

ENERGY AND INNOVATION SECTOR SEEN AS ESSENTIAL FACTORS OF ECONOMIC SECURITY IN THE THIRD MILLENNIUM

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Abstract:

The energy and innovation sector are key components of the economic security of Romania. In order to be able to keep the high standards with other competing countries with which Romania competes in different economic sector, our country must have a strong and independent energy and innovation sector.

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JEL Classification: A10 – General, F00 – General, F01 - Global Outlook.

1. Introduction

The energy and innovation sector are key components of the economic security of Romania. An economy characterized as efficient and competitive, continuously growing which can adapt to the requirements of European integration and globalization (D. Muresan, 2006), is an important pillar of national security, thus ensuring economic security and social interest of the majority of population, support for democratic institutions and the basis for initiatives to promote the prosperity and security of the Romanian nation.

Strengthening and improving the activity of the institutions and market economy mechanisms, based on the principle of free competition and social solidarity is a priority, given the fact that it is increasing the need to keep up with European Union countries, countries which have a increasing trend of development.

Sustainable economic development, sustained by a development plan capable of attracting strategic investments, generate jobs and produce resources for social protection is the only way capable to lead to a significant reduction of the gaps which apart Romania from to the European average. The existence of well-grounded policy (T. Frunzeti, D. Buse, 2010) for identifying and making efficient economic objectives that ensure national security, has as objective stimulating work, performance, equity and solidarity participants in socio-economic processes, policies that will involve the consolidation of national security.

An important role in ensuring national security is given to energy security.

Our country possesses an impressive structure in terms of electricity production but also in the extraction of petrol and natural gases. In the XXI century when the need and consumption of energy is higher and higher, the fact that Romania has significant capabilities in the production of electricity by having a well-developed system, and having a continuous trend of growth in the hydropower-electricity system, the existence of coal reserves and the possibility of processing coal in power, the existence of a nuclear power plant at Cernavoda and the existing interest of building new reactors that would lead to duplication of nuclear energy production possibilities, make all these aspects lead to the creation of a stable framework to support economic development and thus provide a climate of national security. Also, Romania must implement policies designed to have a continuously adapted and optimized operational structure of consumption of primary energy resources and energy efficiency. To this end, it will act with priority: reducing dependence on supplies from unstable regions or states that use energy as a tool of political pressure; accelerating programs of energy production in nuclear power plants.

The paper aims to highlight how important is economy in maintaining national security for Romania.

2. Energy Security of Romania. General Aspects

In the climate and the evolution of the events after 2000, the role of energy resources occupy an important role in the economic security strategy of any state in the world. In the present, oil and natural gas continues to represent an extremely important role in economic development, but also in ensuring the economic security of a state. A high price for those who buy energy or a low price for those who sells energy can mean progress or regress to beneficiary states which provide or need such services.

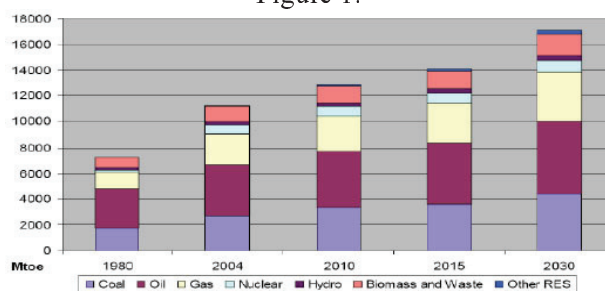
Understood on a large-scale, energy security represents to possibility for a state to have energy resources, control of distribution routes and

energy resources. As a consequence, economic security based on energy security can only be achieved by having sufficient energy resources.

Energy security can also represent besides holding and processing of energy resources such as oil, natural gas or electricity; also controlling transportation of such resources from producer to consumer. The fact that a state has no energy resources such as oil or gas or produce energy and electricity, does not mean that a state cannot act as a player which will give the advantage to benefit from good prices for such resources. A good example of this is given by the states on whose territory is being transited by network transports for energy resources such as natural gas, oil or electricity, resources to countries that do not benefit from such resources or they cannot provide the entire necessary production need. The attraction of investments to Romania from energy producing states (states which have energy resources), besides investment can mean also investment in structures/installations and the possibility to benefit from prices much convenient that eventually will rebound to the benefit of the national economy. The existence of energy transport routes such as natural gas resources transport routes can result in the possibility for the transit state to choose the seller who offers the best price for sale of energy resources. Making progresses in this area of energy security can be achieved only in the context of efficient and determinate political and economic relations with the states, but also with a correct application of EU policies and strategies of European Union.

