USAID | GEORGIA
FROM THE AMERICAN PEOPLE

USAID ENERGY PROGRAM

USAID ENERGY PROGRAM QUARTERLY REPORT

JANUARY 1, 2019 – MARCH 31, 2019

USAID ENERGY PROGRAM

15 April 2019

This publication was produced for review by the United States Agency for International Development. It was prepared by Deloitte Consulting LLP. The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

USAID ENERGY PROGRAM QUARTERLY REPORT

JANUARY 1, 2019 – MARCH 31, 2019

USAID ENERGY PROGRAM

CONTRACT NUMBER: AID-OAA-I-13-00018

DELOITTE CONSULTING LLP

USAID | GEORGIA

USAID CONTRACTING OFFICER'S

REPRESENTATIVE: NICHOLAS OKRESHIDZE

AUTHOR(S): USAID ENERGY PROGRAM STAFF

LANGUAGE: ENGLISH

15 APRIL 2019

ACRONYMS

AA	Association Agreement
ADB	Asian Development Bank
AE Solar	Alternative Energy Solar
AFD	Agence Franciase de Development
AYPEG	Association of Young professional in Energy of Georgia
BoG	Bank of Georgia
CAPEX	Capital Expenditure
CEO	Chief Executive Officer
CfD	Contract for Deference
CO_2	Carbon dioxide
CoA	Chart of Account
CoP	Chief of Party
CoR	Contracting Officer's Representative
CSO	Civil Society Organization
DCoP	Deputy Chief of Party
DECC	Department of Energy and Climate Change
DGGF	Dutch Good Growth Fund
DM	Deputy Minister
DRIVE	Development Related infrastructure Investment Vehicle
EC	Energy Community
ECS	Energy Community Secretariat
EE	Energy Efficiency
EMRA	Energy Market Regulatory Authority
EnCT	Energy Community Treaty
ENTSOE	European Network of Transmission System Operators for Electricity
EPA	Ministry of Environmental Protection and Agriculture
EPG	Energo-Pro Georgia
EPİAŞ	Turkey Energy Exchange
ESCO	Electricity Market Operator
ETM	Electricity Trading Mechanism
EU	European Union
EU4Energ	Programme Funded by the EU and led by the Energy Community Secretariat
FiP	Feed-in Premium
FiT	Feed in Tariff
GEDF	Georgian Energy Development Fund
GEG	Gross Energo Group
GEL	Georgian Lari
GGTC	Georgian Gas Transportation Company
GHG	Greenhouse Gas
GIG	Georgian Industrial Group
GIS	Geographic Information System
GNERC	Georgian National Energy and Water Supply Regulatory Commission
GoG	Government of Georgia
GOGC	Georgian Oil and Gas Corporation
GREDA	Georgian Renewable Energy Development Association
GRPC	Georgian Renewable Power Company
GSE	Georgian State Electrosystem
GTU	Georgian Technical University
GWh	Gigawatt Hour
HPP	Hydro Power Plant
ICH	International Centre for Hydropower
IEA	International Energy Agency
IFC	International Finance Corporation

IFI	International Financial Institutions
IMF	International Monetary Fund
ISET	International School of Economics at Tbilisi State University
KfW	German Government-Owned Development Bank
km	Kilometer
kV	Kilovolt
LCR	Local Content Requirement
LEPL	Legal Entity of the Public Law
LiDAR	Light Detection and Ranging (Control Measurement Equipment)
M&E	Monitoring and Evaluation
MoESD	Ministry of Economy and Sustainable Development of Georgia
MoF	Ministry of Finance of Georgia
MoHLSA	Ministry of Health, Labour, and Social Affairs of Georgia
MoU	Memorandum of Understandings
MRDI	Ministry of Regional Development and Infrastructure of Georgia
MW	Megawatt
NARUC	National Association of Regulatory Utility Commissioners
NVE	Norwegian Water Resources and Energy Directorate
OPEX	Operational Expenditure
OTC	Over-the-Counter
PMP	Performance Monitoring Plan
PPA	Power Purchase Agreement
PPD	Public Private Dialogue
PPE	Property Plant and Equipment
PPP	Public Private Partnership
PSO	Public Service Obligation
PV	Photovoltaic
REKK	Regional Centre for Energy Policy Research, based in Hungary
RES	Renewable Energy Sources
RIA	Regulatory Impact Assessments
SC	Steering Committee
Socar	State Oil Company of Azerbaijan Republic
SoLR	Supplier of Last Resort
SPP	Solar Power Plant
TEİAŞ	Turkish Electricity Transmission Company
ToR	Terms of Reference
TPP	Thermal Power Plant
TSO	Transmission System Operator
TYNDP	Ten-Year Network Development Plan
UGS	Underground Gas Storage
UNDP	United Nations Development Program
USAID	United States Agency for International Development
USD	United States Dollar
USEA	United States Energy Association
USG	United States Government
USoA	Uniform System of Accounts
VRE	Variable Renewable Energy
W	Watt
WACC	Weighted Average Cost of Capital
WB	World Bank
WEG	World Experience for Georgia
WG	Working Group
WPP	Wind Power Plant

CONTENTS

INTRODUCTION

In October 2016, Georgia signed the Energy Community Treaty (EnCT) signaling the country's commitment to direct future energy planning and market development towards approximation with the European Union (EU). This step commits Georgia to enhance the security of energy supply by promoting the development of relevant infrastructure, increase market integration and gradual regulatory approximation towards key elements of the EnCT, and promote the use of renewable energy sources. In order for Georgia to meet its strategic commitments in the energy sector, the United States Agency for International Development (USAID) is providing technical assistance and policy advice on legal, regulatory and institutional reform issues, including facilitating investment and deal structuring, engineering and environmental analyses, financial planning, and outreach support (collectively, the USAID Energy Program).

The objective of USAID Energy Program is to support Georgia's efforts to facilitate increased investment in the power generation capacity as a means to increase the national energy security, facilitate economic growth, and enhance the national security. The project will have a significant impact on the energy market reform efforts of the Government of Georgia (GoG) to comply with the country's obligations under the EnCT. The investment objective will be achieved through the provision of technical assistance to a variety of stakeholders in the energy sector.

The purpose of USAID Energy Program is to: (1) support Georgia in the energy market development per Georgia's obligations under the EnCT, (2) build the capacity of the GoG and relevant institution(s) to evaluate the fiscal and long-term impacts of regulatory changes, (3) promote energy investments, primarily in variable renewable energy development, (4) to support integration of non-hydro renewable energy into the power system, and (5) provide strategic advisory services to the GoG to increase Georgia's energy security.

The ultimate goal of this program is to enhance Georgia's energy security through improved legal and regulatory framework and increased investments in the energy sector. The ultimate expected outcome of this program is an energy market with legal and regulatory framework that complies with the European requirements and encourages competitive energy trade and private sector investments.

SUMMARY

The Second Quarter Report of the Year 2 documents the results and progress made by USAID Energy Program over the period January 1, 2019 - March 31, 2019.

USAID Energy Program has been progressively conducting its activities to achieve the goals articulated in the Year 2 Work Plan.

Successful project activities cover a broad and diverse range of areas: conducting Steering Committee (SC) and Working Groups (WGs) meetings with the participation of energy sector stakeholders; updating Electricity and Natural Gas Action Plans; supporting potential non-hydro renewable energy projects and developing recommendations on investor support schemes; conducting research on Variable Renewable Energy (VRE) power production forecasting availability and perspective of their integration into the grid; overviewing the existing legislation covering Energy Security issues and upcoming obligations of the country, etc.

USAID Energy Program Quarterly Report details the progress in each task in reference to corresponding areas of USAID Energy Program the Year 2 Work Plan.

PROJECT HIGHLIGHTS DURING REPORTING QUARTER

BILATERAL OVER THE COUNTER TRADING

On March 26 - 28, USAID Energy Program in cooperation with UK based company MTX Commodities Ltd organized Bilateral Over-the-Counter (OTC) Energy Trading Training for the energy stakeholders with the aim to acquaint the mid-level professionals with the workings of day-to-day buying and selling of gas and electricity in Georgia. The event brought together the representatives of Electricity Market Operator (ESCO), GSE, Engurhesi LDT, Silk Road Energy, Georgian Gas Transportation Company (GGTC), Georgian National Energy and Water Supply Regulatory Commission (GNERC), Energo-Pro, Asian Development Bank (ADB), Gas Trading Company, Energo Aragvi LtD, Telasi, Infinite Energy LLC, Georgian Energy Development Fund (GEDF), Galt & Taggart and Georgia Urban Energy LLC.

Bilateral Over-the-Counter (OTC) Energy Trading Training

The session was opened by USAID's Economic Growth Office Director Ms. Veronica Lee who empathized the value of the event particularly in the light of Georgia's commitment to approximate all rules and regulation to Association Agreement (AA). Ms. Lee thanked the audience for unanimously taking the initial steps towards the actual implementation of this process and on behalf of USAID Georgia expressed confidence in such undertaking since this will advance the required skills and reinforce the value of new rules and procedures.

The audience was also welcomed by GEDF CEO Mr. George Chikovani who paid gratitude to USAID Georgia for the immense support through the transition period and brought the attention of the audience to an ambitious plan of the country to create a competitive energy market, achievable only by dynamic engagement and support of the entire energy stakeholders.

The welcome speech was followed by a presentation on the Aspects of Transition Plans for Electricity and Natural Gas Markets of Georgia offered by USAID Energy Program Chief of Party (CoP) Mr. Daniel Potash and Deputy Chief of Party (DCoP) Mr. Ivane Pirveli. Following the presentation MTX Commodities Ltd representatives launched 3 days targeted training on the bilateral Over the Counter Trading. The session acquired vital importance particularly in anticipation of changes, since Georgia's

energy sector faces a need to understand the functioning of a trading platform which brings together both power producers and buyers who can bid live.

Initially, the training focused on the power and gas trading supported with the examples of the USA and Europe VS expected framework in Georgia. Further the experts elaborated on typical market scenarios for power and natural gas followed by simulated Screen Trading and trading games to expose the audience to real practical examples. The hand on learning created enormously engaging environment and enhanced the creative thinking which was apparent during the game, having implication in virtuous cycle of achievements and confidence.

In an effort to create a real setting and feel the ultimate outcome of a trading deal, the audience was divided into groups of three each having one trader and one back up office representative. Such simulated training provided virtual environment mirroring the actual trading platform which enabled participants to test and understand the functioning of the trading platform and have a real-life experience. MTC Matrix experts explained the way trading interfaces with planning and reporting, reviewed the operating mechanism involving hedging, derivatives and swaps. The last day was dedicated to reviewing the trading done during the game with accomplishments and gains. This included the award for the winner group with the highest financial indicators and the most voluminous trade results.

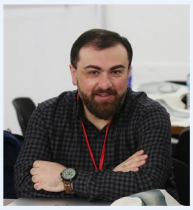
Lastly, USAID Energy Program DCoP Mr. Ivane Pirveli and Mr. Giorgi Giorgobiani Governing for Growth (G4G) in Georgia Energy Component Lead discussed several relevant topics such as market power in Georgia, power trading in a hydro dominated environment, risks and benefits from cross border trading, institutional gaps and overall readiness of Georgian organizations for energy trading.

The session was pivotal for the Georgian energy stakeholders as understanding the principles of trading platform is an essential input to facilitate in-country and cross-border power and energy trading. The training finished with Q/A session with the coverage of advanced topics raised during the basic course.

By the end of the session the feedback form was filled by all participant with the aim to assess the value of the training and inquire the desire of having more advanced and professional training. The audience found the trainings very informative and particularly well-timed, therefore suggested holding similar sessions more frequently as a means to make the transition process less susceptible to unpredicted hindering factors.

Mr. Paul Constantinou, Chief Executive Officer MTX Commodities LDT

"The overall impression over the two and a half days so far is how incredibly receptive and open to new ideas the people have been, as well as their interest to work together since they came from different and diverse range of companies. Seeing them working together in the trading simulations and producing big output was exciting. We have not analyzed the results at this time of the interview, but it is fair to say that there was an impressive volume of trading done in the game, with very interesting ideas and very creative questions. it was just so dynamic I was very impressed".



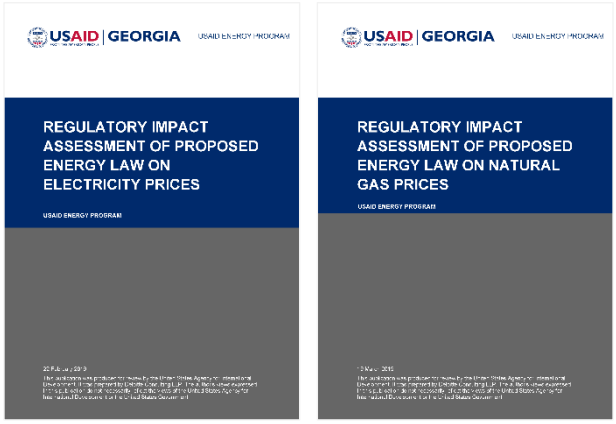
Mr. Revaz Chikashua, Head of Analytical Department, GGTC

"This training and obtained information serve an initial step towards acquiring knowledge on the functioning of a trading platform. It helped a lot in terms of creating a perception over the real trading including features, hedged and energy market principles. This is ideal approach and the more we have such training, the easier will be the transition period".

Mr. George Sirbiladze, Chief Specialist International Relations and Investor Relations Department, ESCO

"These trainings are very interesting and very important not only for ESCO but for all those engaged in the energy sector. In the light of ongoing transition process, such experience is essential, here we define not a day ahead market theme, which is more or less known, but OTC market which is currently more in need of mastering, it is remarkable to know how daily and hourly trading will work and be integrated into the platform. In general, this is very useful training"

REGULATORY IMPACT ASSESSMENTS (RIAS) OF PROPOSED NEW ENERGY LAW ON ELECTRICITY PRICES AND NATURAL GAS PRICES



Cover Photos - RIAs of Proposed New Energy Law on Electricity Prices and Natural Gas Prices

Upon the request of the Ministry of Economy and Sustainable Development of Georgia (MoESD), USAID Energy Program drafted two RIA reports – "RIA of the proposed Energy Law on Electricity Prices" and RIA of the proposed Energy Law on Gas Prices. In view of available internal capabilities, the Program mobilized in-house sources and finalized reports on requested topics, which aim to reveal the pros and cons of the proposed Energy law. In addition, the respective team designed a Financial Model measuring the impact of the new Energy Law implementation on retail electricity tariffs in Georgia. The model also envisages the Total System Revenue Requirements, changes in supply and demand side and the costing of Renewable Energy Sources (RES) with and without the new draft Energy Law implementation in Georgia. The drafting process also included continues consolation with the MoESD and introduction of required changes. *(More details in task 2)*

VISIT TO OFF - GRID VILLAGES IN MGHEBRIANI, DIDI CHVAREBI AND OKIANI IN GORI MUNICIPALITY

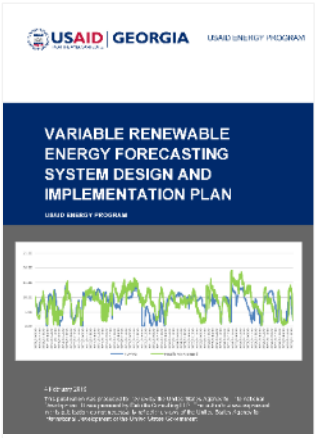
Visit to Off-Grid Villages

On March 28, Program organized site visit to off-grid villages - Mghebriani, Didi Chvarebi and Okiani in Gori Municipality. The delegation comprised the representatives of the Ministry of Regional Development and Infrastructure of Georgia (MRDI) Ms. Mzia Giorgobiani - Deputy Minister (DM); Mr. Giorgi Tsinadze - Head of Departments and Ms. Nino Kvernadze - Head of Department; the representatives of USAID Georgia: Ms. Veronica Lee - Economic Growth Office Director, Mr. Nicholas Okreshidze - Advisor of Energy Sector/ the Program Contracting Officer's Representative (CoR); Mr. Konstantine Tavzarishvili - Mayor of Gori Municipality and USAID Energy Program team. The purpose of the trip was to visit the households without access to electricity grid, assess the community needs and create awareness of the project. For that reason, the DM and Mayor introduced the concept of the project to the local population which is aimed at making a better quality of life rather than encouraging the migration to cities.

