



**USAID** | **GEORGIA**  
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USAID ENERGY PROGRAM

# USAID ENERGY PROGRAM QUARTERLY REPORT

JANUARY 1, 2020 – MARCH 31, 2020

USAID ENERGY PROGRAM

15 April 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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DELOITTE CONSULTING LLP

USAID | GEORGIA

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## ACRONYMS

<b>AA</b>	Association Agreement
<b>ADB</b>	Asian Development Bank
<b>AE Solar</b>	Alternative Energy Solar
<b>AFD</b>	French Development Agency
<b>AYPEG</b>	Association of Young Professionals in Energy of Georgia
<b>BAU</b>	Business as Usual
<b>BoG</b>	Bank of Georgia
<b>BPN</b>	Business Press News
<b>CAISO</b>	California Independent System Operator
<b>CAPEX</b>	Capital Expenditure
<b>CBA</b>	Cost-Benefit Analysis
<b>CEO</b>	Chief Executive Officer
<b>CfD</b>	Contract for Deference
<b>CO<sub>2</sub>e</b>	Carbon Dioxide Equivalent
<b>CoP</b>	Chief of Party
<b>COR</b>	Contracting Officer's Representative
<b>CPD</b>	Community Participation & Development
<b>CSO</b>	Civil Society Organization
<b>DA</b>	Day-Ahead
<b>DAM</b>	Day-Ahead Market
<b>DCoP</b>	Deputy Chief of Party
<b>DEC</b>	USAID Development Experience Clearinghouse
<b>DFC</b>	U.S. International Development Finance Corporation
<b>DM</b>	Deputy Minister
<b>DSO</b>	Distribution System Operator
<b>EBRD</b>	European Bank for Reconstruction and Development
<b>ECS</b>	Energy Community Secretariat
<b>EE</b>	Energy Efficiency
<b>EECG</b>	Energy Efficiency Centre Georgia
<b>EMC</b>	Education and Monitoring Center
<b>EnC</b>	Energy Community
<b>EnCT</b>	Energy Community Treaty
<b>ESCO</b>	Electricity Market Operator
<b>ETM</b>	Electricity Trading Mechanism
<b>EU</b>	European Union
<b>EU4Energy</b>	Programme Funded by the EU and led by the Energy Community Secretariat
<b>FDI</b>	Foreign Direct Investment
<b>FiP</b>	Feed-in Premium
<b>FiT</b>	Feed in Tariff
<b>GCAP</b>	Generation / Consumption Scheduling Program
<b>GEDF</b>	Georgian Energy Development Fund
<b>GEE</b>	Georgian Energy Exchange
<b>GEG</b>	Georgian Energy Group
<b>GEPRA</b>	PR and Marketing Communications Company
<b>GGTC</b>	Georgian Gas Transportation Company
<b>GGU</b>	Georgian Global Utilities
<b>GHG</b>	Greenhouse Gas
<b>GIEC</b>	Georgian International Energy Corporation
<b>GIS</b>	Geographic Information System
<b>GNCOLD</b>	Georgian National Committee of Large Dams
<b>GNERC</b>	Georgian National Energy and Water Supply Regulatory Commission
<b>GoG</b>	Government of Georgia
<b>GREDA</b>	Georgian Renewable Energy Development Association
<b>GRPC</b>	Georgian Renewable Power Company
<b>GSE</b>	Georgian State Electrosystem
<b>GTU</b>	Georgian Technical University

<b>GW</b>	Gigawatt
<b>GYLA</b>	Georgian Young Lawyers Association
<b>HPP</b>	Hydro Power Plant
<b>ID</b>	Intraday
<b>IFC</b>	International Finance Corporation
<b>IRR</b>	Internal Rate of Return
<b>ISSET</b>	International School of Economics at Tbilisi State University
<b>KfW</b>	German Government-Owned Development Bank
<b>kW</b>	Kilowatt
<b>kWh</b>	Kilowatt Hour
<b>LCOE</b>	Levelized Cost of Energy
<b>LCR</b>	Local Content Regulations
<b>LiDAR</b>	Light Detection and Ranging
<b>M&amp;E</b>	Monitoring and Evaluation
<b>MLET</b>	USAID Market Liberalization and Electricity Trade Program
<b>MoESD</b>	Ministry of Economy and Sustainable Development of Georgia
<b>MoF</b>	Ministry of Finance of Georgia
<b>MoU</b>	Memorandum of Understandings
<b>MRDI</b>	Ministry of Regional Development and Infrastructure of Georgia
<b>MW</b>	Megawatt
<b>NARUC</b>	National Association of Regulatory Utility Commissioners
<b>NDA</b>	Non-Disclosure Agreement
<b>NEL</b>	New Energy Law
<b>NGO</b>	Non-Governmental Organization
<b>NIRAS</b>	Consortium of Danish Company
<b>NMAE</b>	Normalized Mean Absolute Error
<b>NPV</b>	Net Present Value
<b>NTC</b>	New Technology Center
<b>NVE</b>	Norwegian Water Resources and Energy Directorate
<b>OPEX</b>	Operating Expense
<b>OTC</b>	Over the Counter
<b>P2G</b>	Power-to-Gas
<b>PG&amp;E</b>	Pacific Gas and Electric Company
<b>PMCG</b>	Policy and Management Consulting Group
<b>PMP</b>	Performance Monitoring Plan
<b>PMS</b>	Parallel Market Software
<b>PPA</b>	Power Purchase Agreement
<b>PPD</b>	Public Private Dialogue
<b>PPP</b>	Public Private Partnership
<b>PR</b>	Public relations
<b>PURC</b>	Public Utility Research Center
<b>PV</b>	Photovoltaic
<b>Q/A</b>	Questions / Answers
<b>QWF</b>	Qartli Wind Farm
<b>RES</b>	Renewable Energy Sources
<b>RIA</b>	Regulatory Impact Assessments
<b>sFTP</b>	Secure File Transfer Protocol
<b>SoW</b>	Scope of Work
<b>SQL</b>	Structured Query Language
<b>STTA</b>	Short-Term Technical Assistance
<b>SWOT</b>	Strength, Weakness, Opportunities and Threats
<b>ToR</b>	Terms of Reference
<b>ToU</b>	Time of Use Tariff
<b>TPP</b>	Thermal Power Plant
<b>TSO</b>	Transmission System Operator
<b>TYNDP</b>	Ten Year Network Development Plan
<b>UNDP</b>	United Nations Development Program
<b>USAID</b>	United States Agency for International Development

<b>USD</b>	United States Dollar
<b>USEA</b>	United States Energy Association
<b>USG</b>	United States Government
<b>VRE</b>	Variable Renewable Energy
<b>WB</b>	World Bank
<b>WEG</b>	World Experience for Georgia
<b>WG</b>	Working Group
<b>WPP</b>	Wind Power Plant

# CONTENTS

<b>INTRODUCTION</b> .....	<b>6</b>
<b>PROGRAM HIGHLIGHTS DURING REPORTING QUARTER</b> .....	<b>7</b>
<b>MANAGEMENT AND OPERATIONS</b> .....	<b>15</b>
Work Plan.....	15
Communication .....	15
Performance Monitoring Plan.....	15
Environmental Evaluation.....	15
Collaboration with other Donor Funded Projects .....	16
<b>PROGRESS OF ACTIVITIES BY TASKS</b> .....	<b>17</b>
<b>ENERGY MARKET DEVELOPMENT (TASK 1)</b> .....	<b>17</b>
Energy Markets Development Action Plan for Electricity and Gas Sectors .....	17
Electricity and Gas Markets Transition Plans.....	17
Regional Energy Cooperation .....	17
Public Outreach .....	17
Legislation Development .....	21
<b>INSTITUTIONAL STRENGTHENING AND CAPACITY BUILDING (TASK 2)</b> .....	<b>24</b>
Regulatory Impact Analysis Tool.....	24
Capacity Building.....	26
Study Tours .....	26
<b>ENERGY INVESTMENT OPTIMIZATION (TASK 3)</b> .....	<b>27</b>
Investment Advisory Group .....	27
Renewable Energy Support Scheme .....	27
Supporting Energy Investment Projects .....	27
Guidebook .....	28
Off-Grid Solar PV System for High Mountain Households in Georgia .....	29
<b>GRID INTEGRATION OF VARIABLE ENERGY RESOURCES (TASK 4)</b> .....	<b>31</b>
<b>STRATEGIC ADVISORY ASSISTANCE TO THE GOG TO INCREASE ENERGY SECURITY (TASK 5)</b> .....	<b>34</b>
<b>CHALLENGES AND OBSTACLES</b> .....	<b>36</b>
<b>ANNEX 1: YEAR 3, SEMI-ANNUAL (OCTOBER 1, 2019 – MARCH 31, 2020) PMP INDICATOR RESULTS</b> .....	<b>37</b>
<b>ANNEX 2: USAID ENERGY PROGRAM ORGANIZATION CHART</b> .....	<b>44</b>

# 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). In order for Georgia to meet its strategic commitments in the energy sector, the United States Agency for International Development (USAID) is providing technical assistance and policy advice on legal, regulatory and institutional reform issues, including facilitating investment and deal structuring, engineering and environmental analyses, financial planning, and outreach support (collectively, 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 Second Quarter Report of Year 3 documents the results and progress made by USAID Energy Program over the period January 1, 2020 - March 31, 2020.

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 Working Groups (WGs) meetings with the participation of energy sector stakeholders; updating Electricity and Natural Gas Action Plans; Designing "Concept Note on Electricity Market Strategy" and "Electricity Market Reform Communication Plan". Launching RIAs on 7 selected topics, supporting potential non-hydro renewable energy projects and developing recommendations on investor support schemes; conducting research on Variable Renewable Energy (VRE) power production forecasting availability and perspective of their integration into the grid; studying the Energy Security issues.

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 5 Program highlights during the reporting quarter:

- 1) Training on Energy Markets Trading and Risk Management
- 2) Interactive Renewable Energy Investor Guidebook
- 3) Investor Advisory Group Meeting
- 4) Energy Week Georgia 2020
- 5) Study Tour to California

## 1) TRAINING ON ENERGY MARKETS TRADING AND RISK MANAGEMENT



*Training on the Energy Market Trading and Risk Management*

The adoption of the new Law on Energy and Water Supply and creation of the Georgian Energy Exchange (GEE) signals the dawn of a competitive energy market in Georgia. This prompted a need for a comprehensive understanding of a competitive energy market functioning and trading. Hence, USAID Energy Program organized an advanced training on Energy Markets Trading and Risk Management for the energy sector stakeholders.

MTX Commodities Chief Executive Officer (CEO) Mr. Paul Constantinou and MTX's energy trading experts conducted three days of tailored trainings at Ilia State University, the second such training in a series. This training aimed to provide technical assistance to the Georgian energy stakeholders on various technical aspects essential for the energy trading platform. The audience obtained knowledge of screen trading, day-to-day buying and selling practice of gas and electricity, power and gas market structures, exchanges and Over-The-Counter (OTC) markets, differences between spot and forward markets, differences between power and gas contracts, etc. Participants ascribed vital importance to this training since energy market trading will be an essential facet of a new competitive energy market. Through the tailored training, stakeholders became familiar with the processes and technology of energy trading, including modeling energy trades with varied outcomes. The training also envisaged the practical application through direct involvement of participants in the simulation trading process to grasp the energy trading strategies, risk management and prognoses.

On February 6, 2020, an Official Certificate Transfer Ceremony took place at Ilia State University. USAID/Georgia Mission Director, Mr. Peter Wiebler, awarded certificates recognizing successful completion of the course to participants of the training. Mr. David Tvalabeishvili Deputy Minister (DM) Ministry of Economy and Sustainable Development of Georgia (MoESD) and Ms. Irina Milorava GEE Director were among the distinguished guests.

Mr. Wiebler in remarks emphasized the value of the energy sector development for the country's economic advancement. He reiterated the objective of a truly competitive market to bring Georgia



closer to European and western institutions, therefore training was a step forward towards meeting the obligations per EnCT. Mr. Wiebler referred to participants as pioneers and contributors to the effective functioning of the anticipated energy market.



*Training on the “Energy Market Trading and Risk Management” - Simulation Demonstration*

Mr. David Tvalabeishvili and Ms. Irina Milorava praised the relentless support of the USAID/Georgia throughout the transitions period and thanked for building the essential skills which serve as a cornerstone of a successful competitive market functioning.



**Mr. Zaza Chikhradze - Head of Energy Reforms and Projects Department, MoESD**  
 “I would like to express gratitude to USAID Energy Program for incredible Training on Energy Markets Trading and Risk Management. Particularly the timing of the training was extremely appropriate since according to the Georgian law on Energy and Water supply the new Market Concept Designs in electricity and natural gas sectors should be elaborated and established soon.



**Mr. Irakli Galdava – Georgian Energy Exchange (GEE), Deputy Director**  
 “The training was of high importance, and perfectly timed. Especially such high engagement and interest of the sector representatives deserve appreciation. This training enabled us to obtain knowledge and be more responsive to the anticipated competitive energy market needs. Such an environment creates hope for the successful realization of the reform”.

## 2) INTERACTIVE RENEWABLE ENERGY INVESTOR GUIDEBOOK



*Official Transferring Ceremony of Web-Based Interactive Renewable Energy Investor Guidebook*

Georgia's economic development and resilience depend on a robust energy sector supported by long-term investments to drive sustainable domestic energy production. To facilitate these investments, the USAID Energy Program developed an Interactive Renewable Energy Investor Guidebook. This is a first publicly available document that provides a detailed description of all necessary procedures for the successful implementation of the renewable energy project in Georgia, since the adoption of the Law on Public Private Partnership (PPP). The Interactive Guidebook helps investors and developers navigate the existing laws and regulations by providing appropriate legal recommendations and guidance.

