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GLOBAL SECURITY CHALLENGES FOR EUROPE: STRUCTURAL AND STRATEGIC CHANGES IN ENERGY MARKETS AND MAJOR IMPLICATIONS

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Abstract

This paper covers the analysis of the energy markets, emerging trends, oil price evolution and oil shocks and focus on the identification of the major energy game changers. Furthermore the issues of the energy security in the XXI century are introduced and discussed within the framework of supply behavior, stability of prices and economic competitiveness. Special emphasis is given to the interaction between energy security, climate change and environment sustainability. Europe energy security challenges are addressed and discussed with a multidimensional analysis covering the current status, public policies, European energy market, European energy networks, emerging technologies and energy efficiency. Recommendations for future steps to be undertaken to reinforce European energy security will be made.

Keywords

Energy Security; Energy Game Changers; European Energy Market; Climate Change; Environmental Sustainability

Introduction

This article covers the analysis of the energy markets, emerging trends, oil price evolution and oil shocks, identifying the current major energy game changers. Furthermore, the issues of energy security in the XXI century will be introduced and discussed within the framework of supply behavior, stability of prices and economic competitiveness. Special emphasis will be given to the interaction between energy security, climate change and environment sustainability. Europe energy security challenges will be addressed and discussed with a multidimensional analysis covering the current status, public policies, European energy market, European energy networks, emerging technologies and energy efficiency. Recommendations for future steps to be undertaken to reinforce European energy security will be made.

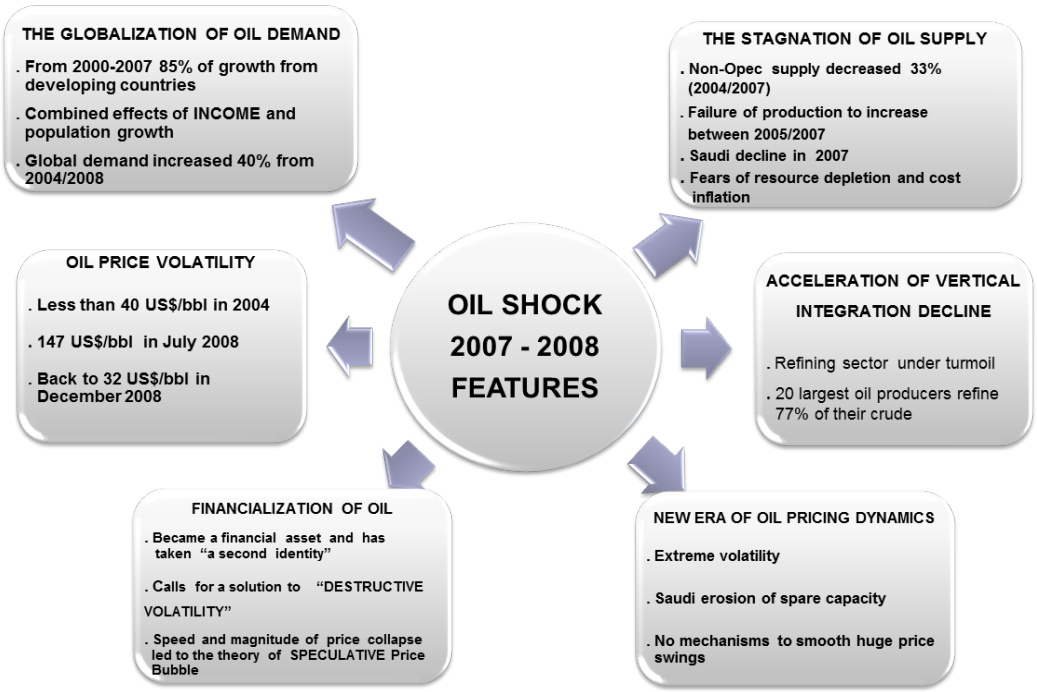
1. Structural and Strategic Changes in the Energy Markets

The oil shock of 2007/2008 showed that we are entering in a new era of change in the energy market. The main structural trends can be summarized as follows:

