

UDK 355/359

CODEN SMOOAM

ISSN 1409-8199

МЕЃУНАРОДНО НАУЧНО СПИСАНИЕ

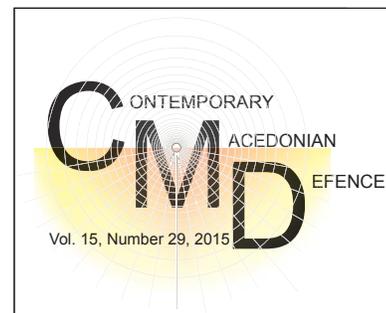
СОВРЕМЕНА МАКЕДОНСКА ОДБРАНА

29

СОВРЕМЕНА МАКЕДОНСКА ОДБРАНА



MINISTRY OF DEFENCE
REPUBLIC OF MACEDONIA



29

VOL. XV
SKOPJE
DECEMBER 2015

СОВРЕМЕНА МАКЕДОНСКА ОДБРАНА	Год.	Број	Стр.	Скопје
CONTEMPORARY MACEDONIAN DEFENCE	15	29	1-146	2015
	Vol.	No	pp	Skopje



МИНИСТЕРСТВО ЗА ОДБРАНА
РЕПУБЛИКА МАКЕДОНИЈА

СОВРЕМЕНА ОДБРАНА **CONTEMPORARY
MACEDONIAN DEFENCE**

ISSN 1409-8199
e-ISSN 1857-887X

Година 15, бр. 29, декември 2015 / Vol. 15, No. 29, December 2015

Skopje
December 2015



СОВРЕМЕНА МАКЕДОНСКА ОДБРАНА

Издавач:
МИНИСТЕРСТВО ЗА ОДБРАНА НА РЕПУБЛИКА МАКЕДОНИЈА

Министерство за одбрана
„СОВРЕМЕНА МАКЕДОНСКА ОДБРАНА“
„Орце Николов“ 116 1000 Скопје
Телефони: 02 3128 276, 02 3113 527
Интернет адреса:
WEB на Министерството за одбрана:
<http://www.morm.gov.mk/sovremena-makedonska-odbrana/>
Списанието излегува два пати годишно.

ISSN 1409-8199
Скопје, декември 2015 година

Сите права се резервирани
Се забранува репродуцирање на публикацијата и нејзините делови, како и нивно трансформирање во разни медиуми: електронски, магнетни ленти, механичко фотокопирање, снимање и друго, без писмено одобрение на издавачот и авторите.

CONTEMPORARY MACEDONIAN DEFENCE

Publisher:

MINISTRY OF DEFENCE OF THE REPUBLIC OF MACEDONIA

Ministry of Defence

„CONTEMPORARY MACEDONIAN DEFENCE“

„Orce Nikolov“ 116 1000 Skopje

Tel.: 02 3128 276, 02 3113 527

Internet adress:

WEB of the Ministry of Defence:

www.morm.gov.mk/contemporary-macedonian-defence/

The magazine is published twice a year

ISSN 1409-8199

Skopje, December, 2015

All rights reserved

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means: electronic, electrostatic, magnetic tape, mechanical photocopying, recording or otherwise, without permission in writing from the publisher and authors.

СОВРЕМЕНА МАКЕДОНСКА ОДБРАНА

МЕЃУНАРОДНО НАУЧНО СПИСАНИЕ НА
МИНИСТЕРСТВОТО ЗА ОДБРАНА НА РЕПУБЛИКА МАКЕДОНИЈА

Д-р Зоран ЈОЛЕВСКИ, *претседател на Издавачкиот совет*
Доц. д-р Александар ГЛАВИНОВ, полковник, *главен и одговорен уредник*
Проф. д-р Мухамет РАЦАЈ, генерал мајор, *заменик-главен и одговорен уредник*