On February 11, 2020, the USAID Energy Program transferred the web-based 'Interactive Renewable Energy Investor Guidebook' to the Georgian Energy Development Fund (GEDF). The GEDF is bound to support current and future investment in the Georgian energy sector. The event took place in Sheraton Metechi Palace.

Ms. Maya Melikidze, Commissioner, Georgian National Energy and Water Supply Regulatory Commission (GNERC) opened the event by thanking USAID Energy Program for the immense support in the advancement of Georgia's energy sector.

Mr. George Chikovani, CEO, GEDF, as a beneficiary of an Interactive Renewable Energy Investor Guidebook also expressed gratitude for USAID Energy Program and expounded upon the indispensable contribution of the Guidebook in investment attraction.

Mr. Peter Wiebler, Mission Director, USAID/Georgia in his speech welcomed the Interactive Renewable Energy Investor Guidebook since Georgia is in the midst of transition period which marks a fundamental shift away from old model towards a new market closer to the EU. Mr. Wiebler pinpointed huge advancement made in the energy market and particularly the latest progress in exploiting and developing renewable sources, essential for strengthening Georgia's energy security. Mission Director also referred to the pertinence of the overall investment climate in Georgia and the need for ensuring the sense of security in the competitive world.

Ms. Natalia Motsonelidze, Deputy Chairman, Public-Private Partnership Agency (PPP Agency) acknowledged USAID Energy Program support by delivering a valuable product that will add clarity in the implementation of the renewable energy projects in Georgia.

Following the welcome speech Program experts Ms. Tamar Murtskhvaladze, Energy Investment Optimization Lead, and Ms. Nino Gvazava, Senior Environmentalist at USAID Energy Program briefly reviewed the Interactive Renewable Energy Investor Guidebook. The presentation was followed by Questions / Answers (Q/A) session to address the inquiries related to a new product. The Program experts requested the audience to provide feedback and recommendations for further advancement of the product.



During the Q/A Mr. Nicholas Okreshidze – the Program Contracting Officer’s Representative (COR), suggested the future enrichment of the website by adding a function that will offer an interactive platform to potential investors to make inquiries regarding potential projects or about procedures.

### 3) INVESTOR ADVISORY GROUP MEETING



*Investor Advisory Group Meeting*

On March 6, USAID Energy Program held an Investor Advisory Group Meeting at GNERC premises. In fact, this was the Program’s last public event of the quarter before the emergency conditions were imposed in response to COVID-19.

Among the participants were representatives from GNERC, MoESD, GEDF, Electricity Market Operator (ESCO), Georgian Energy Group (GEG), Green Energy, AT Power, Shuakhevi Hydro Power Plant (HPP), BHP International Georgia, and Energy Efficiency Centre Georgia (EECG).

Ms. Maya Melikidze, Commissioner, GNERC opened the event by expressing gratitude to USAID Energy Program and familiarized the audience with the indispensable value of Net Metering System advancement. She also touched upon the 1,000 Solar Roof Initiative project which serves as an additional way to support micro generation development in Georgia.

Mr. George Chikovani, CEO, GEDF also acknowledged the support of USAID Energy Program and raised awareness on the importance of the rational exploitation of the local renewable energy resources (solar, wind and hydro) and empathized the focus of GEDF on the development of wind and solar resources. In his welcome speech, Mr. Daniel Potash, Chief of Party (CoP), USAID Energy Program applauded Georgia’s effort to further advance the net metering system and thanked for the provided opportunity to share the U.S. experience of the Solar projects.

The second part of the meeting offered a showcase for more detailed presentations. Mr. Zviad Gachechiladze - Deputy Director, Electricity Department, GNERC looked into the potential advancement of the net metering regulation. This is particularly feasible in view of recently adopted “Law of Georgia on Energy and Water Supply” which creates an opportunity to further develop net metering regulation. This, in turn, will have implications in increased capacity of the renewable energy generator from 100 kW up to 500 kW, adoption of virtual net metering system and shared net metering system. The new terms and conditions are likely to trigger massive interest among the residential communities. Mr. Gachechiladze also presented the 1 000 Solar Roof Initiative - offering additional support to the expansion of Micro Generation Development in Georgia.

Ms. Crissy Godfrey, CEM, Specialist Leader of Deloitte Consulting LLP, offered another presentation by exposing the audience to the U.S. best practices on net metering regulations, relevant program implementation, and financing.

Lastly, in view of the U.S. vast experience in the solar roof projects, Program CoP Mr. Daniel Potash made a presentation on “One million solar roofs in California: lessons learned for Georgia” and shared the experience of California.

## 4) ENERGY WEEK GEORGIA 2020



*"Energy Week Georgia 2020"*

On 28-30 January 2020, the international investment event "Energy Week Georgia 2020" took place in Tbilisi, with the support of the MoESD. The event aimed to foster the deployment of renewable energy in the country and attract foreign direct investments into the sector.

The Minister of the MoESD, Ms. Natia Turnava opened "Energy Week Georgia 2020." She said: "The energy sector is the lifeblood of economic growth and the largest Foreign Direct Investment (FDI) recipient in Georgia. Today, the Government takes significant steps to strengthen Georgia's energy independence, as well as to achieve sustained investment, increased efficiency and supportive regulatory conditions."

The event brought together the Government officials, electricity generating, transmission and distribution companies, local funds and international financial institutions, major international investors and consultancy companies from all over the world to promote the utilization of renewable energy in the country and to unlock the potential of international cooperation. About 300 representatives from more than 15 countries took part in the international forum.

On the second day of the congress, USAID Energy Program CoP Mr. Daniel Potash moderated the second panel covering the transmission projects and electricity market of Georgia. This session embraced topics such as the Ten-Year Network Development Plan (TYNDP) of Georgia, the liberalization of the energy sector and a new regulatory framework. Mr. Daniel Potash also elaborated on the problems related to the integration of VRE, accompanied by technical / financial solutions and recommendations for Georgia. Important information regarding latest developments in the electricity sector was provided by Mr. Archil Kokhtashvili, Head of Electrical Regimes and Development Service of Georgian State Electrosystem (GSE).

Amongst other issues, Mr. Kokhtashvili pointed out that low electricity demand growth rate in Georgia for the year of 2019 was due to relatively low bitcoin prices that subsequently resulted in reduced mining across the country.

The networking event allowed participants to discuss the promotion of renewable energy use, energy efficiency measures, as well as ongoing energy sector reform and major investment projects. The conference offered good opportunities to create new partnerships and cooperation.

## 5) STUDY TOUR TO CALIFORNIA

With the support of California Independent System Operator (CAISO), California Energy Commission and First Solar company, USAID Energy Program organized a study tour to California USA between February 15 - 24, 2020. The delegation was comprised of the representatives from GNERC, GSE, ESCO, GEDF, GEE and USAID Energy Program.

The prime focus of the event was to share the (famous and infamous) California experience in competitive power markets and VRE, particularly the integration of renewable projects into the electrical grid and the interconnection process for renewables projects. The tailored study tour was designed to enhance the institutional capacity among the Georgian energy stakeholders in the areas related to the development of solar and wind energy and grid integration of VRE.

California has huge expertise in the integration of solar and wind energy, dealing with the uncertainty and variability of VRE generation and utilization of VRE generation for delivery of ancillary services. Thus, meetings with the leading institutions and renewable companies enabled the visitors to hear first-hand information from the energy experts, which was imperative as Georgia implements strategic commitments made under the EnCT.



*Meeting with "kWh Analytics"*

On February 17, the Georgian delegates met "kWh Analytics" - a market leader in solar risk management. By leveraging the most comprehensive performance database of solar assets in the U.S. and the strength of the global insurance markets, the company offers a chance to minimize risk and increase equity return solar products.

The meeting aimed to convey the renewable start-up space in California's thriving technological driven energy transformation. Mr. Hao Shen, Chief of Staff offered a presentation on solar risk management and support mechanisms for solar energy in California.

The delegates also learned how to thrive in the competitive investment regime, and they obtained a better understanding of the private sector's influence on the state's ability to meet energy goals for the future. This was important as Georgia decides on its supports schemes relative to the competitive energy market.



*Meeting with CAISO*

On February 18, Georgian energy stakeholders held a meeting with the representatives of CAISO. CAISO manages power by use of a Day-Ahead Market (DAM) and three stages, Market Power Mitigation, Integrated Forward Market, and Residual Unit Commitment. The organization is directly accountable for keeping a steady flow of energy on the wholesale market and ensuring a reliable exchange for buyers and sellers. Mr. Mark Rothleder, Vice President, Market Policy and Performance; Mr. Peter Klauer, Senior Advisor, Smart Grid Technology; Mr. Brad Cooper, Senior Manager,

Market Design Policy overviewed CAISO Market and its functioning. The meeting facilitated knowledge on the impact of renewables on energy power quality and the leading practices for reliable power quality standards and management systems.



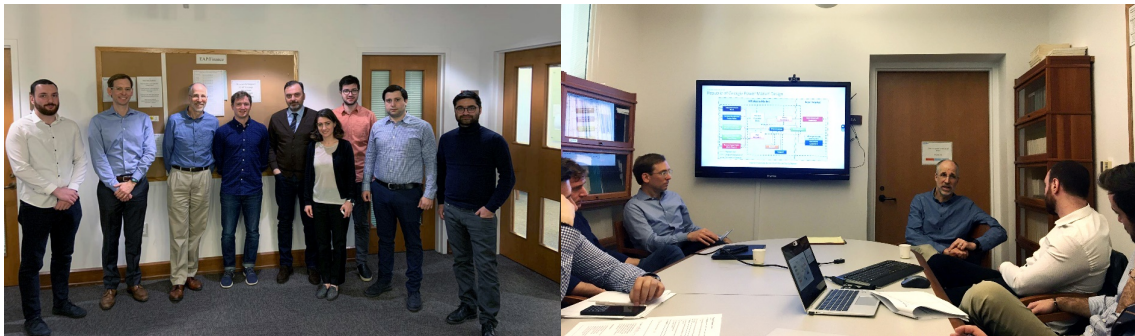


*Meeting with California Energy Commission*

On February 19, the Georgian delegates met the California Energy Commission. As the state's primary energy policy and planning agency, the Energy Commission plays a critical role in creating the energy system of the future - one that is clean, modern and ensures the sixth-largest economy in the world continues to thrive.

The meeting created an opportunity to learn about the development and operation of a balancing market in the regional power pool and understand the regulations and rules developed for the smooth operation of competitive regional power markets. In

addition, the parties discussed the ways of planning the green power policy.



*Meeting with University of California (U.C), Berkeley*

On February 20, Georgian delegation visited Energy Institute the University of California, Berkeley. The Energy Institute helps create a more economically and environmentally sustainable energy future through research, teaching and policy engagement. It is globally respected for its research and contribution to policy-making. Their mission is to support current and future energy sector leaders in making important decisions. The Energy Institute's approach is to focus on business and policy challenges mainly.

Delegates were treated to meet with Dr. Severin Borenstein, Faculty Director and Professor of Economic Analysis at the Energy Institute at Haas and Dr. Andrew Campbell, Executive Director of the Energy Institute at Haas introduced the energy market and energy system of California. They demonstrated the potential of academia to play an important role in assisting and pushing governments towards progress and solutions.



*Meeting with Pacific Gas and Electric Company*

On February 21, Georgian delegates met Pacific Gas and Electric Company (PG&E) - one of the largest combined natural gas and electric energy companies in the U.S., Based in San Francisco. Approximately 24,000 employees carry out PG&E Company's primary business—the transmission and delivery of energy. The company provides natural gas and electric service to approximately 16 million people throughout a 70,000-square-mile service area in northern and central California.



*Visit to Deloitte's San Francisco office*

On February 22, Georgian delegation visited Deloitte's San Francisco office, the group had an interesting discussion with Andrew Byrnes, Director, Venture Capital Artificial Intelligence, Micron Technology, Inc. The discussion was dedicated to the renewable energy start-up financing and the overall investment process. Mr. Andrew talked about the financial process from start to finish of energy start-ups. The Georgian team gain knowledge of how renewables can leverage new technologies; and understand how government can enable innovation by creating a healthy investment ecosystem.

The study tour was enriched with technical elements essential for anticipated new energy market model in Georgia. The participants had a chance to obtain first-hand information on California's market design, technical system balancing, witnessed the functioning of the operating room and learn many other aspects of the energy market which will turn into a valuable input for the local experts.

# 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 second 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 2 of Year 3, 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	2	In progress
Annual Report	1	-	To be submitted upon the accomplishment of contractual obligations in the end of the Project
Newsletters	1 (Quarterly)	-	In progress
Press Releases	4 (Annually)	5	In progress
Success Stories	-	1	In progress
<i>USAID Development Experience Clearinghouse (DEC) Report Submission of Approved Deliverables on A Weekly Basis</i>			<i>Based on Deliverables</i>
<i>Use of Social Media Tool (Facebook)</i>			<i>Based on Events</i>
			-
			<i>Constantly Updated</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.

PMP reporting file for the period October 1, 2019 through March 31, 2020 will be submitted as part of quarterly report on April 15, 2020. The updated GIS file will also be delivered in April, 2020.

**Table 2: Year 3 Outputs, PMP**

OUTPUTS	STATUS
Monitoring and Evaluation (M&E) Plan	Submitted with Year 3 Work Plan
PMP Reporting	Will be delivered on April 15, 2020 (as part of quarterly report)
Annual GIS Reporting	Updated version will be sent in April, 2020

## ENVIRONMENTAL EVALUATION

USAID Energy Program ensured that all recommendations and comments made in respective reports produced during the Quarter 2 of Year 3 are neutral environmental impact. In that regard, four (4) environmental threshold checklists were prepared for the outputs delivered in the reporting period, which covered January 1, 2020 - March 31, 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 Regulatory Impact Assessment (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.

