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The Dilemma of the Oil Market in the Current Geopolitical Context

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Abstract *In an increasingly globalized world, where the effects of technology have an overwhelming impact on people's lives, meaning an increase in appetite for consumption of luxury goods, of lifestyle, it seems that conventional resources are becoming fewer and their use in industrial processes lead to environmental harm, at least from pollution. Essentially, oil prices influence governments, companies, and markets of raw materials markets of finite economic goods, markets of conventional and unconventional energy and an assumed oil crisis would lead to stronger inflections on the market, with repercussions on the overall level of prices, the oil price being generally regarded as decisive for the other prices in the economy.*

Key words Economic resources, social costs of using resources, opportunity costs of using resources

JEL Codes: A11, B17, B27

1. Introduction

Investment in innovation and development of production techniques of oil from sales calls into question the extensively circulated resource crisis that mankind was afraid of, and which still gives shivers. "The hydraulic fracturing" extraction method brings up large quantities of oil produced from shale gas, a method particularly discussed among professionals, creating multiple points of view, as follows:

- experts on environmental issues show that this method produces huge environmental costs arising from the use of large amounts of water (with chemical additives), the use of large areas of land that become unusable in agriculture, release of huge amounts of sediment (solid waste) per year which, if they get into local waters can endanger forms of aquatic life, fragmentation of fields and forests, thus habitats, affecting plants and animals, contamination of any kind (products in water, soil or air) with implicit effects on biodiversity. According to the report "Impacts of shale gas and shale oil extraction on the environment and on human health" of the Directorate of Environment, Public Health and Food Safety in the European Parliament, the composition of additives used during drilling is not fully made public because of trade secrets but according to a list provided by New York State, this composition contains: • 58 substances out of a total of 260, with alarming properties;• 6 substances that are part of the first priority list published by the European Commission regarding the substances that require special attention because of the effects they may have on human beings and on the environment (Acryl amide, Benzene, Ethyl Benzene, Isopropyl benzene (cumene), Naphthalene, Tetrasodim, Ethylene); • One substance (Naphthalene bis [1-methyl ethyl]) which is currently considered to be persistent, bioaccumulative and toxic (PBT); • 2 substances (Naphthalene and Benzene] that are in the first list of 33 priority substances listed in Annex X of the Water Framework Directive 2000/60/EC - currently, Annex II to the Directive on priority substances (Directive 2008/105/EC); • 17 substances that are classified as toxic to aquatic organisms (acute or chronic toxicity);• 38 substances classified as very dangerous toxins for human health; • 8 substances which are classified as being carcinogens such as benzene and acryl amide, ethylene oxide and different solvents based on oil containing aromatic substances; • 6 suspicious substances classified as carcinogenic, such as hydroxylamine hydrochloride; • 7 substances classified as mutagenic (Muta 1B.) such as benzene and ethylene oxide; • 5 substances classified as having effects on reproduction.
- economists show that the return on investment is directly influenced by evolution of oil prices, i.e. the minimum price at which the investment can be considered effective. Paul Horsnell, Standard Chartered Bank has said that "the current number of drill installations involves a decline in production of 70,000 barrels/day by June 2015'. However, analysts estimate that US oil stocks will continue to rise in the short term because the oil supply remains above the market demand. However, the high level of OPEC production makes the price of Brent crude oil remain below 60$/barrel. According to experts, shale oil extraction becomes profitable at 60$/barrel. At the current level of around 60 USD per barrel (WTI), there is a loss of oil stocks, which could lead to price increase due to demand pressures. Oil futures price for West Texas Intermediate (WTI) with delivery in May 2015 has raised with 2.22%, up to 53.31$/barrel, while Brent oil price (reference to the London Stock Market) increased by 0.74% to $58.76/barrel. According to a report published in April 2015 by the US Department of Energy, oil shale production could fall in May 2015 by 57,000 barrels/day compared to the level reached in April 2015.