ИЗДАВАЧКИ СОВЕТ

Проф. д-р Орце ПОПОВСКИ, полковник, *Воена академија, Скопје*
Проф. д-р Росе СМИЛЕСКИ, полковник, *Воена академија, Скопје*
Проф. д-р Томе БАТКОВСКИ, *Факултет за безбедност, Скопје*
Проф. д-р Билјана ВАНКОВСКА, *Институт за безбедност, одбрана и мир, Филозофски факултет, Скопје*
Проф. д-р Методи ХАЦИ-ЈАНЕВ, полковник, *Воена академија, Скопје*
Проф. д-р Цане МОЈАНОСКИ, *Факултет за безбедност, Скопје*
Доц. д-р Ненад ТАНЕСКИ, потполковник, *Воена академија, Скопје*
Доц. д-р Жанет РИСТОСКА, *Министерство за одбрана на РМ*
Д-р Урим ВЕЈСЕЛИ, *Центар за управување со кризи*

МЕЃУНАРОДЕН УРЕДУВАЧКИ ОДБОР

Проф. д-р Лидија ГЕОРГИЕВА, Република Македонија, *претседател*
Проф. д-р Арта МУСАРАЈ, Република Албанија
Проф. д-р Николај ПАЛАШЕВ, Република Бугарија
Проф. д-р Бејтуш ГАШИ, Република Косово
Проф. д-р Зоран ДРАГИШИК, Република Србија
Доц. д-р Абас ЛЕШИ, бригаден генерал, Република Албанија
Доц. д-р Ерик КОПАЧ, Република Словенија
М-р Лоренцо ХИПОНИА, САД
Доц. д-р Ирена ЧУДОСКА БЛАЖЕВСКА, Република Македонија

УРЕДУВАЧКИ ОДБОР

Проф. д-р Зоран НАЦЕВ, *Институт за безбедност, одбрана и мир, Филозофски факултет, Скопје*
Проф. д-р Билјана КАРОВСКА АНДОНОВСКА, *ФОН Универзитет*
Проф. д-р Ризван СУЛЕЈМАНИ, *Државен универзитет – Тетово*
Проф. д-р Тони МИЛЕСКИ, *Институт за безбедност, одбрана и мир, Филозофски факултет, Скопје*
Проф. д-р Оливер БАКРЕСКИ, *Институт за безбедност, одбрана и мир, Филозофски факултет, Скопје*
Проф. д-р Драге ПЕТРЕСКИ, полковник, *Воена академија, Скопје*
Доц. д-р Ненад ТАНЕСКИ, потполковник, *Воена академија, Скопје*
Доц. д-р Александар ГЛАВИНОВ, полковник, *Воена академија, Скопје*
Доц. д-р Димче ПЕТРОВСКИ, генерал-мајор, *ГШ на АРМ*
Доц. д-р Атанас КОЗАРЕВ, *ЕУРМ, Скопје*
Доц. д-р Жанет РИСТОСКА, *Министерство за одбрана на РМ*
Проф. д-р Методија ДОЈЧИНОВСКИ, полковник, *Воена академија, Скопје*

В.Д. секретар и лектура: доц. д-р Жанет РИСТОСКА
Технички уредник: Билјана ИВАНОВА
Компјутерска подготовка: Александар АТАНАСОВ

CONTEMPORARY MACEDONIAN DEFENCE

INTERNATIONAL SCIENTIFIC JOURNAL OF
THE MINISTRY OF DEFENCE OF THE REPUBLIC OF MACEDONIA

Dr. Zoran JOLEVSKI, *President of the Publishing Board*
Doc. Dr. Aleksandar GLAVINOV, Colonel, *Editor-in-Chief*
Prof. Dr. Muhamet RACAJ, Major General, *Deputy Editor-in-Chief*