Visit to Off-Grid Villages

The visit enabled the delegation to understand the dynamics of the social structure and infrastructure. Despite poor road condition, the delegation visited 6 families among which 5 were permanent and 1 seasonal household. During the visit, USAID Energy Program Field Coordinator, Mr. Irakli Sulkhanishvili conducted the survey with the aim to check the willingness of the community to have access to electricity. The collected primary data revealed that the local population was mainly engaged in farming. The team also learned about the local municipality intervention which took place three years ago by installing 300 W solar Photovoltaic (PV) and hot water heating systems for the permanent residents. The community members greatly benefited with the scheme however noted that the 300 W solar electricity capacity generation was insufficient. In addition, the community referred to a combination of obstacles in need of solution such as the damaged battery storages and the failure of the water heating system to operate effectively below 7 degrees. The introduced new project found great appreciation among the community, moreover, the residents showed gratitude towards the endeavor of the Government and the Program and expressed hope for its timely implementation.

VRE FORECASTING CENTRALIZED SYSTEM CONCEPTS DESIGN AND ITS IMPLEMENTATION PLAN AGREED WITH GEORGIAN STATE ELECTROSYSTEM



Cover Photo – VRE Renewable Energy Forecasting System Design and Implementation Plan

USAID Energy Program introduced the VRE forecasting Centralized System Concepts Design and its Implementation Plan which were agreed with Georgian State Electrosystem (GSE). As a result of performed work, Energy Program and GSE agreed on future cooperation in terms of proceeding the procurement of VRE forecasting services and Control Measurement Equipment (LiDAR). Also, parties agreed that the Terms of Reference (ToR) for the procurement of VRE forecasting services would be developed in cooperation with GSE. Finally, after the development of ToR, USAID Energy Program would survey potential suppliers to identify the tentative budget for the procurement of services.

The agreement of VRE Forecasting Conceptual Design and Implementation by GSE (Hosting Agency) enabled to accomplish the first part of Contractual Obligations undertaken by USAID Energy Program, whilst the remaining part, considering the actual implementation of the system, would be fulfilled with the procurement and launching of forecasting VRE forecasting services. *(More details in task 4)*

INVESTOR ADVISORY WORKING GROUP MEETING

Investor Advisory Working Group Meeting

On February 13, USAID Energy Program, with the initiative of the Deputy Minister (DM) of the MoESD Ms. Natia Turnava, organized Investor Advisory Working Group (WG) Meeting at the MoESD. Among the participants were the representatives from the MoESD, Electricity Market Operator (ESCO), Georgian State Electrosystem (GSE), GNERC, Georgian Energy Development Fund (GEDF), Georgian Renewable Energy Development Association (GREDA), USAID Georgia, and USAID Energy Program. The event provided venue for sharing views and discussing the existing issues on the renewable energy support mechanisms. The aim of the workshop was to assist the Government of Georgia (GoG) in creation of enabling environment for new generating facilities and favorable investment climate. *(see more details Task 3)*

MANAGEMENT AND OPERATIONS

WORK PLANNING

During this quarter, USAID Energy Project met USAID and Georgian counterparts to ensure the effectiveness of the Year 2 activities, accounting for the changing environment in Georgia, and some change of counterparts. Some of the delayed activities that occurred in the second quarter of the Year 2, will be accelerated to be made up in the remaining part of the Year 2, most importantly related to execution of the RIA.

COMMUNICATION

Throughout Quarter 2 of the Year 2, USAID Energy Program implemented activities outlined in the Communication Plan. Among the undertaken actions were regular reporting to USAID, producing promotional material for the respective audience, creating communication platform through Facebook that reflects all valuable activities of the program and finally engaging with the project constituents, journalists and youth.

Table 1: Year 2 Outputs

OUTPUTS	TARGET	STATUS	PROGRESS
Weekly Report	12	12	Completed
Quarterly Report	3	2	In progress
Annual Report	1	1	In progress
Newsletters	1	1	In progress
Press Releases	4 (Annually)	2	In progress
Success Stories	-	1	In progress
USAID Development Experience Clearinghouse (DEC) Report Submission of Approved Deliverables on A Weekly Basis	*Based on Deliverables*	-	*Constantly Updated*
Use of Social Media Tool (Facebook)	*Based on Events*	-	*Constantly Updated*

PERFORMANCE MONITORING PLAN

USAID Energy Program regularly collects information and updates the Performance Monitoring Plan (PMP) reporting file. According to the contract the consequent PMP report will be delivered to USAID on a bi-annual basis, in April and October as a part of quarterly report. Data collected in April will cover the period from October 1 through March 31, while data collected in October will cover the period from April 1 through September 30. USAID Energy Program also filled out the Geographic Information System (GIS) template and submitted compatible information on the project activities to USAID on October 31, 2018. According to the contract, GIS file should be delivered semi-annually. The updated version will be delivered on April 15, 2019.

Table 2: Year 2 Outputs, Performance Monitoring Plan

OUTPUTS	STATUS
M&E Plan	Submitted with Year 2 Work Plan
PMP Reporting	Delivered in April 2019. (as part of quarterly report)
Annual GIS Reporting	Updated version will be sent by April 15 2019

ENVIRONMENTAL EVALUATION

USAID Energy Program ensured that all recommendations and comments made in respective reports produced during the Quarter 2 of the Year 2 are neutral to negative environmental impact. In that regard, nine (9) environmental threshold checklists were prepared for the outputs delivered in the reporting period, which covered January 1, 2019 – March 31, 2019.

GENDER EQUALITY

USAID Energy Program continues supporting the engagement of females in the energy sector who have already broken the stereotypes by adopting the non-traditional roles in the various fields of the energy sector. Particular focus of the project is the enhancement of female internship in the energy program. Throughout the project, the Program has hired several successful and smart females who were given an opportunity to work with the professionals and master their skills in the energy field.

Ms. Ana Bitsadze

Knowledge dissemination is one of the commitments of the Program, which is apparent on a daily basis, by exposing the interns to the activities of a professional team aimed at contributing to the development of a sustainable and competitive energy market.

Quarter 2 of the Year two was not an exception and the Program hired a female intern from International School of Economics at Tbilisi State University (ISET) Ms. Ana Bitsadze. She is given a unique opportunity to participate in the working group meetings and obtain firsthand information from the energy experts, support in conducting research through data mining and be a part of international professional team.

This approach remains to be essential part of the Program, therefore search for potential female candidates for the internship will remain a dynamic process through the lifespan of the Project.

YOUTH SKILL DEVELOPMENT AND CIVIL PARTICIPATION

Conference on "Energy and Environment"

On March 14, the Energy and Telecommunications faculty of Georgian Technical University (GTU) hosted the second Scientific Conference "Energy and Environment" with the aim to enable the student to present their studies to a large audience of energy experts and thus facilitate the employment opportunities for future energy specialists. Among the quests were the DM of the MoESD Ms Natia Turnava, representative of the energy Academy, Telasi, GSE, Sakrusenero, Gross Energo Group (GEG) and Blauenstein Georgia.

USAID Energy Program young analysts Ms. Keti Gogishvili and Mr. Beka Shonia also had an opportunity to be among the participants of the conference, which served as a platform for discussing various topics related to the energy and environment.

Ms. Gogishvili offered a presentation on the Solar Power and associated challenges, trends, and achievements. She also elaborated on the solar PV module prices for different years by technology and manufacturer state, total installed costs for utility-scale and residential solar PV systems, as well as, levelized cost of electricity from utility-scale solar PV projects and cumulative grid-connected capacity. Another presenter Mr. Shonia talked on the electricity markets, electricity trading system, competitive market benefits, It's an effect on VRE investments and future tariff prediction due to market change.

USAID Energy Program encourages the youth skills development and participation in various events that will expose youth to professionals and facitate the creation of relevant linkages in the sector.

COLLABORATION WITH OTHER DONOR FUNDED PROJECTS

USAID Energy Program closely cooperates with other donors participating in the development of Georgia's energy sector. Cooperation details during Quarter 2 of the Year 2 are as follows:

EU: USAID Energy Program works with EU4Energy, implemented by the Energy Community Secretariat (ECS), to support the GoG in reform making process, to ensure implementation of obligations undertaken by EU-Georgia AA and Energy Community (EC) Accession Protocol.

Danish International Development Agency: USAID Energy Program, Norwegian Water Resources and Energy Directorate and "NVE-NIRAS" (consortium of Danish Company "NIRAS") experts will cooperate in the development process of a draft law on Enhancing Energy Production from Renewable Energy Sources and in performance of RIA following the intensive Public Private Dialogue (PPD). It was also agreed that USAID Energy Program will participate in organizing the workshop committed to the above-mentioned topics.

NVE (Norwegian Water Resources and Energy Directorate), - under the Norwegian grant program, NVE will assist the GoG in the development of a regulation on Renewable Energy Support Mechanisms, in particular, Feed-in Premium (FiP), Contract for Deference (CfD) and improved net metering. USAID Energy Program will collaborate with NVE and provide technical assistance including RIAs on renewable energy support mechanism and stakeholder workshops.

IFC (International Finance Corporation): USAID Energy Program works with IFC to cooperate in the development of Electricity Market Transitional Plan and Natural Gas Market Transitional Plan. USAID Energy Program also introduced IFC to upcoming changes and the activities of USAID Energy Program in support of VRE in Georgia. IFC shared their experience, knowledge and challenges in pursuing VRE programs.

WB (World Bank): USAID Energy Program actively collaborates with WB in assisting the GoG in the development of a competitive energy market. USAID Energy Program will support WB's consultants by guiding and providing information on Electricity and Gas Market Concepts and Electricity Trading Mechanism (ETM).

UNDP (United Nations Development Program): USAID Energy Program met UNDP Project on Biomass Promotion to obtain information on the existing and potential non-hydropower VRE projects and their developers in Georgia. As a result, the list of VRE projects was updated and existing information collected and specified.

ADB (Asian Development Bank): USAID Energy Program works with ADB on identifying the existing and potential VRE projects in Georgia. The ADB has expressed interest in financing rooftop solar projects across Georgia.

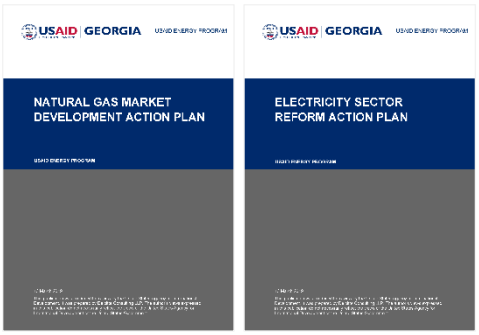
NARUC (National Association of Regulatory Utility Commissioners) and **USEA** (United States Energy Association): USAID Energy Program met representatives of NARUC Black Sea Regulators Initiative and the USEA. The aim of the initiative is to harmonize regulations for cross-border energy trading in the region. The USEA is particularly concentrating on analyzing the possibility of supplying cross-border energy balancing services.

KfW (German Government-Owned Development Bank): USAID Energy Program held several meetings with a meeting with Mr. Hans Rieck - Director Sector Coordination South Caucasus, Energy-Transport and Ms. Nino Shanidze - Senior Project Coordinator at KfW to discuss the electricity market reform, gas market concept and Underground Gas Storage (UGS). Parties also discussed the areas of assistance to be provided by KfW in organizing a study tour in Germany (tentative) for the decision-makers from the MoESD and energy sector stakeholders.

PROGRESS OF ACTIVITIES BY TASKS

ENERGY MARKET DEVELOPMENT (TASK 1)

ENERGY MARKETS DEVELOPMENT ACTION PLAN FOR ELECTRICITY AND GAS SECTORS



Cover Photos – Electricity and Natural Gas Sector Reform Action Plans

USAID Energy Program remained persistently engaged in the consultation with the key stakeholders with the aim to discuss the Electricity and Natural Gas sector reform Action Plans. In view of obtained feedback, required changes have been introduced in the respective Action Plans. The continues meetings greatly contributed to exchanging views, information, and discussing the process of drafting the secondary legislation.

USAID Energy Program reviewed "the Concept Design for the Georgian Electricity Market", adopted by the Order of the Minister of the MoESD on 24 December 2018. The document constitutes the vision of the MoESD regarding the general structure, organization, and functioning of the electricity market in Georgia. According to the Order, the Concept Design provides guidelines for the implementation of reforms in the electricity sector and will serve as a basis for more detailed Market Concept Design that will be adopted subsequently to the adoption of the New Law on Energy and Water Supply.

The Program team drafted the report "Comparative Analysis of the Developed Concepts for the New Electricity Market in Georgia". The report has several objectives: to identify the differences among "Georgian Electricity Market Concept Design" - approved by the MoESD; the "White Paper on Electricity Market Concept Design" - developed by USAID Energy Program and Market Design, defined by Nord Pool Consulting. In addition, the report focuses on the analyses of the Transitional Plan outlined in the approved market concept design, recommendations and next steps.

The new draft law on Energy and Water Supply was submitted to the Government and distributed among the respective ministries for further comments. As a following step, the GoG will submit the draft law to the Parliament. Consequently, the Bureau of parliament will define the basic and other committees including the Legal committee and provide them the draft law for consideration and further discussions. Once the defined committees provide decisions, the bureau will prepare the draft for the first hearing. At that stage, the basic principles of the draft law are discussed by the parliament members on the plenary sitting. The following step is the discussion of particular articles of the draft law on the second plenary sitting. And the last stage covers the discussion and voting for the draft for final editing. After adoption, the final edited draft will be sent to the president of Georgia for signing the adopted law.

USAID Energy Program CoP Mr. Daniel Potash and Senior Legal Advisor Ms. Tamar Jaliashvili held a meeting with the 'Agence Franciase de Development' (AFD) representatives. The discussed topics comprised: the updated action plans on Electricity and Natural Gas, the ongoing impact assessment of the reform, AFD / KfW energy PBL and AFD TA toward GSE, further donors' coordination in the energy sector, promotion of electricity generation from the renewable energy sources and support schemes. The parties also exchanged opinion on fund financing/supporting RES and discussed measures for the protection of vulnerable customers.

Head of the Legal and Reforms Department of GGTC, Mr. Nugzar Dvali requested assistance of USAID Energy Program in developing Natural Gas Ten-Year Network Development Plan (TYNDP). The support had mainly implication in the capacity building activities as well as assistance in the key content of the document. [Note: Currently Gas TYNDP is developed by Georgian Oil and Gas Corporation (GOGC), however there is a decision made that this role will be transferred to GGTC].

USAID Energy Program and MTX Commodities representative held a meeting with GGTC. The meeting was initiated by GGTC to better understand the capabilities of MTX in developing the electronic platform for capacity booking, nominations, balancing and other services as described in Natural Gas Grid Code, adopted by GNERC. MTX shared experience in the gas sector and provided brief suggestions that contributed to increasing awareness of GGTC on trading platforms in Gas and

“what traders want to see on Transmission System Operator (TSO) web platform”. Parties agreed to share tentative SoW and prices related to the development of an electronic platform.

ELECTRICITY AND GAS MARKETS TRANSITION PLANS

USAID Energy Program organized meeting with the representatives of the Pension and Social Assistance Division of the Ministry of Health, Labour, and Social Affairs of Georgia (MoHLSA) to discuss the general number of socially vulnerable customers in Georgia and the scope of socio-economic assistance, including healthcare and education. The emphasis was also made on checking the availability of certain program for protecting vulnerable customers through unrestricted supply of electricity and natural gas. The parties discussed the existing measures, taken by the GoG, regarding the electricity supply of vulnerable families. However, based on obtained information, similar measures are not available for the natural gas sector.

Effective from January 2019, the GoG enacted rules and conditions for ensuring the social protection of large families. Families with 4 kids are entitled to benefits in the amount of GEL 20, with more kids the amount increases by GEL 10 per child. However, the implementation of this scheme is currently delayed due to the absence of a more comprehensive database. The existing database on vulnerable customers are considered both at the centralized and municipality level of the state and includes the transparent list of vulnerable families in need of assistance in different sectors. In regard to the new draft law on Energy and Water Supply, the Pension and Social Assistance Division of the MoHLSA prepared respective comments and provided to the MoESD, which will enhance the law-making process.

Tbilisi municipality also established the program and defined the fixed amount of money for vulnerable customers to cover the utility fees, including electricity, water supply and cleaning services. The amount of fee is GEL 106 per family if the rating score does not exceed 70 000. Those vulnerable families with the rating score not exceeding 200 000 are entitled to a fixed benefit in the amount of GEL 20. This advantage is applicable during the cold months: January, February, March, November, and December. The mentioned amount is allocated for electricity, water supply and cleaning service. Utility subsidy is reflected in the utility service fee which is provided by Legal Entity of the Public Law (LEPL) Social Service Agency. Besides, Tbilisi municipality signs the contracts with distribution companies such as JSC Telasi and JSC Energo-Pro Georgia (EPG) to compare databases and ensure precise information on consumption of vulnerable customers. Currently, no benefits are available for natural gas.