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

**NVE** (Norwegian Water Resources and Energy Directorate) - under the Norwegian grant program, NVE 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. USAID Energy Program also introduced IFC to upcoming changes and the activities of USAID Energy Program in support of VRE in Georgia. IFC shared their experience, knowledge and challenges in pursuing VRE programs.

**WB** (World Bank): USAID Energy Program 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).

**UNDP** (United Nations Development Program): USAID Energy Program met UNDP Project on Biomass Promotion to obtain information on the existing and potential non-hydropower VRE projects and their developers in Georgia.

**ADB** (Asian Development Bank): USAID Energy Program works with ADB on identifying the existing and potential VRE projects in Georgia. The ADB has expressed interest in financing rooftop solar projects across Georgia. Also, ADB has offered to GEDF financial for a pilot program for hydrogen production, which can follow on USAID Energy Program conceptual exploration.

**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.

# 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 CORONAVIRUS, the major stakeholders demonstrated a high level of commitment to contain the spread of virus locally by postponing or cancelling events, meetings, public gathering etc.

Acknowledging those circumstances, USAID Energy Program offered assistance to the MoESD in organizing a virtual quarterly Donor Coordination Meeting, planned in March. The MoESD highly appreciated the Program's effort, however decided to postpone the event at least till April.

### ELECTRICITY AND GAS MARKETS TRANSITION PLANS

USAID Energy Program remains dedicated to pursue the reform implementation process regarding the protection of Vulnerable Populations in electricity and natural gas sector. Involved international donor organizations, including AFD and EU4Energy, perform assigned duties on behalf of the EnC, in full compliance with the decisions of appropriate Ministries. USAID Energy Program closely cooperates with donors and will be involved if / when required.

### REGIONAL ENERGY COOPERATION

No progress was made on organizing Turkey-Georgia energy WG. The GoG keeps the same approach regarding not involving third parties on Turkey-Georgia Energy WG. USAID Energy Program express readiness to provide support in organizing working meetings should the counterparts require assistance.

Mr. Abgar Budaghyan, Deputy Chief of Party (DCoP) of USAID Market Liberalization and Electricity Trade Program (MLET) contacted USAID Energy Program for organizing the joint WG in Armenia. MLET and USAID Energy Program remained in close contact with GSE, even drafted agenda for the meeting however, an unexpected breakout of COVID-19 and consequent travel ban suspended the event. USAID Energy Program developed and offered a plan for an online joint WG, but this was rejected by Armenian side.

### PUBLIC OUTREACH

USAID Energy Program met GEPRA (Public Relations and Marketing Communications Company) representatives to track the performance of assigned duties in terms of designing the "Electricity Market Reform Communication Plan". So far GEPRA conducted 63 deep interviews with the participation of various groups such as the MoESD, GNERC, ESCO, GSE, large consumers, developers, experts, journalists, Non-Governmental Organizations (NGOs), and local authorities. GEPRA also organized focus groups in Tbilisi, Telavi, Kutaisi, Batumi and Ambrolauri. However, the vacation season and a busy schedule of certain target groups pushed several relevant interviews for the coming week. Thus, GEPRA proposed updated deadlines.

GEPRA submitted the interim report, which incorporates the preliminary findings of the research. The key findings were framed into a cohesive framework that will provide a foundation for developing recommendations for successful public outreach.



*Seminar on "Electricity Market Reform Communication Plan"*

On January 17, GEPRA organized a seminar regarding the "Electricity Market Reform Communication Plan" at the USAID Energy Program premises. The audience comprised of the representatives from

Rustavi 2; IPress; Caucasus Business Week; Commercant; ITV.ge; Article 42; Georgian Young Lawyers Association (GYLA); Business Press News (BPN) and Bankebi da Finansebi. The seminar aimed to define the purpose of “Electricity Market Reform Communication Plan” for the media representatives and hear their opinion on related challenges.

Mr. Saba Jajanidze, Project Manager, GEPRA exposed the audience to the concept of the newly adopted “Law of Georgia on Energy and Water Supply” and the intention of the GoG to effectively communicate changes to the public and affected groups. The media representatives revealed high interest in an unfamiliar topic apparent in diverse questions including technical inquiries on distribution-supply unbundling, metering, hourly pricing, etc. For more clarification, USAID Energy Program DCoP Mr. Ivane Pirveli recalled the “RIA of the Proposed Energy Law on Electricity Prices” undertaken by the Program and briefly introduced the assessment results of New Energy Law (NEL) and Business as Usual (BAU) options. The journalist found the outcome of NEL and BAU comparison very interesting and essential for public outreach. Below is the takeaway of the seminar suggested for incorporation in the final “Electricity Market Reform Communication Plan”:

- The GoG is accountable for creating timely awareness of the New Law with less focus on the AA and more emphasis on how the households will benefit; why the reform is important; and how it will enhance the development of the country;
- The whole audience suggested stressing out the adverse impact of the existing monopolistic environment which affects the transparency. Consequently, a recommendation was given to publicize the RIA results explaining both BAU and NEL scenarios;
- More RIAs to be done to evaluate the different aspects of the new Law and make the results available for public judgment;
- Allocate massive resources for an awareness campaign in the regions and mountainous areas to avoid resistance and misinterpretation of information. Face to face contact is among the most recommended options as “Word of Mouth” remains to be the most effective and reliable source of information;
- GoG is responsible for developing a mechanism to control the new competitive market, and the rules of the game to avoid biased internal agreements;
- All participants voiced an unfavorable attitude towards the GoG due to the absence of transparency and communication with the public. One participant even described common public hearings, where officials pretend to be attentive to expressed ideas, however, ignore suggestions in the actual implementation process;
- The participants criticized the widespread practice applied by certain political parties and/or other forces to deliberately mislead the public to provoke resistance against the government undertakings, even when the intention is beneficial for the country. Therefore, the idea of educating political parties on the reform was endorsed by all participants.



*Seminar on “Electricity Market Reform Communication Plan”.*

On January 24, USAID Energy Program hosted another seminar organized by GEPRA to share the preliminary results of research undertaken for the “Electricity Market Reform Communication Plan”. The audience comprised of the representatives from Radio “Ucnobi”, Radio “Maestro”, “Business Partner”, m2b.ge, “Community Participation & Development” (CPD) Center, NGO “Ecovision”, Droni / presa.ge, Newspaper “Business and Finances”, Ipress.ge and Channel one.

Mr. Saba Jajanidze, Project Manager, GEPRA exposed the audience to the concept of the newly adopted “Law of Georgia on Energy and Water Supply” and the intention of the GoG to effectively communicate changes to the public. In that regard, he highlighted the importance of Media engagement in terms of disseminating accurate information, which will help deter rumors and consequent misinterpretation of news.

The media representatives revealed a high interest in the topic and expressed readiness to cooperate with the Government / assigned unit in public outreach campaigns. Due to the sensitivity of the topic, the audience commonly acknowledged the urgency of launching an awareness campaign to minimize resistance.

Below are presented the takeaways of the seminar suggested for incorporation in the final 'Electricity Market Reform Communication Plan':

- The government should assign a trustworthy person to communicate an accurate message to a large audience on anticipated changes in the energy market through an appropriate platform. Some even considered awareness campaign a bit delayed;
- There is a limited understanding of the energy sector functioning among the population due to the sole focus on uninterrupted supply of electricity at a reasonable price. However, the participants echoed the periods when Georgia suffered from an erratic supply of electricity which created awareness on the performance of certain power plants (such as Thermal Power Plants (TPPs) in Gardabani). This was attributed to the created environment, where the population not only expressed interest but also became educated on the running of power stations. This example served as a strong argument to the fact that competitive market and resultant choice given to affected target groups will spur more engagement and hence create awareness not only of the energy sector but also of efficient use of electricity. Such discussion led to the potential of emerging the "Green Energy" option, which might be fragile initially however may find massive approval due to being an environmentally friendly option;
- The principle of the DAM is ambiguous in need of clarification. However, the DAM for households may be introduced at the last stage, therefore it is given less consideration at this point;
- The audience acknowledged the difficulty of disseminating such sensitive information in the mountainous areas which will require very delicate and well-elaborated approaches;
- The audience expressed a desire for more detailed knowledge of anticipated changes in the energy market and the new Law.



*Workshop on Preliminary Results of the "Electricity Market Reform Communication Plan".*

On January 22, GEPRAs organized a workshop at the MoESD to share the preliminary results of the study on the "Electricity Market Reform Communication Plan". Among the attendees were Mr. Nicholas Okreshidze - the Program COR / USAID/Georgia, Mr. Zaza Chikhradze (MoESD), Ms. Anano Maisuradze (MoESD), GEPRAs experts and USAID Energy Program Communications Lead Dr. Eka Nadareishvili.

Mr. Saba Jajanidze, Project Manager (GEPRAs) gave an overview of the key findings of the research inclusive of general awareness and attitude of interviewed groups towards the new Law and anticipated changes in the energy market, as well as the understanding of a competitive energy market. Preliminary results also revealed challenges linked to spreading such information due to the sensitivity of the energy sector in Georgia. However, discussions unveiled beliefs of the population in principles of a competitive market, which will empower households with a choice and voice.

GEPRAs drew the attention of the audience to the importance of the government's involvement at all stages of the Communications Strategy implementation, due to being considered as a key initiator. One of the focal outcomes of the research is an urgent need for creating timely awareness on changes among all target groups and addressing public concern on unfair internal deals among the market players. All interviewees fear that such partial deals can fix high prices, hence monitoring of market functioning and regulating rules are viewed as key priorities for the Government.

In that regard, Mr. Zaza Chikhradze of the MoESD clarified that finalization of the Concept would necessitate designation of respective units accountable for ensuring the effective and competitive functioning of the market. Moreover, the new Law of Georgia on Energy and Water supply holds GNERC accountable for monitoring competitive market functioning.



Another valuable revelation of the research is the public expectation of decreased prices and high-quality electricity especially in the regions. Consequently, Mr. Chikhradze emphasized the significance of delivering the correct messages from the very onset, to ensure accurate interpretation of the new market. In view of Mr. Chikhradze, the message should be designed in a way to unfold the genuine idea of the new Law, having major benefits in a new anticipated practice which will empower customers to monitor their consumption and hence more efficient use of electricity. Therefore, the real reason for minimized expenditure will be the efficient and controlled use of electricity and not the decreased tariff. As for tariffs, all interviewed groups acknowledge the existence of artificially preserved low electricity prices on account of the government subsidies, which fail to reflect even the existing exchange rate. Reasonably, this tradition won't survive in the long run and tariff surge is anticipated from next year. Certainly, the budget will continue to subsidize vulnerable customers although more details will be disclosed with the finalized Concept.

The preliminary results of the research turned out very interesting for the MoESD, especially the public interest in technical details and desire for high quality electricity were unexpected topics. However, all parties acknowledge that the actual implementation of the strategy will be tough and should be undertaken with utmost caution. In that regard, by the end of the meeting, the Program COR Mr. Nicholas Okreshidze requested the MoESD to share future plans in terms of the strategy implementation in order to identify the concerned area in need of USAID support. The next workshop is planned in the coming week for a wider audience for feedback and discussions.

On February 10, USAID Energy Program and GEPRA representatives met GEDF CEO Mr. George Chikovani to share the study results on a draft Communication Plan and obtain feedback from GEDF. Among the inquired topics was the timeline, which is an essential input for action plan. Another sensitive topic is the upcoming election which will likely absorb all media channels. More importantly, such timing might pose a threat to dissemination of accurate information on anticipated changes in the energy market. GEDF CEO suggested the use of this information for throwing light on the Governments' attempt to eliminate the existing monopoly and give way to a competitive energy market. However, the delivered Communication Plan is impartial. Therefore, it will be considered as a neutral suggestion in support of disseminating an accurate piece of information to the various target groups.

GEDF also approved the idea of creating an interactive web portal that will enable the interested people and parties to obtain the required information. The portal should also offer a quarterly newsletter to keep the audience informed on all matters.



*Review of the Working Version of the Communication Plan with the MoESD*

On February 21, USAID Energy Program and GEPRA met the representatives of the MoESD to review the first working version of the "Electricity Market Reform Communication Plan". Mr. Zaza Chikhradze, Ms. Marita Arabidze, Mr. Giorgi Kalandadze, Ms. Tea Avazashvili, Ms. Anano Maisuradze and Ms. Maya Omiadze attended the meeting. Following the presentation, the MoESD team suggested minor changes to be introduced in the final version. Overall the document found appreciation and approval among the audience. In addition, Ms. Avazashvili requested the translation of the document into English as they plan to

make it publicly available. The MoESD recognizes the importance of timely communication and the urgency of mitigation measures for anticipated challenges linked to the strategy implementation process. As noted by the MoESD representatives, the 2020 budget does not envisage the amount required for funding the initial stage of the PR (Public Relations) campaign, therefore following the internal discussions the MoESD will seek assistance among the donor organizations including the USAID Georgia.

The parties agreed to share written comments with GEPRA on Monday. The next steps envisage the finalization of the report in view of obtained feedback and workshop for a larger audience in the nearest future.

For increasing public awareness, the Program COR Mr. Nicholas Okreshidze and GEDF CEO Mr. George Chikovani gave interviews to TV1, one of the major channels in Georgia. The respondents created awareness on the value of the Guidebook which serves as a first online interactive tool guiding the execution of renewable energy projects. Recently, the topic of renewable energy has witnessed a growing interest among the respective audience therefore the activation of Guidebook is critical for the enhancement of renewable energy projects development in Georgia. The interview is available at: <https://www.facebook.com/347657975393516/posts/1525740050918630/?vh=e&d=n>

GEPR submitted the final version of the “Electricity Market Reform Communication Plan” to the MoESD and USAID Energy Program in view of all received comments. The Program is translating the document into English as requested by the MoESD. GEPR in coordination with the Program and the MoESD will organize the workshop in the nearest future to share the results with the large audience.