PUBLISHING BOARD

Prof. Dr. Orce POPOVSKI, Colonel, *Military Academy, Skopje*
Prof. Dr. Rose SMILESKI, Colonel, *Military Academy, Skopje*
Prof. Dr. Tome BATKOVSKI, *Faculty for Security, Skopje*
Prof. Dr. Biljana VANKOVSKA, Institute for Security, Defence and Peace, Faculty of Philosophy, Skopje
Prof. Dr. Metodi HADZI-JANEV, Colonel, *Military Academy, Skopje*
Prof. Dr. Cane MOJANOSKI, *Faculty for Security, Skopje*
Doc. Dr. Nenad TANESKI, *Lieutenant Colonel, Military Academy, Skopje*
Doc. Dr. Zhanet RISTOSKA, *Ministry Of Defence of RM*
Dr. Urim VEJSELI, *Crisis Management Center, Skopje*

INTERNATIONAL EDITORIAL BOARD

Prof. Dr. Lidija GEORGIEVA, Republic of Macedonia, *President*
Prof. Dr. Arta MUSARAJ, Republic of Albania
Prof. Dr. Nikolaj PALASHEV, Republic of Bulgaria
Prof. Dr. Bejtush GASHI, Republic of Kosovo
Prof. Dr. Zoran DRAGISHIC, Republic of Serbia
Doc. Dr. Abaz LLESHI, Brigadier General, Republic of Albania
Doc. Dr. Erik KOPAC, Republic of Slovenia
MA Lorenzo HIPONIA, USA
Doc. Dr. Irena CHUDOSKA BLAZHEVSKA, Republic of Macedonia

EDITORIAL BOARD

Prof. Dr. Zoran NACEV, *Institute for Security, Defence and Peace, Faculty of Philosophy, Skopje*
Prof. Dr. Biljana KAROVSKA ANDONOVSKA, *FON University*
Prof. Dr. Rizvan SULEJMANIU, *State University of Tetovo*
Prof. Dr. Toni MILESKI, *Institute for Security, Defence and Peace, Faculty of Philosophy, Skopje*
Prof. Dr. Oliver BAKRESKI, *Institute for Security, Defence and Peace, Faculty of Philosophy, Skopje*
Prof. Dr. Drage PETRESKI, Colonel, *Military Academy, Skopje*
Doc. Dr. Nenad TANESKI, Lieutenant Colonel, *Military Academy, Skopje*
Doc. Dr. Aleksandar GLAVINOV, Colonel, *Military Academy, Skopje*
Doc. Dr. Dimche PETROVSKI, Major-General, *GS of the ARM*
Doc. Dr. Atanas KOZAREV, *EURM, Skopje*
Doc. Dr. Zhanet RISTOSKA, *Ministry Of Defence of RM*
Prof. Dr. Metodija DOJCHINOVSKI, Colonel, *Military Academy, Skopje*

Acting Secretary: Doc. Dr. Zhanet RISTOSKA
Graphic Designer & Editor: Biljana IVANOVA
Technical Editor: Aleksandar ATANASOV
Proofreading and Editing: MA Elena TRAJANOVSKA

CONTENTS:

Vanja ROKVIĆ, Zoran JEFTIĆ THE TRINITY OF CIVIL-MILITARY RELATIONS IN THE REPUBLIC OF SERBIA: DEMOCRATIC CONTROL, EFFICIENCY AND EFFECTIVENESS OF THE SERBIAN ARMED FORCES.....	9
Ferdinand ODZAKOV, Zoran IVANOV COST BENEFIT VS COST EXPENDITURE IMPLIED FROM TERRORIST ATTACKS.....	25
Borche CHAMINSKI, Nenad TANESKI GLOBAL CHANGES IN GEOPOLITICS OF ENERGY RESOURCES, RISKS AND CHALLENGES FOR THE REPUBLIC OF MACEDONIA.....	37
Aleksandar GLAVINOV, Jovan STANIKEVSKI REDUCING THE RISK OF ENERGY CRISIS IN THE REPUBLIC OF MACEDONIA THROUGH THE IMPLEMENTATION OF THE STRATEGY FOR ENERGY DEVELOPMENT.....	45
Oliver BAKRESKI, Dragan TRIVAN NATIONAL INTERESTS AND THEIR PROTECTION.....	53
Zorica SALTIROVSKA, Sunchica DIMITRIJOSKA THE GENDER DIMENSION OF DOMESTIC VIOLENCE IN THE REPUBLIC OF MACEDONIA.....	65
Olivera INJAC, Metodija DOJČINOVSKI CONTEMPORARY TERRORISM AND PROPAGANDA – TRENDS, MODELS AND DIMENSIONS.....	79
Kristina RADOJEVIĆ, Aleksandra LJUŠTINA SECURITY CULTURE’S ROLE IN SCADA NETWORKS PROTECTION.....	91
Vida POPOVSKA KOCHISHKA THE ESTABLISHMENT OF THE KOSOVO WAR CRIME COURT: A NECESSARY PATH TOWARDS ACHIEVING TRANSITIONAL JUSTICE?.....	101