USAID Energy Program met the City Hall representatives to inquire the existing socio-economic assistance to vulnerable customers. In that regard, the city hall provided information on utility subsidies implemented by the unit, on behalf of Tbilisi Municipality.

REGIONAL ENERGY COOPERATION

On January 23, USAID Energy Program organized skype call with the representatives of Turkish software developer - MTX Commodities Ltd, namely with Mr. Paul Constantinou, Chief Executive Officer (CEO) and Mr. Melis Bilgic Aksari, Managing Partner. The call was aimed at discussing the possible future cooperation between the parties in terms of launching the Turkey-Georgia Joint WG Meeting. The potential audience of the WG will comprise the Georgian Government, USAID Georgia, GSE, Turkish Electricity Transmission Company (TEİAŞ), Energy Market Regulatory Authority (EMRA), Turkey Ministry of Energy and Natural Resources, Turkey Energy Exchange (EPİAŞ) and Matrix. The Turkish party suggested the commencement of negotiations with the Turkish Electricity Transmission company and Market Regulator Authority and come up with the subsequent steps.

PUBLIC OUTREACH

USAID Energy Program participated in a workshop organized by EU4Energy Governance project, which contracted consulting company REKK (the Regional Centre for Energy Policy Research, based in Hungary) to develop the methodology. The event was attended by GGTC, distribution licensees, suppliers and ECS representatives. According to the REKK representatives, the proposed tariff methodology will be based on the existing methodology for defining allowed revenue (Capital Expenditure (CAPEX), Operational Expenditure (OPEX) and other regulatory cost elements), however allocation of allowed revenue will be differently managed. In particular, new tariff methodology envisages the establishment of entry-exit tariff system, transforming existing commodity charge practice towards capacity charge.

Donor Roundtable Meeting

On February 22, USAID Energy Program organized Donor Roundtable meeting at the MoESD with the aim to deliver updated information on the electricity and natural sector action plans for the second year of the Program. Among the attendees were the Program COR Mr. Nicholas Okreshidze - USAID Georgia, major stakeholders and donors. Prior to this event, the Program held one-to-one meetings with the stakeholders (MoESD, GNERC, GSE, ESCO, GOGC, GGTC, GEDF and other donors.

The round table meeting provided a venue for the respective team to present the action plan, which was followed by discussions and exchange of views. Later, the applied material was disseminated among the participants for further review and feedback.

ACTION PLAN AND TRANSITION PLAN IMPLEMENTATION

USAID Energy Program reviewed recently revised draft law on the Energy and Water Supply regarding the protection of the vulnerable population in view of the Accession Protocol requirements and EU Directives. Obtained information was incorporated into a draft document which will be applied during the workshop planned to be organized with the MoESD and MoHLSA in the third quarter of the Year 2. The main objective of the workshop is to launch discussions over the existing protection mechanisms and select the most appropriate support schemes for genuine protection of the vulnerable population in Georgia.

USAID Energy Program has been working on the support schemes for the protection of vulnerable customers and finalized the draft on Transition Plan for Vulnerable Customers. The document is under the internal review and shortly will be shared with the USAID for review and approval.

USAID Energy Program worked on Transitional Plans for Electricity and Natural Gas. Relevant countries' experience was reviewed in terms of vulnerable customer support mechanisms and the existing situation was analyzed. Corresponding slides were developed for internal discussions.

UNIFORM SYSTEM OF ACCOUNTS

Initially, Uniform System of Accounts (USoA) has not been included in the contract of the Program. However due to its rising importance in anticipation of a competitive energy market, upon the request of the major stakeholders USAID Energy Program commenced working on the USoA. In that regard, the task 4 of the Program drafted a report on Accounting Guidelines for Property Plant and Equipment (PPE) used in gas transmission, distribution, supply and storage regulated activities. The report incorporated several technical regulations, draft and the existing laws and sub laws in order to ensure the reliable input of the report. The technical part of the document incorporated definition of terms, list of equipment used for transmission, storage and distribution of gas and drafting the part of the guidelines related to cost capitalization issues. Task 4 team aided in performing the breakdown of assets designated for gas regulated activities and their attribution to different accounts of the drafted Chart of Account (CoA).

Finalization of the final draft was proceeded by a series of meetings with GNERC Gas Department representatives in order to agree upon the concept and structure of grouping items of PPE under certain classes incorporated in Regulatory CoA. The parties discussed the content and components of CoA PPE accounts such as Constructions, Machinery and Equipment and Transferring Assets utilized for gas distribution and transmission regulated activity, as well as the capitalization criteria and incorporated examples. Consequently, Task 4 team drafted the proposed amendments and distributed among the USoA team. The proposal draft was suggested for sharing with GNERC Gas and Tariff Department as a part of the working process on USoA.

INSTITUTIONAL STRENGTHENING AND CAPACITY BUILDING (TASK 2)

REGULATORY IMPACT ANALYSIS TOOLS

Upon the request of the MoESD, USAID Energy Program drafted two RIA reports - RIA of the proposed Energy Law on Electricity prices and RIA of the proposed Energy Law on Gas prices. In view of the available skills and capabilities internally, USAID Energy Program mobilized in-house sources. Hence, the Program International Gas Expert Ms. Gergana Stoitcheva together with the local team finalized the first draft of these two reports which aim to reveal the pros and cons of the proposed Draft Energy Law on Energy of Georgia on the electricity and gas prices. During the drafting process, the involved staff granted particular attention to designing a Financial Model which measures the impact of the new Energy Law implementation on retail electricity tariffs in Georgia. The model also envisages the Total System Revenue Requirements, changes in supply and demand side and the costing of RES with and without the new draft Energy Law implementation in Georgia.

Prior to sharing the respective documents with the MoESD, the Program discussed Gas and Electricity Executive Summaries with USAID Georgia and obtained suggestions for minor changes in the planned approach which were introduced both in the executive summaries and in the reports.

Upon the request of the MoESD, USAID Energy Program presented the Draft Executive Summaries of both reports “RIA of the proposed Energy Law on Electricity prices and RIA of the proposed Energy Law on Gas prices to the MoESD for feedback and comments. After a careful review, both documents gained appreciation and approval of the MoESD. In addition, MoESD RIA department head Ms. Tea Loladze proposed the structure and topics to be incorporated in both Electricity and Gas RIA reports. The suggested structure comprised: Summary, Consultation with the interested parties, The existing state, Problem Identification, Goals definition, Goal achievement indicators; Political alternatives, The evaluation of alternatives (*cost-effectiveness of alternatives – economic, fiscal, social and environmental),* Comparison of the alternatives, risk assessment and monitoring and evaluation. Respectively, the team filled the gap by adding the missing parts and by introducing the suggested structure.

In the meantime, USAID Energy Program has been continuously collaborating with the GoG and stakeholders to determine other required topics for RIA. Two relevant topics such as RIA on Vulnerable Customers and RIA on `Local Content for renewable energy have already been identified. In view of experience and expertise the Program has selected World Experience for Georgia (WEG) for conducting RIA on Socially Vulnerable Customers and Georgian Renewable Energy Development Association (GREDA) for - the Local Content Requirements for renewable energy. The program remains in the process of addressing the administrative issues to speed up the process.

To further coordinate with the Government in terms of RIA topic selection, on Feb 13, USAID Energy Program COR Mr. Nicholas Okreshidze and the Program management discussed RIA on renewable energy support schemes with the MoESD. Representative of MoESD, Ms. Natalia Jamburidze expressed interest and support in conducting such RIA that will provide justification for the appropriate support scheme for Georgia. The parties agreed to form joint working group including the MoESD, international consultants working on Renewable Energy Law and support schemes and USAID Energy Program.

CAPACITY BUILDING

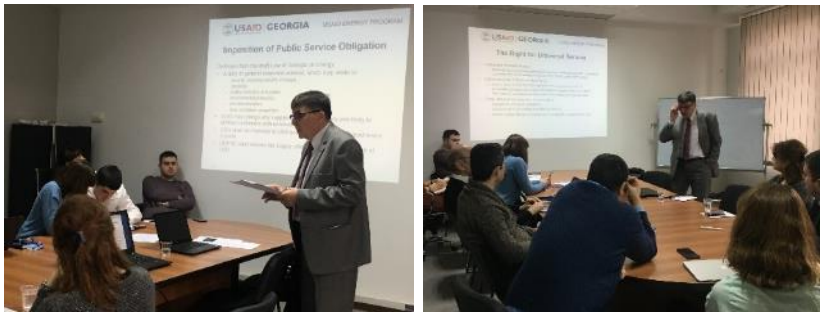
USAID Energy Program Expert and Task 4 lead Mr. Valeriy Vlatchkov conducted a series of trainings for GNERC with the aim to aid the company in relevant skills development. In that regard, the training was organized on the Supplier of Last Resort (SoLR) Tariff Methodology for tariff setting and electricity departments. The audience found the targeted training extremely informative and interesting which ended up with Q/A session where the representatives of GNERC had a chance to hear the expert’s opinion.

Training on the Supplier of Last Resort Tariff Methodology

Mr. Vlatchkov also conducted training on Market Operator Tariff Methodology which can be applied by GNERC to ensure the timely implementation of a methodology for calculation of tariffs for the market operator in the electricity sector targeted at increasing the competitiveness of Georgian energy sector. The discussed topics included 1) the Objectives of the Electricity Market Operator Tariff Methodology 2) Legal and Regulatory Principles for Determining the Tariffs 3) Contractual Arrangements and other topics relevant for GNERC.

Training on the Market Operator Tariff Methodology

The focal point of the training was the importance of creating the methodology for calculation of the tariff for Market Operator in Georgia to facilitate the functioning of the competitive Georgian power market. The audience received comprehensive information on the determination of the costs and revenues of the market operator according to the requirements of the draft Law of Georgia on Energy and in compliance with the EU legal and regulatory framework. The parties agreed on more trainings in order to support GNERC in the creation of market operator tariff methodology and in determination of Weighted Average Cost of Capital (WACC) in the Tariff System which will require further trainings.



Training on the Electricity Universal Service Supplier Tariff Methodology

Mr. Valeriy Vlatchkov also offered training on the Electricity Universal Service Supplier Tariff Methodology, which can be applied to ensure the timely implementation of a methodology for calculating the tariffs for universal service supplier for electricity sector with the aim to benefit from a competitive electricity market. The training covered vital issues such as the right of a consumer, the Right for Universal Service, Imposition of Public Service Obligation (PSO), retail Tariff for Universal Service Customers and other topics vital for the tariff and electricity department of GNERC. Following the training the audience expressed gratitude towards the Program for organizing informative and educational training that will be of great value for GNERC.

Presentation on the Principles of Electricity Supply and Demand

From the very onset of the project, USAID Energy Program applies the tailored approach for educating the youth on the principles of the energy market functioning through various trainings. This tactic is aimed at strengthening confidence, skills and knowledge of interns and empower the youth to explore a career path in the energy field.

In that regard, Mr. Vlatchkov held a training for the Program analysts and interns on the principles of electricity supply and demand which is an essential input for better understanding the functioning of the energy market. Other topics incorporated in the presentation were:

- Classification of electric users by customer type and the level of usage;
- How to determine the most important factors impacting the demand levels at a given location and point in time;
- Interpretation a specific customer mix to determine an expected load curve for a given period of time;
- Analyzing the dispatch stacks and load curves to predict price behavior based on changes in supply and demand.

The training also included examples of the international experience from the USA, Europe, Asia and Australia. To check the knowledge, the session was followed by a test with multiple choice questions which enhanced the understanding of obtained knowledge in terms of its practical application in real settings.



Training on the Regulatory Impact Assessment

On March 4, USAID Energy Program offered training on the RIA at the MoESD. Among the participants were the representatives from the MoESD, GNERC, WEG, the Parliament. USAID Energy Program CoP Mr. Daniel Potash elaborated on the importance of selecting the audience, how to frame an issue, how to make appropriate assumptions and how to manage the scope of work. The focus was also made on the importance of incorporating the outside research. In that regard, the Program Energy Analysists Beka Shonia, Ketevan Gogishvili and Financial Analyst Mr. Kakhi Nemsadze discussed the methodology and approach applied within the RIA analysis, sources of information and the importance of delivering information to the audience in the most effective way. During the presentation, the Program team clarified the source of available scarce data based on which the assumptions were made for the model applied in RIA reports. The presentation was followed by Q/A session.

On March 26 - 28, USAID Energy Program in cooperation with UK based company MTX Commodities Ltd organized Bilateral OTC Energy Trading Training for the energy stakeholders with the aim to acquaint the mid-level professionals with the workings of day-to-day buying and selling of gas and electricity in Georgia. *(for more details see special highlights)*

Training on "Purpose - Persuasion-Packaging – Presentation"

For the purpose of internal capacity building, Deloitte (USA) funded the training for USAID Energy Program aimed at enhancing the written deliverables. To avoid the harm on job performance, the training was organized after the working hours. The training was conducted by Ms. Diana Reddy - Executive Manager | Development CoE – Communication Excellence, Deloitte. The session enabled the audience to better understand the characteristics of various deliverables and tailored techniques for drafting them. The training centered around the four sweeps techniques like "Purpose - Persuasion-Packaging – Presentation" which serve as a major input for creating an impactful deliverable for clients.

The training was delivered through skype enabling the inclusion of non-local staff of the program. The Skype technology also included the option for recording the session, therefore the recording is currently available on the server.

Study tours - In the second quarter of the Year 2, USAID Energy Program held several meetings with the Embassy of Czech and Ukrainian party in an attempt to organize study tours for Georgia's energy stakeholders. The Program team is trying to select a country with the most suitable experience for Georgia's energy sector in order to add value to the tour. Therefore, negotiations are still underway with the consideration of other options as well. Hence, the actual implementation of the study tour was postponed in the remaining period of the Year 2.

ENERGY INVESTMENT OPTIMIZATION (TASK 3)

INVESTMENT ADVISORY GROUP

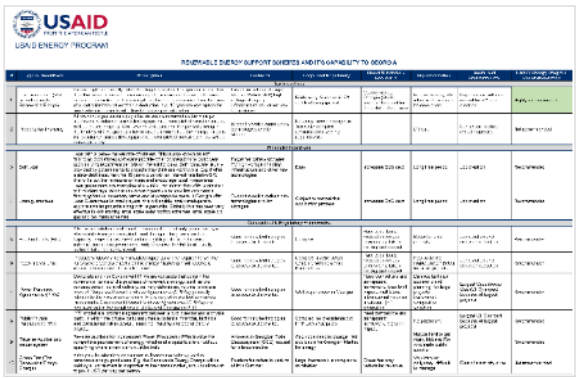
Investor Advisory Working Group Meeting

On February 13, USAID Energy Program, with the initiative of the DM of the MoESD Ms. Natia Turnava, organized Investor Advisory WG Meeting at the MoESD. Among the participants were the representatives from the MoESD, ESCO, GSE, GNERC, GEDF, GREDA, USAID Georgia, and USAID Energy Program.

The event brought together Georgian electricity sector stakeholders for sharing views and discussing the existing issues and challenges on the renewable energy support mechanisms. The aim of the workshop was to assist the GoG in creation of enabling environment for new generating facilities and favorable investment climate.

The WG Meeting was opened by GEDF CEO Mr. George Chikovani, followed by welcoming remarks of USAID Georgia / Program COR Mr. Nicholas Okreshidze as well as USAID Energy Program CoP Mr. Daniel Potash and USAID Energy Program DCoP Mr. Ivane Pirveli. All speakers emphasized the value of launching Renewable Energy Incentive Mechanisms.

Following the welcoming remarks, GREDA Board Chairman Mr. Levan Vepkhvadze offered a presentation focusing on the “Local Content Requirement in Georgia as a Possible Prerequisite for the RES’s State Support”. The subsequent presentation on the Judgment on Support Schemes was delivered by USAID Energy Program. The presentation incorporated several aspects delivered by respective experts of the Program. In that regard, the ‘Investors Opinion” and Survey Results on Renewable Energy Support Schemes was offered by Energy Investment Optimization Lead Ms. Tamar Murtskvaladze. Further, USAID Energy Program CoP Mr. Daniel Potash elaborated on the financial, fiscal and economic issues. The associated technical issues were reviewed by VRE Integration Lead Mr, Valeriy Vlatchkov, the legal aspects and tax incentives were discoursed by the Legal Advisor Ms. Tamar Jaliashvili, and lastly, DCoP Mr. Ivane Pirveli deliberated on issues for improving regulations on Net Metering.



