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Scientific article

CRITICAL INFRASTRUCTURE PROTECTION AND ENERGY SECURITY – KEY FACTORS FOR BUILDING SUSTAINABLE ENERGY STRATEGY IN THE REPUBLIC OF MACEDONIA

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Jovan STANIKEVSKI[2],
Urim VEJSELI[3]

Abstract: *Energy strategy is an important segment for the sustainability of any modern society and a challenge, which has to be continuously monitored and adjusted based on the changes in regional and global energy policy. The main purpose of the energy strategy is the provision of a sufficient amount of supply.*
Energy security and critical infrastructure protection have the primacy in the creation of any energy strategy. The adoption of procedures, measures and standards for early warning and crisis management in the event of a potential threat to the critical infrastructure, allows reducing the indirect vulnerability of the critical infrastructure regarding energy security. Energy security is an important component of the national security of each country, because the availability of energy resources and energy efficiency of critical infrastructure is of paramount importance to the quality of life of the country's population, economy and public sector.
Starting from the strategic interest in the development of a national and regional energy strategy, and the strategic interest of full membership in the EU, through the implementation of normative legal framework for the protection of the critical infrastructure, energy security and energy strategy resulted in the research for this paper.

Key words*: critical infrastructure, security, national, energy.*

Introduction

The hindered operation or destruction of one or more elements of the critical infrastructure can cause technological accidents resulting in certain crises. Nowadays, the ambition to acquire higher profit with lower costs has marginalized the issue of security of the critical infrastructure. Thus, the critical infrastructure became insufficiently protected and vulnerable.[4]

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[4] Jordan Popovski, Terrorism and Critical Infrastructure Protection: Case Republic of Macedonia, Contemporary Macedonian Defense no. 26, (Skopje, 2014), 134.

Critical infrastructures Protection (CIP) is currently a subject of a broad discussion. Moreover, the consequences of major disasters such as the terrorist attacks on the World Trade Center and the Pentagon in 2001, and the nuclear disaster in Fukushima in 2011, reminded us of the dependency of our society's safety on the uninterrupted operation of the energy, communication, and transport infrastructure. Even the smallest (insignificant) events, like the ash cloud in Europe in 2010, which caused chaos in the European transport infrastructure, show that the cascading effects can cause interesting challenges for business.[5]

In the last decade, the Republic of Macedonia has made significant steps to analyze the elements of critical infrastructure regarding the risk and preparation for events that could interrupt the operation, by drafting protection plans for alleviation of the vulnerability of systems at all levels (local, national, and regional). The drafting of the strategy for prevention of negative scenarios of terrorist attacks or natural disasters is a very complex issue and a major challenge for the proper planning of response to a given crisis.

According to the "European Union" critical infrastructure is a property, system or part thereof located in the territory of a Member State, and which is necessary for maintaining key state functions, such as health, safety, security, economic, and social well-being, and whose interference or destruction would have a significant impact on the Member States.[6]

Taking into account this definition, we can say that the critical infrastructure in one country is a "system of systems." The greatest significance of the infrastructure is recognized as critical for the country, which gives responsibility for creating protection measures, which will contribute to reducing the risk of decommissioning. Interdependencies typically are not well researched, and disruptions in one infrastructure can easily be transferred to another, and cause a cascading effect. Critical infrastructure is connected to all levels, and an anomaly of a critical infrastructure can cause a breakdown or accident in the other critical infrastructure and vice versa.

Moreover, we can say that in the wake of the 21st century, any sector of society is inoperative without power. Hence, there is a need to protect the most abundant and the most needed sector – the energy. The most common sub-sectors in the energy sector are the following: electricity, oil, and gas. The protection of the energy sector is very complex and requires a lot of resources, people, and money, since the successful protection of the energy sector must encompass all the infrastructure facilities for production, transport, distribution and supply. Therefore, the Republic of Macedonia directs the major political and economic efforts at providing functional sustainability which in future could be secured through energy stability and timely and cost effective delivery of energy and resources to our economy. Thus, the Republic of Macedonia considers improvement in the field of energy security, improvements of the production and delivery, and development of alternative energy sources.

Critical Infrastructure Protection in Macedonia

Even though the Republic of Macedonia is a candidate country for EU mem-

[5] Iceland volcano: the impact of the ash cloud on Britain. (2010). Retrieved 02 March 2015. http://guardian.co.uk/world/2010/apr/18/iceland-volcano-ash-economy-airlines.

