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USAID ENERGY PROGRAM

USAID ENERGY PROGRAM QUARTERLY REPORT

APRIL 1, 2020 – JUNE 30, 2020

USAID ENERGY PROGRAM

15 July 2020

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.

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ACRONYMS

AA	Association Agreement
ADB	Asian Development Bank
AFD	French Development Agency
APAC	Asia Pacific
AYPEG	Association of Young Professionals in Energy of Georgia
BoG	Bank of Georgia
CBA	Cost-Benefit Analysis
CEO	Chief Executive Officer
CfD	Contract for Deference
CoP	Chief of Party
COR	Contracting Officer's Representative
CPPA	Corporate Power Purchase Agreement
DIGSILENT	Software and Consulting Company
DM	Deputy Minister
DSO	Distribution System Operator
EBRD	European Bank for Reconstruction and Development
ECS	Energy Community Secretariat
EECG	Energy Efficiency Centre Georgia
EIB	European Investment Bank
EnC	Energy Community
EnCT	Energy Community Treaty
ENTSO-G	European Network of Transmission System Operators for Gas
EPG	Energopro Georgia
ESCO	Electricity Market Operator
ETAG	Energy Technology and Governance Program
ETM	Electricity Trading Mechanism
EU	European Union
EU4Energy	Programme Funded by the EU and led by the Energy Community Secretariat
FiP	Feed-in Premium
GCAP	Generation / Consumption Scheduling Program
GEDF	Georgian Energy Development Fund
GEE	Georgian Energy Exchange
GEPRA	PR and Marketing Communications Company
GGTC	Georgian Gas Transportation Company
GGU	Georgian Global Utilities
GIS	Geographic Information System
GIZ	German Development Agency
GNCOLD	Georgian National Committee of Large Dams
GNERC	Georgian National Energy and Water Supply Regulatory Commission
GoG	Government of Georgia
GOGC	Georgian Oil and Gas Corporation
GRDS	Georgian Resource Development Service
GREDA	Georgian Renewable Energy Development Association
GSE	Georgian State Electrosystem
GTU	Georgian Technical University
HICD	Human and Institutional Capacity Development
HPP	Hydro Power Plant
IEA	International Energy Agency
IFC	International Finance Corporation
IFI	International Financial Institution
ISET	International School of Economics at Tbilisi State University
KfW	German Government-Owned Development Bank
kWh	Kilowatt Hour
LCR	Local Content Regulations
LiDAR	Light Detection and Ranging
M&E	Monitoring and Evaluation

MoESD	Ministry of Economy and Sustainable Development 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
OTC	Over-The-Counter
PBL	Policy-Based Loan
PMCG	Policy and Management Consulting Group
PMP	Performance Monitoring Plan
PMS	Parallel Market Software
PPA	Power Purchase Agreement
PPP	Public Private Partnership
PV	Photovoltaic
Q/A	Questions / Answers
RES	Renewable Energy Sources
RIA	Regulatory Impact Assessments
SAOG	State Agency of Oil and Gas
sFTP	Secure File Transfer Protocol
SoDAR	Sonic Detection and Ranging
SoLR	Supplier of Last Resort
SoW	Scope of Work
STTA	Short-Term Technical Assistance
TYNDP	Ten Year Network Development Plan
UNDP	United Nations Development Program
USAEE	United States Association for Energy Economics
USAID	United States Agency for International Development
USEA	United States Energy Association
USS	Universal Service Supplier
VRE	Variable Renewable Energy
WB	World Bank
WEG	World Experience for Georgia
WG	Working Group
WPP	Wind Power Plant

CONTENTS

INTRODUCTION	5
PROGRAM HIGHLIGHTS DURING REPORTING QUARTER	6
MANAGEMENT AND OPERATIONS	13
Work Plan.....	13
Communication	13
Performance Monitoring Plan.....	13
Environmental Evaluation.....	13
Collaboration with other Donor Funded Projects	14
PROGRESS OF ACTIVITIES BY TASKS	15
ENERGY MARKET DEVELOPMENT (TASK 1)	15
Energy Markets Development Action Plan for Electricity and Gas Sectors	15
Electricity and Gas Markets Transition Plans.....	15
Regional Energy Cooperation	16
Public Outreach	16
Legislation Development	16
INSTITUTIONAL STRENGTHENING AND CAPACITY BUILDING (TASK 2)	20
Capacity building	20
Study tour	22
Regulatory Impact Analysis Tool.....	22
ENERGY INVESTMENT OPTIMIZATION (TASK 3)	26
Investment Advisory Group	26
Renewable Energy Support Scheme	26
Supporting Energy Investment Projects	27
Off-Grid Solar PV System for High Mountain Households in Georgia	28
GRID INTEGRATION OF VARIABLE ENERGY RESOURCES (TASK 4)	30
Wind Power Forecasting Implementation.....	30
Draft Amendments to the Grid Code - Wind Power Forecasting / secondary law or regulation that establishes procedures for generating forecasts	32
Monitoring of the forecasting system.....	32
STRATEGIC ADVISORY ASSISTANCE TO THE GOG TO INCREASE ENERGY SECURITY (TASK 5)	33
COVID-19 impact analysis on Electricity consumption for Georgia	33
“fast-forward” energy security scenario’s analysis	33
Comments on the initial draft law on “safety of hydraulic facilities”	33
interviews with the high-level georgian energy experts.....	34
Energy Security workshop at zoom webinar	36
CHALLENGES AND OBSTACLES	38
ANNEX: USAID ENERGY PROGRAM ORGANIZATION CHART	39

INTRODUCTION

In October 2016, Georgia signed the Energy Community Treaty (EnCT), which memorialized the country's strategic 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 (RES). To enable Georgia 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, 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 tasks of the USAID Energy Program are: (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.

The Third Quarter Report of Year 3 documents the results and progress made by USAID Energy Program over the period April 1, 2020 - June 30, 2020.

In Quarter 3 (Q3), the spread of the Coronavirus Disease 2019 (COVID-19) led to a leadership decision to enact significant changes in the workstyle to contain the spread of disease and ensure the workforce stays safely home while continuing to remain productive by meeting the assigned contractual obligations. The Program has adjusted to full online work in response to COVID-19 and staff continued working around the clock to ensure that tasks are executed in compliance with the mission. Hence, USAID Energy Program has been progressively conducting its activities to achieve the goals articulated in Year 3 Work Plan.

Successful project activities have covered a broad and diverse range of areas: conducting trainings for Gas Working Group, meetings with the participation of energy sector stakeholders; Scheming Electricity Market Concept Design; Investor Advisory Group Meetings, Launching customized Regulatory Impact Assessment (RIA) trainings for the MoESD and the selected institutions to facilitate compliance with new requirements of Georgian Law on Normative Acts and equip various energy institutions with essential technical skills to independently perform RIAs, Developed the Wind Forecast Project and facilitated "Grid Integration of Renewable Generation".

USAID Energy Program Quarterly Report details the progress in each task in reference to corresponding areas of USAID Energy Program Year 3 Work Plan.

PROGRAM HIGHLIGHTS DURING REPORTING QUARTER

There were 6 Program highlights during the reporting quarter:

- 1) Adoption of Electricity Market Concept Design;
- 2) Regulatory Impact Assessment Trainings;
- 3) Wind Forecast Project;
- 4) Training for Gas Working Group;
- 5) Training on “Grid Integration of Renewable Generation”;
- 6) Investor Advisory Group Meeting.

1) ADOPTION OF ELECTRICITY MARKET CONCEPT DESIGN



The Government Decree No. 246

On April 16, Georgia adopted the Electricity Market Concept Design, which is an indispensable document for electricity market reform. Concept Design sets the guiding principles for organizing and functioning of electricity wholesale market, as well as sets the mechanism for fulfilling commitment assigned under agreements concluded with the energy entities, special requirements of electricity supply of the occupied territories of Georgia, and public service organization. The electricity market target model implies a free market, where the participants benefit from equal, non-discriminatory conditions, and the competitive price is established transparently giving customers the opportunity of the free choice.

The recent action marks another big milestone for the development of Georgia's electricity market in terms of meeting the assigned obligations under the EnCT.

From the very onset of the project, USAID Energy Program has been delivering technical support to the GoG through capacity building and knowledge sharing to improve understanding of electricity trading mechanisms and facilitate the transition toward the competitive market structure.

2) REGULATORY IMPACT ASSESSMENT TRAININGS



The Launch of Regulatory Impact Assessment Trainings

In support of the GoG and energy institutions, On April 24, USAID Energy Program launched a series of RIA trainings to support the science-based analysis under the new Energy Law. USAID Energy Program together with International School of Economics at Tbilisi State University (ISET) customized the trainings to facilitate compliance with new requirements of Georgian Law on Normative Acts and equip various energy institutions with essential technical skills to independently perform RIAs.

In the light of the Pandemic, USAID Energy Program remained proactive and committed to an endeavor to build and maintain a high level of expertise within the government and energy sector institutions. The customized module triggered massive interest among the energy stakeholders. The audience comprised of the representatives from the Ministry of Economy and Sustainable Development of Georgia (MoESD); the Parliament of Georgia; Electricity Market Operator (ESCO); Georgian National Energy and Water Supply Regulatory Commission (GNERC); Georgian Energy Exchange (GEE); Georgian Gas Transportation Company (GGTC); Georgian Oil and Gas Corporation (GOGC) and State Agency of Oil and Gas (SAOG).

Through the delivered technical trainings, USAID Energy Program demonstrated a commitment to support the development of a Regulatory Impact Analysis discipline essential for evaluating the potential impact of proposed new laws and regulations. The importance of RIA has increased significantly and turned into a requirement under the respective Normative Acts. Hence, the tailored sessions developed a clear understanding of RIA, focusing on the mandatory requirements for conducting Standard RIA. The covered topics included: setting RIA objectives, problem identification, defining alternative options, financial analysis including discounted cash-flow analysis, multicriteria analysis, key elements of cost-benefit-analysis, etc.

Mr. Zaza Chikhradze, Head of Energy Reforms and International Relations Department MoESD, in his welcome speech appreciated USAID Energy Program's continuous assistance despite the created environment. Particularly he stressed out the persistently well-timed and accurate focus of the Program on the most sensitive and pivotal issues. In that regard, he recalled USAID Energy Program's immense support by providing evidence-based RIAs before the adoption of the new Law on Energy and Water Supply. These documents turned into valuable supplementary input for the discussions in the Parliament and encouraged the decision-makers to pass the Law.



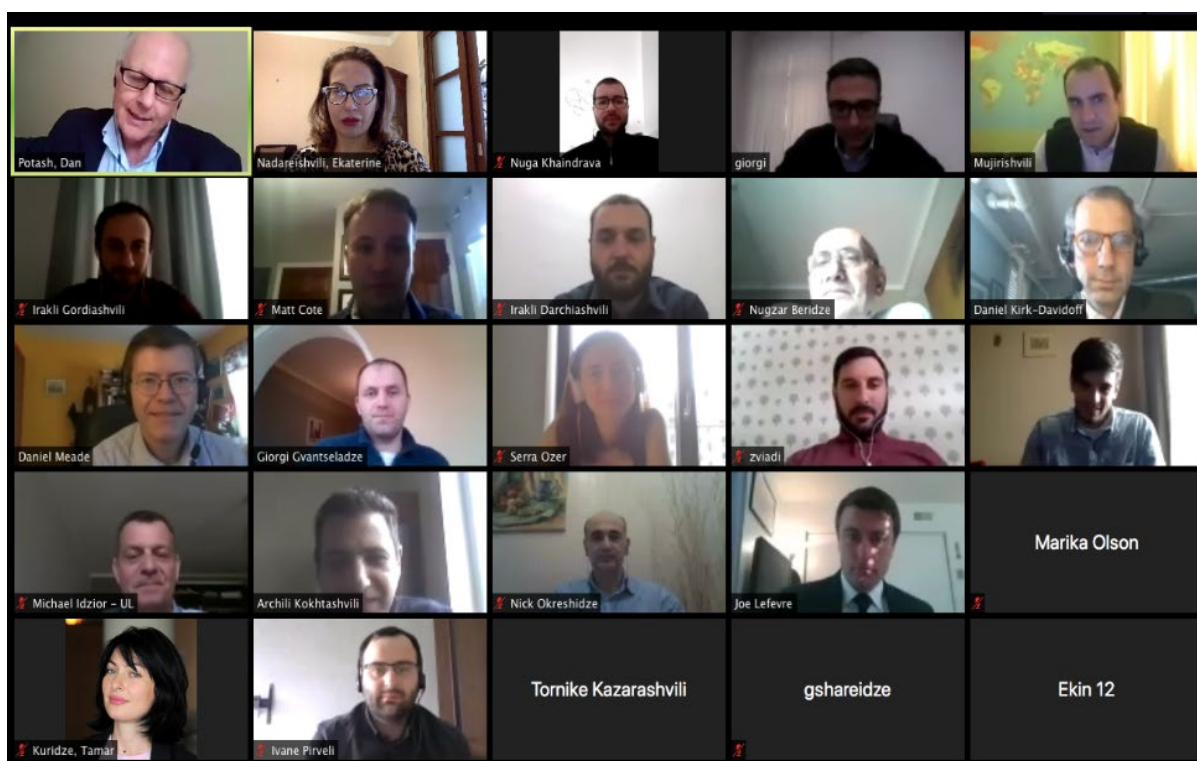
Ms. Marika Olson, USAID/Georgia

Ms. Marika Olson, Economic Growth Office Director, USAID/Georgia also thanked the audience for participation despite the challenges posed by the COVID-19 pandemic. *“The Government of Georgia is committed to reforming the energy sector through transparency, competition, and investment in energy security and has made strides in that regard. However, to sustain the progress, there is a need for a strong science-based system for analyzing and designing energy policy for investment”* - said Ms. Olson and expressed hope that the proposed RIA would deliver a new range of skills and expertise in support of Georgia's energy sector.

Ms. Shorena Kakhidze, from the Parliament of Georgia and Ms. Tamar Sulukhia, ISET Policy Institute Director also greeted the audience and wished participants a productive process of deepening knowledge.

Through these customized trainings, civil servants and energy institution employees will advance their knowledge to conduct energy analysis and design energy policies to help Georgia better plan and implement energy reforms and progress towards its goals.

3) WIND FORECASTING PROJECT



Kick-Off Online Meeting on Wind Forecasting Project

On May 7, USAID Energy Program hosted a Kick-off online meeting on Wind Forecasting Project which marks the launch of successful collaboration between USAID Energy Program, worldwide known UL AWS True Power, and Georgian State Electrosystem (GSE). Among the participants were the representatives from the MoESD, GSE, Georgian Energy Development Fund (GEDF), USAID/Georgia, UL AWS True Power, Infinite Energy, Georgian Global Utilities (GGU). Notwithstanding the global pandemic, the online stage created a unique showcase to deliberate the project features among the engaged parties. The substantial presence of Georgian counterparts served as a sign of commitment and strong will to strengthen the global partnership and welcome new challenges to drive renewable energy generation.

Mr. Tornike Kazarashvili, Head of Energy Department MoESD opened the event by stressing out the crucial role of accurate forecasting and praised USAID Energy Program support, directed both towards the Government and developers. Mr. George Chikovani Chief Executive Officer (CEO) of GEDF also welcomed the audience and elaborated on the significance of renewable energy alternatives and the growing interest of potential investors.