List of 17 Incentive Mechanisms

Ms. Margalita Arabidaze, MoESD

"According to the existing Tax Code, the goods are not sorted clearly, it is not possible to separate goods by technologies, e.g. the Energy Efficient (EE) Led bulbs and general non-energy efficient bulbs bears the same code, and it's impossible to support EE led bulbs with exemption from VAT. The VAT exemption for Renewable Energy technologies can be faced with the same difficulties.

Mr. Mikheil Tavberidze, GSE

GSE is not supporting only Renewable Energy development and environmental issues, but also the development of new technologies, such as batterie storages. Mr. Tavberidze stated that immediate absorption of Renewable Energy into the network will damage the grid. That's why GSE is gradually preparing the infrastructure.
Using FiT, rather than fixed tariff will motivate Renewable Energy developers.

Mr. Nugzar Beridze, GNERC

Net metering regulation was enforced a year ago. Due to the high prices of technologies, the trend of customs was low, but it is increasing gradually. Currently, there are 66 small scaled solar farms in Georgia, which are connected to the net metering system, in total 700 kW. Due to technical issues, GNERC carefully approaches to the changes. They are studying practices on settlement period. GNERC is currently working on the improvement of the regulation, specifically group metering system. The next step of the improvement will be the regulation on virtual metering system.
Mr. Beridze advised to support reservoir and storage technologies.

Overall, USAID Energy Program presented analysis and recommendations on 17 Incentive Mechanisms. GEDF CEO Mr. George Chikovani highlighted the significance of initial analysis of Renewable Energy Support Schemes and noted that the assistance of the Program in that respect was timely and appropriate, capable of delivering high value. The meeting was followed by discussions which enabled the audience to voice concern and opinion on the existing condition.

USAID Energy Program team held a meeting with Mr. Zviad Gachechiladze from GNERC. The program was informed that, according to the EU obligations, Georgia has to commit to the following Network Code Regulations:

- Decision 2018/03/PHLG-EC on incorporating Commission Regulation (EU) 2016/631 of 14 April 2016 establishing a Network Code on requirements for grid connection of generators;
- Decision 2018/05/PHLG-EC on incorporating Commission Regulation (EU) 2016/1388 of 17 August 2016 establishing a Network Code on Demand Connection;
- Decision 2018/04/PHLG-EC on incorporating Commission Regulation (EU) 2016/1447 of 26 August 2016 establishing a network code on requirements for grid connection of high voltage direct current systems and direct current-connected power park modules.

GNERC and GSE, within their competencies, are working on drafting new regulations. Mr. Gachechiladze requested assistance in conducting a workshop for the purpose of launching discussions on the new draft regulation among the interested parties comprising of energy producers, developers, network operators, and other stakeholders. Parties agreed to cover the mentioned subject in the upcoming Investor Advisory Group Meeting.

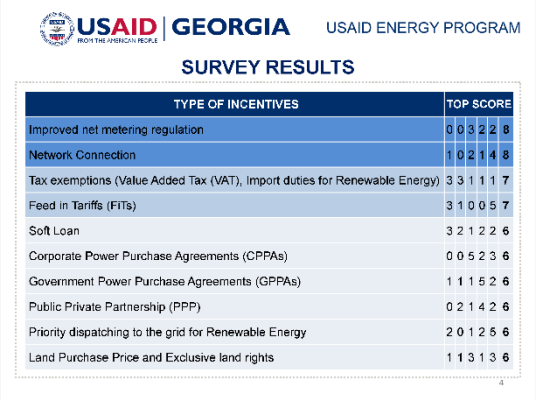
The next Investor Advisory Group Meeting is scheduled for April 19 at the MoESD. The event will bring together Georgian energy sector stakeholders and renewable energy developers for sharing views and discussing the existing issues and challenges on upcoming EU obligations, to commit new Network Code Regulations in Georgia, in compliance with European Network of Transmission System Operators for Electricity (ENTSOE).

The following topics are planned to be discussed:

- Transposition of EU Network Code on Establishing a Network Code on Requirements for Grid Connection of Generators in Georgia: Lega, Regulatory and Technical Requirements;
- Analysis on Renewable Energy Integration into the Georgian Electrosystem;
- Draft of Guidebook on the VRE project development.

RENEWABLE ENERGY SUPPORT SCHEME

USAID Energy Program assists the MoESD in the development of a support mechanism for encouraging investment in electricity generation infrastructure in order to promote the development of energy generation from a diversified source of native resources.


USAID | GEORGIA USAID ENERGY PROGRAM

SURVEY RESULTS

TYPE OF INCENTIVES						TOP SCORE
Improved net metering regulation	0	0	3	2	2	8
Network Connection	1	0	2	1	4	8
Tax exemptions (Value Added Tax (VAT), Import duties for Renewable Energy)	3	3	1	1	1	7
Feed in Tariffs (FiTs)	3	1	0	0	5	7
Soft Loan	3	2	1	2	2	6
Corporate Power Purchase Agreements (CPPAs)	0	0	5	2	3	6
Government Power Purchase Agreements (GPPAs)	1	1	1	5	2	6
Public Private Partnership (PPP)	0	2	1	4	2	6
Priority dispatching to the grid for Renewable Energy	2	0	1	2	5	6
Land Purchase Price and Exclusive land rights	1	1	3	1	3	6

Survey Results

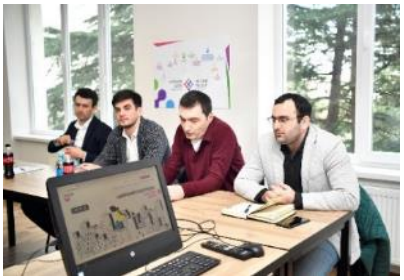
In that regard, the Program prepared a proposal for renewable energy support mechanism for the GoG. Accordingly, the team surveyed the participants of Investor Advisory Group meeting (held on December 28, 2018) and, identified the top support mechanisms. The survey revealed the most significant incentives in view of developers which comprise the Improved Net Metering Regulation (8 scores); Network Connection (8 scores); Tax Exemptions (7 scores); and Feed in Tariffs (7 scores). The results were presented to the USAID Georgia, the MoESD and other stakeholders.

USAID Energy Program made the analysis of Incentive mechanisms and recommendations and developed a table comprising Renewable Energy Support Mechanisms with fiscal / financial / economic, technical, legal and regulatory, implementation, social and environmental analysis. The team prepared a presentation providing possible impact of support mechanism, detailed description of various renewable energy supporting mechanisms and full justification for each recommendation. The results were presented at the Investor Advisory Group Meeting which took place at the MoESD on Feb 13, 2019.

USAID Energy Program was informed, that NVE, under the Norwegian grant program, will assist the GoG in the development of a regulation on Renewable Energy Support Mechanisms, in particular, FiP, CfD and improved net metering. The Program was contacted by Ms. Natalia Jamburia – Head of Renewable Energy and Energy Efficiency Division, with the request to collaborate with NVE and provide technical assistance including RIAs on above-mentioned incentives and stakeholder workshops. In that regard, the first meeting with the representatives of NVE and MoESD was held on March 20, at the MoESD. The MoESD was represented by Ms. Natalia Jamburia Ms. Tea Avazashvili - Head of Sectoral Development Division. The representatives of NVE were Mr. Michael Steinfeld - Program Director at International Department and Mr. Kjell Repp - Chairman of the board of directors at the International Centre for Hydropower (ICH).

During the meeting, the parties exchanged information regarding the delivered support to the MoESD. Hence, the Program learned that the MoESD tasked NVE to develop Rules and Regulations on Renewable Energy Support Mechanisms. In turn, USAID Energy Program also informed NVE on the requested assistance in RIAs on the following topics: Feed in Tariff (FiT) / FiP, CfD and improved net metering, as well as in conducting stakeholder workshops. NVE stated that all paperwork on Renewable Energy Incentive Schemes, prepared by USAID Energy Program would be a great input for drafting Rules and Regulations on Support Mechanisms. Therefore, the Program promised to share all documents with NVE.

The MoESD noted that they would start the identification of working group members and scoping in the nearest future and the Program will be invited on the scheduled donor organizations meeting. The Parties agreed on future collaboration.



Panel Discussion on the Integration of RES into the Grid

On February 18, USAID Energy Program DCoP Mr. Ivane Pirveli participated in the Panel Discussion organized by GNERC's commissioner Ms. Maya Melikidze at the Business and Technology University. The topic of the discussion was the Integration of RES into the Grid. The meeting was attended by the representatives of the MoESD, Civil Society Organizations (CSOs), EPG, VRE private sector

representatives (including wind power developer Infinite Energy) and the research center of Business and Technology University. The parties discussed the ongoing activities related to renewable energy sources development, their integration into the grid, net-metering regulation, and the possible cooperation between the private sector and the university. Discussions were facilitated by GNERC's commissioner with the aim to obtain views from private sector, donors, government organizations, CSOs and the university.

On February 22, the leading investment banking and investment management services company in Georgia "Galt & Taggart "organized a conference on the Prospects of Energy Sector in Georgia at Rooms hotel. Among the attendants were USAID Georgia / Program COR Mr. Nicholas Okreshidze, USAID Energy Program CoP Mr. Daniel Potash, DCoP Mr. Ivane Pirveli, VRE Integration lead Mr. Valeriy Vlatchkov, Energy Investment Optimization Lead Ms. Tamar Murtskhvaladze and Financial Analyst Mr. Kakhi Nemsadze.

Conference on the Prospects of Energy Sector in Georgia

G&T representative Ms. Mariam Chakhvashvili offered presentation regarding the overview of electricity followed by panel discussions. The first panel comprised Ms. Natia Turnava - DM of the MoESD; Mr. George Chikovani- CEO of GEDF; Mr. Vasil Khodel - Bank of Georgia (BoG): Mr. Giorgi Abramishvili –GREDA and Mr. Davit Managadze from EBRD. The second panel was led by Mr. Archil Kokhtashvili - GSE, Mr. Levan Vepkhvadze - GREDA, Mr. Tornike Kazarashvili - GEDF, Mr. Giorgi Bezhuashvili - Georgian Renewable Power Company, Mr. Mikheil Tavberidze - GSE.

The first session was dedicated to discussions on financing energy projects. Ms. Turnava highlighted that the new Renewable Energy Law was under the revision by the GoG and would be adopted in Spring. The law considers "must run" principle for wind and solar energy and obligates the development of Renewable energy support mechanisms. However, Power Purchase Agreements (PPAs) could not be cancelled totally, it will work for large projects. For small and medium projects, alternatively, to the PPAs, FiPs will be established. This approach is believed to motivate investors to develop renewable energy, especially wind and solar.

During the discussions, some panelists expressed appreciation towards USAID Energy Program for the support being delivered to the GoG in the transition period. Firstly, Ms. Turnava showed gratitude for the appropriate and well-timed support of the Program in the Electricity and Gas RIAs, which is of high priority for the GoG. Mr. Giorgi Abramishvili from GREDA also emphasized the importance of Incentives mechanisms for Renewable Energy development and referred to USAID Energy Program's valuable contribution by creating a list of Renewable Energy Incentive Mechanism and recommendations. He also recalled the survey results discussed during the Investor Advisory Group Meeting organized by the Program, which revealed the need for support mechanisms.

Ms. Natia Turnava, MoESD

Ms. Turnava explained that development of renewable energy projects takes much more time than other industrial projects. She noted that it is planned to liberalize the energy market. In May large market players will get into the free market. Ms. Turnava highlighted the new renewable Energy Law is under the revision of GoG and in sprig it will be adopted. The law considers "must run" principle for wind and solar energy. The law also obligates to develop and Renewable energy support mechanisms. The PPAs could not be cancelled totally, it will work for large projects, she noted. For small and medium projects, alternatively to the PPAs, Feed in Premiums will be established. This will motivate investors to develop renewable energy, especially wind and solar.

Mr. Giorgi Abramishvili, GREDA

"The tendency on regulatory reforms is going in a right way, but the trend is very slow. Attracting investments is a problematic because GoG finds difficulties in making decisions, also new PPP Law has a lack of transparency and needs to be refined".
Mr. Abramishvili mentioned that Incentives mechanisms for of Renewable Energy development is very important issue. He highlighted that USAID Energy Program did a great job with creation list of Renewable Energy Incentive Mechanism and recommendations on it. He also mentioned the survey results, which was conducted at the Investor Advisory Group Meeting by USAID Energy Program, shows the necessity of support mechanisms.

Mr. Potash shared the view of panelist over the relevance of Incentive Mechanisms for Renewable Energy and even explained the negative outcome of the wrong incentives which can bring uncertainty in VRE forecasting. As a response to an inquiry from the audience regarding the accuracy of the country's reform trend, Mr. Potash explained that the ratification of EC treaty was a demonstration of the right trend towards European framework, which would foster international connections essential for renewable energy development.

And lastly, Mr. Vepkhvadze underlined the significance of USAID Energy Program in promoting the Local Content Requirement (LCR) and other support mechanisms.

Find the Livestream of the event on the link below:

https://www.facebook.com/www.bm.ge/videos/372401873490145/

SUPPORTING ENERGY INVESTMENT PROJECTS

Within the frame of renewable energy investment projects promotion, USAID Energy Program supports the selected 10 small and medium-sized VRE projects. Consequently, several meetings were held with renewable energy developers that provided valuable input for the finalization of feasibility study and related analysis.

Meeting with GEDF

USAID Energy Program met the representatives of GEDF, Mr. George Chikovani – CEO; Mr. Tornike Kazarashvili - Chairman of the Board of Directors and Ms. Anuki Batiashvili - Advisor to the CEO to provide updates on the current status of the ongoing Renewable Energy projects. Mr. Tornike Kazarashvili informed that GSE recalculated the results of the VRE integration capacity. Hence, the TYNDP should be updated in view of new results, respectively this will require new Memorandum of Understandings (MoUs).

GEDF provided an updated data on advanced Renewable Energy projects, 6 Wind Power Plant (WPP), 1 Solar Power Plant (SPP) and 1 biomass power projects planned to be launched between 2021-2022. The projects are currently subject to negotiation between GSE and the MoESD.

Table 3: Renewable Energy Projects

#	Project Name	Status of the project	Developer	Installed Capacity (MW)	Estimated Annual Generation (Net)	Estimated investment (USD)	Status on PPA	Tariff	Region	Status on Excess to the Network	MoU Singing date	Date of Commence (planned year)
1	Imereti 1 WPP	Feasibility Study	Infinity Energy	100	287.55 GWh	$ 165,000,000.00	Under the negotiation with MoESD		Imereti	Under negotiation with GSE/MoESD	N/A	2021
2	Nigoza WPP	Feasibility Study	GEDF; Calik	50	258.75 GWh	$ 82,400,000.00	Under the negotiation with MoESD		Shida Kartli	Under negotiation with GSE/MoESD	N/A	2021
3	Tbilisi WPP	Feasibility Study	Georgian Renewable Power Company (BOG)	49.5	199.94 GWh	$ 81,200,000.00	Under the negotiation with MoESD		Qvemo Kartli	Under negotiation with GSE/MoESD	N/A	2021
4	Kaspi WPP	Feasibility Study	Georgian Renewable Power Company (BOG)	50	204.8 GWh	$ 78,000,000.00	Under the negotiation with MoESD		Shida Kartli	Under negotiation with GSE/MoESD	N/A	2021
5	Taba WPP	Feasibility Study	Anadolu Group	20	60.77 GWh	$ 20,500,000.00	Under the negotiation with MoESD		Mta-Sabueti	Under negotiation with GSE/MoESD	N/A	2020-2021
6	Zestaponi WPP	Pre-Feasibility Study	GEDF, Geokraft	50	162 GWh	$ 6,500,000.00	N/A	N/A	Imereti		N/A	2021-2022
7	Udabno Solar PP	Feasibility Study	GEDF, Solar Power Georgia	5	6.8 GWh	$ 4,500,000.00	N/A	N/A	Kakheti	Approved by GSE	N/A	N/A
8	Borjomi Hybrid Biomass	Final Feasibility Study	NTC	10		$ 10,200,000.00	Under the negotiation with MoESD		Samtskhe-Javakheti		N/A	

Meeting with Crowne Plaza Hotel and New Technology Centre Representatives

On February 28, USAID Energy Program held a meeting with the Deputy Mayor of Borjomi Mr. Buba Beridze, Biomass Developer Dr. Zaal Kheladze, General Director of New Technology Centre (NTC) LTD and Crowne Plaza Hotel Director of Sales Ms. Ketevan Nadareishvili. The Program was represented by CoP Mr. Daniel Potash, Regional Coordinator Mr. Irakli Sulkhanishvili, Energy Sector Analyst Mr. Giorgi Jangveladze and Mr. Misha Odisharia.

