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## Policy Report of the Public Policy Research and Training Center



## Energy security risks in Georgia and strategies for mitigation



## Mission of the Public Policy Research and Training Center

The Public Policy Research and Training Center (PPRTC) of Ilia State University was founded in November 2013 and is focused on supporting the development of public policy research in Georgia through capacity building for research personnel and public servants, conducting evidence-based analytical studies and ensuring highly qualified targeted short-term training courses.

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## Energy security risks in Georgia and strategies for mitigation

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## Executive Summary

Energy security is one of the key components of national security, and its provision is a key goal of energy policy. The tense political situation of the region, requirements of sustainable development of the country and intensive infrastructural and organizational development within the energy sector make energy security even more important. It requires full and timely identification of relevant threats and reflection within appropriate action plans.

This paper is an effort to offer decision-makers a basis for methodological discussion of energy security issues that will enable systematic discussion of energy threats and development of appropriate protection measures.

Unfortunately, surveys on energy efficiency are still in an embryonic stage, which has a negative effect on energy strategy and policy documents as well as resulting decisions. More specifically, several shortcomings were identified during the study:

- Strategic documents of the country do not rely on a substantial definition and discussion of energy security, but are limited to stating only several mitigation measures like diversification, development of internal resources, etc. Therefore, it is not clear what are the goals of suggested policy directions and whether there are other, more effective ways of achieving the same goals.
- Energy security discussions do not analyze energy challenges and dangers. Therefore, it is not obvious compensation of which specific dangers are covered by one or the other action and whether there are other important dangers missing.
- Numbers of organizational, political, social or economic activities, including low-cost, high-efficiency activities are missing from energy security policy discussions that could be as effective as infrastructural activities.
- Decision-making process insufficiently considers additional risks caused by seasonal nature of energy supply and consumption.

To eliminate gaps mentioned above, this paper offers several methodological recommendations:

1. Energy security analysis should be based on full understanding of the role and purpose of energy. Therefore, we propose a definition of energy security, which is linked to the national values and interests:

Energy security is an integral part of the national security, which ensures provision of sufficient amount of, continuous and quality supply of different types of energy in line with national values and for the fulfillment of national interests.

2. For the purpose of full risk analysis this paper offers categorization of energy threats and introduces types of risks that different countries consider while analyzing energy security. It points out natural, technological, political, economic

and social energy threats and gives examples of several key threats under each of the categories.

3. Number of possible activities targeted towards energy risk mitigation is significantly more than those listed in the main documents of the sector. Therefore, we are offering primary categorization of mitigation measures and additional examples of economic, social and political actions for ensuring energy security.
4. Based on specifics of Georgia special emphasis is made on seasonal nature of energy threats so that increased energy security risks are taken into consideration.

One of the key directions for reducing negative impact of risks is increasing the quality of legislation and management. This could be achieved by joining the European energy union and speeding up reforms as well as intensive preparation of energy-related research and personnel training.

Based on the factors described above, the following recommendations are developed:

1. New definition of energy security is to be introduced to the policy document on energy, which is now under discussion;
2. A comprehensive initiative for evaluating energy security threats in Georgia has to be implemented, while strategic concept and the strategy of the country should be based on the results of such evaluation;
3. Plan and implement cost-efficient activities of security risk mitigation in the following areas:
  - a. Creating preparedness plans for energy-related emergency situations;
  - b. Considering risks during long-term planning;
  - c. Increased quality of energy management and professional development of personnel;
  - d. Advance awareness-raising of consumers on possible threats and preparing social positions, etc.
4. Speeding up membership application processes for the European energy union and implementation of energy sector reforms;
5. Implementing immediate energy security actions:
  - a. Seeking internal alternatives for ensuring energy supply to rural population, including energy-efficient ovens, alternative bio-fuel, efficient use of forests and other directions;
  - b. Increasing support to international transit projects;
  - c. Positively resolving the issue of gas protection facility.



