
TURBULENCES ON THE ENERGY MARKET? GREEN SOLUTIONS

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Abstract:

Energy has become, over the last century, the heart of development for each country. It empowers every area of our lives and it acquiring a binding character for private field and also for public sector, in all its branches, for our homes and our daily existence. Life without energy can't be projected in real terms, becomes a veritable utopia, an exercise for our imagination. The complexity feature makes the energy omnipresent, very important, beginning with the normal people until the national and international political disputes for her attainment. We start an analysis of the geopolitics of energy, in the energy security context, and especially of its problems, with facing energy supply and demand. Physical position of the two plates of the same balance are not harmonized perfectly - especially when one part does not provide for another part the balance that is so needed, and thus, dictating conduct internal management.

Key words: *energy geopolitics, energy risks, energy production and consumption, green solutions*

1. Introduction

When we say ``energy security`` arises a simple question, entitled "Whose?". Therefore, inevitably we must analyze the concept from one of the natural senses: from the general to the particular or vice versa. We, therefore, see the world as a whole that needs energy security or as a sum of individuals, each taken separately, with its energy security needs. But, whatever will be the meaning, world geopolitics requires analysis of the concept mainly at the state level, people driven by the same goals, then to generate macro analysis, continental or global scale and micro-level, regional and interregional levels. But the essential idea is that each individual consumes a certain amount of energy.

But why we need energy security? On the logical side of things and having in foreground the citizen needs, we know that it tends to some degree welfare - an element that can not be achieved without energy. Any element of daily life predisposes

to consumption of energy in its various forms. The State, as an entity that meets the needs of citizens, will have to generate as high degree of prosperity and security of its citizens.

2. Stage of knowledge

In this context, we can mention Laurence Martin who said that security surprise first "welfare for the future" (Martin L.,1983). At the same time Professor Cristian Băhmăreanu mention that "energy security, with food security, transport security, telecommunications security, financial security and banking, commercial security, infrastructure security are part of a broader concept of national and individual security, namely, economic security. (Băhmărean C., 2010)". So, one of the chapters of economy and economic analysis it is identified by the concern for energy that we consume, to achieve the level of prosperity according to our own needs.

Any approach to energy security has in the foreground the notions of uncertainty and risk. A disturbing element that can occur in this security mechanism may affect public or private sectors, can affect the production of goods, health and education of citizens. Hence, we conclude that energy security must be managed by each major actor of this important piece in our common life. The risk appears in front of who not dispose of resources for the achievement of his goals and its consequences can create economic difficulties, leading to massive loss of financial capital. Therefore, today, risk analysis has become so addressed in studies of many researchers.

Given that we are talking about energy security, and that, countless actors are involved and interested in energy, the risks increase proportional with their number and their potency, which may have political, economic, social, nature. Risks, when we talk about energy, can be, mainly, physical, tangible, material consistency. A disruption of the supply of specific human or natural causes are considered physical risk factors. We mentioned economic factors that are highly sensitive to fluctuations of prices for energy resources that inevitably induce an costs increase and ultimately high prices for buyers or a loss of the companies involved in this process. A low price of oil makes that the dependence towards countries that promotes the utilisation of oil to be increasingly higher, but, in the same time, to reduce the interest for other forms of energy that exist or can be developed. Third, we talk about geopolitical risks and the strategies which countries adopt, depending on the region. We mentioned above that the energy is equally important for both sides: for the exporting countries, because in this way they raises its own financial resources for infrastructure and existing social needs, but also for importing countries which through this method realize its production, and further, its proceeds.

3. Energy Geopolitics Analysis - Reducing turbulence - Green Solutions for Energy Market

The tense in oil producing areas concerned both parties involved in the exchange of resources. The European Union imports precisely those areas where there is a relatively high potential for conflict. Under these conditions the investments are not viable anymore in the long term and for this reason they are delayed. Another risks category are the social risks that arise from internal imbalances caused by erratic movements in market prices, social movements or external factors related to producing countries and various regional crises. Finally, we can discuss the major issue of international concern, the environmental risks arising from accidents of various nature, but especially pollutant emissions.