Zlatko KUZMANOV	
TRAINING AND DEVELOPMENT OF MILITARY AND CIVILIAN PERSONNEL IN THE DEFENSE SYSTEM OF THE REPUBLIC OF MACEDONIA - RESULTS FROM THE SURVEY CONDUCTED WITH A SURVEY QUESTIONNAIRE -.....	113
Mirjana MANEVSKA, Stoimen STOILOV	
THE PURPOSE OF THE DIPLOMATIC CONSULAR REPRESENTATIVES IN THE BATTLE AGAINST CYBER TERRORISM THROUGH OUT THE PRISM OF COOPERATION WITH THE COUNTRY IN WHICH THEY ARE ACCREDITED.....	123
Valentina BLAZEVSKA ANDONOVSKA, Muhamet RACAJ	
GLOBALIZATION AND PROCESSES AND THREATS IT IMPOSES.....	135

REDUCING THE RISK OF ENERGY CRISIS IN THE REPUBLIC OF MACEDONIA THROUGH THE IMPLEMENTATION OF THE STRATEGY FOR ENERGY DEVELOPMENT

Aleksandar GLAVINOV¹
Jovan STANIKEVSKI²

Abstract: *The energy strategy of each country represents the pillar of energy supply security, and it is a key precondition for further development, especially in the economy, but also for the society as a whole. Managing of potential challenges to energy crisis takes primacy in the creation of any energy strategy. Energy issues and the development of each country should be considered in the context of energy security. Energy security is actually a product of the successful management of energy and energy resources in each country. The scientific conception of exploration of the issues in the paper "Reducing the risk of an energy crisis in the country through the implementation of the Strategy for Energy Development", arose from two strategic interests of the Republic of Macedonia, first, the strategic interest in providing diverse energy for economically reasonable price, as well as the strategic interest in promoting energy efficiency and reducing the overall energy import, which directly reduces the possibility of an energy crisis. By implementing the Strategy for Development of Energy, the Republic of Macedonia, besides reducing the risk of a possible energy crisis, also contributes to strengthening the European energy strategy, developed to contribute to reducing energy dependence, providing energy at an affordable price for citizens and industry, security and continuity of the availability of energy, competitiveness of the energy market and environmental protection.*

Keywords: *energy, electricity, renewable energy sources, energy efficiency.*

Introduction

Since the independence of the Republic of Macedonia, energy crisis has knocked on our door several times. It first occurred during the economic embargo imposed in 1994 by Greece, then breaking the delivery of natural gas from the Russian Federation in 2007, 2010 and 2014. Macedonia as a country is dependent on energy import, and as a candidate country for member-

¹ Military Academy "General Mihailo Apostolski"-Skopje

² Army of Republic of Macedonia

ship in the European Union it takes steps to mitigate the risk of subsequent energy crisis. It is a signatory and has ratified the following documents:

- The Energy Charter, together with the Protocol on Energy Efficiency and Related Aspects of Environmental Protection (1998);
- Framework Convention of the United Nations Climate Change (1997);
- The Kyoto Protocol (2004);
- Energy Community Treaty (2006);
- Statute of the International Renewable Energy IRENA (2009), and
- Memorandum of Understanding to enter Macedonia amongst Subprogram Intelligent Energy Europe (2011).

