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Enhancing Economic Security through the Development of Renewable Energy Sources in Europe - Myth or Reality

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The concept of economic security

Many scholars have dealt with economic security, i.a. W.A.Bogomołow[1], V. Cable[2], A. Collins[3], L.P.Gonciarenko[4], C.R. Neu, Ch. Wolf[5], E.A.Olejnikowa[6], I.N.Petrenko[7], J. Sperling, E. Kirchner[8], K.M. Księżopolski[9], W.K.Senciagowa[10], P. De Souza[11], R. Thakur[12], T.E.Kociergina[13] . They define the concept of economic security in different manners. In the present paper economic security is defined as the unimpeded functioning of economies as well as sustaining a comparative balance between the economies of other countries[14]. There are four dimensions of economic security: financial dimension and dimensions of resources

[1] W.A. Bogomołow, *Ekonomiczeskaja biezopasnost*, UNITY, Moscow 2006
[2] V. Cable, *What is International Economic Security*, "International Affairs" 1995, t. 71, nr 2, s. 306;
[3] A. Collins*, Contemporary Security Studies*, Oxford University Press, Oxford 2007, s. 210;
[4] Ed. L.P.Gonciarenko *Ekonomiciskaja i nacionalnaja bezopasnost*, Moscow 2007,
[5] C.R. Neu, Ch. Wolf*, The Economic Dimensions of National Security*, Rand Corporation, Santa Monica 1994, s. xi
[6] ed. E.A.Olejnikowa, *Ekonomicieskaja i nacionalnaja bezopasnost*, Moscow 2005, s.58-68;
[7] I.N.Petrenko*, Ekonomicieskaja bezopasnost Rossii. Denejnyj faktor*, Moscow 2002, s.45-52;
[8] J. Sperling, E. Kirchner, *Economic Security and the Problem of Cooperation in Post-Cold War Europe,* "Review of International Studies" 1998, t. 24, nr 1, s. 221–237;
[9] K.M. Księżopolski, *Ekonomiczne zagrożenia bezpieczeństwa państwa: metody i środki przeciwdziałania*, Warszawa 2004, s. 39-54, K.M. Księżopolski*, Bezpieczeństwo ekonomiczne*, Warszawa 2011, s. 27-35, ed. K. Księżopolski, K. Pronińska, Bezpieczeństwo ekonomiczne w perspektywie politologicznej – wybrane problemy, Warszawa 2012
[10] ed. W.K.Senciagowa, *Ekonomicieskaja bezopasnost: proizwodstwo-finansy-banki*, Moscow 1998, p.12-23
[11] P. De Souza, *Economic Strategy and National Security*, Westview, Boulder 2000, s. 37;
[12] R. Thakur, *The United Nations, Peace and Security: from Collective Security to the Responsibility to Protect*, Cambridge University Press, Cambridge 2006, s. 230;
[13] T.E.Kociergina, *Ekonomicieskaja bezopasnost*, ENIKS, Moscow 2007, p.86-152
[14] K.M. Księżopolski, *Ekonomiczne zagrożenia bezpieczeństwa państwa: metody i środki przeciwdziałania*, Warszawa 2004, s. 39-54;

and energy, food and access to clean water[15]. They are intertwined and form logically connected sets of threats. The rise in importance of economic security in the world's countries' politics and strategies is a result of the security economization process. The beginnings of this process date back to the oil crisis of the 70s and further to the debt crisis of the 80s, although it was not until the collapse of the two-bloc system that this process became more dynamic, which can be linked to the formation of new areas of security studies[16]. The dynamics of the security economization process has also been influenced by the financial crises after 1989, and particularly the latest one of 2008[17], confirming the thesis that sources of threats to the economic security of the world's states are not only present in the actions of other states but also arise from the functioning of the market e.g. foreign exchange, capital or raw material markets.

The development of Renewable Energy Sources (RES) influences economic security in all four dimensions; the energy dimension in particular but also the financial and food dimensions.

