

The main objectives of the EU energy policy: competitiveness, security, and sustainability. The prospects of cooperation with China in the energy sector

ALINA LIGIA DUMITRESCU
Ph.D., Centre for European Studies
Institute for World Economy of the Romanian Academy
Calea 13 Septembrie No.13, Bucharest
ROMANIA
alinaligia1@yahoo.com

Abstract: *The author uses the qualitative research methodology to analyze the implementation of the main objectives of the EU energy policy. Based on this analysis, it formulates a series of recommendations for the cooperation with China in the field of energy policy, especially that of green energy. The research is interdisciplinary, interweaving the elements of the economic theory with the analysis of the European policies.*

Keywords: *energy, cooperation, competitiveness, security of supply, sustainability.*

1. Introduction

The European Union energy policy has three main objectives:

- to provide an “energy mix” in order to achieve security of energy supply;
- to create a competitive environment so that energy suppliers can ensure affordable energy supply to households, businesses, and industry;
- to achieve an energy consumption on a sustainable basis, by reducing the emissions of greenhouse gasses, the pollution and the dependence on fossil fuels.

Keay & Buchan (2015) point out *that in recent decades the energy policy has been less "European" than most other Community policies* and should not be overlooked that the Member States enjoy considerable autonomy to determine its own energy mix. Also, Keay & Buchan (2015) highlight that the idea for a common energy union has started from events related to the increase in energy prices in 2000, the crisis in Ukraine and the changes required by decarbonization of the economy.

The sources of energy are unevenly spread in Europe. The oil and natural gas are prevalent in the North Sea, available in the UK and Norway; coal is a resource more widespread, both in Germany and in Eastern Europe; hydroelectric power stations ensure clean and cheap power, mostly in Nordic countries, but this is seasonality influenced; renewables are available in every state, with a large proportion of solar power in Germany and wind power in Spain; the installed power in France is based mainly on nuclear reactors. One of the main challenges is that in the EU space most of the national energy systems are disparate and not well integrated. The energy transport - either as electricity or fuel - is difficult and expensive over long distances in the Community. There is no single European network, and there are few interconnectors which bring the power energy from where it is generated where it is needed (Harvey, 2015).

The main promoter of the energy union is Donald Tusk, Poland's former prime minister, and current president of the European Council. On April 2014, Tusk (2014) wrote an article in Financial Times, in which he proposed the development of a vigorous union to boost energy security and to strengthen the EU's political independence. Tusk (2014) recommended the creation of a single community agency to purchase gas and underlined that the EU "should make full use of fossil fuels available on its territory". He also called for greater transparency in the negotiation of new contracts energy with Russia, strengthening solidarity in crisis times and for supporting the European Union for building additional energy infrastructure. The recommendations of Tusk (2014) were *to increase the European energy security by decreasing the ability of Russia to use energy "as a political leverage" and that "EU should assume the charge on dismantling the Russian gas monopoly and restore free market competition"*.

Maroš Šefčovič, European Union vice president which is responsible for the energy union, said that *"the implementation of the concept of energy union is an extremely complex process, which involves the integration of national energy systems where vary widely in terms of their legislation, levels of infrastructure development and traditional energy strategies and policies"*. Šefčovič (2016) noted that significant reforms in

terms of laws and regulations are required and massive investments in infrastructure are needed, that can support the interconnection growth of the national systems. Šefčovič (2016) emphasized the major role in creating “an energy union on market base” demands more competitive negotiation and cooperation with external partners.