The parties discussed the general condition in terms of the energy program development in biomass and its implementation. It included the details of biomass project such as the location of Boilers, heat pumps, buffer tanks, as well as their technological details. The Hotel seems keen on buying biomass heat instead of using gas-fueled heat. Also, the hotel expressed willingness to invest USD $1 million component of $10 million construction cost. The Lithuanian government is also willing to invest USD $5 million, and GEDF is ready to invest $4 million. The Program deems that the construction cost is achievable. However, a significant operating risk exists in terms of biomass collection, as 100% biomass fuel requires the collection radius of 35 km. Biomass is collected from forest residue and such collection is needed to mitigate fire risk and for optimal tree growth. Also, managed biomass collection, rather than haphazard collection, might offer fuel provision to fuel-poor households. Hence the project has a potential for mitigating forest degradation. US Forest Service program might be able to help diagnosis non-energy benefits and help monetize such benefits. Also, there is no plan for

carbon monetization, which might help project cash flows. Ultimately, the project has adequate operating cash and has an anchor buyer, hence faces a good chance to get capital resources. But, mainly, the risk-adjusted adequacy of biomass fuel feedstock appears to be a significant issue. The presentation of the proposed biomass project to the municipality of Borjomi and Crowne Plaza hotel was informative and shed light on the perspectives of the biomass project implementation in Georgia.

Prior to the visit, USAID Energy Program has been working on the report regarding the Recommendations to Promote Funding Opportunities of the Project Hybrid Energy Station in Borjomi Municipality for Achievement of Green Status by The City. NTC requested support of the Program in reviewing the Feasibility Study of an ongoing project and in providing recommendations for preparation of the project's summary to improve the fundraising opportunities for both short-term and long-term project goals. With the technical assistance of USAID Energy Program, NTC has developed a teaser and diagram for the project. As a result, the documents are ready for dissemination among the donors and International Financial Institutions (IFI).

MEETING WITH GEORGIAN RENEWABLE POWER (GRPC)

USAID Energy Program met the representatives of Georgian Renewable Power Company (GRPC): Mr. Giorgi Bezhuashvili –CEO, Ms. Tina Simonishvili – Head of Investor Relations, Mr. Nika Dashniani – Investment Analyst, Department of Strategic Projects, Ms, Eter Iremadze – Head of Strategic Projects Department. The meeting was also attended by Mr. Nicholas Okreshidze - USAID Georgia. GRPC is currently running 7 wind power projects under the feasibility study. Five projects have been selected for further development. Full wind measurements are available for 3 projects -Tbilisi WPP, Kaspi WPP and Tkibuli WPP (Tbilisi WPP and Tkibuli WPP are among the Program's 10 selected projects). The measurements revealed that 2 projects were facing acing issues. GRPC has applied with the PPA request to the MoESD and the Ministry of Finance of Georgia (MoF) for Tbilisi and Tkibuli WPPs projects. Based on the measurements, the company predicts that the capacity factors for Tbilisi WPP will be 35-39% and for Kaspi WPP 40-45%.

As for the solar projects, GRPC is running several SPP projects among which are: Kaspi SPP (50 MW), Marneuli SPP (50 MW) and Telavi SPP in Kakheti region. Based on GRPC studies, the company referred to the presence of a stronger capacity in Kakheti for solar development compared to other parts in Georgia however, the weak distribution grid, owned by EPG, was mentioned as a hindering factor.

There are two meteorological towers installed at Tbilisi wind farm which are expected to remain operational till the commencement of wind turbine installation planned in May 2020. According to designed wind farm layout, the location of meteorological towers coincides with the proposed location of the wind turbine, thus meteorological towers should be dismantled to change its location. The developer proposes to change the location of the meteorological towers and continue measurement of meteorological parameters including the wind speed. These would provide necessary input for wind parameter forecasting proposed by USAID Energy Program.

Mr. Giorgi Bezhuashvili expressed appreciated for USAID Energy Program assistance and highlighted the role of the program in solving the grid-related issues with GSE.

As noted above GRPC is running several SPP projects, among which are Kaspi SPP (50 MW), Marneuli SPP (50 MW) and Telavi SPP in Kakheti region since the location is distinguished by a higher capacity compared to other regions of Georgia. However, as noticed, weak distribution grid, owned by Energo-Pro Georgia remain as an impediment. In that regard, the company requested the Program's assistance in reviewing the environmental impact assessment and providing recommendations on emerald zones as well as recommendations on VRE price estimation on Georgian Electricity price.

During the meeting, the Program checked the willingness and technical capability of the developer to participate in Wind Power and Wind Speed Forecast planned by USAID Energy Program with GSE.

The next working meeting was conducted on March 21, GRPC representatives, Ms Eter Iremadze - Head of Strategic Projects Department, Mr. Giorgi Gureshidze - Head of Financial analysis and Research and Ms. Nino Sulkhanishvili - Environmental Expert. During the meeting, USAID Energy Program gave notice to the developers of the report on the VRE electricity prices in Georgia, aiming at benchmarking on VRE projects reference prices for the GoG.

Furthermore, USAID Energy Program was asked to provide a review on the existing EU practice of installing wind energy farms on the protected territories e.g. Natura 2000. The program team agreed to explore the implemented wind energy projects and share the findings.

MEETING WITH ALT ENERGY

USAID Energy Program conducted an individual meeting with Mr. Irakli Tavberidze, CEO of ALT Energy, developing 3 MW Gardabani Bio-Thermal Power Plant (TPP) project. The main fuel resources of TPP are agricultural residuals and plant Amarant. The signed MoU with the GoG expired hence the developer lost the exclusive rights on the land. Therefore, Mr. Tavberidze plans to reapply for the development of the project and request exclusive on 250ha land for producing Amarant. The project considers a gradual development of 2 MW, plus an additional 1 MW with further extension potential. The estimated total cost of the project is USD 4 ml. Mr. Tavberidze shared the project business plan with USAID Energy Program and requested assistance in providing recommendations and guidelines on environmental issues as well as guidelines on the project development step.

In support the project, the Environmental Expert and Legal Advisor engaged in the development of respective reports:

1) Recommendations on Environmental Decision Procedures for Bio Gas Power Plant Project;
2) Legal Procedures Applied To Bio Gas Power Plant Project.

MEETING WITH INFINIT ENERGY AND IVICOM HOLDING

USAID Energy Program held an individual meeting with Mr. Tornike Bakhturidze - CEO of Infinit Energy and Mr. Kremsimir Condic, CEO of Ivicom Holding, developing 100 MW Imereti 1 WPP. The developers applied for the PPA to the MoF, the required price is USD 6-7 Cents.

The major challenges faced by the company are the provision of justification for PPA to the GoG and integration to the 500 kV network system, owned by GSE. Infinite Energy shared studies on Cost-Benefit Methodology for Optimal Design of WPP Imereti Connection and Conceptual Design - Technical Description and requested the Program to assist in the development of recourse adequacy report and in providing recommendations on wind price estimation on Georgian electricity price and on network integration.

In that regard, task 3 and 4 team developed a report on Recommendations on Connection of Imereti 1 WPP to the Georgian Transmission System. The document contains technical, environmental and legal aspects. The report incorporates the analysis of alternative options of Infinite Energy for Imereti 1 WPP for connection to the Transmission Network. USAID Energy Program analyzed three options for connection and made recommendations for the connection of Imereti 1 Wind Power to the power system of Georgia. The main conclusion of the report is that the connection of Imereti WPP to the nearest 500 kV network is more economically efficient compared to connection through 36 km overhead line 220 kV to substation Khashuri 220/110 kV, also this option has a less environmental impact and low levels of power losses and voltage drops.

MEETING WITH SOLAR JAM JAMA AND GORI SOLAR

USAID Energy Program held an individual meeting with Mr. Alexander Bakhutashvili - representative of Solar Jam Jama and Gori Solar, developing projects -Kvernaki SPP (15 MW) and Udabno SPP (5 MW). For Udabno SPP, the developers together with GEDF (90%-10% shares) applied to MoF with PPA request, on the condition of USD 7 ¢ for 12 months on 10 years period, and USD 6 ¢ for 12 months on the further 5 years period. The MoF is offering USD 6 ¢ in winter and USD 3 ¢ in the Summertime. According to Mr. Bakhutashvili, they have approval from GSE on grid connection. The developer promised to share financial documents in order to consider it in preparation of recommendations. The developers asked the program to support by providing recommendations on wind price estimation on Georgian Electricity price.

MEETING WITH SUN HOUSE

USAID Energy Program held an individual meeting with Mr. Levan Kobakhidze - General Manager and Mr. Kote Kobakhidze CEO of Sun House, developing 2 MW Gareji SPP. The initial project was 15 MW, but according to GSEs limitations, there is a possibility to integrate only 2 MW solar generation consequently the developers reduced the capacity of the project. The company expects the estimated tariff of generation to be USD 8 ¢ per kWh, however negotiation on PPA has not started yet. The distance from the SPP to interconnection point is 1 km, 35-10 kV line, owned by GSE. The Developers requested support in the following areas: provide recommendations on wind price

estimation on Georgian electricity price; review the Financial Model (after developers will elaborate a draft and provide); provide recommendations on the Feasibility Study (after developers will elaborate a draft and provide, not started yet); provide support in conducting public hearings in the municipality.

Meetings with the developers triggered the need for the development of the report on the VRE electricity prices in Georgia which will review the existing VRE (specifically wind and solar) electricity prices globally and prepare recommendations on the reference electricity price for Georgia. The report seeks to propose benchmark for the GoG on PPA for the VRE projects in Georgia. The program commenced working on the report on the VRE electricity prices in Georgia. The document will be submitted in the next quarter.

In support of the report, on March 6, 2019 USAID Energy Program CoP Mr. Daniel Potash and task 3 conducted a meeting with the Fiscal Risks Management Division of MoF - Head of the Division Mr. Shota Gunia and Specialist of the Division Ms. Marika Kanchaveli. The MoF representatives described the methodology of the GoG on the fiscal risks' assessment and contingent liabilities evaluation. They shared the latest reports on the fiscal risks statement and the model for the evaluation of such in the energy sector of Georgia. According to provided information the MoF follows the International Monetary Fund's (IMF) recommendations, which serve as a basis for approval of PPAs for 10 years and less (with power purchase for 8 months annually) and with electricity price of US 6 ¢ per kWh or less. Currently, the MoF works on the improvement of the model and approach for contingent liabilities calculation and plans to present an updated position within next 2-3 months. At the same time, Mr. Shota Gunia emphasized that the GoG continues the development of the Public Private Partnership (PPP) framework and shared the draft guideline on the PPP arrangements.

DEVELOP GUIDEBOOK (SUB TASK 3.3.5)

Within the frame of the Guidebook design for Renewable Energy developers, USAID Energy Program task 3, Legal Advisor and Environmental Expert commenced working on the development of a Guidebook for Renewable Energy developers. For that purpose, on January 29, the meeting was conducted with the representatives of the MoESD Mr. Zaza Chikhradze - Head of Energy Reforms and Investment Projects Department, Ms. Lela Nozadze - Head of Projects development Division and Ms. Ana Gogoladze – Consultant at the Projects Development Division. The meeting was aimed at revising the details of legislative act for clarification of general rules and steps for the project implementation under the new regulations (PPP law and its secondary legislation). The MoESD representatives informed that upon the enactment of the draft "Law of Georgia on Renewable Energy" and the secondary legislative act on "Renewable Energy Incentive Schemes", the general regulations on Renewable Energy project development might be changed. Therefore, the guidebook should be subject of periodic review and update to meet the changing legal conditions.

Another meeting was conducted GEDF representatives on Feb 5. Mr. Chikovani expressed interest in the development of the guidebook and highlighted its major contribution in fostering the negotiations with potential investors. Hence, GEDF promised to provide recommendations and comments on this relevant topic. As a result of obtained information, the respective team designed the content and diagram for the guidebook based on the PPP law and its secondary legislation: Decree # 426 on "Approval of the Rules of Developing and Implementing PPP Projects" and Decree # 515 on "Rules and Conditions for Submitting to the MoESD and Reviewing the Proposals on Conducting the Construction Feasibility Study, Construction, Ownership and Operation of those Power Plants not representing the PPP Projects". The draft document will be presented to the Investor Advisory Group members and stakeholders during the next Investor Advisory Group meeting.

OFF-GRID SOLAR PV SYSTEM FOR HIGH MOUNTAIN HOUSEHOLDS IN GEORGIA

Village Gverdisubani, Borjomi Municipality

Village Velebi, Gori Municipality

Village Dre, Gori Municipality

Village Tchontili, Dusheti Municipality

Village Chalissopheli, Dusheti Municipality

Village Toncha, Dusheti Municipality

In support of the project "Off-Grid Solar PV System for High Mountain Households in Georgia", USAID Energy Program surveyed 353 out of counted 407 houses in the Eastern part of Georgia (in some cases, a neighbor or a representative of the municipality was questioned). Among the counted houses, 144 were permanent and 263 are seasonal houses. 54 were not surveyed, due to the absence of the homeowners or / and road conditions. Obtained information was delivered to the MoESD and the MRDI.

The primary data revealed the following main findings:

- The average income of the surveyed population is about GEL 400, with the main source of income of animal industry, farming and monthly pension. Despite the hard-social conditions of residents, population is willing to pay for electricity in amount of GEL15-20 per month;
- Technological solutions can provide electricity at a relatively reasonable cost per household by using solar;
- The GoG has been working to commit the total cost of the project based on the full system configuration. Prime Ministers order will be issued in April.

Based on the obtained database, USAID Energy Program developed a Midterm Report on Solar PV System Project for Off-Grid Settlements. The report contains information on the possible scenarios of the project development, technical characteristics as well as data base on off-grid settlements.

On March 28, Program organized the site visit to the off-grid villages - Mghebriani, Didi Chvarebi and Okiani in Gori Municipality. Despite poor road condition, the delegation visited 6 families among which 5 were permanent and 1 seasonal household. The visit enabled the delegation to understand the dynamics of the social structure and infrastructure. *(for more details see special highlights)*

GRID INTEGRATION OF VARIABLE ENERGY RESOURCES (TASK 4)

VRE forecasting affects a range of system operations including scheduling, dispatch, real-time balancing, and reserve requirements. By integrating the VRE forecasts into system operations, power system operators can anticipate up- and down-ramps in VRE generation in order to cost-effectively balance load and generation in intra-day and day ahead scheduling. This leads to reduced fuel costs, improved system reliability, and minimized curtailment of renewable resources.

With the aim to support the integration of Wind and Solar Projects into the Transmission Network, USAID Energy Program is in the process of developing a Centralized Variable Renewable Energy Forecasting System. For this purpose, USAID Energy Program developed a report on VRE Conceptual Design and an Implementation plan. The Centralized VRE forecasting System, implemented through the provision of forecasting services by the third party and operated by the GSE (Hosting Agency of VRE Forecasting) was identified by USAID Energy Program as a viable and feasible option. This option is analyzed and approved thought the mentioned report.

Presentation on VRE Forecasting Centralized System Concepts Design and its Implementation Plan

VRE forecasting Centralized System Concepts Design and its Implementation Plan were introduced and agreed with the GSE. The presentation covered the following key topics:

- VRE forecasting centralized approach implementation through the forecasting service provision; the implementation of the system with Wind Power Forecasts;
- The engagement of GSE in data exchange with VRE forecasting service suppliers and the assessment of provided services;
- The existence of control measurements to ensure reliable data input for forecasting models employed by VRE forecasting service providers; and
- Procurement of Control Measurement Equipment after the procurement of the VRE forecasting Services.

As a result of performed work, USAID Energy Program and GSE agreed on future cooperation in terms of proceeding the procurement of VRE forecasting services and LiDAR. Consequently, USAID Energy Program shared the Report on VRE Forecasting Conceptual Design and Implementation Plan with GSE for comments on the details of the implementation plan. Also, parties agreed that the ToR for the procurement of VRE forecasting services would be developed in cooperation with GSE. In addition, the parties decided that GSE would apply with a question regarding the uncertainty of forecast to potential suppliers of VRE forecasting services. Those are vendors identified by USAID Energy Program (NCAR, UL - AWS TRU Power, VAISALA 3 Tier, ENFOR, DNVGL – Garad Hassan, Metrological). Finally, after the development of ToR, USAID Energy Program would survey potential suppliers to identify the tentative budget for the procurement of services. USAID Energy Program plans to discuss with the MoESD the inclusion of Wind projects in forecasting, with the focus on those having the highest potential to be commissioned for 2020-2021 or awarded by the PPA.