6. It is desirable to raise the issue of placing more emphasis on energy on the agenda of the National Security Council to emphasize sustainable development as one of the highest values of the National Security Concept.

Limited format of the paper does not allow full discussion of all issues raised, but it is obvious that there is a serious reserve of low-cost and zero cost activities of security policy that can significantly improve energetic security of the country in medium and long-term perspective. In order to implement these activities it is necessary to ensure public involvement and willingness and openness of the sector. More importantly, the country has to start doing targeted energy security research projects.

*This policy research is meant for energy policy workers as well as society-at-large so that they are better able to assess highest risks of energy security and make appropriate conclusions.*

### Problem Rationale and Context

Energy security is one of the key components of the National Security and its improvement is the main goal of energy policy and strategy. Georgian energy security is especially important on the background of complicated and non-stable foreign policy, where the threat of using energy as a lever of political influence and/or pressure is quite big.

There are number of ongoing infrastructural and institutional projects to increase energy efficiency: there are intensive constructions of hydropower stations and transmission lines, the process of harmonization with electric energy market of Turkey is ongoing, after signing Association Agreement with Europe there is a negotiation on membership of energy union of Europe, etc.

Such dynamic environment makes the need for correct evaluation of energy security risks and consideration of national values in mitigation measures even more important so that inadequately prepared energy policy does not create threats for the development, independence and European development of the country.

Unfortunately, in spite of 24-year independence, research on energy policy and more specifically, energy security are still on the embryonic level. Soviet-era research institutes were closed down and never replaced with any research organizations or groups that would provide relevant modern standard analytical provision to energy sector management. Therefore, there is no experience or methodological basis for systematic revision of energy threats and related mitigation measures.

The purpose of the given paper is to contribute to filling up this gap; provide a definition of energy security and principles of assessing energy threats based on international experience and own analysis that will at least partially ease analysis of energy security and development of optimal protection measures.

This policy study is only a small step towards comprehensive work that needs to be conducted towards researching energy security issues.

### Problem Statement

1. Strategic documents of Georgia do not offer definition of energy security and its link to interests and values of the country.

The main document on energy policy<sup>1</sup> currently in force, along with the National Security Concept,<sup>2</sup> view energy security as one of the key goals, but neither document defines “energy security”. The concept of energy security is somewhat described as specific actions for its enforcement and leaves impression that energy security is only achieved through diversification, hydropower station construction, etc.

#### Examples:

- *According to Key Policy Directions of Georgian Energy Sector, assurance of energy security is about resolving several objectives in parallel to each other:*
  - a. *Full renewal of the inventory of technologically old and physically depreciated technical equipment*
  - b. *Construction of new power stations, electricity and natural gas transmission infrastructure*
  - c. *Diversification of imported energy carriers (natural gas, oil, electricity)*
  - d. *Introducing commercially profitable model of the sector*
- *According to the National Security Concept of Georgia: “Continuation of diversification of energy sources and transportation roads is a priority for provision of energy security of Georgia. It is equally important to ensure maximum use of internal resources, support to further modernization of energy system and integration into the regional energy infrastructure; increasing energy potential of Georgia that will positively affect security and economic development of the country as well as well-being of its citizens.”*

This document does not explain energy security and its link to the key values of the country. Therefore, decision-makers have no clear landmark in this direction. As a result, for example, increased supply (for example, on the expense of hydro energy potential) is sometimes stated as independent goal, without a context for unified energy provision or economic welfare. This situation results into serious public debates and oppositions. Also, there is a realistic threat for jeopardizing long-term interests for the sake of short-term

<sup>1</sup> Resolution of the Parliament of Georgia on Key Directions of Georgian Energy Sector Policy, 2006

<sup>2</sup> National Security Concept of Georgia



energy provision interests. Due to dependency on external sources, energy-related challenges could also affect long-term political strategy of the country (for example, European integration and more specifically, joining energy unions) that other countries have already experienced. Therefore, it is important to create clear and all-encompassing definition of energy security that considers such threats.