USAID Energy Program shared the “Electricity Market Reform Communication Plan” with the MoESD. The document reflects all recommendations delivered by the MoESD and the Program, however, remains as a draft since the provided budget and certain aspects might be amended. The tough schedule of the MoESD and forced shift to the online mode created obstacles and reordered the priorities. However, Ms. Tea Avazashvili promised to discuss the document with Mr. David Tvalabeishvili and respond in a possible short time. GEPR successfully applies the online platforms, hence expressed readiness to offer presentation as soon as the MoESD is ready.

## LEGISLATION DEVELOPMENT

On December 27, 2019 (prior Program reporting period), the GoG published the “Law of Georgia on Energy and Water Supply” and the “Law on Promoting the Production and Use of Energy from RES.” The adoption of those laws now creates the need to forge development of a number of secondary legal acts in the energy sector.



*Meeting with GGTC, GNERC and GSE Representatives*

On February 19, USAID Energy Program met the representatives of GSE, GGTC, and GNERC. GGTC asked the Program to develop a methodology for the economic evaluation of infrastructure projects. Respective regulation will be enacted in the nearest future therefore the presence of methodologies and models is essential. During the meeting, the parties discussed the possible methodologies and variables required for the model.

USAID Energy Program met Mr. Nugzar Dvali, Ms. Mariam Arobelidze from Georgian Gas Transportation Company (GGTC) and Mr. Revaz Geradze (GNERC) to discuss the required technical support to GGTC for the development of Economic Appraisal Methodology of new gas infrastructure investment projects. The methodology is envisaged under the Investment Appraisal Rules for regulated enterprises adopted by the GNERC. New rules obligate all regulated network companies to submit investment projects to GNERC in line with pre-determined methodology.

Upon to this request, USAID Energy Program developed an “Economic Appraisal Methodology of Investment Projects” and shared with GGTC. The Program team kicked off the activity with a WG meeting between GGTC, GNERC and GSE on February 25. The meeting took place at GNERC with the participation of commissioners Mr. Gocha Shonia and Ms. Maya Melikidze, and representatives of electricity, natural gas and tariffs departments. GSE presented the current investment appraisal methodology used for electricity transmission projects, while USAID Energy Program offered the draft methodology suggested to GGTC. The parties agreed on the key principles of economic appraisal methodology, as well as on the format of the document.



*WG Meeting with GGTC, GNERC and GSE*

Based on agreed principles USAID Energy Program submitted the final draft of “Economic Appraisal Methodology of Investment Projects” to GGTC and GNERC.

USAID Energy Program began work on a “Time of Use Tariff (ToU) Methodology.” This will incorporate strategic pricing direction and give overall philosophy, principles and goals for time of use tariff development in the electricity sector of Georgia. The objectives of the ToU Methodology are to determine the tariffs alignment to the strategic pricing direction and the economic efficiency and sustainability of given strategic pricing objectives, revenue recovery, fairness and equity, peak demand reduction and energy savings. The methodology will be applied for households, commercial and industrial customers. It will consider the development of renewable energy in Georgia and integration into the power grid.

The anticipated results of this Methodology are to facilitate the integration of VRE and integration of smart technologies into the electricity grid, the introduction of financial mechanisms for the development of energy storage systems, and reduction of overall electricity costs for all customers in the long term.

USAID Energy Program continues working on the “Draft Regulation on Wind Power Forecasting”, which was shared with GSE. The following steps include the consideration of GSE comments and feedback. For this purpose, the Program participated in the meeting with GSE. More details may be found in Task 4.



*Meeting with the Parliament of Georgia*

USAID Energy Program met the member of Georgian Parliament Mr. Revaz Arveladze, Mr. David Mirtskhulava the Chairman of the Georgian National Committee of Large Dams (GNCOLD) and Mr. Paata Tsintsadze - Energy Expert. Mr. Arveladze requested that the Program support the Parliament in organizing meetings with the key stakeholders of the Energy and Water Supply sector in a less formal environment outside Tbilisi. One-or two-days event is expected to foster brainstorming that will enhance the finalization of the Law on the Safety of Hydraulic Facilities. Another less critical appeal was the provision of technical comments on the existing draft, as the initial draft developed by Swiss company Stucky is already outdated.

The suggested date for the event was to be February or mid-March due to assigned commitment to submit the comprehensive draft of the law by the end of March or the beginning of April as a pre-requisite for further passage. Hence, deliberations prior to submission is of high essence in terms of identifying the gaps. The event of course had to be cancelled pursuant to emergency conditions. Still,



USAID Energy Program obtained USAID approval to support parliamentarians and will provide comments on the law using in-house staff.

USAID Energy Program will deliver comments on Draft Law on Safety of Hydraulic Facility, developed by the GNCOLD. The draft law concerns the safety of Hydraulic structure, warning systems, inspection guidelines, emergency resilience, and response, as well as the roles and responsibilities of different agencies and regulatory bodies. For that purpose, the Program attended the annual conference on Advanced Methodologies for Dam Safety on February 28.

On March 4, USAID Energy Program met Mr. Nikoloz Sumbadze - Deputy Director of Electricity Department at GNERC. Mr. Sumbadze informed that under the framework of the Twinning project, GNERC established the Market Monitoring Rules which were enacted last year. However, currently, the main objective is to update Market Monitoring Rules and IT solutions. The reporting process should be converted from Excel databases into the web-based database, SQL (Structured Query Language) and/or Click. GNERC requested assistance in sharing the leading international practices and recommendations on Market Monitoring Rules under the new market conditions, as well as provide trainings on market competition.

Upon the request, USAID Energy Program international energy experts examined Power Purchase Agreement (PPA) issues. In that regard, the Program team together with the international experts Ms. Crissy Godfrey - Specialist Leader in Government & Public Services / Energy and Ms. Christine Covington - Manager in Energy & Sustainability met ESCO representatives. During the meeting, the Program requested information on the PPA signed in Georgia, current status, existing approaches and implementation practices. ESCO informed about the possibility of introducing the CfD and elaborated on the existing business cycle of the power trading, namely the clearing and settlement between the power market participants.

As a participant of the Market Concept WG, ESCO also referred to ongoing progressive work on the new market concept and the expected roles / functions that ESCO would have after the finalization of power market reform.

USAID Energy Program participated in the meeting organized by EG-DGSD to discuss the work of watchdog Civil Society Organizations (CSOs) in the energy sector. CoP of civil society program ACCESS, Ms. Tamuna Karosanidze shared information regarding the program and involvement of three CSOs (Green Alternative, GYLA and the Human Rights Education and Monitoring Center (EMC)) in monitoring large hydropower developments in Svaneti and Racha regions of Georgia. Ms. Karosanidze introduced the report developed by CSOs and shared the main findings of the monitoring. USAID Energy Program's COR and DCoP also created awareness on the Program's activities, current reforms in the energy sector of Georgia, the necessity of having a comprehensive energy strategy for the country and other related issues. Parties agreed to exchange information and cooperate in the future.

USAID Energy Program communicated with GNERC's electricity department to obtain information on the Connection Procedures under the Network Rules and Interconnection. The Program shared acquired information with an international expert and drafted Scope of Work (SoW) for planned training on the queuing methodology of VRE.

GNERC approved Rules of certification of the operator of transmission system in the sphere of electricity and natural gas. The rules comply with the requirements of the European directives and the process of certification will involve the European EnC. The Rules envisage the separation of Transmission System Operator's (TSOs) activities from other functions, according to the plan, developed by the Georgian government.

The MoESD and one of the wind producers addressed USAID Energy Program with the request to get involved in the development process of the Imbalance Cost Issue. Consequently, USAID Energy Program developed the Legal Framework section for the Imbalance Memo and contributed to the finalization of the report. The report was submitted to COR for approval as of the end of the reporting period.



# INSTITUTIONAL STRENGTHENING AND CAPACITY BUILDING (TASK 2)

## REGULATORY IMPACT ANALYSIS TOOL

### Regulatory Impact Assessment (RIA) Trainings

USAID Energy Program drafted RIA training plan envisaging all essential aspects for conducting compulsory RIA. Customized topics are supported by respective case studies of the energy sector for a better understanding of the practical aspects. The trainings will be conducted by the International School of Economics at Tbilisi State University (ISET) with the support of USAID Energy Program. The Program held several meetings with Dr. Norberto Pignatti - Associate Professor of Policy and Lead Economist at ISET. The tailored trainings will start immediately upon the completion of administrative procedures.

USAID Energy Program now faces challenges in launching the ISET training on RIA due to the COVID-19 outbreak. The created environment forced to shift to online trainings. This, in turn, triggered changes in the initial Scope of Work (SoW) by expanding the personnel, adding IT service and adjusting the material for the online mode. USAID Energy Program is in the process of identifying the details with ISET for the finalization of the SoW.

USAID Energy Program in collaboration with Deloitte Consulting LLP head office, finalized sub-contracting process for launching RIA on the seven selected topics. The Program held kick-off meetings with all subcontractors for further clarification of assigned contractual requirements. However, the outbreak of COVID-19 required subcontractors to conduct online meetings. Naturally the consultative engagements called for RIA work to shift into an online mode.

### Designated Sub-Contractors Working on RIA of Pre-Selected Topics

#### ISET

**ISET**

International School of Economics  
at Tbilisi State University

USAID Energy Program met ISET representatives Ms. Phatima Mamardashvili and Ms. Salome Gelashvili to discuss the planned “RIA on Energy Access in High Mountainous Regions”. The parties agreed on the aim and general direction of the report. Next week ISET will discuss more details with the

MoESD. The study is viewed as a follow-up analysis of the gasification study, therefore further research areas should be identified with the MoESD.

In addition, Ms. Gelashvili requested the Program to share statistical information obtained during the implementation of the project on “Installation of Solar Photovoltaic (PV) Systems in Off-Grid Villages”. ISET also asked to complete the questionnaire and shared the list of companies planned to be interviewed. Upon the request of the Program added GGTC in the list.

USAID Energy Program organized a meeting between ISET and the MoESD concerning the “RIA on Managing Backlogs of PPAs and Memorandum of Understanding (MoUs) signed by the GoG”. The parties agreed to exchange the required information essential for the execution of the mentioned.

In observance of its contractual RIA submission deadline, ISET submitted the first deliverable - “RIA on Managing backlogs of PPAs and MoUs signed by the GoG”. Besides, the Program (tasks 1 & 3) organized an online meeting with ISET to discuss the MoU's and PPA's signed by the MoESD and ESCO. During the meeting, the ISET team proposed a document with comprehensive information on PPA's and their terms. The Program will share the document with the MoESD to fill an information gap where appropriate.

#### PMCG



USAID Energy Program met with consulting firm Policy and Management Consulting Group (PMCG) to discuss RIA on two topics “Choosing New Power Projects for Energy Security or Interconnection” and “Standards for Community Engagement for New Development Projects”. The meeting aimed at clarifying the direction of the reports.



Meeting with PMCG

Due to COVID-19, PMCG also had to move to online meetings. Currently, PMCG is in the process of familiarization with the respective documents such as the Law of Georgia on Energy and Water Supply of Georgia, secondary legislation, etc. As for RIA on New Power Projects for Energy Security or For Interconnection, PMCG agreed with the Program to review the existing standards (anticipated to be delivered in the first report) and propose several alternative options based on Arnstein's ladder of citizen participation.<sup>1</sup> The document will

also incorporate the potential impact assessment of proposed options. RIA report will cover hydropower, wind power, solar power, gas pipelines, transmission lines, thermal power plants.

In observance of the submission deadline PMCG submitted the first deliverable – “RIA on the “Standards for Community Engagement for New Development Projects”. The report includes the revision of respective EU directives, new Law on Energy and Water Supply of Georgia, international standards for community engagement for new development projects and part of consultative engagements. The remaining meetings are planned in the coming weeks. The Program provided feedback and directions for the report.

## WEG



On March 4, World Experience for Georgia (WEG) organized a presentation at Ilia State University to share the result of RIA on Vulnerable Customers with a broader audience. The document was initially produced under USAID Energy Program to better understand the possible impact of the law on vulnerable customers. Among the key comments was the need to conduct further research on the schemes to

identify the best ways of addressing the challenges in relation to vulnerable customers. Another sensitive topic was the inevitable price surge and the need for gradually creating awareness on anticipated change such as tariff subsidies, vouchers, monetary compensation, etc. Among the covered topics was also the determination of seasonal indicators and the need for further discussions in order to determine future calculation practices for vulnerable customers. In addition, WEG under USAID Energy Program is currently conducting RIA on Energy Strategy. As the topic remains as one of the key priorities for the GoG, the MoESD requested translation of the document in Georgian in which the Program will support WEG.

WEG submitted the first deliverable under the subcontract agreement regarding RIA on National Energy Strategy. The Deliverable includes preliminary findings of a desk review and revision of relevant documentation, such as: recently adopted Energy Strategy of Georgia; the Law on Energy and Water Consumption; Government’s Decree on the establishment of a common Rule of Strategic Documents Development, Monitoring and Evaluation; Report summarizing international experience in development of national energy strategy developed by WEG, etc. The report also summarizes the main findings of preliminary stakeholder mapping and analysis. Currently, USAID Energy Program team is reviewing the Deliverable.

## PMO



USAID Energy Program met with PMO Business Consulting to discuss its draft version report on “RIA for Renewable Energy Support Schemes”. Program experts requested PMO to modify the draft report and inclusion of Strength, Weakness, Opportunities and Threats (SWOT) analysis for each support mechanism and enclosure of more targeted analysis that would provide sound justification for suggested support scheme.