The strategic goals of the Republic of Macedonia in the energy sector, including the commitment to comply with the “*acquis communautaire*” of the Second Energy Package of EU are incorporated in the Law on Energy, adopted in February 2011.³

Macedonia is a small landlocked country, without its own resources of natural gas or oil, a candidate for membership in EU and NATO, trying to strategically plan and improve its energy security and thus reduce the possibility of energy crisis. Although several relevant documents have been created aimed at improving energy security and reducing the possibility of energy crisis, the fact remains that it cannot cope with the high demand of electricity, as in February 2012⁴, the annual increase in energy dependence and supply of natural gas from a source that provided the image of a problematic situation with energy security. Moreover, a study by the World Energy Council entitled sustainability ranks Macedonia at the 89th place in terms of energy security among 129 countries for 2013; whereas in the region worse ranked than Macedonia in 2013 were Serbia (101) and Montenegro (115), and better Albania (87), Croatia (66), Slovenia (60), Greece (54), Bulgaria (26), and Romania (9).⁵

Energy policy of the Republic of Macedonia is determined by the Strategy for Energy Development.⁶ By 2030, the strategy for energy development in the country is the responsibility of the Ministry of Economy of the Republic of Macedonia. The current strategy was developed in 2010 and covers the period until 2020 with a vision to 2030. This Strategy defines the best long-term development of the energy sector in the country in order to provide reliable and good quality supply to consumers. The Energy Strategy identifies the following as priority needs for providing energy security: increasing the diversification of energy resources, maximum utilization of renewable energy resources, improving energy efficiency, and competitive participation in the regional energy market and the European energy community. Based on the strategy, a program was adopted for implementation of the strategy for energy development in Macedonia for the period 2012-2016 year.

³ MASA, Strategy for Energy Development in the Republic of Macedonia until 2030 (Skopje, 2010), 1.

⁴ In February 2012, Macedonia faced a lack of electricity to meet its demand. The preliminary measure that was taken was the reduction of street lighting. MIA / Idividi, “the government declared electricity crisis,” February 13, 2012, Retrieved on October 23, 2014 <http://www.idividi.com.mk/vesti/makedonija/748029/>

⁵ World Energy Council. Sustainability Index for Macedonia. <http://www.worldenergy.org/data/sustainability-index/country/Macedonia/2013/> (Retrieved 23 October 2014).

⁶ Energy Law (Fig. Gazette, No. 16 of 10.02.2011).

Strategy for Energy Development in Macedonia

The Strategy for Energy Development of the Republic of Macedonia defines the long-term development of the energy sector in the country in order to provide reliable and good quality supply to consumers.

The implementation of the stated primary objective takes into account the following priorities:

- Maintenance, revitalization and modernization of the existing and construction of new, modern infrastructure for production and use of energy;
- Improving energy efficiency in production, distribution and use of energy;
- Utilization of domestic resources (reserves of lignite, hydropower potential, wind and solar energy) for electricity production;
- Increasing the use of natural gas;
- Increasing the use of renewable energy sources;
- Establishing economic energy prices, and
- Integration of the energy sector of the Republic of Macedonia in the regional and European market for electricity and natural gas, by building new connections and to align the legislation with the existing legislation of the European Union (acquis communautaire) for energy, environment, competition and renewable energy sources.⁷

In fact, the energy strategy aims to provide reliable and quality power supply. The energy strategy defines energy security as regular meeting energy demand, and under sustainable environmental conditions and at prices which do not impede economic development and threaten the standard of living of citizens.

Key documents for the creation and implementation of the strategic energy policy documents adopted by the Government of the Republic of Macedonia:

- Energy Development Strategy;
- Renewable Energy Strategy, and
- Energy Efficiency Strategy.