[6] Council Directive 2008/114EC of 8 December 2008 on the identification and designation of European critical infrastructures and the assessment of the need to improve their protection. (2008). Official Journal of European Union L, 345-375.

bership, it has not yet identified and adopted a basic definition of national critical infrastructure. Furthermore, it is worth noting that one of the most difficult and complex parts of the process of EU accession is the definition of the criteria used in determining the infrastructural facilities and processes encompassed within the critical infrastructure.

The fact that the modern society is completely dependent on technology makes it even more vulnerable from a security point of view, whereas the risks and threats for uninterrupted functioning of the critical infrastructure are even more difficult to master. Some parts of the infrastructure for the functioning of society are of such significance that their decommissioning or limited functioning would cause serious consequences and problems in a given society. This infrastructure is defined as critical infrastructure, and we will try to define the national and international levels, within the context of assumptions of its malfunctioning or destruction. In this context, we believe that two sectors in particular are the most exposed ones - the electricity sector, and the information and communication sector are inextricably linked and significantly affect the operation of other critical infrastructure sectors. These two sectors, including the transport sector, have important international aspect, which is related to the adopted EU Directive on European Critical Infrastructure.

The experience of the Member States of the EU in this area, and particularly the experience of the Republic of Slovenia and the Republic of Croatia as the most appropriate, can be of great benefit to the Republic of Macedonia as a potential member of the EU, because the EU itself has a different approach to critical infrastructure protection. On the one hand there is a group of countries that consider that the Directive should clearly point out the roles and responsibilities for CIP, and on the other hand there are countries like Germany, which aim at precise regulation of direct operational activities. Their philosophy is based on the fact that the attitude of the state on the one hand and those managing the critical infrastructure on the other hand is of essential importance, and it can be achieved only by joint social agreement in order to have the capacity to deal with various measures and ensure the adequate level of security of critical infrastructure. The biggest issue regarding critical infrastructure protection is the high financial cost, as well as providing an answer to the question – which entity will cover the greatest part of the cost for providing adequate security for the critical infrastructure. Hence, the conclusion that priority should be given to the energy and transport sectors, and as mentioned earlier; they are in constant conjunction with the information and communication technology sector, and they cannot function one without the other.

Nevertheless, we should clearly focus our efforts. The Republic of Macedonia must identify and adopt the basic definition of national critical infrastructure. However, the adoption of this definition is the most complex part of the process. The most difficult and most important factor in CIP is to establish the criteria to determine which infrastructure facilities and processes are encompassed within the critical infrastructure. In the case of an unsystematic approach and aspiration to include too many entities in

the critical infrastructure, the state could rapidly become incapable of providing the finances, as well as the sufficient human and technical resources for effective protection of a certain critical infrastructure.

However, we must be aware that security is not only a necessity, but also an opportunity for many companies to actively engage in the process of critical infrastructure protection, including the security companies, i.e. private security. To effectively implement critical infrastructure protection, the state, as well as the managers will have to use the capabilities of the security companies in the field of private security. Private security companies have to improve the quality of their services and activities. This is the only way to become a significant part of the public-private partnership in the area of critical infrastructure.[7]

It is necessary to pass a Law on Critical Infrastructure in the country, since it would regulate: the criteria for determining the national critical infrastructure management, the critical infrastructure, the method and model for the protection of national critical infrastructure, and the role of the security of critical infrastructure within the national security of the state.

Energy Security of the Republic of Macedonia

The globalization of the world, and thus indirectly the globalization of security, presents the modern society with many challenges; namely, to continue its development based on the principles of free movement of goods, services, finance and people, and on the other hand to keep security threats on the level of acceptable risk. After the Cold War, the emergence of asymmetric threats to national and international security resulted from completely different assumptions and perceptions of the basic concept of security that was based on a static approach to the management of conventional distinctive types of threats.

The system of national critical infrastructure and its effective operation is an important segment within the national security system and at the same time represents a very sensitive segment in terms of contemporary threats. The dependence of modern societies, with a special emphasis on the system which includes the critical infrastructure, such as the increased threats to the system of critical infrastructure protection; the question of national security is a priority.

At the state level, energy security implies continuous energy supply necessary to meet national needs and based on the security of supply, which does not only refer to increasing the energy independence and reducing dependence, but aims to reduce the risks associated with energy dependence.

The abovementioned can be implemented in the Republic of Macedonia, because there is a need to immediately start systematic consideration, planning, and imple-

[7] Metodi Hadzi-Janev & Stojan Slaveski, Corporate security and critical infrastructure protection in the Republic of Macedonia: perspectives and challenges. Security Dialogues Vol 2, No. 4, (2011), 9-10.

mentation of activities related to achieving energy security and critical infrastructure protection, aiming at supporting and implementing the Energy Development Strategy.