2. Literature review

Hubbert's theory shows that oil is a non-renewable resource and the amount extracted to cover consumption needs will be increasingly higher, to a point when it will reach a peak (called "peak of oil" or "Hubbert Peak"), after which the extraction will naturally begin to decrease, trajectory called "Hubbert curve" (Soros, 2007). Following the lines of this theory, there will be a shortage of oil resources and in terms of a growing demand, driven by the need to satisfy the needs of production, the price will increase. However, there are theories according to which oil resources are "reactivated" and hydrocarbons are not related to earth's surface organic matter, being considered primordial materials that erupt from deep within the planet (Benea 1968). Since the 80s, Constantin Benea has appreciated that hydrocarbon reserves could be much larger than people might think, and the old depleted digging could be revived and could occur again. There are researchers and studies that circumscribe this theory[1]:
Berthelot (1872-1907): admitted that great depth inside the earth's crust, alkaline metals reacting with water gave rise to hydrogen, which reduces carbon dioxide from carbonates to form acetylene and other hydrocarbons. Hydrocarbons by subsequent reactions give rise to crude oil. Mendeleev (1834-1907), based on the reactions known (CaC_2 + $2H_2O$ -> Ca (OH) $_2$ + C_2H_2, Al_4C_3 + $12H_2O$ -> 4AL (OH) $_3$ + $3CH_4$), implied that acetylene and methane formed by a complex succession of transformations, could give rise to crude oil.
Sabatier (1854-1941) and Senderens considered that acetylene and hydrogen resulting from the above processes in the presence of catalytic inorganic environment of the Earth's crust, responded in various ways, producing a wide range of compounds from crude oil, also produced in this way by Ipatiev in the laboratory.
Fischer (1852-1919) and Teopsch obtained from water-gas products similar to the ones from crude oil.
Sokolov theorized that oil has resulted from hydrocarbons existing in the Earth's atmosphere when it was in an incandescent state, which were absorbed into the liquid phase of the crust, during its cooling. The hypothesis is strengthened by the finding of the presence of hydrocarbons in the atmosphere of stars.
Both of the adepts of the organic theory and the ones of the inorganic theory have solid arguments and the scientific debate is far from over. Proponents of the theory of inorganic origin (abiotic/abiogene) had brought in the last few decades, new scientific evidence. The practical results obtained by Russian researchers and scientists who by addressing the inorganic/ abiotic/abiogene theory, found in the last few decades large hydrocarbon deposits that place the state as the second largest oil producer in the world after Saudi Arabia (about 11 mil. barrel/ day), have determined their counterparts in the US to reconsider their position and to achieve outstanding results, particularly in gas exploitation.

3. Methodology of research

The method of research is based on the logical method, the abstraction of some phenomena and economic processes in order to formulate conclusions that can generate changes at the level of the society.