## 2. Policy and strategic documents on energy are not based on substantial analysis of energy security risks

Documents described above, similar to 2010-2013 threat assessment document, do not include any discussion on energy security challenges. It can be convincingly said that no systematic discussion of energy security challenges has been implemented. As an example, it can be said that there is no analysis of energy statistics or creation of unified balance, which makes it difficult to show full picture of strengths and shortcomings as well as expected threats in energy system. Therefore, it is unknown mitigation of which risks are ensured by activities proposed in different documents and how effective are they compared to other alternatives for strengthening security, or whether they should be implemented together with other effective activities.

There is a huge possibility that without comprehensive analysis of energy security challenges the country cannot prepare for future energy threats, mitigation measures will be less effective while damage will be huge.

### Examples:

- Surprisingly, recent studies indicate that the biggest local energy resource consumed in Georgia is firewood, which is mainly used for heating purposes, but supply resources are quickly expiring due to heavy deforestation<sup>3</sup>. Within the next years the expectation is that the energy demand of village populations will increase and/or consumption (and therefore, energy dependency) of natural gas/electricity is most likely to increase. To avoid these threats it is important to implement complex activities for the increase of efficiency of firewood consumption as well as heating, alternative fuel and other directions. This situation is still beyond the attention of the decision-makers, although it is a significant risk of energy security.
- Construction of the new, 500 kwt transmission line connecting to Russia is already launched. It is unknown whether actually benefits of closer relations with Russia have been duly analyzed along with risks that such linkages may cause.
- Almost half of hydro-electric power generation potential of Georgia (Enguri/Vardnili cascade) is located on an uncontrolled territory. It is unknown

<sup>3</sup> [www.weg.ge](http://www.weg.ge)

whether effective short- and long-term protection measures have been elaborated. There is no crisis energy situation analysis in Georgia, and no relevant action plans are elaborated.

Lack of methodological analysis of energy risks have already resulted into numerous shortcomings, which need to be corrected now. These factors create threats not only to consumers by possible lack of provision of energy supply, but also may hinder implementation of national values and interests in a long-term.

**Example:**

- Electric energy and natural gas market of Georgia is dominated and monopolized by foreign state companies. In the past, these companies have already gained undeserved benefits on the expense of consumers (one of the requirements of energy security has been violated), while their existence is now a hindering factor for European integration, as it contradicts with key principles of European energy legislation.
- Construction of a Georgia-based gas reservoir and balancing seasonal nature of natural gas provision instead of economic and security benefit is fully delegated to the state energy company of a foreign country. Georgia has no balancing and winter security reserve, which significantly increases the risk of dependency (see below). At the same time, this is a constraint to European integration, since the requirement of the latter is for countries to have own energy security reserves.

We have to conclude that political and strategic energy documents in Georgia, without risk analysis, cannot provide the basis for optimal actions. Instead of defining action priorities, they simply give a declaration of already made decisions. The discussion does not list organizational, informational, political and economic actions that could provide no less of a contribution to strengthening energy security than actions described in the documents.

### 3. Internal environment of energy security

Improvement of energy security is made more complicated by gaps in Georgian legislation and non-systematic management style of energy sector, when decisions are made based on short-term, private needs and without relevant analytical provision, long-term visions, low public involvement and control. Such management style and legal environment can be considered as risk to energy security, since it increases probability of mistakes and external influence hinders investment and full activation of international cooperation mechanisms.

It is essential to ensure timely and systematic understanding of security-related issues, and consideration into the action strategy, so that aggregated risks do not lead to critical level of energy security in the country.

## Research Methodology

During the study we have used:

### 1. Review of public information

We reviewed state documents and projects related to energy security. More specifically, we reviewed Georgian National Security Concept, Key Directions of Energy Policy of 2006, and project of Energy policy document now under discussion. This review has identified key gaps of energy issue discussions reflected in state policy and strategy, and the reason for such gaps is lack of methodological basis.

