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# COMMENTS ON ENERGY STRATEGY OF GEORGIA 2020-2030

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17 October 2019

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# DATA

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**Practice Area:** Electricity Market Development

**Key Words:** Energy Strategy

## ACRONYMS

AA	Association Agreement
BM	Balancing Market
CNG	Compressed Natural Gas
DAM	Day Ahead Market
EnC	Energy Community
EnCT	Energy Community Treaty
ENTSO-E	European Network of Transmission System Operators for Electricity
EU	European Union
GEL	Georgian Lari
GNERC	Georgian National Energy and Water Supply Regulatory Commission
GoG	Government of Georgia
GSE	Georgian State Electrosystem
GWh	Gigawatt Hour
HPP	Hydro Power Plant
IDM	Intra Day Market
JSC	Joint Stock Company
LPG	Liquified Petroleum Gas
MW	Megawatt
TPP	Thermal Power Plant
TYNDP	Ten Year Network Development Plan
USAID	United States Agency for International Development
VRE	Variable Renewable Energy

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## INTRODUCTION AND BACKGROUND

The purpose of USAID Energy Program is to: (1) support Georgia in energy market development per Georgia's obligations under the Energy Community Treaty (EnCT), (2) build the capacity of the Government of Georgia (GoG) and relevant institution(s) evaluate the fiscal and long-term impacts of regulatory changes, (3) promote energy investments, primarily in Variable Renewable Energy (VRE) development, (4) 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.

Recently Georgia joined the European Energy Community (EnC) undertaking obligation to implement mandatory reforms in the energy sector in compliance with European Union (EU) Energy Aquis. Respective Directives and Regulations are to be implemented within a determined timeframe. The membership allows Georgia to make active steps towards the liberalization of the energy market, to ensure the safety of energy resources, to use renewable energy resources and to facilitate energy efficiency, also to take measures in the environment protection and improve the statistics by the relevant state authorities.

The country is committed to integrate into European and Euro Atlantic organizations and to transpose the best practice of leading European states into all sectors, including the energy sector. The foundation for developing sustainable, competitive and secure energy lies in the Association Agreement (AA) which was signed between Georgia and the European Union in September 2014. AA refers to major reforms that the country has to implement, lists the mandatory EU directives and regulations to comply with and links the deadlines for their transposition, to the requirements set by the EnC.

One of the main objectives of USAID Energy Program is to support Georgia's efforts to facilitate increased investment in power generation capacity as a means to increase national energy security and facilitate economic growth. Improved legal and regulatory framework that complies with European requirements and encourages competitive energy trade, will serve as the basis for investment attraction in the sector as well.

Therefore, considering the developments in the energy sector of Georgia and the tight timeline of implementing the undertaken obligations, USAID Energy Program actively supports the GoG by providing recommendations during the reform making process.

USAID Energy Program has reviewed the Energy Strategy document, which is the fundamental and generalized document reflecting all steps and implementation measures to be executed to achieve the ultimate goal of the country and to meet the EU requirements undertaken by the AA and Association Protocol signed by Georgia.

In relation the structure of the Energy Strategy 2020-2030, USAID Energy Program views that the document is more general, providing main directions of the state policy in the energy sector, simultaneously, sets the key priorities in view of the principles of sustainable development including:

- Improvement of the energy sector related legislation to achieve approximation with the EU standards;
- Improvement of investment environment by promoting transparency, competition and independent regulation of the sector;
- Reduction of import dependence through rationale utilization of local energy resources;
- Strengthening Georgia as a transitory country;
- Infrastructure development for reliable and efficient gas and electricity transmission and distribution systems;
- Development of electricity and natural gas markets and trade mechanisms;
- Creation of strategic reserves;
- Promotion of energy efficiency measures;
- Promotion of energy resources import diversification;
- Promotion of scientific / technical progress achievements and innovations;
- Capacity building for human resources;
- Implementation of social policy.

The table provided in the report considers comments of USAID Energy Program in relation to various articles, concurrently general remarks of the Energy Strategy 2020-2030.