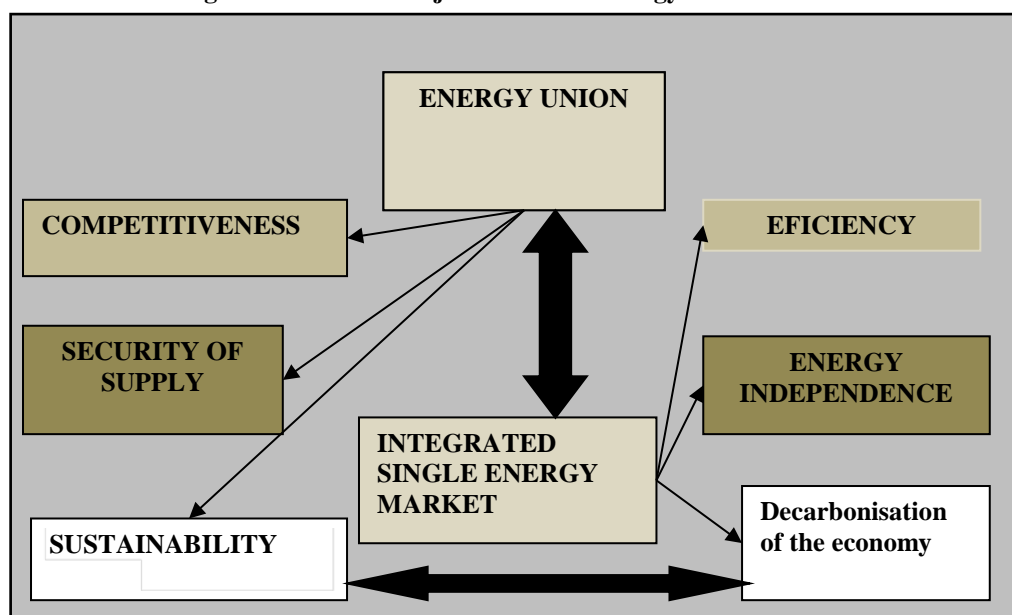
2. The main objectives of the energy union: competitiveness, security of supply and sustainability

2.1. Competitiveness

According to Raines and Tomlinson (2016), EU needs a “defined energy strategy” in order to respond to the recent developments in the oil market and to assess its implications for business and consumers in the European Union. They recommend that any strategy must take into account *the future cooperation with other major energy-importing countries such as the United States and China, and assess how the commitment to stability in regions such as the Middle East could evolve.* In their opinion, the strategy should consider how new technologies such as electric vehicles and future climate regulations may affect oil demand in the medium term; this should include whether the EU oil companies face exposure to stranded assets and the implications for European financial markets.

The challenge is that the EU must remain an attractive market for companies at a time when competition for global energy resources is increasing. In last years, the independent barometer "renewable energy country attractiveness index (Recal)" had stated that US and China are the best investment opportunities in renewable energy. *Therefore, the EU is seeking to strengthen its energy market competitiveness with innovative technologies, given that EU's leading position is threatened.* China is the largest source of growth over the next 20 years, adding more renewable power than the EU and the US combined (British Petroleum, 2017)

Figure 1: The main objectives of the Energy Union



Source: Author

2.2. Security of supply

The European Commission (2014) has exposed the elements of energy security and the key figures in the Communication "European Energy Security Strategy." The main vulnerability is that EU imports 53% of its energy consumption. The dependence on energy imports is crude oil (nearly 90%), gas (66%) and, to a lesser extent, solid fuels (42%) and nuclear fuel (40%). Some Member States are more vulnerable than others; this is particularly true in the case of the less integrated and connected, like the Baltics and Eastern Europe. *One of the most pressing challenges of the energy supply security is the strong dependence on a single external supplier.*

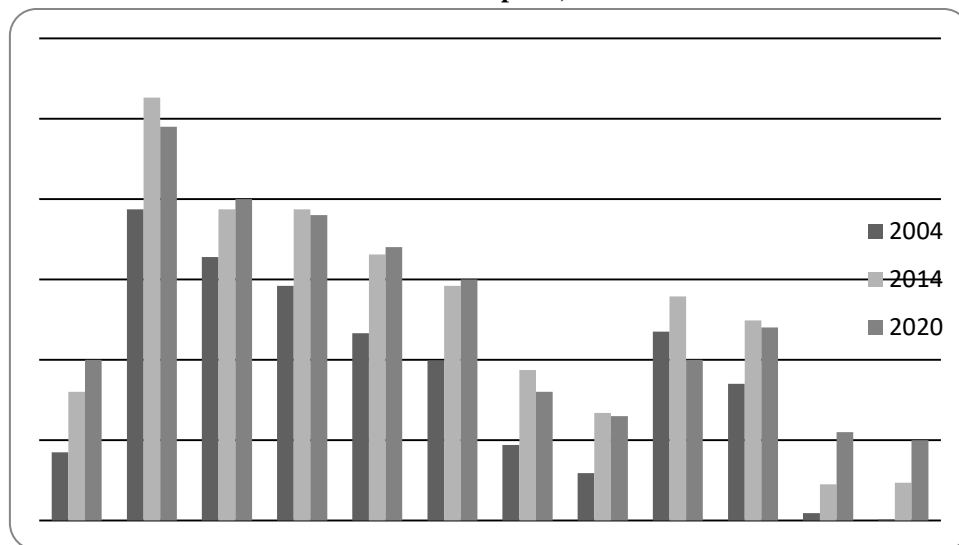
This is especially true for natural gas, but also applies to electricity, in case that six Member States depend on Russia as a unique supplier external for all their imports of natural gas and three of these countries use imported natural gas to meet more than a quarter of their total energy.