The agreement of VRE Forecasting Conceptual Design and Implementation by GSE (Hosting Agency) enabled to accomplish the first part of Contractual Obligations undertaken by USAID Energy Program, whilst the remaining part, considering the actual implementation of the system, would be fulfilled with the procurement and launching of forecasting VRE forecasting services.

A new draft Energy Law establishes the institutional arrangement of the energy stakeholders' roles and responsibilities, sector regulation, standards for energy efficiency and renewable energy. However, issuing the law might lead to additional challenges for Georgia's stakeholders, including the government, end-users and developers. USAID Energy Program developed the assessment which evaluates the potential impact of several options in order to gauge the feasibility of such law and its

potential impact on Georgia's energy sector and beyond. In that regard, USAID Energy Program developed TPP analysis model for the draft RIA of New Energy Law. The Model was proposed as an indication of overall dependency of TPP generated energy cost for the whole system to the cost and Availability of the Natural Gas. The following data was applied for the projection: TYNDP, data on TPP projected generation, dates and other parameters of commissioning new TPP plants and decommissioning the existing ones, information on guaranteed capacity sources and payment for such capacity.

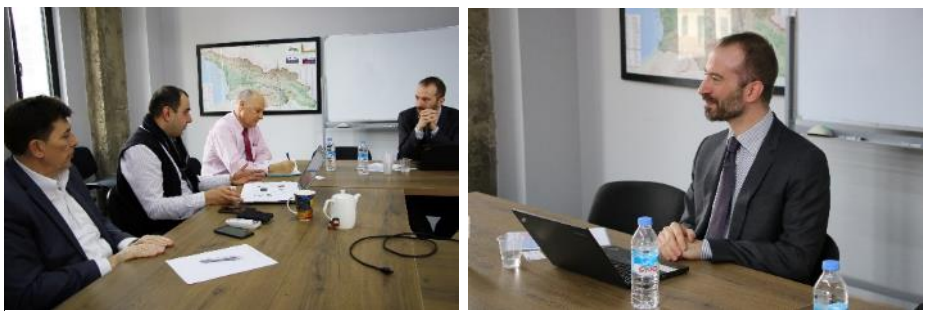
When a government has a goal for renewable energy, sustainability, and energy security, a large-scale renewable energy projects must be developed and constructed with significant private investment. USAID Energy Program task 4 contributed to the development of a draft "Investor Guidebook" offering a project development framework to allow the Government, private developers and investors to work in a coordinated manner on large-scale renewable energy projects. Since most of investment, required to meet the goals of large-scale renewable energy projects comes from the private sector, this Guide book is organized in a way to match processes with typical phases of commercial project development. One of the important parts during the project development phase is Connection to the Network.

A Brief Description of the Requirements and Procedures on Connection to the Transmission network was drafted by the Program team as a contribution to the Guidebook. This document was developed based on the active Network Rules. The report was supplemented with more detailed information embedded in the Excel file where each line item referenced with the Network Rules.

Workshop on Hydro Power and Dams Sustainable Development

On January 25, USAID Energy Program participated in the one-day workshop on Hydro Power and Dams Sustainable Development. The event was organized by the EBRD, with the support of the MoESD, and the Ministry of Environmental Protection and Agriculture (EPA). USAID Energy Program Senior Technical Advisor Mr. David Mujirishvili, offered a presentation on Enguri Hydro Power Plant (HPP) Inspection, Issues, and Priorities for Energy Security and Reliability. The presentation covered priorities for the effective functioning of Enguri HPP such as meeting dam safety criteria, flood analysis and planning, penstock valve replacement, interior powerhouse linkage, ongoing sediment removal, and reservoir debris removal. *(see more details Task 5)*

USAID Energy Program team completed drafting the report on Enguri HPP "Issues and Priorities for Energy Security and Reliability". USAID Energy Program Task 4 team reviewed the report internally and submitted it to the USAID Georgia for comments and approval.



Meeting with Mr. Jan-Christophe Hoogendoorn

USAID Energy Program held meeting with the representative of Electricity de France Power System & Transmission Engineering Center representative in Georgia Mr. Jan-Christophe Hoogendoorn. EDF provides capacity building to GSE on PLEXOS Platform. It is an Optimization model for long, medium and short-term energy market analysis. PLEXOS Integrated Energy Model is a simulation software designed for the energy market analysis. PLEXOS is a high-performance simulation platform, operationally used by energy market participants, system planners, investors, regulators, consultants and analysts worldwide. Capacity building will end in September 2019. The results of utilizing PLEXOS platform, for assessing the needs in Generation capacity extension, is planned to be presented by GSE by the end of December 2019. It also proposed the assessment of Generation

Adequacy Georgia. Currently, EDF is studying the feasibility and different options of Battery Storage development and utilization in Turkey. During the meeting USAID Energy Program described the forecasting recommendations applied by the Program, which turned to be very interesting for the party, therefore, the program team promised to share the respective report upon the USAID permission.

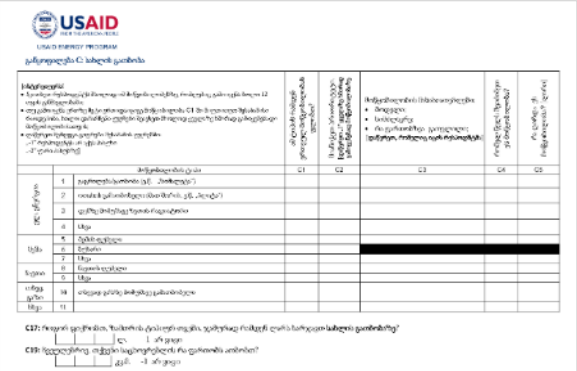
Other topics discussed during the meeting was a possible collaboration in terms of capacity building such as: Add-on study tour to PLEXOS training in Paris, to cover the examples of VRE uptake, forecasting and grid-scale battery storage. An alternative preference is to support to the Program by sharing examples of countries similar to Georgia where there are VRE examples.

USAID Energy Program drafted a report on “Accounting Guidelines for Property Plant and Equipment” used in gas transmission, distribution, supply and storage regulated activities. *(see more details in Task 1 Unified System of Accounts)*

STRATEGIC ADVISORY ASSISTANCE TO THE GOG TO INCREASE ENERGY SECURITY (TASK 5)

Within the Scope of the study “Alternatives for Pipeline Gas for Rural Settlements in Georgia”, USAID Energy Program has been engaged in the data collection process in order to determine the energy consumption in village households. Based on obtained information, the Program analyzed the capital, operational and maintenance costs of biomass-fired heating plants for supplying small cities in Georgia with heating energy. This will contribute to the reduction of green gas emissions and environmental protection by converting the heating with direct burning of wood into alternative heating sources with solid biomass.

USAID Energy Program worked on the report regarding the gasification study of three selected remote villages in Georgia. For this purpose, the respective team collected information on gas infrastructure in Georgia, including maps of a gas grid and its technical data, and alternative ways of gas supply to the villages. Furthermore, information was obtained on possible heating alternatives for the settlement with varying viability.



Survey Template

In support of gasification study, USAID Energy Program team contacted the National Statistics Office of Georgia to check the availability of survey results on the households’ energy consumption in the villages provided in the report. In the absence of requested study, USAID Energy Program prepared a survey questionnaire that aided the program to evaluate the existing condition in the villages without the access to gas and moreover revealed the willingness of the population to be connected to a grid. The concept of conducting surveys in Mestia and Borjomi municipalities was agreed with Mr. Davit Sharikadze, MoESD.

In that regard, USAID Energy Program traveled to Daba Mestia and surveyed 80 households, 30 hotels and hostels, and 16 municipal buildings. Obtained data was used for designing the graphs for the purpose of enhancing the visualization of a current state in terms of energy consumption in remote villages. The survey provided information on the most applied sources of energy for heating, the approximate amount of consumed energy and respective expenses. A similar survey will be conducted in 2 villages near Borjomi: Atskuri and Tadzrisi. Obtained information will provide primary data for identifying the best heating alternative in remote villages in Georgia.

On Feb 13, the Program had a meeting with the MoESD to discuss the on-going energy end-use survey and next steps with Ms. Elene Goksadze, acting head of the analytical and planning division. Parties agreed to have a joint meeting with GGTC and Socar Georgia Gas representatives once survey will be finalized.

On March 5, 2019, USAID Energy Program held a discussion with Ms. Thea Khitarishvili - Senior Manager at the International Energy Agency (IEA) regarding the participation of IEA in the Roundtable on Energy Security in the Caucasus Region in Light of Market Opening. Ms. Khitarishvili named two representatives from IEA for participation in the event. The first participant is Mr. Duncan Millard - IEA Chief Statistician and Head of IEA Energy Data Center. Prior to joining the IEA, he was a Chief Statistician for the UK Department of Energy and Climate Change (DECC). Under his leadership DECC received three Royal Statistical Service awards for Excellence in Official Statistics. The second participant is Mr. Doug Cooke - Founder and Principal, Majura Energy Consulting. Majura Energy Consulting in providing strategic energy policy analysis and advice focusing on energy security, stationary energy market development, international energy engagement, and related governance and regulatory issues. Throughout the reporting period the respective team remained engaged in the administrative and other related processes in order to ensure the smooth execution of the event.

On January 25, USAID Energy Program participated in the one-day workshop on Hydro Power and Dams Sustainable Development. The event was organized by the EBRD, with the support of the MoESD and the MEPA.

The event brought together the stakeholders of hydropower and dams to rethink on the crucial importance of enhancing the Georgian regulation framework for the hydro sector. It provided a venue

for discussing Dam & Public Safety and the significance of building a regulatory framework for flood management and public hydro safety. Another relevant topic discussed during the meeting was building of a regulatory framework for sanitary flows downstream of the hydro facilities and finding the ways of building, financing and operating a hydrometeorology monitoring and forecasting network at national scale.

Among the presenters was USAID Energy Program Senior Technical Advisor Mr. David Mujirishvili, who offered a presentation on Enguri HPP Inspection, Issues, and Priorities for Energy Security and Reliability. The presentation covered priorities for the effective functioning of Enguri HPP such as meeting dam safety criteria, flood analysis and planning, penstock valve replacement, interior powerhouse linkage, ongoing sediment removal, and reservoir debris removal. Mr. Paata Tsintsadze - Energy Expert who elaborated on dam safety legislation will share the respective piece of legislation with USAID Energy Program experts for comments.

The workshop is expected to facilitate the definition of a roadmap of actions that could help advance Georgian regulation, as well as the creation of a cooperative synergy between Georgian hydro sector stakeholders. An important objective, by initiating this process, will be the implementation of a platform for regular dialogue between Georgian hydropower and dam professional and to organize yearly professional symposiums.

USAID Energy Program worked on the organization of the one-day Conference in cooperation with the MoESD and IEA on the Energy Security in the Caucasus Region in light of the Energy Market Opening".

The Purpose of the event, targeted at high-level GoG officials, is to raise awareness of energy security in the context of overall national security of Georgia. In view of Georgas's high dependence on the external sources of gas, discussions on the energy security in the Caucasus Region are of high importance both from national and international perspectives, as well as deliberations on the energy security related issues considered under 2016 Accession Protocol to the EnCT, the new Draft Law on Energy addressing the Energy Security, energy transmission, construction of gas storage, the role of international organizations and regional actors in the South Caucasus - Black Sea region. The goal of the event is to improve understanding and reach more consensus among the Energy Security WG members on the new energy security challenges, associated with the market opening in Georgia. The expected outcome is to encourage dialogue among Energy Security Working Group members and high-level decision makers and provide rigorous analysis for evidence-based decision making.

In view of Georgia's high dependence on external sources for gas and electricity, discussions on energy security in the Caucasus Region both from national and international perspectives would be of high value. The event is scheduled to take place on April 12, 2019 at *Sheraton Grand Tbilisi Metechi Palace, Tbilisi.*

Mr. George Chikovani, CEO of GEFD requested USAID Energy Program to aid in conducting the study to determine the adequate level of local resources in total demand. According to provided information, the MoF requested GEDF to provide justification for the construction of new power plants. The main research question is to identify the required minimum share of domestic energy in total system demand that is acceptable from the security of the electricity supply point of view. As discussed by USAID Energy Program and GEDF, the study requires dealing with complex issues such as regional electricity prices, imported energy price forecast, system reliability, geopolitical context, security of supply standards, etc. However, as Mr. Chikovani pointed out, the study is urgent and can be confined by providing information on relevant leading international practices.

USAID Energy Program commenced dealing with the requested task and organized follow up meeting with GEDF representatives to discuss the Resource Adequacy report. GEDF CEO Mr. George Chikovani expressed gratitude towards the Program effort and noted that the preliminary results of the study were very interesting however relatively general which triggered the need to take the study to the next level with the aim to respond to two major questions such as1) "what is the required installed generation capacity for Georgia to meet its highest pick demand over the one year time frame - 70%, 80%, 90%, 100% or over 100%? and 2) what would be the economic implications of planning reserve margin, showing the trade-off between reliability event costs and system capital costs".

The parties agreed that USAID Energy Program will send a data request to GEDF to collect information from GSE which will serve an input for responding to above noted questions. In addition, the parties discussed the prospect of organizing the resource adequacy workshop for the GoG and selecting energy stakeholders after the energy security workshop. USAID Energy Program will make a preliminary timetable indicating the deadlines for the accomplishment of assigned tasks and share them with GEDF.

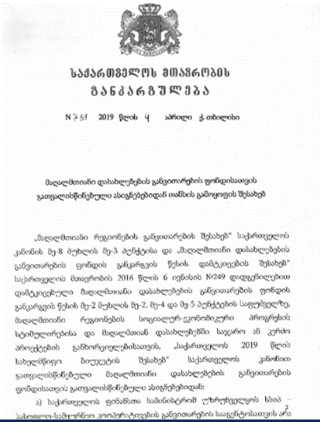
CHALLENGES AND OBSTACLES

USAID Energy Program was unable to make progress in the execution of the required number of RIAs. This is attributed to combination of factors. One of the challenges is the lack of RIA skills in Georgia, hence the immediate availability of RIA experts is significantly limited which affects the timely implementation of assigned duties. In light of RIA skills shortage, two RIA reports have been finalized by the application of internal resources. However, meeting the contractual obligation in terms of RIA numbers requires the engagement of external resources through outsourcing, which is time-consuming procedure with a heavy administrative burden. And lastly, the Government keeps altering the topics for RIA based on the progression of a new draft law which affects meeting the timeframe for RIA implementation.

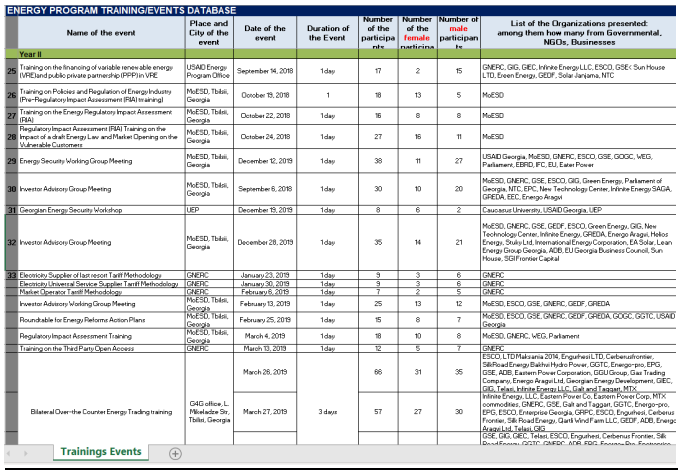
USAID Energy Program was not able to make progress on energy links between Georgia and Turkey due to lack of cooperation at the professional level.