During his welcome remarks, Mr. Ucha Uchaneishvili Supervisory Board Chairman GSE pointed out the value of an enhanced forecasting system for the flexibility of a transmission system that would welcome the integration of wind and solar into the grid. He also acquainted the audience that the respective draft regulation, developed by USAID Energy Program in cooperation with GSE experts and submitted to GNERC would be subject to the public hearing. Georgia's energy stakeholders acknowledge the importance of energy security, therefore demonstrate a high commitment to diversify energy mix to promote secure and affordable energy supply.

Mr. Peter A. Wiebler, Mission Director USAID/Georgia in his welcome speech endorsed the launch of the partnership between the UL and Georgian partners and voiced optimism for successful collaboration. He also stressed the indispensable contribution of wind forecasting not only in grid integration and accurate forecasting but also in getting closer to the EU market. Mr. Wiebler particularly focused on the USAID and Georgian partners' relentless effort to move towards meeting the core objective to create a competitive energy market despite the challenges posed by the global pandemic.

Following the welcome remarks Mr. Daniel Potash, USAID Energy Program Chief of Party (CoP) invited the UL representatives to offer presentations. Mr. Joe Lefevre - Senior Project Manager; Mr.

Dan Meade, Forecast Operations Manager; Mr. Matt Cote, Director of Forecasting; Mr. Dan Kirk-Davidoff, Lead Research Scientist and Mr. Michael Idzior, Business Development Manager elaborated on the following key topics: Financial Benefits of Forecasting, Overview of Forecast Creation Process, Summary of Products & Services and their Applications and finally focused on GSE Wind Forecasting Project Requirements.

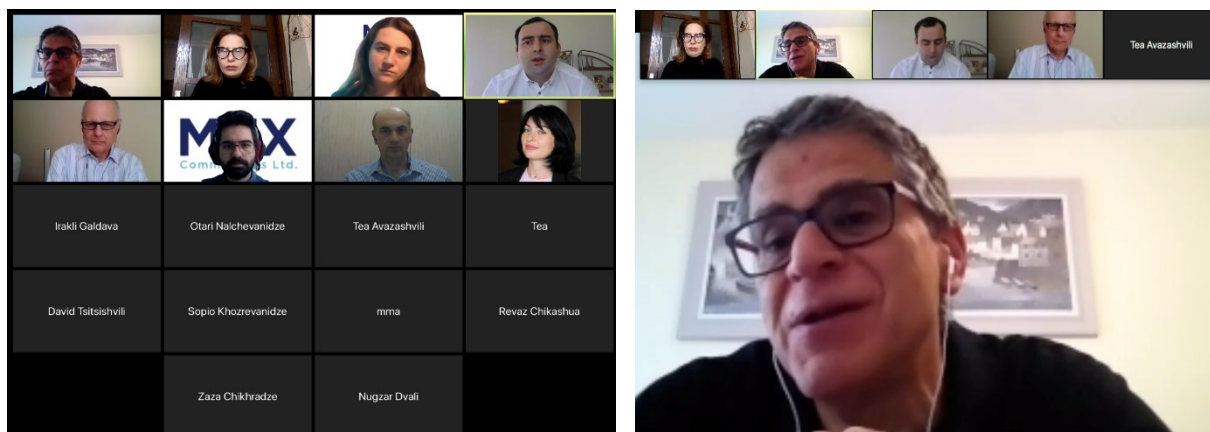
For more clarification, the presentation was followed by a Q/A session. Hence the audience had a chance to clarify concern areas. Among the inquired topics were:

- Time required for tuning up forecasting and achieving prediction accuracy without commissioned plants. It should be noted that with the technical support of the USAID Energy Program, GSE is preparing for the integration of potential wind farms in the nearest future;
- The accuracy of the day-ahead and intraday forecasts;
- Factors affecting the accuracy of the forecast such as Plant Static Dynamic Data, transfer intervals, and correctness and reliability of meteorological parameters and power measurement;
- Techniques required for calculation accuracy metric in terms of accuracy metric NMAE (Normalized Mean Absolute Error);
- GSE effort in drafting amendment and anticipated amendment in the Network Rules;
- Deployment of Light Detection and Ranging (LiDAR) and Sonic Detection and Ranging (SoDAR) to check the correctness of wind speed measurement on Met mast or nacelle of wind turbines.

From the very onset of the project, USAID Energy Program has been supporting Georgia’s energy sector in the development of an accurate Variable Renewable Energy (VRE) forecasting, essential for enhancing more VRE utilization and grid integration. As a result of the Program’s persistent effort, GSE will gain experience in dealing with the data requirement of forecasting models and related procedures. This, in turn, will aid GSE to efficiently allocate resources for congestion management and grid stability. The precise forecasting will not only foster the development of wind projects but also will contribute to energy security, economic growth, and further integration with the EU.

Despite the challenges posed by the COVID-19, USAID Energy Program continues supporting Georgia’s energy stakeholders. Overall, the Program effort aims at enabling increased penetration level of wind and solar power plants to the transmission/distribution network of Georgia.

4) TRAINING FOR GAS WORKING GROUP



Gas Working Group Online Meeting

The GoG and Georgia’s energy sector are tasked with the ambitious goal to approximate EU regulations and establish a transparent and competitive energy market. This, in turn, forces Georgia to direct its efforts towards altering the existing energy system into a resilient and viable model.

For that purpose, Gas Working Group, comprised of the MoESD, GEE, GNERC, GGTC and GOGC are developing Gas Market Concept Design. In the absence of a competitive energy market practice, the respective task force faces an urgent need for boosting skills and knowledge of international gas market functioning, its organization, main players, traded products, and effective mechanisms. Sharing international practice and insight is crucial at this point to foster aptitude for better energy leadership.

USAID Energy Program constantly undertakes needs assessment and responds by bridging the skills gap to empower Georgia to meet the requirement of a competitive market. Therefore, the Program in consultation with MTX Commodities designed tailored training to advance knowledge and promote a greater understanding of an international gas market functioning with the focus on essential technical details.

On May 15, USAID Energy Program launched the training on natural gas trading to support the energy experts to create, participate, and benefit from a competitive energy market. The cohort of energy experts included the representatives of the MoESD, GNERC, GOGC, GGTC, and GEE.

USAID/Georgia Energy Sector Advisor Mr. Nicholas Okreshidze in his welcome remarks emphasized the implication of the natural gas sector in terms of economic growth and energy security. Though the sector remains monopolized, the implementation of new regulations will eliminate certain market entry barriers and form a transparent and competitive energy market. Mr. Okreshidze also referred to the crucial value of these customised trainings in the transition period.

Mr. Daniel Potash CoP USAID Energy Program focused on the COVID-19 response plan and Georgia's successful attempt to minimize the impact of pandemic not only on the energy sector but also on the whole economy. Mr. Potash labelled Georgia as a leader among the countries supported by USAID in terms of deregulation, market implementation, renewable energy, connection, etc and praised the relentless effort of the country to move the energy sector into a fully modernized realm.

Lastly, Mr. Ivane Pirveli Deputy Chief of Party (DCoP) USAID Energy Program defined that the training was designed specifically to support the Gas Working Group (WG) currently dealing with the Gas Market Concept Design.

The overall approach of the training is to develop meaningful capacity-building activities customized to meet the needs of beneficiaries and address the immediate and long-term needs of the gas sector. The first part focused on the general overview of natural gas market trading. The focal point of the session was to share the experience of market evolution in Europe, the main objectives of a spot market, trading rules and contracts, and the process of spot trading. Another covered topic was balancing market and mechanism, obligation of buyers and sellers, and related penalties and contract types. The second part of the training was packed with examples on the existing markets, such as UK, Austrian and Turkish Natural Gas Market models.

Under this initiative, USAID Energy Program endeavoured to eliminate the skills gap in spot gas trading, which will represent an essential part of a competitive energy market.

Despite the global pandemic, the USAID Energy Program continues responding to the crisis by focusing on the needs of the energy sector to advance Georgia's journey to self-reliance and make progress toward the ultimate objective of establishing a competitive energy market.

5) TRAINING ON “GRID CONNECTION OF RENEWABLE GENERATION”



Certificate of the DlgSILENT Training

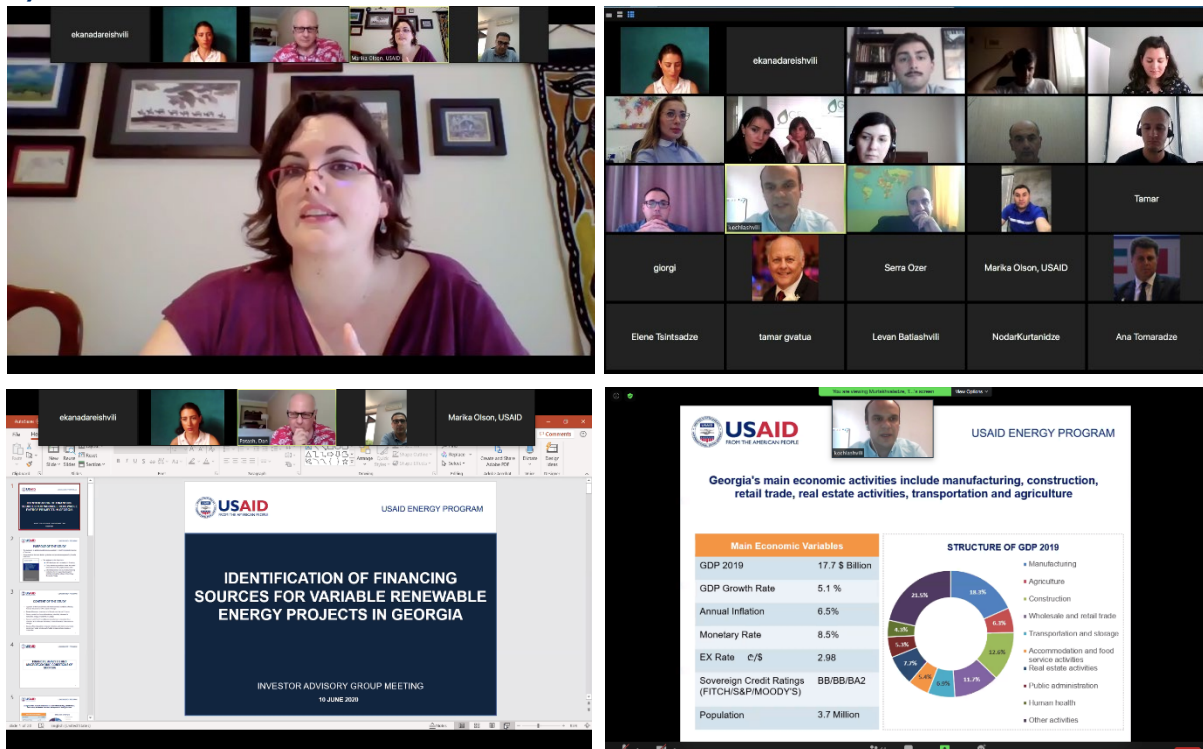
USAID Energy Program remains dedicated to forming a pool of energy experts through tailored trainings as obtained knowledge will drive the development of Georgia in achieving self-reliance.

For that cause, USAID Energy Program organized and supported GSE in participating in the DlgSILENT Training on “Grid Connection of Renewable Generation” on May 14 -15. The training aimed to create knowledge on the tools and techniques commonly applied in practice for the analysis of grid integration of renewables in the power system with a focus on wind power and Photovoltaics (PV). The customized two-day course provided a systematic approach for performing a grid compliance study, by covering the essential themes. The topics revolved around the steady-state behavior in view of grid code requirements, short-circuit calculation, harmonic analysis according to IEC61000, and dynamic simulation for fault behavior. Each theoretical aspect was aligned with a practical part in which participants acquire hands-on experience in the use of PowerFactory. The trainings built awareness on how to transform theoretical concepts into effective practical adoption.

Upon the accomplishment of the course, three participants from GSE Mr. Giorgi Butchvelashvili, Mr. Giorgi Erikashvili and Mr. Omar Burdiashvili obtained the certificates of successful completion.

With this initiative, USAID Energy Program contributed to crafting a better understanding of grid integration of renewables in the power system which acquires crucial importance for ensuring the energy security of Georgia. The transition to renewables requires a fundamental shift in the way business is done currently, therefore the set of trainings will contribute to mobilizing resources to expand renewable energy generation and grid integration.

6) INVESTOR ADVISORY GROUP MEETING



Online Investor Advisory Group Meeting

Despite the COVID-19 outbreak, USAID Energy Program embeds a strong emphasis on continuous cooperation with the key energy stakeholders to enhance the VRE development in Georgia and capitalize on new opportunities through financing.

On that note, on June 10, USAID Energy Program organized an online Investor Advisory Group Meeting. The webinar brought together Georgian energy sector stakeholders, renewable energy developers, donors, and financial organizations for brainstorming ideas to focus efforts on the challenges in the wind and solar power project financing options.

Ms. Marika Olson, Director of Economic Growth Office, USAID/Georgia in her welcome speech highlighted the importance of energy security and strong resilience which are hinged on the diversified resources. Ms. Olson praised strides made by Georgia in the energy sector however constraints remain effective across the VRE. Ms. Olson referred to the event as an opportunity to hear from experts and share the right direction for the advancement of VRE.

Mr. George Chikovani, CEO GEDF referred to timely support of the Program for the VRE development which is one of the priority areas capable of boosting the achievement of 2030 goal in terms of having the diversified energy resources in Georgia.

Mr. Tornike Kazarashvili, Head of Energy Policy Department MoESD also thanked the Program for continued support in the energy sector advancement. He expressed confidence that hearing the story of US practice could contribute to transforming theoretical concepts of VRE benefits into the practical adoption in the local terms.

Following the welcome remarks, USAID Energy Program team shared the results of the study on *"Identification Of Financial Sources For Variable Renewable Energy Projects In Georgia"* with the audience. The document provided insights into the renewable energy investment climate in Georgia and the main requirements and procedures stipulated by financial institutions. Additionally, the report included information on the activities of major International Financial Institutions (IFI), donor organizations, government funds, local banks, and private equity investors interested in financing renewable energy projects in Georgia. The study is designed to support the VRE developers in a more comprehensive application of related procedures to attract investments and partnerships.

The Program brought special guest Ms. Lela Jgerenaia - Vice President of the Starwood Energy Group Global LLC in the US. Ms. Jgerenaia shared the US experience of the renewable market landscape that can serve as a valuable lesson for Georgia to adopt new practices. The document incorporated the US proficiency in wind, solar, and other renewable energy projects financing and development, including state and federal incentives, Power Purchase Agreements (PPAs) and hedges, technology risk, and potential mechanisms to provide revenue floor to new-build renewable projects.

Overall, the webinar turned into a valuable forum for the participants to provide counsel and ideas for further actions aimed at enhancing the VRE development and shaping valuable solutions to achieve goals on merits.

In his closing remarks, USAID Energy Program CoP Mr. Daniel Potash stated that within the remaining lifespan of the Project, the efforts would be directed towards bringing needed technical assistance to developers planning to construct and operate small and medium variable renewable energy generation projects.