According to European Union experts, the greater diversification of fuel supply sources and the transit routes, are essential, as well as a good governance, the rule of law and the investments in source countries. These EU policy objectives are supported through engagement with Central Asia, the Caucasus, and Africa, as well as through the Eastern Partnership and the Union for the Mediterranean. EU seeks as well partners from China, India, Japan and the US for promoting renewable energy, low carbon technologies, and energy efficiency, as well as transparent and well-regulated global markets. Consequently, the European Commission's response is an EU energy policy which combines internal and external dimensions.

2.3. Sustainability

In 2014, according to Eurostat data, the share of energy from renewable sources in gross final consumption of energy reached 16.0% in the European Union (EU), almost double that of 2004 (8.5%). Compared with a year ago, it increased in 24 of the 28 member states. In the same year, with more than half (52.6%) of energy from renewable sources in gross final consumption of energy, Sweden has had by far the largest share, before Latvia and Finland (both 38.7%), Austria (33.1%) and Denmark (29.2%). At the opposite end of the scale, the smallest proportions of renewables were registered in Luxembourg (4.5%), Malta (4.7%), the Netherlands (5.5%) and the UK (7.0%). The France, the Netherlands and the United Kingdom are furthest from their targets.

Figure 2: The share of energy from renewable sources in different member states (in % of gross final energy consumption)



Source: Author based on Eurostat data (2014)

The European Commission's vision is that the energy union should be regarded as an economy which is sustainable, low carbon and without negative effects on the climate. *European Commission (2015) stresses that a new strategy for research and innovation (R & I) for the next generation of technologies in renewable energy, including the production and use of environmentally biomass and biofuels, as well as solutions for data storage, should underpin the energy union.* The promotion of the sustainable energy technologies including renewable energy technologies is designed to improve the energy efficiency. The costs of renewables have decreased in recent years and continue to decline and most of these technologies are either economically competitive or close to achieving this goal.

3. EU-China Roadmap on energy cooperation (2016-2020)

According to the EU-China Roadmap, the energy security has become a key issue for both China and the EU, thus putting pressure on policymakers to look for new responses, including the diversification of both

source and origin of conventional energy, with a view to encouraging supply security and improve efficiency in energy use.

Considering the geopolitical concerns seems to draw more attention than long-term plans for transition to renewable energy. *As a result, according to EU-China Roadmap on energy cooperation (2016-2020), the perception that China and the EU might be competitors in accessing foreign markets often overshadows their common interest to develop renewable and alternative energy and share efficiency-improving technology.* At the same time, the fact that cooperation policies are placed well enough to cooperate vis-à-vis producer countries, and to compete in the development of high-end renewable technologies, is often neglected.

The main challenge is that China is the world's largest coal consumer: almost 50% of global coal consumption occurs in this country. Traditionally self-sufficient, China has recently started importing coal. This reliance on coal is expected to continue for the foreseeable future. The EU is the 4th largest global consumer of coal. Coal plays an important role in the EU's energy mix. For decades the public and private sectors have allocated large resources to technological development in coal mining, processing, and combustion. This has been accompanied by a *regulatory framework that encourages the competitive use of advanced technologies across the coal value chain in line with stringent environmental criteria.*

Furthermore, the *EU is also pioneering policy options and technological developments in CO2 capture and storage (CCS).* Therefore close cooperation in this field is clearly of common interest for both parties. To facilitate such cooperation, the Directorate - General for Energy (DG ENER) and the Chinese National Energy Administration (NEA) regularly organize clean coal-related events under the umbrella of the DG ENER-NEA Energy Dialogue. The discussions cover subjects such as coal-fired electricity generation, coal gasification, coal to liquids, methane recovery, and clean coal technologies. Since 2008, the Working Group on Clean Coal has organized two joint workshops which allowed for an extensive exchange of knowledge and experience among European and Chinese industry with the aim of facilitating concrete cooperation projects.