USAID Energy Program then reviewed the final version of the “RIA on Support Schemes for Renewable Energy” submitted by PMO Business Consulting. The report contains

<sup>1</sup> See for example <http://citizenshandbook.org/arnsteinsladder.html>

information on the four support schemes: Feed-in Tariff (FiT), FiP, CfD and Green Certificates. These four schemes were shortlisted by the MoESD and therefore the PMO prepared policy options for further evaluation. PMO estimated the expected benefits from the development of Renewable Energy (namely, employment, savings on import of electricity and natural gas, revenues from power export and savings from the reduction of Greenhouse Gas (GHG) emissions). Based on the report, the total estimated benefit of the policy intervention reaches US \$433 million. PMO also estimated the costs associated with the implementation of policy options, with the focus on calculating the volume of interim government exposure through evaluating the costs of support component payable by the market operator. The Cost-Benefit Analysis (CBA) showed that the lowest volume of interim government cost would have a CfD policy option.

## GREDA



USAID Energy Program met Georgian Renewable Energy Development Association (GREDA) representatives in charge of the RIA on the Local Content Requirement (LCR). The meeting aimed at providing suggestions to ensure the alignment of the final report with the requirements of the respective SoW.

## AYPEG



USAID Energy Program DCoP Mr. Ivane Pirveli and Economic Analyst Mr. Aleksi Kochlashvili met Association of Young Professionals in Energy of Georgia (AYPEG) representatives Mr. Irakli Galdava, Mr. Nick Sumbadze, Ms. Mariam Chachua, and Mr. Zviad Gachechiladze to discuss “RIA on Time of Use Pricing for Households, Business and Industry” and “RIA on The Opportunities for Unbundling the Gas Sector”. The first Kick-off meeting aimed at discussing the details of the respective SoW the anticipated

outcome of RIA report. The parties agreed on the details and no delays are expected due to the created global challenge.

In observance of the submission deadline AYPEG submitted the first deliverable - “RIA on the Opportunities in Unbundling the Gas Sector”. The report incorporated the EU directives, new Law of Georgia on Energy and Water Supply, relevant existing secondary legislation in Georgia, etc. The subcontractors also shared a designed questionnaire which was approved by the Program. The team provided comments and suggestions for the report.

## CAPACITY BUILDING

In support of Georgia to effectively meet the needs of the anticipated competitive energy market, USAID Energy Program organized an advanced training on “Energy Markets Trading and Risk Management” for the energy sector stakeholders. MTX Commodities CEO Mr. Paul Constantinou and energy trading experts conducted three days of tailored training which took place at Ilia State University. The training aimed to provide technical assistance to the Georgian energy stakeholders on various technical aspects essential for the energy trading platform. *Details in special highlights.*

## STUDY TOURS

With the support of CAISO, California Energy Commission and First Solar Plant, USAID Energy Program organized a study tour to California USA between February 15 - 24, 2020 Mr. Paul Terris, supported USAID Energy Program, in drafting the plan for the California Study Tour. The delegation comprised of the representatives from GNERC, GSE, ESCO, GEDF, GEE and USAID Energy Program. *Details in special highlights.*

## ENERGY INVESTMENT OPTIMIZATION (TASK 3)

### INVESTMENT ADVISORY GROUP

Mr. Zviad Gachechiladze, Deputy Head of Electricity Department at GNERC, requested USAID Energy Program to assist in conducting a workshop on the net metering regulation. Under the newly adopted Georgian Law on Energy and Water Supply, GNERC is working on updates of net metering regulation for renewable energy. In addition, GNERC wants to reveal an incentive - “the 1000 solar rooftop program”. USAID Energy Program team and Mr. Gachechiladze agreed to organize a workshop under the framework of the Investor Advisory Group Meeting.

In this regard, Ms. Tamar Murtskhvaladze and Ms. Crissy Godfrey CEM Specialist Leader, Government & Public Services, Energy at Deloitte Consulting LLP met GNERC representatives. During the meeting, Mr. Zviad Gachechiladze, Deputy Director of Electricity Department GNERC empathized the effort of GNERC to improve the existing net metering regulation. The focus is made on the advancement of several factors such as capacity enhancement of renewable energy generator from 100 kW up to 500 kW, cancelation of localization limits, adoption of virtual net metering system and shared net metering system.

Also, the parties discussed the 1000 solar roof project. GNERC is working on the initiation of the project in the nearest project. Mr. Gachechiladze requested the Program to share the leading practices and recommendations concerning the above noted two topics.

On March 6, USAID Energy Program, with the initiation of GNERC organized an Investor Advisory Group Meeting. The meeting was dedicated to the Net Metering System advancement and 1 000 Solar Roof Initiative project. The workshop was designed to support the GoG in creating an enabling environment for new generating facilities and favorable investment climate. (Details please see in highlights).

Within the framework of sub-task 3.1.4, to provide one power purchase standard agreement and interconnection contract update, on March 5, USAID Energy Program conducted an online meeting (skype call) with the representatives of ESCO. The Program requested information on the PPA signed in Georgia, the current status, existing approaches, and implementation practices. In addition, ESCO briefed on anticipated changes to Support Schemes, particularly on the possibility of introducing the CfD. Other discussed topics were the existing business cycle of power trading, the clearing, and settlement between the power market participants. ESCO informed that the market concept was under consideration and acquainted the Program with the expected roles / functions that ESCO would have upon the finalization of the power market.

### RENEWABLE ENERGY SUPPORT SCHEME

To support renewable energy investments in Georgia, USAID Energy Program developed a report “Pricing to Support Development of the VRE in Georgia”. The study was initiated upon the request of VRE Investors in Georgia, who requested USAID Energy Program to analyze the ways of introducing support scheme policies in the power market of Georgia. To support the GoG in the implementation of the selected support scheme, the study reviews available support schemes in EU, Eastern Europe, and the Caucasus region for a more comprehensive analysis of the respective policies. Also, USAID Energy Program provided recommendations to the GoG on the competitive reference pricing methodologies for the VRE.

The Program held several meetings with the Ministry of Finance of Georgia (MoF) and Public-Private Partnership (PPP) Agency throughout the study process for the support in the methodologies for defining reference price for tariff-based support schemes. Upon the request of the MoF to apply the mathematical model for calculation of RES, the Program selected the Levelized Cost of Energy (LCOE) approach and developed an illustrative excel spreadsheet-based model for calculation of the simplified LCOE. The report including the excel model will be distributed among the VRE Investors and the MoESD, MoF and PPP, at the workshop which will be organized by the next quarter of the Year 3.

### SUPPORTING ENERGY INVESTMENT PROJECTS

With the effort and assistance of USAID Energy Program, the development of four (4) Wind Power Plants (WPP) projects – *Nigoza WPP - 50 MW*, *Imereti 1 WPP - 100 MW*, *Kaspi WPP - 50 MW* and *Tbilisi WPP - 50 MW* have witnessed significant advancement. The GoG reviewed these 4 wind



projects, followed by the acceptance of respective concepts for further proceeding. In addition, the MoF approved PPA conditions which offers off-take tariff - 6.5 US Cents per kWh, for 9 months on a 10-year period. Currently, the project developers are on the final stage of feasibility studies and upon completion, the projects will be submitted to the MoESD. The total installed capacity of the wind projects is 258 MW, with the approximate total investment of USD 358 millions.

To further support the projects and enhance the optimization of the financial sources, USAID/Georgia proposed the introduction of potential progressive VRE project to the U.S. International Development Finance Corporation (DFC).

For that reason, the Program developed one-pagers / teasers on the wind power projects of Imereti 1 (100 MW), Tbilisi (50 MW), Kaspi (50 MW) and Nigoza (50 MW). One pagers depict the key technical and financial data of the projects. The documents were agreed with the appropriate developer companies and shared with USAID/Georgia for the further processing.

On March 9, USAID Energy Program visited USAID/Georgia office. Mr. Philip Green stated that in mid-February USAID/Georgia introduced VRE potential projects to the DFC. The four wind projects, which are at the nascent stage of development triggered interest of DFC. However, DFC seems concerned over the PPA conditions approved by the MoF which offers Cent 6.5 US per kWh for 9 months on a 10-year period. In view of DFC the period should range between 20-25 years. Mr. Philip informed that DFC intends to contact developers directly for more detailed information. Also, they are interested in the existing views of the GoG on the PPAs and Support Mechanism conditions. As requested, the Program delivered information on PPA conditions and potential support mechanisms planned to be enacted by the end of 2020 and shared contacts of wind power project developers with the Program COR Mr. Nicholas Okreshidze.

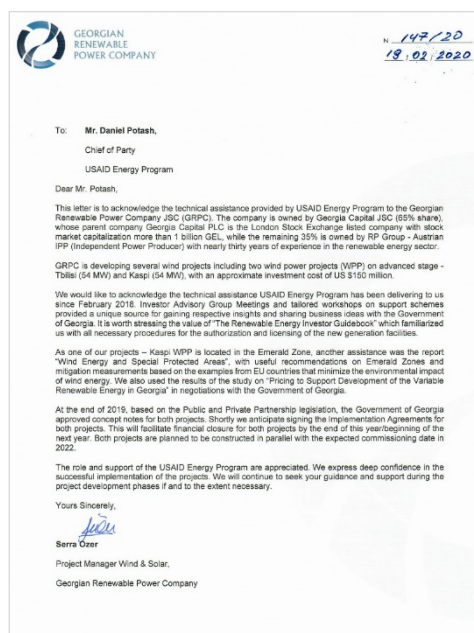
USAID Energy Program received an Acknowledgement Letter from the Georgian Renewable Power Company JSC (GRPC) for the technical support delivered to a company since February 2018. Investor Advisory Group Meetings and workshops on the support mechanisms equipped the company with the required knowledge and enabled the sharing of business ideas with the GoG. Another pivotal assistance obtained from the Program is the Guidebook which serves as a guide for the authorization and licensing of new generation facilities. GRPC also acknowledges the valuable recommendations of the Program on the Emerald Zones and mitigation measures.

USAID Energy Program met Mr. Tornike Bakhturidze, Executive Director of Infinite Energy. Mr. Bakhturidze informed that the MoESD and electricity stakeholders were dealing with Balancing Responsible Party issues for VRE projects in the new electricity market conditions, while defining the new market concept design. Therefore, Mr. Bakhturidze and Mr. Tornike Kazarashvili, Head of Energy Policy Department at the MoESD requested the Program to support in drafting a memo on Imbalance Responsibilities on the Market.

In support of the MoESD, USAID Energy Program developed and submitted the memo on „How to Handle Imbalance Costs for VRE Generators” to the USAID/Georgia Program COR for approval. The memo includes aspects on Financing Requirements for New VRE Generation, Background on the Four Leading Wind Projects in Georgia, Legal Framework, Technical issues faced by GSE, Economic and Political Issues, VRE Support Schemes and Imbalance Cost Methodology, Leading Practices and Principles for Resolution.

## GUIDEBOOK

USAID Energy Program team completed the Web-Based Interactive Renewable Energy Investors Guidebook. The Guidebook provides a detailed description of all necessary procedures for the successful implementation of the renewable energy project in Georgia since the adoption of the Law on PPP. Investor Guidebook explains all steps from the initiation of the project to decommissioning,

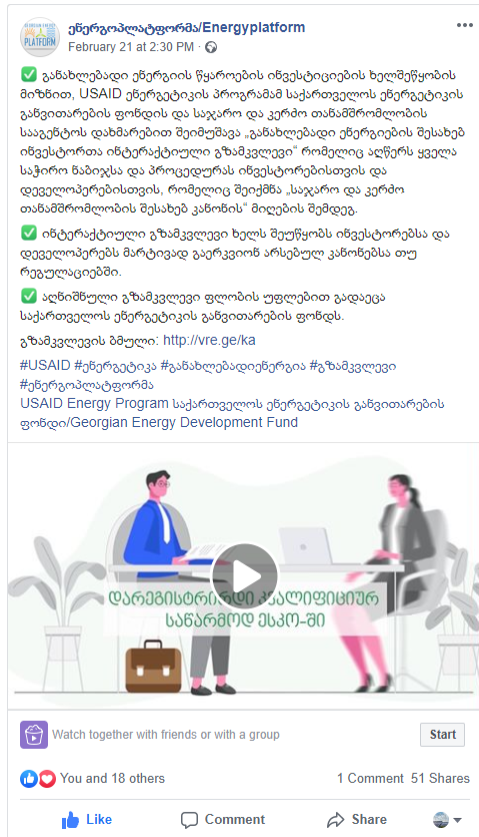


Acknowledgement Letter from GRPC

based on the existing legislation, including permits' (environmental, construction and operation) deadlines, fees and procedures.

On February 11, 2020, the USAID Energy Program officially transferred the web-based 'Interactive Renewable Energy Investor Guidebook' to the GEDF (please see details in highlights).

On February 21 ენერგოპლატფორმა/Energyplatform published news on the Guidebook which provides detailed information on the benefits of the product and includes the link for creating awareness among the audience.



ენერგოპლატფორმა /Energyplatform Facebook Post



Ms. Izabell Gotsadze

Communications and Stakeholder-Engagement Consultant in the Energy Sector

*"The Renewable Energy Investor Guidebook is one of the best guides for investors interested in the energy sector. In the guidebook, once can find detailed explanations of all stages of project implementation, from starting the project to decommissioning. The guidebook includes all the information and documentation necessary for completing these energy projects successfully.*

*The guidebook is one of the most useful projects among others that USAID has implemented in the Georgian energy sector. Their projects are effectively supporting the development of the energy sector in Georgia and helping to create an attractive investment environment for future investors".*

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

The Ministry of Regional Development and Infrastructure of Georgia (MRDI) requested USAID Energy Program to create awareness on the benefits of Solar PV Systems and train the local population and the Municipal Governments on its effective application.

Consequently, the representatives of USAID Energy Program, EECG, and UGT (the company that implemented procurement and installation of solar PV systems in the off-grid settlements), organized several site visits to the off-grid settlements. The trainers offered presentation to the local population with respective manuals. The trainings were completed in the following municipalities: Gori, Kareli, Borjomi, Imereti, Racha, Lentekhi, Adjara, Akhmeta, Kazbegi and Zemo Nichbisi.