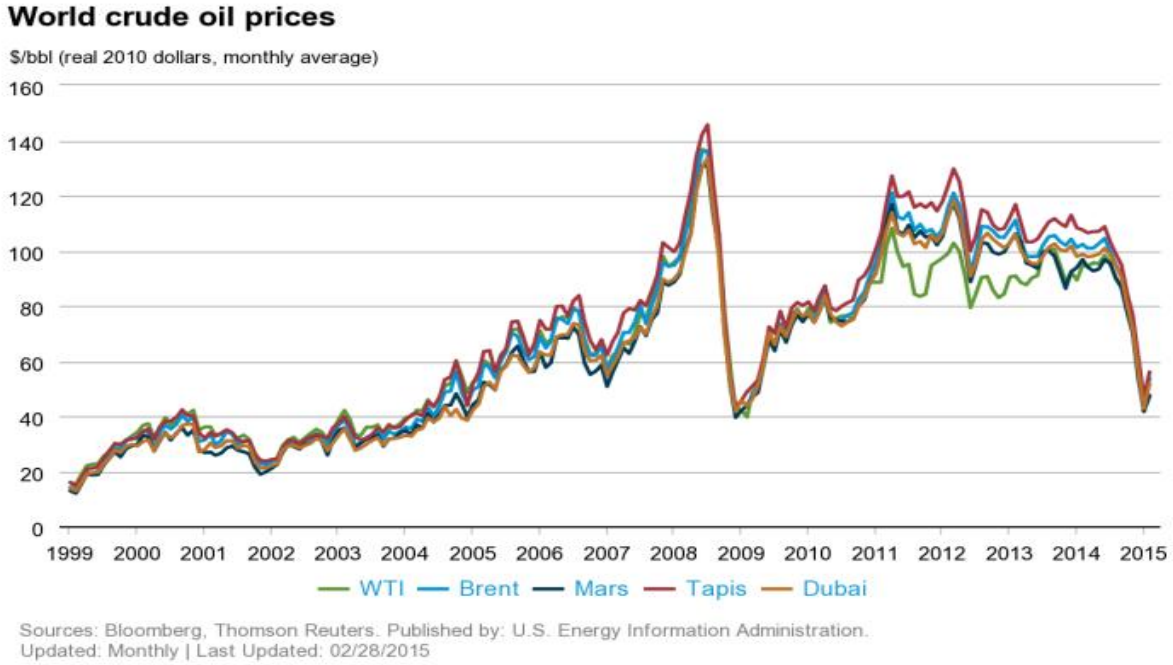
4. Data analysis

4.1. Causes and consequences of oil price fluctuations

Entering this new era of perpetual and often hallucinating fluctuation in oil prices shows that the oil market gains new dimensions without the question of an oil peak, an oil crisis, but rather creates a symbolic link between oil market and financial market between political and economic, between strategic and geopolitical, with repercussions on the consumer, in the position of receiving the price. The consumer, even if the price reaches the lowest threshold, does not benefit from lowering the price of a barrel of oil, an unlimited number of conventional risks and obstacles restricting the price paid by consumers for fuel: government policies, tax systems, civil strife, geopolitics, increase in costs of production and exploitation, uncertainties regarding demand.
Alternating balance between supply and demand - influenced by economics, politics, technology, consumer tastes disasters or accidents, will continue to alter prices. The economic recovery, inhibition of demand, converting the oil into a financial good and combinations of these factors, could again increase the price, even with the current overflow on the market.
We believe that a careful analysis of the elements influencing the price of oil is needed in terms of a good understanding of the functionality of markets adjacent to oil market on the one hand, and the mounting of financial markets regulation where oil is marketed, of the transparency and comprehensive understanding of the identity of the players on financial oil markets.
At a time when the oil industry and, generally, the world economy, are focused on rapid response to a dramatic fall in oil prices, it is instructive to look at events from a medium to long term perspective.

[1] http://www.art-emis.ro/stiinta

*Figure 1.*The evolution of oil prices, 1999-2015



The turbulence in the oil market today marks the culmination of structural changes in the oil industry and the perception of the role of oil in the world economy:

- changes to the technology of extracting, processing, allocating, marketing;
- changes in the mix of energy used in production processes;
- emergence of new energy sources such as shale gas, gas obtained from shale or from collection of used oil, renewable energy;
- changes in sizing in volume and structure of demand;
- cyclicality of economies, which entails volatility of energy production and consumption;
- boosting policies for development and promotion of alternative energy in order to rationally tackle, support the efforts of management of climate changes and energy security.

Although the current on resources crisis is rising, due particularly to the gap between oil demand generated by consumption and supply of oil, limited to the present and potential oil resources, it is found that reaching the peak on minimal oil resources can be delayed by using more aggressive of more expensive extraction methods. Even the consideration of alternative energies as a source for meeting oil demand, involves costs that do not directly lead to solving the resources crisis or stopping global warming and climate change.

There is a broad scientific consensus on reduction of greenhouse gas emissions by more than 25% by 2020 and by more than 80% by 2050 which would reduce dependence on oil and coal and will reduce the vulnerability of the global economy to growth of energy prices. However, financial, political and technical pressures, constraints on timeframes necessary for the implementation of clean technologies still make oil dependence a constant in the world economy.