China has started a process of adding energy sources other than oil and gas to its energy production capacity. Despite the fact that coal still accounts for the vast majority of electricity generation, renewable energy will play a central role for China in this effort, allowing for a transition towards less carbon-intensive growth. According to the World Energy Outlook 2010, the International Energy Agency estimates that between 2008 and 2035, the share of coal in China's electricity generation will drop from 79% to 55% with a respective increase of the share of renewables. There is a demand for change in electricity generation in China, since 2008, and EU and the European enterprises have valuable expertise and experience in renewable energy to offer. Sharing similar targets of renewable energy in their energy policies, the EU and China could cooperate closely in this field. Cooperation covers various aspects of renewable energy such as technologies, standardization, transmission, and production.

4. Romania and China cooperation in energy sector

Romania and China have strengthened their relations in the energy field. The plant in Cernavodă will be rebuilt under a memorandum between the Romanian company Nuclearelectrica and a company controlled by the Beijing government. The Chinese company will have 51% of the shares and the Romanian part will have 49%. The investment is estimated at 6,5 billion Euros. For the project to be implemented, both the Romanian and the Chinese governments will provide guarantees. The project involves the construction of two reactors at Cenavodă Plant, each with an installed capacity of 700 megawatts per hour and a lifetime of 30 years, extendable for another 25 years. The project will create 16,000 jobs in Romania.

Should not be overlooked that according to “EP Energy Outlook-2017 Edition”, China’s rapid nuclear expansion program (11% p.a., 1100 TWh) accounts for nearly three-quarters of the global increase in nuclear generation. This is roughly equivalent to China introducing a new reactor every three months for the next 20 years.

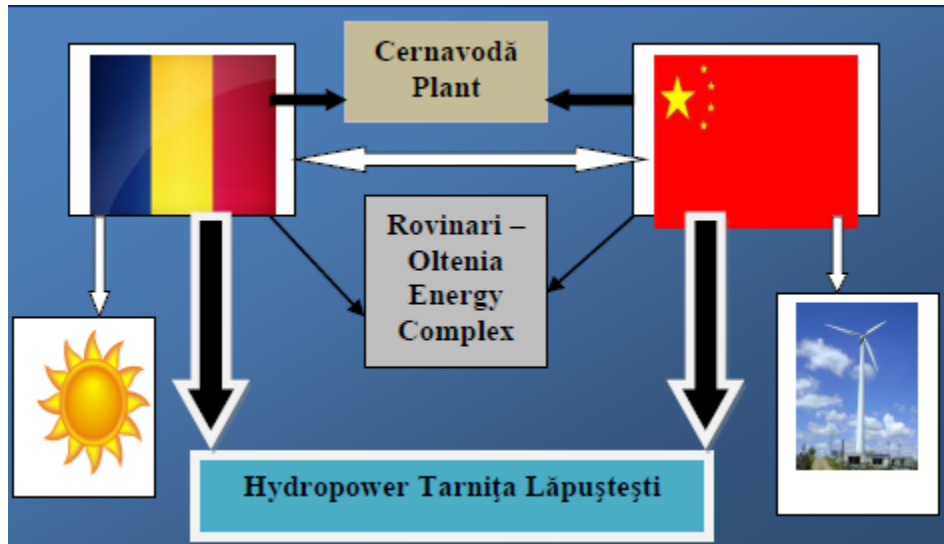
Also in the field of thermal power was signed an “Agreement of Cooperation Intent” for the thermoelectric project *Rovinari - Oltenia Energy Complex*. The document was signed between Oltenia Energy Complex and China Huadian Corporation.

In the *hydropower field*, for the project CHEAP Tarnița Lăpuștești, a letter of agreement has been signed by the Romanian company Tarnița-Lăpuștești, and the Chinese Sinohydro Corporation.

In the field of *wind energy*, the contract signed between the Chinese company Ming Yang Wind Power Group and Romanian Paunescu Corporation for investment in wind farms and equipment exports will lead to the creation of over 1,300 jobs and an investment of over 400 million dollars.

On June 2016, five investment projects of the Chinese companies in Romania, which worth over 118 million Euros, were signed in China, on the sidelines of the ministerial meeting to promote economic and trade cooperation between China and the countries of Central and Eastern Europe. The bilateral cooperation projects are aiming the auto industry, renewable energy, real estate, and education. Thus, Chinese investors plan to build an auto parts factory in Brasov, this investment is estimated at 45 million. It also envisages a project on car ornaments that will be achieved with an investment worth 17.6 million dollars, and construction in Romania, a solar power plant, an investment worth 33 million dollars.