# COMMENTS ON ENERGY STRATEGY OF GEORGIA 2020-2030

The main factor for the economic development of Georgia and the increase of social welfare is the security of the energy supply. Development of a sustainable energy system requires time, therefore decisions for the future of the energy sector should be defined at the earliest possible stage. With the development of the Energy Strategy 2020 – 2030 (here and after the document) the GoG sets out the key priorities in energy sector development. As an overall plan for the future development of the energy sector in Georgia, consistent of principles and measures which will impact the energy policy for the following ten years and the future development of legal and regulatory frameworks, USAID Energy Program takes into account the significance of this document and presents comments on the strategy listed below:

1. The Energy Strategy 2020-2030 should include a list of abbreviations and descriptions used in the strategy;
2. The document should specify a list of used measuring units, used in the document;
3. The document might consider a separate paragraph, either summarizing, prioritizing and/or describing the strategic objectives as a key priority and measures for reaching these goals, which are incorporated into the text. It is preferable to highlight these objectives in a separate paragraph. Respective measures for achieving the strategic objectives should also be presented in a separate paragraph as a response to the strategic objectives. Also, it is necessary to present the ways for achieving the strategic objectives;
4. It is not clear which authority is committed to reaching the strategic objectives and which authority is responsible for monitoring, verification and reporting on the implementation the strategy measures and action plans;
5. It will be more suitable to ensure Energy Efficiency and Energy Performance of Buildings in the legislation framework, as it is one of the directions defined by the EU requirements;
6. It is preferable to describe market structure including (Day Ahead Market (DAM) and Intra Day Market (IDM) and Balancing Market (BM)) in compliance with the UE requirements and provide Coherence and Cohesion provisions;
7. For integration with the European single energy market, Georgia needs to address several challenges such as:
  - Creation of effective competitive domestic market of energy with the active participation of traders and suppliers;
  - Establishment of a power exchange;
  - Effective implementation of requirements related to deregulation of the electricity generation prices;
  - Protection of vulnerable customers;
  - Operation of the transmission system operator as an independent system operator;
  - Active participation in the regional power market.
8. The document lacks a goal for the electrification and gasification of rural areas. Several issues in demographic character and overpopulation of urban areas will be solved with the creation of strategy in this direction. The aim of this strategy will be the provision of cheap non-fossil fuel-based lighting and heating sources to those living in mountainous areas and sparsely populated areas with no/or limited access to electricity and gas. The main goal of the document will be to enhance the quality of life and reduce poverty in these areas and enable the population to have access to new modern technologies, and access to distance education, which will have a significant social impact on these areas;
9. Different scenarios and implementation framework with stages for reaching the goals are missing in the document. The Energy Strategy 2020-2030 presents only one scenario for each measure undertaken for the achievement of goals. The development of different scenarios with options for future development and transitional measures for reaching the final goals will decrease the risk for reaching these goals.



