the house is connected to DABS electricity (if B1 is Yes) they have to skip the alternative sources and go to next section.

But they are arguing that may be the household is using both DABS and solar or generator we will miss this section.

Based on our discussion the skip should be only for question B20 and B21 and rest of the question from this section should be ask from the respondent. And if the household is not using any alternative then we should skip this question after asking B21.

Action: They should defiantly ask the alternative source; the skip was wrong. Talked to [Redacted] and solved the issue.

3. Questions from B27 up to B32: is not clear, we had different idea for asking of these questions:

ACSOR B28: We have 3 rows in each question it means that if household have 3 generators, we should list it.

MSI-AMELA: We have 3 rows in this question, in one of them we will write generator in other we should cover other costs like generator repair, or other costs for generator.

Action: We talked with ACSOR team and as the questionnaire was already printed and there were no space for text in the question, they only can add numbers so we agreed for generator they should ask for 1, 2 or 3 generator if the household have.

Question B28: ACSOR: Cost item- not clear.

AMELA team: in each row the cost of community generator like (oil, repair cost, …)

Action: Solved, the ACSOR team will record all costs for community generator.

Question B29: row B289a is only for number they cannot write text so they only will write how many solar panels the household have. In question B29b the cost of all device is coming that is covering solar panel, Batteries, inverter (Change AC to DC) and if any other cost.

FHH:

in the afternoon the ACSOR team start FHH and based on our request they changed the type of training and asked each enumerator to read the question and then trainer explain the question. This system helped all enumerator to take part in the training and ask their question and we also could know their knowledge or reading the questions.

Issues to be followed:

- Question B12 in the roster: Should we count only hours spent at home for school work or school hour + home?

Action: only hours in the home

- Question H5: now the question asked for three response but ACSOR said that they have discussed with [Redacted] and they can only receive one answer for this question.

Action: update the English version we only need one answer.

- We don't have code list for question H5. (Should ask [Redacted] to send the English code list for question H5 for our record)

Action: [Redacted] will add it to the English version.

Business:

After the FHH the trainer start training of business questionnaire. Below are some points that we have to find answer for that and tell the trainees tomorrow:

Issues to be follow up:

- B24 up to B29: Same problem face as MHH. We should know the question and train the enumerators tomorrow morning.

Action: Solved. Explained for enumerators

- List and sampling number of business: The ACSOR team didn't received the sample and list of formal business.

Action: [Redacted] talked to [Redacted] and we will do one business in each sampling point and the team will try to cover up to 40 formal business and 87 informal. If a village don't have any business the team will do 2 business in the next village.

- ACSOR team said that they were advised to survey those business using electricity, I don't think that we have this agreement, not all villages that we are going covered by DABS.

Action: We don't have limitation that business should have electricity.

Suggestion: We have total of 40 formal business to be survey I am suggesting that we should give sample number for ACSOR for example 20 for [Redacted] and 20 in [Redacted] and they should go to district center and ask each business that is registered and then complete a survey with them. Or any other way [Redacted] suggest.

For informal business they said that we will interview one business in each sampling point (Village). But as I know we only have 87 in total and I don't know how we should divide them in to two provinces. And how to select these informal businesses.

Action: The problem solved and the teams will collect data from all sampling points (1 business in each sampling point)

School:

As the questionnaires were similar and short the team decided to finish School survey today and practice all the questionnaire tomorrow.

Issues to be followed:

- Question M24: What do we mean by shade in this question.

Action: Solved. Shades in the yard of the school for student.

- Question A2: In Dari and Pashto translation it was different one was built and another was established.

Action: The team decide to use the word build not established and we added the code 96 NA for those schools that they don't have building. ACSOR team printed all the school questions again.

2nd day of training:

Before the starting of the training AMELA team and ACSOR trainers set together and discussed the issues from the first day and noted the points to re-train the enumerators. First, they start with the clinic questionnaire and after that the trainer start reviewing all the questionnaires by adding the new points and advises from the first day. During this session enumerators could ask their questions that ACSOR and AMELA team answered all the questions.

After the tea break trainers divided the teams, female team went to other room and they start practicing the female questionnaire. AMELA female STTA monitored the practice session and she was walking in the room to meet each group of 2 female to check the quality of their interview. The male teams continue the training or RCS (photography and GPS) system.

In the afternoon all teams start doing mock interviews some with the ACSOR staff and some of them together. The trainers and AMELA team monitor all the interviews and answer or solve any issue enumerator faced during the interview.

Issues raised by [Redacted] team for taking GPS:

----------[Redacted]----------

----------[Redacted]----------

----------[Redacted]----------

----------[Redacted]----------

----------[Redacted]----------

----------[Redacted]----------

----------[Redacted]----------

----------[Redacted]----------

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----------[Redacted]----------

----------[Redacted]----------

----------[Redacted]----------

----------[Redacted]----------

----------[Redacted]----------

----------[Redacted]----------

Others:

1) Based on [Redacted]'s request I talked with both supervisors and asked them that if possible, they should make a list of those villages that they have community generator that is not working and record the year and month of when the generator stopped working. The supervisors agreed to make a separate list and at the end they will submit it to ACSOR project manager to send it to us.
2) One of my concern was that the list of school and clinics were not form all 300 settlements and Checchi only collect the name of those school and clinics that were in there sample. Now that the sample is changed I asked the supervisors that if possible when they are entering to a village and they see school or clinic that is available in the sampled village but is not in their list they should take a note (name and address) of the school or clinic and send it to us to check if our sample (68 School , 30 Clinic) was not complete we will ask to survey those schools.

Conclusion and Recommendation:

The training program was conducted successfully, all the participants took part actively in the training. The room and timing were good. Both trainers were active and know the content of the project and questionnaires and they were open to the questions, they respond all the questions from the enumerators.

Two days of training for 5 questionnaires was less, the training was a little fast and time for the practicing was less than what we expect. We highly recommend that we should give more time for practicing in the future trainings.

[Redacted]

Photo: Mock interview between two enumerators

EASE-BS Qualitative Training

Date: 29/Oct/2019
Number of Participants:
[Redacted]:
Male: 3 enumerator – 1 supervisor Female:3
[Redacted]:
Male: 3 enumerator – 1 supervisor Female: 3
Venue: [Redacted]
AMELA: Hamidullah Gharibzada and Mohammad Hamed Sherzai
ACSOR trainer: [Redacted]

The training was started with the enhanced questionnaires, as all the enumerators were familiar with the quantitative questions the trainer focused more on enhanced questions.
They could cover:

- Male enhanced
- Female Enhanced
- School Enhanced
- Clinic Enhanced
- Business enhanced

Issues raised by the teams:
Both [Redacted] and [Redacted] teams showed their concern on recording of female head of household enhanced interview. They are arguing that it is difficult to enter to the house to do the female interview in these two provinces and if the male head of household knows that we are going to record his wife's or another female head of household sound they will defiantly create problem for the team. [Redacted] team added that in the [Redacted] city there are more government staff they also may not allow the team to record the voice.

Both teams feel that recording of the female voice is not a good thing to do and will create risk for the team especially female enumerators.

ACSOR Response: This is there first time recording female interview in these two provinces, ACSOR team advised that they will try it in the first sample and the team should be alert, they should go to the safest villages, they should consider the security and ask them for consent of recording if they didn't allowed they will report to AMELA team to take decision

KIIs:
In the afternoon the training continued with the KII. The trainer started with the sample and who to interview and he give some interview tips.

- How to have eye contact with the respondent
- Don't use leading questions
- How to do follow up questions
- Example of some previous KIIs.

1) MAIL District (or Provincial) Head

Review the questions one by one and explained the questions for the enumerators. then the enumerators read the questions and explained for other team members.

More number of questions ware concern for enumerators, they were thinking that asking too many questions from one person will take longer and interviewee will get tired and may answer yes or no to the last questions that needs more follow ups.

Day 2

Date: 30/10/2019

2) DABS Provincial Representative
3) MoPH District (or Provincial) Head
4) MRRD District (or Provincial) Head
5) MoE District (or Provincial) Head
6) MOCI District (or Provincial) Head
7) Community Leaders

The questions ware explained one by one by the trainer and practiced with all enumerators. enumerator questions ware addressed by ACSOR trainer.

Some interview tips explained by trainer:

- How and where to use prompts questions
- Sometimes questions are going in wrong direction what the facilitator should do
- Not to ask leading questions

Problems that ware addressed in the training:

- Question "KII(DED) 45. How many schools are in the area within the 20km radius surrounding the [NAME OF] electrical substation? [show map with substation and surrounding communities marked]

We removed the prompt because we didn't prepared map for enumerators.

- In the questionnaires we used the language of district but as we are working in [Redacted] city we told the [Redacted] team to always ask about [Redacted] city or center of [Redacted].
- URGENT to be discussed with [Redacted]: villages that are selected for enhanced and community leader KIIs all of them don't have electricity. Most of the questions on these questionnaires asking about the electricity and process of connecting the electricity. We should have some villages with electricity. Specially community leader KII.

Discussed with the team, they also agreed and D3 will change the sample to select some samples within the villages that have electricity.

FGDs

ACSOR trainer talked about FGD sampling and tips how to conduct FGDs.

FGDs tips:

- How to do FGDs
- How to number the participants
- How to make sure all the participants participate in the FGDs

The FGD session was more roll play and practice that helped the enumerators to: 1) know how to conduct FGD. 2) Make sure they are familiar with the FGD questions.

ACSOR/D3 Report on Training

October 8, 2019
Training Dates:
October 6-7, 2019
D3 Project Manager:
[Redacted]

School Survey:
General. Code 96 "not applicable" added in both Pashto and Dari versions.
A2. (Pashto): Corrected the wording of the sentences to provide additional context.
B12. "Ask All" instructions have been added in both Pashto and Dari.

Clinic Survey:
General. Fixed and used the correct wording for "community generator" in the questionnaire for both Pashto and Dari versions.
General. Interviewers had difficulty with questions asking about the cost of electricity (C15 to C20). These were discussed and explained in greater detail across the two-day training and were reviewed during the mock interviews.
C12. Added "Ask All" in both Pashto and Dari versions.
C23. Filter instructions have been added "Ask if code 2, 3 or 4 in C22" in both Pashto and Dari versions.

Business Survey:
General. Fixed and used the correct wording for "community generator" in the questionnaire for both Pashto and Dari versions.
General. Interviewers had difficulty with questions asking about the cost of electricity (B24 to B29). These were discussed and explained in greater detail across the two-day training and were reviewed during the mock interviews.
B20. "Ask All" instructions have been added in Pashto.

Head of Household Men Survey:
General. Fixed and used the correct wording for "community generator" in the questionnaire for both Pashto and Dari versions.
General. Interviewers had difficulty with questions asking about the cost of electricity (B27 to B33). These were discussed and explained in greater detail across the two-day training and were reviewed during the mock interviews.
B21. Added "Ask All" instructions in both Pashto and Dari versions.

Head of Household Women Survey:
General. Nothing significant was changed in the HOH Women questionnaires.
The interviewers had some difficulties with the household rostering. This was discussed and explained in greater detail across the two days. This was a particular area of focus during the mock interviews, where the interviewers performed well.

ANNEX J. DATA QUALITY CONTROL

The baseline effort had multiple layers of data quality control (DQC) in place to reduce error and bias. These DQC efforts were embedded throughout the entire process of the baseline activity. Both ACSOR (the data firm partner collecting all the field data) and EASE-BS teams had data quality checks to ensure high quality data products.

DESIGN PHASE

Before any data was collected, the EASE-BS team worked to test and calibrate the instruments appropriately to each response group. This was to reduce the potential for response bias in the data. Various field tests were done by the team in the [Redacted] area, and internal testing was done with AMELA staff to identify problematic questions/phrases/words. This was also done with the translated versions to ensure meaning and not wording was translated. After the pre-tests, the team reviewed the issues and made small revisions to re-calibrate the instruments.

IMPLEMENTATION PHASE

During data collection, the baseline had two types of data quality assurance: (1) ACSOR supervisor direct observation and (2) AMELA STTA monitoring.

ACSOR/D3

As stated in Annex I, the team determined early on a need to expand the number of days of training for field staff. ACSOR prepared the training agenda and materials. Then all the local enumerators from [Redacted] and [Redacted] where asked to travel to [Redacted] for a two-day training. The more comfortable and familiar the teams were with the data tools, the higher the probability of getting complete/reliable data. The training helped ensure a more uniform process in data collection; because there were multiple field staff gathering data, the EASE-BS team had to worry about variation in field collection efforts. This would lead to uneven data information in both the quantity and quality of the responses.

While in the field, the ACSOR team sent their supervisors to check on field staff. They randomly selected a village at the start of each day during the data collection period and observed the work of each enumerator in the village. They made real-time adjustments in the field – providing direct feedback to the enumerator on how to improve their data collection effort.

EASE-BS Team

The EASE-BS team selected two monitors (AMELA STTA) to shadow enumerators in the field and check the quality of field data. The monitoring team for EASE-BS did two types of data quality checks:

(1) direct observation and (2) back-checks[33]. There was one female and one male monitor, so both male and female data collection efforts could be observed. The AMELA STTA selected a village randomly and shadowed the enumerators, observing the field data collection process. This allowed for AMELA STTA to provide direct feedback immediately after a household survey to improve the overall quality of data collection. The findings and observations of the AMELA STTA would also be shared with team supervisors on the day of the visit ensure that other enumerators had a joint understanding of data collection approaches. Additionally, the monitoring team conducted back-checks of collected field data. In some cases (due to security, access, and budget) the team conducted data check via a mobile call. Table J-1 shows the number of checks conducted by the monitoring team by type (i.e., direct observations vs. back-checks vs. calls).

Table J-1. Number of direct observations, back-checks, and phone call checks by the AMELA EASE-BS monitoring team for the baseline field data collection.

Province	Direct observation		Back-check		Mobile check	
	Sampling points	Households	Sampling points	Households	Sampling points	Households
[Redacted]	7	13	3	9	0	0
[Redacted]	8	12	4	11	3	3
Subtotal	15	25	7	20	3	3

Grand total	***Sampling points***	***Households***
	25	***48***

POST DATA COLLECTION PHASE

After the data was collected, additional data quality checks were conducted during data entry, translation/transcription, and analysis. First, ACSOR did double data entry of close to 20% of the sample of the household surveys to ensure the quality of data. The interrater reliability (IRR) was 0.19 for the male surveys and 0.42 for the surveys of females heads of households.

ACSOR and the EASE-BS team both did checks on the transcription and translation of the data. Once the recording was transcribed and translated, the project manager of ACSOR randomly selected some of the interviews to review. The supervisor would then check the original recording file with the quality of transcription and translation.

[33] For additional details on the data monitoring process, tools, and field reports please see Annexes E, H, and I.

DATA COLLECTION LIMITATIONS

The field teams faced various obstacles during data collection which could affect the quality of the data, but many were external factors and thus outside the team's control:

- ----------[Redacted]----------[Redacted]----------[Redacted]----------[Redacted]----------[Redacted]----------
- ----------[Redacted]----------[Redacted]----------[Redacted]----------[Redacted]----------

  ----------[Redacted]----------[Redacted]----------[Redacted]
- ----------[Redacted]----------[Redacted]----------[Redacted]----------[Redacted]----------

- **Access to respondent groups:** Accessing certain key government officials required for KIIs was a challenge. Given the limited availability of these key officials, an alternative with limited knowledge on a particular topic would be assigned. This affected the quality of data that could be obtained. Additionally, government officials did not always have the requested information to help the EASE-BS team identify key stakeholders in the ZOIs.

- **GPS coordinates:** The team recognizes the sensitivity around GPS coordinates of respondents' homes, schools, clinics, and businesses, especially in the context of Afghanistan. However, key in the analysis of the data, data quality checks, and in ensuring a valid impact evaluation, the team was tasked in capturing geocoordinates. As expected, some of the respondents were not comfortable permitting

field staff to take geo-markers for their location. This may affect the team's ability to sample the same respondents during the midline and endline.

Tables J-2 and J-3 provide details on the checks conducted by data type.

Table J-2. ACSOR/D3 direct observation and back-checks.

Interview	Method of quality control/back-check	Percent
Male head of household	Direct supervision during the interview	3.2
	Back-check in person by supervise	9.3
Female head of household	Direct supervision during the interview	3.2
	Back-check in person by supervise	7.46
Business	Direct supervision during the interview	0.71
	Back-check in person by supervise	0
Clinics	Direct supervision during the interview	3.57
	Back-check in person by supervise	0
School	Direct supervision during the interview	3.17
	Back-check in person by supervise	0

ANNEX K. NIGHT LIGHT DATA ANALYSIS

While radiance values for Afghan settlements within the 20-kilometer service area of the [Redacted] and [Redacted] sub-stations range from 1 through 5, radiance values for major cities reach 100 nano-watts. The maximum radiance values among Afghan settlements roughly corresponds to radiance levels at the very periphery of major cities. Figure K-1 depicts the radiance values for these major cities, while Figure K-2 and Figure K-3 represent heat maps of emitted radiance for [Redacted] and [Redacted].

Figure K-1. Comparative radiance values for major cities.