Figure 3: The outlook of the Romania and China cooperation in energy sector



Source: Author

5. Conclusion

The European Union is facing several major energy challenges related to energy production dependence on imported fossil fuels and the need to ensure steady energy supply and competitive energy prices on a sustainable basis, by diversifying the energy mix. *Under the circumstances that market integration is contributing to energy security, the European Commission has set as a top priority the support of more coordination of the national energy policies. It means that the Member States should better inform each other and the Commission when defining their long-term energy policy strategies and preparing intergovernmental agreements with third countries. Furthermore, should be strengthened the interrelation between the energy policies objectives and the external dimension of the energy union and the EU must speak to the its partners "with a single voice in terms of energy prices".*

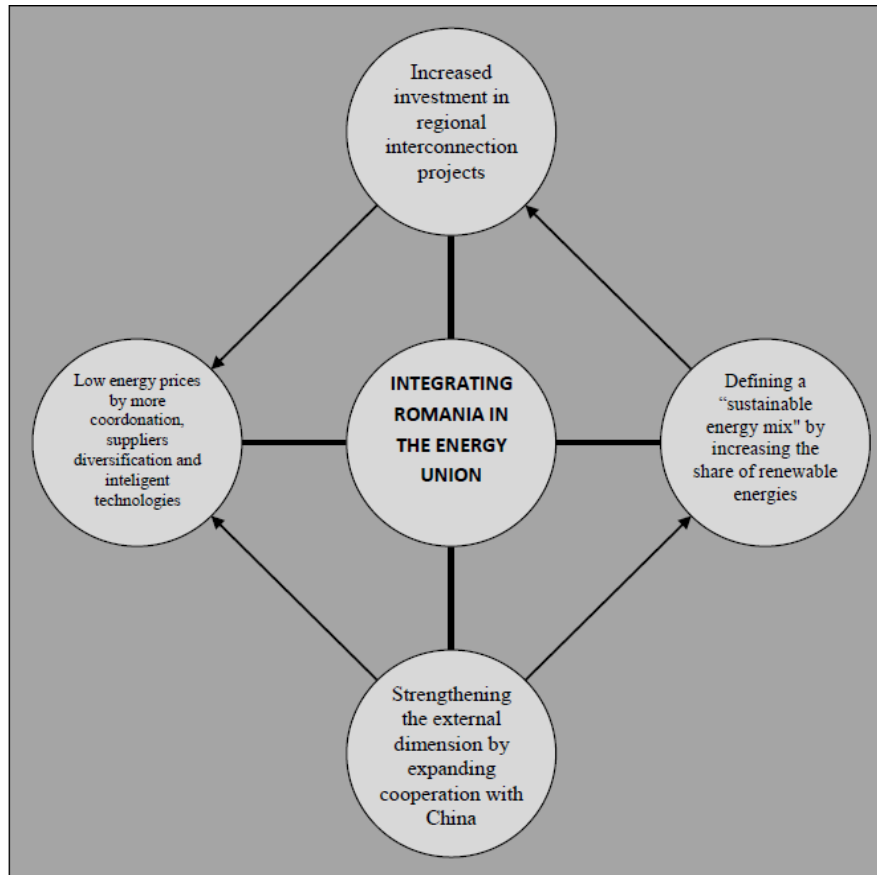
The energy union can support the reorganization of the energy market through the growth of the energy efficiency and the increasing share of renewable in electricity generation, in final energy consumption, and not least in the transport sector. But the most important aspect is that the EU still lacks a network infrastructure to enable renewables to develop and compete on the same level as traditional sources. Current projects of large wind farms located in northern EU and solar in the south requires adequate capacity electric cables, allowing "green" energy transport to the highest consumption areas. The existing networks will have difficulties absorbing the increasing volumes of energy from renewable sources (33% of gross electricity generation until 2020), according with EU experts.

Accelerating the integration of Romania into the energy union could have a positive impact on energy costs reduction, by increasing both competitiveness and the use of smart technologies and interconnectivity, and strengthening cross-border cooperation. The collaboration with China in the atomic energy field as well in the renewable energy sector (hydropower, wind, solar) could have an important role in energy mix diversification. The investments in the network infrastructure and the improvement of technologies for the use of renewables can ensure sustainability and strengthen the energy security in Romania (Figure 4).

The main challenges are to provide proactive bilateral relations between Romania and China, based on mutual economic interests and focus on the common objective of promoting clean energy sources on a sustainable basis and at affordable prices. *Nevertheless, should not be overlooked that the different geopolitical*

realities may affect energy relations among both partners, that may be a lost development potential of alternative and renewable energy sources in Romania.

Figure 4: Priorities for Romania on integration into the energy union



Source: Author

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