### 2. Review of international practice in energy security field

We reviewed main documents of EU energy security strategy and research, annual review of Lithuania energy security, energy security strategy of the UK as well as “Energy Strategy of the Country – Review of International Experience”, prepared by the World Experience for Georgia (WEG) Group in 2012 that discusses and analyses strategic documents of up to 20 countries around the globe.

We also reviewed classification of energy security strategy used by different countries as well as their evaluation systems. We looked at indicators and approaches used for qualitative review and ranging of these risks. By reviewing these documents we have identified key principles and approaches for energy security analysis, risks characterizing Georgia and their categories.

### 3. Consultation with specialists and seminar-discussion

During the process of the study we have arranged meetings with specialists of the sector, where we discussed risks of energy security for each of the directions of energy sector. Energy security was the topic for joint seminar held by the Ilia State University Institute for Energy and Sustainable Development and WEG. This opportunity was also used to discuss preliminary findings of the study and proposed recommendations together with energy professionals and civil society representatives. Also, in order to verify findings, we surveyed participants of the seminar on energy security risks of Georgia.

### 4. Energy statistics and critical analysis of previous energy studies

The survey uses quantitative comparison of data. In order to identify key energy security risks we have used information (mainly of electricity and partially for natural gas) from state agencies, including Ministry of Energy of Georgia, Georgian Oil and Gas Corporation, National Statistics Office of Georgia as well as results and methods of research conducted by WEG for years.

Main target audience for the findings of this survey are state entities, including Ministry of Energy, National Committee on Energy Regulations and energy organizations – Economic

Development Council and National Security Council as well as the Parliament of Georgia, which review analysis of energy security and recommendations on priority directions and compulsory first steps.

Stakeholder of the study is the society of Georgia. Therefore, final results of the study will be produced in an appropriate format and sent to the representatives of civic sector, including the third working group (energy security) of the national platform of civic society forum, for better awareness and better direction of monitoring activities.

Main limitation of the study is short timeframe allocated for it (less than a month).

## Key Findings

### Definition of energy security – link to national values and interests of the country

Energy security has no universal or globally accepted definition. The most common short formulation belongs to the International Energy Agency: “Continuous access to energy sources for acceptable price.”

The World Bank defines energy security as “ability of countries to produce and consume energy in a sustainable manner and acceptable price, so that:

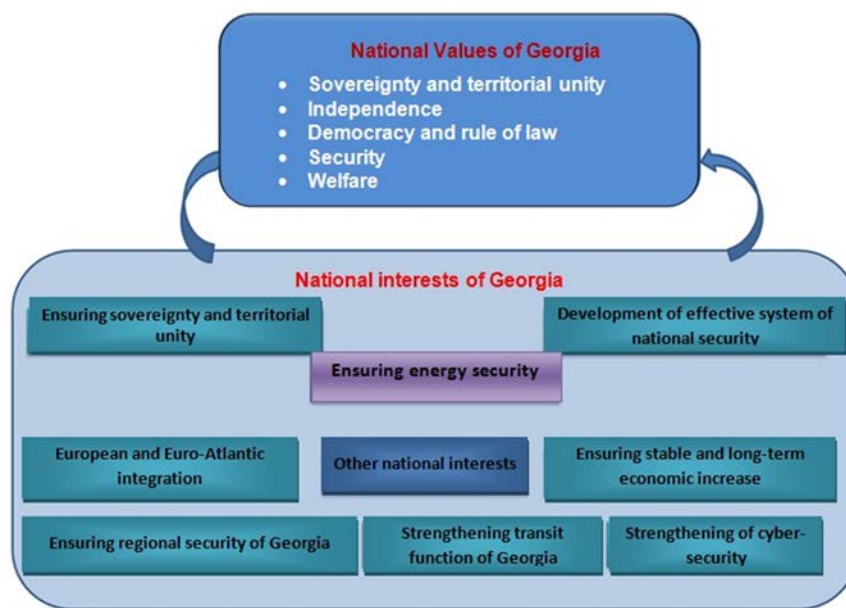
- Economic growth and thus overcoming poverty is achieved;
- Living conditions of the citizens is directly improved by providing modern energy services.”