Energy Development Strategy is adopted every five years, and covers a period of 20 years. Renewable Energy Strategy sources and energy efficiency are made for a period of 10 years and should be aligned with the Energy Development Strategy.

Modern industry and its development are based on the constancy of the potential sources of primary energy resources such as oil and natural gas. Today, Macedonia does not have an access to oil sites and sources of natural gas, and it is clear that it can only import these fuels and adapt them to market, without affecting the trends in making decisions about production and trade of oil and natural gas.⁸

⁷ Ibid 1, 2.

⁸ Toni Milevski, Energy security. "St. Kiril and Metodi "- Skopje, Faculty of Philosophy (Skopje, 2014), 122.

Chance of energy crisis in Macedonia

While the EU is concerned by the lack of natural gas, Macedonia is more vulnerable to electricity. This can be inferred from the energy balances of Macedonia, the share of electricity used by households, but also the industry, and the fact that import of electricity is increasing. This fact only, in consideration of the electricity crisis in 2012, should stimulate the overcoming of this state of vulnerability regarding electricity. This can be achieved by enabling sources of heating for households other than electricity (gas, developed central heating, efficient use of wood, energy efficiency measures, etc.), and focusing on the use of renewable sources and natural gas. It is enough to recall the crisis that engulfed part of the European Union due to problems in the supply of natural gas from Russia in 2010. The Republic of Macedonia along with Bulgaria, Slovakia, Serbia and Bosnia and Herzegovina, was on the list of EU countries that had been most affected by the gas crisis. Taking into consideration solely the fact that we have one of the least developed and smallest gas networks in Europe, this situation does not turn into drama. Macedonia is one of the few countries on the European continent that has no gas reserves (even Bulgaria has three-day worth reserves), other alternative fuels only for the industry.⁹

To reduce the energy crisis in the country, greater diversification of energy sources is necessary by type, sources and suppliers, as well as active participation in the regional energy market and the European Energy Community. Therefore, what is important is maximum utilization of domestic resources (renewable and coal) and long-term strategic policy for connection to the mains in the region (gas pipelines, oil pipelines and power lines), and building the business and friendly relations with all the strategically important stakeholders such as EU, USA, Russia and the countries in the region.

Macedonia has no conditions to build a reservoir of natural gas that would ensure security of supply. Renting reservoir space in the neighboring countries is one of the options available to suppliers of natural gas and/or the larger consumers.¹⁰

The energy infrastructure of the Republic of Macedonia enables the exploitation of domestic primary energy, import and export of primary energy, processing primary energy and production of final energy, transport and distribution of energy. The energy infrastructure of the Republic of Macedonia includes the electricity sector, coal, oil and oil products, natural gas and heat.

The general characteristics of the energy infrastructure of the Republic of Macedonia are:

- Obsolete technologies and lack of investment in maintenance, modernization and expansion of existing facilities and construction of new facilities;

⁹ Slobodanka Jovanovska, „Macedonia among the countries most vulnerable energy“, Utrinski Vesnik 2009, www.utrinski.mk/?ItemID=bcf446c10face2479A187977FAA5BF7B (Retrieved 23 October 2015).

¹⁰ Ibid 1, 134.

- High electricity losses (technical and commercial);
- Low energy efficiency;
- Unfavorable structure of the energy types (production, import and consumption) from an environmental and economic point of view and in terms of security of supply;
- Existence of monopolized structures in specific segments of the sector;
- Incomplete separation of production, transmission and distribution.

Macedonia is dependent on energy import. It imports its total demand for oil and petroleum products and natural gas since 2000, as well as part of the electricity. The energy import has been increasing in the past, but recently electricity imports due to rapid economic growth and the construction of new production facilities have particularly increased. And this leads to an increased risk of a possible energy crisis in the country.