In moments of crisis always surfacing energy issues. From politicians to investors all make statements about such a subject, but especially the one related to oil, where fluctuations can suffer radical changes from day to day. This market is becoming increasingly difficult, given the transport systems and energy supply. At the same time, access to energy becomes increasingly complicated in the large emerging markets such as China and India where its absence would leave millions of workers without a job, who would remain poor with their families. In some of these cases we can talk about authoritarian regimes which dictated the general behavior for a small margin of people who share the benefits.

At the same time, the U.S. and E.U. are energy intensive consumers, but their policies concerning the production and consumption are totally different. We must point that the European Union is interested mainly by gas, which it imports mainly from Russia, and the United States focus on oil, and thus it has always an eye on the Middle East. Similarly, at the start of the financial crisis, the two major markets have become more than vulnerable because they depend heavily on Russia, Venezuela and Iran, oil and gas exporters, who began to actively play their cards on the international energy market. Policies of these countries are to benefit from the global crisis, and thus, to consolidate their positions. However, lower world production could limit a lot of their momentum.

Although energy approaches of the two largest markets, the European Union and the United States do not seem to have changed much in recent decades, environmental problems is becoming more pressing concerning the politicians who are increasingly pressured to give one real start to the green investment. The European Union done much more in this area by creating a coherent legal framework, but it seems to be more bureaucratic that usually. The United Nations has documented that the use of fossil fuels is the main cause of air pollution and global temperature increase. This has a direct impact on agriculture which already suffering many losses from weather events with violent and devastating consequences. Thus, appear the international food problem which can leave in poverty and hunger million people. In a Ian Noble study (Noble I, 2005), he reveals that the nearly 2 billion people were

affected by extreme weather events in 1990 and in the following periods of time this figure will double. So, should be brought back, in the prime-time, the idea that countries have only two solutions which they can take separately or they can embrace together; but which can have different nuances - or resort to lowering energy consumption in current conditions of its production, or adopt innovative technologies that reduce energy consumption or looking for green energy solutions - solutions concerning the technology, but also, the effective energy source chosen to be a renewable one. But all these involve costs that can be covered in two ways: on the one hand, by selling, where is appropriate, polluting energy sources (ex: Iran, Iraq, Venezuela), and on the other hand, for buyer energy countries by selling production resulting from the use of renewable energy (ex: USA, EU.). However, the horizon highlights a dangerous solution as an alternative to traditional fuels: the nuclear energy. Traditional sources of energy price increase will induce the attractive alternative to nuclear proliferation threat.

Carlos Pascual and Evie Zambetakis (Pascual C., Zambetakis E., 2010) in a study on energy sources, mention oil price in various key moments of the decade - so in 2002 we find a price of \$ 21 a barrel, \$ 29 a barrel at the beginning of the conflict in Iraq in March 2003, up to \$ 145 in July 2008. However, the price decrease at the beginning of the recession in 2008 to \$ 50 per barrel.

So, we can talk about oil market volatility given that any country wants the opposite. For this, both, importers and exporters will have to reach an agreement to stabilize markets - on the one hand, personal interests will make the balance to tilt dramatically for exporters, but global drop in production will require a return decent prices. Considering importing countries, they will need to diversify themselves through innovation or know-how import the self-production modalities of energy, and they are overwhelmingly moving towards the green. Regarding exporters, they will have to learn the same thing - no longer depends on export, but to diversify their ways for energy production.