- The globalization of oil demand taking into account that from 2000 to 2007 85% of growth in oil demand came from developing countries; in the past North America, Europe and Japan were the key drivers of the oil demand;
- A structural shift in the oil demand pattern rendering the relationship between oil price and demand more complex; as most of the developing countries have policies of subsidization for fuels, increases of oil price in certain ranges do not lead necessarily to decreases in the oil demand, which lost elasticity.
- Oil price volatility reached new highs and from 1998 (when oil prices were below 10 US$/bbl) till July 2008 (when they reached 147 US$/bbl), the tenfold increase was followed by an even remarkable and astonishing decline with prices reaching 32 US$/bbl at the end of 2008; the price of oil in 2008 changed 5% or more from the previous day close on 39 days setting a new record in volatility with major implications for business and investment planning activities.
- The financialization of oil which is today not only a strategic commodity but also a financial asset; oil has taken a second identity and this created a new era of oil pricing dynamics with the involvement in the oil market not only of the traditional traders and oil producing companies but also of Investment Banks, Hedge Funds, Financial Funds and other Investment Entities.
- Erosion of OPEC SPARE Capacity, which reached a low level in 2008 of less than one million barrels of oil per day (1 MB/D); in spite of a smooth recovery in 2009 and 2010 the spare capacity is still low and means a more fragile and vulnerable market without mechanisms of price stabilization.

Some of these trends are summarized in Fig. 1

Figure 1



In the aftermath of the 2007/2008 oil shock, the economic slowdown and the financial crisis led to a huge destruction of the world oil demand that collapsed 2.2 MB/D in the second semester of 2008. Oil demand decreased 0.6% in 2008, the first decline since 1993 and the largest since 1982. 2009 witnessed a new drop in oil demand of 1.7%. OPEC acted at the end of 2008 to restrain production in order to avoid a huge drop in oil prices and the cartel succeeded to cut 4.2MB/D in oil production. The drop in prices was contained, they did not go lower than 70 US$/bbl in the period but this is a very serious signal because even with the worst recession in the last decades the oil price not only was contained but increased significantly afterwards. This means that the level of depart for a future rally in price is already high and this may create additional tensions in the world economy. In any case the supply restrictions decided by OPEC increased the volatility and exerted pressure on the future ability to deliver.

The Consequences of SHALE GAS Revolution

Another consequence of the oil shock was the acceleration of OPEC production of condensates and NGL's (+ 340,000 B/D and 420,000 B/D respectively in 2009) because these products are not covered by the quotas policy. But the key strategic consequence was the response of the developed countries with the US shift to production of unconventional gas, specially Shale Gas. Some of the independent companies of US, taking advantage of the incentives provided by the Energy Act, unlocked huge reserves of shale gas and discovered a technological process of production of these reserves combining two existing technologies: the horizontal wells and the hydraulic fracturing technique. Shale gas is an hydrocarbon system that is retained in the source rock, did not migrate from the generation source and the reserves in US and worldwide are huge. This may create the most important strategic shift in the world energy markets for decades. The US Gas Production increased 7.5% in 2008, the strongest growth since 1984, and increased again 3.5% in 2009 transforming the US in the top world producer ahead of Russia. *The implications are very significative because shale gas reserves may range from 60% to 250% when compared with the conventional gas reserves*. The International Energy Agency

released a study in April 2011 that shows the magnitude of these reserves: in US the unconventional gas reserves can be 3 times more than the conventional, 6 times in Canada, 20 times in Argentina and 12 times in China.[1] On top of that, the technology discovered in US for producing shale gas is spreading to other areas of the world and also to applications in producing shale oil.

Gas will play a more important role in the world energy matrix: in 2010 gas share was 23.8%, the highest on record.[2] Meanwhile oil share declined in the last eleven consecutive years. The growing gas demand (grew by 7.4% in 2010), the growing gas trade (grew by 10.1% in 2010), the changes in the gas transportation systems with the emergence of LNG (Liquefied Natural Gas) which adds flexibility and versatility in the transportation by sea, the slower growth of Nuclear Power after the nuclear disaster of Fukushima in Japan on 11th March 2011, the increase of Unconventional Gas Production and the competitive gas prices, are key drivers that may build a Golden Age for Gas.