Managing Energy Crisis in Macedonia

In the wake of the 21st century there is no sector of the society that can function without power. Hence, there is a need to protect the most abundant and the most needed sector - energy. In the energy sector, we can mention the following most common sub-sectors: electricity, oil and gas. The protection of the energy sector is very complex and requires a lot of resources. Successful protection of the energy sector must encompass all infrastructure facilities for production, transport, distribution and supply. To this end, the European Union's main political and economic efforts are focused on providing functional sustainability which in future could be ensured only through energy stability and timely and cost effective delivery of energy and resources to our economy. The Republic of Macedonia follows this trend, because if we do not have well-developed system of protection of the energy sector we cannot speak for managing it. Therefore, the Republic of Macedonia is considering to promote energy security, improve production and delivery, and development of alternative energy sources.

According to Daniel Yergin, there are several types of energy security: physical security that includes protection of infrastructure, resources and distribution; critical approach to energy security that includes energy supply; definition of energy security as a system of national and international policies that can respond coordinated at supply disruption and protect the flow of crucial supplies and energy security taking innovative policies to ensure affordable supplies in the future.¹¹

For successful implementation of the Energy Development Strategy of the Republic of Macedonia, investments will be required primarily directed towards measures for energy saving and development of the transmission and distribution network and policies that create conditions for greater utilization of locally available, environmentally friendly, renewable energy, especially solar energy.

¹¹ Daniel Yergin, *The Quest – Energy Security and the Remaking of the Modern World*. (New York: Penguin Group, 2011), 268-269.

If the country really wants to become energy independent, or to terminate the import of energy, it should use solar energy as a huge potential and integrate it in the strategy documents and the real policy on the ground.

Investments made in network development are essential to long-term energy development in our country and a necessary step in energy independence of the country; because, modernization of the network is necessary to exploit renewable, fluctuating energy sources.

The development of technologies and inventions in energy should be stimulated through higher education, and specific funding programs (grants) to individuals and institutions that have the capacity in these areas. Macedonia has quality innovators who have proven internationally that the country should have a system to support these people and their innovation, and encourage young people (students) to commit to research and innovation in the energy field.

Considering the fact that the energy needs of the world are rapidly expanding, and conventional energy is undergoing a downward trend, energy efficiency of all available energy is an imperative in modern living. This applies to countries with limited economic opportunities and energy resources, such as the Republic of Macedonia. Energy efficiency is one of the factors for a country's successful economy and protection of the environment. Provision of energy security requires greater diversification of energy resources by type, sources and suppliers, active role of the regional energy market and the European Energy Community. This requires maximizing the possible use of domestic resources and strategically viable long-term connection policy to the main energy sources in the region and beyond. Improving energy efficiency requires maximizing the use of renewable energy sources, to provide conditions for greater utilization of natural gas and transition of the energy sector of the Republic of Macedonia to market conditions. The transition to market prices for electricity will improve the investment climate; strengthen the interest to introduce renewable energy sources and to improve energy efficiency.

The tendency of the Republic of Macedonia is to reduce the use of coal (39%), oil products with biofuels (31.6%), and the expense of increasing the use of natural gas to (16%) by 2020. Furthermore, the biomass for combustion and hydropower to participate with around 6%. Solar and wind energy will together contribute to the production of primary energy with 0.6% and geothermal with around 1%.¹²

The Energy Development Strategy has four scenarios for the development of production facilities in the electricity sector of the Republic of Macedonia, and the capability of existing production facilities, the real potential candidates, and of course by the development of consumption. All scenarios of development are guided by the following principles of development:

- Maximum engagement of the existing lignite opencast;
- Utilization of hydro potential in Macedonia;

¹² Ibid 1, 128.