Table 1 - Global Oil Production

Table: Total Oil Supply (Thousand Barrels Per Day)												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
World	77,708	77,640	77,039	79,459	82,998	84,424	84,390	84,261	85,356	84,318	86,71	87,092
Id	.69	.84	.95	.93	.18	.37	.09	.89	.27	.11	.4	.59

Source: U.S. Energy Information Administration

Table 2 - Global Oil Consumptions

Table: Total Oil Consumption (Thousand Barrels Per Day)												
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
World	76,791	77,518	78,167	79,705	82,560	84,105	85,161	85,847	85,462	84,710	87,231	87,4
Id	.17	.78	.44	.67	.01	.34	.78	.31	.96	.91	.05	21

Source: U.S. Energy Information Administration

The largest oil demand belongs to the United States and China, but also are producers. On the other hand, Saudi Arabia, Russia, Iran, Iraq, Venezuela are oil exporters, but they also covers domestic demand too. Japan and India is distinguished in this market because they calls massive oil imports and they are not producing. Because of local disputes or different ideologies in countries such as Russia, Iran, Iraq, Mexico, Nigeria, in the countries that have oil resources, they are not made long-term investment in production capacity (U.S. E.I.A.).

Given the political instability and conflicts, financial crises and sovereign debt, we can say that we will not have a stable price for oil, gas or electricity in the next decade, at least. The most important sources of conflict are Persian Gulf, the conflict between United States and Israel with Iran's nuclear program and helping militants in Iraq, the conflict in the Niger Delta, political regimes in Iran and Venezuela and ensuring the security of transportation routes for oil where the workers are kidnapped and gas infrastructure is sabotaged. Also, large amounts of oil make problems for manufacturers and for security companies too.

In addition to the political issues are the transit problems. Approximately 40% of oil transit is carried out near Pass Hormuz, Malacca pass about 30% and about 8% by Bab al-Mandeb. In 2007 Tehran has threatened to block Hormuz Pass if the international community will block theirs nuclear program and will be included in an international conflict. Pirate attacks in Africa can not be controlled, even more, there were significant impacts on prices. The number of investments decreased due to these events and due to sociopolitical tensions; some projects were postponed, while others renegotiated.

Besides these conditions we add the actual financial-economic crisis which has intensified conflicts in all problematic areas and raises several concerns regarding the energy security. In recent years business has suffered negative growth. Such failures occurred, lower production and lower consumption. On this background, oil consumption fell, in 2008 was the largest constraction after the years '80. In 2009 China surpassed the U.S. for oil consumption (Swartz S., Oster S., 2010).

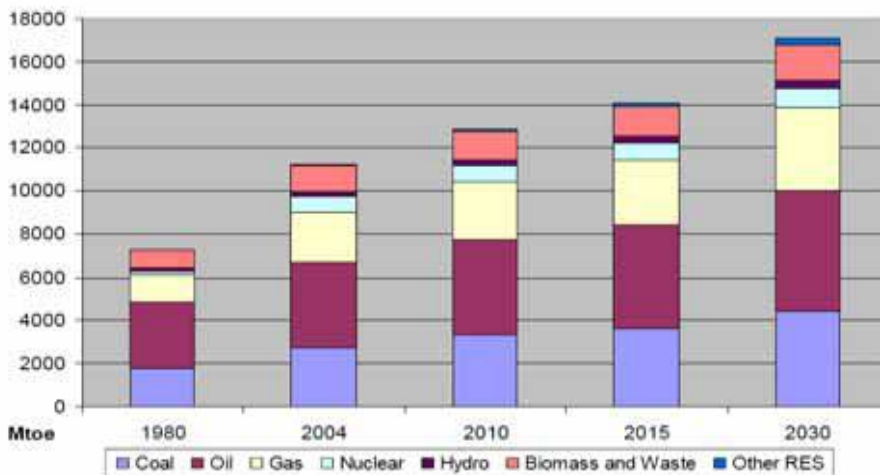
Taking each market, oil, gas, electricity, we can say that in terms of the oil market, the problems can occur in case of supply interruption and thus, it create interference in setting fair prices. Also, there is a risk of forming a cartel of producers (the exploiters) of oil. Encouraging the use of biomass fuels in transport and biomass in the chemical industry, in general, will decrease the vulnerability of domestic markets for oil consumption, moreover, will put pressure on the market for lower prices. But all these must be the subject for an impact assessment. Regarding gas market the related risks assume the system of gas flexibility and dependence of various states. This requires investments accounted for using alternative forms of energy such as wind or hydropower. On the electricity market, the biggest risk is the lack of investment and price diversity, born of an imperfect competition.