Promoting an agricultural alternative to fuels - ethanol derived from corn in the US, biodiesel derived from palm, soy of rapeseed oil in Europe is based on the fact that the crops absorb carbon in the growth, which spurred the cultivation of these plants with huge costs, especially measured in deforested land. Thus the problem becomes purely economic: cultivating plants for the production of fuels increase demand for grain, with effect on price growth, emphasizing the processes of poverty, malnutrition worldwide, limiting the footprint of agriculture within the environment, intensifying deforestation. A number of studies suggest that biofuel production which requires large agricultural areas (corn ethanol, cellulosic ethanol derived from elephant grass, ethanol from sugar cane) eventually leads to greater emissions of carbon into the atmosphere. In contrast, production of biofuels from other sources (algae, domestic waste, agricultural waste) which do not require removal from the production of "nurture" of agricultural land is desirable as long as the investment proves to be efficient, both economically and in terms of energy.

Recent studies emphasize the benefits of transformation of biomass into electricity (without taking into account the production of electricity from coal) as the main way to remove pollution or to reduce the effects and also causes of global warming. If an effective technology would be created, obtaining fuel from coal without carbon monoxide could make a significant contribution to reducing emissions of greenhouse gases and reduce dependence on the US and China, which

hold huge reserves of coal, of imported fuels. However, carbon extraction requires energy and current technologies are not efficient enough on fuel economy.

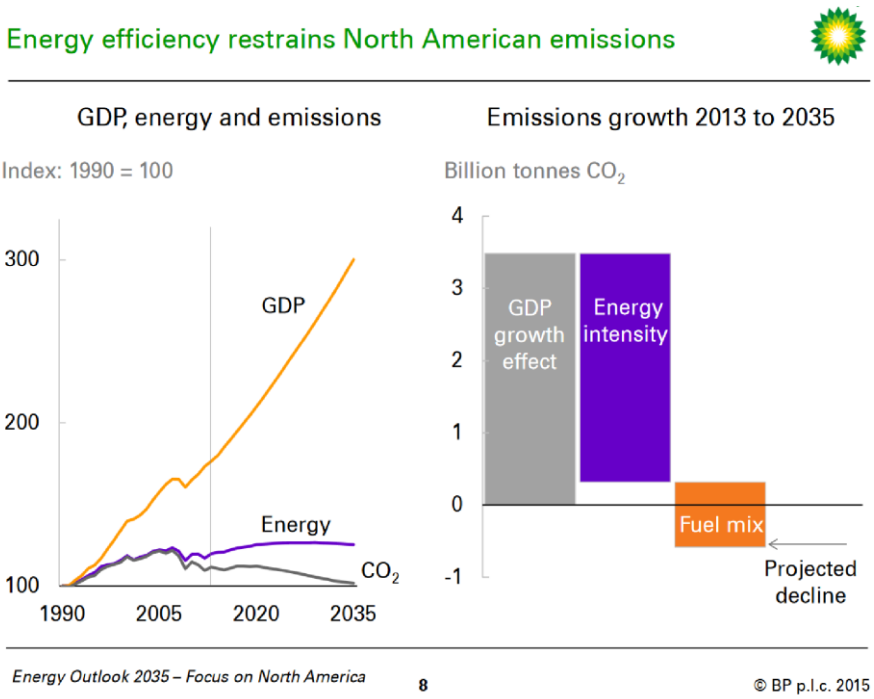
In this respect, energy companies must adapt by building a long-term strategy, giving us a picture in the most probable future shape of the energy landscape based on the major changes expected in the next 20 years: changing structure of international trade, increasing importance, market share and globalization of gas market (liquefied natural gas-LNG integrates regional markets and produces greater congruence in price movements worldwide), increased energy demand as a result of strong economic growth in China and India.

Globally, energy demand has become very large, on the one hand, because of the strength of the global economy and, on the other hand, due to the progress of China, India and other developing countries that manage energy less efficiently than their advanced economies. In this context, we can emphasize that the more a country is endowed with natural resources and the degree of economic development is proportionally lower, the lower the concern for energy efficiency is and demand for economic goods with risk of pollution increases.