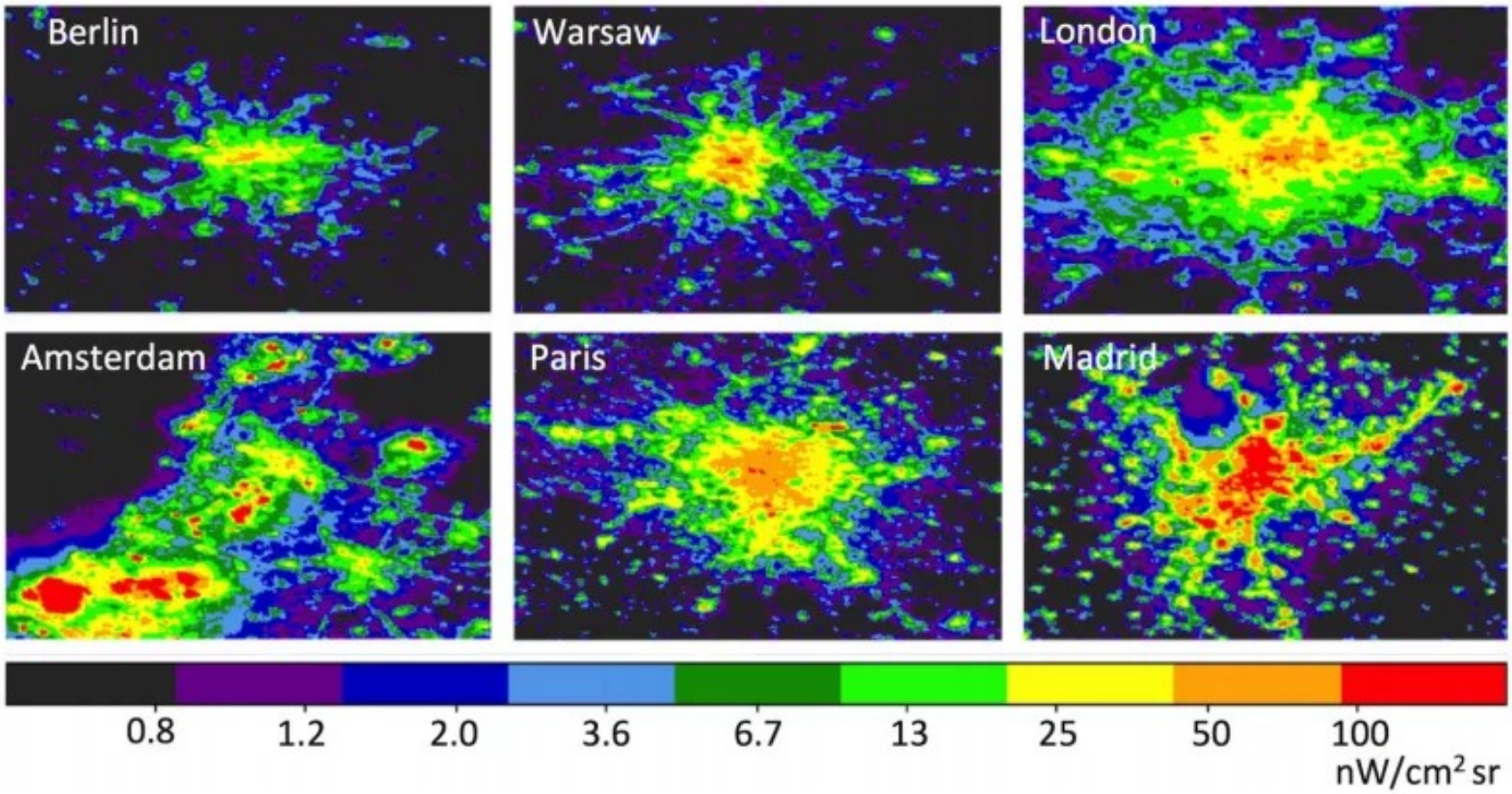


Figure K-2. Emitted radiance over time, [Redacted] sub-station.

[Redacted]

Figure K-3. Emitted radiance over time, [Redacted] sub-station.

[Redacted]

ANNEX L. BASELINE INDICATOR TABLES

The following tables derive from the EASE-BS 2019 survey data from households (HH), clinics, schools, and businesses. The tables below denote *treatment* as the group of respondents who are connected to DABS electricity and *comparison* denotes the group of respondents who are not connected to DABS electricity. The tables denote dashes (--) when an indicator does not apply to the treatment or comparison group; NA denotes data was not collected for the indicator. The last column (overall) is the total effect or cumulative total across locations ([Redacted] Rural, [Redacted] Rural, [Redacted] Urban).

Table L-1. Electricity indicators.

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
0.1	Percent of potential clients connected to DABS	Is your household connected to the DABS electricity service?	Percent	Male HH	6.2	--	52.6	--	42.6	--	26.7	--
				Business	30.9	--	25.0	--	33.3	--	27.7	--
				Clinic	7.1	--	10.0	--	75.0	--	17.9	--
				School	2.6	--	4.8	--	50.0	--	6.4	--
0.2	Reported tariff rate	We do not have data for this indicator	Afs / kWh	DABS	NA	NA	NA	NA	NA	NA	NA	NA
0.3	Reported payment for the last billing period	How much was your most recent DABS electricity bill?	Afs	Male HH	807	--	2,117	--	1,385	--	1,601	--
				Business	1,153	--	986	--	2,700	--	1,124	--
				Clinic	876	--	12,420	--	92,690	--	58,273	--
				School	15,130	--	1,000	--	NA	--	8,065	--

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
0.4	Reported number of DABS hours electricity provided in last 24 hours	On a typical day, about how many hours of DABS electricity service is available?	Number	Male HH	21.9	--	20.8	--	18.9	--	19.9	--
				Business	12.0	--	18.6	--	22.0	--	15.4	--
				Clinic	24.0	--	6.0	--	24.0	--	20.4	--
				School	6.0	--	3.0	--	17.0	--	10.8	--
0.5	Reported length of time required to connect	About how many days did it take between the time you applied for a connection to the DABS electricity service and when you received a connection?	Number	Male HH	45.9	--	27.5	--	19.2	--	25.3	--
				Business	34.8	--	20.7	--	4.0	--	27.1	--
				Clinic	30.0	--	NA	--	10.0	--	20.0	--
				School	75.0	--	90.0	--	11.5	--	47.0	--
0.6	Reported cost of connecting (purchasing meter etc.)	How much did it cost to connect to the DABS electricity service?	Afs	Male HH	19,886	--	8,884	--	6,801	--	8,970	--
				Business	8,279	--	4,400	--	NA	--	6,448	--
				Clinic	7,000	--	8,000	--	33,399	--	23,040	--
				School	40,000	--	7,000	--	NA	--	23,500	--
0.7	Reported use of back-up/alternative system	We disaggregated this indicator	Percent	Male HH	NA	NA	NA	NA	NA	NA	NA	NA

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
0.7.1	Reported use of private company	Does [respondent] use [source of electricity]?	Percent	Male HH	0.0	0.0	5.9	6.6	3.5	7.8	4.0	2.8
				Business	0.0	0.0	5.9	20.8	100.0	12.8	5.1	12.8
				Clinic	0	0	0	0	33	0	20	0
				School	0.0	0.0	0.0	15.0	0.0	0.0	0.0	5.1
0.7.2	Reported use of own generator	Does [respondent] use [source of electricity]?	Percent	Male HH	12.9	21.4	6.9	4.4	6.3	5.2	7.3	15.1
				Business	9.5	10.6	5.9	22.6	0.0	0.0	7.7	16.7
				Clinic	100.0	61.5	100.0	44.4	100.0	0.0	100.0	52.2
				School	100.0	10.8	0.0	15.0	50.0	0.0	50.0	11.9
0.7.3	Reported use of solar panels	Does [respondent] use [source of electricity]?	Percent	Male HH	83.9	98.5	38.6	83.5	25.9	59.6	37.1	86.8
				Business	42.9	70.2	17.7	56.6	100.0	50.0	30.8	62.8
				Clinic	100.0	92.3	100.0	22.2	0.0	100.0	40.0	65.2
				School	100.0	54.1	0.0	15.0	50.0	50.0	50.0	40.7
0.7.4	Reported use of batteries	Does [respondent] use [source of electricity]?	Percent	Male HH	0.0	40.2	31.7	81.3	33.6	77.2	29.1	54.6
				Business	0.0	6.4	23.5	56.6	0.0	0.0	10.3	32.4
				Clinic	0.0	7.7	100.0	44.4	0.0	100.0	20.0	26.1
				School	0.0	2.7	0.0	15.0	100.0	50.0	50.0	8.5

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
0.8	Reported level of client satisfaction with DABS' provided electricity	Overall, how satisfied are you with the DABS electricity service?	Percent	Male HH	100.0	--	73.3	--	50.4	--	64.4	--
				Business	94.7	--	59.0	--	100.0	--	78.4	--
				Clinic	100.0	--	0.0	--	100.0	--	80.0	--
				School	100.0	--	0.0	--	50.0	--	50.0	--

Table L-2. Economic indicators.

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
1.01	Estimated household monthly income	Can you estimate the household's total monthly household income from all sources?	Afs	Male HH	12,016	10,327	11,485	11,140	10,232	10,274	10,893	10,412
1.02	Livestock owned by household	For each [cow, bull, goat, sheep, chicken, duck, turkey, horse], please tell me how many the household owns	Number	Male HH	9.70	10.10	1.10	1.80	1.40	2.00	2.20	7.10
1.03	Land owned by household, in jeribs	How many jeribs of land does this household own?	Jeribs	Male HH	2.50	3.30	0.49	0.43	0.74	1.20	0.85	2.40
1.04	Number of businesses started in last 2 years	We do not have data for this indicator	Number	MOCI	NA	NA	NA	NA	NA	NA	NA	NA
1.05	Percent of businesses reporting increased profits, compared to previous year	We do not have data for this indicator	Percent	Business	NA	NA	NA	NA	NA	NA	NA	NA

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
1.05.01	Estimated business monthly revenue	What were the total sales of this business last month?	Afs	Business	16,048	22,323	20,353	40,051	40,000	40,000	18,538	31,881
1.06	Percent of businesses reporting decreased expenses, compared to previous year	We do not have data for this indicator	Percent	Business	NA	NA	NA	NA	NA	NA	NA	NA
1.07	Average number of employees	We disaggregated this indicator	Number	Business	NA	NA	NA	NA	NA	NA	NA	NA
1.07.01	Average number of full-time employees	How many people are permanently employed by your business?	Number	Business	0.95	1.10	0.71	0.74	2.00	2.00	0.87	0.93
1.08	Average number of temporary employee-days in previous month	Number of days temporary workers hired times number of temporary workers	Number	Business	0.86	0.40	0.12	0.12	0.00	0.00	0.51	0.24
1.09	Average number of items powered by electricity owned by business	For each item, please report how many the business owns, or which you personally own but use for business purposes	Number	Business	10.80	2.70	3.30	3.00	4.00	3.00	7.40	2.80

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
1.10	Reported impact of electricity on Business expenses	We do not have data for this indicator	Likert-scale	Business	NA	NA	NA	NA	NA	NA	NA	NA
1.11	Reported impact of electricity on business income	We do not have data for this indicator	Likert-scale	Business	NA	NA	NA	NA	NA	NA	NA	NA
1.12	Reported impact of electricity on number of employees	We do not have data for this indicator	Likert-scale	Business	NA	NA	NA	NA	NA	NA	NA	NA
1.13	Percent of business owners reporting business successful	How successful do you consider your business?	Percent	Business	81.00	68.10	35.30	54.70	0.00	100.00	59.00	61.80
1.14	Percent of business owners reporting business doing better compared to previous year	How is your business doing?	Percent	Business	76.20	72.30	41.20	54.70	0.00	100.00	59.00	63.70

Table L-3. Governance and security indicators.

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
2.01	Percent of operations suspending operations due to security	At any time in the last 12 months, has the clinic/school ever had to close because of insecurity?	Percent	Clinic	0	7.7	0	0	0	0	0	4.3
				School	0	32.4	0	30	0	50	0	32.2
2.02	Percent of operations targeted by theft, arson or vandalism	At any time in the last 12 months, has this clinic/school ever been targeted by thieves, vandals or arsonists?	Percent	Clinic	0	7.7	0	22	33.3	0	20	13
				School	0	2.7	0	20	0	0	0	8.5
2.03	Percent of operations reporting crime and disorder as an obstacle or major obstacle	What are the biggest obstacles for the successful operation of the clinic/school? (crime/violence)	Percent	Clinic	0	0	100	44.4	0	0	20	17.4
				School	0	48.6	0	10	0	0	0	33.9
2.04	Percent of operations reporting insecurity as an obstacle or major obstacle	What are the biggest obstacles to the successful operation of the clinic/school? (political instability)	Percent	Clinic	0	30.8	100	44.4	33.3	100	40	39.1
				School	100	8.1	0	30	0	50	25	16.9

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
2.05	Percent of operations reporting corruption at DABS (re. connectivity)	Was an informal gift or additional payment expected, in order to connect to the DABS electricity service?	Percent	Business	15.8	--	5.9	--	0	--	10.8	--
				Male HH	0	--	0	--	2.1	--	1.1	--
2.06	Percent of respondents reporting security is better than in previous year	When comparing this year to last year, do you feel security is better?	Percent	Business	76.2	72.3	41.2	54.7	0	100	59	63.7
				Male HH	19.4	13.5	26.7	19.8	17.5	21.8	21.1	16.4
2.07	Percent of HHs reporting damage to electricity infrastructure within their community	We do not have data for this indicator	Percent	DABS	NA	NA	NA	NA	NA	NA	NA	NA
2.08	Percent of respondents reporting fear for personal safety	How often do you fear for your own personal safety or security or for that of your family?	Percent	Business	34	46.8	28.6	0	41.2	100	35.9	39.2
				Male HH	41.9	55.8	23.8	26.4	38.5	64.8	33.5	54.6
2.09	Percent of respondents reporting things in Afghanistan heading in right direction	Do you think things in Afghanistan today are going in the right direction or do you think they are going in the wrong direction?	Percent	Business	75	34.1	18.8	25	0	0	48.6	28.6
				Male HH	72.4	35.7	44.6	36.3	31.7	18.8	40.8	31.4

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
2.10	Percent of respondents reporting national government doing a good job	Do you think the [level of government] is doing a [somewhat or very] good job?	Percent	Business	71.4	47.8	31.3	30.8	0	100	52.6	40
				Male HH	65.4	44.7	42.6	31.9	25.9	20.7	35.9	36.9
2.11	Percent of respondents reporting provincial government doing a good job	Do you think the [level of government] is doing a [somewhat or very] good job?	Percent	Business	81	52.2	50	50	0	100	65.8	52
				Male HH	57.7	47.1	66.3	51.6	45.5	30.6	54.4	43.4
2.12	Percent of respondents reporting district government doing a good job	Do you think the [level of government] is doing a [somewhat or very] good job?	Percent	Business	46.2	53.2	61.9	100	0	46.7	54.1	50.5
				Male HH	67.9	49.6	55.4	48.4	40.1	28	48.7	44

Table L-4. ICT indicators.

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
3.01	Percent of households owning TVs	For each item, please tell me how many the HH owns? (TVs)	Percent	Male HH	87.1	30	92.1	69.2	92.3	76.2	91.6	46.4
3.01.01	Number of households owning TVs	For each item, please tell me how many the HH owns? (TVs)	Number	Male HH	1.1	0.3	1.2	0.8	1.2	0.8	1.2	0.5
3.02	Percent of households with respondent who watched TV in last 24 hours	We do not have data for this indicator	Percent	Male HH	NA	NA	NA	NA	NA	NA	NA	NA
3.02.01	Percent of households reported watch TV	Do you watch television?	Percent	Male HH	87.1	25.8	97	69.2	93	72.5	93.8	42.9
3.03	Percent of households owning radios	For each item, please tell me how many the HH owns? (Radio)	Percent	Male HH	74.2	85.6	61.4	53.8	55.9	30.6	60	67.8
3.04	Percent of households with respondents who listened to the radio in last 24 hours	We do not have data for this indicator	Percent	Male HH	NA	NA	NA	NA	NA	NA	NA	NA

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
3.04.01	Percent of households listen to the radio programs?	Do you listen to radio programs?	Percent	Male HH	61.3	85.2	64.4	64.8	62.9	45.1	63.3	72.5
3.05	Percent of households with respondents who used a mobile phone in the last 24 hours	We do not have data for this indicator	Percent	Male HH	NA	NA	NA	NA	NA	NA	NA	NA
3.06	Percent of households with respondents who used internet via smart phone in the last 24 hours	We do not have data for this indicator	Percent	Male HH	NA	NA	NA	NA	NA	NA	NA	NA
3.07	Percent of households with respondents who used computer in the last 24 hours	We do not have data for this indicator	Percent	Male HH	NA	NA	NA	NA	NA	NA	NA	NA
3.08	Percent of households/ businesses owning mobile telephones	We disaggregated this indicator	Percent	Male HH	NA	NA	NA	NA	NA	NA	NA	NA

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
3.08.01	Percent of respondents owning mobile telephones	For each item, please tell me how many the HH owns? (Mobile)	Percent	Business	100	95.7	94	86.8	100	100	97.4	91.2
				Male HH	96.8	95.6	96	94.5	96.5	96.9	96.4	95.8
3.09	Percent of households/ businesses owning smart phones	We do not have data for this indicator	Percent	Male HH, Business	NA	NA	NA	NA	NA	NA	NA	NA
3.10	Percent of respondents owning computers	For each item, please tell me how many the HH owns? (Computer)	Percent	Male HH	61.3	12.7	28.7	16.5	23.1	21.2	29.5	15.3
3.11	Percent of respondents with access to Internet	Does this HH have access to internet, either through a cable connection or cellular data?	Percent	Male HH	41.9	8.7	44.6	23.1	33.6	34.7	38.5	17

Table L-5. Education indicators.

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
4.01	Number of schools	Province	Number	School	1	37	1	20	2	2	4	59
4.02	Percent of schools with electricity	Is the school connected to the DABS electricity service?	Percent	School	2.6	--	4.8	--	50	--	6.3	--
4.03	Number of students enrolled	How many students are enrolled in the school?	Number	School	400	450	1443	1563	2250	2065	1586	882
4.04	Number of students graduated (last academic year)	Do not have data for this indicator	Number	School	NA	NA	NA	NA	NA	NA	NA	NA
4.05	Percent of schools with administrative computers	We do not have data for this indicator	Percent	School	NA	NA	NA	NA	NA	NA	NA	NA
4.05.01	Number of computers schools own for administrative use	How many computers (for administration use) does your school owns?	Number	School	1	0.5	1	0.95	0	0	.64	0.5
4.06	Percent of schools with computer classes	We do not have data for this indicator	Percent	School	NA	NA	NA	NA	NA	NA	NA	NA
4.06.01	Number of computers schools own for students use	How many computers (for student use) does your school owns?	Number	School	7	0.8	0	0.9	0.5	0	2	0.8

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
4.07	Percent of students attending schools with electricity	School connected and number student per school	Percent	School	2.3	97.7	4.4	95.6	52.2	47.8	10.9	89.1
4.08	Reported impact of electricity on the quality of instruction	We do not have data for this indicator	Likert-scale	School	NA	NA	NA	NA	NA	NA	NA	NA
4.09	Reported impact of electricity on school attendance rates	We do not have data for this indicator	Likert-scale	School	NA	NA	NA	NA	NA	NA	NA	NA
4.10	Reported impact of electricity on security at the school	We do not have data for this indicator	Likert-scale	School	NA	NA	NA	NA	NA	NA	NA	NA
4.11	Reported impact of electricity on student learning outcomes	We do not have data for this indicator	Likert-scale	School	NA	NA	NA	NA	NA	NA	NA	NA

Table L-6. Health indicators.