Geopolitical and Structural Changes

On top of these consequences it is important to stress the geopolitical and structural changes that need to be addressed:

- The National Oil Companies (NOC's) of the producing countries control today 80% of the world oil reserves; the International Oil Companies (IOC's) control directly 7% and indirectly 13% (through the Production Sharing Agreements).[3]
- The IOC's have more and more difficulties to access new oil and gas reserves
- Usually periods of high oil prices foster the growth of the Nationalism on Resources as illustrated in the case of Russia, Venezuela, Algeria or Ecuador which normally leads to limitations on the supply and less efficiency in production.(3)
- Increase of Financial Power of Oil Producing Countries translated by the fact that OPEC countries revenues duplicated between 2006 and 2008 reaching 960 billion US$ in 2008; in fact in January 2008 when oil prices reached 110 US$/bbl, Saudi Arabia made 1 billion US$ of revenues in one single day.
- The most important geopolitical consequence of the high oil prices is the huge transference of dollars from the consuming countries to the producing countries. A study by the "Petroleum Economist" shows that in the period 2007-2009, the six top oil consumers (US, Japan, India, South Korea, Germany and Italy) paid 1.8 trillion US$ for their oil imports and the 6 top producers (Saudi Arabia, Russia, Iran, UAE, Nigeria and Venezuela) received 1.7 trillion US$.[4] This transference of financial wealth does not have precedents in history, is changing the world financial order and creates additional constraints to the world economy. A study by the Bank of International Settlements (BIS) shows that 70% of these revenues are not translated into productive investment and are not applied in economic development projects. The implications for the world economy are critical.

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1 The Economist, 6th August 2011.

2 BP Statistical Review of World Energy, 2011, London

3 António Costa Silva, "Does the End of Oil Means the End of Oil Culture?" Seminar on "Energy and Environment", Casa Mateus, September 2006.

4 Petroleum Economist, December 2010.

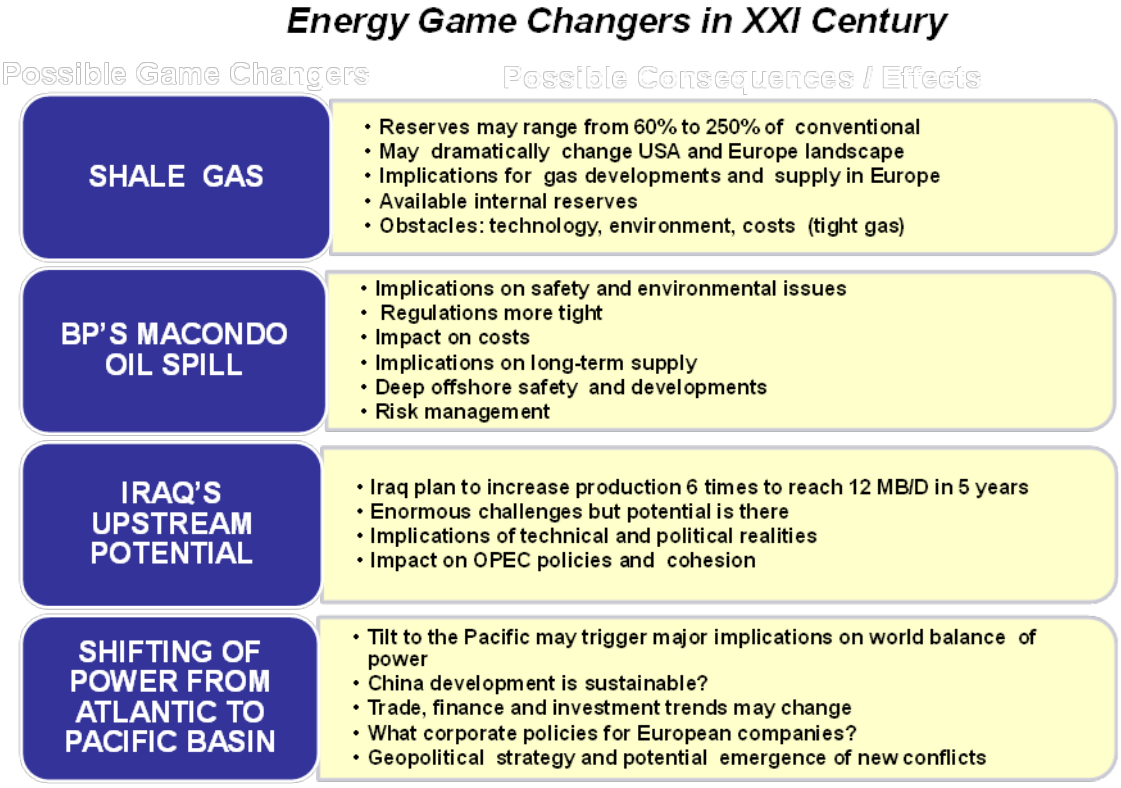
2. Energy Game Changers, Climatic Threat and Economic Impact