*Trainings in the Following Municipalities: Gori, Kareli, Borjomi, Imereti, Racha, Lentekhi, Adjara, Akhmeta, Kazbegi and Zemo Nichbisi*

The visits scheduled in the remaining off-grid villages were cancelled due to the emergency situation caused by the COVID-19. The trainings will resume as soon as the conditions are settled down.

On February 25, Ms. Tamar Murtskhvaladze and Ms. Nino Kvernadze MRDI hosted Radio Imedi. The live stream discourse revolved around the Solar PV System Project for Off-grid villages. Ms. Murtskhvaladze elaborated on the technical assistance of USAID Energy Program provided to the GoG by suggesting the cost-effective solution to off-grid villages, followed by MRDI effort to install solar PV systems to the off-grid households. The live steam is available at:

<https://www.facebook.com/radioimedi/videos/143558863486624/UzpfSTYzNjQ5ODM3ODoxMDE1NzIzMzc2NTE3ODM3OQ/>

## GRID INTEGRATION OF VARIABLE ENERGY RESOURCES (TASK 4)

Through the persistent support and intensive engagement of Deloitte Home Office, USAID Energy Program completed the procurement of forecasting services. Deloitte has signed a contract on the provision of forecasting services with UL Aws True Power and ENFOR. The provision of forecasting services for 7 locations is proposed until November 30<sup>th</sup>, 2020. The beneficiary of forecasting services will be GSE.



The UL renewables team, headquartered in Albany, New York, has a professional staff of over 160 engineers, meteorologists, modelers, analysts and GIS specialists who are field-oriented and fully conversant of large commercial projects, utility electrical systems, remote field measurements, and distributed applications. UL is one of the world's leading renewable energy forecasting providers. Globally UL is providing forecasting services in 13 countries for over 85 GW of installed wind and solar generation capacity for over 1,700 utility-scale sites, all at the individual plant level. UL provides load forecasting support by delivering weather parameters, daily and on-call support services and distributed generation forecasts for over 8,000 MW of behind-the-meter (roof-top) solar PV systems at zonal or substation aggregate levels, covering over 400,000 homes and business.



ENFOR™ - Denmark, Copenhagen based company provides forecasting and optimization solutions for the energy sector. ENFOR™ was established in 2006 as a spin-off from the Technical University of Denmark. The company has a solid operational track record and daily serves customers in 12 countries around the world. Utilities, energy traders, transmission and Distribution System Operators (DSOs) use ENFOR™ solutions for forecasting of renewable energy production, electricity, and heat demand as well as for the optimization of district heating systems.

USAID Energy Program supports the development of a forecasting system to facilitate an increase of VRE penetration level to Georgia Electrical System.

Deloitte Head Office and USAID Energy Program's contribution to signing the contract with worldwide known companies UL and Enform deserves acknowledgment. Both Deloitte Head Office and the Program have dedicated relentless effort to finalize the contract and enable the presence of famous companies at Georgia's renewable market. This, in turn, will send a positive signal to potential investors and turn Georgia's renewable market into an attractive investment destination.

Another focal aspect having equal merits for gratitude is the created opportunities prior to reaching the deal. Negotiations with worldwide companies and the preparation stage also contributed to the intensive capacity building of the GSE. As a result, GSE had an opportunity to grasp knowledge on the following pivotal aspects:

- Procedures essential to procure forecasting services;
- Advanced skills for uncertainty metrics accuracy assessment of provided forecasts;
- Effective communication/negotiation with forecasting vendors on different topics;
- Setting up forecasting and data exchange;
- Developing regulations to ensure wind forecast operability.

The first submission of the proposals revealed that due to uncertainty and variability caused by the nature of the wind, the accuracy level for Day-Ahead (DA) and Intraday (ID) forecast could not be guaranteed and/or firmly maintained as was requested in the initial SoW.

Initially GSE, as the end-user of the services, rejected both suggested approaches for estimating accuracy. The first approach envisaged annual or monthly Normalized Mean Absolute Error (NMAE) and the other approach considered vendors' commitment under certain circumstances to maintain NMAE estimated on a monthly and/or annual basis.

The subsequent clarification phase led to extended technical discussions between the vendors and GSE. The Program not only participated in the discussions but also was the initiator and organizer of these intensive deliberations. As a result, several skype calls and constant correspondence took place between the vendors.



GSE prioritized clarity of the detailed statement and made decisions with the reference to several sources mentioned during discussions. USAID Energy Program, based on reasonable justifications, convinced GSE to agree on revised SoW made by the Program. Discussions triggered modification in the initial SoW renouncement of solicitation. At both stages of solicitation, Deloitte Home Office handled all procurement procedures.

The revised SoW entailed relatively moderated requirements. The Program updated SoW to balance the needs of GSE and existing practice and experience of vendors for the delivery of forecasting without guaranteeing the specific value of NMAE for each forecast.

During the clarification process, USAID Energy Program delivered two xls. based models to GSE. The models applicable to the accuracy assessment considered two different concepts. One was based on each DA and ID forecast NMAE assessment and the second envisaged the NMAE estimation for each hour of forecast time horizon every month.

Apart from procurement procedures, the Program held continuous discussions on forecasting models' data requirements with the developers and GSE. Another crucial point, requiring significant effort was the identification of the best solution for data confidentiality issues.

Following the intensive consultation with developers and GSE, USAID Energy Program came up with the decision to allow GSE sign Non-Disclosure Agreement (NDA) with vendors. This approach resulted in a quick resolution of the problem in terms of signing the paperwork for NDA, needed for the data exchange between GSE and vendors. However, the absence of USAID Energy Program / Deloitte as the counterpart under the NDA agreement "de jure" limits the Program's intervention in the data collection exchange process which necessitates setting up the forecasting models and deliver services.

Nevertheless, with the persistent support of USAID Energy Program, GSE made progress in organizing data collection platforms between GSE and operators / developers of Wind farms for delivering a complete set of historical data to vendors. The Program held multiple zoom calls with GSE regarding the data exchange and facilitated communication with 5 operators / developers of mentioned 7 locations. The Program was heavily engaged in discussions regarding the capability of datalogger to transfer data at 10-minute intervals and its dependence on the power supply.

Complete set of historical data that requires setting up the forecasting models has been delivered to vendors for 6 locations. The delivery of a complete set of historical data to vendors may allow vendors to launch the provision of less accurate forecasting services which will be improved with the delivery of real-time measurements of meteorological parameters. GSE and USAID Energy Program agreed to prioritize the launch of services, followed by efforts to deliver real-time data and respective improvement in accuracy of delivered forecasts.

GSE completed the setup of the Secure File Transfer Protocol (sFTP) server for data collection from Operators and Developers of wind farms and assigned each data source separate username and password. Two types of access were given to the participants - data upload authorization and data review and copy authorization.

Operators / developers of wind farms faced problems on the delivery of meteorological parameter measurement real-time data and the setting online data exchange between operators / developers of wind farms and GSE. Therefore, GSE and vendors planned to complete activities by the end of April.

When not compulsory, data sharing is dependent on the willingness of the operators / developers of WPPs to participate in a project related to the Wind Power Forecasting.

GSE and USAID Energy Program remained actively focused on the draft Regulation on Wind Power Forecasting, developed by the Deloitte International Expert Mr. Valeriy Vlatchkov. The Program fitted the mentioned document in the form of A Normative Act. The Program revised the draft several times in view of comments from representatives of Legal and Dispatch Departments of GSE. In the meantime, discussions were held with GSE and GNERC. The Program also introduced the estimation of regulation impact on wind farm operators / developers.

According to USAID Energy Program estimation, the possible cost implication of Wind Power Forecast Regulation on wind farm operators may be insignificant. Moreover, the anticipated extra cost ranges between 0.01%-0.03% comparative to the Capital Expenditure (CAPEX) per one turbine similar to the Qartli Wind Farm (QWF) turbines, and 0.1%-0.25% comparative to the Operating Expense (OPEX) of one turbine if assumed that 0.01 USD is the expense for OPEX per generated kWh.

Intensive discussions between USAID Energy Program and GSE resulted in the draft version of Wind Forecast Regulation. The document created with the request of GSE will be submitted to USAID for approval by mid-April. Upon the availability of the final version of the regulation, GSE plans to initiate a discussion with the operators, developers, and GNERC. Draft Regulation of Wind Power Forecasting is proposed as an amendment to the existing Network Rules. This, in turn, will ensure the sustainability and operability of the forecasting system developed with the support of USAID Energy Program.

USAID Energy Program completed a draft report on the Justification of Light Detection and Ranging (LiDAR) Procurement. The document considers the measurement requirements for wind applications and systems useful for wind resource assessment, control applications, and wind forecasting. The accomplishment of this study was considered as a prerequisite for completing a draft on Wind Power Forecasting. The report is under the internal review.

The report aims to justify the following issues:

- A. Applicability of LiDAR equipment for control measurement;
- B. Identification of system operator utilization factor for the deployment of LiDAR Equipment for control measurement;
- C. In view of modern technologies for wind measurement, compare the effectiveness of technologies for control measurement when deployed by system operator;
- D. Based on a) b) and c) justification and identification of ways to ensure the sustainability of cost predicted to be incurred by the Program in case of LiDAR procurement.

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

USAID Energy Program submitted the draft “Cost Estimation Study of Gas Pipeline Network and Alternative Systems for High-Mountainous Settlements of Georgia” to the MoESD and GGTC for revision and comments.

USAID Energy Program has updated the report on “Critical and Timely Issues for Georgia's Energy Security”. The list covers the topics on electricity and natural gas sectors security of supply. Currently, the respective team is structuring the issues in terms of their impact on the energy security in order to develop the "ranked list of issues".

On January 10, USAID Energy Program held a meeting at the MoESD together with the representative of “Blue Light” Mr. Grisha Macharashvili and GGTC. The MoESD plans to offer the presentation to the Parliament on the gasification of high mountainous regions, therefore certain details were readdressed. The parties also discussed cost estimation methodology applied by “Blue Light”, specificities of projected gas pipeline network per municipality and tariff impact scenarios.



*Meeting with the MoESD*

USAID Energy Program met the DM of MoESD Mr. David Tvalabeishvili and the Head of Energy Planning and Analysis Division at MoESD Ms. Elene Goksadze to discuss the “Cost Estimation Study of Gas Pipeline Network and Alternative Systems for High-Mountainous Villages in Georgia”. Mr. Aleks Kochlashvili Economic Analyst and Mr. Giorgi Giorgobiani Senior Energy Expert of the Program presented the study results. The representatives of the MoESD highly appreciated the presentation and inquired more details. Mr. Tvalabeishvili expressed gratitude for the undertaken job. Mr. Tvalabeishvili also requested the Program to accompany them in the Parliament and get engaged in the discussion if more clarification is required. Upon the request of the MoESD, USAID Energy Program translated the study into Georgian.

**Energy Security Workshop.** USAID Energy Program CoP Mr. Daniel Potash in cooperation with the Energy Security team drafted critical issues faced by Georgia in Energy Security for the two-day Energy Security Workshop, planned for April 2020. The main topics of discussion include Georgia's Energy Security Context, Threats to Energy Security, Georgia's key role as a regional energy transit hub, Cybersecurity and Georgia's Role in a Zero-Carbon Europe. The second day of the event will concentrate on the Cyber Workshop Deep-Dive Session and Scenarios Analysis - Understanding Tomorrow Today.

USAID Energy Program shared the topics with the MoESD, GNERC and GSE for comments and suggestions. MoESD, GSE and GNERC approved the main topics of discussion of the Energy Security Workshop.

Due to COVID-19 situation USAID Energy Program and beneficiaries decided to postpone the workshop in June. Meantime the Program tried the identification of the innovative informational products to be delivered to the stakeholders and all interested parties in case of failure to hold the Energy Security Workshop scheduled for June 2020. The Team also planned materials to have stand-alone one-pager documents on the identified critical issues that can also be used as supplementary documents for the conference Energy Security Workshop.

USAID Energy Program met Mr. Zura Beselia, IT department representative of GSE to discuss the Parallel Market Software (PMS) upgrade / migration request. According to GSE, generation / consumption scheduling program - GCAP is the core software on which PMS is built. Therefore, upgrade / migration of GCAP and PMS is interdependent work. Mr. Beselia suggested the division of

work into two phases. The first part should include survey and business process analysis for updating the software, development of concept paper and detailed Terms of Reference (ToR) for the programmers. In the second phase, programmers should migrate the software, test it, fix the errors and provide support during the operation period as well. Following the meeting USAID Energy Program prepared a Gantt Chart for mapping the activities and estimating the timeframe.

On January 23, CEO of GEDF Mr. George Chikovani asked USAID Energy Program support regarding exploring the topic of Power-to-Gas (P2G) technology and its applicability in Georgia. Mr. Chikovani stressed that increasing renewable energy production in Georgia offers an opportunity for the development of hydrogen technology in particular. Following to this request USAID Energy Program started desk research on hydrogen projects worldwide and developing financial model of the Hydrogen Electrolysis Plant and Solar PV power station.

In addition, USAID Energy Program held a meeting with energy experts Mr. Gabriel Jinjikhashvili and Mr. Simon Bakhturidze to discuss the scope of the pre-feasibility study of a potential hydrogen project. During the meeting, Mr. Jinjikhashvili introduced the preliminary calculations on hydrogen production costs and energy conversions. The Program intends to hire consultants who will develop the pre-feasibility study on hydrogen in support of the GEDF. In that regard, the Program team and Mr. Gabriel Jinjikhashvili met Mr. George Chikovani, CEO of GEDF to discuss the pre-feasibility study of Hydrogen and Solar projects development. Mr. Chikovani pointed out the interest of both the Government and Donor organizations in similar studies and new technologies.

**New Georgian Law on Safety of Hydraulic Facilities.** In early February Mr. Revaz Arveladze, the Deputy Chair of the Sector Economy and Economic Policy Committee of the Parliament of Georgia and Mr. David Mirtskhulava, the Chairman of GNCOLD requested USAID Energy Program to review and comment on a new Georgian Law on Safety of Hydraulic Facilities.