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
5.01	Number of hospitals, clinics and health posts	Is your clinic connected to the DABS electricity service?	Number	Clinic	1	13	1	9	3	1	5	23
5.02	Percent of hospitals, clinics and health posts with electricity	Is your clinic connected to the DABS electricity service?	Percent	Clinic	7.1	--	10	--	75	--	17.9	--
5.03	Percent of children under 2 vaccinated since birth	We do not have data for this indicator	Percent	Female HH	NA	NA	NA	NA	NA	NA	NA	NA
5.04	Percent of health facilities offering vaccines	Dose this health facility provide vaccination?	Percent	Clinic	100	76.9	0	77.8	100	0	80	73.9
5.05	Age 5 and under mortality rate	We do not have data for this indicator	Per 1000 live births	Male HH	NA	NA	NA	NA	NA	NA	NA	NA
5.06	Rate of respiratory illness reported in last month	How many patients in the last month reported respiratory problems?	Percent	Clinic	24.6	15.4	0.6	24.5	3.6	NA	8.1	19
5.07	Percent of health facilities offering emergency services	Please tell us what type of services your health facility offers?	Percent	Clinic	0	7.7	0	44.4	0	100	100	74
5.08	Percent of health facilities reporting electricity supply adequate to meet requirements	We do not have data for this indicator	Percent	Clinic	NA	NA	NA	NA	NA	NA	NA	NA

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
5.09	Percent of households with access to piped water	What is the main source of drinking water for the household?	Percent	Male HH	0	0.01	57.4	68.1	49.7	55.4	46.9	22.9
5.10	Percent of households with flush toilet/latrine	What kind of toilet do member of your household use?	Percent	Male HH	0	0.4	24.8	14.3	17.5	18.1	18.2	6.6
5.11	Reported impact of electricity on health facility expenses	We do not have data for this indicator	Likert-scale	Clinic	NA	NA	NA	NA	NA	NA	NA	NA
5.12	Reported impact of electricity on health facility's capacity to respond to medical emergencies	We do not have data for this indicator	Likert-scale	Clinic	NA	NA	NA	NA	NA	NA	NA	NA
5.13	Reported impact of electricity on health facility's capacity to provide maternal and neo-natal care	We do not have data for this indicator	Likert-scale	Clinic	NA	NA	NA	NA	NA	NA	NA	NA
5.14	Reported impact of electricity on health facility's quality of care	We do not have data for this indicator	Likert-scale	Clinic	NA	NA	NA	NA	NA	NA	NA	NA

Table L-7. Environment indicators.

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
6.01	Percent of respondents reporting poor indoor air quality	We do not have data for this indicator	Percent	Male HH, Business	NA	NA	NA	NA	NA	NA	NA	NA
6.02	Percent of respondents reporting poor outdoor air quality	We do not have data for this indicator	Percent	Male HH, Business	NA	NA	NA	NA	NA	NA	NA	NA
6.03	Percent of respondents reporting wood or charcoal as heating source	We disaggregated this indicator	Percent	Male HH, Business	NA	NA	NA	NA	NA	NA	NA	NA
6.03.01	Percent of respondents reporting wood as heating source	What does the household/business use to heat the home during winter? Does the household/business use [firewood]?	Percent	Male HH	96.8	99.6	92.1	96.7	95.8	93.8	94.5	97.8
				Business	4.8	29.8	23.5	47.2	100	0	15.4	38.2
6.03.02	Percent of respondents reporting charcoal as heating source	What does the household/business use to heat the home during winter? Does the household/business use [charcoal/coal]?	Percent	Male HH	0	1.7	64.4	47.3	55.9	44	52.7	18
				Business	0	0	5.9	18.9	0	0	2.6	9.8

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
6.04	Percent of respondents reporting kerosene as heating source	What does the household/business use to heat the home during winter? Does the household/business use [kerosene / oil]?	Percent	Male HH	0	0.9	0	2.2	0.7	0.5	0.3	0.9
				Business	0	0	0	5.7	0	0	0	2.9
6.05	Percent of respondents reporting use of diesel generators	Now I will read to you a list of different sources of electricity. As I read each one, please tell me if your household uses that sources of electricity or not. Do you use [household generator]?	Percent	Male HH	12.9	21.1	6.9	4.4	6.3	5.2	7.3	15.1
6.06	Percent of respondents reporting wood or charcoal as a cooking fuel	We disaggregated this indicator	Percent	Female HH	NA	NA	NA	NA	NA	NA	NA	NA
6.06.01	Percent of respondents reporting wood as a cooking fuel	In the past month, what sources of cooking fuel has the household used? Has the household used [firewood]?	Percent	Female HH	90.3	90.3	11.9	28.6	24.5	31.6	27.3	67.9
6.06.02	Percent of respondents reporting charcoal as a cooking fuel	In the past month, what sources of cooking fuel has the household used? Has the household used [charcoal/coal]?	Percent	Female HH	0	0.8	1	1.1	7	4.2	4	1.7

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
6.07	Percent of respondents reporting kerosene as a cooking fuel	In the past month, what sources of cooking fuel has the household used? Has the household used [kerosene/oil]?	Percent	Female HH	0	0.4	1	1.1	0.7	0.5	0.7	0.5

Table L-8. Gender indicators.

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
7.01	Hours per day required for common household tasks	For each task, please identify how many hours household members spend per day to complete the task. (Overall household)	Hours	Female HH	16.5	15.8	7.5	9.7	8.3	10.1	8.9	13.6
7.02	Girls' school attendance	How many [girls] are enrolled in the school?	Number	School	0	3648	34	12930	250	1275	284	17853
7.03	Hours per day girls under 15 spend on HH chores	For each task, please identify how many hours household members spend per day to complete the task. (Girls up to 15)	Hours	Female HH	2.5	2.5	0.8	1.2	1.2	0.7	1.2	1.9
7.04	Reduction in time reported in HH chores due to electricity	We do not have data for this indicator	Hours	Female HH	NA	NA	NA	NA	NA	NA	NA	NA
7.05	Number of businesses owned by women	How many [females] own this business?	Number	Business	2	0	0	15	0	0	2	15
7.05.01	Percent of businesses owned by women	How many people own this business?	Percent	Business	5	0	0	6.8	0	0	2.6	3.5

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
7.06	Number of female employees	How many [females] are permanently employed by your business (at this location)?	Number	Business	0	0	0	2	0	0	0	2
7.06.01	Percent of employees who are women	How many [females] are permanently employed by your business (at this location)?	Percent	Business	0	0	0	3.6	0	0	0	1.4
7.07	Percent of women reporting home-based income generating activity	Do you have any income-generating activities?	Percent	Female HH	41.9	35.9	8.9	13.2	13.3	23.3	14.9	30
7.08	Percent of women reporting electricity has helped with their income generating activity	How helpful is access to electricity in conducting these activities?	Percent	Female HH	92.3	40	55.6	83.3	47.4	28.9	63.4	40.1

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
7.09	Respondents opinion on women's working outside	Some people say that women should be allowed to work outside the home, while others say that women should not be allowed to work outside of the home. What is your opinion on this?	Percent	Female HH	51.6	28.8	86.1	94.5	91.6	87	85.1	51.5
7.10	Respondents opinion on women's vote	Do you think women should be allowed to vote in the elections?	Percent	Female HH	35.5	35.1	90.1	91.2	89.5	95.9	83.6	57.3
7.11	Proper age of girls marriage	What do you think is the best age for a girl to get married?	Number	Female HH	20.3	20.3	19.2	19.6	19.1	19.6	19.3	19.9
7.12	Proper age of boys marriage	What do you think is the best age for a boy to get married?	Number	Female HH	25.5	22	22.8	22.5	23	23.4	23.2	22.4
7.13	Percent of communities that allow daughters to choose marriage partner	In your community, is it possible for daughters who come of age to choose their own marriage partners?	Percent	Female HH	29	34.7	58.4	54.9	69.2	68.9	60.7	45.9

Indicator number	Indicator	Item	Unit of measure	Respondent	[Redacted] (rural)		[Redacted] (rural)		[Redacted] (urban)		Overall	
					Treatment	Comparison	Treatment	Comparison	Treatment	Comparison	Treatment	Comparison
7.14	Percent of communities that allow son to choose marriage partner	In your community, is it possible for sons who come of age to choose their own marriage partners?	Percent	Female HH	58.1	56.6	80.2	79.1	92.3	87.5	84	67.2

ANNEX M. ADDITIONAL FINDINGS

ELECTRICITY

The key indicators for the electricity findings are outlined below. A full list of indicators measured under the baseline can be found in Annex L.

Table M-1. Key indicators for electricity.

Indicator	Unit of measure	Households	Businesses	Health clinics	Schools
% of potential clients connected to DABS	Percent	26.7	27.7	17.9	6.4
Reported payment for the last billing period	Afs	1,601	1,124	58,273	8,065
Reported number of DABS hours of electricity in the last 24 hours	Number	19.9	15.4	20.4	10.8
Reported length of time required to connect (days)	Number	25.3	27.1	20.0	47.0
Reported cost of connecting (e.g., purchasing meter)	Afs	8,970	6,448	23,040	23,500
Reported level of client satisfaction with DABS' electricity	Percent	64.4	78.4	80.0	50.0

Source of data: EASE-BS household, business, clinic, and school surveys 2019.

Descriptive Statistics

Figure M-1. Satisfaction levels with DABS Electricity Services (overall, count).

[Redacted]

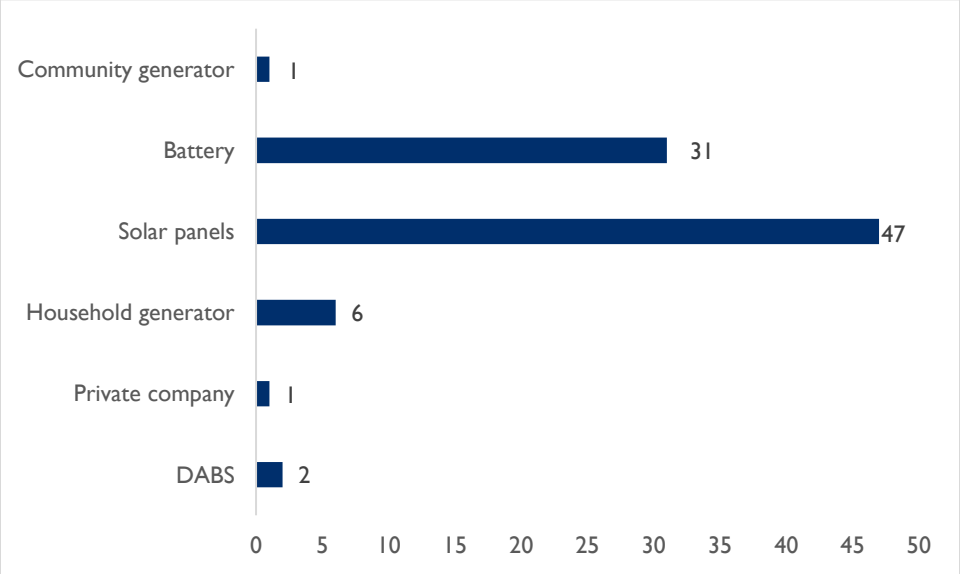
Source of data: EASE-BS HH male survey data 2019.

Figure M-2. Reasons households are not connected to DABS (total, count).

[Redacted]

Source of data: EASE-BS HH male survey data 2019.

Figure M-3. Most important sources of electricity the household uses (total, count).



Source of data: EASE-BS HH male survey data 2019.

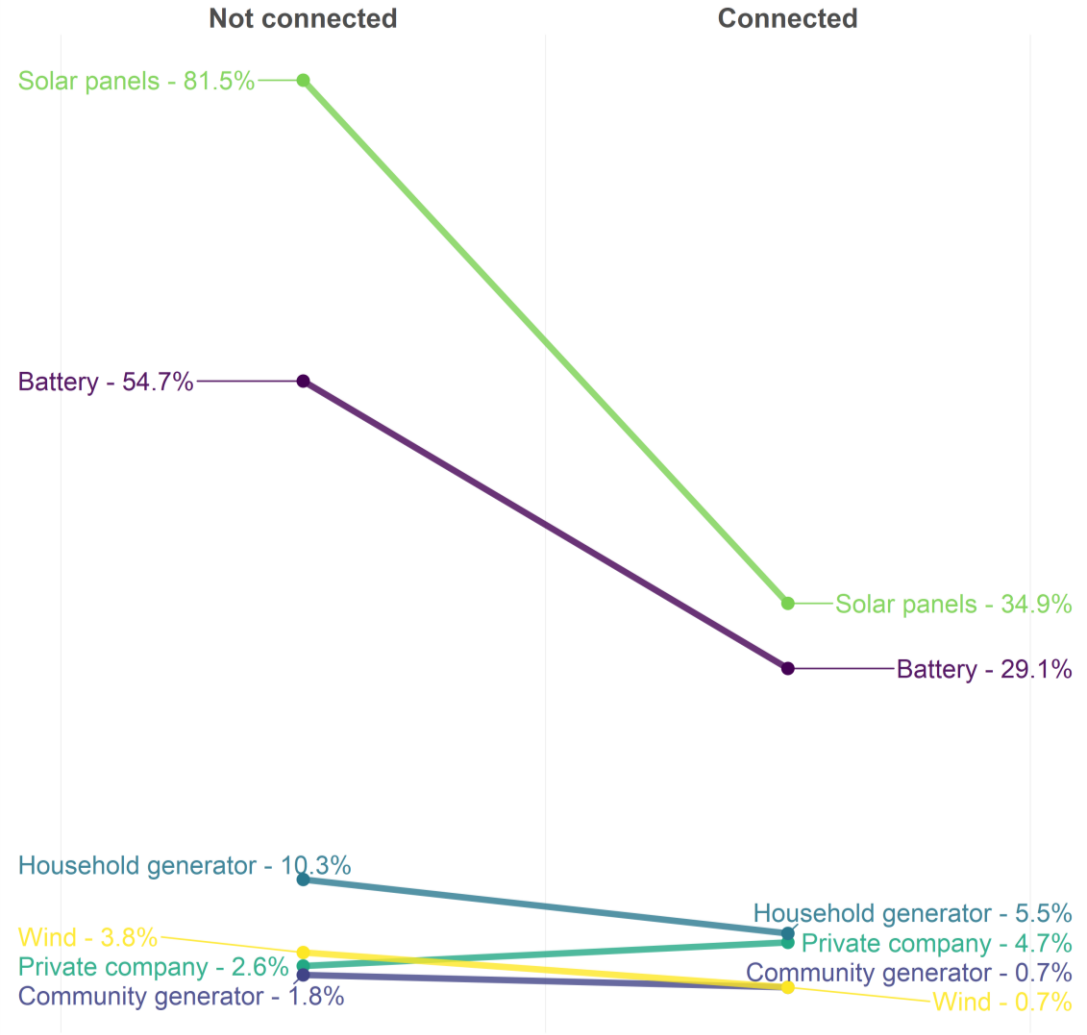
Electricity Findings

Figure M-4. Average reported electricity bill, by location.

[Redacted]

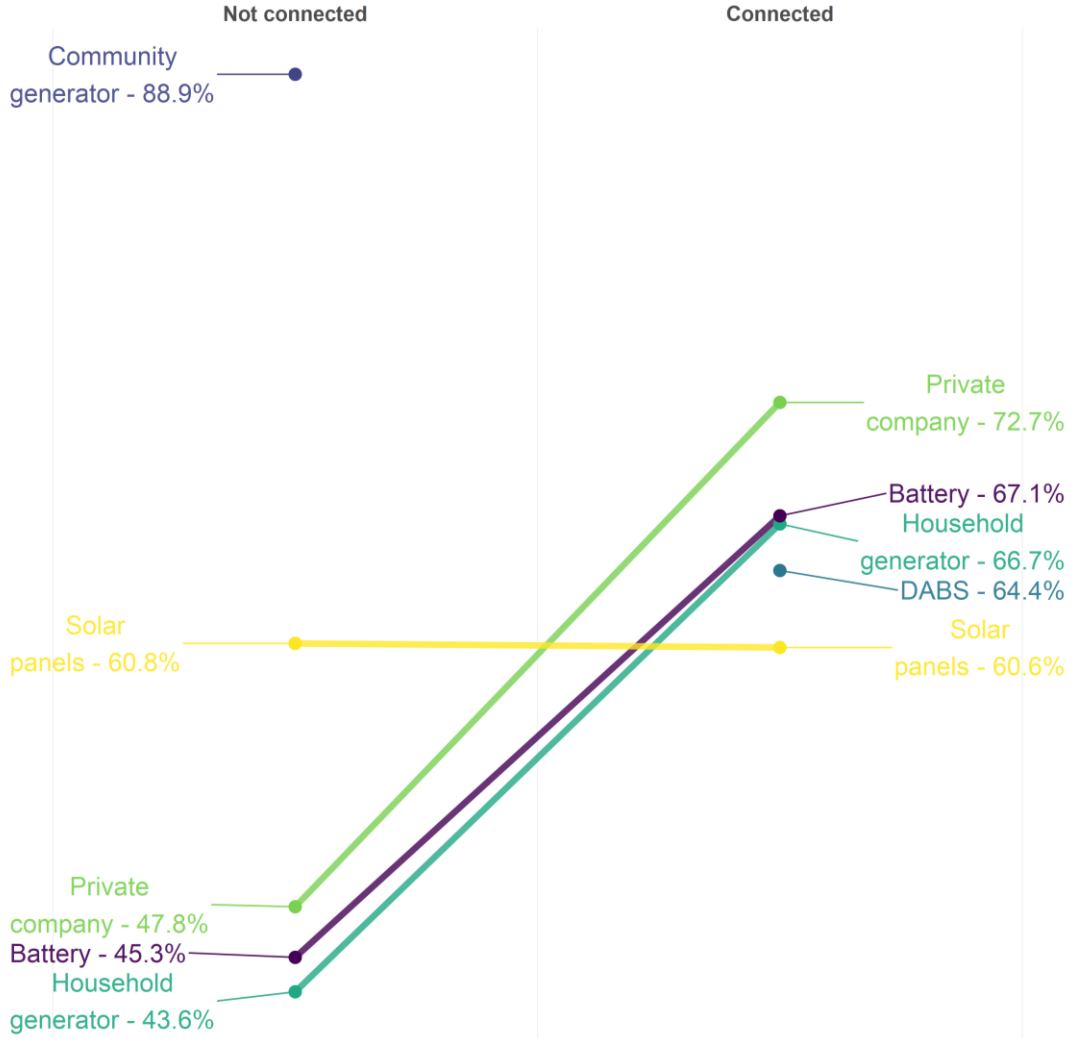
Source of data: EASE-BS HH male survey data 2019.

Figure M-5. Household reliance on energy sources, by connected and not connected to on-grid electricity.