It seems like energy security is directly linked with implementation of other key interests of the countries. Also, “precise definition of energy security differs across countries.”

Due to its high level of energy dependency and the unstable nature of its foreign policy, challenges facing the Georgian energy sector are especially severe. Our country requires timely evaluation of future energy threats and working towards their mitigation. It is also important to develop clear definition that will, according to the development level of the country as well as internal and foreign situation, become a landmark for energy policy and strategic actions.

National Security Concept of Georgia defines national values and interests, which serve as the supreme values and basis for national security of the country. More specifically, national values of the country are sovereignty and territorial unity, independence, democracy and rule of law, security, welfare and peace. The concept also lists national interests, which are implemented to protect national values. National interests also include provision of energy security.

Diagram 1 shows how national values and interests interrelate with each other within the National Security Concept.



*Diagram 1. Interrelation of energy security with national values and interests according to the National Security Concept*

Therefore, national security is one of the national interests, although the concept offers no definition, which is a significant shortcoming for the formulation of energy policy. Therefore, we believe it is of ultimate importance to define this concept within the strategic energy documents in line with the national security scheme. More specifically:

Energy security is an integral part of national security, which ensures provision of sufficient amount of, continuous and quality supply of different types of energy in line with national values and for the fulfillment of national interests.

This definition expands the context of energy threats and risks and covers not only threats of stopping, limiting, increasing price and low quality energy supply but also energy supply that can be implemented on the expense of giving up country values and interests<sup>4</sup>.

This definition is especially important for Georgia; where energy management institutes and methods are still in the process of formulation and which, within a tense international environment heavily depend on neighboring countries, where energy issues are often viewed in political and not market-related criteria.

**Example:** Efforts of Russia to use energy as an instrument of political pressure towards Ukraine as well as Moldova. For example, in 2013 Russia offered Moldova to reduce

<sup>4</sup> Even though it is beyond the scope of this research, it is still desirable to place sustainable development as a separate component of the list of national values, as one of the supreme values of the country. We will try to justify this point elsewhere.

natural gas prices three times in exchange to refusing to join the European energy union. Agreeing to such condition would mean that Moldova gave up essential values, which was unacceptable for the country. By joining the union, Moldova has protected its foreign policy choice.

According to the definition proposed, compromise in a given situation will be considered as energy threat and will be unacceptable. Therefore, prevention activities need to be planned beforehand. It will be similarly unacceptable to strengthen energy security at the expense of environmental security or other national interests.

Such definition of energy security considers long-term memoranda made with foreign state companies as threats, since such agreements contradict with requirements of European integration and transparency. Therefore, using such definition in practice will ease protection of national values and interests from using possible energy pressure mechanisms.

### Management of energy security risks

Due to the nature of security, there is no absolute or sufficient level of it. There are always short- or long-term risks of breaking energy supply. It is necessary to constantly monitor such risks, implement mitigation and prevention measures, which is a management of energy security risks, as key goal of management of energy security.

Different countries and organizations use various indicators for classification and evaluation of energy security and related risks. In spite of the unified approach of international organizations (e.g. International Energy Agency, the World Bank), countries use indicators that are relevant to their own energy system structure and specifics. Most of them are based on parameters and data that are used in energy statistics report.

### Categorization of risks

Full analysis of energy security requires categorization of energy supply and composition of full list of significant threats so that they can be grouped and further prioritized for response decisions. Different countries have different approaches based on specific country contexts.

Table 1 provides possible categorization of energy threats according to sources and typical risks under each of the categories, which could be used during the analysis of energy security.