Currently, energy security circumscribes both supply and demand of energy and may have one of the following meanings: physical availability of energy resources, energy accessibility in terms of price, safety of energy demand with the impact on producers' income stability and energy exports.

Figure 1.¹



Evoluția cererii mondiale de energie
Sursa: WEO 2006, OECD/IEA 2006

¹https://www.google.ro/search?q=securitatea+energetica+a+romaniei&rlz=1C1CAFB_enRO615RO615&espv=2&biw=1280&bih=879&source=lnms&tbm=isch&sa=X&ei=jj5CVfWKKcn4UJrcgeAC&ved=0CAYQ_AUoAQ#tbm=isch&q=securitatea+energetica+a+romaniei+grafice&imgre=ov6PiZDavqACDM%253A%3Bu6Lv51A4BxsCZM%3Bhttp%253A%252F%252Fsir.datawave.ro%252Fimg%252Fcontent%252Ffaza4%252F1.jpg%3Bhttp%253A%252F%252Fsir.datawave.ro%252Ffaze-predate%252Ffaza4.html%3B527%3B290

To enjoy a well-consolidated energy security, Romania should avoid situations such as the interruption of supplying industrial consumers and producers of energy resources. These disruptions can have as factors besides political interests and geostrategic interests, factors such as natural disasters or terrorist threats. Consequently, the energy security of Romania could have threat factors such as: physical destruction of the supplier or importer infrastructure caused by natural disasters, geopolitical, terrorism or war. At the same time the economic interests of a competitor state can lead to threats to the economic security of Romania.

Perhaps the greatest recent danger to the security of Romania's energy is given by the need in some cases to energy resources will have to be procured from abroad, and by increasing prices or by imposing increase prices by the manufacturers or suppliers who hold supremacy in the energy sector. This will result in the effect of creating a climate of social insecurity and economic sector significant losses. A good example in this case is represented by the energy supremacy of the Russian Federation which has the advantage of holding vast natural resources and in the context of European countries dependence of Russia's energy resources, Russia can impose disadvantageous prices and offers to consumers for the provided energy resources. In some situations, the suppliers in order to achieve their economic and political plans can decide on their own without being affected, to cut off the supply of energy, thus creating significant losses to European economies.

Although it is not a problem at the moment, the possibility of existing in the future of a situation in which it will be achieved maximum production of natural energy resources and the demand will be bigger than production, it will result in a threat to the economic security to world states, which could degenerate even in military wars.

Last year's projections indicate an increase in the need of energy resources worldwide. The International Energy Agency highlights for the next period an increase in renewable energy resources but also natural gas. It is estimated that a quarter of primary energy needs worldwide will be covered by coal. In this respect, Romania still holds significant coal resources, thus creating an advantage in terms of economic security of Romania in relation to other neighboring countries. Also Romania has perfected and has accomplished the indicators imposed by the European Union regarding the capabilities of producing energy from wind sources. I want to highlight the fact regarding Romania's possibilities of producing energy from wind sources, as wind energy does not demand the consumption of raw materials and it is also a nonpolluting producing source. Also wind is a resource which has no limits in using its potential.

Given the events of recent years, energy security seen in the years 2014-2015, we can say that economic security has significant implications on politically militarily and socially level.

3. Innovation & TIC

The development of TIC and innovation sector represents a defining element in developing the security strategy of Romania, especially in the context of new economic national security threats.

The emergence of international risks and threats of a new type, complex dynamics of internal environment and the substantial change of security status of Romania in the international arena requires a new approach in integrating, systemic and comprehensive approach to internal security objectives. At the same time, the experience of major terrorist attacks in the United States (which took effect as the first American stock market crash and the challenge of significant economic losses) or other countries, highlights the need for an appropriate strategy for the protection and defense of life, liberty, human dignity, goods and activities on national territory, in particular by threatening factors generated by the area of innovation & TIC.