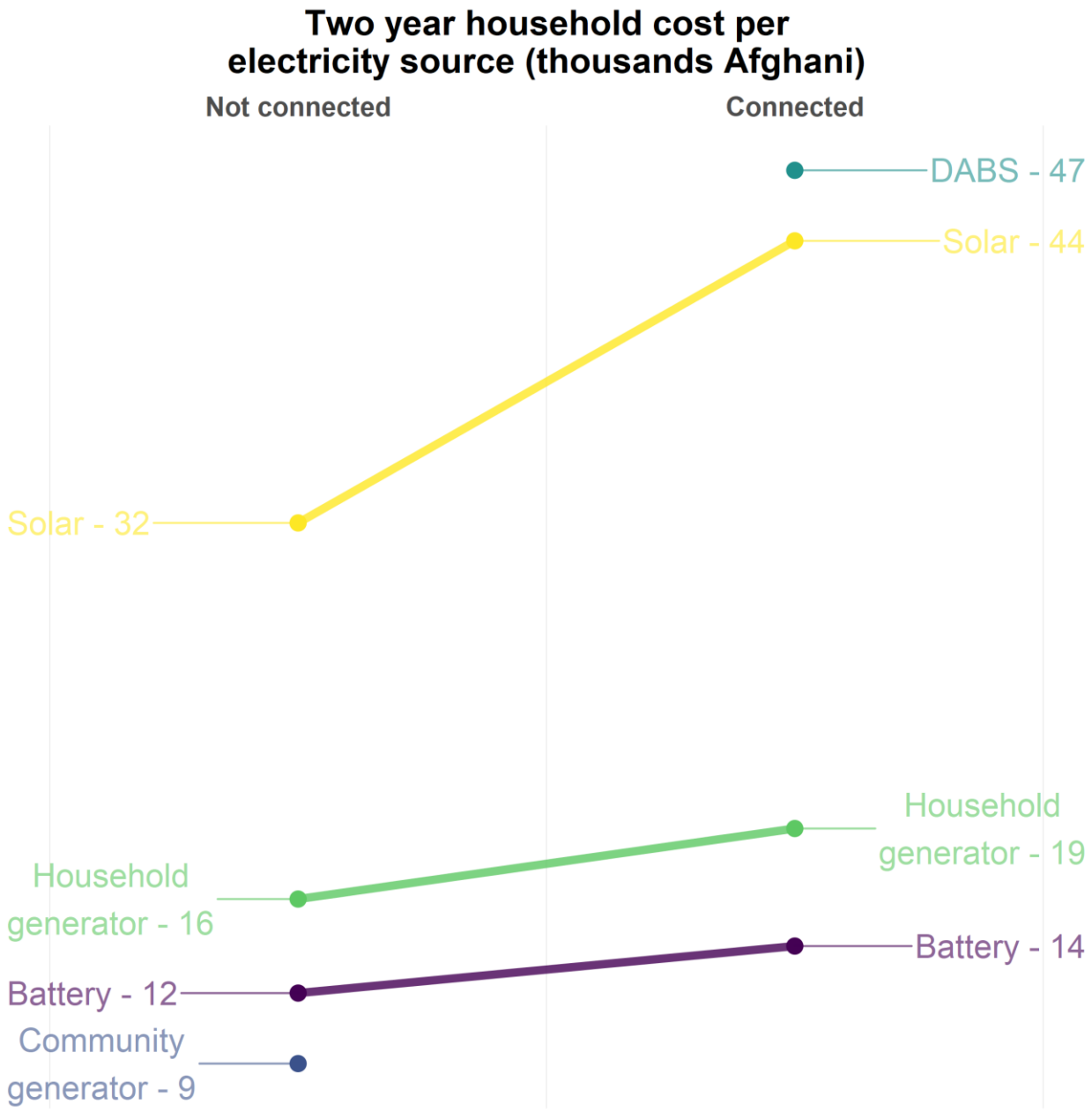
Source of data: EASE-BS HH male survey data 2019.

Figure M-6. Satisfaction with electricity sources, connected and not connected households.



Source of data: EASE-BS HH male survey data 2019.

Figure M-7. Household energy costs, connected and not connected to on-grid electricity.



Source of data: EASE-BS HH male survey data 2019.

The study conducted analysis using night light (explained in Annex K). It found a moderate to strong correlation between night light radiance and household assets (0.5). However, the correlation between night light radiance and reported income was weak (0.1), suggesting an initial finding that changes in night light radiance might be able to make future predictions about changes in household assets, but would not be able to make future predictions about reported income. More formally, an analytical model in which radiance predicts household assets generated small to moderate effect sizes ranging from 0.26 in rural [Redacted] to 0.52 in [Redacted].

Figure M-8. Night light radiance and household assets.

[Redacted]

Note: Predicted standard deviation increase in household assets, for a one standard deviation increase in night light radiance. Controls for sampling location, household size, insecurity, quality of government services, donor activity, and household shocks.

ECONOMY

The key indicators for the economy findings are outlined below. A full list of indicators measured under the baseline can be found in Annex L.

Table M-2. Key indicators for the economy dimension.

Indicator	Unit of measure	Respondent	Connected (treatment)	Not connected (comparison)
Estimated household monthly income	Afs	Male HH	10,893	10,412
Household asset index	Number	Male HH	0.80	-0.29
Estimated business monthly revenue	Number	Business	18,538	31,881
Average number of full- or part-time employees	Number	Business	0.97	1.03
Average number of items powered by electricity owned by business	Number	Business	2.3	2.5

Descriptive Statistics

Figure M-9. How successful businesses consider their business (overall, count).

[Redacted]

Source of data: EASE-BS business survey data 2019.

Figure M-10. Comparing this year to last year, how is your business doing? (overall, count).

[Redacted]

Source of data: EASE-BS business survey data 2019.

Economy Findings

A complementary measure of household welfare is wealth rather than income. Household wealth is most commonly estimated through ownership of a basket of durable goods such as home furnishings, livestock, and machinery.[34] For EASE-BS, the male household survey instrument asked about ownership of 28 household items and subjected the reported ownership to a principal components analysis (see Annexes E and G). Under this analysis, patterns of variation are analyzed and reduced to a smaller number of composite variables, or components, that capture the maximum amount of variance in the data. With respect to using principal components analysis to create an asset score, only the first primary component (capturing more variance than any other component) is retained under the interpretation that it represents a general measure of household wealth. The resulting component scores are scaled to have a mean of zero and standard deviation of one, but could also be cut into intervals such as quantiles or deciles to form a rating variable of household wealth.

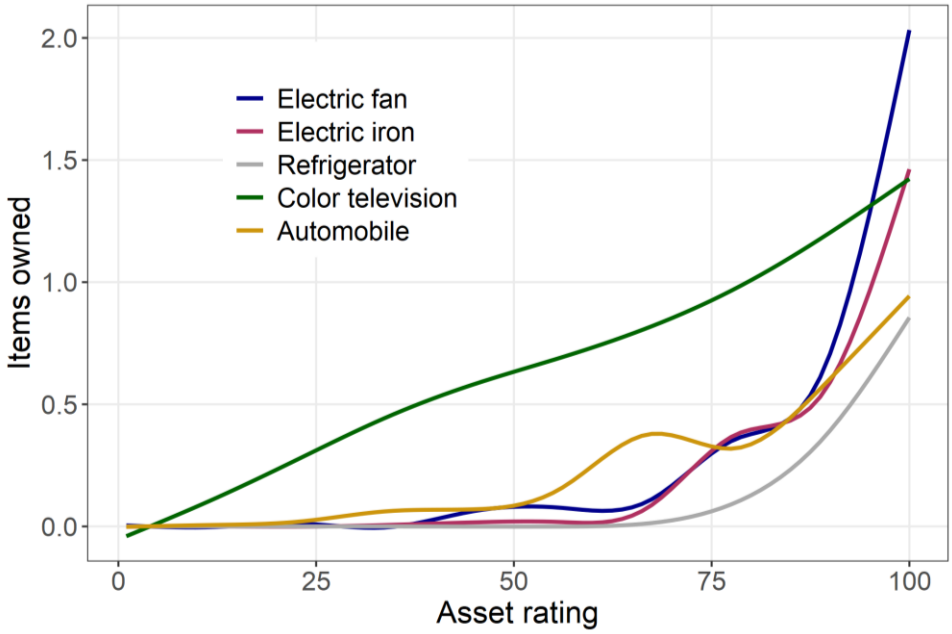
Given that the component scores are not directly interpretable in terms of household wealth, it is important to subject the resulting scores to various consistency tests to validate that they correlate with household asset ownership.

[34] Other measures often included in asset indices are more structural household features such as amount of land owned, amount of land irrigated, construction materials of the home, sources of drinking water, and types of sanitation facilities.

Household Asset Index Validation

The most common way to test the component score is to cross-reference the ownership of goods with the rating score—more ownership of assets should generally coincide with a higher component score, and certain household items will be more effective at displaying this correlation than others. The following figure cross-references ownership of five household items with the overall component rating score of 0–100. The household items are those with the highest discriminatory power in distinguishing lower- and higher-wealth households.

Figure M-11. Household asset ownership and overall rating score.

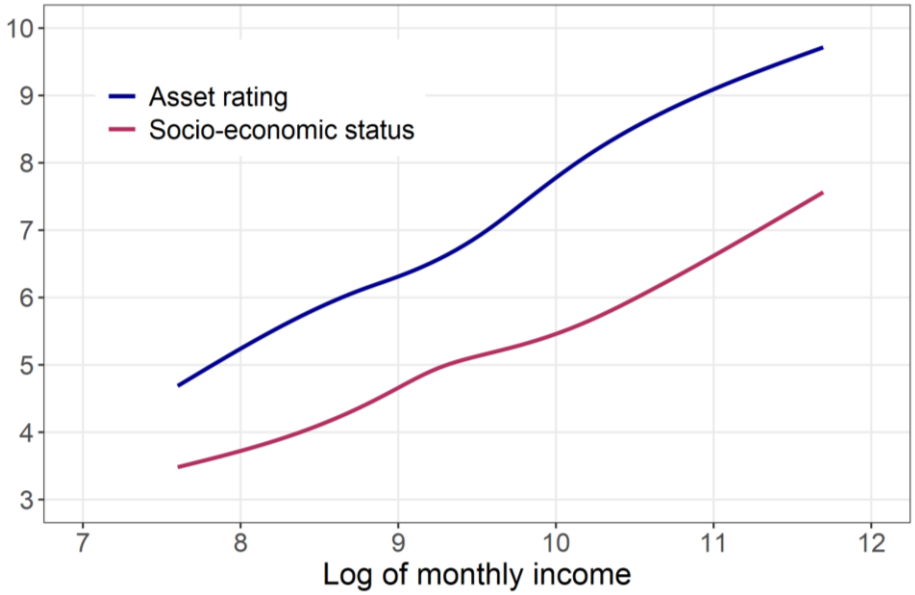


Source of data: EASE-BS HH male survey data 2019.

There is a clear correlation between item ownership and the overall wealth rating. Note further that different items have different discriminatory power. Ownership of a refrigerator only distinguishes between households above the 75th percentile and all others. Ownership of electric fans and irons distinguishes between households below the 60th percentile, between the 60th and 80th percentiles, and above the 80th percentile. Automobile ownership helps distinguish between households below the 50th percentile in wealth, between the 50th and 80th percentiles, and above the 80th percentile. Finally, ownership of color televisions helps distinguish between households throughout the full range of the rating scale.

Another validation check is to cross-reference the household wealth index with reported income and other welfare measures. The following figure benchmarks the wealth index and a self-reported measure of socio-economic status (both scaled 1–10) against reported monthly income.

Figure M-12. Reported income, household wealth, and self-reported socio-economic status.



Source of data: EASE-BS HH male survey data 2019.

Both the household wealth index and the self-reported scale of socio-economic status correlate well with reported monthly income. Scores are consistently lower for self-reported socio-economic status than the household wealth rating, which is consistent with the expectation that self-reported socio-economic status would include non-monetary aspects of welfare. The general finding is that reported income, household wealth, and self-reported socio-economic status are acceptable measures of welfare, but capture different dynamics of overall welfare.

The following listing shows the ranking of the 28 household items based on which do the best job of partitioning households into categories of lower and higher wealth.

Table M-3. Household asset index discrimination weights.

Rank	Household item	Weight	Rank	Household item	Weight
1.	Fan	0.2	15.	Metal pots	0.04
2.	Iron	0.2	16.	Pots	0.03
3.	Refrigerator	0.18	17.	Irrigation pump	0.02
4.	Color television	0.17	18.	Duck	0.01
5.	Car	0.16	19.	Radio	0.01
6.	Computer	0.14	20.	Turkey	0
7.	Mobile	0.14	21.	Tractor	0

Rank	Household item	Weight	Rank	Household item	Weight
8.	Table with chairs	0.13	22.	Bull	-0.01
9.	Bicycle	0.12	23.	Horse	-0.01
10.	Motorcycle	0.12	24.	Rickshaw	-0.01
11.	Black and white television	0.09	25.	Chicken	-0.02
12.	truck	0.08	26.	Goat	-0.03
13.	Sewing machine	0.08	27.	Cow	-0.05
14.	Stove	0.04	28.	Sheep	-0.08

GOVERNANCE AND SECURITY

The key indicators for the governance and security findings are outlined below. A full list of indicators measured under the baseline can be found in Annex L.

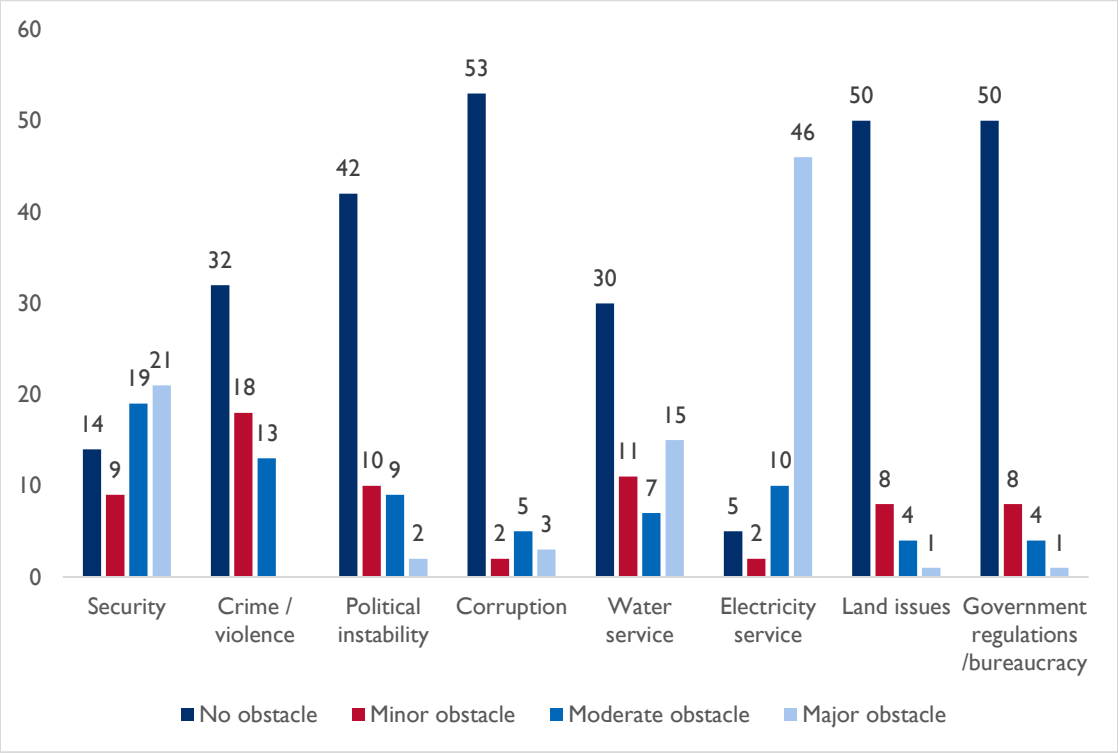
Table M-4. Key indicators for the governance and security dimension.

Indicator	Unit of measure	Respondent	Connected (treatment)	Not connected (comparison)
Respondents reporting things in Afghanistan heading in right direction	Percent	Male HH	40.8	31.4
		Business	48.6	28.6
Respondents reporting national government doing a good job	Percent	Male HH	35.9	36.9
		Business	52.6	40
Operations reporting corruption at DABS (regarding connectivity)	Percent	Male HH	1.1	--
		Business	10.8	--
Respondents reporting fear for personal safety	Percent	Male HH	33.5	54.6
		Business	35.9	39.2
HHs reporting security is better than in previous year	Percent	Business	59	63.7
		Male HH	21.1	16.4

"--" denotes does not apply.

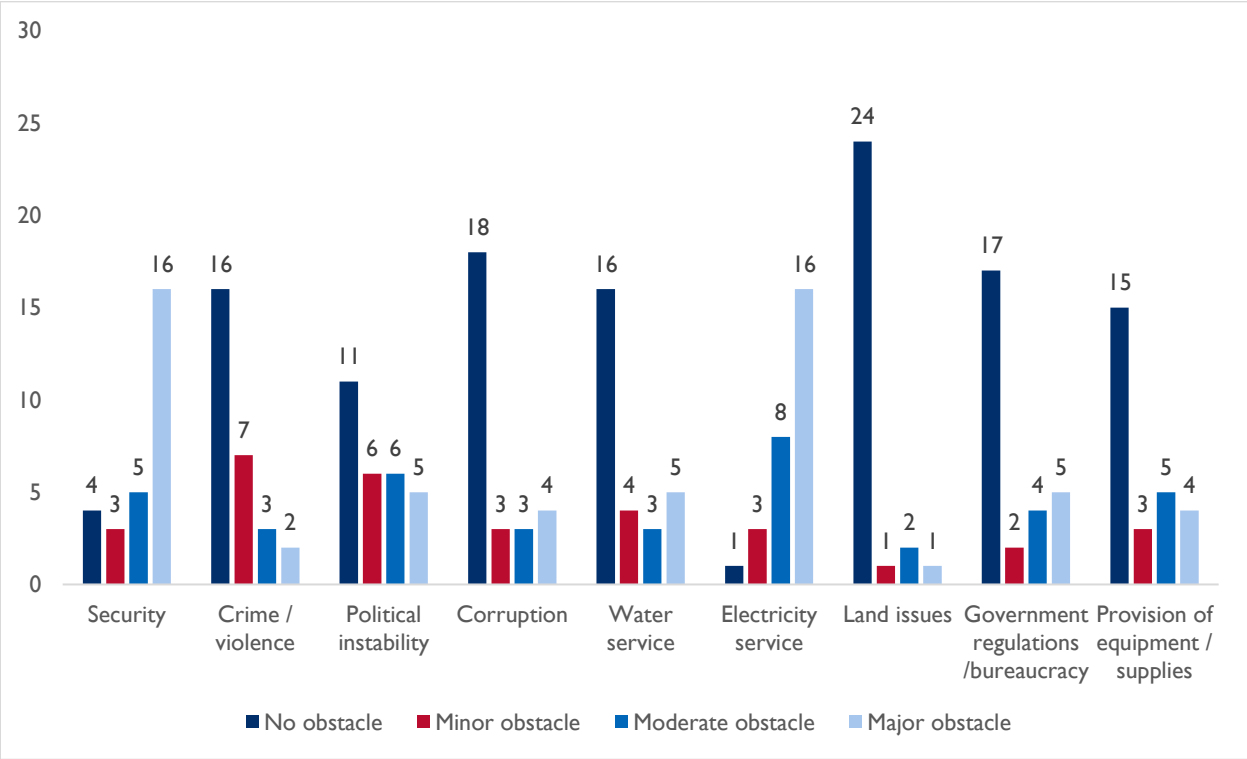
Descriptive Statistics

Figure M-13. Biggest obstacles to the successful operations of schools (total, count).