Table 1. Risks of energy security and types

Types of risks	Risks
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Natural risks	<ul style="list-style-type: none"> <li>- Extreme climate conditions (temperature, wind, precipitation, drought, flood, landslide)</li> <li>- Climate change               <ul style="list-style-type: none"> <li>- Reduction of water resources, changes to hydrological regimes</li> <li>- Increased pressure over energy</li> </ul> </li> <li>- Earthquakes and other natural disasters</li> </ul>
Technological risks	<ul style="list-style-type: none"> <li>- Depreciation of infrastructure</li> <li>- Technical accidents and damages</li> <li>- Lack of flexibility of energy sector</li> <li>- Lack of reliable databases</li> <li>- Lack of regulations of technical standards and lack of normative documentation</li> <li>- Lack of energy preservations</li> <li>- Lack of technical security monitoring of energy objects and early warning systems.</li> </ul>
Political risks	<ul style="list-style-type: none"> <li>- Ceasing import in winter</li> <li>- Political instability of supplier countries</li> <li>- International conflicts</li> <li>- Internal political instability</li> </ul>
Social/human risks	<ul style="list-style-type: none"> <li>- Terrorism</li> <li>- Cyber terrorism</li> <li>- Public resistance</li> <li>- Corruption – inside as well as outside of the country</li> <li>- Lack of competence in management</li> <li>- Unqualified personnel</li> <li>- Mistakes in planning and implementation</li> </ul>
Economic risks	<ul style="list-style-type: none"> <li>- High concentration of the market and monopolies</li> </ul>



- Influence of Turkish energy market on the energy prices in Georgia
- Possible increase of energy prices
- Low level of investment

The given list can be expanded if needed.

Energy threats listed above can result in: provision of insufficient volume of energy, high prices, breaks in provision (SAIFI<sup>5</sup>, SAIDI<sup>6</sup>), difficulties in seasonal supply, deviation from quality standards, etc. Their influence could be short- or long-term, one-time or repeated. The influence should be evaluated not only by the energy under the influence (unprovided, low quality, expensive) or number of damaged consumers, but also by its influence over national values and interests – political and social stability, economic development, political course, etc.

First of all, attention should be paid to the risks that create high threat to national values and interests, including European integration, introduction of democratic institutes and transparency.

The legal and management environment of energy sector significantly defines possible damage caused by risks. Low quality of legislation, insufficient effectiveness in planning and management could become reasons for strengthening all other risks. Therefore, attention should be paid not only to infrastructural and political risks, but also those concerning sector management, legal environment and professional development.

**Example:** 5-year strategy of Ministry of Energy of Turkey<sup>5</sup> allocates a special place for the issue of ensuring highly professional personnel for the Ministry as a shortcoming and special measures are planned for attracting highly professional staff with scientific degrees.

To plan security measures, high influence and probability risks should be identified prior to all, so that strategies and related action plans reflect appropriate management activities for further implementation.

### Seasonal nature of risks

Due to hydrological characteristics of rivers and seasonal nature of energy consumption in Georgia, the picture of energy provision and therefore, associated risks significantly differ between summer and in winter. Therefore, the seasonal nature of risk analysis should be a bigger focus than it is in other countries.

<sup>5</sup> System Average Interruption Frequency Index

<sup>6</sup> System Average Interruption Duration Index

In 2008, the author of this paper proposed seasonal index of energy dependency for seasonal analysis, which is used by other organizations as well and shows how much of total energy consumption share falls on import, according to months.

During risk analysis additional consideration should be given to the fact that during winter, due to high demand and infrastructure overload the possible influence (amount of unprovided energy) as well as its possibility (technological, political and other reasons) increases. Therefore, analysis of energy security risks requires modification of seasonal dependency index to reflect increased expectation (probability). Diagram 3 shows seasonal indicators for dependency on gas import based on 2012 data. Dotted line shows increased risk due to increased probability of breaks in provision.