Although economic security is seen as a whole, the existence of economic security cannot exist without the existence of internal security viewed as a whole. Thus in order to achieve economic security in terms of Innovation & TIC domain, we must see economic security as all activities designated to protect, guard and defend the inhabitants, human communities, infrastructure and property against asymmetric threats of military or non-military, which endanger the life, liberty, property and human activities and communities, the infrastructure and socio-economic activities, and other values at a level of intensity and scope significantly different from the usual situations.

As part of ensuring economic security closely linked is the innovation and TIC segment, a segment that requires constant training and efficient equipment for the Romanian state institutions so that the competent institutions can be prepared to face the dangers of this kind.

Ensuring a innovation and TIC competitive sector is also very important as this sector is a sector that generates significant revenues to the state budget, and the steady growth of this sector can mean besides generating financial resources it can generate new techniques for national defense security programs, and techniques aimed at supporting stability means for the economic security of Romania.

Also Romania must constantly exercise a common policy EU in the Innovation & TIC sector, given that innovation has been placed at the center of EU strategy on growth revenues and increasing job numbers. Member

States are encouraged to invest 3% of GDP in research and development by 2020 (1% of public funds, 2% of private investment), which is estimated to generate 3.7 million jobs and would lead to an annual increase of EU GDP by about 800 billion euros. The initiative of states regarding the purpose of innovation, directs the efforts of Europe (and cooperation with countries outside the EU) to address major current challenges: energy, industrial safety, climate change, population aging. The public sector will be used to stimulate the private sector and remove bottlenecks which prevent ideas reach the market, including lack of capital, fragmented research systems and markets, inadequate use of public procurement for innovation and slow adoption of standards.

European Union makes efforts to create a single European Research Area that enables researchers to work in any EU country and within which to be supported and encourage cooperation's between countries.

The task of ensuring economic security of Romania is complex and interdependent. It involves responsibilities of a large number of institutions. The responsibilities regarding these aspects belong mainly to: public administration and public order structures and those structures dealing with the prevention and management of civil emergencies, border security and coast guard; structures of intelligence, counterintelligence and security.

Given the higher risks arising from the possibility of terrorist attacks and economic sabotage generated by countries with which Romania is competing, including the use of means and cyber-attacks on IT systems, this fact involves making constant investment and constant training of staff in charge of detection and prevention of attacks. Regarding the presented aspects, ensuring internal security nowadays is becoming more and more complex.

The need for constant innovation by implementing the latest technologies for economic entities from Romania and also to institutions in charge with ensuring the country economic security are imposed also by demands promoted by the European Union. This causes an increased interest from the point of view of national security, for such a vast, complex and vulnerable area, with direct impact on people's lives.

Considerable investments were made in the IT sector from Romania and modernizing centers which perform in this area in recent years have made this segment of the economy to experience a steady growth and development. Currently human resources instructed in special institutions from Romania, gives the possibility of development considering the high level of training of human resources in this field. Moreover, the existence of well-trained human resources has resulted in attracting new investors, by coming in Romania new foreign corporations that have generated well-paid jobs and thus that led to significant revenues for the state budget. Also, the

existence of strategies to increase the number of people specialized in innovations & TIC can mean generating additional economic resources for the state budget, resulting in strengthening the economic security of Romania.

Also, the concentration of public resources would enhance scientific niches where Romania has comparative advantage, and will allow possibly creating new niches of excellence.

Following the principle "resources follow excellence", internationalization and concentration will catalyze interdisciplinary collaborations and, through them, they will stimulate science with results that answer questions of general interest.

Finally, basic research plays a vital role in training future researchers and specialists in any medium and for any profile.

The main actions are oriented access to knowledge and basic research and exploratory frontier.