MANAGEMENT AND OPERATIONS

WORK PLAN

During this quarter, USAID Energy Program met USAID and Georgian counterparts to ensure the effectiveness of Year 3 activities, accounting for the changing environment in Georgia, and some change of counterparts. Some of the delayed activities that occurred in the third quarter of Year 3 due to COVID-19 outbreak will be accelerated to be made up in the remaining part of Year 3.

COMMUNICATION

Throughout Quarter 3 of Year 3, despite the global pandemic, USAID Energy Program implemented activities as outlined in the approved 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 activities of the Program and engaging with the project constituents and journalists.

Table 1: Year 3 Outputs

OUTPUTS	TARGET	STATUS	PROGRESS
Weekly Report	13 (Quarterly)	13	Completed
Quarterly Report	3	3	Completed
Newsletters	1 (Quarterly)	1	Completed
Press Releases	4 (Annually)	5	Completed
<hr/>			
<i>USAID Development Experience Clearinghouse (DEC) Report Submission of Approved Deliverables on A Weekly Basis</i>		<i>Based on Deliverables</i>	<i>-</i> <i>Constantly Updated</i>
<i>Use of Social Media Tool (Facebook)</i>		<i>Based on Events</i>	<i>-</i> <i>Constantly Updated</i>

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 is delivered to USAID on a bi-annual basis, in April and October as a part of quarterly report. Data collected in April covers the period from October 1 through March 31, while data collected in October covers the period from April 1 through September 30. Geographic Information System (GIS) is also submitted semi-annually.

Table 2: Year 3 Outputs, PMP

OUTPUTS	STATUS
Monitoring and Evaluation (M&E) Plan	Submitted with Year 3 Work Plan
PMP Reporting	Semi-annual data (covering period: October 1, 2019 - March 31, 2020) was submitted on April 15, 2020 (as part of quarterly report). Second semi-annual data (covering the next 6 months: April 1, 2020 through the end of the project) will be delivered together with final report)
Annual GIS Reporting	Updated version was submitted in April 2020. Another updated version will be sent by the end of the project.

ENVIRONMENTAL EVALUATION

USAID Energy Program ensured that all recommendations and comments made in respective reports produced during the Quarter 3 of Year 3 are neutral environmental impact. In that regard, twelve (12) environmental threshold checklists were prepared for the outputs delivered in the reporting period, which covered April 1, 2020 - June 30, 2020.

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 Year 3 are as follows:

AFD (French Development Agency): USAID Energy Program worked closely with AFD on the issue of vulnerable customers in energy sector. For the purposes of fruitful collaboration, USAID Energy Program shared with AFD the Electricity and Gas Market Transition Plans and the RIA of proposed Energy Law on Vulnerable Customers in Georgia. More collaboration will continue.

EU: USAID Energy Program worked 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 Association Agreement (AA) and Energy Community (EnC) Accession Protocol.

NVE (Norwegian Water Resources and Energy Directorate) - under the Norwegian grant program, NVE has been assisting 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 cooperated with IFC in the development of Electricity Market Transitional Plan and Natural Gas Market Transitional Plan.

WB (World Bank): USAID Energy Program collaborates closely with WB to assist 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).

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 KfW subcontractor Bluberries Mr. Andreas Pointvogl to discuss the ongoing electricity market reports, particularly the development of electricity market concept design.

HICD (Human and Institutional Capacity Development): USAID Energy Program jointly organized a workshop to review the Ten-Year Network Development Plan (TYNDP 2019 - 2028) developed by the GOGC.

ADB (Asian Development Bank): Representative of ADB Mr. David Urbaneja-Furelos's asked USAID Energy Program to help with a brief overview of Georgia's energy sector, the Program developed a document on the existing energy sector overview and shared the requested document.

Under the framework of the study on "*Identification of Financial Sources For Variable Renewable Energy Projects in Georgia*", USAID Energy Program collaborated with the financial institutions/donors who have been involved in the energy sector for the past 10 years (2009–2019). The Program surveyed following donor/financial institutions:

- ADB;
- Bank of Georgia (BoG);
- Cerberus Frontier;
- European Bank for Reconstruction and Development (EBRD);
- European Investment Bank (EIB);
- German Development Agency (GIZ);
- IFC;
- KfW.

The survey results provide information on the basic guidelines and conditions that are requested by financial institutions when deciding to finance VRE projects. The report also conveys the problems and obstacles experienced by wind energy developers in Georgia. This analysis will help new VRE developers make proposed projects eligible for financing and organize necessary documentation in support of the application.

PROGRESS OF ACTIVITIES BY TASKS

ENERGY MARKET DEVELOPMENT (TASK 1)

ENERGY MARKETS DEVELOPMENT ACTION PLAN FOR ELECTRICITY AND GAS SECTORS

Due to the global outbreak of COVID-19, the major stakeholders demonstrated a high level of commitment to contain the spread of the virus locally by postponing or cancelling events, meetings, public gathering etc. Taking into consideration the Emergency State announced by the Government of Georgia from March 21 to May 22.

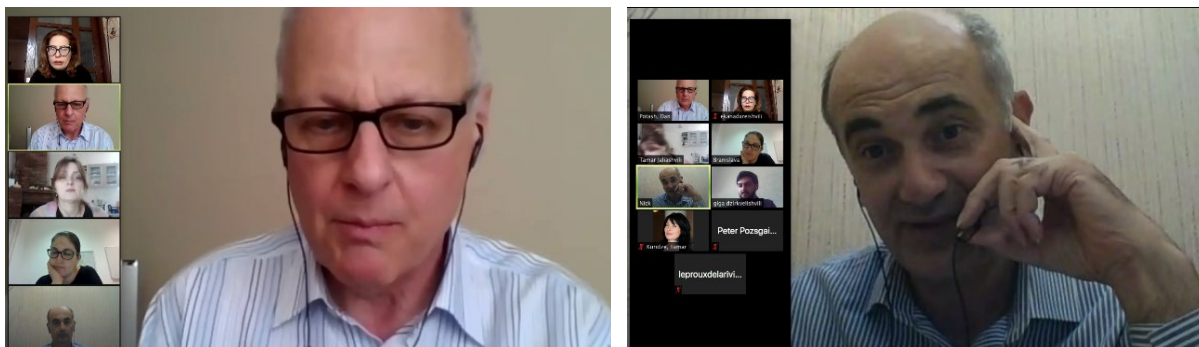
Despite the created conditions, USAID Energy Program suggested assistance to the MoESD in organizing a quarterly Donor Coordination Meeting, planned for the beginning of April. USAID Energy Program envisaged arranging the virtual meeting through online technologies, which are well-practiced by the Program. Although, the Ministry highly appreciated the Program's effort, still decided to postpone the meeting.

USAID Energy Program requested Georgian energy undertakings to update the status of current projects to ensure consistency with Electricity & Natural Gas Sector Reform Action Plans.

ELECTRICITY AND GAS MARKETS TRANSITION PLANS

USAID Energy Program is following-up on the ongoing reform implementation related to the protection of Vulnerable Population in the electricity and natural gas sector. The involving Donor companies, including AFD and EU4Energy, on behalf of Energy Community have their assignments in line with the decision of the ministry. USAID Energy Program closely cooperates with donors.

For these purposes, despite the challenges, posed by the global pandemic, the Program feels committed to maintaining the partnership with relevant parties. In that regard, on May 15, USAID Energy Program convened an online consultative meeting with the international donors such as AFD, EU4Energy, EBRD. The meetings aimed to deliberate the sensitive topic of vulnerable customers and updated efforts for the post CODIV environment.



Online Meeting with Donors

Mr. Stanislas De La Riviere - AFD shared experience of AFD in managing a study on vulnerable customers, focusing on the Identification of the vulnerable groups and cost evaluation of suggested policy options for their protection (for the electricity sector). As noted, the study results are already shared with the MoESD for feedback. AFD acknowledges the impact of a global pandemic that will force to introduce amendments to fit in the post-COVID setting. Mr. Stanislas also noted that the new Policy-Based Loan (PBL) is in the pipeline, therefore AFD waits for the Government's solution in terms of support mechanisms.

The representatives of ECS Mr. Peter Pozsgai and Ms. Branislava Marsenic Maksimovic elaborated on the plan regarding the regulations for the protection of vulnerable customers (for both electricity and natural gas). Global pandemic changed the environment, thus further consultations are anticipated with the MoESD to address the issue. Ms. Branislava further referred the faulty software system, currently applied by the GoG, which fails to make vulnerable people visible and therefore deprives them of required support.

Mr. Daniel Potash, CoP USAID Energy Program, also familiarized the audience with the Program's plan concerning the vulnerable population and recalled the Transition Plans for vulnerable customers for both electricity and natural gas sectors and RIA.

All participants share a common view that a global challenge triggered a need for adjustment in all plans, which is crucial in terms of creating a new frame fit for the Post COVID environment. In that regard, the Program Contracting Officer's Representative (COR) Mr. Nicholas Okreshidze, on behalf of USAID/Georgia expressed readiness to collaborate with the stakeholders in addressing any specific issues that might be triggered as a result of the created conditions.

The participants expressed gratitude for organizing a meeting and sharing insights. The following meeting is planned in September to better understand the progress and advancement made in this sensitive field.

REGIONAL ENERGY COOPERATION

No progress was made on organizing Turkey-Georgia energy Working Group (WG). The GoG remains reluctant for the involvement of the third party in terms of Turkey-Georgia Energy WG. USAID Energy Program express readiness to provide support in organizing working meetings should the counterparts require assistance.

The unexpected global outbreak of COVID-19 and related restrictions for travelling significantly affected the regional cooperation plan with the Armenian party. Both Georgia and Arminian sides planned to organize follow up events to previously held meetings. However, the Pandemic made it impossible to realize the plan.

PUBLIC OUTREACH

USAID Energy Program contacted the MoESD to check the status of the Public Awareness Campaign and implementation of the "Electricity Market Opening Communication Plan" prepared by GEPR (PR and Marketing Communications Company) upon the request of the Program. The MoESD refrained from organizing an online workshop with a larger audience due to challenges caused by COVID-19. Despite the pandemic, the MoESD acknowledges the importance of timely communication with the public and intends to implement the plan as soon as the created environment is eased. Ms. Tea Avazashvili (MoESD) expressed gratitude towards USAID Energy Program support and expressed hope to get further assistance in the implementation process.

Later in May, in the light of relatively alleviated conditions, USAID Energy Program re-contacted the MoESD to identify the likelihood of conducting the workshop on the "Electricity Market Reform Communication Plan", prepared by USAID Energy Program through subcontractor GEPR. The MoESD suggested reducing the participants only to the major stakeholders GNERC, GSE, ESCO, GEE, the MoESD and USAID Management. Due to the busy schedule of the MoESD the tentative date of the event is the first half of of July.

To maintain communication with a wider audience, USAID Energy Program continues developing material for Facebook to promote achieved milestones. To that end, the Program prepared a video of MTX energy trading training winners from GSE, which endorsed the participants to take pride in their accomplishments and share insights on the value of obtained knowledge.

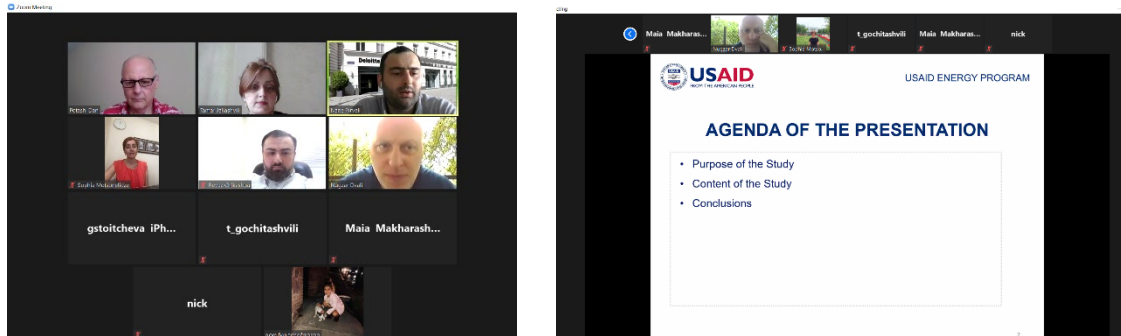
LEGISLATION DEVELOPMENT

USAID Energy Program together with the Program's COR Mr. Nicholas Okreshidze participated in the online meeting with Human and Institutional Capacity Development (HICD) Project and GGTC to discuss assistance on gas TYNDP. Parties discussed the involvement of USAID Energy Program's international gas market expert, the Scope of Work (SoW), timeframe and expected deliverables. Based on shared SoW, the HICD project will develop a new SoW for the local expert to develop new TYNDP and provide trainings to GGTC staff. Parties agreed to have a follow-on call with the international gas market expert Ms. Gergana Stoitcheva.

USAID Energy Program organized an online meeting with HICD Project and GGTC to discuss the assistance of the gas TYNDP. The program's international gas market expert - Ms. Gergana Stoitcheva updated the participants on the progress of the existing TYNDP gap analysis and leading practices. The discoursed topics included assigning relevant departments to develop TYNDP and GGTC, the experience of eastern European countries and guidelines of European Network of Transmission System Operators for Gas (ENTSO-G), financing of investment plans and inclusion of

Projects of Common Interests (PCI), Projects of Energy Community Interest (PECI) and Projects of Eastern Partnership Interest (PEPI).

On June 18, USAID Energy Program organized a workshop to review the TYNDP (2019 - 2028) developed by the GOGC. Representatives of GGTC, GOGC, USAID's HICD Program and USAID Energy Program attended the event.



Review of TYNDP

The workshop aimed to share the results of the gap analysis and to solicit ideas from the audience. The Program team administered the evaluation of the TYNDP and provided recommendations for the alignment with leading EU practices. Based on the analysis the respective team advised on the development of a comprehensive TYNDP concept in compliance with the EU recommendations.

The TYNDP aims to create a favorable environment for infrastructure development through various funding initiatives, deliver secure and affordable gas to all consumers of Georgia in light of upcoming competitive gas market. The recommendations within the study are based on international practices that proved to be successful in the development of the national TYNDP's and ENTSO-G guidelines. Among the case countries were Bulgaria, Romania, and Lithuania. The study also envisaged the legal framework for TYNDP and the possible structures with various scenarios.

The study revealed that the current TYNDP aligns with the EU practices structurally and methodologically however, further accomplishments are essential in demand forecasting, Cost Benefit Analysis (CBA), stakeholder consultation processes, and detailing financing sources of new infrastructure projects. The study results acquired positive feedback from the TYNDP responsible person at GOGC. In view of obtained feedback, the Program will modify the report and share it with GGTC. The recommendations of the study will be applied in the training sessions on TYNDP for GGTC planned to be supported by the HICD program.

The Program maintains focusing on the Economic Evaluation Methodology as requested by Georgian National Energy and Water Regulatory Commission. For this purpose, USAID Energy Program held a Skype meeting with GGTC to discuss the comments on Economic Evaluation Methodology for Gas Transmission Projects, provided by the GNERC. Following the deliberations, the Program commenced working on the respective methodology.

USAID Energy Program contacted Mr. Revaz Geradze - Deputy Head of Natural Gas Department at GNERC to discuss the Methodology of Gas Transmission projects. The Program received draft comments from GNERC concerning the Methodology of Gas Transmission projects. As a result, the Program organized a Zoom call with GNERC and GGTC to deliberate the details.