In addition to limits on brute resources, processing capacity goes through a crisis. Average distillate fuels (diesel, aviation oil, fuel oil) are increasingly searched. But most new resources consist of heavy oil, which is difficult to convert into the mentioned products. Natural gas reserves are much farther to reaching their peak, but transport is going through a period of crisis, generated in particular by the high costs of infrastructure and logistics, military conflicts, natural disasters, social causes. All these elements combined can lead to increased energy prices, oil prices, as a result of increased demand.

Another direct factor of energy demand is the increase in population and income per person, in conjunction with increase in the value world GDP. By 2035, according to estimates, the world population will reach 8.7 billion, which means an increase of 1.6 billion people who will need energy. In the same period, GDP is expected to double, the contribution of non-OECD countries Asia and Oceania [2] being almost 60%. Globally, GDP per capital in 2035 is expected to be 75% higher than it currently is, generated by an increase in productivity, which represents three quarters of global GDP growth. China and India are key factors of growth in non-OECD and are projected to grow by 5.5% per year between 2013 and 2035. By 2035, they will become the third economic force in the world, jointly representing one third of the world population and GDP. By the year 2035, the growth rate of China is expected to slow from 7% per year at present, to 4% in 2035, i.e. growth rate of India will slow from 6% per year in this decade to 5 % in 2035, which will generate a sustained increase in energy demand.

Figure 2. GDP, energy and emissions/emissions growth 2013 to 2035



Source: Energy Outlook, https://www.iamericas.org/presentations/BP_North_America.pdf

[2] Non-OECD Africa and the Middle East Africa: Bahrain, Cyprus, Iran, Iraq, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates and Yemen. Dynamic Asian Economies (DAEs) Chinese Taipei; Hong Kong, China; Indonesia; Malaysia; the Philippines; Singapore and Thailand. Other Asia Non-OECD Asia and Oceania, excluding China, the DAEs and the Middle East.

Primary energy consumption is projected to grow by 37% between 2013 and 2035 with an average increase of 1.4% per year. Basically, 96% of the projected growth in energy demand comes from non-OECD countries, with rising energy consumption, estimated at 2.2% per year. OECD energy consumption, by contrast, grows to only 0.1% per year during the entire period and is actually decreasing until the year 2030. The expected growth rate of global energy consumption is significantly slower than the recent trend (2.4% per year for 2000-13), more pronounced in non-OECD Asia and Oceania, where growth was on average 7% per year since 2000 and it is estimated that it will slow down to 2.5 % between 2013 and 2035. This process of slowdown reflects the end phase of rapid growth in energy demand in emerging countries in Asia, centered on China, generated by processes such as industrialization and electrification. Slow economic growth (economic growth becomes less dependent on heavy industry) and a rapid reduction of energy intensity, have the effect of a slowdown of growth in energy demand.

In essence, the energy mix continues to change. Fossil fuels provide most of the energy needs of the world, claiming two thirds of energy demand growth in the year 2035. China holds only 8% of the world oil market and 30% of oil demand, importing about half of what it consumes, the EU imports 50% of the needed fuels, and this figure is expected to reach 70% in 2020. Russia is by far the largest supplier of oil (20%) and imported natural gas (40%). Many countries in the European Union depend to a large extent on Russian gas, which covers 40% of total demand in Germany, 65-80% in Poland, Hungary, the Czech Republic and about 100% for Austria, Slovakia and the Baltic States. Because of this, Europe is very vulnerable, since Russia started to use its control over gas reserves as a political weapon.

Energy cooperation of Russia with the EU has created a strong interrelationship between the two powers: EU needs energy supplies from Russia, while Russia depends on access to the EU energy market, act that generates most of the revenue streams of Russia from selling energy products. Such a strong interdependence, besides not leading to good cooperative relations, created a series of negative stimuli that led Russia to militarily intervene in Ukraine and attach Crimeea. Ucraina in turn, forced the EU to react to this blatant violation of international law and undermining the existing international order by Russia. As a result of very high political stakes, both of Russia and of the EU in Ukraine, the crisis has already had a negative impact on the form and content of energy cooperation between Russia and the EU.