Currently, Romania continues to be below the European average in terms of intellectual property indicators. Part of this reality is reflected in inadequate investment in business area research, including multinationals area. Consequently, the legal framework of intellectual property, along with education programs which have to support researchers and support services, constitute the main points of intervention strategy, including:

- adopting inventions law in a way that encourages private sector innovation and, in particular, the location of RDI activities in Romania;
- implementing an action program of indirect support for research, training of researchers and engineers in industrial rights issues and intellectual property;
- development in public institutions of capacities for innovation marketing;
- facilitated access to support services and marketing innovation;
- encouraging the obtaining and exploitation of intellectual property.

Given the higher risks arising from the possibility of terrorist attacks and economic sabotage generated by countries with which Romania is competing, including the use of means and cyber-attacks on IT systems, it is necessary in this constant realization of investments and constant training of personnel responsible with detection and prevention of attacks. Making constant investment is required since the internal security responsibility becomes increasingly complex and diverse as in the present there is a constant increase of threats to economic security.

4. Computer crimes seen as risk factors for the economic security of Romania

As outlined above, computer crime is the phenomenon that obliges the state to invest important financial resources for training and equipping the institutions responsible for maintaining steady economic security of Romania. Computer crime is that contemporary phenomenon, often reflected in the media sector. Moreover, the number of cases of computer crime is growing and increasingly dependence on daily economic activities which require the existence of a safe informatics system makes attention and interest on this field to be increasingly higher.

Facilities and opportunities offered by the Internet have transformed many business activities due to increased speed, ease and the distance at which you can perform different economic and financial operations with few financial resources. Individual persons or groups which are carrying out activities of informatics criminality found that Internet provides new opportunities and many benefits for illicit business. The dark side of the Internet involves not only fraud and theft online but also criminal organizations, organized crime groups affecting the economic interest of the State in all fields close by activities of cyber terrorism activities, money laundering, drug trafficking, stealing resources from customer accounts banks, ect..

After scope and the role which can be plaid by a computer system (which includes any notion of personal computer, electronic digital agenda, smartphones, internet-type network with its current network), in relation to committing acts that threaten the economic security by committing of crimes, we can define three roles for economic crime:

- personal computer seen as a target for criminal acts (example: unauthorized information accessed for acquiring economic benefits);
- personal computer seen as a means of achieving crimes (example: a personal computer being used to access classified data of economic importance);
- personal computer seen as a store of possible evidence (example: mailing lists, web pages, images, maps that stores information about the movement of people in different areas, contact addresses, phone numbers, ect.).

The legislative system in Romania ensures the legal sanctioning for crimes which have economic impact and implicit in their entirety by preventing dangers against the economic security. The legislature has pursued indirect besides punishing persons who criminal commit offenses

and offenses against confidentiality and integrity of data and systems or offenses of child pornography through computer systems, also by preventing direct or indirect financial losses to national economy which are represented by not paying taxes either by the state or by destroying the lives of innocent people whose evolution in society is sometimes compromised economically and generates this way costs for specialized state bodies in charge of reintegration into society, and using specialized treatment offered to affected persons.

5. Specialized bodies in ensuring economic security against risks that may affect the IT sector

The task of ensuring the economic security of Romania and default prevention to risk factors and effective risk fighting against the Safety of Romania's economic is complex and interdependent. It involves responsibilities of a large number of institutions and agencies. Responsibility for this lies mainly to: public administration and public order structures and those dealing with the prevention and management of civil emergencies, border security and coast guard; structures of intelligence, counterintelligence and security (SRI, SIE, STS, MAI, SPP).

Given the higher risks arising from the possibility of terrorist attacks and economic sabotage generated by countries with which Romania is competing, including the use of means and cyber-attacks on IT systems, stopping and prevention of such threats requires constant achievement, constant investment and training of personnel tasked with detection and prevention of attacks. Although this has the effect of making significant economic costs, cost which are very hard to support by the Romanian budget, channeling additional resources to institutions such as the ones mentioned above, must be a priority. This is supported by the fact that directing additional resources to these institutions has the effect of prevention for significant economic losses, losses which can hardly be repaired and supported by the Romanian state and Romanian society as a whole, in case that they are produced. Therefore constant equipping with new equipment, training human resources from specialized agencies and the adoption of comprehensive programs for institutions in the field is a necessity in maintaining economic security.

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