In the energy dimension this development means reduced dependency on imported energy sources. It has to be stressed, however, that in 2011 only 13% of energy of the world primary energy supply came from RES. Nowadays most of the 74% of this value is covered by biofuels and waste, 18% comes from hydroelectric power plants, 1% from the sun and 2% from wind power. This means that less than half the energy coming from RES contributes to reducing import dependency. Meanwhile between 2005 and 2011 the wind power generation rose by 333%, providing 447 TWh in 2011. In the same period, the fastest growing electricity-generating industry was photovoltaic (PV) – its production increased by 1550%, up to 65 TWh in 2011[18]. Trends in the wind and solar power generation indicate that this positive impact of the development of RES on the energy dimension of the economic security will be strengthened.

Soaring prices of energy resources also affect the stability of the global financial system, thus encouraging high liquidity on the financial markets. This led to the debt crisis in 1980s and in 2008 triggered inflation and caused the financial crisis. Today high liquidity on

[15] K.M. Księżopolski, *Bezpieczeństwo ekonomiczne*, Warszawa 2011, s. 27-35

[16] B. Buzan, *People, States and Fear: An Agenda for International Security Studies in the Post – Cold War Era*, Harvester Wheatsheaf, New York 1991, s. 16.

[17] K.M. Księżopolski, *Bezpieczeństwo ekonomiczne*, Warszawa 2011, s. 127-135, K.M. Księżopolski, Finansowy wymiar bezpieczeństwa ekonomicznego Polski w dobie kryzysu strefy euroatlantyckiej, w: e Politicon no. 6/2013, p. 208-230 http://oapuw.pl/wp-content/uploads/2013/08/epolitikon-6-2013.pdf

[18] Authors on the basis of IEA, Medium-Term Renewable Energy Market Report 2012, OECD/IEA, p. 15-20.

the financial market is generated by oil exporters causing a considerable increase in the financial system risk. Exorbitant oil and gas prices enabled the establishment of National Investment Funds, which invest oil and gas export revenues abroad. Total assets of National Investment Funds were estimated at USD 5.3 billion in 2011, including USD 3.1 billion worth of assets accumulated from oil and gas export.[19] Another destabilizing factor to the financial markets is a high level of speculation on oil prices.

Considerable price fluctuations and periods of high gas and mineral oil prices affect food prices, which increase as a result of higher production costs but also because part of it is used for biofuel production. This causes substantial political disturbances, in particular in countries with low economic development, which in most cases have also weak political systems, and leads to threats to stability and international security that manifests itself in social unrests, changes of government, separatist tendencies and military conflicts. Therefore the development of RES has a positive impact on economic security with the exclusion of biofuels.

Volatile prices of energy resources affect the economic security of the importing countries but also the exporters of oil and gas. In the case of importers high volatility of prices has a negative impact on the stability of the exchange rate, balance of payments and inflation, thereby hindering the making of monetary policy, which in turn affects the conditions of conducting competitive business activities. They also have an impact on high energy prices on domestic markets, which makes the economy less competitive, ergo poses a threat to the economic security.

For the exporters, on the other hand, considerable fluctuations in oil and gas prices mean no opportunities for a balanced government budget planning and serious problems in case of a dramatic price drop. Hence, symptoms of Dutch disease have been witnessed in most of oil and gas exporters across the world. If margins in oil and gas upstream sector fall, the exporters will have to face serious economic problems and will become less important to the world economy.[20] To overcome this obstacle most of the major exporters of oil and gas will have to open their economies and import technologies. They will face an urgent need to change the structure of GDP production to find a new source of economic revenues and make their economy more competitive. Otherwise they won't be able to restore the balance of

[19]URL< http://www.swfinstitute.org/fund-rankings/> 27-08-2013

[20] For Gulf Countries Council oil revenues represented 60–88 per cent of government revenues during 2005–2009, and oil share in export revenues was 76–95 per cent in 2008, except in the United Arab Emirates, where it was 43 per cent. *The GCC: increasingly diversified economies*, Samba Report Series, Office of the Chief Economist, Samba Financial Group, April 2010, p.5

payments equilibrium. Moreover, they will experience high inflation due to the gradual weakening of their national currencies.