Following the zoom meeting, USAID Energy Program held a skype call with the GGTC to discuss the Economic Evaluation Methodology of Gas Transmission Projects. The meeting revolved around the data provided by GGTC regarding the natural gas disruptions due to various reasons and cutting trees during the construction of new pipelines. In addition, USAID Energy Program received a report on the cost of disrupted gas methodology from GNERC. The main findings of the report were incorporated into the updated Economic Evaluation Methodology of Gas Transmission Projects. The updated version of the methodology shall reflect comments from GNERC. The draft Economic Evaluation Methodology is supposed to be completed for the end of summer.

USAID Energy Program contacted GEE to discuss the ongoing market reforms, schedule for set-up of day-ahead market and involvement of the Program. Parties agreed that the Program will provide advisory assistance to the GEE regarding bilateral trading for the target electricity model. Particularly the Program's International Energy Market Expert Mr. John Swinscoe will provide advisory services

on possible bilateral trading mechanisms and schemes in Georgia, while MTX commodities on later stage will develop demo Over-the-Counter (OTC) trading platform for capacity building activities.

USAID Energy Program held an online meeting with the GEE to hear the inquiries of GEE on bilateral trading. According to the CEO of GEE, Ms. Irina Milorava, Georgia is going to adopt Electricity Market Rules by the end of August. However, these Rules are required to be more specific and comprehensive in terms of bilateral trading, compared to specifics available in current Electricity Market Concept Design. Among the inquiries were the licensing of OTC operation - whether multiple OTC platforms shall be allowed, a precise definition of key terms such as bilateral trading, forward markets, futures markets, derivatives, organized markets, brokerage platform, etc. The Program's international energy trading expert, Mr. John Swinscoe prepared and shared a short memo providing clarification for GEE inquiries. Upon the request of GEE, USAID Energy Program developed and submitted to GEE the draft white paper on bilateral electricity trading, covering various types of bilateral contracts, their applicability in new electricity market environment and policy considerations.

USAID Energy Program participated in the teleconference (webinar) organized by the ECS. The webinar was devoted to ECS project on developing Gas Supplier of Last Resort (SoLR) Rules in Georgia. It offered an experience of selected EU and Energy Community Member States on the designation of natural gas Supplier of Resort (SoLR), main roles and responsibilities, services provided, selection criteria and price setting. The requirements under newly adopted Georgian Law on Energy and Water Supply regarding the SoLR were examined and initial thoughts from the webinar participants collected. The follow-up workshop is scheduled by the end of May and the final deliverable is expected in July 2020. The participants underlined the prominence of having Gas Market Concept Design since it will significantly affect the SoLR rules.

On May 27, United States Association for Energy Economics (USAEE) organized a webinar on the Impacts of COVID-19 on the Global Power Sector. USAID Energy Program CoP Mr. Daniel Potash and Task leads attended the seminar which explored the influence of the pandemic on the power sector globally and deliberated on the short- term implications of both decreases in demand and shifts in demand profiles. The discussion revolved around the needs of utilities to ensure continued reliability in the power system and the evaluation of impacts toward decarbonizing the power sector.

USAID Energy Program held an online meeting with the MoESD and ISET to discuss the list of Memorandum of Understandings (MoUs) signed between the GoG and investors. The parties also discussed the case of PPA with the involvement of ESCO, as it appears the guaranteed purchaser of generated electricity.

As promised during the meeting with the MoESD in March, ISET prepared a list of MoUs and PPAs for the MoESD and consolidated it into relevant order. The MoESD reviewed the list and filled the existing gaps to ensure the presence of comprehensive data applicable both by the MoESD and ISET.

The Program contacted ISET for updates on the stakeholders' consultation meetings and planned participation in the zoom-meeting with the MoESD legal team on MoU's and PPA's issues.

USAID Energy Program commenced working on the "*Corporate Power Purchase Agreement*" (CPPA), later to be shared with the MoESD and the Regulatory Commission. The sample CPPA envisages the signing of an Agreement On Power Purchase between generation companies, including hydro, wind, and solar and industrial companies. Specifically, the CPPA involves large consumers and/or traders operating in the energy market. Overall, Corporate PPAs tend to be a suitable instrument in terms of addressing offtake risk for developers and financing parties. Therefore, it can considerably aid in accelerating the deployment of renewables. This initiation is crucial for the MoESD and ESCO, as the latter is the buyer of electricity. Besides, this document will serve as valid assistance for investors in eliminating the existing gaps.

USAID Energy Program legal team developed the draft on the Interconnection Agreement for Generation and Distribution System Operator (DSO). The draft is designed under the EU standards and general requirements for interconnection, as well as in accordance with legislation framework of Georgia.

USAID Energy Program organized a zoom-meeting with the legal consultant to discuss a draft of the Interconnection Agreement for Generation and DSO. Following the meeting the Program finalized the preliminary draft of the Interconnection Agreement and shared it with Regulatory Commission for further discussions.

USAID Energy Program's legal team reviewed *Wind Forecasting Service Regulation* and checked its relevancy to legal requirements. Revisions introduced in the draft amendment to the Network Rules was shared with GSE. Once the document is revised by GSE legal department, the report will be discussed with wind farm developers.

USAID Energy Program re-established communication with ESCO on needed support in the transitional period. This was a request from the MoESD, expressed during the Donor Coordination meeting held in December 2019. The Deputy Minister (DM) Mr. David Tvalabeishvili voiced concern over ESCO's smooth and efficient conversion from Market Operator to Universal Service Supplier (USS) during the transitional period. Consequently, USAID Energy Program met with Director General of ESCO Mr. Dvalishvili to discuss anticipated gaps, nature of assistance and agreed to meet upon the adoption of Electricity Market Concept Design. As the document was adopted in April 2020, the Program contacted ESCO and offered the involvement of the international expert Ms. Martina Schwartz. The Program shared the respective document with Ms. Schwartz. Currently, the Program expects a response from ESCO to arrange a kick-off meeting aimed at clarifying the concern areas in need of assistance.

The Program has started working on the Market Monitoring training, tentatively scheduled by the end of July. For this reason, the respective team will explore the best practices in the EU Eastern countries with regard to market monitoring, market functioning, and the legal basis.

INSTITUTIONAL STRENGTHENING AND CAPACITY BUILDING (TASK 2)

CAPACITY BUILDING

RIA Trainings

ზეგავლენის თვისებრივი ანალიზი

ისეთი გავლენები, რომელთა რაოდენობრივი შეფასება ვერ მოხდა უნდა იყოს განხილული ცალკე

წარმოდგენილი უნდა იყოს მათი მასშტაბი და მოსალოდნელი გავლენა ალტერნატივების ზოგად რანჟირებაზე

ის თუ რა რაოდენობის გავლენები იქნება რიცხვობრივად შეფასებული დაშოკიებულია შეფასების შედეგად დასაწყისში და ხარჯებზე. (ხარჯთ-სარგებლიანობის, ხარჯთ-სარგებლიანობა)

ყოველთვის არსებობს ისეთი გავლენები, რომელთა თვისებრივი შეფასება აუცილებელია

გავლენის ტიპები	გავლენების მახასიათებლები
<ul style="list-style-type: none"> • ეკონომიკური • სოციალური • გარემოსდაცვითი • ადმინისტრაციული • საჯარო ფინანსებზე • გენდერი • მდგრადი განვითარების მიზნები (SDG) 	<ul style="list-style-type: none"> • დადებითი ან უარყოფითი (სარგებელი ან ხარჯი) • პირდაპირი ან ირიბი • დიდი ან მცირე • გრძელვადიანი ან მოკლევადიანი • განაწილებადი და სპეციფიკური

მრავალკრიტერიუმანი ანალიზი

აერთიანებს ალტერნატივის ზეგავლენის რაოდენობრივ და თვისებრივ შეფასებას

მრავალკრიტერიუმანი ანალიზის დროს, უნდა მოხდეს ზეგავლენის შეფასების შედეგების შედარება საბაზისო/უმოქმედობის სცენართან მიმართებით.

Identification, quantification and monetization of impacts

- Identification of economic entities affected by each option :
 - Individuals
 - Households
 - Companies
 - Public Sector
- Quantification of impacts (typically expressed in units):
 - Monetary (direct payments)
 - Non-monetary (e.g. number of hours spent, fuel consumed, materials bought, etc.)
- Monetization: multiplying total impacts by "unit price"

Regulatory Impact Assessment Trainings

USAID Energy Program actively cooperated with Deloitte head office and the ISET to clarify changes required in the Sow in order to launch of RIA online trainings within the agreed timeframe.

Following the correspondence and several zoon meetings with ISET, the parties set the date for the launch of trainings from April 24. These customized trainings were designed to meet mandatory requirements for Standard RIA in compliance with the Law on Normative Acts. Among the selected institutions are the MoESD, the Parliament, GNERC, ESCO, and newly established GEE.

USAID Energy Program together with ISET designed tailored training to address the RIA skills gap through capacity building and enable the GoG and selected institutions to deliver higher quality Standard RIA obligatory under the new Law. The customized syllabus aimed at building deep knowledge of compulsory Standard RIA with a specific focus on certain pivotal aspects of comprehensive RIA procedures. Practical steps and advice for writing the report in compliance with the government decree on the RIA methodology were discussed during each session. The trainings were designed to promote coherence with the energy Law in terms of compulsory RIA execution.

Mr. Levan Pavlenishvili - Deputy Head of Energy & Environment Policy Research Center; Ms. Maka Chitanva - Deputy Head of Energy and Environment Policy Research Center, and Mr. Norberto Pignatti Head of Energy and Environment Policy Research Center of International School of Economics - Policy Institute (ISET-PI) administered the trainings.

Capacity building is an integral part of the USAID Energy Program approach. This encompasses the provision of customized trainings to the GoG and selected institutions. The Program believes that the proficient institutions will have the capacity to be central actors in the transition process by contributing to the development of a competitive energy market. Above all, the trainings in integrated cohorts promoted a shared vision of how these instruments should be best deployed to accomplish RIAs.

Despite the COVID outbreak and global lockout, USAID Energy Program continues delivering technical support to the MoESD in the energy reform advancement. From April 24, two months RIA trainings were launched on the following key topics.

#	Topics
1	Introduction to Regulatory Impact Assessment and Legal Framework of RIA
2	Introduction to Regulatory Impact Assessment and Legal Framework of RIA
3	Setting up and implementing the stakeholder consultation framework
4	Problem Definition
5	Defining the Baseline Scenario
6	Setting policy objectives and selecting policy options
7	Identification of the impacts and analysis required for a standard RIA
8	Identification of social and environmental impacts in the energy sector
9	Comparing options with multi-criteria analysis and issuing recommendations
10	Comparing options with multi-criteria analysis and issuing recommendations
11	Monitoring and Evaluation
12	Quantitative Impact Assessment
13	Financial Analysis
14	Impact evaluation in practice

These trainings proved to be pivotal in enabling the selected institutions to respond early and robustly to draft laws and ensure the adequate assessment of anticipated impacts. The whole syllabus brought together the common practices of conducting both standard and comprehensive RIAs in a manner that is meaningful and applicable in the local context.

Throughout each training, ISET applied a range of approaches to harness the most resourceful ideas available in RIA practice that captured both process and outcomes of RIA methods. The designed curricula were tailored to the trainees' needs and aimed to ensure that efforts are aligned with the latest regulations and requirements of the RIA Decree.

During each training, ISET remained open for constant discussions for the clarification of concern areas. Through the trainings, the Program channeled the technical expertise to empower the participants with better analytical skills to evaluate and drive new policies and regulations. This, in turn, will support Georgia to direct its efforts towards altering the existing energy system into a resilient and viable model. Trainings in integrated cohorts promoted a shared vision of how these instruments should be best deployed to accomplish RIA.

The Program initiative demonstrated the commitment to advance RIA skills, obligatory under the new Law of Energy and Water Supply, that will create pathways to improved regulatory practices and regulatory authority. This, in turn, serves as a major input for turning into a valuable member of the European-oriented market.

On June 26 ISET conducted the last training. With this, USAID Energy Program achieved a milestone in accomplishing the RIA trainings for the GoG and the major energy stakeholders. The initiative intended to address the knowledge gap in RIA and mobilize required skillset across the energy sector. The overall approach of the trainings was to develop meaningful capacity-building activities customized to meet the needs of beneficiaries and address the immediate and long-term needs of the energy sector.

With this endeavor, the Program prepared a sound foundation for a stronger regulatory framework. This approach is grounded in the recognition that achieving and sustaining the desired outcome depends on the contributions of interconnected actors. Therefore, The Program is confident that with the acquired knowledge the GoG and trained institutions can be central in the transition process by fostering the development of a competitive energy market.

In acknowledgment of achievement, a cohort of energy experts will be awarded the Certificates of Accomplishment. Mr. David Hoffman, USAID Deputy Mission Director will transfer the Certificates to a group of energy experts who accomplished the course. The Official Transfer ceremony is planned on July 10 at the Cultural Center MUSA.

MTX Training

USAID Energy Program held constant consultations with MTX on the various aspects of the training for the energy stakeholders in gas. The Program and its subcontractor MTX Commodities held a Zoom meeting with the GEE to discuss the agenda for an upcoming training on Natural Gas Trading. Currently, Gas Working Group (comprised of the MoESD, GEE, GNERC, GGTC, and GOGC) is developing Gas Market Concept Design, therefore face a need of sharing international experience in the gas market organization, main players, traded products and mechanisms. As a result of the call, MTX has developed the agenda for day-long online training. The training included the following pertinent topics: general overview on natural gas markets trading, spot market, balancing market, and physical mid-term contracts trading markets.

USAID Energy Program organized training on Gas Market Trading. Details in special highlights.

Due to COVID-19 posed restrictions, USAID Energy Program deliberated on the best options for online transfer of certificates to the winners of MTX simulation trainings held in February. The training aimed at providing technical assistance to the Georgian energy stakeholders on various aspects indispensable for the energy trading platform. The Program coordinated with the winner group - GSE and supported in recording the video to share the feeling of victory and the value of acquired knowledge in terms of enhancing the development of Georgia's energy sector.

STUDY TOUR

The Program completed work on the California Study Tour Report. The report entails the event purpose, information on the participants and brief memos on each meeting. The report is shared with the Deloitte home office and USAID Energy Program management.

REGULATORY IMPACT ANALYSIS TOOL

Despite the COVID-19 outbreak, USAID Energy Program remained committed to meeting the contractual obligations in executing Regulatory Impact Assessment. For that reason, USAID Energy Program subcontracted five (5) companies to perform various RIAs. Among the selected subcontractors are Georgian Renewable Energy Development Association (GREDA); World Experience for Georgia (WEG); ISET; Association of Young Professionals in Energy of Georgia (AYPEG) and Policy and Management Consulting Group (PMCG).

The subcontract agreements with all hired companies envisage four milestones which set the submission deadline for each deliverable in line with the terms outlined in the respective subcontract. From the very onset, the Program has been monitoring the process to ensure that all submitted drafts meet the criteria and final deliverables are provided as planned by the end of July 2020.

Global pandemic and posed restrictions forced all subcontractors to shift to an online platform for consultative engagements and meetings, which turned to be more time consuming and in some cases even triggered the need for initial contract modification for the deadline extension. USAID Energy Program remained engaged in all discussions and meetings administered by subcontractors. More details are provided below.