All countries, including the Republic of Macedonia face a continuous growth of energy consumption and the need for a long-term planning and providing new sources of energy. The global trends indicate the need for creating national strategies to protect critical energy and other infrastructure, and as a consequence it is necessary to redefine the core strategic documents, such as the security strategy and security policy.

In the era of economic and cultural globalization, the problem of the energy security system must be approached comprehensively in order to analyze the adequacy and security of the critical infrastructure and other technical and technological aspects of the energy security (physical security of energy supply, energy security installations, energy security transportation, etc.), so that preventive action could be taken and effective operation of the state could be ensured.

As electricity prices will increase in the coming period, the Republic of Macedonia should intensively continue with the energy reforms to reduce the effects of rising energy prices, reforms to improve the heating market, the energy efficiency, to provide support to local projects of gasification and continue the plans for gasification at the central level.

Increasing the use of natural gas means that the country should be intensively consider natural gas in terms of energy security, to try to join as many pipelines as possible, but the important thing is in the meantime to take all the measures it can possibly take - to use the maximum capacity of its pipeline and increase its capacity.

The most important interests of the Republic of Macedonia, prerequisites for development and realization of the vital interests of the state, included in the National Concept for Security and Defense are the following:

- Establishing and developing all forms of cooperation with the neighboring countries, and in the interest of peace, security and development of the Republic of Macedonia and its neighbors;

- Contribution to the preservation and promotion of peace and stability in Southeast Europe (SEE) to strengthen the area of democracy, security and prosperity of all countries in the region;

- Participation in building peace and stability in the region, Europe and the world, as well as prevention of and building instruments for early warning for crises and tensions - timely and efficient resolution by peaceful means;

- Preservation and improvement of the international order based on justice, mutual respect of international order grounded in international law, and political and economic equality of states, and

- Creating conditions to promote the safety culture.[8]

[8] National Concept for Security and Defense. Retrieved 25 June 2015. https://arhiva.vlada.mk/files/Vladina_koncepcija_za_bezbednost.pdf, 4-5.

Energy security is indirectly included as a segment of the security system of the Republic of Macedonia, which should undergo certain changes for successful realization of national interests. Thus, the Republic of Macedonia through its security policy will improve the security system, which will be capable, effective and credible to meet the security challenges of this century, to solve national crises, and help resolving crises in the region and beyond.

The fact that energy security can not be effective and viable only at national level but must develop cooperation at regional and global level, not only supports the challenges posed in the National concept for security and defense, but also leaves room for improvement of all levels.

Energy Strategy of the Republic of Macedonia

Modern industry and its development are based on the persistence of potential sources of primary energy resources such as oil and natural gas. The Republic of Macedonia now has an access to oil deposits and sources of natural gas, so it is clear that these energy sources can only import and adapt, but without affecting the global trends in making decisions about production and trade of oil and natural gas.[9]

High energy consumption per unit of GDP and high energy import dependence of the Republic of Macedonia on the one hand and low energy consumption per capita on the other hand, there is a need to improve energy efficiency through saving energy to the greatest possible extent without jeopardizing the economic development and the standard of the population. The analyses of the possibilities for ensuring the necessary energy take into account that the Republic of Macedonia is part of a regional energy market which is fully liberalized and has become an integral part of the wider European market. Accordingly, complete transparency, competition and non-discrimination in the energy sector, taking into account the liberalization of the sector, both in the field of production and energy supply, especially electricity, is a prerequisite for realization of the planned scenarios. Greater diversification of energy resources by types, sources and suppliers is planned in order to ensure energy security. In this sense, an active role in the regional energy market and the European Energy Community is envisaged, as well as a reduction of the high energy import dependence of the Republic of Macedonia with a maximum possible utilization of domestic resources.[10]

Achieving the optimum results with limited resources is a challenge. The complexity of the activity, gaining a better insight into the overall risk and priorities, stresses the need to link all stakeholders: the government, industry, science and the public. This is important both at the level of management by construction and manage-

[9] Toni Milevski, Energy Security. "Sts. Cyril and Methodius"- Skopje, Faculty of Philosophy (Skopje, 2014), 122.

[10] MASA, Strategy for Energy Development in the Republic of Macedonia until 2030 (Skopje, 2010), 113.

ment of the power system, and the level of preparation of activities in case of partial or complete loss of power supply. Through the association of property and liability risk, the security of the power system would increase due to the introduction of significant market principles.