The impact of RES on Europe's economic security

From the perspective of the global economy a wider use of RES will lead to a more stable economic development in the future. Today the world economy is vulnerable to the high volatility of oil and gas prices, which has negative economic implications on economic security. The relationship between economic security and RES can be analyzed on several different levels:

- the impact of RES on economic development,

- the impact of RES on climate protection,

- the impact of RES on the way oil and gas are used in international relations.

The impact of RES on economic development

The essence of the energy revolution is to make the economic development independent from hydrocarbon prices. Hence, a long-term transformation of the energy market, in which RES will play a central role, will enable a stable and sustainable economic development as well as economic security. The economic effects of RES development will be positive.

Firstly, the development of RES will provide an increase in employment rate and GDP. It is expected that by 2020 even 1.1% of GDP per year in Europe will come from the RES development.[21] Secondly, thanks to a wider use of RES regions with high population growth such as Africa, countries will have a chance to boost their development.[22] A telling example comes from Ethiopia. According to the Ethiopia's Climate Resilient Green Economy Strategy of 2011, the Ethiopian GDP per capita will have increased by 475% by 2030 due to the development of the green economy with RES as one of its key elements. It will allow to move Ethiopia from the group of the least developed to the middle-income countries[23]. Thirdly, the economic stagnation in various countries has brought about changes in their

[21] *The impact of renewable energy policy on economic growth and employment in the European Union,* European Commission, April 2009, p.5

[22] *L'Afrique et les energies renouvelables. La voie vers la croissance durable*, IRENA 2013, p.31

[23] OECD, *Putting Green Growth at the Heart of Development Summary for Policymakers*, OECD, March 2013, p. 9

development strategies – a path towards the green economy and RES has become an important part of their economic policies. For example, in 2010 the Japanese government explicitly acknowledged the environment as one of the three pillars of the country's response to the crisis, together with employment rate and economic growth.[24] The OECD recommends the Green Economy considering that it enables sustainable economic growth, social stability as well as "safeguards the environment and conserves resources for future generations".[25]

Finally, the rising global demand for RES will bring many opportunities for the countries that are most advanced in research and development of Renewable Energy Technology (RET). The upcoming ratification of the Kyoto Protocol has encouraged R&D in this area, resulting in the significant increase of research patents.[26] So far Japan, Germany, the United States and France have been the most innovative countries in the research and development of RET[27]. Therefore, exactly the above mentioned countries may become the most important beneficiaries, if the world demand for RES increases. They may improve the deficit on the current account as well as competitiveness of their economies. Apart from that, investments in RET also generate high value-added jobs in these economies.

The impact of RES on climate protection.

The development of RES will also result in the reduction of potential economic consequences of climate change, which were presented a.o. in the Stern Review[28], IPCC[29] reports. The most important economic consequences for Europe are:

- disruptions of the international division of labour due to natural calamities triggered by global warming,

- the necessity to invest budgetary means in projects to reduce flood vulnerability of lowland areas as well as introduce financial mechanisms allowing to sustain the present level of food production,

- migrations, mostly from Africa, currently inhabited by 1 billion people, which may cause an increase in the budgetary spending of the European countries,

[24] I. Capozza, , *Greening Growth in Japan*, "OECD Environment Working Papers", No. 28/2011, p. 11
[25] OECD, *Putting Green Growth at the Heart of Development Summary for Policymakers*, March 2013, p. 2
[26] E. Lanzi, I. Haščič , N. Johnstone, *The Determinants of Invention in Electricity Generation Technologies: A Patent Data Analysis*, "OECD Environment Working Papers", No. 45/2012, p. 9
[27] ibidem, p. 11
[28] N. Stern, *The Economics of Climate Change The Stern Review*, Cambridge 2007, p. 2
[29] IPCC - Intergovernmental Panel on Climate Change - http://www.ipcc.ch/

- enhancement of political stability in Africa, the Middle East, Southeast Asia and Latin America, which will result in increased expenditure on armaments and Official Development Aid.

The impact of RES on the way oil and gas are used in international relations.

The exporters of energy resources very often use their privileged position and exert influence on importers by limiting the export or by increasing the prices of energy resources, which, as has been pointed out above, has a negative impact on the development opportunities of those states[30]. The greater use of RES may change this situation.