Source of data: EASE-BS school survey data 2019.

Figure M-14. Biggest obstacles to the successful operations of clinics (total, count)



Source of data: EASE-BS clinic survey data 2019.

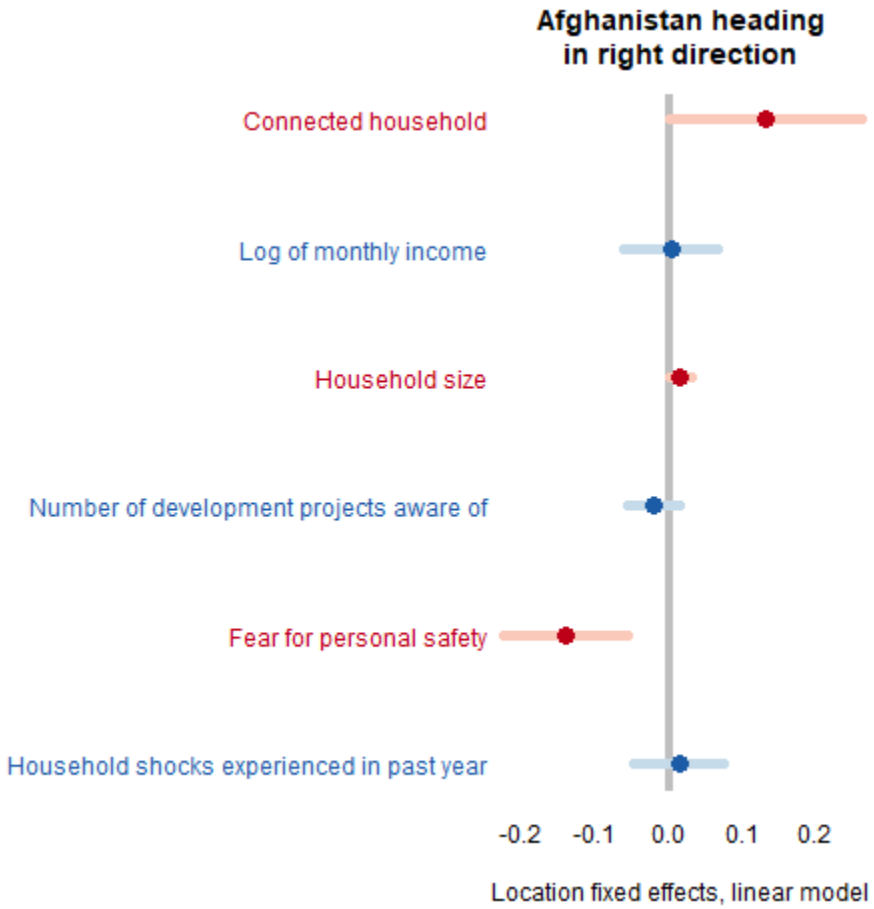
Governance and Security Findings

The observed 9.4 percentage point difference in perceiving the district to be heading in the right direction based on connected and not connected households is not a statistically significant difference (see column 1, Table M-5). The difference shrinks to 7 percent after including controls such as household income, size, surrounding donor activity, security, and household shocks (column 3, Table M-5). However, the effect of access to on-grid electricity increases after accounting for variation across sub-station and urban/rural, to 13-18 percent (columns 5-6, Table M-5). Figure M-15 shows the coefficient values for the location fixed effects model, where variables in red denote a statistically significant finding.

> "People's access to public services including mobile phones, electricity, health facilities as well as reconstructed roads and bridges have positive effects on the security situation. However, it has negative effects on security when electricity, media, and communication services are not available." ([Redacted], Businesses)

> "Yes, when roads are reconstructed and paved, antigovernment elements cannot plant mines in them… availability of electricity also helps maintain security because when streets and roads are illuminated, thieves and robbers cannot commit theft and robbery easily." ([Redacted], Businesses)

Figure M-15. Model coefficient plot of "Afghanistan heading in right direction."



Note: A fixed effects model was run to calculate the coefficient values shown in Figure M-15. Red lines/dots denote a statistically significant finding compared to blue lines/dots which were not significant.
Source of data: EASE-BS HH male survey data 2019.

In Figure M-15 above and all other specifications, security (here proxied by the respondent's sense of personal safety) has a large effect on whether the respondent perceives things in Afghanistan are going in the right direction.[35]

The relationship between electricity access and perceiving 'things in Afghanistan to be heading in the right direction' is stronger for more rural areas. Figure M-16 shows the relationship for each of the three sampling locations (sub-station, urban/rural).

[35] Survey item F1 posed to male heads of household: "Overall, based on your experience, do you think things in Afghanistan today are going in the right direction, or do you think they are going in the wrong direction?" This item has a long history in The Asia Foundation surveys. Definition of both "things in Afghanistan today" and "right direction" are left to the respondent, but the item is considered a signifier of positive or negative popular sentiment regardless of how or why.

Figure M-16. On-grid electricity and perceiving that Afghanistan going in right direction, by location.

[Redacted]

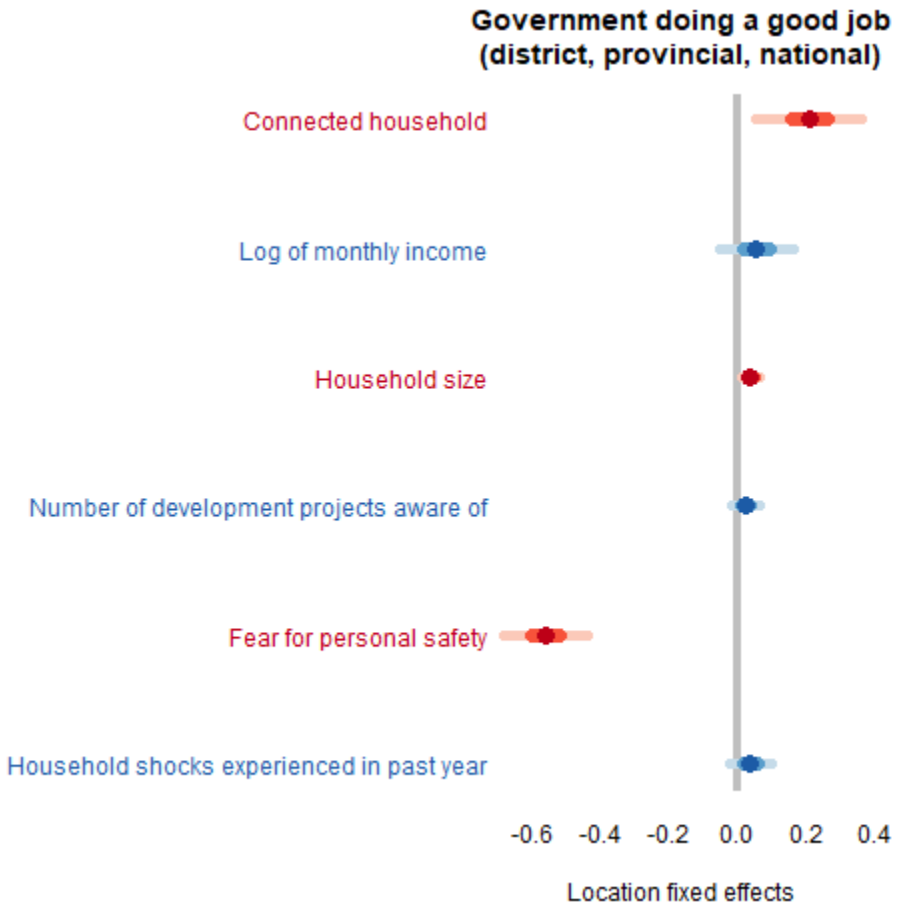
Source of data: EASE-BS HH male survey data 2019.

While a barometer of public sentiment (percent of stating they are going in the right direction) may be sensitive to marginal changes in service delivery such as the opportunity to connect to on-grid electricity, more substantive measures of government performance are also more measured (government performance index comprise of multiple variables and created for this study). In a standardized index of overall government performance across district, provincial, and national levels of government, there is a weakly positive relationship between electricity access and government performance (column 1, Table M-6). Like the regression output for public sentiment (see Table M-5), the relationship weakens with the addition of controls, but strengthens after including controls for sampling location (columns 2-4, Table M-6). After controlling for sampling location, the effect is 0.21 – 0.22 and marginally statistically significant.[36] Note again the strong negative relationship between security and government performance.

Figure M-17 shows the model output for the multilevel model, where variables in red denote a statistically significant finding.

[36] As the index is standardized to have a mean of zero and standard deviation one, the resulting treatment effect sizes are not intuitively apparent. A benchmark that may aid interpretation is to consider estimates no lower than 0.2 to be a small but substantive effect, no lower than 0.5 to be a medium effect, and estimates no lower than 0.8 to be a large effect (Cohen 1962).

Figure M-17. Model coefficient plot, Government Performance index.



Note: A fixed effects model was run to calculate the coefficient values shown in Figure M-17. Red lines/dots denote a statistically significant finding compared to blue lines/dots which were not significant.
Source of data: EASE-BS HH male survey data 2019.

Regression Output – Dimension 2 Governance and Security

The following table shows the raw output of several regression models, each using different analytical methods or combinations of predictor variables to identify the relationship between electricity access and the perception that things in the district are heading in the right direction.

Table M-5. Model output, on-grid electricity and perception that Afghanistan is heading in the right direction.

Measure	1 Robust linear, no controls	2 Logistic	3 Robust linear, with controls	4 Logistic, with controls	5 Location fixed effects, linear	6 Multilevel, linear
Not connected household	0.31*	-0.79***	0.33	-0.75		0.25
	[0.25; 0.37]	(0.08)	[-0.24; 0.90]	(1.13)		(0.25)
Connected household	0.09	0.40**	0.07	0.30	0.13*	0.18*
	[-0.03; 0.21]	(0.15)	[-0.05; 0.19]	(0.16)	[0.00; 0.26]	(0.08)
Log of monthly income			-0.01	-0.05	0.00	0.00
			[-0.07; 0.05]	(0.13)	[-0.06; 0.07]	(0.03)
Household size			0.02*	0.08**	0.02*	0.02*
			[0.00; 0.03]	(0.03)	[0.00; 0.03]	(0.01)
Number of development projects aware of			0.01	0.04	-0.02	-0.02*
			[-0.02; 0.03]	(0.04)	[-0.06; 0.02]	(0.01)
Fear for personal safety			-0.14*	-0.67***	-0.14*	-0.14***
			[-0.23; -0.06]	(0.15)	[-0.23; -0.06]	(0.03)
Household shocks experienced in past year			0.02	0.09	0.01	0.01
			[-0.04; 0.08]	(0.07)	[-0.05; 0.07]	(0.02)
R^2	0.01		0.04		0.07	
Adj. R^2	0.01		0.03		0.06	
Num. obs.	955	955	955	955	955	955
RMSE	0.47		0.46		0.46	
AIC		1216.48		1195.22		1282.34
BIC		1226.20		1229.25		1335.81
Log Likelihood		-606.24		-590.61		-630.17
Deviance		1212.48		1181.22		
Num. groups: loc						3
Var: loc (Intercept)						0.01
Var: loc treat						0.02
Cov: loc (Intercept) treat						0.01
Var: Residual						0.21

***p < 0.001, **p < 0.01, *p < 0.05 (or 0 outside the confidence interval).
District heading in right direction

Table M-6. Model output, on-grid electricity and assessment of government performance.

Measure	1 Robust, no controls	2 Robust, with controls	3 Location fixed effects	4 Multilevel
Not connected household	-0.04	-0.47		-0.59
	[-0.18; 0.11]	[-1.62; 0.69]		(0.52)
Connected household	0.15	0.10	0.22	0.21**
	[-0.11; 0.41]	[-0.12; 0.32]	[-0.02; 0.47]	(0.08)
Log of monthly income		0.03	0.05	0.05
		[-0.10; 0.16]	[-0.08; 0.18]	(0.06)
Household size		0.04*	0.03*	0.03*
		[0.01; 0.07]	[0.00; 0.06]	(0.01)
Number of development projects aware of		0.08*	0.02	0.02
		[0.03; 0.12]	[-0.04; 0.08]	(0.02)
Fear for personal safety		-0.58*	-0.56*	-0.56***
		[-0.76; -0.39]	[-0.74; -0.38]	(0.06)
Number of household shocks experienced in past year		0.05	0.04	0.04
		[-0.06; 0.15]	[-0.06; 0.13]	(0.03)
R^2	0.00	0.13	0.15	
Adj. R^2	0.00	0.12	0.15	
Num. obs.	955	955	955	955
RMSE	1.01	0.95	0.94	
AIC				2645.26
BIC				2698.74
Log Likelihood				-1311.63
Num. groups: loc				3
Var: loc (Intercept)				0.06
Var: loc treat				0.00
Cov: loc (Intercept) treat				-0.01
Var: Residual				0.88

***p < 0.001, **p < 0.01, *p < 0.05 (or 0 outside the confidence interval).
Index of government performance (district, provincial, national)

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT)

The key indicators for the ICT findings are outlined below. A full list of indicators measured under the baseline can be found in Annex L.

Table M-7. Key indicators for the ICT dimension.

Indicator	Unit of measure	Respondent	Connected (treatment)	Not connected (comparison)
Households that reported watching television	Percent	Male HH	93.8	42.9
Weekly hours of household television consumption	Number	Male HH	21.4	7.9
Households owning radios	Percent	Male HH	60	67.8
Weekly hours of household radio consumption	Number	Male HH	8.8	10.3
Mobile telephone ownership	Percent	Male HH	96.4	95.8
		Business	97.4	91.2
Respondents owning computers	Percent	Male HH	29.5	15.3
Respondents with access to internet	Percent	Male HH	38.5	17

Descriptive Statistics

Figure M-18. Percent of households with access to internet (overall).

[Redacted]

Source of data: EASE-BS HH male survey data 2019.

Figure M-19. Percent of respondents who watch television (overall).

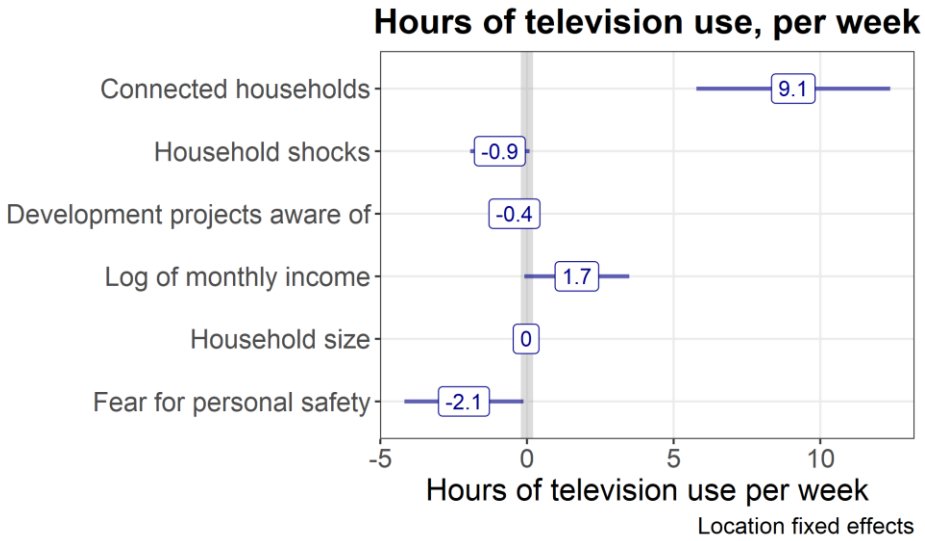
[Redacted]

Source of data: EASE-BS HH male and female survey data 2019.

ICT Findings

The large effect of electricity access on television consumption is consistent across sampling locations. Adding in a set of household controls reduces the increase in weekly television usage from approximately 13 to 9 hours. Figure M-20 plots model coefficients for location fixed effects (column 3, Table M-8). The one variable besides on-grid connection that affects television usage is the security environment (Figure M-20).

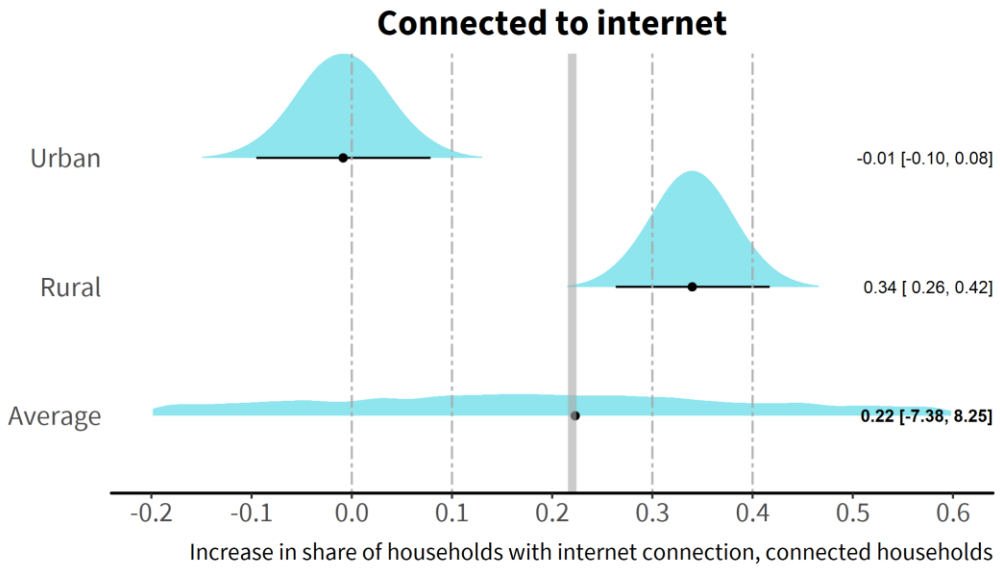
Figure M-20. Model output, hours of television use per week.



Source of data: EASE-BS HH male survey data 2019.

For other measures such as computer ownership and internet connection, the treatment effect is entirely driven by rural areas ([Redacted] and rural [Redacted]). Figure M-21 shows an average treatment effect of 22 percent, but which is zero in urban [Redacted] and 34 percent in rural areas.