USAID Energy Security Team translated the initial draft Law on Safety of Hydraulic Facilities from Georgian into English for further review and developed general comments on a new Georgian Law on Safety of Hydraulic Facilities.

## CHALLENGES AND OBSTACLES

As the quarter commenced, coming out of the holiday season in mid-January, COVID-19 increasingly affected work and planning for the Program, until, by the end of the reporting period, end of March, COVID-19 dominated all work and personal matters. Still, overall, the Program can be successfully implemented by shifting to online delivery of training and workshops. Production of written collateral is easiest to do on a remote basis.

The Program carried out its last in-person event, Investor Advisory Group Meeting, on March 6, 2020. The last remaining visiting Short-Term Technical Assistance (STTA) international left the country on the following day, March 7, 2020. All Program personnel began working from home regime starting March 16, pursuant to Deloitte guidance. Deloitte offered all field-based CoPs to repatriate to their home country at their option, but USAID Energy Program's CoP chose to remain in Georgia indefinitely.

Remote operations for the Program were successfully implemented. All staff members have laptops, internet and cell phone access. Program staff have been participating in weekly check in, with each person making a written note on their tasks upcoming and to be completed. Regular work in Zoom meetings and by phone and decisions are taking place daily. USAID Energy Program recommended to USAID that all remaining delivery be transformed to documents, reports, briefings, and then delivered via webinar. As for reporting to USAID, a weekly video conference call replaces meeting, and weekly report is as before plus adding planned weekly activities as well.

Project administrative operations transferred smoothly to remote operation. Imprest (including all payments) are done online and from home, papers are sent to home office, hard copies, with office closed, payments possible and once / month paperwork processing possible. Banking is all be done online. There is no petty cash used. We are tracking COVID-19 associated costs – setting up codes and process to capture costs accordingly. Measures have been planned in case it is necessary to close the project office, but this is at all not expected. These measures concern assets, personally identifiable information, security, and vehicles (we have none).

Naturally, GoG became consumed with immediate COVID-19 response. In the energy sector, Prime Minister Mr. Giorgi Gakharia, announced on March 31 that anyone who consumes less than 200 kWh of electricity and less than 200 cubic meters of natural gas will be fully funded for three months – March, April, and May. The bill such for water supply and waste removal services for the mentioned period will be covered as well. GNERC approved EU-compliant rules of certification of operator of the transmission system for the electricity and natural gas sectors. MoESD did however cancel the Donor Coordination meeting that had been planned for April 2020.

The program's technical experts and Task leads were able to continue communications and planning with professionals in MoESD, GNERC, GSE, and with the newly created GEE. But, despite COVID-19, the work towards a competitive energy market continued.

Another challenge occurred in regard to the Study Tour to California held in February. The Program had partnered with First Solar as a co-host of the Tour, and First Solar duly made introductions to California System Operator and others. But in the week before the Study Tour, First Solar had some internal conflicts and they were not able to host the delegation. Deloitte energy specialists from the US were able to rework the schedule replacing the First Solar meeting with other fruitful meetings making the trip still effective.

## ANNEX 1: YEAR 3, SEMI-ANNUAL (OCTOBER 1, 2019 – MARCH 31, 2020) PMP INDICATOR RESULTS

Indicator	Y3, Semi-Annual Cumulative Results (October 1, 2019 - March 31, 2020)	FY3 Target	3-year Cumulative Target
<p><b>1. Generation capacity supported by United States Government (USG) assistance that has achieved financial closure</b></p> <p><i>Short Clarification:</i> This indicator measures the quantity of GHG emissions reduced or sequestered as a result of Energy Efficiency (EE), renewable energy and climate change projects and policies facilitated by USAID Energy Program.</p>	<p>4 wind projects: Imereti 1 - 100 MW, Tbilisi – 54 MW, Kaspi - 54 MW and Nigoza – 50 MW, has approval the concept note by GoG; The PPA proposal - approved by MoF. The projects are awaiting to sign MoU with GoG. The financial closure will be available after MoU will be signed.</p> <p><b><u>Year 3, Semi-Annual Result: 0</u></b></p>	40 (MW)	50 (MW)
<p><b>2. Energy generation capacity installed or rehabilitated as a result of USG assistance</b></p> <p><i>Short Clarification:</i> This indicator measures the quantity of clean energy generation capacity that will be added to the Georgian power system as a result of USAID Energy Program assistance.</p>	<p>4 wind projects: Imereti 1 - 100 MW, Tbilisi – 54 MW, Kaspi - 54 MW and Nigoza – 50 MW, has approval the concept note by GoG; The PPA proposal - approved by MoF. The projects are awaiting to sign MoU. The projects are scheduled to commence by 2021 -2022.</p> <p><b><u>Year 3, Semi-Annual Result: 258 MW</u></b></p>	40 (MW)	50 (MW)
<p><b>3. Projected GHG emissions reduced or avoided through 2030 from adopted laws, policies, regulations, or technologies related to clean energy as supported by USG assistance</b></p> <p><i>Short Clarification:</i> This indicator measures the quantity of GHG emissions reduced or sequestered as a result of laws, regulation and policies facilitated by USAID Energy Program over the 3 years of the project.</p>	<p>0.310 MW solar<sup>2</sup> x 8760 hours year x 10 years x 0.15 capacity factor % x 0.35 grid emission factor tons/MWH =1426 Metric Tons CO<sub>2</sub>e 100 MW wind<sup>3</sup> x8760 x 9 x 0.41 x0.35=1 324 354 Metric Tons CO<sub>2</sub>e 54 MW wind<sup>4</sup>x8760x8x0.40x0.35=529 805 Metric Tons CO<sub>2</sub>e 54 MW wind<sup>5</sup> x8760x8x0.45x0.35=596 030 Metric Tons CO<sub>2</sub>e 50 MW wind <sup>6</sup> x8760x8x0.45x0.35= 551 880 Metric Tons CO<sub>2</sub>e.</p> <p><b><u>Year 3, Semi-Annual Result: 3,003,495 Metric Tons CO<sub>2</sub>e</u></b></p>	70,000 (Metric Tons CO <sub>2</sub> e)	190 000 (Metric Tons CO <sub>2</sub> e)

<sup>2</sup>Installed solar panels in 207 remote villages

<sup>3</sup> Imereti Wind Farm- starting exploitation from 2021

<sup>4</sup> Tbilisi Wind Farm -starting exploitation in 2022

<sup>5</sup> Kaspi Wind Farm -starting exploitation in 2022

<sup>6</sup> Nlgoza Wind Farm -starting exploitation in 2022



Indicator	Y3, Semi-Annual Cumulative Results (October 1, 2019 - March 31, 2020)	FY3 Target	3-year Cumulative Target
<p><b>4. GHG emissions, estimated in metric tons of CO<sub>2</sub> equivalent reduced, sequestered, or avoided through clean energy activities supported by USG assistance</b></p> <p><i>Short Clarification:</i> This indicator measures the quantity of GHG emissions reduced or sequestered as a result of clean energy projects and policies facilitated by USAID Energy Program.</p>	<p><u><b>Year 3, Semi-Annual Result: 71 Metric Tons CO<sub>2</sub>e</b></u></p> <p><b>Note:</b> 0.310 MW solar x 8760 hours year x 0,5 years x 0.15 capacity factor % x 0.35 grid emission factor tons/MWh =71 Metric Tons CO<sub>2</sub>e</p>	<p><b>3,100</b> (Metric Tons CO<sub>2</sub>e)</p>	<p><b>3,100</b> (Metric Tons CO<sub>2</sub>e)</p>
<p><b>5. Amount of investment mobilized (in USD) for clean energy as supported by USG assistance</b></p> <p><i>Short Clarification:</i> This indicator measures the amount of funds in USD that are forecasted to be invested in new clean energy projects such as in new wind and solar PV farms.</p>	<p>4 wind projects: Imereti 1 - 100 MW, Tbilisi – 54 MW, Kaspi - 54 MW and Nigoza – 50 MW, has approval the concept note by GoG, the PPA proposal was approved by MoF. The projects are awaiting to sign MoU with GoG. The financial closure will be available after MoU will be signed. In total will be mobilized up to \$358 million</p> <p><u><b>Year 3, Semi-Annual Result: \$358,000,000</b></u></p>	<p><b>60,000,000</b> (USD)</p>	<p><b>80,000,000</b> (USD)</p>
<p><b>6. Number of individuals reached through outreach campaigns</b></p> <p><i>Short Clarification:</i> This indicator measures the number of people that will be reached several avenues employed by USAID Energy Program, including through mass media, social media, and events.</p>	<ol style="list-style-type: none"> <li>1. Facebook view – 3,423 (based on 100 different views per person and 34,023 total views)</li> <li>2. 114 persons (includes the numbers from trainings listed in indicator 7 and also from “Seminary on Communication Strategy on the Energy Market Opening” on January 17, 2020, Participant – 10; and “Seminary on Communication Strategy on the Energy Market Opening” January 24, 2020 - Participants 11)</li> </ol> <p><i>Comment: “Variable Renewable Energy Summit Tbilisi (VREST)” (held on November 25, 2019), “Nepal Energy Stakeholders Peer-to-Peer Information Exchange Visit” (held on December 2, 2019), “Training on Energy Market Trading and Risk Management” (held on February 4, 2020) and “Investor Advisory Group Meeting” (held on March 6, 2020) were covered by mass media (radio, print media, social media and different platforms of communications) (totally – 264 Participants)</i></p> <p><u><b>Year 3, Semi-Annual Result: 3,537 (persons)</b></u></p>	<p><b>4,000</b> (Number of People)</p>	<p><b>10 000</b> (Number of People)</p>
<p><b>7. Number of people receiving USG supported training in technical energy fields</b></p> <p><i>Short Clarification:</i> This indicator measures the number of people within an organization by topic (energy security,</p>	<ol style="list-style-type: none"> <li>1. <b>Public Utility Research Center (PURC) RIA online Training</b> – September 30 (Duration of the course – 6 weeks) Participant - 9 (Male - 1, Female - 8)</li> </ol>	<p><b>5</b> (Number of People)</p>	<p><b>40</b> (Number of People)</p>

Indicator	Y3, Semi-Annual Cumulative Results (October 1, 2019 - March 31, 2020)	FY3 Target	3-year Cumulative Target
<p><i>energy markets, energy forecasting, etc.) and by gender.</i></p>	<p>2. <b>Training on the Energy Market Trading and Risk Management</b> – February, 4,5,6, 2020, Participant - 69 (Male – 42, Female – 27)</p> <p>3. <b>Study Tour in Czech Republic for Georgian Energy Stakeholders</b> – October 20 - 25, 2019, Participants - 9 (Male – 5, Female – 4)</p> <p>4. <b>Study Tour for Energy Sector Stakeholders in the Competitive Market Development Process in California</b> – February 15-22, 2020. Participant - 6 (Male -5, Female – 1)</p> <p><b><u>Year 3, Semi-Annual Result: 93 participants (male – 53, female - 40)</u></b></p>		
<p><b>8. Number of promotional plans, campaigns and materials developed and implemented to electricity and gas sectors reforms, and optimize energy investments</b></p> <p><i>Short Clarification: This indicator measures the outreach material developed by USAID Energy Program the support the program tasks including energy market development, promotion of new renewable energy investment and energy security improvement for Georgia.</i></p>	<p>1. <b>Press Release – 5</b></p> <ul style="list-style-type: none"> <li>• Press Release - Renewable Energy Guidebook Transfer Ceremony;</li> <li>• Press Release - Nepal Energy Stakeholders Peer-to-Peer Informational Exchange Visit to Georgia;</li> <li>• Press Release - Variable Renewable Energy Summit Tbilisi (VREST);</li> <li>• Press Release - Awarding of RIA Course Completion Certificates to Employees of the MoESD and the Parliament of Georgia;</li> <li>• Press release - MTX Matrix Training Certificate Transfer Ceremony</li> </ul> <p>2. <b>Guidebook, Portable USAID Energy Maps, Bags, Pencils</b> - distributed at Variable Renewable Energy Summit Tbilisi, November 25-26, 2019 (detailed list is presented below):</p> <ul style="list-style-type: none"> <li>• Renewable Energy Investment Guidebook - 150 Guidebooks (including 500 pc portable / mini presentation);</li> <li>• Portable USAID Energy Maps - 150;</li> <li>• Pencil - 150;</li> <li>• Bags - 150.</li> </ul> <p>3. <b>Web-Based Interactive Renewable Energy Investment Guidebook</b> - (Officially transferred to GEDF on February 11, 2020)</p> <p>4. <b>Success Story</b> - 1 (Adoption of the Law)</p> <p>5. <b>Newsletter</b> - 2 (1 - December 9, 2019, 2 - February 13, 2020).</p> <p><b><u>Year 3, Semi-Annual Result: 13 (Outreach Material)</u></b></p>	<p><b>0</b> (Number)</p>	<p><b>24</b> (Number)</p>
<p><b>9. Number of institutions with increased capacity to implement regulatory impact assessments and/or other analysis</b></p>	<p><b>MoESD, Parliament</b> – PURC Online RIA training – September 30, 2019</p>	<p><b>0</b> (Number)</p>	<p><b>2</b> (Number)</p>