The scope of impact of RES on economic security will depend on the following variables:

- technological progress in renewable energy technology,

-oil, gas and coal prices on the world markets,

- economies of scale,

- political decisions – the manner of subsidizing this type of power generation, determining the framework of cooperation between the distribution network operators and the investors and creators of RES systems,

- economic situation of various countries – the level of dependency on the imported energy carriers and the budgetary situation of those states,

- acceptance or rejection of global regulations on CO2 emissions imposing the obligation for the reduction of emissions on all countries.

Nowadays the use of RES's potential by world countries varies greatly, e.g. Germany is dynamically developing this type of electric energy production (their energy strategy rests on gas and RES), on the other hand, at the end of August 2013 Poland introduced changes to energy legislation, which consists in the distribution network operators being obliged to purchase energy from RES at the rate of 80 per cent of the last year's average energy price. Even Germany's very innovative energy strategy does not set forth that 100 per cent of energy production would come from renewable sources. This is due to the fact that it would entail a restructuring of many industry branches, for which even Germany does not have the financial or technological means.

[30] see K.M. Księżopolski*, Bezpieczeństwo ekonomiczne*, Warszawa 2011, s. 52-89

Myth or Reality

The potential impact of RES on global oil and gas market and the world economy may be multi-faceted. It is clear that the development of RES will affect oil and gas prices in the future. Yet, it is very difficult to discuss both the timespan and the probable scope of this influence. In the analysis based on econometric models, which forecast world economic trends up to 2020 or 2030, the influence of RES on oil and gas market, in terms of both prices and demand, is rather imperceptible. Today it is justified to claim that there is no correlation between the RES development and hydrocarbon demand or pricing.[31] In the future the growing significance of RES for the energy market will bring significant changes, including the distinct correlation between the development of RES and oil and gas prices. It will strengthen the economic security of the countries developing RES. Also the impact of RES on climate change and reduction of hydrocarbon use by exporters in order to control importers, is today rather limited. However even today, the development of RES will push the economy of Europe and other countries towards the economic growth, which can be perceived as a very positive outcome from the perspective of economic security. When the correlation between RES development and hydrocarbon prices will emerge, the myth will become reality.

Recommendations for the OSCE states

The essence of the security economization process consists in the fact that countries compete with one another to gain access to cheap energy sources using all possible ways including military, economic and diplomatic means. Some scholars, e.g. M.T. Klare[32], point out that it results in tensions and military conflicts in international relations. The development of RES gives most of the countries the possibility to shape another form of mutual relations in this area, i.e. the transition from rivalry to a cooperative system, which ensures security. This model of mutual relations is most desired, both from the point of view of the stability of international relations as well as welfare of those states, because of its huge cost-effectiveness. In consideration of the above, the development of RES may have a vital impact on the redefinition of mutual relations between states, in which the OSCE may play an

[31] IEA research indicates that "there is now no correlation between wind output and gas demand, an increasing wind market share neither amplifies nor weakens existing gas demand patterns". Irene Vos, *The Impact of Wind Power on European Natural Gas Markets*, International Energy Agency 2013, s.42

[32] see M.T. Klare, *Resource Wars: The New Landscape of Global Conflict, New York 2002*

essential role. Taking into account the presented circumstances, states and organizations are recommended to undertake the following actions:

- create an international energy cooperation regime based on the following principles:

- liberalization of the energy market,
- prohibition of withholding deliveries and increase prices of energy resources in order to exert influence on states' politics,
- mutual exchange of information on energy resources,
- sharing opinion on energy policy,
- diversification of energy sources and suppliers.

The energy policy should be based on a systematic increase in the participation of RES in countries' balances. As a result of introducing the regime, one consistent energy strategy for the whole OSCE area should emerge.

- support the efforts of the European Union to create a common international climate protection regime which will set realistic emissions reduction targets for all the countries. These actions will considerably reduce possible costs of OSCE interventions resulting from the lack of stability caused by negative influence of climate change, as well as improve the competitiveness,

- increase the expenses on the development of RES technology and cooperative scientific research as well as direct the technological advance in other branches of economy at the maximum use of electricity,

- create a system of economic and technological aid for states with low economic and technological development, which are accustomed to traditional methods of energy production,

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