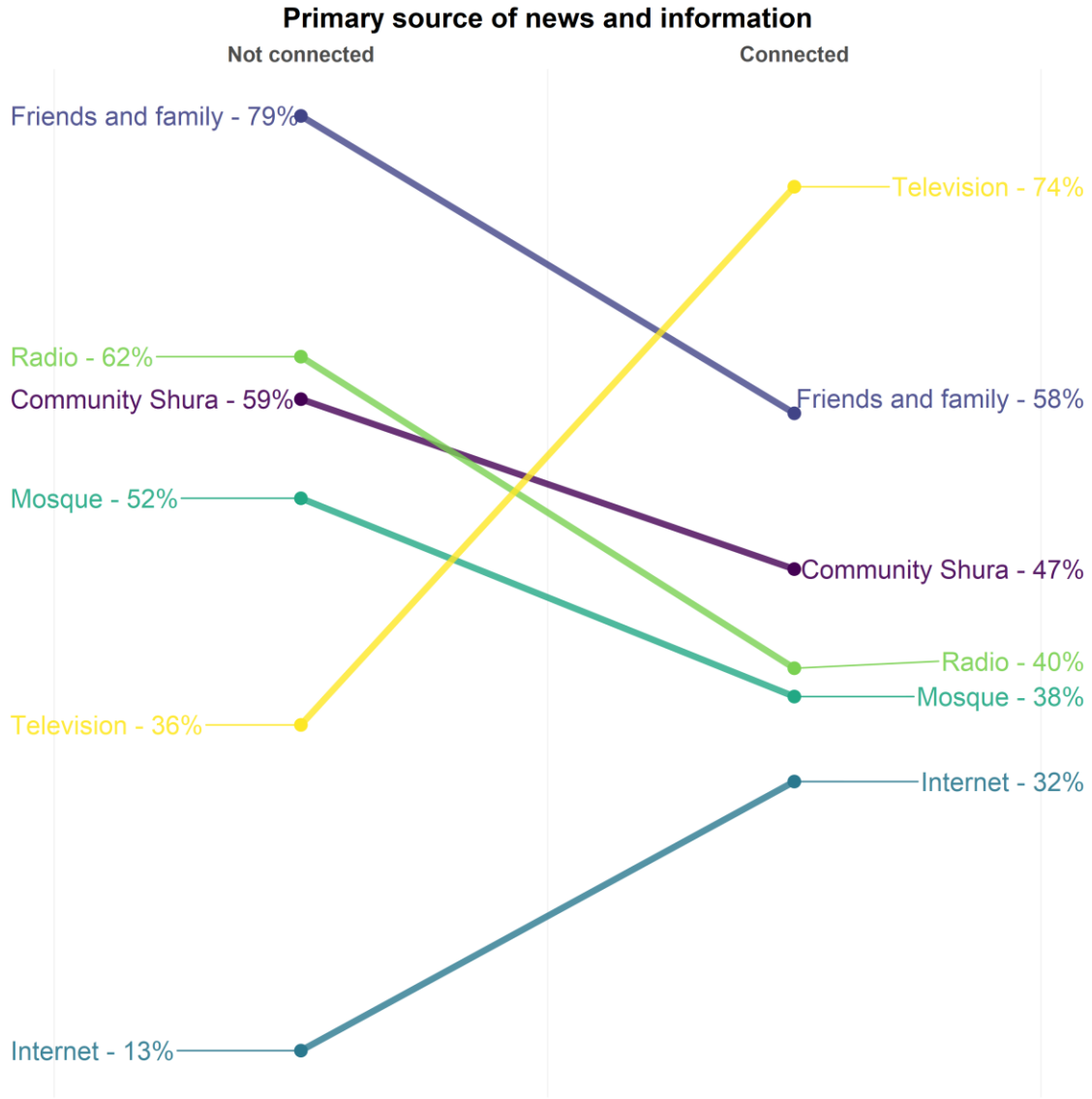
Figure M-21. On-grid electricity and hours of television use per week.



Note: Differential treatment effects by urbanity – this figure represents the change in frequency for those connected. Bayesian multilevel regression model controlling for household size, income, security environment, local donor activity, and incidence of household shocks. Connected households (treatment group) are interacted with urban-rural status. Connected households in rural areas are 34 percentage points more likely to have an internet connection relative not connected households (comparison group) in rural areas. For example, 17 percent of not connected households have an internet connection. However, 39 percent of connected households have an internet connection. There is a difference of 22 percent reflected in the grey bar on the figure. The purpose of this figure is to show the variation in treatment effect (on-grid electricity connection) across urban rural households. The data shows almost no treatment effect in urban areas (as shown in the figure above with a value is almost zero). The effect is driven by the rural areas.
Source of data: EASE-BS HH male survey data 2019.

The additional usage of television and internet coincides with an increase in reporting these sources as a primary source of the household's news and information. Figure M-22 shows the difference for all news sources for connected and not connected households.

Figure M-22. Primary sources of news and information for connected and not-connected households.



Source of data: EASE-BS HH male survey data 2019.

Households without connection to on-grid electricity primarily report community-based sources of news and information, along with radio. For connected households, television displaces friends and family as the most-reported source of news and information. Internet as a source of information remains low but increases significantly for connected households.

While the increase in television usage was driven entirely by rural [Redacted] and rural [Redacted], the sharp increase in television as a source of news and information is driven primarily by [Redacted], but both urban and rural [Redacted] also show health increases.

Regression Output – Hours of Television Use per Week

Table M-8. Model output, hours of television use per week.

Measure	1	2	3	4
	Robust, no controls	Robust, with controls	Location fixed effects	Multilevel
Not connected household	7.84*	-7.60		-2.67
	[6.19; 9.49]	[-23.60; 8.39]		(6.48)
Connected household	13.60*	11.69*	9.08*	9.35***
	[10.36; 16.84]	[8.12; 15.26]	[5.71; 12.45]	(1.10)
Log of monthly income		2.27*	1.70	1.72**
		[0.34; 4.20]	[-0.12; 3.52]	(0.66)
Household size		-0.03	-0.03	-0.04
		[-0.42; 0.36]	[-0.40; 0.34]	(0.16)
Number of development projects aware of		-1.24*	-0.43	-0.43
		[-1.88; -0.59]	[-1.07; 0.21]	(0.25)
Fear for personal safety		-3.05*	-2.15*	-2.17**
		[-5.15; -0.95]	[-4.20; -0.10]	(0.78)
Number of household shocks experienced in past year		-1.10	-0.92	-0.92*
		[-2.49; 0.30]	[-1.99; 0.15]	(0.40)
R^2	0.20	0.25	0.29	
Adj. R^2	0.20	0.25	0.28	
Num. obs.	982	982	982	982
RMSE	12.28	11.89	11.60	
AIC				7620.97
BIC				7674.75
Log Likelihood				-3799.48
Num. groups: location				3
Var: location (Intercept)				20.75
Var: location treat				1.03
Cov: location (Intercept) treat				-4.61
Var: Residual				134.42

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$ (or 0 outside the confidence interval).
Hours of television use, per week

Regression Output – Household Connected to Internet

Table M-9. Model output, household has internet connection.

Measure	1	2	3	4	5
	Robust, no controls	Logistic, no controls	Robust, with controls	Logistic, with controls	Multilevel
Not connected household	0.17*	-1.62***	-0.87*	-7.77***	-0.80***
	[0.11; 0.22]	(0.10)	[-1.41; -0.34]	(1.32)	(0.21)
Connected household	0.22*	1.15***	0.17*	0.89***	0.20
	[0.10; 0.34]	(0.16)	[0.05; 0.29]	(0.17)	(0.12)
Log of monthly income			0.13*	0.79***	0.12***
			[0.08; 0.19]	(0.15)	(0.02)
Household size			-0.01	-0.04	-0.01
			[-0.02; 0.01]	(0.04)	(0.01)
Number of development projects aware of			-0.05*	-0.32***	-0.03***
			[-0.06; -0.03]	(0.05)	(0.01)
Fear for personal safety			-0.03	-0.20	-0.03
			[-0.10; 0.04]	(0.17)	(0.03)
Number of household shocks experienced in past year			-0.01	-0.05	-0.00
			[-0.05; 0.03]	(0.10)	(0.01)
R^2	0.06		0.12		
Adj. R^2	0.05		0.11		
Num. obs.	963	963	963	963	963
RMSE	0.41		0.39		
AIC		984.03		927.04	968.63
BIC		993.77		961.13	1022.20
Log Likelihood		-490.02		-456.52	-473.31
Deviance		980.03		913.04	
Num. groups: location					3
Var: location (Intercept)					0.01
Var: location treat					0.04
Cov: location (Intercept) treat					-0.02
Var: Residual					0.15

***p < 0.001, **p < 0.01, *p < 0.05 (or 0 outside the confidence interval).
Household has internet connection

HEALTH

The key indicators for the health findings are outlined below. A full list of indicators measured under the baseline can be found in Annex L.

Table M-10. Key indicators for the health dimension.

Indicator	Unit of measure	Respondent	Connected (treatment)	Not connected (comparison)
Number of hospitals, clinics and health posts	Number	Clinic	5	23
Health facilities offering vaccines	Percent	Clinic	80	73.9
Rate of respiratory illness reported in last month	Percent	Clinic	8.1	19
Health facilities offering emergency services	Percent	Clinic	100	74
Households with access to piped water	Percent	Male HH	46.9	22.9
Households lost work due to illness	Percent	Female HH	54	45

Note: The study found a total of five connected clinics and 23 not connected clinics. Percentages in the table are reflective of the totals for each category (connected vs. not connected).

Descriptive Statistics

Figure M-23. Does this health facility provide vaccinations (overall)?

[Redacted]

Source of data: EASE-BS clinic survey data 2019.

Figure M-24. Health facilities offering emergency services (overall, count).

[Redacted]

Source of data: EASE-BS clinic survey data 2019.

Figure M-25. Percent of households with access to piped water (overall).

[Redacted]

Source of data: EASE-BS HH male survey data 2019.

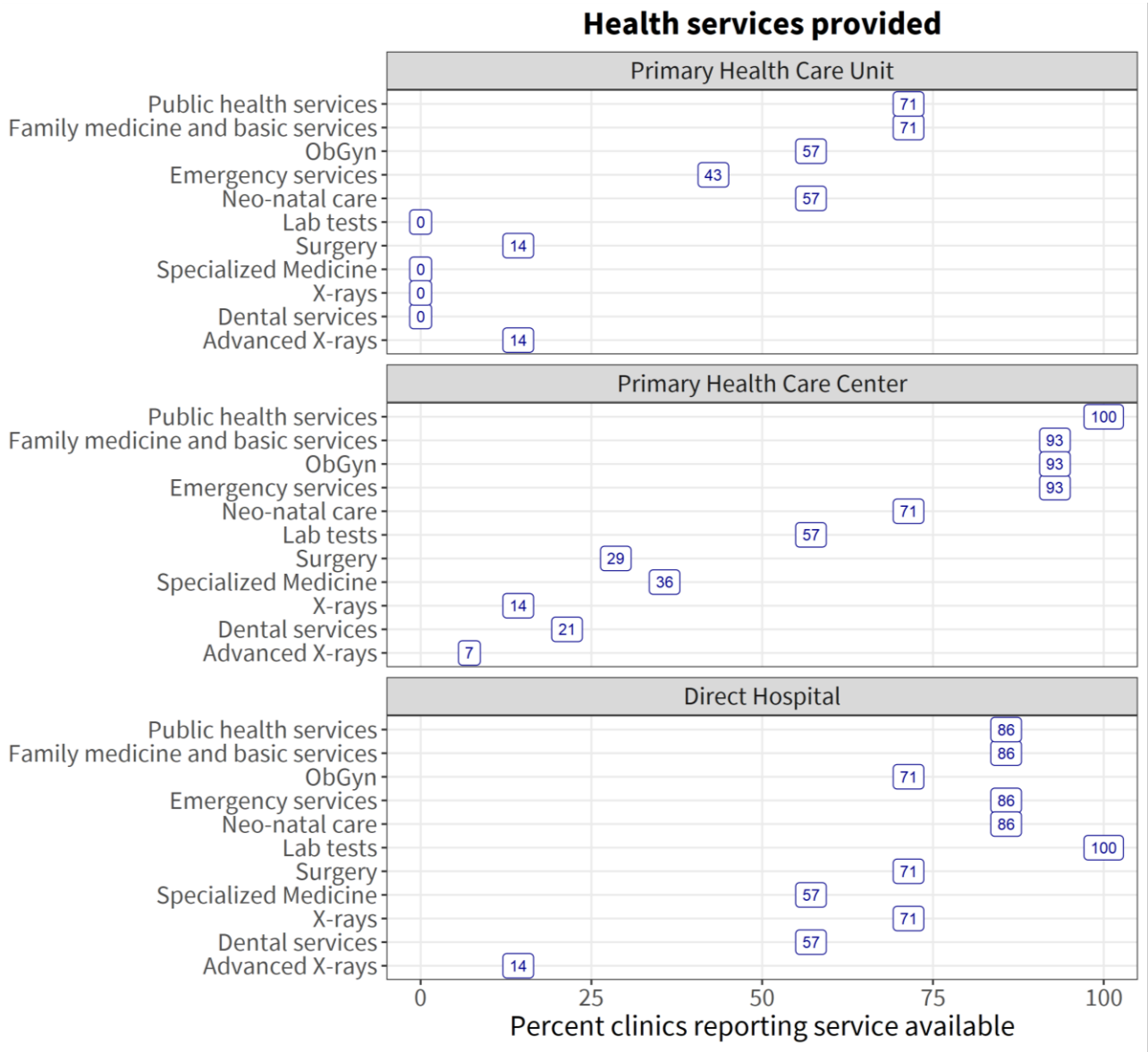
Figure M-26. Rate of respiratory illness reported in last month.

[Redacted]

Source of data: EASE-BS clinic survey data 2019.

Health Findings

Figure M-27. Health services offered by clinic type.



Source of data: EASE-BS clinic surveys 2019.

Figure M-28. Obstacles to successful operation of clinic, ranked within clinic type.

[Redacted]

Source of data: EASE-BS clinic surveys 2019.

Connection to on-grid electricity increases the feasibility of providing some services such as vaccines, which require refrigeration. Connected clinics were more likely to own a vaccine refrigerator and reported that they offer vaccinations as a service, though the effect was concentrated among primary health care centers and in [Redacted] city center.

There were also correlations between clinic on-grid electricity connection, clinic measures of service delivery related to on-grid electricity, and household measures of health such as vaccinated children, incidence of sickness, and the persistence of coughing or difficulty breathing. However, these correlations were imprecisely estimated and must be investigated more rigorously (using longitudinal data) at midline and endline.

EDUCATION

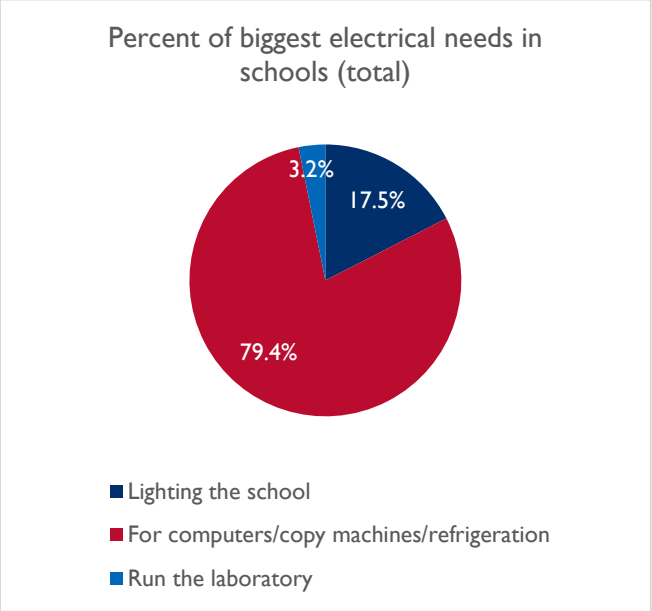
The key indicators for the education findings are outlined below. A full list of indicators measured under the baseline can be found in Annex L.

Table M-11. Key indicators for the education dimension.

Indicator	Unit of measure	Respondent	Connected (treatment)	Not connected (comparison)
Schools	Number	School	4 (6.3%)	59 (93.7%)
Students enrolled	Number	School	1,586	882
Schools with computers	Percent	School	75	0.4
Computers schools own for administrative use	Number	School	1	0.5
Computers schools own for student use	Number	School	2	0.8

Descriptive Statistics

Figure M-29. Percent of biggest electrical needs in schools (total).



Source of data: EASE-BS school survey data 2019.

Figure M-30. Percent of schools that use electric lighting (overall).

[Redacted]

Source of data: EASE-BS school survey data 2019.

Regression Output – Education, Male Household Members 6–24

Table M-12. Average years of education, male household members 6–24.

Measure	1	2	3	4
	Robust linear, no controls	Robust, with controls	Location fixed effects	Multilevel
Not connected household	6.01*	3.07		2.78
	[5.65; 6.36]	[-1.30; 7.45]		(2.07)
Connected household	-0.15	-0.03	0.13	0.07
	[-0.83; 0.52]	[-0.72; 0.66]	[-0.67; 0.93]	(0.37)
Log of monthly income		0.17	0.20	0.19
		[-0.32; 0.65]	[-0.27; 0.66]	(0.23)
Household size		0.13	0.13	0.13*
		[-0.02; 0.27]	[-0.01; 0.28]	(0.06)
Number of development projects aware of		0.06	0.04	0.05
		[-0.08; 0.20]	[-0.16; 0.23]	(0.08)
Fear for personal safety		0.49	0.34	0.40
		[-0.11; 1.08]	[-0.23; 0.90]	(0.27)
Number of household shocks experienced in past year		0.08	0.08	0.08
		[-0.22; 0.37]	[-0.20; 0.36]	(0.14)
R^2	0.00	0.01	0.02	
Adj. R^2	-0.00	0.01	0.01	
Num. obs.	734	734	734	734
RMSE	3.59	3.58	3.57	
AIC				3982.46
BIC				4033.04
Log Likelihood				-1980.23
Num. groups: loc				3
Var: loc (Intercept)				0.11
Var: loc treat				0.07
Cov: loc (Intercept) treat				0.09
Var: Residual				12.74

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$ (or 0 outside the confidence interval).
Average years of completed education - male household members 6-24

Regression output – Education, Female Household Members 6–24

Table M-13. Model output, average completed years of education, female household members 6–24.

Measure	1	2	3	4
	Robust linear, no controls	Robust, with controls	Location fixed effects	Multilevel
Not connected household	2.72*	-2.28		-0.28
	[2.28; 3.17]	[-6.64; 2.09]		(2.06)
Connected household	1.84*	1.70*	0.56	0.72
	[1.08; 2.59]	[0.98; 2.42]	[-0.25; 1.37]	(0.38)
Log of monthly income		0.58*	0.33	0.34
		[0.10; 1.05]	[-0.10; 0.76]	(0.20)
Household size		0.01	0.01	0.01
		[-0.13; 0.16]	[-0.12; 0.14]	(0.05)
Number of development projects aware of		-0.27*	0.16	0.15
		[-0.43; -0.10]	[-0.03; 0.35]	(0.08)
Fear for personal safety		0.46	0.49	0.47*
		[-0.19; 1.12]	[-0.06; 1.04]	(0.24)
Number of household shocks experienced in past year		0.00	0.09	0.10
		[-0.30; 0.31]	[-0.18; 0.37]	(0.12)
R^2	0.06	0.09	0.20	
Adj. R^2	0.06	0.08	0.19	
Num. obs.	734	734	734	734
RMSE	3.33	3.28	3.08	
AIC				3773.15
BIC				3823.74
Log Likelihood				-1875.58
Num. groups: loc				3
Var: loc (Intercept)				3.20
Var: loc treat				0.17
Cov: loc (Intercept) treat				-0.72
Var: Residual				9.48

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$ (or 0 outside the confidence interval).
Average years of completed education - female household members 6-24

Figure M-31. Completed education for female household members aged 6–24, by location.