According to a joint report on the state of energy cooperation between Russia and the EU in energy trade volume, the EU occupies a dominant position[3]. Thus, 62% of Russian exports of mineral products, more than 50% of the gas exported from Russia, 66% of oil and oil products, and nearly 50% of coal is for the EU. According to preliminary data for 2013, Russia exported 153.9 million tons of oil, 139 billion cubic meters of natural gas and 60.5 million tons of coal in the EU. The value of Russian exports of mineral products reached 377 billion dollars in 2013. Meanwhile, about 50% of Russian state budget revenues are generated from the production, sale and export of energy goods, the value of Russian exports of mineral products reached 377 billion dollars in 2013. Meanwhile, about 50% of Russia's state budget revenues are generated from the production, sale and export of energy goods, which makes decline in oil prices create problems related to external balance of payments situation[4]. Most of the proceeds from the export of Russian energy and energy products were generated by trade in UE. According to its own estimates, UE spent $ 1 billion per day on energy imports from outside its borders. In 2012, the EU spent $ 300 billion for foreign suppliers of oil, and $ 85 million to pay foreign suppliers of gas, Russia giving EU a third of the oil and 39% of natural gas imports.

In order to reduce energy dependency of the EU on Russia, given the pressures of politics, of society, imposing a hegeminy from a military perspective, of disagreements with the US in terms of world security and order, it is desirable that the EU produces more renewable energy. As medium and long-term goal or even strategy, the EU has targeted that by 2030, 27% of used energy to be renewable energy.

US oil production growth in 2014 (about 1.5 million barrels per day- Mb / d) was the highest in US history, but also globally, increase growth being surpassed only by Saudi Arabia, was caused by shale oil production - tight oil and LNG (liquefied natural gas), supported by increased investment and technological innovation quickly incorporated into production. Productivity, measured by the production of oil and shale gas with extraction on the rig structure, increased by 34% per year for oil and 10% for gas between 2007 and 2014. The increase of oil production from shale in the US is expected to stagnate in the coming years, reflecting high rates of decline in extraction compared to extraction and production of liquefied natural gas. The production of shale gas in the US is expected to grow rapidly (4.5%), although growth rates are gradually becoming moderate.

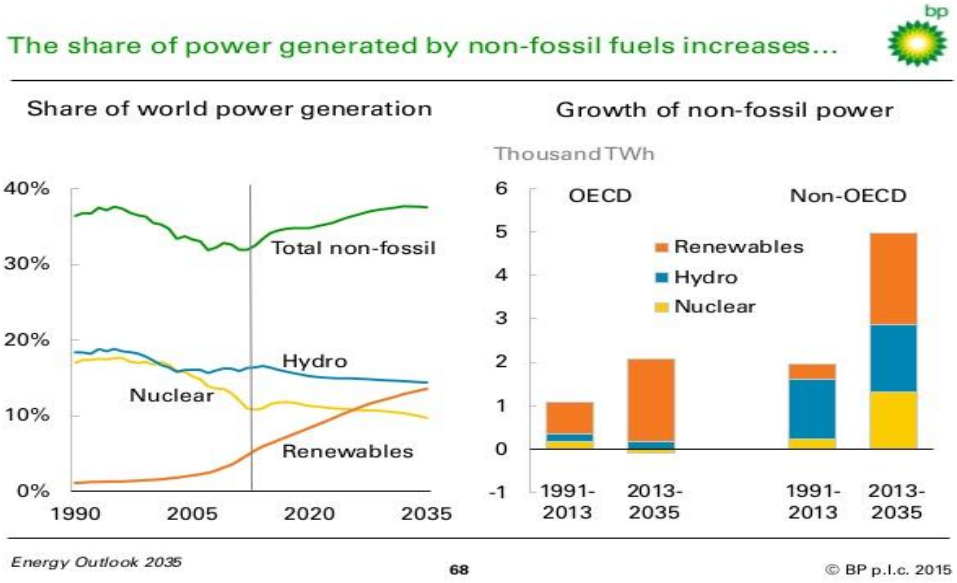
By 2035, fossil fuels will represent 26-28% of all energy resources, without us being able to identify a type of fossil fuel to be considered overall dominant. Among non-fossil fuels, renewable energy sources (including biofuels) are rapidly gaining in climbing from about 3% currently to 8% by 2035, exceeding fuel from nuclear power plants in the early 2020s and fuels of hydro origin in the early 2030sAbout a third of energy demand growth is ensured by gas, other third by oil and the third