Considering the energy strategy of the Republic of Macedonia, we must emphasize the importance of the "South Stream" project and the benefits that it should provide for the energy sector of the Republic of Macedonia. Regardless of the diplomatic pressure as well as the pressure exerted by the Energy European Commission, the Republic of Macedonian must make additional efforts to ensure access to gas from the South Stream.

When the EU signed the agreement to streamline the South Stream through Central and Southeastern Europe, Slovakia signed an agreement with Russia on the South Stream passing through its territory and there was an agreement between Russia, the United Kingdom, Germany and the Netherlands for building two new gas pipelines to Germany, which did not stir any reactions by the European Energy Community and the European Commission. What made the situation even more dramatic was the fact that this happened just several days after the decision to extend sanctions against Russia. By signing the agreements, the EU provided gas at an affordable (inexpensive) price for the next 50 years.

This confirmed the speculation that the passage of the South Stream through the Black Sea, Turkey, Greece, Macedonia, and Serbia to Europe was only wishful thinking, not reality.

The Republic of Macedonia must take advantage of these developments and make a move, until it is too late. The benefits of the joining the South Stream by the Republic of Macedonia is not only financial (transit through the territory), but every company and every individual in the country will benefit from it.

The South Stream project must be supported, and we have to emphasize the importance of this project not only regarding the future of energy, but it will have a great significance for many other branches which will gain a new quality from the project. First and foremost, this will result into improvement of the ecology in the Republic of Macedonia and will facilitate our commitment for healthy food production. If we used gas from the South Stream, it would help us produce in a cleaner environment. It would also help in terms of development of the industry and tourism, considering the fact that future investors would be encouraged to invest in the country knowing that gas is one of the energy options, which is one of our permanent goals – new employment opportunities.[11]

Macedonia's membership in the Energy Community enables closer cooperation with all member states, and by creating a stable regulatory and market framework it

[11] Emil Naimi, Energy Projects are the Most Attractive, (2014). Retrieved 04 April 2015. http://mk.rbth.com/economocs/2014/09/23/najprivlecni_se energetskite_proekti_37301.html

would result in attracting investments in the transit and transmission infrastructure for gas and electricity, as well as the facilities of energy production. All this ensures a stable and uninterrupted supply of natural gas and electricity. The establishing of a single regulatory framework in Southeastern Europe creates opportunities for connection with the Caspian, North African and Middle Eastern natural gas reserves and exploitation of domestic reserves of natural gas, coal, and hydropower potential. The membership in the Energy Community also enables the development of competition and liquidity, and utilizing the economy in volume. The Treaty establishing the Energy Community devotes a special section to the improvement of environment with respect to natural gas and electricity by improving energy efficiency and use of renewable energy.[12]

Each energy strategy is designed to promote: reducing energy dependency, ensuring energy security at an affordable price for the population and industry, security and continuity of the availability of the energy resources, competitiveness of the energy market and environmental protection.

To achieve this, it is necessary to ensure critical infrastructure protection and energy security at all levels (local, national, regional and global).

The change of the social circumstances and tensions arising from the rapid technological development, some segments of society have found themselves completely unprepared to cope with the new global security situation. The emergence of non-state actors in interaction with the traditional entities in the area of international relations brings to the surface the new forms of asymmetrical security threats. This means that the traditional national systems and mechanisms can no longer be effective in the phase of management and countering these new threats.

In most of the developed countries, and in Republic of Macedonian as well, the primary sectors of critical infrastructure include: the energy sector, transport sector, and the telecommunications sector.

All these sectors are immensely interdependent, and thus it is necessary to upgrade, improve, and unify regional them at a regional and global level, so that they would support the national and regional energy strategies.

Nowadays, the world is increasingly concerned about the security of supply, due to the fact that the greatest energy potential can be found in highly unstable/unsafe areas which pose a problem in the process of production and distribution of energy. Safe supply has become a key precondition for further development, especially in the economy, but also for the society as a whole.

The national security strategies of certain EU countries identify the threat to national critical infrastructure as a potential threat to the overall functioning of the society, as well as the national security system. The national critical infrastructure includes the facilities, systems and services (transport, energy, communication and information systems, financial and banking systems, public administration, health, food

[12] Ibid 7, 190-191.

industry) that support the economic, political and social life. The destruction of and endangering the segments of the national critical infrastructure can cause a huge loss for the population and a direct impact on the national security and economy, as well as other serious consequences for the community as a whole or any part of it.