[Redacted]

Source of data: EASE-BS HH female survey 2019.
Note: This figure represents the change in years in female education for connected households. It shows differential treatment effects by urbanicity using a Bayesian multilevel regression model controlling for household size, income, security environment, local donor activity, and incidence of household shocks. The purpose of this figure is to show the variation in treatment effect (on-grid electricity connection) across sampling locations. The treatment effect for completed education for female members of the household is concentrated in rural areas. The grey bar represents the zero limit, and the pink bar indicates the average across all locations.

Figure M-32. Word cloud of topics by school respondents.

Data source: Enhanced survey data overall.
Note: The word cloud depicts the frequency of topics discussed by school respondents. The larger words depict higher frequencies compared to the smaller words.

ENVIRONMENT

The key indicators for the environment findings are outlined below. A full list of indicators measured under the baseline can be found in Annex L.

Table M-14. Key indicators for the environment dimension.

Indicator	Unit of measure	Respondent	Connected (treatment)	Not connected (comparison)
Households reporting wood as heating source	Percent	Male HH	92.4	89.7
Households reporting wood as a cooking fuel	Percent	Female HH	27.3	67.9
Businesses reporting charcoal as heating source	Percent	Business	15.4	38.2
Businesses reporting kerosene as heating source	Percent	Business	2.6	9.8
Businesses reporting use of diesel generators	Percent	Business	0	2.9

Descriptive Statistics

Figure M-33. Sources of heating home/business (overall).

[Redacted]

Source of data: EASE-BS HH male and business survey data 2019.

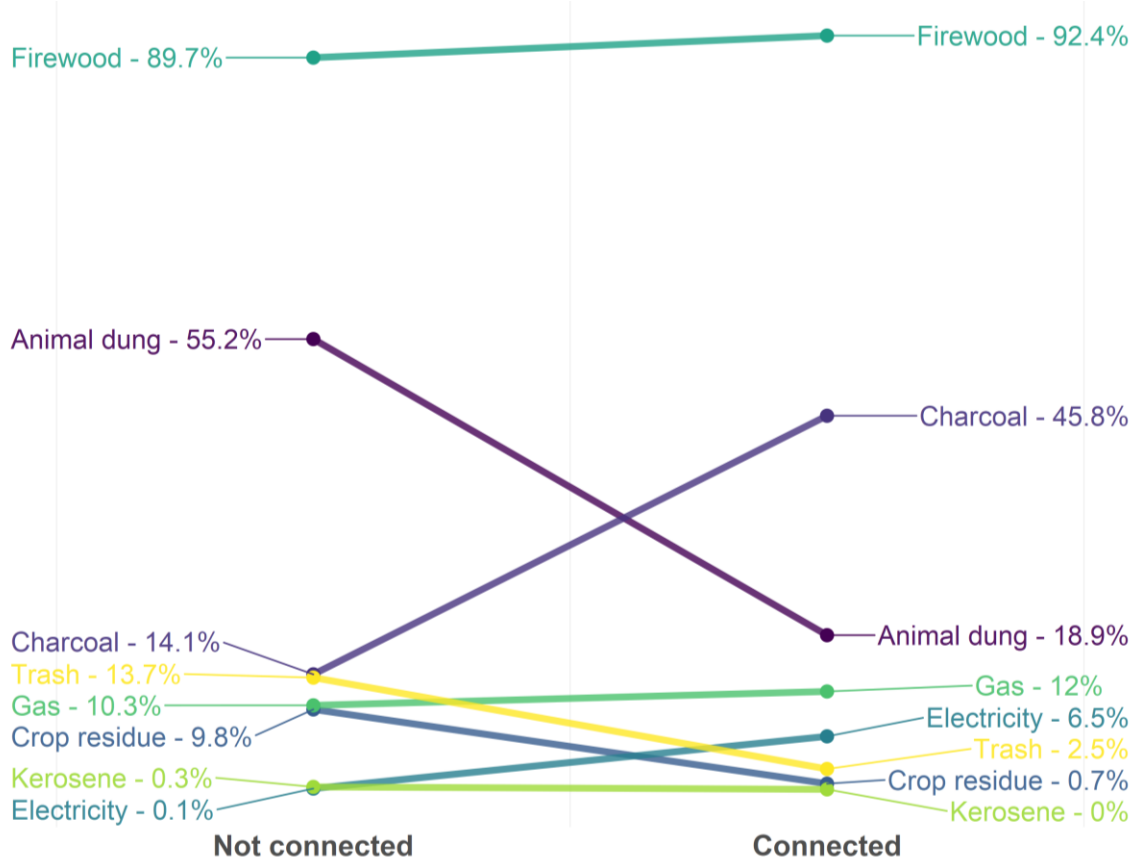
Figure M-34. Percent of respondents reporting wood as a cooking fuel.

[Redacted]

Source of data: EASE-BS HH female survey data 2019.

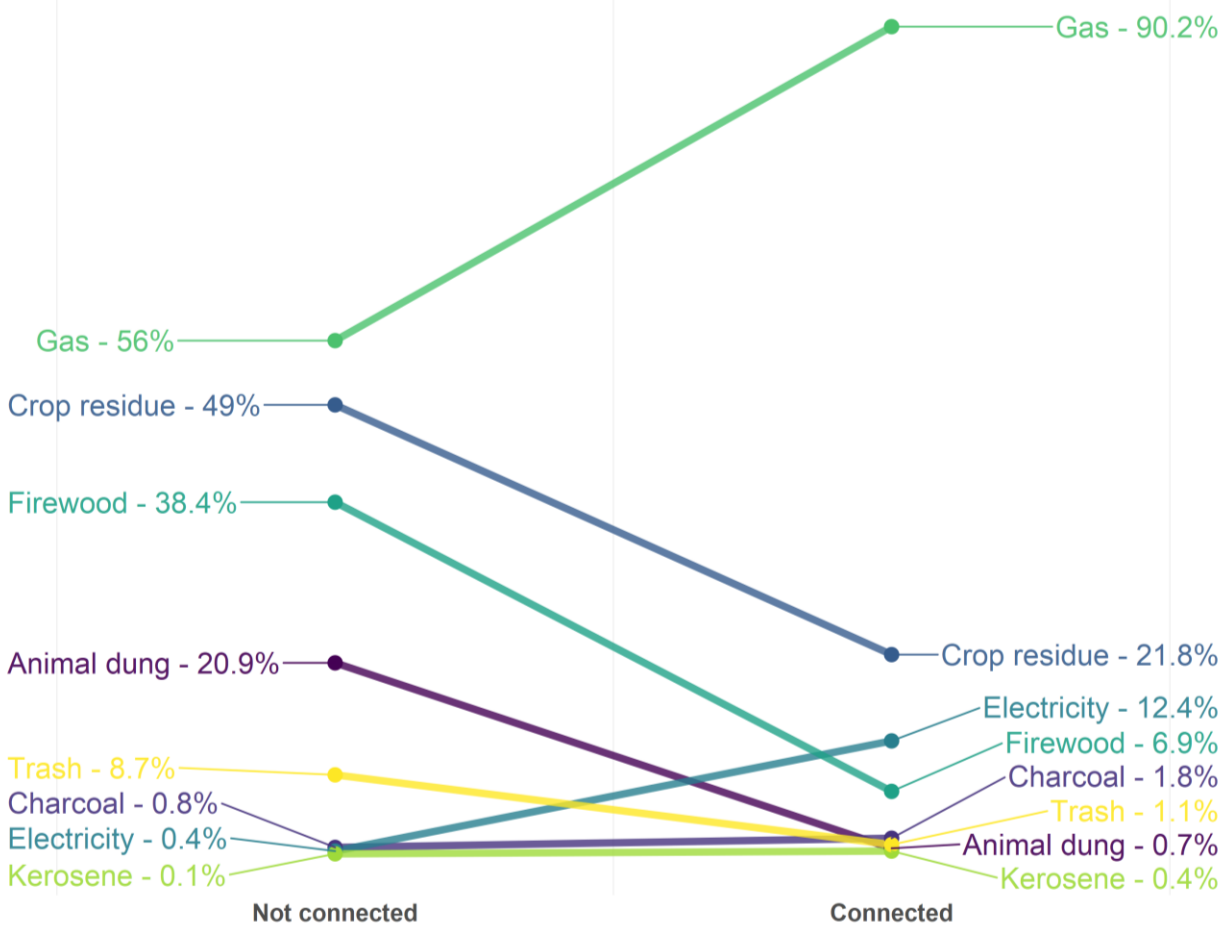
Environment Findings

Figure M-35. Percentage of responses for household heating sources, connected and not connected households.



Source of data: EASE-BS HH male survey 2019.

Figure M-36. Percentage of responses for household cooking sources, connected and not connected households.



Source of data: EASE-BS HH male survey 2019.

GENDER

The key indicators for the gender findings are outlined below. A full list of indicators measured under the baseline can be found in Annex L.

Table M-15. Key indicators for the gender dimension.

Indicator	Unit of measure	Respondent	Treatment	Comparison
Hours per day required for common household tasks	Hours	Female HH	8.9	13.6
Girls' school attendance	Number	School	284	17,853
Businesses owned by women	Percent	Business	2.6	3.5
Women reporting home-based income-generating activity	Percent	Female HH	14.9	30
Women reporting electricity has helped with their income-generating activity	Percent	Female HH	63.4	40.1
Proper age of girls' marriage	Number	Female HH	19.3	19.9
Communities that allow daughters to choose marriage partner	Percent	Female HH	60.7	45.9
Communities that allow sons to choose marriage partner	Percent	Female HH	84	67.2

Descriptive Statistics

Figure M-37. Girls' school attendance (overall).

[Redacted]

Source of data: EASE-BS school survey data 2019.

Figure M-38. Respondents opinion on women's vote.

[Redacted]

Source of data: EASE-BS HH female survey data 2019.

Figure M-39. Respondents opinion on women's working outside.

[Redacted]

Source of data: EASE-BS HH female survey data 2019.

Figure M-40. Percent of women reporting electricity has helped with their income generating activity.

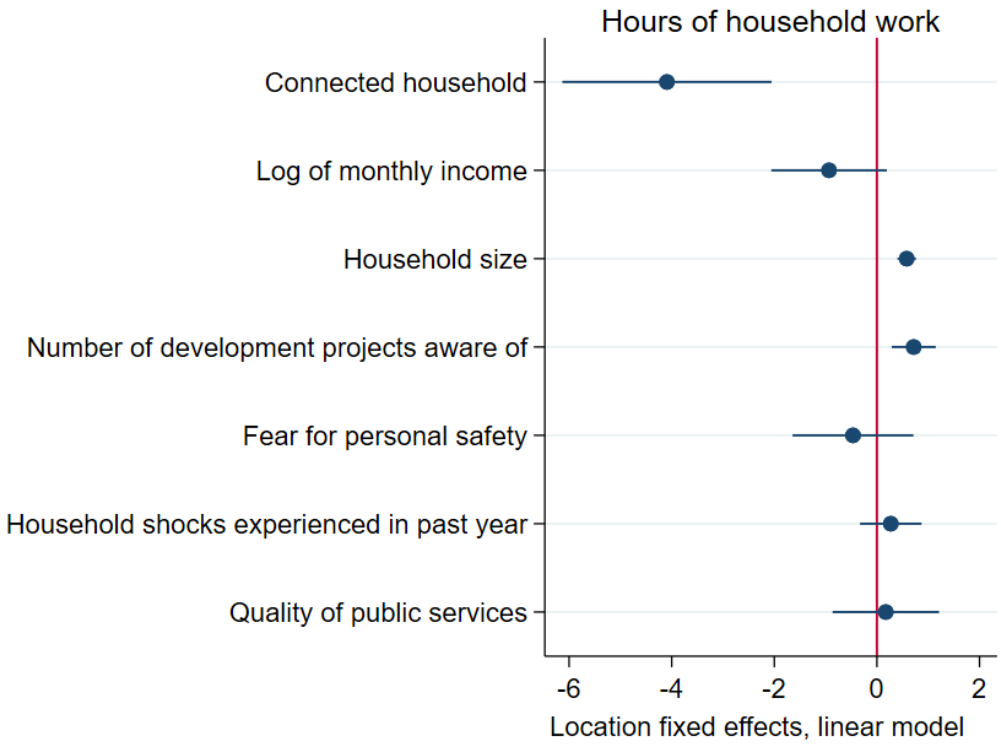
[Redacted]

Source of data: EASE-BS HH female survey data 2019.

Gender Findings

The observed 4.7 mean difference in number of hours for household task based on connected and not connected households is a statistically significant difference (see column 1, Table M-16). The difference slightly decreases to a mean of 4.1 after including controls such as household income, size, surrounding donor activity, security, household shocks, and quality of public services (column 2, Table M-16). However, the effect of access to on-grid electricity varies after accounting for variation across sub-station and urban/rural. The location fixed effects model decreasing the mean to 1.6 with no statistically significant difference (column 3, Table M-16). However, the multilevel linear model shrinks the mean to 3.8 with a statistically significant difference (column 5, Table M-16). Figure M-41 shows the coefficient values for the robust model.

Figure M-41. Model coefficient plot, hours of household work for household.



Note: A fixed effects model was run to calculate the coefficient values shown in Figure M-41.
Source of data: EASE-BS HH female survey data 2019.

In Figure M-41, household size and development projects have a minor effect on the number of hours a household spends on household task. However, the relationship between electricity access and number of hours spent on household tasks differs significantly between the three sampling locations. Figure M-42 indicates how the reduction in time spent on household chores is noticeable in [Redacted] but is absent in [Redacted].

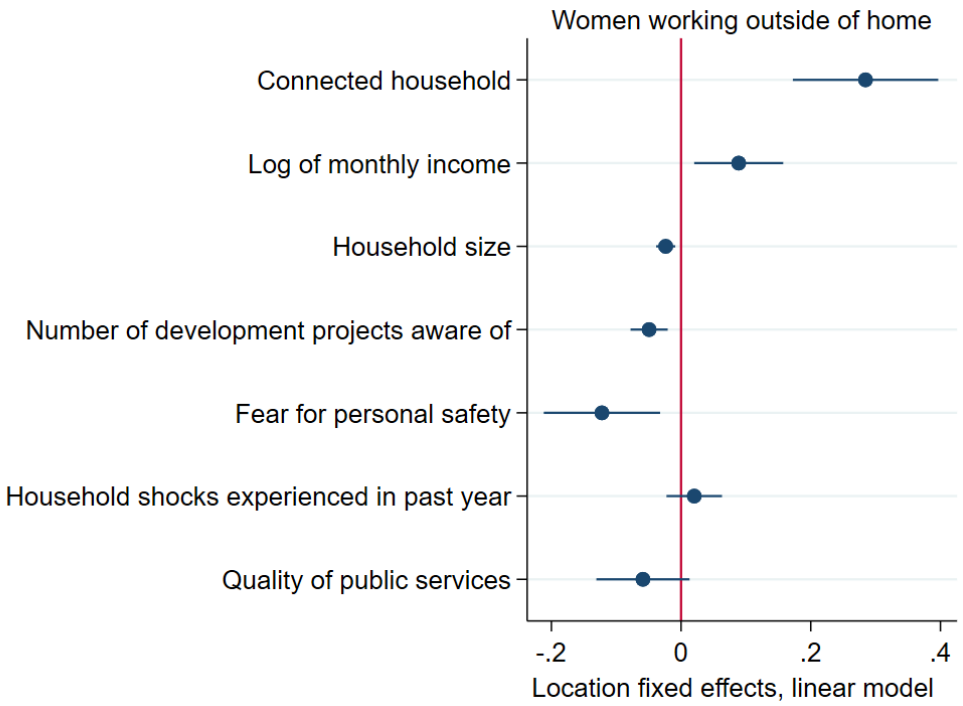
Figure M-42. Relationship between household chores and on-grid electricity, by location.

[Redacted]

Source of data: EASE-BS HH female survey data 2019.

With regards to attitudes toward women's role in society, there is a strong positive relationship between access to electricity and affirmation of an active role for women in society. Figure M-42 shows the model output predicting whether the household supported women working outside the home.

Figure M-43. Model coefficient plot, women working outside of home.



Note: A fixed effects model was run to calculate the coefficient values shown in Figure M-43.
EASE-BS HH female survey data 2019.

In the figure above, security (here proxied by the respondent's sense of personal safety) has a large effect on whether the respondent believed women should be allowed to work outside of home. The relationship between electricity access and opinions women should be allowed to work outside of home is stronger for more rural areas. However, [Redacted] (rural) showed a strong positive relationship with a 22.8 percentage-point difference, and [Redacted] (rural) showed a negative relationship with an 8.4 percentage-point difference.

Regression Outputs – Dimension 7 Gender Equity

The following table shows the raw output of several regression models, each using different analytical methods or combinations of predictor variables to identify the relationship between electricity access and the number of hours per day the household spends on household tasks.

Table M-16. Model output, on-grid electricity and hours of household tasks.

Measure	1 Robust linear, no controls	2 Robust linear, with controls	3 Location fixed effects, linear	4 Interaction linear	5 Multilevel, linear
Not connected household	13.58***	15.89***	15.80***	15.68***	19.35***
	(0.571)	(5.086)	(4.862)	(4.863)	(3.112)
Connected household	-4.639***	-4.093***	-1.558	-8.050***	-3.819***
	(0.967)	(1.030)	(1.036)	(1.160)	(1.481)
Log of monthly income		-0.933	-0.310	-0.339	-0.526
		(0.569)	(0.520)	(0.518)	(0.357)
Household size		0.580***	0.569***	0.567***	0.548***
		(0.0910)	(0.0841)	(0.0809)	(0.0866)
Number of development projects aware of		0.717***	-0.134	-0.134	0.0388
		(0.216)	(0.187)	(0.194)	(0.132)
Fear for personal safety		-0.466	-1.169**	-1.141**	-0.561
		(0.595)	(0.496)	(0.479)	(0.421)
Household shocks experienced in past year		0.271	0.0803	0.0998	0.110
		(0.303)	(0.220)	(0.222)	(0.210)
Quality of public services		0.173	-0.0849	0.0105	-0.0484
		(0.524)	(0.516)	(0.517)	(0.297)
			(1.221)		
Observations	1,031	995	995	995	995
R-squared	0.085	0.162	0.277	0.280	
Number of groups					2

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The following table shows the raw output of several regression models, each using different analytical methods or combinations of predictor variables to identify the relationship between electricity access and the perception that women should be allowed to work outside their homes.