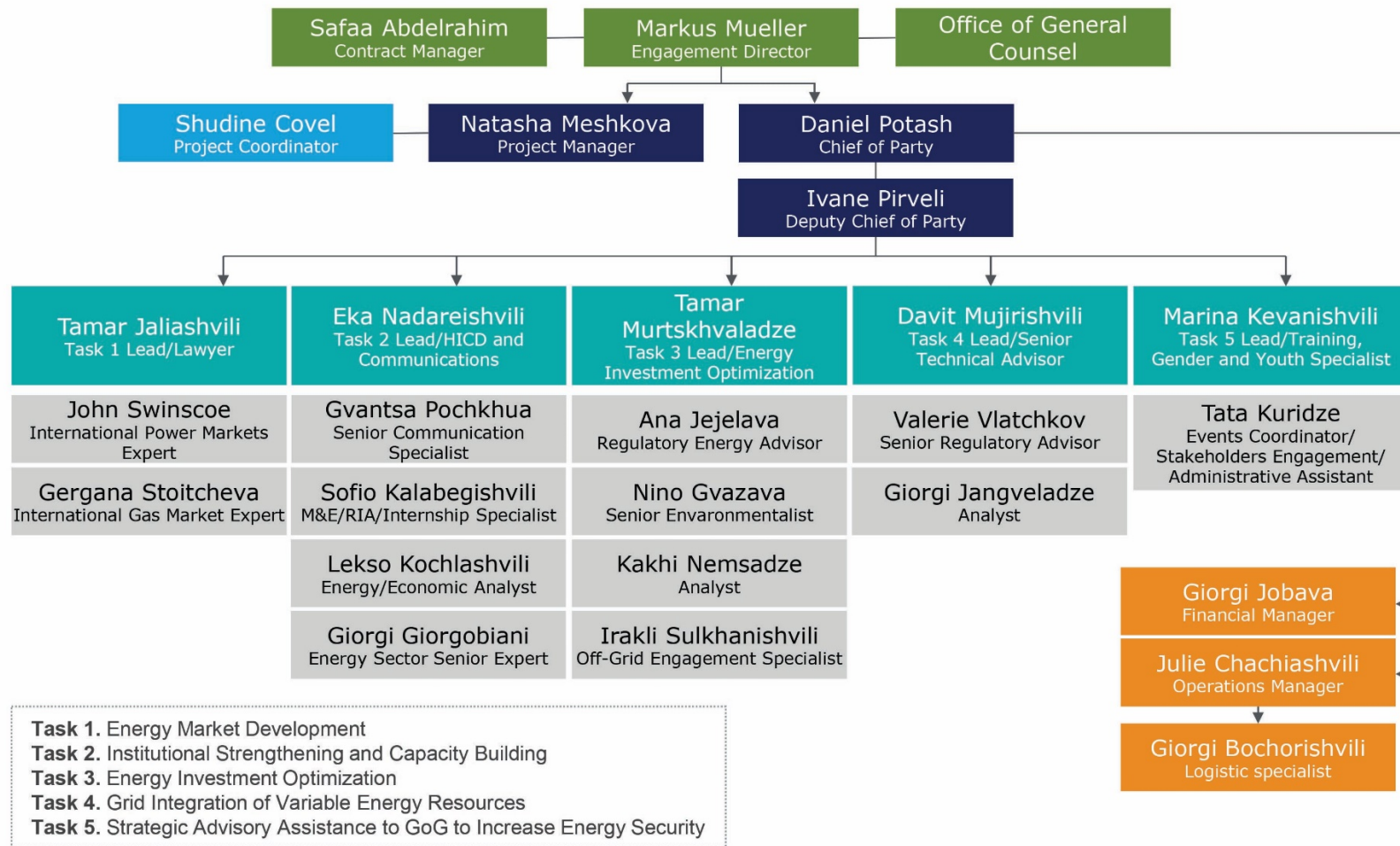
Indicator	Y3, Semi-Annual Cumulative Results (October 1, 2019 - March 31, 2020)	FY3 Target	3-year Cumulative Target
<p><i>Short Clarification:</i> This indicator measures the number of institutions for which USAID Energy Program has trained persons and have better capability to develop RIAs for new legislation.</p>	<p><b><u>Year 3, Semi-Annual Result: 2 (Institutions)</u></b></p>		
<p><b>10. Number of laws, policies, regulations, or standards addressing clean energy formally proposed, adopted, or implemented as supported by USG assistance</b> <i>Short Clarification:</i> This indicator measures the number of legislative acts supported by USAID Energy Program and adopted by the GoG, GNERC or other relevant institution that support clean energy development</p>	<ul style="list-style-type: none"> <li>• “Report on How to Handle Imbalance Costs for VRE Generators, Consensus Building amongst VRE Developers and GoG”</li> </ul> <p><b><u>Year 3, Semi-Annual Result: 1 (Document)</u></b></p>	<p><b>2</b> (legislative acts)</p>	<p><b>10</b> (legislative acts)</p>
<p><b>11. Number of financial institutions, investment companies and/or private investors exposed to non-hydro RE opportunities as supported by USG assistance</b> <i>Short Clarification:</i> This indicator measures the number of financial institutions contacted by USAID Energy Program where the non-hydro Georgian Renewable Energy plants are promoted.</p>	<ul style="list-style-type: none"> <li>• 4 wind projects and 1 Hybrid Biomass Project was presented to - <b>U.S. International Development Finance Corporation (DFC)</b></li> </ul> <p><b><u>Year 3, Semi-Annual Result: 1 (institution)</u></b></p>	<p><b>0</b> (number)</p>	<p><b>10</b> (Number)</p>
<p><b>12. Number of research, analytical and white papers conducted including modern modelling and planning tools, among others</b> <i>Short Clarification:</i> This indicator measures the research, analytical and white papers developed by USAID Energy Program relating to variable renewable energy development in Georgia.</p>	<ol style="list-style-type: none"> <li>1. “Cost Estimation Study of Gas Pipeline Network and Alternative Systems for High-Mountainous Settlements of Georgia”</li> <li>2. “Review of Electricity Market Design Concept”</li> </ol> <p><b><u>Year 3, Semi-Annual Result: 2 (Documents)</u></b></p>	<p><b>2</b> (Number of documents)</p>	<p><b>10</b> (Number of documents)</p>
<p><b>13. Number of critical energy security issues identified and addressed</b> <i>Short Clarification:</i></p>	<ol style="list-style-type: none"> <li>1. “<b>Georgia Resource Adequacy Study</b>” - USAID Energy Program conducted a study and set forth how to identify the minimum share of domestic generation capacity in total demand that is required for security of supply for Georgia. The</li> </ol>	<p><b>2</b> (Number of Energy)</p>	<p><b>5</b> (Number of Energy)</p>

Indicator	Y3, Semi-Annual Cumulative Results (October 1, 2019 - March 31, 2020)	FY3 Target	3-year Cumulative Target
<p><i>This indicator measures the number of critical energy security issues approved by USAID and addressed by USAID Energy Program</i></p>	<p>study is based on Georgia Resource Adequacy Model developed for Georgian power system and detailed data provided by GSE.</p> <p><b>2. “Enguri Hydro Power Plant in the Competitive Energy Market” - October 22, 2019</b> - USAID Energy Program reviewed Market Design Concept – issues and opportunities and discussed Enguri Hydro Power Plant in the Competitive Energy Market with Georgia energy stakeholders and developers. Main topics of discussion included Electricity Market Design, challenges including Abkhazia, legacy contracts, the ways of promotion liquidity and meter profiling and potential remedies of the challenges</p> <p><b>3. “Cost Estimation Study of Gas Pipeline Network and Alternative Systems for High-Mountainous Settlements of Georgia”</b></p> <ul style="list-style-type: none"> <li>• USAID Energy Program conducted research for 1,178 villages in 37 municipalities, gasification cost (including building pipeline) and expected demand for gas were calculated for each municipality separately.</li> <li>• Net Present Value (NPV) and Internal Rate of Return (IRR) were calculated for each municipality separately and based on this report it is clear which municipality has advantage against other municipalities from economical and financial point of view. Report gives possibility to conduct strategy for possible future gasification of all high mountain regions which is necessary for Georgian Energy Sector.</li> </ul> <p><u><b>Year 3, Semi-Annual Result: 3 (issues)</b></u></p>	Security Issues)	Security Issues)
<p><b>14. Percentage of energy traded on the competitive market by 2020</b>  <i>Short Clarification:</i>  <i>This indicator measures the amount of competitive trading in the electricity sector as indicated as the average monthly percent of competitive sales versus total retail sales in the sector.</i></p>	22% of total market (average for September 2019-February 2020)	10 (%)	10 (% of total market)

Indicator	Y3, Semi-Annual Cumulative Results (October 1, 2019 - March 31, 2020)							FY3 Target	3-year Cumulative Target
	Direct Customers - Electricity Consumption (mln. kWh)	September 2019	October 2019	November 2019	December 2019	January 2020	Febru		
	Georgian Mananese	66	74	73	73	76			
	Georgian Water & Power	14	14	13	14	14			
	Geo Service	-	3	-	-	-			
	BFDC Georgia	58	59	49	37	35			
	Kutaisi Investments	-	-	-	-	-			
	Geo Maintenance	13	-	4	0	0			
	Energo-Pro Georgia	0	0	0	0	0			
	Rustavi Steel	14	15	15	15	15			
	Geosteel	11	11	10	12	10			
	Rustavi Azot	25	27	25	24	24			
	Heidelbergcement Georgia	18	18	18	16	16			
	IT Lab	15	3	-	-	-			
	GTM Group	10	10	9	9	9			
	Chiaturamanganum Georgia	10	10	9	11	11			
	JSC14 Rusalloys	9	7	4	10	10			
	BLOCKPOWER	22	0	-	-	-			
	RMG Cooper	6	6	6	7	7			
	Gardabani Thermal Power Plant 2	-	0	2	0	-			
	Direct Customers' Consumption - Total (mln. kWh)	290	257	239	227	225			
	Total Consumption - Georgia (mln. kWh)	1,023	978	1,110	1,214	1,242			
Share of Direct Customers in Total Consumption of Georgia (%)	28%	26%	22%	19%	18%				
Number of Direct Customers (#)	17	18	18	18	16				
<b><u>Year 3, Semi-Annual Result: 22% (of total market)</u></b>									
<b>Note:</b> Highlighted in red (in indicator 14 table) are those companies that are no longer in direct customer list (Source ESCO Balance 2020)									
<b>15. Number of people trained in clean energy supported by USG assistance</b> <i>Short Clarification:</i> <i>This indicator measures the number of attendees of training events held by USAID Energy Program, are members of working groups supported by USAID Energy Program or are counterpart staff seconded to USAID Energy Program.</i>	<b><u>Year 3, Semi-Annual Result: N/A</u></b>							<b>5</b> (Number of attendees)	<b>40</b> (Number of attendees)
<b>16. Number of institutions with improved capacity to address clean energy issues as supported by USG assistance</b> <i>Short Clarification:</i> <i>This indicator measures the number of institutions with increased capacity to address clean energy issues as a result of USAID Energy Program assistance.</i>	1. MoESD, MRDI, GNERC, GEDF, GSE, GRPC, GREDA, IED, ESCO, QWF, TBC Bank, European Bank for Reconstruction and Development (EBRD), KfW, Georgian Global Utilities (GGU), Black Sea Energy, Green alternative, Alternative Energy Solar (AE Solar), Enterprise Georgia, Georgian International Energy Corporation (GIEC), Embassy of Romania, Nobel Oil, Bank of Georgia (BoG), Zestaponi LLC, Enguri Ltd, New Technology Center (NTC), Eastern Power Co, Forests Agency, Rodina Energy Group, Ruisi Wind Farm, Swedish Embassy, Gianti Logistics, Georgian Technical University (GTU), WB, UNDP, PPP, Bioinsight, Bureau Veritas, ISET- PI, Sun House, MLD, Calik							<b>1</b> (Number of Institutions)	<b>6</b> (Number of Institutions)

Indicator	Y3, Semi-Annual Cumulative Results (October 1, 2019 - March 31, 2020)	FY3 Target	3-year Cumulative Target
	<p>Enerji, Goldwind, ENKA, Renewables, Aptos, PMO, Helios Energy, Forests Agency. - <b>Variable Renewable Energy Summit Tbilisi (VREST) – November 25, 26, 2019</b></p> <p>2. GNERC, GSE - <b>Workshop on Wind Power Forecasting</b> – February 11, 2020</p> <p>3. GSE, GNERC, GEDF, ESCO, Georgian Power Exchange - <b>Study Tour to California</b> - February 14-24. Participants: 6 (Male -5, Female – 1)</p> <p>4. USAID Energy Program Supported Georgian State Electrosystem in increasing capacity to address clean energy issues:</p> <ul style="list-style-type: none"> <li>• On required procedures to procure forecasting service;</li> <li>• Uncertainty metrics for accuracy assessment;</li> <li>• Setting up forecasting and data exchange;</li> <li>• Developing regulations to ensure wind forecast operability.</li> </ul> <p><b><u>Year 3, Semi-Annual Result: 49 (Institutions)</u></b></p>		
<p><b>17. Number of laws, policies, regulations, or standards to enhance energy sector governance formally proposed, adopted, or implemented as supported by USG assistance</b></p> <p><i>Short Clarification:</i>  <i>This indicator measures the number of legislative acts. (not related to clean Energy programs) supported by USAID Energy Program and adopted by the GoG, GNERC or other relevant institution.</i></p>	<p>1. “Market Monitoring (Financial Settlements and Data Management) Business Process Model” - Will be completed in Year 3;</p> <p>2. “Comments on Dam Safety Rules” - Will be completed in Year 3;</p> <p>3. “Economic Analysis Methodology for Gas Transmission Infrastructure Projects - Sent to counterparts: GGTC and GNERC;</p> <p>4. “Support on developing Gas TYNDP” - to be completed in Year 3;</p> <p>5. “Amendment on Grid Code on Wind Power Forecasting System”;</p> <p>6. “Comments on Energy Strategy of Georgia 2020-2030”.</p> <p><b><u>Year 3, Semi-Annual Result: 6 (Documents)</u></b></p>	<p><b>10</b> (Number of legislative acts)</p>	<p><b>24</b> (Number of legislative acts)</p>

# ANNEX 2: USAID ENERGY PROGRAM ORGANIZATION CHART



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