GREDA - Georgian Renewable Energy Development Association



USAID Energy Program closely collaborated with the GREDA in finalizing the final report "RIA on the Local Content Requirement (LCR)". The final submitted report incorporates all suggested modifications and meets the requirements of the respective SoW.

WEG - World Experience for Georgia



World Experience for Georgia

The Program hired WEG to perform "RIA on National Energy Strategy". The working process included multiple meetings with WEG for clarification of the contractual obligations and constant evaluation of delivered drafts.

The Program assessed all three submitted deliverables and provided comments which are anticipated to be incorporated in the final report due in July 2020.



RIA Webinar on National Energy Strategy

WEG, under the sub-contract to prepare the “*RIA on National Energy Strategy*” organized two stakeholder meetings. The purpose of the meetings was to discuss the problem tree, policy objectives and assumptions for the policy options evaluations for the above-mentioned RIA.

The representatives of the MoESD, GNERC, GOGC, Galt and Taggart and other local energy experts joined the webinar to share thoughts and suggestions on the proposed policy options.

The second meeting included the representatives of donor and international organizations actively engaged in the energy sector discussed the

Georgian Energy Policy/Strategy and challenges. Participants comprised of the representatives from the USAID/Georgia, WB, United Nations Development Programme (UNDP), AFD, EnC, EU Delegation, KfW, and others. The parties shared views on ongoing and planned and projects and advised on the assumptions for the policy options evaluation.

WEG requested participants to share their insights on the multi-criteria analysis model.

ISET - International School of Economics at Tbilisi State University

ISET

International School of Economics at Tbilisi State University

Apart from RIA trainings, the Program assigned ISET with the task to perform two RIAs - “*RIA on High Mountainous Region Designation for Energy Development and Access*” and “*RIA on Managing backlogs of PPA and MoUs signed by the GoG*”.

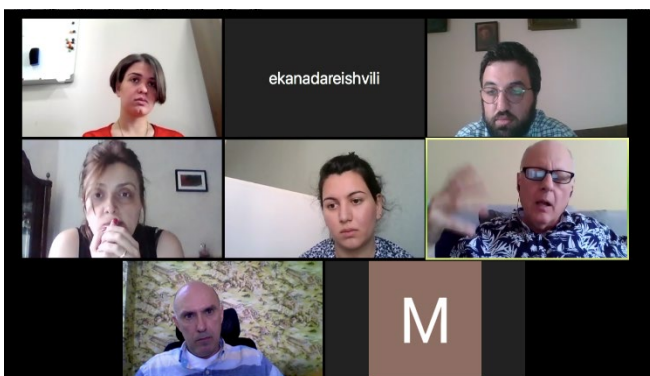
Through the reporting period, the Program maintained close cooperation with ISET through a zoom platform. It included meetings, discussions, exchange of ideas. Each delivered deliverable was subject of the Program evaluation and revision with the aim to comply with the contractual obligations envisaged through respective SoWs.

Several times, the Program provided comments on the introductory part, legal aspects and literature review for “*RIA on Managing backlogs of PPA and MoUs signed by the GoG*”. For more clarification, the parties agreed to schedule an online meeting with the involvement of the Program, ISET, and the MoESD to discuss the existing MoU’s and PPA list for further continuation of RIA activities.

During the meetings, the parties discussed the recent list of MoU and PPA provided by the MoESD. In addition, the participants agreed on the next steps crucial for the accomplishment of RIA report and on the possible objectives and options which will be further discussed at the Zoom meeting next week.

Upon the request of the Program, the MoESD shared the list of MoU and PPA with ISET. The document which contains the list developed by ISET and filled by the MoESD serves as an essential input for the development of alternatives in terms of the backlog solutions. The submission of the second deliverable, including baseline and alternatives, happened within the set timeframe.

USAID Energy Program held a Zoom meeting with ISET to discuss the findings of the “*Regulatory Impact Assessment on Managing Backlogs of PPA and MoU signed by the MoESD*”.



Discussion on “*RIA on Managing Backlogs of PPA and MoU signed by the MoESD*”

ISET research team shared the results of the study, which demonstrated concern areas in the legal and regulatory framework as well as technical difficulties in project realization in grid connection. The obtained information also revealed challenges implicated in unpleasant market conditions, bankability, and exchange rate volatility.

Mr. Pavlenishvili articulated on anticipated consequences and policy objectives that comprised of both general and specific goals. Based on the assessment of collected information ISET suggested policy

alternatives which led to healthy discussions. The Program CoP. Mr. Daniel Potash analysed the details of the proposed alternatives and objectives and provided clear guidance as the document encountered certain challenges. Mr. Potash also suggested the enrichment of the report with graphs and diagrams that will add clarity for the reader. The final report is due in July.

Another relevant focus of the Program is “*RIA on High Mountainous Region Designation for Energy Development and Access*”. Though the reporting period, the Program participated in several meetings and discussions. All conveyed recommendations will be incorporated in the final report due in July 2020.

AYPEG - Association of Young Professionals in Energy of Georgia



USAID Energy Program maintained close contact with the subcontractor AYPEG assigned with the “*RIA on Time of Use Pricing for Households, Business, and Industry*” and “*RIA on Opportunities of Unbundling in the Gas sector*”.



During the reporting period, AYPEG has submitted the final report on RIA on Opportunities of Unbundling in the Gas Sector. The report evaluates different unbundling models for Gas transmission and distribution networks and the predefined criteria suggests the most suitable option in the local context. Besides the valuation, of the unbundling options the report offers a detailed assessment of Georgian and European legislation regulating unbundling in the natural gas sector. Unbundling options are provided by the law of Georgia on Energy and Water Supply. The assessment follows the Decree of the Government of Georgia providing RIA methodology. Important indicators were selected and assessed based on the literature, interviews with relevant stakeholders and data from different sources. As not all indicators were quantified, qualitative analysis was combined with quantitative analysis. The Program team will be evaluating the final report and organize workshop in July.

For another RIA on Time of Use Pricing, a subcontractor successfully reviewed available data through consultative engagements and respective documents. The process was reciprocal, with the Program continuously providing comments and recommendations on changes while the subcontractor remained in charge of considering and incorporating amendments in the draft document. The final report is due in July.

PMCG - Policy and Management Consulting Group



USAID Energy Program cooperates with subcontractor PMCG assigned with two RIAs - “*The Standards for Community Engagement for New Development Projects*” and “*RIA on Choosing New Power Projects for Energy Security or interconnection*”.

The Program constantly monitored the compliance of delivered draft RIA reports with the terms outlined in respective SoWs. The Program also remained engaged in all meetings to ensure the progress of RIA execution.

Meetings aimed at identifying the challenges and evaluating the suggested recommendations through various scenarios.

What Causes the Problem	How the Problem Can be Addressed / Mitigates	What Will be the Negative Consequences if not addressed	What Will be the Positive Consequence if addressed
Continuously engagement limited in USA process only	Continuously engagement is practiced throughout the entire project cycle	Delayed implementation, low to no input for changing decisions, if a major operation, construction, etc.	Managed/Engagement/Managed Process
Lack of clarity in division of roles and responsibilities of stakeholders, Lack of stakeholder engagement	The stakeholder identification and analysis of potential. Manageable Engagement Plan is defined. Roles and responsibilities of all stakeholders, the process is participatory, regular consultation and engagement of various stakeholders with special focus on vulnerable groups is ensured.	Engagement is chaotic, various groups are conflicting, the process is not participatory, regular consultation and engagement, etc.	Wide Participation is achieved, a broader consensus is achieved
Lack of human and financial resources for engagement	Human resources are enhanced, appropriate funds are allocated for capacity development and/or the expertise is enhanced. Monitoring and evaluation measures are introduced, internally and external M&E is considered in implementation.	Resourceless energy projects are implemented with increased project budget/burden and time resources	Resourceless energy projects are being implemented within the program time frame and budget
Inactive methods of engagement (mostly public consultation)	The engagement events vary based on the community wealth and project stakeholder engagement sites	The engagement is not meaningful, does not reach the target audience, increase operations, cause conflicts, etc.	The engagement is relevant, meaningful, if a manageable process
Limited community access to project-related information	Project related information is accessible in various format and in "clouds"	Misinformation, solid grounds for anti-project mobilization, if Strategic Operations	Informed Community, meaningful process, if feasible compliance

Discussions on “*RIA - the Standards for Community Engagement for New Development Projects*”

USAID Energy Program held a meeting with PMCG preparing “*RIA on the Standards for Community Engagement for New Development Projects*”. Based on the obtained information, the team of communication experts developed alternative options to address the key challenges embedded in the lack of communication and transparency in terms of public awareness and community engagement.

The alternatives include four scenarios with the associated positive and negative outcomes. The presentation also included the Project Risks and Stakeholder Engagement Strategies

for low, medium and high-risk projects. The Program offered recommendations and clear guidance for more viable results.

PMCG held an online consultative meeting with the representatives of Gamma Consulting, Gross Energy, and DG Consulting to showcase the results of ongoing research effort for “Regulatory Impact Assessment on the Standards for Community Engagement for New Development Projects”. PMCG listed the key challenges revealed during the interviews which are intertwined and can be incorporated under the umbrella challenge of ineffective communication with the public.

PMCG forged the discussions on the suggested four alternatives to identify the venues for further accomplishment. The current practice shows that investors first obtain construction permission which underpins their confidence in dealing with the community. This often triggers massive resistance of the public towards the energy projects and undermines the overall positioning of the sector. A combination of these factors sends a negative signal to investors. Therefore, the audience endorsed the introduction of legal commitment for public engagement that will arguably regulate the problem.

All suggested alternatives include training of interested parties, which was deemed essential by the audience but not fully useful as a single source since there have been cases when political aspects predominated. Therefore, for enhanced results, the trainings should be paired with the legal commitment of awareness building.

Another recommendation from the audience comprised of “benefit sharing” with the community, which implies an awareness-building on how the community will benefit from the projects. However, recommended actions such as public involvement from the very onset of the project with the “educational” and “benefit sharing” phases, as well as trainings and public outreach campaigns require both financial and human resources. Such an approach will be costly, though will greatly contribute to avoiding the misinformation of the public which is often detrimental to the project implementation. And lastly, among the attractive thoughts was the creation of an information center. Based on international practice, such entities usually operate control and complaint mechanism to tackle the challenges in a structured manner.

Obtained recommendations will aid PMCG to organize priorities and design a more holistic approach that includes government support through improved legal framework, community engagement and training programs for the key actors. The final report is due in July.

USAID Energy Program participated in all discussions and meetings held by PMCG regarding “*RIA on Choosing New Power Projects for Energy Security or Interconnection*”. The subcontractor successfully reviewed available data through consultative engagements and respective documents. In close consultation with the Program Established Preliminary Qualitative and Quantitative Findings and Draft Report. The final report is due in July 2020.

During the reporting quarter, USAID Energy Program managed to select and hire subcontractors in an effort to meet the contractual obligations in terms of conducting RIAs. By the end of July 2020, all RIAs will be finalized, followed by respective workshops for a large audience of energy stakeholders.

ENERGY INVESTMENT OPTIMIZATION (TASK 3)

INVESTMENT ADVISORY GROUP

On June 10, USAID Energy Program conducted an Investor Advisory Group Meeting - Zoom webinar. The event brought together Georgian energy sector stakeholders, renewable energy developers, donors, and financial organizations for sharing views on the existing challenges related to wind and solar power project financing possibilities. *See details in Special highlights.*

USAID Energy Program developed a draft on the Interconnection Agreement between Generation and Distribution Company. Upon the request of GNERC, the Program contacted the Energo-Pro Georgia (EPG) and Telasi to learn their view on the agreement and obtain feedback. Their position is valuable due to their engagement in the distribution work. Both EPG and Telasi are ready to collaborate with the Program. Therefore, the Program will share the draft document with them and continue intensive collaboration intended for the development of a comprehensive document.

USAID Energy program attended the Annual Global Conference on the Energy Efficiency, online live stream, organized by the International Energy Agency (IEA). President of Georgian Mrs. Salome Zurabishvili gave a speech on updates of the Energy Sector in Georgia. Ms. Zurabishvili highlighted the importance of recently adopted two important laws related to the Energy Efficiency, “The Law of Georgia on Energy Efficiency;” and “The Law of Georgia on Energy Efficient Buildings”. Ms. Salome emphasized the importance of renewable energy development in Georgia as well, which will help job creation and attract investments in the country.

RENEWABLE ENERGY SUPPORT SCHEME

Ms. Maia Melikidze GNERC commissioner and Mr. Zviad Gachechiladze, Deputy Head of Electricity Department GNERC requested USAID Energy Program to assist in the improvement of net metering regulation and the implementation of the Solar Rooftop Program in Georgia. For that reason, Deloitte expert Ms. Crissy Godfrey developed a Memo with the recommendations based on the California example. The Memo depicts the elements for the implementation of a rooftop solar program to promote distributed solar while complementing the development of a competitive market design. The Program developed Memo on “How to Implement Solar Rooftop Programs” and shared the requested document with GNERC. Ms. Maia Melikidze and Mr. Zviad Gachechiladze appreciated for the support, highlighted the Program’s role and importance of the document.

As a result, On June 18, the GNERC announced the improvements in Net Metering Regulation. In particular, the capacity of renewable energy micro electric power station is increased up to 500 kWh from 100 kWh. Also, the customers will be available to exploit with the virtual net metering of they are receiving distribution service from the same operator. The regulation will be enacted from July 1st, 2020.

USAID Energy Program provides support to the MoESD to promote Renewable Energy Support Schemes. Ms. Margalita Arabidze, Deputy Head of Energy Reform and International Relations Department at the MoESD informed the Program about the finalization of draft Decree which determines Support Mechanisms for the construction and operation of Hydro Power Plants (HPP) above 5 MW. According to the draft regulation, the HPPs that run under the Public-Private Partnership (PPP) Law will benefit from Support Mechanisms, on the following conditions:

- Support Mechanism Period - 8 months out of 12 months, within 10 years period, after obtaining a generation license;
- FiP Tariff - If the hourly market price is fixed below \$0.055, the GoG will compensate FiP difference, but no more than \$0.015 per 1 kWh. If the hourly market price is fixed above \$0.055, the difference will be the producer’s favor.

The drafting of the Decree was preceded by deliberations and assessments in which USAID Energy Program had a substantial share. From February 2018, USAID Energy Program renders support to the MoESD to promote Renewable Energy Support Schemes.

From the very onset, the Program has been engaged in a consultative process and developed several pivotal documents such as:

- Report on “Recommendation on Renewable Energy Support Schemes”;
- Report on “International Best Practices on Support for Renewable Energy Support Scheme”;
- “Survey Results and Consensus on Selected Support Schemes for Renewable Energy”;

- “Pricing to Support the Development of VRE In Georgia”;
- “RIA on Support Schemes for Renewable Energy”.

In addition, USAID Energy Program organized several Investor Advisory Group Meetings and workshops dedicated to Renewable Energy Incentive Mechanisms which provided a showcase for forging discussions on this critical topic.

The Program also rendered consultations with “Norwegian Water Resources and Energy Directorate (NVE)” in promoting the Renewable Energy support mechanisms and shared available documents with the company.