ANNEX 1: YEAR 2, SEMI-ANNUAL PMP INDICATOR RESULTS

Indicator	Y2, Semi-Annual Cumulative Result (October 1, 2018- March 31, 2019)	FY2 Target	3-year Cumulative Target
1. Generation capacity supported by United States Government (USG) assistance that has achieved financial closure *Short Clarification:* This indicator measures the quantity of Greenhouse Gas (GHG) emissions reduced or sequestered as a result of Energy Efficiency (EE), Renewable Energy and climate change projects and policies facilitated by USAID Energy Program	**0.5 MW**  Fri 4/5/2019 6:24 PM TM Tamar Murtskhvaladze FW: მთისფონდი To All; 'Nicholas Okreshidze' 751.pdf 704 KB Dear All, Good News! Finally! The Government Decree No. 751 of April 4, 2019, signed by Prime Minister Mamuka Bakhtatdze, on financing the electrification program for off-grid villages by providing solar PVs. Article D) states: The Ministry of Finance of Georgia to ensure the allocation of 2,000,000 (two million) GEL for the Ministry of Regional Development and Infrastructure of Georgia, to purchase solar PVs for the settlements that do not have access to electricity. Please see attachment (available only in Georgian), article D. Congratulations to all team! All the best, Tata ***Semi-Annual result: 0.5 MW ((According to the Government Decree No. 751 of April 4, 2019, GoG allocated 2 000 000 GEL to purchase solar PVs for off-grid settlements)***	10 Capacity (MW)	50
2. Energy generation capacity installed or rehabilitated as a result of USG assistance *Short Clarification:* This indicator measures the quantity of clean energy generation capacity that will be added to the Georgian power system as a result of USAID Energy Program assistance.	***Semi-Annual Result: N/A***	10 (MW)	50
3. Projected GHG emissions reduced or avoided through 2030 from adopted laws, policies, regulations, or technologies related	2529.45 ***Semi-Annual Result: 2529.45 Metric Tons***	Metric Tons CO_2e 60,000	190 000

Indicator	Y2, Semi-Annual Cumulative Result (October 1, 2018- March 31, 2019)	FY2 Target	3-year Cumulative Target
to clean energy as supported by USG assistance *Short Clarification:* This indicator measures the quantity of GHG emissions reduced or sequestered as a result of laws, regulation and policies facilitated by USAID Energy Program over the 3 years of the project.			
4. GHG emissions, estimated in metric tons of CO_2 equivalent reduced, sequestered, or avoided through clean energy activities supported by USG assistance *Short Clarification:* This indicator measures the quantity of GHG emissions reduced or sequestered as a result of clean energy projects and policies facilitated by USAID Energy Program.	***<u>Semi-Annual Result: N/A</u>***	Metric Tons CO_2e 0	3100
5. Amount of investment mobilized (in USD) for clean energy as supported by USG assistance *Short Clarification:* *This indicator measures the amount of funds in USD that are forecasted to be invested in new clean energy projects such as in new wind and solar PV farms.*	750 000  საქართველოს მთავრობის განკარგულება N 751 2019 წლის 4 აპრილი ქ. თბილისი მაღალმთიანი დასახლებების განვითარების ფონდისათვის გათვალისწინებული ასიგნებებიდან თანხის გამოყოფის შესახებ „მაღალმთიანი რეგიონების განვითარების შესახებ“ საქართველოს კანონის მე-8 მუხლის მე-3 პუნქტისა და „მაღალმთიანი დასახლებების განვითარების ფონდის განკარგვის წესის დამტკიცების შესახებ“ საქართველოს მთავრობის 2016 წლის 6 ივნისის №249 დადგენილებით დამტკიცებული მაღალმთიანი დასახლებების განვითარების ფონდის განკარგვის წესის მე-2 მუხლის მე-2, მე-4 და მე-5 პუნქტების საფუძველზე, მაღალმთიანი რეგიონების სოციალურ-ეკონომიკური პროგრესის სტიმულირებისა და მაღალმთიან დასახლებებში საჯარო ან კერძო პროექტების განხორციელებისათვის, „საქართველოს 2019 წლის სახელმწიფო ბიუჯეტის შესახებ“ საქართველოს კანონით გათვალისწინებული მაღალმთიანი დასახლებების განვითარების ფონდისათვის გათვალისწინებული ასიგნებებიდან: ა) საქართველოს ფინანსთა სამინისტრომ უზრუნველყოს სსიპ – სასოფლო-სამეურნეო კოოპერატივების განვითარების სააგენტოსათვის არა	USD 20 000 000	80,000,000

Indicator	Y2, Semi-Annual Cumulative Result (October 1, 2018- March 31, 2019)	FY2 Target	3-year Cumulative Target
	Semi-Annual Result: 750 000 (According to the Government Decree** (available only in Georgian) **No. 751 of April 4, 2019, GoG allocated 2 000 000 GEL to purchase solar PVs for off-grid settlements)		
***6.* Number of individuals reached through outreach campaigns** *Short Clarification:* *This indicator measures the number of people that will be reached several avenues employed by USAID Energy Program, including through mass media, social media, and events.*	1. Bilateral Over-the Counter Energy Trading training – Three-day training March 26 – Participant 66 (Male - 35, Female- 31) March 27 – Participant 57 (Male - 30, Female - 27) March 28 – Participant 55 (Male - 29, Female - 26) Facebook view - 1068 2. Facebook view – 540  ***Semi-annual result: 1786 person***	Number of People 3500	10 000
7. Number of people receiving USG supported training in technical energy fields *Short Clarification:* *This indicator measures the number of people within an organization by topic (energy security, energy markets, energy forecasting, etc.) and by gender.*	1. Training on Policies and Regulation of Energy Industry (Pre- RIA training) – October 19, 2018, Participant 18 (Male - 5, Female- 13) 2. Training on the Energy RIA – October 22, 2019; Participant 16 (Male - 8, Female- 8) 3. RIA Training on the Impact of a draft Energy Law and Market Opening on the Vulnerable Customers – October 24, 2019 - Participant 27 (Male - 11, Female- 16) 4. Georgian Energy Security Workshop – December 19, 2018 – Participant 8 (Male - 2, Female - 6) 5. Electricity SoLR Tariff Methodology – January 23, 2019 – Participant 9 (Male- 6, female - 3) 6. Electricity Universal Service Supplier Tariff Methodology – January 30, 2019; Participant 9 (Male- 6, female - 3) 7. Market Operator Tariff Methodology – February 6, 2019; Participant - 7 (Male- 5, female - 2)	Number of People 25	40

Indicator	Y2, Semi-Annual Cumulative Result (October 1, 2018- March 31, 2019)	FY2 Target	3-year Cumulative Target
	8. RIA Training – March 4, 2019; Participant 18 (Male - 8, Female- 10) 9. Training on the Third-Party Open Access – March 13, 2019 – Participant 12 (Male - 7, Female- 5) 10. Bilateral OTC Energy Trading training – Three-day training • March 26 – Participant 66 (Male - 35, Female - 31) • March 27 – Participant 57 (Male - 30, Female - 27) • March 28 – Participant 55 (Male - 29, Female - 26)  ENERGY PROGRAM TRAINING/EVENTS DATABASE Trainings Events ***Semi Annual Result: Participant-302 (Male - 152, Female - 150)***		
8. Number of promotional plans, campaigns and materials developed and implemented to electricity and gas sectors reforms, and optimize energy investments *Short Clarification:* *This indicator measures the outreach material developed by USAID Energy Program the support the program tasks including energy market development, promotion of new RE*	• Press release – 1 • success story-2 • Newsletter - 1 • Cups • Bags • Pencils • Updating promotional material – (leaflet)	Number 6	24

<table>
<tr><th>Indicator</th><th>Y2, Semi-Annual Cumulative Result (October 1, 2018- March 31, 2019)</th><th>FY2 Target</th><th>3-year Cumulative Target</th></tr>
<tr><td>investment and energy security improvement for Georgia.</td><td> 

<u>Semi-Annual result: 8</u></td><td></td><td></td></tr>
<tr><td>9. Number of institutions with increased capacity to implement regulatory impact assessments and/or other analysis

Short Clarification:
This indicator measures the number of institutions that USAID Energy Program has trained and have the capability to develop RIAs for new legislation.</td><td>

MoESD - Training on Policies and Regulation of Energy Industry (Pre-RIA training) - October 19, 2018
MoESD- Training on the Energy RIA – October 22, 2019; Participant 16
MoESD, GSE, Energy Ombudsman, Association of Young professional in Energy of Georgia (AYPEG), ESCO, GNERC, WEG –RIA Training on the Impact of a draft Energy Law and Market Opening on the Vulnerable Customers – October 24, 2019
MoESD, GNERC, WEG, Parliament – RIA Training – March 4, 2019

<table>
<tr><td>1</td><td colspan="8">ENERGY PROGRAM TRAINING/EVENTS DATABASE</td></tr>
<tr><td>2</td><td></td><td>Name of the event</td><td>Place and City of the event</td><td>Date of the event</td><td>Duration of the Event</td><td>Number of the participants</td><td>Number of the female participants</td><td>Number of male participants</td><td>List of the Organizations presented: among them how many from Governmental, NGOs, Businesses</td></tr>
<tr><td>28</td><td></td><td>Year II</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>30</td><td>26</td><td>Training on Policies and Regulation of Energy Industry (Pre-Regulatory Impact Assessment (RIA) trraining)</td><td>MoESD, Tbilsii, Georgia</td><td>October 19, 2018</td><td>1</td><td>18</td><td>13</td><td>5</td><td>MoESD</td></tr>
<tr><td>31</td><td>27</td><td>Training on the Energy Regulatory Impact Assessment (RIA)</td><td>MoESD, Tbilsii, Georgia</td><td>October 22, 2018</td><td>1 day</td><td>16</td><td>8</td><td>8</td><td>MoESD</td></tr>
<tr><td>32</td><td>28</td><td>Regulatory Impact Assessment (RIA) Training on the Impact of a draft Energy Law and Market Opening on the Vulnerable Customers</td><td>MoESD, Tbilsii, Georgia</td><td>October 24, 2018</td><td>1 day</td><td>27</td><td>16</td><td>11</td><td>MoESD</td></tr>
<tr><td>42</td><td></td><td>Regulatory Impact Assessment Training</td><td>MoESD, Tbilsii, Georgia</td><td>March 4, 2019</td><td>1 day</td><td>18</td><td>10</td><td>8</td><td>MoESD, GNERC, WEG, Parliament</td></tr>
</table>
<u>Semi Annual Result: 9 Institution</u></td><td>Number 2</td><td>2</td></tr>
<tr><td>10. Number of laws, policies, regulations, or standards addressing clean energy formally</td><td>1. VRE Guidebook (Draft)
2. Recommendations on Environmental Decision Procedures for Bio Gas Power Plant Project</td><td>Number of legislative acts</td><td>10</td></tr>
</table>

<table>
<tr><th>Indicator</th><th>Y2, Semi-Annual Cumulative Result (October 1, 2018- March 31, 2019)</th><th>FY2 Target</th><th>3-year Cumulative Target</th></tr>
<tr><td>proposed, adopted, or implemented as supported by USG assistance

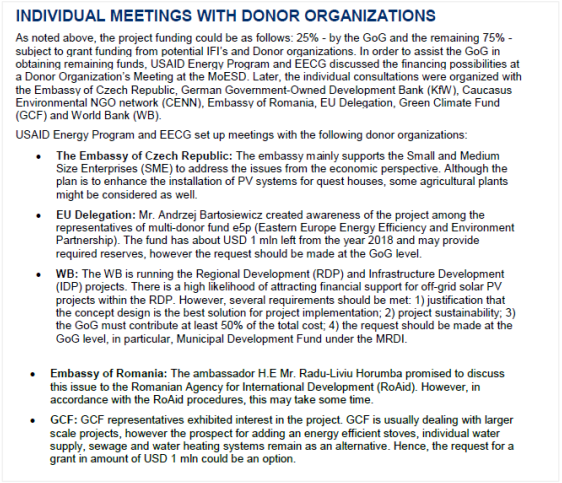
Short Clarification:
This indicator measures the number of legislative acts supported by USAID Energy Program and adopted by the GoG, GNERC or other relevant institution that support clean energy development</td><td>3. Legal Procedures for Bio Gas Power Plant Project

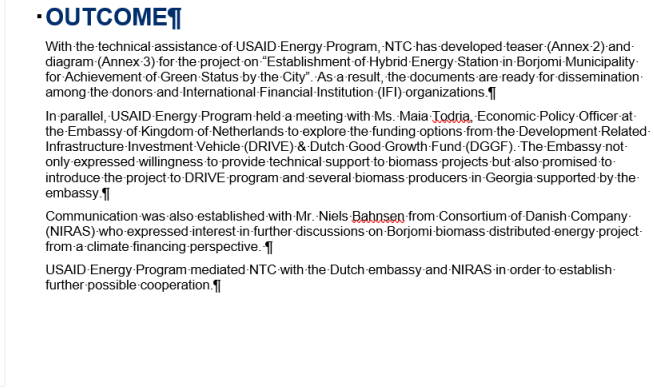
Recommendations on Environmental Decision Procedures for Bio Gas Power Plant Project | In Progress | Under revision - COR
Legal Procedures for Bio Gas Power Plant Project | Approved | X

<u>Semi-Annual Result: 3</u></td><td>6</td><td></td></tr>
<tr><td>11. Number of financial institutions, investment companies and/or private investors exposed to non-hydro Renewable Energy opportunities as supported by USG assistance

Short Clarification:
This indicator measures the number of financial institutions contacted by USAID Energy Program where the non-hydro Georgian Renewable Energy plants are promoted.</td><td>Development Related infrastructure Investment Vehicle (DRIVE), Dutch Good Growth Fund (DGGF); NIRAS, GCF

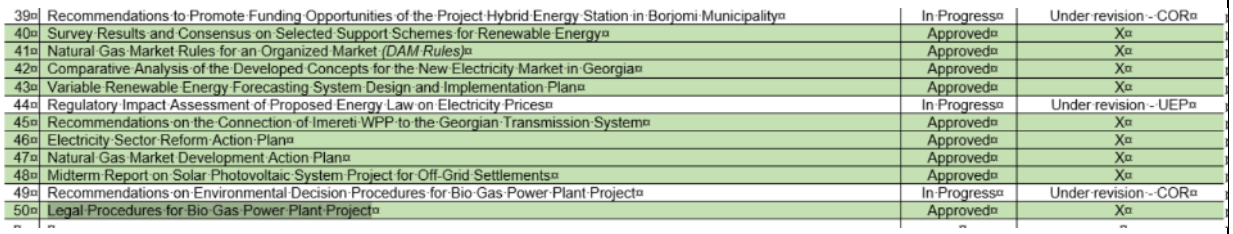
Infinite Energy (Support to Imereti WPP for connection to the transmission grid)

 
INDIVIDUAL MEETINGS WITH DONOR ORGANIZATIONS
As noted above, the project funding could be as follows: 25% - by the GoG and the remaining 75% - subject to grant funding from potential IFI's and Donor organizations. In order to assist the GoG in obtaining remaining funds, USAID Energy Program and EECG discussed the financing possibilities at a Donor Organization's Meeting at the MoESD. Later, the individual consultations were organized with the Embassy of Czech Republic, German Government-Owned Development Bank (KfW), Caucasus Environmental NGO network (CENN), Embassy of Romania, EU Delegation, Green Climate Fund (GCF) and World Bank (WB).
USAID Energy Program and EECG set up meetings with the following donor organizations:
• The Embassy of Czech Republic: The embassy mainly supports the Small and Medium Size Enterprises (SME) to address the issues from the economic perspective. Although the plan is to enhance the installation of PV systems for quest houses, some agricultural plants might be considered as well.
• EU Delegation: Mr. Andrzej Bartosiewicz created awareness of the project among the representatives of multi-donor fund e5p (Eastern Europe Energy Efficiency and Environment Partnership). The fund has about USD 1 mln left from the year 2018 and may provide required reserves, however the request should be made at the GoG level.
• WB: The WB is running the Regional Development (RDP) and Infrastructure Development (IDP) projects. There is a high likelihood of attracting financial support for off-grid solar PV projects within the RDP. However, several requirements should be met: 1) justification that the concept design is the best solution for project implementation; 2) project sustainability; 3) the GoG must contribute at least 50% of the total cost; 4) the request should be made at the GoG level, in particular, Municipal Development Fund under the MRDI.
• Embassy of Romania: The ambassador H.E Mr. Radu-Liviu Horumba promised to discuss this issue to the Romanian Agency for International Development (RoAid). However, in accordance with the RoAid procedures, this may take some time.
• GCF: GCF representatives exhibited interest in the project. GCF is usually dealing with larger scale projects, however the prospect for adding an energy efficient stoves, individual water supply, sewage and water heating systems remain as an alternative. Hence, the request for a grant in amount of USD 1 mln could be an option.