**Table 1: Comments Related to Separate Articles**

N	Energy Strategy Reference	Suggested Modification and/or General Comment
1	Paragraph 1.1. Georgian National Energy and Water Supply Regulatory Commission	Brief Overview of the Electricity Sector - the document described the role of the Georgian National Energy and Water Supply Regulatory Commission (GNERC). Late in the main document, the role of the regulator for the implementation of the national strategy is missing. At the same time, the Law of Energy granted responsibilities to a regulator for developing rules and regulations which are related to the main goals of the strategy. For achieving the objectives of the strategy, GNERC needs to be involved at a larger scale and its responsibilities and policies in this direction need to be incorporated into the strategy
2	Paragraph 1.5 Strategic areas of Development. <i>“Work is underway in the framework of the ENTSO Cooperation Project. The aim of the project is that JSC Georgian State Electrosystem joins the organization as an observer”</i>	We understand that Georgian State Electrosystem (GSE) is planning to become an observer of European Network of Transmission System Operators for Electricity (ENTSO-E), but it would be better for the term of the strategy, if GSE becomes a member of the ENTSO-E. Concurrently, according to the operational rules of the ENTSO-E, control area is obliged to ensure at least 50% of system reserve capacities (primary, secondary and tertiary) in its domestic generators. It underlines the importance of the strategy for the power system security and from that point, the measures envisaged in the strategy are timely and important. The financing of such projects will be viable and attractive for private investors if an ancillary services market will be developed in Georgia
3	Paragraph 1.5 subparagraph 1.3	It should be mentioned that, when the system reliability is not challenging, the penetration of VRE doesn't pose a risk to the system
4	Paragraph 1.5 Security of Supply	It is advisable, to clarify the term Strategic Purpose Hydro Power Plant (HPP) and describe the specification of reservoirs which could be perceived as a criterion for recognizing HPP as a strategic purpose. Subparagraph Utilization of Resources considers a list of HPPs that could be perceived as a strategic purpose: Khudoni, Nenskra, Namakhvani Cascade, Mtkvari Cascade. It is mentioned that these HPPs are with seasonal regulation water reservoirs
5		According to the content, the Criteria consider only the Transmission Network reliability whilst the Network Rules cover both Transmission and Distribution Network. Is it correct under the Security of Supply to consider only transmission network reliability or the reliability of distribution network would also be taken into consideration?
6		The risk section describes the situation regarding the Enguri HPP which considers the risk posed by the potential loss of operational control on Enguri Powerhouse and Substation. Unfortunately, neither Risk and Challenges of the section nor the Security of Supply section consider the issues challenging the operation of the Enguri HPP which would remain even after phase IV rehabilitation, despite the risk mentioned which could cause loss of Enguri Power-House operational control. Under the challenging issues might be considered the lack of finances to continue rehabilitation and maintenance due to the situation with Abkhazia nonpayment for the supplied electricity. This in turn, is challenging the Enguri HPP financial capability to claim new credits from financial institutions to rehabilitate valves in powerhouse or rehabilitate the Vardnili HPP. For the remaining issues challenging the reliability of Enguri HPP please see USAID Energy Program Report on Challenging issues
7	Paragraph 2.1 Variable, Renewable and Unconventional Sources of Energy <i>“unstable, hardly predictable generation characteristic to wind farms poses some technical problems to the stability of the power system, which is balanced by</i>	These considerations should be appropriately recognized and incorporated in the strategy debate to avoid serious challenges to the security of the power system in the future. As the share of renewable energy increases, so does the requirements for increased back-up capacity and serious stresses will be put on the energy system unless the relationship and the complementarity

N	Energy Strategy Reference	Suggested Modification and/or General Comment
	<i>backup power plants. Consequently, construction of wind farms significantly depends on the further development of backup power stations. In the Georgian context, considering the local resources and energy security factor, the most optimal option for this purpose would be construction and use of regulated hydropower plants. In international practice, the most efficient backup sources are gas-fired combined cycle power plants”</i>	between gas turbine and renewable energy technologies are appropriately acknowledged. Integration in the regional electricity market is an option for decreasing the capacity of backup generation capacity and contribute to the security of the power system, which needs to be underlined in the strategy
8	<i>“One of the optimal solutions for power supply to mountainous, hard-to-reach, scarcely populated villages are autonomous micro power plants operating with solar photoelectric converters. In order to install solar systems in such settlements, the Ministry of Infrastructure initiated and financed a project the total project cost of which is GEL 2 million”</i>	The strategic goal is that mountainous, hard to reach, scarcely populated villages should be supplied with electricity. The measures taken in this direction need to be sustainable for a long-term period and should be included in the strategy. Financing of investments and return on these investments need to be studied, as well as cost-benefit analysis, the results of which will serve as a basis for future implementation of electrification and gasification of the country
9		The Strategy states that the usage of solar collectors for hot water supply is a technology appropriate for most of the regions of Georgia. But the strategy does not empathize this as a strategic goal and does not provide strategic measures for reaching this goal
10	Paragraph 2.1 - the increase in penetration level of VRE generation would incentivize the local production of solar panels and other units	It would be desirable to mention the strategic priority on new modern technologies, which will bring quality and high efficiency of generation in Georgia. As an example, this is ensured in Denmark through the certification of technological process. Without the certification of the technology, developer, investor or owner couldn't apply to the incentive scheme
11	Paragraph 2.1 mentioned that its planned study of battery storage and Pumped Hydro station integration study. As well as Wind Energy. Its mentioned that pumped hydro is most optimal to backup wind power generation whilst according the best international practice most effective to be utilized as a backup is a Gas Combined Cycle Power Plants	At least, before the study is completed, the statement with regard to the most optimal technology to backup Wind power should be referenced to some study or practice, otherwise it should be studied, including performed cost benefit analysis considering the specific of Transmission Network. This is because the technologies under the Effective solution and Optimal Solution are quite different
12	Paragraph 2.1 It is mentioned that the forecast of solar power generation is almost impossible	It would be desirable to state that it is more difficult than impossible
13	Paragraph 2.2 Promotion of Use of Renewable Energy Resources, Promotion of Use of Renewable Energy Resources” is ending with the statement <i>“It should be noted that one of the mechanisms for promoting renewable energy - so called "Net Accounting", has already been introduced in Georgia. Currently, the installed capacity of the micro-power plants involved in the net metering system is 1.2 MW. At present, more than 108 micro power plants operating on the net metering basis are connected to the country's power distribution networks”</i>	This statement presents the current situation without vision for the net metering (billing) technology for the future development during the terms of the strategy for the next 10 years. Net metering is a very powerful incentive for the development of renewable energy in the country and is typically designed to foster private investments in renewable technologies. Depending on the scale of the technology, penetration in the country and the use of other energy efficiency measures may pose different challenges on the electric utilities existing business model. These impacts need to be studied and presented for future development of net metering technology in Georgia. Denmark and United States have led large campaigns to eliminate or reduce the impact of the net metering technology on the power system and in some cases without any success, which exposes the power system at risk
14	Paragraph 2.3 <i>“... as a result of implementing the energy efficiency measures in the energy consuming sectors, saving of the primary energy sources could reach 9% in 2021 compared to the base year, while savings in final</i>	The document doesn't specify which authority is responsible for monitoring the achievement of these goals which can be reached in 2021. Since the strategy covers the period 2020-2030, it needs to present what achievements in the area of the energy efficiency can be reached at the end of 2030 and what are the transitional steps for reaching these goals