The MoESD expects the implementation of the regulation from early July. Adoption of this regulation will be the first step of the USAID Energy Program’s effort to support GoG in increasing investment in power generation capacity as a means of ensuring national energy security, facilitating economic growth, and enhancing overall national security.

These rules apply only to HPPs with a capacity of more than 5 MW. However, the mechanism to be applied for Solar and Wind is not determined yet.

SUPPORTING ENERGY INVESTMENT PROJECTS

In support of VRE projects development in Georgia, USAID Energy Program prepared the report on “Identification of Potential Financing Sources for VRE Projects in Georgia”. The report aims to guide Georgian developers on financing requirements and identify the funding sources. The study incorporates the following piece of relevant information:

- Appraisal of the financial risks and macroeconomic conditions affecting financial decisions for VRE project in Georgia;
- Survey results from financial institutions potentially interested in renewable energy investments in Georgia;
- Survey results from the wind power development companies about obstacles and challenges for creating renewable energy investments in Georgia; and
- Review of the international financial institutions and donors, local banks, government funds, private equity funds, foreign and local developer companies.

The conclusive part of the Report reveals the considerable interest of private sector investors in the VRE projects in Georgia. Through this Report, USAID Energy Program offers VRE project developers and other stakeholders information on the potential financing sources, essential aspects while preparing project proposals, and describes the ways how to make them eligible for financing. The results of the study were delivered at the Investor Advisory Group Meeting on June 10th.

Head of Energy Policy Department an MoESD Mr. Tornike Kazarashvili and Director of Infinite Energy, Mr. Tornike Bakhturidze, asked USAID Energy Program to help in solving the imbalance charge responsibilities for the potential new wind projects. Within the frame of the assistance, the Program developed a Memo on Imbalance Responsibilities “How to Handle Imbalance Costs for VRE Generators” and shared with the MoESD and Infinite Energy. This initiative turned into a key facilitator in achieving the first agreement between Infinite Energy and the GoG on the conditions of the MoU.

Infinite Energy is developing a 100 MW Wind Power Project (WPP) Imereti 1 in Imereti Region. The company has already negotiated with the GoG the main conditions of the MoU. Currently, the draft MoU is circulating among the MoESD, Ministry of Finance of Georgia (MoF), and Public-Private Partnership Agency (PPP Agency) for final comments. According to Mr. Bakhturidze, since the agreement is already reached with the GoG on the conditions for generated power offtake tariff and imbalance responsibilities, the signing of the MoU will take place shortly.

Within the objective to support VRE projects to become eligible for financing, in the first year (May 2018), the Program selected Ten Non-Hydro Renewable Energy Businesses to receive USAID Energy Program technical assistance. Since 2018, the USAID Energy Program has identified several additional possible viable VRE projects, moving forward but in need of assistance. The performed studies and consultations revealed that some developers made significant modifications in the technical specifications of their projects.

Accordingly, USAID Energy Program updated list of VRE projects. The list of selected projects was extended up to nineteen (19). The Program developed the MEMO on the updated list of selected VRE projects. The document contains information on technical specifications of newly identified VRE

projects and the assistance provided by the Program. Besides, the Memo outlines the importance of updates for the selected VRE projects.

The Program developed the document related to the Checklists on Permits and Licenses required for renewable energy project development in Georgia. It aims to support project developers by providing profound insights into the requirements for the formal authorization to implement certain activities for VRE projects. The Authorization checklists will be proposed to project developers seeking advice on vital information to apply for permits and licenses appropriate to their projects. The Authorization Checklists were designed for all types of licenses and permits requested prior to commercial commissioning of the VRE project. The Authorization Checklists are prepared for the following applications:

- Initiative Proposal on Concession in Energy Sector;
- Environmental Decision;
- Land Privatization;
- Land Category Change;
- Construction Permit;
- Connection to the Transmission Network;
- Electricity Generation License.

The Program familiarized Mr. Nugzar Khaindrava, Portfolio Manager at GEDF with the licensing and processing checklists for VRE projects. He expressed interest and desire to upload checklists on a web page of GEDF together with the web-based Interactive Guidebook.

USAID Energy Program communicated with Mr. Giorgi Aptsiauri - representative of Sole Development, developing 5 MW solar energy project in Udabno district with battery storages and with a possible increase up to 35 MW in the future. The investor is Export-Import Bank of the United States (EXIM Bank), offering a mortgage loan with a low-interest credit. As per the investor's requirement, the developer shall use systems and equipment produced by US vendors. The company requested USAID Energy Program to support in addressing the bureaucratic challenges with the MoESD. The company is waiting for the state land transfer and support from the MoESD. The Developer also requested assistance in drafting a memo, with fair arguments that will contribute to the advancement of the project to the following step. As soon as developer will share with the proper information, the Program will help in developing a pre-feasibility study / concept, in order to submit to the MoESD.

A director of LKS Solar. Mr. Bakhutashvili, developing solar power plants in Kvernaki, Udabno, Plevi, Karaleti and Marneuli, contacted the Program and requested support in feasibility studies and in promoting solar projects to the MoESD. He also shared preliminary studies of solar projects with the Program for revision and recommendations.

For these purposes, the Program dealt with the spreadsheet on the required parameters of the feasibility study for VRE Projects. The document will contribute to developing a feasibility studies and enabling the submission process to the MoESD. The document includes information on technical, economic, and environmental parameters.

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

In support of the GoG to design viable solutions to bring power to off-grid villages, Subcontractor Energy Efficiency Center Georgia (EECG) submitted a final deliverable report on the "Solar PV Systems for Off-Grid Households". USAID Energy Program reviewed and delivered feedback to be incorporated in the final version.

USAID Energy Program developed "*Mid-term Report on Training Trips to the Off-grid Villages*". The report incorporates the following topics: the list of already visited villages as well as those planned to be visited, the purpose of the trip / trainings; training content and goal; key participants; a brief event memo of each event; the anticipated outcome; the interest level of participants; results and next steps.

The USAID Energy Program interrupted training cycle to the off-grid villages due to major challenges caused by COVID-19. The pandemic forced the rescheduling of trainings in the remaining regions. The date for relaunching the trainings is not clear, however, is likely to resume once the restrictions are lifted and life is back to new normal.

USAID Energy Program and USAID/Georgia Mission plan to organize a site visit to one of the off-grid villages. For that purpose, the Program coordinates with the Ministry of Regional Development and Infrastructure of Georgia (MRDI) on the participation of the Deputy Minister. During the visit, the

Program team will deliver training on a more efficient application of the Solar PVs. Following the installation of PV solar panels, USAID Energy Program team has constantly monitored and evaluated the product's use, performance, and whether it was helping to meet the needs of these households. The trainings are temporarily suspended which will resume upon the easing of restrictions. Due to the created environment, the event will take place in the open space in strict observance of guidelines on COVID-19 to prevent and control the pandemic.

GRID INTEGRATION OF VARIABLE ENERGY RESOURCES (TASK 4)

WIND POWER FORECASTING IMPLEMENTATION

USAID Energy Program supports the development of a forecasting system to facilitate an increase of VRE penetration level to Georgia Electrical System. Through the reporting quarter, both USAID Energy Program and Deloitte have dedicated significant efforts for selecting and signing the contracts on forecasting service delivery with worldwide known companies such as UL and Enfor.

The presence of well-known forecasting service providers in Georgia's renewables market may be perceived as a positive signal for investment opportunities in terms of attracting investment in the renewables sector.

Due to the underdevelopment and the innovative nature of wind power forecasting in Georgia, it was challenging to perceive the launching of forecasting service delivery as a “Plug and Play” process. Respectively for this reporting quarter the most effort of the Program was devoted to supporting the launching forecasting services for the GSE. The Program has been actively engaged and supported:

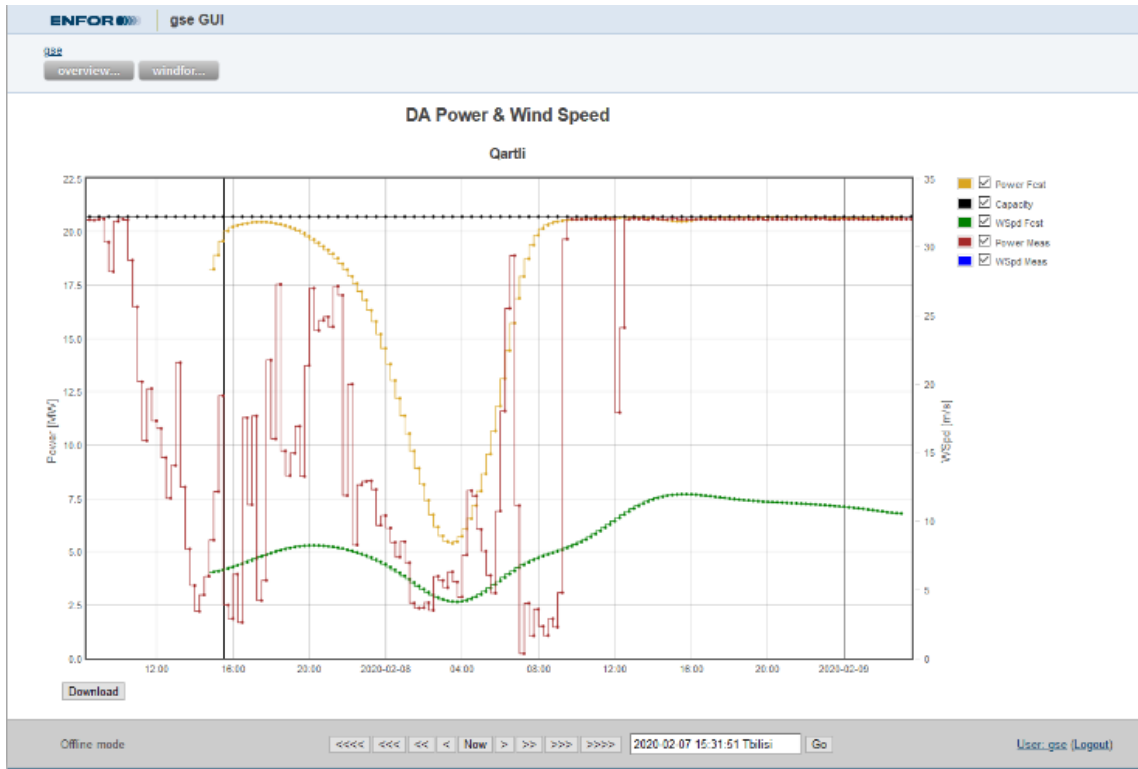
- Dealing / resolving data exchange issues between wind farm developers and GSE;
- Negotiating wind forecasting parameters between GSE and vendors of forecasting services;
- Negotiating the General User Interface content and futures between GSE and vendors of forecasting services;
- Negotiating the content of reporting forms between GSE and vendors of forecasting services.

With substantial support of USAID Energy Program, issues related to the forecasting parameters, web interface and reporting were debated between GSE and vendors of forecasting services. As required improvements were performed in parallel to the provision of forecasting services, the process of negotiating the mentioned issues did not challenge the provision of forecasting services. Respectively the launching of forecasting services happened on time and continues so without interruption.

UL – General User Interface Qartli Wind Power Forecasting



ENFOR General User Interface. Qartli Wind Power Forecasting



Following the introduction of forecasting services in March, USAID Energy Program hosted a Kick-off online meeting on Wind Forecasting Project which marked the launch of successful collaboration between USAID Energy Program, worldwide known UL AWS True Power, and GSE.

Among the participants were the representatives from the MoESD, GSE, GEDF, USAID/Georgia, UL AWS True Power, Infinite Energy, GGU.

UL delivered presentations on Financial Benefits of Forecasting, Overview of Forecast Creation Process, Summary of Products & Services and their Applications and finally focused on GSE Wind Forecasting Project Requirements. *(see details in special highlights)*.

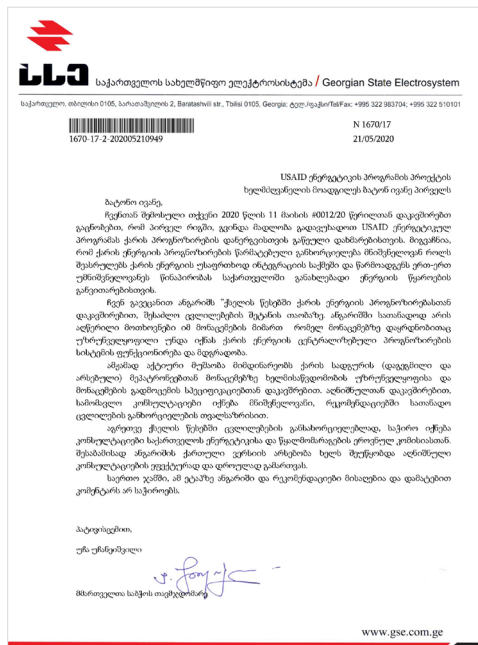
Following the online meeting, GSE uploaded the news on its Facebook and webpage details available at: <http://gse.com.ge/communication/news/2020/GSE-implementing-project-of-introducing-central-wind-energy-forecasting-system>.

<https://m.facebook.com/electrosystema/photos/ms.c.eJwzNDE2t7AwNzczNjAzMTcz0jMEC1gYmFiaGxuaGBgAAHOTBsE~-b.p.s.a.1437887736398098/1437887763064762/?type=3&source=49>.

The degree of real time data exchange implementation has an impact on the accuracy of the forecast, though the delivery of the forecasting services is well possible even when the measurement data is delivered to the forecasting services providers with delays or not delivered at all. However, the increase in the frequency of data transfer intervals is an issue. USAID Energy Program will support GSE to resolve this issue in the coming reporting quarter.

Currently, Network Rules do not consider the mandatory provision of meteorological data measurement to GSE from wind farm potential locations. Furthermore, there are other factors such as COVID-19 which caused challenges. The Pandemic closed offices of organizations providing measurement and data transfer services to developers and posed restrictions to cross the border of Georgia. This in turn caused uncertain delays in the access to data loggers for the planned maintenance and datalogger software update which was important to arrange data exchange and/or increase data transfer intervals.

DRAFT AMENDMENTS TO THE GRID CODE - WIND POWER FORECASTING / SECONDARY LAW OR REGULATION THAT ESTABLISHES PROCEDURES FOR GENERATING FORECASTS



GSE Acknowledgement Letter

USAID Energy Program officially submitted the report “Draft Amendments to the Grid Code - Wind Power Forecasting” to GSE. In response, the Program received a letter of acknowledgement from GSE for the delivered and ongoing support. GSE clearly explained the value of wind forecasting implementation in responding to Renewable Energy development in Georgia.

The letter also focuses on the ongoing negotiations with the wind power plant developers over the data exchange, which is a relatively complex issue and will require further cooperation and assistance.

At the request of GSE, the Program translated the report on “Draft Amendments to the Network Rules” into the Georgian language”.

GSE is proposing the sharing of the draft amongst the developers for next reporting Quarter. After receiving feedback from developers GSE plans to present draft regulation to GNERC and then submit it officially for the approval.

Following GNERC approval, amendment will be reflected in existing Network Rules. With the amendment on wind

forecast regulation GSE aims to make mandatory the sharing of data on power and meteorological parameter measurement for the existing and prospective plants. This, will ensure the sustainability of the forecasting through ensuring appropriate data input to forecasting models with lower granularity and increased frequency of data transfers.