The energy strategy and the development of each country must be considered in the context of energy security, because it is immensely significant that each country ensures safe and continuous energy supply, especially the energy dependent countries. Access to energy is a key driver of economic activity, given that energy resources are unevenly distributed geographically, their availability depends on the course and conditions of international trade and investment. Energy issues and the development of each country must be considered in the context of energy security. The availability of energy and energy resources, and the efficiency of the critical infrastructure are of paramount importance for the quality of life of the population of the country, the economy, and the public sector. In history, often, the control of energy sources and flows is a subject of social conflicts and security crises, so the geopolitical aspects of energy security are particularly marked in the strategies for national security of most of the countries in the world.

Apart from being a threat to regional and national security, an important aspect of energy security is the relationship with the environment. The damage to energy facilities and the critical infrastructure can cause environmental pollution at the local level, and might lead to environmental disasters like the ones in Chernobyl, and more recently in Japan. Furthermore, the lack of energy, the uncertainty of energy supply, as well as the insufficient or inadequate infrastructure are of great importance and may directly impact the reduction of the capabilities of the security, transport, communications, logistics, and other sectors in terms of availability to the population in case of natural disasters, extreme conditions of life and work, and even in certain medical cases.

In modern societies, the issue of protection and security of the critical energy infrastructure is raised at a time when all developmental and institutional aspects of "the national energy infrastructure" are strongly influenced by the international relations (globalization), as well as the interdependence of the largest energy producer and consumer in integrated Europe. Therefore, some EU member states are conducting a revision of the national energy strategies regarding the issues of the capacity to meet the key energy resources needs, the role of the country in the current and future development of the electricity sector, and the relationship between the energy infrastructure (as part of the critical infrastructure) and national security. Thus, today, more than ever, it is essential to have the appropriate technical and technological assessment of the existing and potential opportunities for energy networks, available for use and storing reserves of certain types of energy.

Regarding the liberalization of the production and distribution of electricity, the security of the private capabilities for energy production can no longer be provided only by the public sector, exclusively at the expense of the central government. Therefore, the

problems of internal security of companies engaged in the production and distribution of energy, as well as the issues of security of the energy transmission system, create new problems in the relationship between the private and the public sector. This also applies for the management of energy supplies, and the regulation of relations between the elements of critical energy infrastructure and the local communities.

The EU and the US have the highest level of commitment in the field of critical infrastructure protection and energy security, while NATO also plays a significant role with the possibility of preventive action. The prevention in the process of critical infrastructure protection and energy security is the most important factor, and if it is timely it may result in avoiding a cascading effect caused by a defect or an accident of a particular critical infrastructure and the transfer to another (the principle of connected vessels). Therefore, the successful preventive actions, not only protect the critical infrastructure, but also protect the economy, the banking system, healthcare, services, and the economy as a whole. The protection of these branches in a country also refers to the protection of the national interests and national security, thus the protection of human rights and freedom.

Finally, we must stress that the mutual entanglement of the energy security, critical infrastructure protection and energy strategy directly impact the climate change and environmental quality in some parts of the world. These changes can lead to economic, social, and political consequences, internal and international conflicts and can cause hunger, poverty, and migration.

Conclusion

The Energy Strategy of the Republic of Macedonia contributes to the regulation of the energy sector, energy efficiency, and boosting investment and consumer protection.

The increase of energy efficiency will contribute to the reduction of electricity consumption in all segments, resulting in deceleration of the energy resources depletion. If the Republic of Macedonia intensifies the gasification projects, the citizens and the economic operators will have unparalleled access to inexpensive energy, will save resources in the process of supply of expensive energy and resources, which will result into greater market competitiveness.

The regional cooperation in the construction of joint production facilities would primarily solve the problem of power supply in the Balkan countries.

A comprehensive approach in the analysis and use of all facilities to build a nuclear power plant, with the inclusion of Macedonia in a joint regional project for the construction of a Balkan nuclear plant would increase regional security and diversification of the energy resources and the energy infrastructure.

The effective critical infrastructure protection in the Republic of Macedonia requires the adoption of a law on critical infrastructure.

An effective energy strategy of the Republic of Macedonia will facilitate the integration in the European energy strategy, as well as integration into the European Union.

The key aspect of the national and international security in the 21st century encompasses the issue of energy security and critical infrastructure protection. The energy strategy and the

development of each country must be considered in the context of energy security, because it is of utmost importance for every country to ensure safe and continuous energy supply, especially for energy dependent countries.

The safe energy supply, which is primarily an issue of the Energy Strategy of each country, is a key precondition for further development, especially in the economy, and the society as a whole.

The negative consequences suffered by the critical infrastructure owned by the private sector may jeopardize the entire critical infrastructure and adversely affect the energy security, directly threatening the national security of the country.

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