Global warming and avoid the devastating effects that it could create is one of the greatest challenges for humanity, because, in the same time, it is one of the biggest problems that man has created. The climate change embarrasses most natural

ecosystems, but also those created by man for his own survival. But in order to save these items, all participants must be brought to the table, especially those who, through their work have an intense polluting activity. However, the most affected are emerging countries, insufficient economically mature, that not have the resources or expertise enough to handle problems, not only for their own territory, but also but also for whole the planet. Moreover, humanity must be fit between 2 degrees Celsius, global temperature increase by 2050. Therefore, if we consider a global policy of maintaining or improving the environment, we have to take into account creating incentives for new technologies and ways to reduce carbon emissions. But until now, the technology to achieve certain targets don't exist, and emission reduction seems not achieve.

Globalization leaves its mark on all international movements of energy and energy strategies of each country must take into account these international waves that occur in various parts of the globe. Fast developing countries such as China and India exert pressure on global energy demand due to the accelerated economic growth. Between 1994 -2004 these countries have doubled their oil demand, and in 2006 their application represented about 40% of global oil demand. It is estimated that by 2030 these countries will dominate energy demand while the total energy demand in 2030 will be approximately 50% higher than in 2003. It approximates that the oil resources can support consumption by 2040, gas until 2070 and coal reserves seem to support consumption for 200 years from this time foreword. (IIASA/WEC1998).

Figure 1 - The evolution of global energy demand



Source: WEO 2006, OECD/IEA 2006

Initial projections indicated a global growth, and hence, a need increase for energy, but the economic-financial crisis, and other turbulences print already significant changes in the evolution of things. The International Energy Agency Forecasts (IEA) brings forward an increase in renewable energy, natural gas and nuclear energy

production and consumption. However, a significant portion of energy demand will be covered throughout the coal, which means a greater pollution.

4. Conclusions and solutions

- Given the political instability and political conflicts, financial crises and sovereign debt, we can say that we will not have a stable price for oil, gas or electricity in the next decade, at least. The most important sources of conflict are Persian Gulf conflict, the United States and Israel with Iran's nuclear program and helping militants in Iraq, the conflict in the Niger Delta, regimes in Iran and Venezuela and security of transportation routes.
- Globalization leaves its mark on all international movements of energy, and energy strategies of each country must take into account these international waves that occur in various parts of the globe.
- On the horizon there is a dangerous solution as an alternative to traditional fuels: the nuclear energy. Traditional sources of energy price increase will induce attractive alternative to nuclear proliferation threat.
- The largest oil demand to have the United States and China, but also are producing. On the other hand, Saudi Arabia, Russia, Iran, Iraq, Venezuela are oil exporters, but it also covers domestic demand. Japan and India is distinguished in that they call massive oil imports, not producing. Because of local disputes or existing ideologies in countries such as Russia, Iran, Iraq, Mexico, Nigeria, the countries that have oil resources, not made for long-term investment in production capacity.
- Any approach to energy security has in the foreground notions like uncertainty and risk. A disturbing element that can occur in this security mechanism may affect public or private, can affect the production of goods, health and education of citizens.
- U.S. and EU are intensive energy consumers, but their policies on production and its consumption are totally different. We must point out that the European Union is interested mainly gas that it imports mainly from Russia and the United States focus on oil, and thus are always watching Middle East.
- Countries have in their hands only several solutions to follow - or resort to lowering energy consumption in current conditions, or adopt innovative technologies that can reduce energy consumption, or looking for green energy solutions - solutions concerning the technology, but also the effective energy source chosen to be a clean one.

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