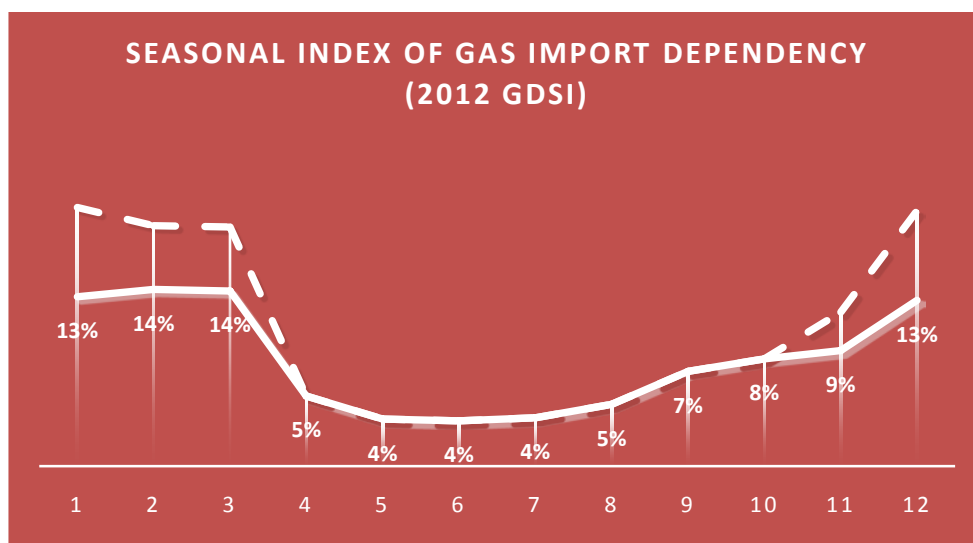


Diagram 3. Seasonal dependency on gas import and relevant risk index

Even in this case, due to lack of data, evaluations of experts should be used during risk assessment. Given factor further justifies high need for compensation of seasonal dependency, more specifically, construction of natural gas reservoir. Technical-economic justification of arranging gas reservoir should take into account that arrangement of the reservoir will not only compensate damage resulting from possible breaks in gas supply, but will also reduce possibilities of such events.

### Mitigation measures/barriers

Correct analysis of energy security risks is a precondition for planning mitigation or prevention measures. For the purpose of protecting against risks it is necessary to implement the following mitigation/protection measures (barriers):

- Technological barriers

Such activities include: increase of energy supply, improvement of electric transmission system, construction of new stations and creation of generation reserves, increasing

effectiveness and reliability of facilities, development of local sources of renewable energy and increasing efficiency of consumption, construction of gas reservoirs, etc.

- Political and social barriers

Participation in international unions and gaining political support, transparency and preparation of social positions, supporting international energy transition projects, preparing highly qualified personnel, etc.

- Economic barriers

Financial stability, supporting investment, enabling competition, ensuring strong regulation system, formulation of stable internal and regional markets, etc.

- Organizational barriers

Transparent and quality legislation, emergency response plans and structures, effective management structures, mutual assistance agreements, etc.

Creation of such barriers should be the main concern of the energy policy and energy security strategy.

#### **Examples:**

Georgia is negotiating membership of European Energy Union. In case of successful completion of these negotiations, Georgia will become a member of the Union, which will result into closer political association (political barrier) and will introduce transparency principles of European energy legislation (organizational barrier) that will limit threats of corruption, monopoly and political influence.

For several years, and especially recently, EU has been actively working to reduce dependency on Russian gas. In these efforts, supply of Caspian natural gas through south gas corridor plays vital role, where the pipelines have to cross Georgia. By implementing this project international interest in stability and security of Georgia as well as energy supply of the country significantly increases. The importance of this project goes beyond energy security and shows huge perspectives for the country (political and economic security barrier).

In case of conflict escalation between Azerbaijan and Armenia, direct target will be gas pipelines crossing the two countries that are of strategic importance for these countries as well as Georgia. It is necessary to prepare adequate emergency preparedness plan for force major conditions, which is an organizational barrier.

Together with benefit received through balanced gas provision, natural gas reservoir may play a huge role in reducing the impact as well as probability of breaks in gas provision during winter. Arranging such reservoir is an example of technological barrier.