MONITORING OF THE FORECASTING SYSTEM

Contract signed with providers of forecasting services considers periodic (monthly / quarterly) payments for the provided forecasting services, the beneficiary of which is GSE.

Based on the agreement between USAID Energy Program and GSE on the confidentiality of power and meteorological parameter measurement data, and the confidentiality agreement between GSE and the forecasting service provider companies, USAID Energy Program lacks the opportunity to access General User Interface of forecasting service providers or to Secure File Transfer Protocol (sFTP) server where the service providers uploading files with prognosis.

Upon the request of the Program, related to the delivery of forecasting services by ENFOR, GSE confirmed (by mail) the receipt of forecasting services and delivery of wind energy and meteorological forecasting services at 7 locations under the pilot project between March 1 - May 31 of the current year.

As soon as services provided by UL are invoiced, a similar confirmation email can be received from GSE as a confirmation of UL forecasting service delivery.

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

COVID-19 IMPACT ANALYSIS ON ELECTRICITY CONSUMPTION FOR GEORGIA

Upon the request from the Program COR Mr. Nicholas Okreshidze, USAID Energy Program analysed monthly electricity consumption statistics to observe changes due to COVID-19 outbreak. The corresponding reports covered electricity demand analysis for subsectors such as households, direct customers, other commercial customers, and Abkhazia. Three analytical papers were produced for the months of March, April and May 2020. These papers provide statistical evidence that the declared state of emergency that lasted 63 days and ended on May 23, 2020 impacted the energy sector. Compared to the same period of 2019 total power consumption dropped by 7.6% in March 2020, by 6.9% in April 2020 and by 9.3% in May 2020. The largest reduction of power demand was observed in the commercial sector, comprising 26 % in May.

“FAST-FORWARD” ENERGY SECURITY SCENARIO’S ANALYSIS

Due to the global outbreak of COVID-19 and related restrictions for organizing events, USAID Energy Program timely and effectively shifted to Zoom webinars to ensure the implementation of assigned duties.

The Program worked on the identification of more energy security-related critical issues to be obtained from respective high - level experts since Information is indispensable for the energy security team in terms of addressing this topic efficiently.

Energy Security team worked on the innovative informational products to be delivered to stakeholders and all interested parties in case of failure to conduct the Energy Security Workshop scheduled for June 2020 in person.

USAID Energy Program reviewed fifteen Executive Briefers, prepared by Mr. Paul Terris regarding the various energy security topics.

USAID Energy Program worked on USAID “Fast-Forward” Energy Security Scenario’s Analysis. The document includes subsequent fifteen Executive Briefers: Carbon Markets, Risks and Opportunities; Black Swan, COVID-19; Climate Change and Energy Security; Critical Infrastructure Resiliency; Cybersecurity; Diversification of Energy Supplies; Energy Demand and Supply Gap; EU Third Energy Package; Gas Pipelines and Cross-border; Geopolitical Diagnosis; Power Markets and Energy Security; Shifting Consumption and Demand; Role of Donors and International Institutions; Role of Government in Energy Security; Shifting Consumption and Demand. Initially USAID Energy Program planned to distribute the printed versions of the Executive Briefers. Although taking into consideration the restrictions under COVID-19, the decision was made to distribute the Briefers electronically among the participants before the final energy security webinar, scheduled for September 2020.

COMMENTS ON THE INITIAL DRAFT LAW ON “SAFETY OF HYDRAULIC FACILITIES”

Mr. Revaz Arveladze, Deputy Chair of the Sector Economy and Economic Policy Committee of the Parliament of Georgia; Mr. David Mirtskhulava, the Chairman of the Georgian National Committee of Large Dams (GNCOLD) and Mr. Paata Tsintsadze, Professor at Georgian Technical University (GTU) requested USAID Energy Program to assist the Parliament in outlining comments on the initial draft Law on “Safety of Hydraulic Facilities”.

USAID Energy Program submitted final comments on the Draft Law on “Safety of Hydraulic Facilities” to Mr. Revaz Arveladze - the Deputy Chair of the Sector Economy and Economic Policy Committee of the Parliament of Georgia; Mr. David Mirtskhulava - the Chairman of GNCOLD and Mr. Paata Tsintsadze, Professor, GTU for further revision and comments.

In addition, Mr. Arveladze asked USAID Energy Program to assist the Sector Economy and Economic Policy Committee members in conducting Workshop on Law on Safety of Hydraulic Facilities with the participation of the main energy stakeholders.

Due to COVID-19, USAID Energy Program discussed with Mr. Arveladze the alternative platform for conducting Workshop on Law on Safety of Hydraulic Facilities via Zoom. The proposed option will be discussed among the members of the Economic Policy Committee of the Parliament of Georgia. The Program planned materials for stand-alone one-pager documents on critical issues that can also be

used as supplementary documents for the conference on the Energy Security Workshop scheduled for July 2020.

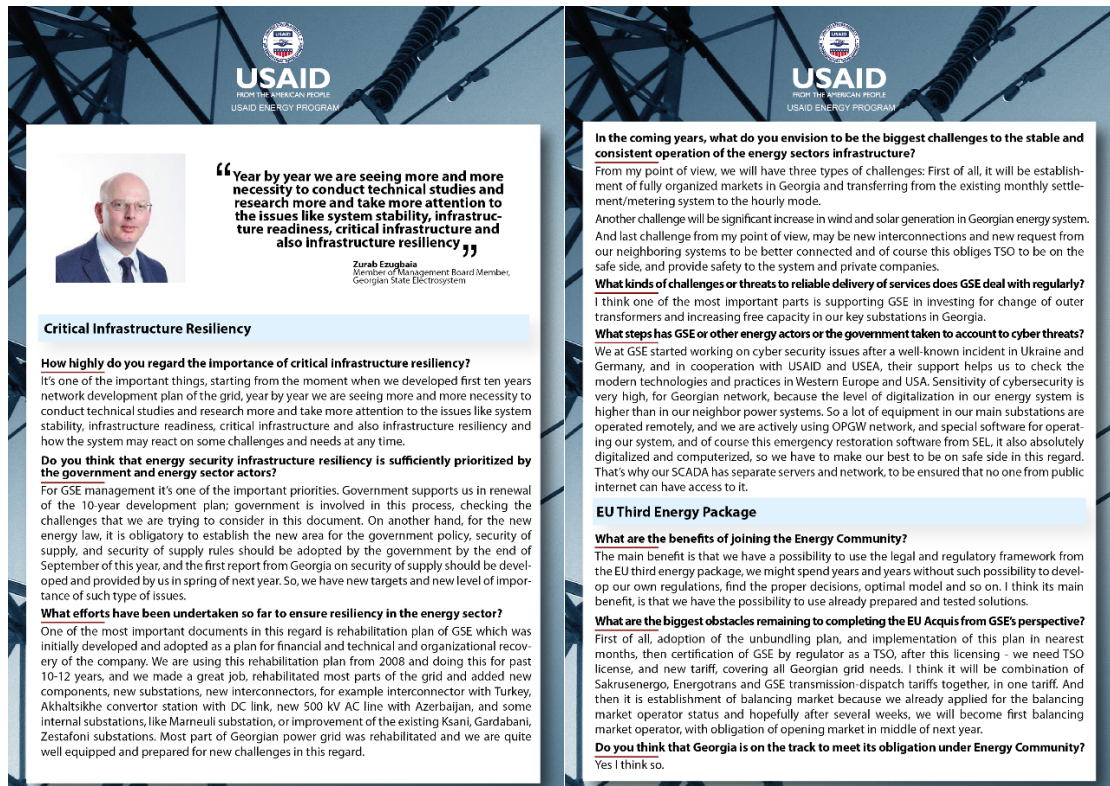
INTERVIEWS WITH THE HIGH-LEVEL GEORGIAN ENERGY EXPERTS

USAID Energy Program and Mr. Paul Terris, Business Analyst, Deloitte Consulting LLP, discussed potential interviewees among the Georgian energy stakeholders to share their insights on the Critical Infrastructure Resiliency and the Implementation of the EU Third Energy Package.


USAID Energy Program provided the questions for interviews to Mr. Temur Gochitashvili, GOGC, Mr. Zurab Ezugbaia, GSE, and Mr. Zaza Chikhradze, MoESD on the Critical Infrastructure Resiliency and the EU Third Energy Package. The above-mentioned energy experts delivered interviews to the Energy Security team. The team reviewed and formatted the interviews for further dissemination among the representative of Georgian energy sector stakeholders, donors, think tanks, independent experts and academia.

The image shows a two-page interview document for Mr. Zaza Chikhradze, MoESD. The document is titled "USAID ENERGY PROGRAM" and features a background image of power lines. The left page includes a portrait of Mr. Chikhradze and a quote: "Electricity Market Concept Design and TSO certification rules are approved. Draft laws on energy efficiency passed. This means positive dynamics". Below the quote is a section titled "Critical Infrastructure Resiliency" with three sub-sections: "How highly do you regard the importance of critical infrastructure resiliency?", "Do you think that energy sector infrastructure resiliency is sufficiently prioritized by the government and energy sector actors?", and "What efforts have been undertaken so far to ensure resiliency in the energy sector?". The right page is titled "EU Third Energy Package" and contains three sub-sections: "What do you envision the benefits being of joining the Energy Community?", "The Acquis calls for certain structural changes, how has this impacted GSE?", and "What are the biggest obstacles remaining to complete the EU Acquis from GSE's perspective?". At the bottom of the right page, contact information is provided: "CONTACT US: 291 Chavchavadze Ave., 0179, Tbilisi, Georgia; Phone: + (995) 595 062505; E-mail: info@uep.ge".

Interview with Mr. Zaza Chikhradze, MoESD



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“Year by year we are seeing more and more necessity to conduct technical studies and research more and take more attention to the issues like system stability, infrastructure readiness, critical infrastructure and also infrastructure resiliency”

Zurab Ezugbaia
Member of Management Board Member,
Georgian State Electrosystem

Critical Infrastructure Resiliency

How highly do you regard the importance of critical infrastructure resiliency?
It's one of the important things, starting from the moment when we developed first ten years network development plan of the grid, year by year we are seeing more and more necessity to conduct technical studies and research more and take more attention to the issues like system stability, infrastructure readiness, critical infrastructure and also infrastructure resiliency and how the system may react on some challenges and needs at any time.

Do you think that energy security infrastructure resiliency is sufficiently prioritized by the government and energy sector actors?
For GSE management it's one of the important priorities. Government supports us in renewal of the 10-year development plan; government is involved in this process, checking the challenges that we are trying to consider in this document. On another hand, for the new energy law, it is obligatory to establish the new area for the government policy, security of supply, and security of supply rules should be adopted by the government by the end of September of this year, and the first report from Georgia on security of supply should be developed and provided by us in spring of next year. So, we have new targets and new level of importance of such type of issues.

What efforts have been undertaken so far to ensure resiliency in the energy sector?
One of the most important documents in this regard is rehabilitation plan of GSE which was initially developed and adopted as a plan for financial and technical and organizational recovery of the company. We are using this rehabilitation plan from 2008 and doing this for past 10-12 years, and we made a great job: rehabilitated most parts of the grid and added new components, new substations, new interconnectors, for example interconnector with Turkey, Akhaltsikhe converter station with DC link, new 500 kV AC line with Azerbaijan, and some internal substations, like Marnauli substation, or improvement of the existing Ksani, Gardabani, Zestafoni substations. Most part of Georgian power grid was rehabilitated and we are quite well equipped and prepared for new challenges in this regard.

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In the coming years, what do you envision to be the biggest challenges to the stable and consistent operation of the energy sectors infrastructure?
From my point of view, we will have three types of challenges: First of all, it will be establishment of fully organized markets in Georgia and transferring from the existing monthly settlement/metering system to the hourly mode.
Another challenge will be significant increase in wind and solar generation in Georgian energy system. And last challenge from my point of view, may be new interconnections and new request from our neighboring systems to be better connected and of course this obliges TSO to be on the safe side, and provide safety to the system and private companies.

What kinds of challenges or threats to reliable delivery of services does GSE deal with regularly?
I think one of the most important parts is supporting GSE in investing for change of outer transformers and increasing free capacity in our key substations in Georgia.

What steps has GSE or other energy actors or the government taken to account to cyber threats?
We at GSE started working on cyber security issues after a well-known incident in Ukraine and Germany, and in cooperation with USAID and USEA, their support helps us to check the modern technologies and practices in Western Europe and USA. Sensitivity of cybersecurity is very high, for Georgian network, because the level of digitalization in our energy system is higher than in our neighbor power systems. So a lot of equipment in our main substations are operated remotely, and we are actively using OPGW network, and special software for operating our system, and of course this emergency restoration software from SEL, it also absolutely digitalized and computerized, so we have to make our best to be on safe side in this regard. That's why our SCADA has separate servers and network, to be ensured that no one from public internet can have access to it.

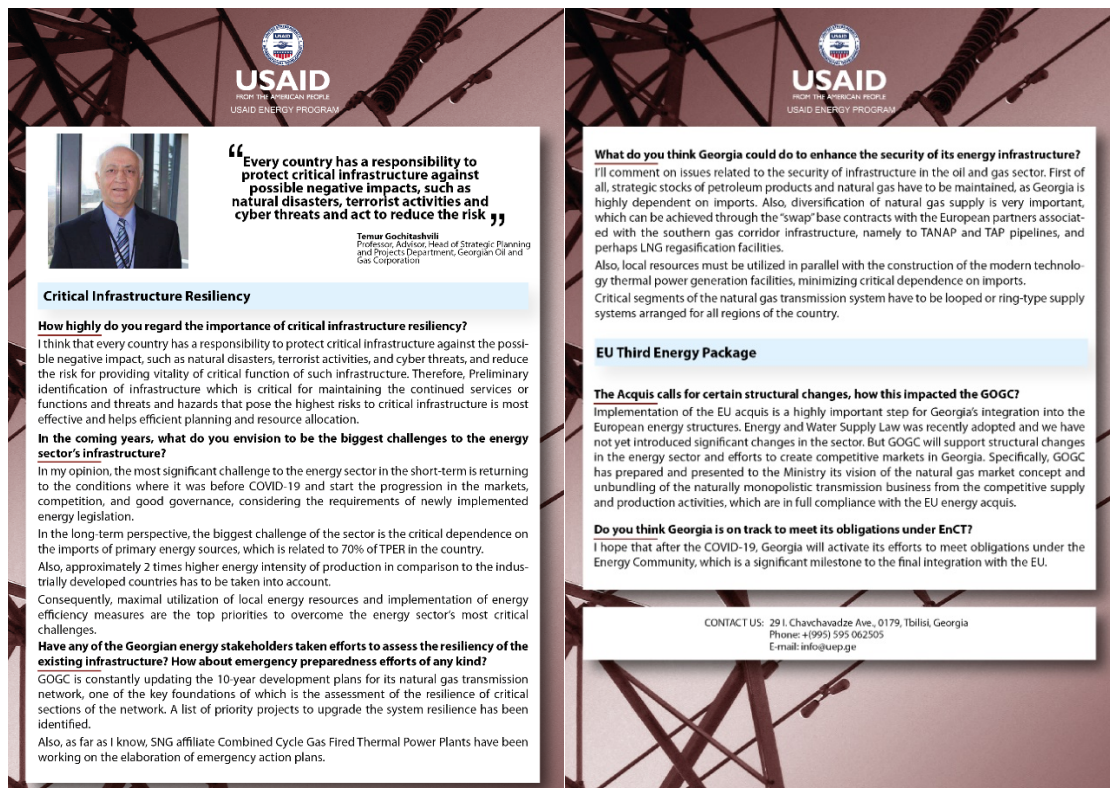
EU Third Energy Package

What are the benefits of joining the Energy Community?
The main benefit is that we have a possibility to use the legal and regulatory framework from the EU third energy package, we might spend years and years without such possibility to develop our own regulations, find the proper decisions, optimal model and so on. I think its main benefit, is that we have the possibility to use already prepared and tested solutions.