- Use of natural gas for electricity energy;
- Use of renewable energy sources.¹³

By the implementation of the envisaged pace of construction of new production facilities, the diversity will be improved and therefore the security of electricity supply. In the past, at average hydrology, 80% of the electricity was produced in coal thermal power plants and 20% from renewable energy sources (hydroelectric). In 2020, production of electricity from coal thermal power plants is planned to account for 42% - 51% depending on the scenario, natural gas and renewable energy sources 24% - 28% and fuel oil thermal power plant 2% - 3%.¹⁴

By liberalization of the energy market, electricity prices in the coming period will increase. Therefore, Macedonia should continue the intensive energy reforms to reduce the impact of rising energy prices, reforms to improve the heat market, improving energy efficiency, support for local gasification projects and continue the plans for gasification at a central level.

However, we must note that for successful management of a major energy crisis, the state and private companies involved in the production, transmission or distribution of energy should raise the quality of its products, services, activities and investments, because it is the only way to become a key part of the public-private partnership in the field of energy in the Republic of Macedonia.

Conclusion

It is favorable for the Republic of Macedonia that recently there has been more investment in transmission of electricity, because this will provide avoiding bottlenecks in transportation, smaller losses, a quality connection to the integrated European market and an opportunity to withdraw a larger amount of electricity. Nevertheless, because of the fact that in terms of generation, we are speaking of capital facilities, which take longer period to build, we should start considering operationalization of the use of gas in the Republic of Macedonia, which would lead to substitution of the consumption of electricity in the country and would result in constructing gas plants or cogeneration plants.

Macedonia needs to be fully committed to the use of renewable sources for electricity production. Solar and wind energy is a renewable resource, and should be used more in the future to reduce the energetic dependence of the Republic of Macedonia and to satisfy the principle of diversification of resources.

Strong contribution to the fulfillment of the concept of managing the energy crisis in the country can be achieved by removing the basic anomalies identified in the current power system of the country. Obsolete technology should be abandoned, and we should put efforts into attracting investment for maintaining the modernization of the existing energy system of the country. Modernization is necessary in all segments of the power system of the Republic of Macedonia in terms of monitoring, control and automatic analysis of all technical parameters.

It is necessary to reduce high electricity losses, technical and commercial losses.

¹³ Ibid 1, 117-119.

¹⁴ Ibid 1, 121.

Obsolescence of systems leads to increased losses and poor transmission and distribution of electricity. In Macedonia there are larger settlements with insufficient payment of electricity bills, and incidents of illegal use of energy. Loss of energy and thefts additionally burden the system and endanger the technical aspect, and lead to the generally irrational exploitation of energy resources.

It is also important to increase energy efficiency, which will contribute to reducing electricity consumption in all segments, in order to extend the duration of energy resources exploitation. If the Republic of Macedonia intensifies the gasification projects, the citizens, as well as economic operators will have reliable access to cheap energy; they will save on the purchase of expensive energy and resources and allow greater market competitiveness.

The availability of fuel and energy is primarily an issue of managing the energy crisis of any country, and it is a key precondition for further development, especially in the economy, but also for the society as a whole.

REFERENCES:

- An Energy Policy for Europe, <http://eur-lex.europa./legal-content/EN/TXT/? Uri = URISERV: I27067>
- Daniel Yergin, *The Quest - Energy Security and the Remaking of the Modern World* (New York: Penguin Group, 2011).
- European Commission, *A European Strategy for Sustainable, Competitive and Secure Energy, Green Paper* (Brussels: COM, 2006).
- European societies might need to rethink the way energy is consumed, eg by changing urban planning and consumption patterns. See *Roadmap to a Resource Efficient Europe* (COM, 2011).
- Energy Law (Fig. Gazette, No. 16 of 10.02.2011 years).
- MASA, *Strategy for Energy Development in the Republic of Macedonia until 2030* (Skopje, 2010).
- Slobodanka Jovanovska "Macedonia among the countries most vulnerable energy", *Utrinski Vesnik*, www.utrinski.mk/?ItemID=bcf446c10face2479A187977FAA5BF7B
- Toni Milevski, *Energy security. "St. Kiril and Metodi"* Skopje - Faculty of Philosophy (Skopje, 2014).