Enguri-Vardnili cascade, which produces half of Georgian hydro energy, is now on the territory occupied by Russia. Breaks in supply may have substantial impact over the

electric energy system. Such threat will have a huge impact and could be used for political pressure. This threat should be analyzed by government structures and the public should be informed about such possible threat in advance, so that this lever cannot be used for achieving social disturbance in Georgia. This is an example of social barrier.

All of the activities listed above as well as many others should be used as a complex for increasing energy security.

## Conclusions and recommendations

### Conclusions

1. Strategic documents of the country do not rely on a substantial definition and discussion of energy security and its linking with vital values and interests of the country, which hinders better definition of the role of energy.
2. Energy security discussions do not analyze energy challenges and dangers.
3. Strategic energy documents only provide very limited list of risk mitigation measures that could increase the level of energy security in the country. It is necessary to regularly conduct energy security surveys and prepare appropriate decisions.
4. Together with infrastructural projects, significant increase of energy security level is possible via zero or low-cost activities, including:
  - Systemic analysis of energy threats;
  - Planning and consideration of expected threats;
  - Introducing energy threats to the public and its preparation for possible results;
  - Increasing energy management quality and professional assurance;
  - Membership of international alliances, for example, European Energy Unions;
  - Developing emergency energy preparedness and response plans, etc.
5. One of the key directions of reducing negative impact of the risks is improving quality and quality of legislation. This could be achieved through membership of European Energy union and speeding up reforms, intensive energy-related studies and preparing appropriate personnel.
6. While assessing energy risks more attention should be paid to increased risks during winter. Technical and economic evaluations alone cannot fully reflect the additional benefit gained by the construction of gas reservoir.

7. It is desirable for methodological and substantial approach towards energy security to be reflected in the new energy policy document now under discussion as well as energy strategy which is in the process of development.<sup>7</sup>

## Recommendations

1. Energy security analysis should be based on a full understanding of the role and purpose of energy. Therefore, we propose a definition of energy security, which is linked to the national values and interests. The same formulation is to be reflected in the process of developing energy strategy.
2. State structures – Ministry of Energy and National Security Council – should conduct a full evaluation of energy challenges in Georgia, which will consider all types of energy threats for further development of the energy strategy.
3. The full spectrum of activities targeted towards increasing security should be evaluated for the purpose of using in the energy strategy, including:
  - a. Informing consumers and preparing social positions
  - b. Developing emergency response plans
  - c. Activation of international cooperation and more specifically, European energy union mechanisms
  - d. Risk assessment for energy sector development planning.
4. Implementation of immediate energy security activities:
  - a. Seeking internal alternatives for energy provision for village populations, including energy-efficient ovens, alternative biofuel, efficient use of forests and other strategies
  - b. Increased support of international transit projects
  - c. Positive resolution of underground gas reservoir construction issue
5. It is desirable to raise the issue on the agenda of the National Security Council to separate out sustainable development as one of the supreme values of the country.

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<sup>7</sup> During the first phase of planning energy strategy (2013) foreign experts of USAID/TetraTech/DWG conducted SWOT analysis of energy sector of Georgia, where security risks were not fully considered. Given work should have methodological nature and should also be implemented by Georgian specialists.



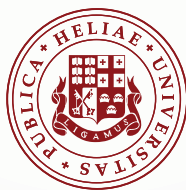
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### About the author

**Murman Margvelashvili** – Associate Professor of Ilia State University, Director of the Institute for Energy and Sustainable Development, Director of Energy Studies at the research center “World Experience for Georgia”. After years of scientific work in physics, Mr. Margvelashvili has been working in different sub-sectors of energy since 1994, including management, regulation policy analysis and planning. He has led a number of educational and consulting projects in Georgia and abroad, and is involved in governmental work. He is a member of the professional energy union, has published about 20 scientific works and similar number of analytical articles and letters, and is an author and editor of four large scientific works.





**Comments and Questions**

**Public Policy Research and Training Center**

**Phone: (+995 32) 233 10 57**

**E-mail: [pprtc@iliauni.edu.ge](mailto:pprtc@iliauni.edu.ge)**