[3] According to Polish Institute of International Affairs(PISM)

[4]Russia needs oil prices of more than $ 117 in order to balance the state budget, according to Polish Institute of International Affairs(PISM)

one by non-fossil fuels. In the OECD, the decrease in oil and coal reserves is offset by the increased production of energy based on gas and renewable sources of energy, in approximately equal parts. The growth of non-OECD energy is evenly distributed for oil, natural gas, coal and non-fossil fuels.

Figure 3. The share of power generated by non-fossil fuels



Source: Energy Outlook, https://www.iamericas.org/presentations/BP_North_America.pdf

New energy sources, helped by technological progress, innovation, enhanced productivity, investments, make a significant contribution to the energy production process. Renewable energy, shale gas, shale oil and other new sources of fuel, regarded as a whole, reach 6% per year and contribute with 45% of the increase in energy production by 2035.

5. Results

Technological innovation and the rise in energy prices have unlocked vast unconventional resources in North America, with effects in the intensification of production of oil and gas from shale in the US and modifying the global energy balance. Globally, exploitable resources are estimated at about 340 billion barrels of shale oil and 7500 trillion cubic meters of shale gas, Asia having the highest resources, followed by North America. Although unconventional resources are spread across the globe, production is likely to remain concentrated in North America, thanks to technological advances, high productivity and abundance of water resources. North American production of shale oil and shale gas accumulated between 2013-2035 is approximately equivalent to 50% of oil shale resources and 30% of shale gas resources, while for the rest of the world they are only 3% and 1%.

6. Conclusions

Renewable energy and unconventional fossil fuels will have a higher share, along with gas, considered the fossil fuel with the fastest and cleanest growth that would generate cost savings at EU level, some experts considering that the production of renewable energy at EU level is performed with too high costs of technology, infrastructure and logistics compared to the market price[5]. The most likely way to reduce carbon emissions and strengthen the energy related position of EU, despite the proliferation of energy and security policies, it does not seem sustainable and consensual. The projections highlight the extent of decision makers, the influence of power games that lead to a high, unsustainable global price paid by EU citizens for carbon.

In exchange the US intensify measures to promote liquefied natural gas as a strategy for downgrading Russia from the dominant position it still occupies within the energy market, for strengthening the position of energy and thereby the recovery of the US economy. Thus, increasing the production capacity and lowering LNG prices have led to increasing exports, boosting investments in industry (petrochemicals, glass, and plastic).

The intention of the US is to produce an alternative to Russian natural gas - and thereby reducing the EU's dependence on Russia in terms of energy policy - and lowering the price of liquefied petroleum gas capitalizing due to factors on the supply

[5] According to Malcolm Brinded-gas is good for Europe and Europe is good for gas- representing Shell, the EU will save 500 billion euros if, in order to reduce pollution, it will choose gas instead of renewable energy;

side[6]. This is facilitated by the production infrastructure and natural conditions that the United States has as comparative advantage in relation to the main competitors, the EU, Russia and China. Following this high production empowerment, a controlled volatility of the price, does not put the US in great difficulty.

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[6] According to Lukoil, out of 280 wells, US pull out a third more gas than in 2009 with 1,200 wells and the production costs are four times higher in Russia than the US.