What are the biggest obstacles remaining to completing the EU Acquis from GSE's perspective?
First of all, adoption of the unbundling plan, and implementation of this plan in nearest months, then certification of GSE by regulator as a TSO, after this licensing - we need TSO license, and new tariff, covering all Georgian grid needs. I think it will be combination of Sakrusenergo, Energotrans and GSE transmission-dispatch tariffs together, in one tariff. And then it is establishment of balancing market because we already applied for the balancing market operator status and hopefully after several weeks, we will become first balancing market operator, with obligation of opening market in middle of next year.

Do you think that Georgia is on the track to meet its obligation under Energy Community?
Yes I think so.

Interview with Mr. Zurab Ezugbaia, GSE



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“Every country has a responsibility to protect critical infrastructure against possible negative impacts, such as natural disasters, terrorist activities and cyber threats and act to reduce the risk”

Temur Gochitashvili
Professor, Advisor, Head of Strategic Planning and Projects Department, Georgian Oil and Gas Corporation

Critical Infrastructure Resiliency

How highly do you regard the importance of critical infrastructure resiliency?
I think that every country has a responsibility to protect critical infrastructure against the possible negative impact, such as natural disasters, terrorist activities, and cyber threats, and reduce the risk for providing vitality of critical function of such infrastructure. Therefore, Preliminary identification of infrastructure which is critical for maintaining the continued services or functions and hazards that pose the highest risks to critical infrastructure is most effective and helps efficient planning and resource allocation.

In the coming years, what do you envision to be the biggest challenges to the energy sector's infrastructure?
In my opinion, the most significant challenge to the energy sector in the short-term is returning to the conditions where it was before COVID-19 and start the progression in the markets, competition, and good governance, considering the requirements of newly implemented energy legislation.
In the long term perspective, the biggest challenge of the sector is the critical dependence on the imports of primary energy sources, which is related to 70% of TPER in the country. Also, approximately 2 times higher energy intensity of production in comparison to the industrially developed countries has to be taken into account.
Consequently, maximal utilization of local energy resources and implementation of energy efficiency measures are the top priorities to overcome the energy sector's most critical challenges.

Have any of the Georgian energy stakeholders taken efforts to assess the resiliency of the existing infrastructure? How about emergency preparedness efforts of any kind?
GOGC is constantly updating the 10-year development plans for its natural gas transmission network, one of the key foundations of which is the assessment of the resilience of critical sections of the network. A list of priority projects to upgrade the system resilience has been identified.
Also, as far as I know, SNG affiliate Combined Cycle Gas Fired Thermal Power Plants have been working on the elaboration of emergency action plans.

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What do you think Georgia could do to enhance the security of its energy infrastructure?
I'll comment on issues related to the security of infrastructure in the oil and gas sector. First of all, strategic stocks of petroleum products and natural gas have to be maintained, as Georgia is highly dependent on imports. Also, diversification of natural gas supply is very important, which can be achieved through the "swap" base contracts with the European partners associated with the southern gas corridor infrastructure, namely to TANAP and TAP pipelines, and perhaps LNG regasification facilities.
Also, local resources must be utilized in parallel with the construction of the modern technology thermal power generation facilities, minimizing critical dependence on imports.
Critical segments of the natural gas transmission system have to be looped or ring-type supply systems arranged for all regions of the country.

EU Third Energy Package

The Acquis calls for certain structural changes, how this impacted the GOGC?
Implementation of the EU acquis is a highly important step for Georgia's integration into the European energy structures. Energy and Water Supply Law was recently adopted and we have not yet introduced significant changes in the sector. But GOGC will support structural changes in the energy sector and efforts to create competitive markets in Georgia. Specifically, GOGC has prepared and presented to the Ministry its vision of the natural gas market concept and unbundling of the naturally monopolistic transmission business from the competitive supply and production activities, which are in full compliance with the EU energy acquis.

Do you think Georgia is on track to meet its obligations under EnCT7?
I hope that after the COVID-19, Georgia will activate its efforts to meet obligations under the Energy Community, which is a significant milestone to the final integration with the EU.

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Interview with Mr. Temur Gochitashvili, GOGC

USAID Energy Program discussed the assistance on updating Parallel Market and Generation / Consumption Scheduling Program (GCAP) software with the IT department of GSE. Based on the feedback, the USAID Energy Program updated the implementation schedule for software upgrade and migration and sent to GSE. Parties agreed to involve software development company to agree on Phase 2 (which is software upgrade, migration it to the server, testing and intensive support on early stage).

USAID Energy Program held discussions with Parallel Market Software Developer on the timeline for updating Parallel Market (PMS) and GCAP software. The software developer inquired additional information from GSE related to Phase I, particularly more vivid scope for updating the software. The developer is looking for a more detailed explanation from GSE regarding the functional update of the PMS and GCAP.

USAID Energy Program, GSE, and Georgian Resource Development Service (GRDS) discussed the SoW for the Parallel Market and GCAP software upgrade / migration to a new server. Based on discussions, GSE shared high-level indicative scope of work with the USAID Energy Program. Parallel Market Software and GCAP updated work is expected to start in July.

USAID Energy Program CoP Mr. Daniel Potash participated in a cybersecurity webinar organized by the Energy Technology and Governance Program (ETAG) of the United States Agency for International Development and USEA, in cooperation with the Edison Electric Institute. The webinar aimed to discuss the cybersecurity implications of COVID-19. Mr. Potash inquired about the international version of Grid X cybersecurity simulation. In response, USEA noted that they planned to formulate an international version.

USAID Energy Program sent an invitation to the representatives of GSE, Telasi and EPG to participate in a webinar on “Deploying Cost-Effective Battery Energy Storage Systems (BESS) into the Indian Grid”, organized by USAID/India and Deloitte / India. The Program also took part in the event.

USAID Energy Program submitted to USAID/HICD 2020 project quarterly updates for the in-country and third training programs to be included in the Quarterly TrainNet Report for January 1, 2020-March 31, 2020.

ENERGY SECURITY WORKSHOP AT ZOOM WEBINAR

In early June, USAID Energy Program started planning the Energy Security Workshop at Zoom Webinar. Based on the discussions with the MoESD, the event will take place on July 1, 2020. Representatives from the MoESD, GSE, GNERC, GEDF, ESCO, GGTC, GOGC, Helsinki Commission, EBRD, WB, IFC, KfW, think tanks, operating in the energy sector and independent energy experts will join the event. Mr. David Tvalabeishvili, DM of MoESD will participate in the webinar in the frame of a principal architect of energy security in Georgia. In parallel, the energy security team tries to find local subject matter experts, specializing in energy security issues, who will be competent and proficient to facilitate the deliberations.

USAID Energy Program organized a call with Mr. Paul Terris, Business Analyst | GPS Cross Core Consulting and Daryl Sng, Leader, Monitor Deloitte Strategy from Deloitte Consulting LLC. Parties discussed the upcoming Energy Security Workshop, the first Zoom Webinar and follow up Zoom Webinars on COVID-19, “Fast Forward” Scenario Analysis and Critical and Timely Energy Security Issues.

The event will bring together Georgian energy sector stakeholders, donors, and international experts for sharing insights and forging deliberations on Georgia’s energy security situation. The discussion will revolve around the Georgian energy experts’ presentations on the critical energy sector infrastructure resilience, demand and supply projections, diversifications of energy supplies. The second part of the event will offer an introduction to a new methodology, Fast Forward, that can be applied to formulate government policy on energy security.

Mr. David Tvalabeishvili, Deputy Minister of the MoESD, Mr. David Hoffman, Deputy Mission Director, USAID/Georgia and Mr. George Chikovani, Director of GEDF will make the Welcoming Remarks.

USAID Energy Program CoP Mr. Daniel Potash attended the webinar devoted to unlocking the potential of Hydrogen in the Asia Pacific (APAC) region and Oceania and its role in the energy transition. The webinar aimed at bringing together an expert panel from multiple industry stakeholders for exchanging views. The covered topics comprised of the following subjects: Realistic opportunities for hydrogen’s use across APAC; Hydrogen’s role in: Power Generation (gas blending/replacement) E-Mobility and Energy Storage & Grid Stability; Supply and the potential for domestic hydrogen production; Cost competitiveness vs current energy options and Regulatory frameworks and strategies to encourage adoption.

CoP participated in referenced item and made two connections with persons of expertise in hydrogen relative to Georgia’s energy security and optimizing power grid operations.

In conclusion, it can be stated that, the modelling available in Georgia and assumptions are reasonable and consistent with experts' opinion: scale, capacity factor, blending percentage, injecting into pipeline. In some respects, Georgia has a better handle than the experts on a nearer-term economically justified project.

CHALLENGES AND OBSTACLES

In this past quarterly reporting period, in the world, and in Georgia, the overwhelming challenge was to deal with the Coronavirus. However, the Program rather easily shifted to online delivery of training and workshops. And the production of written collateral was readily done on a remote basis.

USAID Energy Program's CoP has remained in Georgia. Staff members shifted to work at home. No international travel was undertaken and all contribution from international Short-Term Technical Assistance (STTA) experts was obtained on-line. As reported previously, remote operations for the Program continue to be successfully implemented.

The GoG remains committed to rolling out competitive energy markets as envisioned in the Energy and Water Supply Law passed in December 2019. Therefore, the Program's planned support such as training in energy trading was not delayed and remains strongly requested by stakeholders. The only change was to revise the training to be on a 100% remote basis.

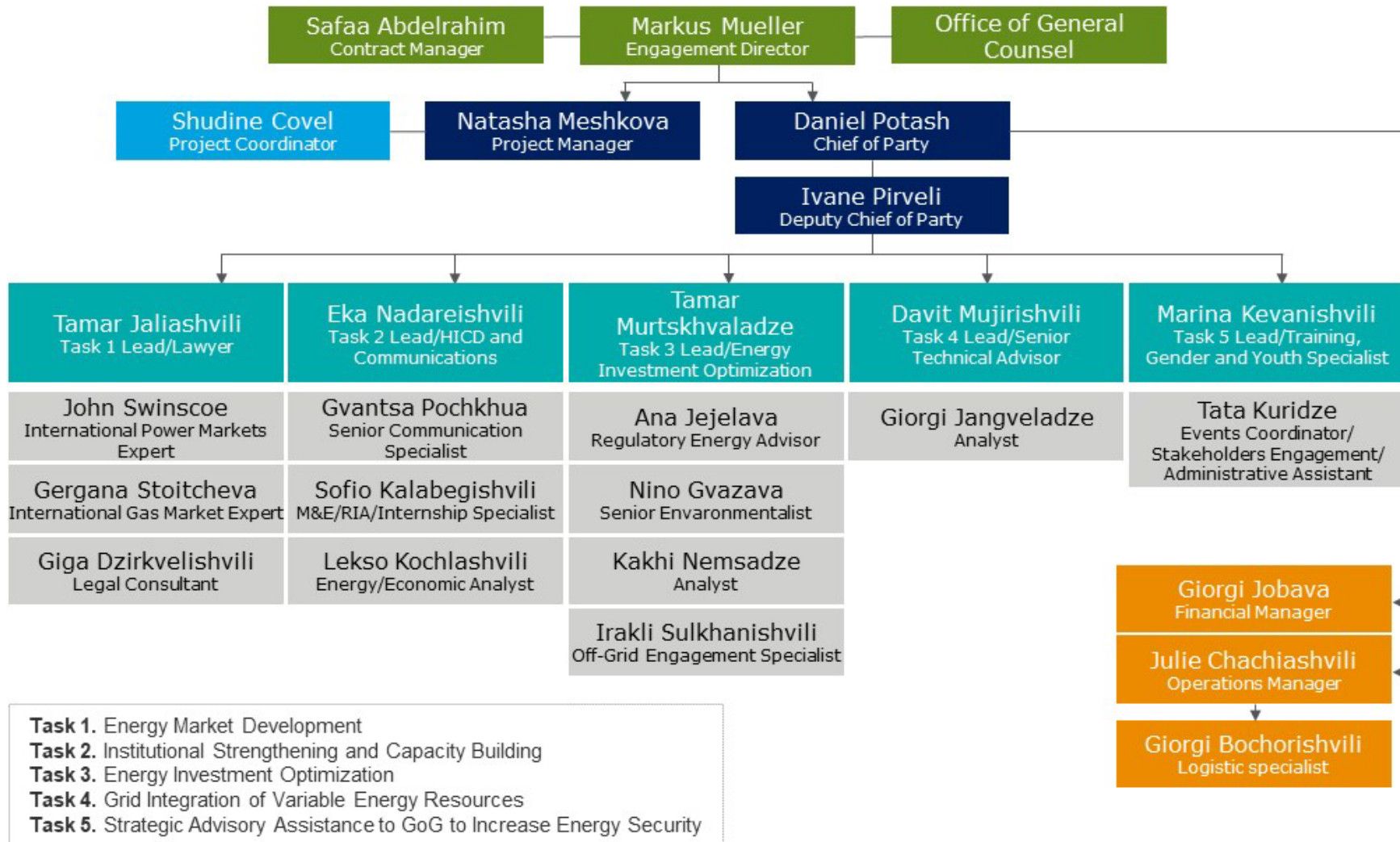
One of the challenges in carrying out remote work such as training is that some international experts used by the Program are not native English speakers and as such needed coaching so their communications skills were excellently effective in an online mode. Secondly, we needed to break up delivery so that instead of having a full-day or a half-day session in a conference room, we repackaged delivery into several 1½ hour Zoom sessions. When the material and the audience was up to it, we were able to deliver some training in 3 and even 4-hour sessions.

Towards the end of the reporting period, the GoG and USAID went back to work on a partial basis. Contractor, however, is operating under strict corporate guidelines which include elaborate documentation and multiple-layered decision-making for returning to the office or attending meetings. While this highly cautious approach has not impacted the basic delivery of the Program, the USAID Mission is relatively not seeing as much the visibility of the Program as compared with other USAID programs. Still the CoP and field staff are duly respecting the guidelines from Contractors' headquarters.

Besides Coronavirus, a challenge this past quarter was that the Program is soon ending, at a time when demand for assistance is increasing. In order to respond to requests for assistance, but not to overspend the budget, the Contractor is trying to accurately predict spending and accommodate as much technical assistance as possible.

A new challenge is that the GoG has proposed, due ostensibly to Coronavirus, changing previous understandings on key terms of wind power proposed PPA. These changes are unfavourable to wind power generation owners and would almost certainly make financing almost impossible. In the next quarter, the Program may involve in this agreement, in close cooperation with USAID.

ANNEX: USAID ENERGY PROGRAM ORGANIZATION CHART



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