 
OUTCOME¶
With the technical assistance of USAID Energy Program, NTC has developed teaser (Annex 2) and diagram (Annex 3) for the project on "Establishment of Hybrid Energy Station in Borjomi Municipality for Achievement of Green Status by the City". As a result, the documents are ready for dissemination among the donors and International Financial Institution (IFI) organizations.¶
In parallel, USAID Energy Program held a meeting with Ms. Maia Todria, Economic Policy Officer at the Embassy of Kingdom of Netherlands to explore the funding options from the Development Related Infrastructure Investment Vehicle (DRIVE) & Dutch Good Growth Fund (DGGF). The Embassy not only expressed willingness to provide technical support to biomass projects but also promised to introduce the project to DRIVE program and several biomass producers in Georgia supported by the embassy.¶
Communication was also established with Mr. Niels Bahnsen from Consortium of Danish Company (NIRAS) who expressed interest in further discussions on Borjomi biomass distributed energy project from a climate financing perspective.¶
USAID Energy Program mediated NTC with the Dutch embassy and NIRAS in order to establish further possible cooperation.¶

<u>Semi-Annual Result: 5 Institutions</u></td><td>Number
3</td><td>10</td></tr>
<tr><td>12. Number of research, analytical and white papers conducted including modern modelling and planning tools, among others

Short Clarification:</td><td>1. Recommendations on Renewable Energy Support Schemes
2. Survey results and consensus on Renewable Energy support Schemes
3. Report "Recommendations of the Connection of Imereti WPP to the Georgian Transmission System"
4. Report on VRE forecasting system design and implementation plan
5. Enguri HPP issues on Energy Security</td><td>Number of documents
4</td><td>10</td></tr>
</table>

<table>
<tr><th>Indicator</th><th>Y2, Semi-Annual Cumulative Result (October 1, 2018- March 31, 2019)</th><th>FY2 Target</th><th>3-year Cumulative Target</th></tr>
<tr><td>This indicator measures the research, analytical and white papers developed by USAID Energy Program relating to variable renewable energy development in Georgia.</td><td>6. Recommendations to Promote Funding Opportunities of the Project Hybrid Energy Station in Borjomi Municipality
7. Midterm Report on Solar PV System Project for Off-Grid Settlements
8. Recommendations on Environmental Decision Procedures for Bio Gas Power Plant Project
9. Legal Procedures for Bio Gas Power Plant Project
 
<table>
<tr><td>39</td><td>Recommendations to Promote Funding Opportunities of the Project Hybrid Energy Station in Borjomi Municipality</td><td>In Progress</td><td>Under revision - COR</td></tr>
<tr><td>40</td><td>Survey Results and Consensus on Selected Support Schemes for Renewable Energy</td><td>Approved</td><td>X</td></tr>
<tr><td>41</td><td>Natural Gas Market Rules for an Organized Market (DAM Rules)</td><td>Approved</td><td>X</td></tr>
<tr><td>42</td><td>Comparative Analysis of the Developed Concepts for the New Electricity Market in Georgia</td><td>Approved</td><td>X</td></tr>
<tr><td>43</td><td>Variable Renewable Energy Forecasting System Design and Implementation Plan</td><td>Approved</td><td>X</td></tr>
<tr><td>44</td><td>Regulatory Impact Assessment of Proposed Energy Law on Electricity Prices</td><td>In Progress</td><td>Under revision - UEP</td></tr>
<tr><td>45</td><td>Recommendations on the Connection of Imereti WPP to the Georgian Transmission System</td><td>Approved</td><td>X</td></tr>
<tr><td>46</td><td>Electricity Sector Reform Action Plan</td><td>Approved</td><td>X</td></tr>
<tr><td>47</td><td>Natural Gas Market Development Action Plan</td><td>Approved</td><td>X</td></tr>
<tr><td>48</td><td>Midterm Report on Solar Photovoltaic System Project for Off-Grid Settlements</td><td>Approved</td><td>X</td></tr>
<tr><td>49</td><td>Recommendations on Environmental Decision Procedures for Bio Gas Power Plant Project</td><td>In Progress</td><td>Under revision - COR</td></tr>
<tr><td>50</td><td>Legal Procedures for Bio Gas Power Plant Project</td><td>Approved</td><td>X</td></tr>
</table>
<u>Semi Annual Result: 9 (documents)</u></td><td></td><td></td></tr>
<tr><td>13. Number of critical energy security issues identified and addressed

Short Clarification:
This indicator measures the number of critical energy security issues approved by USAID and addressed by USAID Energy Program</td><td>1. Enguri Study-Visual Inspection of Dam, Electrical and Mechanical Equipment, Prioritization of issues challenging the Reliability of Enguri HPP Operation

2. USAID Energy Program conducts study on GoG’s gasification policy, assessing current situation and providing recommendations - In progress, 3 locations- visited; survey -conducted. (Initial draft)

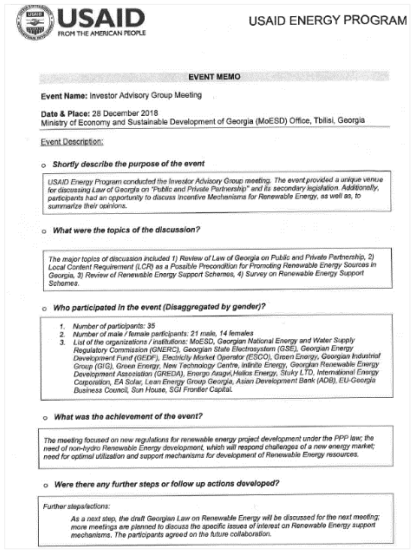
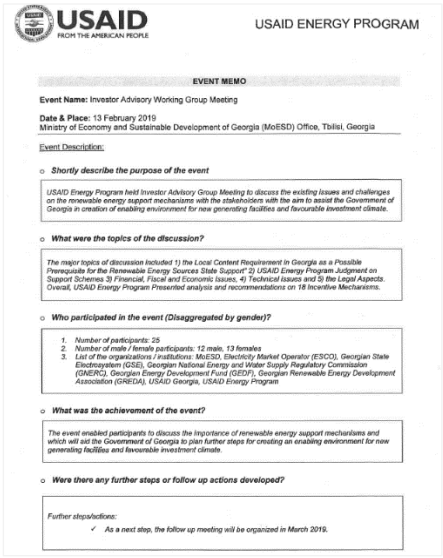
<u>Semi-Annual Result: 2 (Issues)</u></td><td>Number of Energy Security Issues
2</td><td>5</td></tr>
<tr><td>14. Percentage of energy traded on the competitive market by 2020

Short Clarification:
This indicator measures the amount of competitive trading in the electricity sector as indicated as the average monthly percent of competitive sales versus total retail sales in the sector.</td><td>5 (14 % of Total market) (October- February)

<table>
<tr><td>1</td><td>Direct Customers - Electricity Consumption (mln. kWh)</td><td>October 2018</td><td>November 2018</td><td>Decemer 2018</td><td>January 2019</td><td>February 2019</td><td>Average (October-February)</td></tr>
<tr><td>2</td><td>Georgian Manganese</td><td>95</td><td>85</td><td>104</td><td>107</td><td>98</td><td>98</td></tr>
<tr><td>3</td><td>Georgian Water & Power</td><td>15</td><td>14</td><td>14</td><td>15</td><td>13</td><td>14</td></tr>
<tr><td>4</td><td>Geo Service</td><td>16</td><td>10</td><td>0</td><td>0</td><td>-</td><td>5</td></tr>
<tr><td>5</td><td>BFDC Georgia</td><td>34</td><td>45</td><td>41</td><td>22</td><td>18</td><td>32</td></tr>
<tr><td>6</td><td>Kutaisi Investments</td><td>8</td><td>4</td><td>-</td><td>-</td><td>-</td><td>3</td></tr>
<tr><td>7</td><td>Direct Customers’ Consumption - Total (mln. kWh)</td><td>169</td><td>159</td><td>159</td><td>144</td><td>129</td><td>152</td></tr>
<tr><td>8</td><td>Total Consumption - Georgia (mln. kWh)</td><td>978</td><td>1,078</td><td>1,172</td><td>1,149</td><td>1,046</td><td>1,085</td></tr>
<tr><td>9</td><td>Share of Direct Customers in Total Consumption of Georgia (%)</td><td>17%</td><td>15%</td><td>14%</td><td>13%</td><td>12%</td><td>14%</td></tr>
<tr><td>10</td><td>Number of Direct Customers (#)</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr>
</table>
Semi-Annual Result: 5 (14 % of Total market)</td><td>Number
4</td><td>10</td></tr>
<tr><td>15. Number of people trained in clean energy supported by USG assistance

Short Clarification:</td><td><u>Semi-Annual Result: N/A</u></td><td>Number of attendees
10</td><td>40</td></tr>
</table>

Indicator	Y2, Semi-Annual Cumulative Result (October 1, 2018- March 31, 2019)	FY2 Target	3-year Cumulative Target
This indicator measures the number of attendees of training events held by USAID Energy Program, are members of WGs supported by USAID Energy Program or are counterpart staff seconded to USAID Energy Program.			
16. Number of institutions with improved capacity to address clean energy issues as supported by USG assistance *Short Clarification:* *This indicator measures the number of institutions with increased capacity to address clean energy issues as a result of USAID Energy Program assistance.*	Investor Advisory Group Members (MoESD, GNERC, GSE, GEDF, GSE, ESCO, Green Energy, Georgian Industrial Group (GIG), New Technology Center, Infinite Energy, Energo Aragvi, Helios Energy, Stuky Ltd, International Energy Corporation, EA solar, Lean Energy Group Georgia, ADB, EU-Georgia Business Council, Sun House, SGI Frontier Capital. - Investor Advisory WG Meeting - December 28, 2019 Investor Advisory Group Members - Investor Advisory WG Meeting- (MoESD, ESCO, GSE, GNERC, GEDF, GREDA, February 13, 2019 GNERC- Electricity Supplier of last resort Tariff Methodology - January 23, 2019, Electricity Universal Service Supplier Tariff Methodology – January 30, 2019; Market Operator Tariff Methodology – February 6, 2019; Training on the Third-Party Open Access – March 13, 2019	Number of Institutions **2**	6

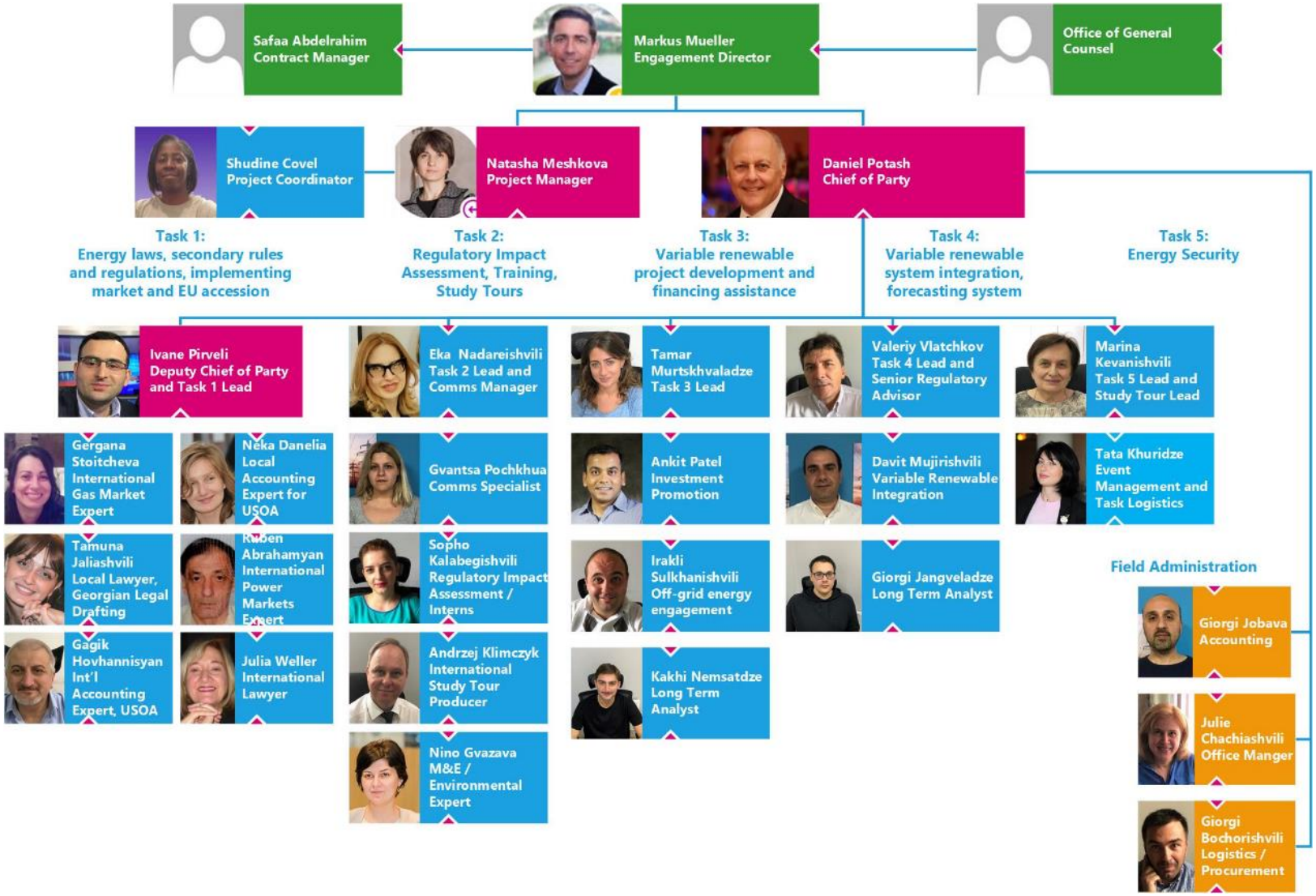
Indicator	Y2, Semi-Annual Cumulative Result (October 1, 2018- March 31, 2019)	FY2 Target	3-year Cumulative Target
	  ***Semi-Annual Result: 20 (institutions)***		
17. Number of laws, policies, regulations, or standards to enhance energy sector governance formally proposed, adopted, or implemented as supported by USG assistance *Short Clarification:* *This indicator measures the number of legislative acts. (not related to clean Energy programs) supported by USAID Energy Program and adopted by the GoG, GNERC or other relevant institution*	1. Natural gas transitory market rules 2. Natural gas market day ahead market rules 3. Summary on energy law 4. Secondary legislation for GNERC - First draft delivered to GNERC 5. Comparative analysis of the developed concepts for the new Electricity Market in Georgia 6. RIA on draft law on electricity and water supply (Electricity-Draft version) 7. RIA on draft law on electricity and water supply (Gas-Draft version) 8. Electricity Market Transition Plan (on vulnerable customers) (Draft) 9. Natural Gas Market Transition Plan (on vulnerable customers) (Draft) 10. Electricity Sector Reform Action Plan 11. Natural Gas Market Development Action Plan 12. Market Operator Tariff Methodology	12	24

Indicator	Y2, Semi-Annual Cumulative Result (October 1, 2018- March 31, 2019)	FY2 Target	3-year Cumulative Target

39	Recommendations to Promote Funding Opportunities of the Project Hybrid Energy Station in Borjomi Municipality	In Progress	Under revision - COR
40	Survey Results and Consensus on Selected Support Schemes for Renewable Energy	Approved	X
41	Natural Gas Market Rules for an Organized Market *(DAM Rules)*	Approved	X
42	Comparative Analysis of the Developed Concepts for the New Electricity Market in Georgia	Approved	X
43	Variable Renewable Energy Forecasting System Design and Implementation Plan	Approved	X
44	Regulatory Impact Assessment of Proposed Energy Law on Electricity Prices	In Progress	Under revision - UEP
45	Recommendations on the Connection of Imereti WPP to the Georgian Transmission System	Approved	X
46	Electricity Sector Reform Action Plan	Approved	X
47	Natural Gas Market Development Action Plan	Approved	X
48	Midterm Report on Solar Photovoltaic System Project for Off-Grid Settlements	Approved	X
49	Recommendations on Environmental Decision Procedures for Bio Gas Power Plant Project	In Progress	Under revision - COR
50	Legal Procedures for Bio Gas Power Plant Project	Approved	X

Semi-Annual Result: 12

USAID ENERGY PROGRAM ORGANIZATIONAL CHART



USAID Energy Program

Deloitte Consulting Overseas Projects LLP

Address: 29 I. Chavchavadze Ave.,0179, Tbilisi, Georgia

Phone: +(995) 595 062505

E-mail: info@uep.ge