N	Energy Strategy Reference	Suggested Modification and/or General Comment
	<i>energy consumption could reach up to 4%, which in total is approximately equivalent of 5 455 GWh”</i>	
15	Paragraph 2.2 states that the impact of incentive schemes on budget, energy market and market participants would be studied	It would be advisable to consider the study of Economic and Social Affordability under this statement. The Study of impact on market participants might consider the Economic Affordability. However, the Social affordability, which relates to putting low-income households at risk of poverty with high energy costs are missing here and would be great if reflected somewhere. Also, there is the intention to study the impact of incentives on technology development, market and market participants but it would be helpful to include the measures to be taken to study the impact. The document might consider the measures for target achievement, the approach and procedures for monitoring, when, by whom and how the progress in terms of achieving the targets should be measured and evaluated
16	Strategy budget	Analysis of financing the measures and plans for achieving the objectives are the main challenge for the future implementation of the strategy. Also, to limit the burden on the public budget of the strategic objectives, the projects need to be undertaken with the involvement of private capital through public private partnership, however the approach is missing in the strategy
17	The term Strategic Reserve mentioned under the Strategic Reserve Section	Preferable, if the definitions here are provided for the Strategic Reserve Section - what is or would be the criteria to perceive old technology Thermal Power Plants (TPPs) as a strategic reserve of generation if such definition doesn't exist. In such a case, new definition in the Energy Law and Network Rules may require the inclusion of TPPs to the Strategic Reserve. Also, maybe strategy would address the engagement of GNERC in the new tariff methodology development for such type of TPPs or would allow the estimation of Revenue Requirement and calculation of tariff with the existing methodology. Also, the question is how the utilization of old TPPs complies with the statement provided in different versions of Ten-Year Network Development Plan (TYNDP) regarding the dates for decommissioning of units 3-4-9 and GoG Resolution #193 on the determination of Guaranteed Capacity Sources
18	Paragraph 4.2 It is mentioned that planned incentivization of conversion of gasoline cars to the Compressed Natural Gas and/or Liquid Petroleum Gas, substitution of public transport utilizing diesel fuel by the transport on CNG or LPG and incentivization of Electric cars	This should be the topic of study as well as the study of Incentive schemes for wind and solar power generation

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