Table M-17. Model output, on-grid electricity and perception that women should work outside their homes.

Measure	1	2	3	4	5
	Robust linear, no controls	Robust linear, with controls	Location fixed effects, linear	Interaction linear	Multilevel, linear
Not connected household	0.515***	0.174	0.161	0.142	-0.265
	(0.0431)	(0.332)	(0.260)	(0.254)	(0.193)
Connected household	0.336***	0.284***	0.0176	0.793***	0.474***
	(0.0545)	(0.0566)	(0.0503)	(0.0547)	(0.0933)
Log of monthly income		0.0889**	0.0229	0.0210	0.0354
		(0.0347)	(0.0287)	(0.0280)	(0.0222)
Household size		-0.0237***	-0.0217***	-0.0232***	-0.0198***
		(0.00747)	(0.00568)	(0.00559)	(0.00538)
Number of development projects aware of		-0.0492***	0.0466***	0.0497***	0.0337***
		(0.0145)	(0.0118)	(0.0117)	(0.00820)
Fear for personal safety		-0.122***	-0.0626*	-0.0522*	-0.106***
		(0.0453)	(0.0324)	(0.0301)	(0.0262)
Household shocks experienced in past year		0.0203	0.0433**	0.0462***	0.0422***
		(0.0216)	(0.0179)	(0.0169)	(0.0130)
Quality of public services		-0.0588	-0.0306	-0.0238	-0.0254
		(0.0363)	(0.0260)	(0.0240)	(0.0185)
Observations	1,032	996	996	996	996
R-squared	0.092	0.158	0.431	0.442	
Number of groups					2

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

ANNEX N. RECOMMENDATIONS AND NEXT STEPS

RECOMMENDATIONS

Although robust programmatic recommendations cannot be provided at baseline (these are provided at the endline at the completion of the impact study), the team has several suggestions to improve the study.

RECOMMENDATION 1: The baseline results are valid for a quasi-experimental study. Therefore, to measure causal impact of the PTEC project, the team recommends USAID capture data at midline and endline for robust impact evaluation.

Currently, there is no scope of work for a midline or endline. To measure change on socio-economic variables of interest by increased electricity access/use, USAID should:

- Gather midline and endline information for [Redacted] and [Redacted] substations in 2020 and 2023 using data collection methods similar to those used at baseline (minus some changes to the number of variables collected and the qualitative data).
- Track and measure the same households, businesses, schools, and clinics over time.
- Select a subsample of households to track qualitatively over time with a different approach to the one taken at baseline.
- Include new planned substations to estimate the impact across the entire grid/transmission line.
- Change the qualitative data collection activity to eliminate key informant interviews (as designed in the baseline) and replace with specific households and businesses to track in-depth.
  - The team recommends building an internal AMELA field team for this specific task based on the detailed reports received from these individuals during the monitoring of field work. Although additional days of training were added for the baseline data collection firm (ACSOR) team to improve the preparedness level of field staff, these still fell short of providing the interview skills necessary for KIIs.
- Repeat the focus groups for businesses, clinicians, and teachers, as these yielded important data.
- Increase the days of training of field staff for both qualitative and quantitative data collection efforts from two days to four days (double the time).

- The lessons from the field suggest the field teams need more time to understand the instruments as there are many of them and with many questions. Feedback from the monitoring teams suggest the enumerators varied in their knowledge about the questions and varied in their implementation approach.
- Although the baseline data are valid, improvements can be made to the field data collection efforts and reduce further sources of error/bias.

RECOMMENDATION 2: Create and develop causal models for each dimension and revise the theory of change. This includes reducing the number of indicators and removing the categorization of the dimensions, which is not needed. The team recommends this effort happen before the midline and in co-creation with DABS and USAID.

As the team implemented the field work and analyzed the data, the results suggested some data required for certain indicators were problematic (issue 1) and not needed (i.e., irrelevant). In part this was due to the data limitations. A second problem related to the underlying assumptions/theory of change (issue 2). When the original design was created, the authors needed to consider all possible factors that could be affected by increased access to electricity. The theory of change currently has seven dimensions, and within each dimension multiple indicators/variables, for a total of 78 indicators. However, having all the dimensions or factors in a model does not make it stronger or better than having the critical factors. There is enough work in the literature to suggest that within each dimension, only a few key factors are connected to electricity. Although having information across seven dimensions may appear to provide rich data on the characteristics of a community, from a testable model perspective, having a more focused and specific relationship to test will provide more powerful results.

- The baseline has identified unnecessary indicators that may be dropped.
- Decrease the number of indicators to improve data quality and provide value for money.
- Some of the early underlying assumptions in the original design may not hold. Causal pathways and models should be revised and explicitly stated for improved causal testing.
- Early results from the night light data indicate potential for monitoring of economic growth from changes in radiance over time.

RECOMMENDATION 3: The team suggests USAID consider integrating DABS more directly as a partner in field data collection:

- Consider adding DABS as an active partner in the data collection process.
  - This can help DABS improve the utility of its data and build capacity in monitoring and evaluation.
  - Sharing/transfer of data and lessons learned will be easier and of higher value as they will be designed directly with DABS' needs/resources/infrastructure.
  - DABS has data that is likely being undervalued and underutilized; a partnership could help provide opportunities for additional analysis. The data DABS shared for this baseline was very helpful in expanding the team's knowledge about connection costs directly impacting access to on-grid electricity.

RECOMMENDATION 4: Conduct innovative exploratory studies of specific factors on electricity usage.

- Test the feasibility of linking night light data with socio-economic measurements.
- Explore new methods to investigate on-grid electricity usage, value, and externalities (e.g., non-market valuation, experimental economics methods, and air quality studies).

RECOMMENDATION 5: Help USAID convene key stakeholders for a collaborating, learning, and adapting (CLA) workshop on the results of the baseline to help prepare for the next phase of data collection (midline), gather feedback, refine causal models, and increase the utility/use of the results.

RECOMMENDATION 6: Engage DABS more specifically around the objective of installing step-down transformers connecting villages to sub-station transmission lines.

NEXT STEPS AND INNOVATIVE OPPORTUNITIES

Per the discussions with USAID and as part of the next activity, the team will plan for midline and endline data collection. The scope of work will be determined with input from USAID Afghanistan and its Office of Infrastructure. The team expects midline data to be collected in the fall of 2020. The endline time frame will determined based on midline results. Additionally, there is a probability that additional substations will come online this year and the team will prepare for their baselines.

Innovative Opportunities – "Add-on" Studies to the EASE Impact Evaluation

This baseline study highlighted the strengths and weaknesses in the existing impact evaluation design.[37] The current design is focused on measuring impact across various socio-economic dimensions. Per the results of this study, the team finds a valid baseline but recommends a narrower approach in the variables/dimensions of focus for causal modeling of the PTEC project. There are often direct and indirect benefits that are not always measured well through econometric approaches; other approaches can be added to strengthen the research. For example, non-use value of electricity will likely be omitted from the analysis under the current method/design. Some of the positive and negative externalities from an activity are not always captured through one method, nor are they anticipated. Measuring unintended consequences may require different approaches. Although the qualitative data for this baseline was intended to ensure some of these effects would be captured, the limited quality of this data suggests other methods may be needed.

The learning component of the baseline permitted the team to envision creative and innovative ways to measure the impact of the PTEC project. The team proposes (for the midline and endline) additional data collection efforts—with cost efficiencies—to provide USAID a more comprehensive/holistic measure of the PTEC impacts. As part of the midline data efforts and to augment the findings of how the PTEC activity is affecting the targeted beneficiaries, the team proposes the following innovative "add-on" efforts for USAID:

- **Continuation of the Night Light Data Analysis**: This work was started in the baseline study and should be continued throughout the lifetime of the study. The hope is to compare these findings to the field data collected. If these perform similarly, the team may be able to provide USAID with an alternative monitoring method for electrification projects. Collecting field data is not only expensive but often limited due to conflict, constraining field teams to only secure communities. This skews the findings and makes them only applicable to safer areas, even though the GIRoA is providing electricity to all zones.

- **Contingent Valuation Study (CVM) or other Non-Market Valuation Study** (i.e. Travel Cost Method): Costs on electricity exist and are being collected by DABS. However, limited information exists on how communities are benefiting from increased access, use, and presence of electricity. To better understand how a community might perceive electricity and benefit from this service

[37] The original design was approved more than two years ago and created under different conditions by a different implementing partner. The team has tried to hold, per the request of USAID, to the original study design. However, to improve on this effort, the team was permitted some changes (discussed in the annex methods section).

(including non-use benefits), the team proposes the addition of a small CVM study to capture other types of benefits. Additionally, by measuring benefits through CVM, the team could potentially conduct a cost-benefit analysis of the PTEC project upon completion. If benefits are measured through only one method (through the proposed midline/endline approach), the team may miss capturing the full range of benefit types, undervaluing the return on the investment.

- **Segmented Market Study**: The team proposes testing price ranges for electricity through donor funds to offer a rebate scheme for household and business connections, with experimental variation in the rebate amount to trace out the demand curve. Although the current study captures some of the factors influencing demand for electricity (through the survey), these are reported and not actual. The core benefit of adding this market segmentation study would be to reliably identify the determinants of demand and use those determinants to maximize uptake, including the critical cost point to maximize uptake, and identify the most efficient subsidy. This can help identify which groups might be opting out from accessing and buying electricity based on cost versus other barriers. If cost is a barrier to use, the GIRoA may wish to better understand the breakpoints for different communities. This may permit the GIRoA to design more inclusive energy programs and or ensure the vulnerable groups have access to this service.

- **Air Pollution Study**: The field data collection effort for this study is a significant and expensive effort; the data collected is unique. However, data for environmental factors has been limited, and the proxies are not accurate. The team is not able to investigate robustly the relationship between changes in access to electricity and environmental conditions. Previous studies and theory suggest access to cleaner energy sources often leads to changes in the types of heating/cooking materials families use in a household. Currently, most households in Afghanistan use dung, brush, or wood (due to its cheap price) for cooking and heating. These sources of energy are considered high pollutants. There are studies suggesting these in a household can increase the rates of respiratory illnesses. Currently, the limited data on air quality for Afghanistan at the sub-national level does not permit accurate estimates for modeling environmental health quality. To identify the full benefits of the PTEC project on health, it is important to understand the relationship between changes in cleaner energy (i.e., on grid-electricity) and health benefits. The team proposes capturing primary air pollution data on a subsample of households, businesses, clinics, and schools through sensors measuring actual air quality over time. The value of this data goes beyond the PTEC impact study. The information is likely critical for the ministry of public health, environment, and education in improving its understanding about the levels of air pollution (currently measured in the capital and

averaged for the country), and how programs/projects may help address this issue affecting especially vulnerable groups like children and elderly populations.

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ANNEX P. SUMMARY OF SURVEY TEAM MEMBERS

The following is a summary of the EASE-BS team members' experience.

CAROLYN FONSECA – TEAM LEAD

Dr. Fonseca brings over 15 years of research and evaluation experience in the fields of energy, infrastructure, education, environment, economic development, science and technology, gender, food security, agriculture, policy analysis, and methods. Dr. Fonseca has broad expertise in designing and implementing studies and evaluations across Latin America, Africa, and South Asia, and the Middle East (Jordan and Iraq). She has been a leader in research, monitoring, and evaluation activities for USAID-funded projects in roles such as the associate director for USAID's $14 million Peanut Cooperative Research Support Program grant. She has worked at USAID as the project manager for the $1.5 million evaluation of the joint USAID-NASA SERVIR program. Dr. Fonseca also worked for USAID's E3 Bureau as the primary survey technical advisor for the Agency-wide Construction Survey project, which examined all construction activities carried out for Missions and other Agency operating units for a Government Accountability Office report, working directly under the E3 Deputy Assistant Administrator. The E3 Bureau awarded her the USAID Construction Survey Award in 2014. She also helped NASA to create the first MEL plan for its capacity-building unit as the lead monitoring and evaluation engineer for the NASA SERVIR. She has extensive experience designing, coordinating, managing, and implementing complex evaluation activities. She has created trainings using innovative methods to support third-party monitoring in conflict zones such as Iraq. Her expertise is in both qualitative and quantitative approaches, and she specializes in survey methodology. She is familiar with USAID ADS monitoring and evaluation processes, rules, and policies including reporting requirements and data standards for the DDL. Dr. Fonseca also brings significant gender experience including developing gender-sensitive survey instruments and leading interviews and focus group discussions with women. She has published several articles in renowned journals and presented at various academic conferences. Dr. Fonseca is fluent in English and Spanish. She holds a Ph.D. in environmental policy from the Georgia Institute of Technology and M.S. degrees in public policy and biology.

DANIEL KILLIAN – QUANTITATIVE STUDY SPECIALIST

Mr. Killian is an accomplished impact evaluator and monitoring specialist, with more than 12 years of experience in designing and leading project monitoring and evaluation systems and conducting internal or external assessments and evaluations. For the last nine years, he has applied econometric models as well as general economic analyses to international development programming for the purposes of estimating impacts and their costs, as well as for learning about the factors driving project successes and

challenges. Most recently, Mr. Killian completed analysis of the Electricity Access Socio-Economic Baseline Survey (EASE-BS), which will track the movement of seven key socio-economic outcomes in relation to the uptake of on-grid electricity, as well as examining the composition of households' entire energy bundle across different sources and how they change over time. Mr. Killian also served as a technical advisor for an evaluation estimating the impact of a conservation scholarship program funded by the U.S. Fish and Wildlife Service. In 2019, Mr. Killian completed a two-year household panel survey to estimate the impact of a micro-credit intervention in communities surrounding Chevron Corporation's natural gas plants in the Sylhet region of Bangladesh. Mr. Killian also completed the baseline stage of a large-scale impact evaluation measuring municipal institutional capacity and public perception of good governance attributable to the USAID/Jordan Cities Implementing Transparent, Innovative and Effective Solutions (CITIES) activity. In 2014–2015, Mr. Killian was among a team of impact evaluation specialists for the Measuring Impact of Stability Initiatives (MISTI) project, USAID's largest ever impact evaluation of community stability, cohesion, and resilience in conflict or fragile environments. From 2011–2014, Mr. Killian led an impact evaluation of the USAID Afghanistan Rule of Law Stabilization – Informal project, which measured the effect of local level capacity building on informal rule of law practices among village and tribal elders. The rule of law evaluation design and measures were later adapted to measure citizen satisfaction with police services in Peshawar, Pakistan, on a rule of law intervention funded by the U.K. Department for International Development (DfID). In 2011, Mr. Killian conducted an impact evaluation of the knowledge-retention and job placement of a graduating class of a nine-month post-baccalaureate legal "Stage" training at the University of [redacted] Independent National Legal Training Center. Finally, Mr. Killian is currently serving as analyst and methodologist on a six-country baseline study of the drivers of and resiliencies to violent extremism for the U.S. State Department Bureau of Conflict Stabilization Operations (CSO). Mr. Killian holds an M.A. in applied economics from Johns Hopkins University and an M.F.A. in creative writing from Columbia College.

PHILIPPA MORGAN – QUALITATIVE STUDY SPECIALIST

Ms. Morgan has over 10 years of experience in monitoring and evaluation including leading evaluations and assessments. She is an experienced development professional with excellent skills in strategic planning, governance and advocacy, knowledge management, and capacity development. She has extensive experience in qualitative research with international donors and organizations such as the United Nations and World Bank Group. She has led teams in evaluations. In her previous positions, Ms. Morgan performed monitoring and evaluation for a range of different types of projects, including governance, water and sanitation hygiene, trade/transport, and security and justice. She has previously

worked in Iraq, Syria, South Sudan, Cambodia, the Democratic Republic of Congo, Lebanon, Nepal, and Myanmar.

HAMIDULLAH GHARIBZADA – ACTIVITY MANAGER

Mr. Gharibzada is a senior monitoring and evaluation specialist with over 10 years of experience in data collection and analysis. He has served as an impact evaluation consultant on World Bank projects in both Afghanistan and Timor-Leste. Similarly, he was a research officer and conducted primary data collection on a New York University education project implemented in Afghanistan. Mr. Gharibzada holds a B.A. in political science and an MBA in management.

JACOB MILLEY – GIS SPECIALIST

Mr. Milley is an experienced geographic information systems (GIS) specialist with a bachelor's degree in geography with a minor in GIS. He has previously custom-built data collection platforms for the USAID-funded AMELA project implemented by MSI. Mr. Milley has produced maps for a variety of clients, including USAID, the World Bank, and the United States Holocaust Museum.

MELANIE A. MURPHY – QUANTITATIVE DATA ANALYST

Ms. Murphy has two years of USAID monitoring, evaluation, and learning (MEL) project management experience on large-scale USAID Mission MEL contracts. She currently serves as a technical associate, providing data analysis for the Nigeria Third Party Monitoring Project and monitoring and evaluation support for the Scaling Up Renewable Energy (SURE) Project. In her prior role as a project manager on MSI's Pakistan Performance Management Support contract, she also provided technical assistance to several analytical activities. Ms. Murphy possesses technical experience in qualitative and quantitative data analysis, data quality reviews, data cleaning, preparing problem statements and summaries, and assisting with survey instruments. She has strong analytical and conceptual skills and possesses working knowledge of Microsoft Office, SPSS, STATA, and R. She has strong proofreading and editing skills and has held positions as a technical associate, project manager, auditor, and coordinator. Ms. Murphy holds a bachelor's degree in international community development and is currently pursuing a master's degree in international commerce and policy.

ANNEX Q. SCHEDULE OF MEETINGS

The following is a list of the meetings outside of primary household data collection that were held for EASE-BS.

Province	District	Village/location	Visit date	Reason for visit
[Redacted]	[Redacted]	[Redacted]	7-Sep-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	7-Sep-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	11-Sep-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	12-Sep-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	29-Sep-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	29-Sep-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	10-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	10-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	11-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	11-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	12-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	12-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	12-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	13-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	13-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	13-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	14-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	15-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	15-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	15-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	16-Oct-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	5-Nov-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	6-Nov-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	6-Nov-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	7-Nov-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	12-Dec-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	18-Dec-19	[Redacted]
[Redacted]	[Redacted]	[Redacted]	4-Feb-20	[Redacted]
[Redacted]	[Redacted]	[Redacted]	5-Feb-20	[Redacted]
[Redacted]	[Redacted]	[Redacted]	6-Feb-20	[Redacted]

ANNEX R. CONFLICT OF INTEREST DECLARATIONS

To protect the personal information of team members, MSI has removed the conflict of interest declarations from the final report. The declarations are available from MSI upon request.

ANNEX S. MEETING NOTES

Due to concerns about personally identifiable information (PII), MSI has not included the notes from key interviews, focus groups discussions, and other meetings in the final report. MSI has secured the notes and data and, upon request by USAID, can answer any questions or provide summarized or redacted data, while adhering to ADS 508 PII rules.

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