The key energy game changers in the first decades of XXI century can be summarized as follows:

- SHALE GAS: if the estimated reserves are confirmed they may range from 60% to 250% of the conventional ones and this may dramatically change US and Europe landscape with implications for gas developments and supply in Europe. However some obstacles related to the environment implications and costs need to be addressed.
- BP's MACONDO OIL SPILL: the Blow-Out that occurred in the Gulf of Mexico in the offshore Macondo well in April 2010, led to serious implications on safety and environmental issues related to offshore operations. The accident was a wake-up call for the whole industry and the consequences are more tight regulations, impact on costs, implications on long-term supply for offshore production and new requirements for Risk Management and Deep-offshore Safety.
- IRAQ's UPSTREAM POTENTIAL: Iraq is with Venezuela the founder of OPEC but the country today is not encompassed by the quota's policy of the cartel. Given its huge reserves potential, Iraq announced a plan to increase oil production 6 times from current 2.4 MB/D to more than 12 MB/D in the next 6 years; this is a very ambitious plan implying enormous challenges but the potential is there and the technical and political implications may be huge starting with the impact on OPEC policies and cohesion.
- SHIFTING OF POWER from ATLANTIC to PACIFIC BASIN: the role of leading emerging countries like CHINA and INDIA in the world energy matrix and in the growth of energy demand is shifting power to the Indian and Pacific basins. This may trigger major implications on world balance of power; there are already significant changes in trade, finance and investment patterns and this raises issues about the response in terms of European Companies, Corporate Policies and European Geopolitical Strategy.

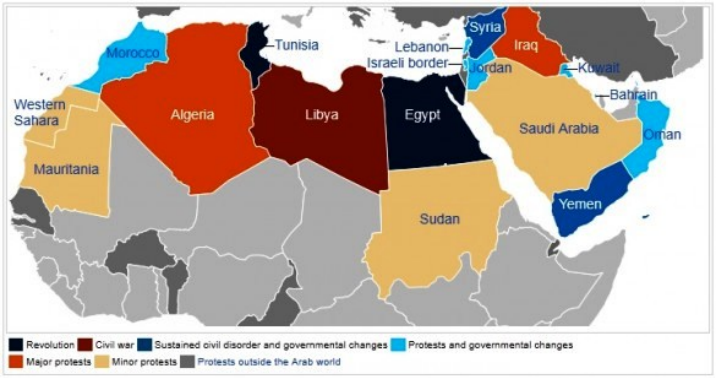
Fig.2 summarizes the Key Energy Game Changers in the XXI Century

Figure 2



The Arab Spring

Figure 3



In the last years and especially in 2011, some developments amplified the dimension of the Game Changers that may affect the energy market and create additional geopolitical challenges.

The first of these events is what became known as the "Arab Spring". The situation in North Africa and Middle East with the Arab Regional upheavals eroded a good part of the strategic balance in the oil and gas markets and may have major consequences for the stability of the Region and for European oil and energy security. In its essence, the Arab upheavals are a positive event with the emergence of democratic movements, not inspired by religious extremists but by young educated people, claiming more freedom, civil rights and better conditions of life. These movements emerged in countries like Egypt where the population is quite young and 70% of the people lives with less than 2 dollars per day. These are open-ended events and, as it happened with the European democratic revolutions in the XIX century, some may succeed and others will lead to new autocratic regimes or to failed states. The case of Libya is critical because if a failed state emerges in the Mediterranean Basin, the impact for the energy security in the whole area and for Europe may be dangerous. In terms of the oil and gas market, the rupture of production in one important producing country leads to significative increases in oil prices. When the revolt emerged in Libya against Colonel Khadafy regime, the oil prices increased 15 US$ per barrel. The "Syndrome of Disruption of Production" is immediately replicated in the markets. During the 1991 Gulf War when Iraq invaded Koweit, the oil prices increased 150% in three months. But the most critical issue is the spread of the revolt to the Arabian Peninsula with upheavals in Yemen, Bahrain and Syria. Saudi Arabia intervened military in Bahrain to protect the suni monarchy in a country where 70% of the population are Shia. The key consequence for the future is that Saudi Arabia, the heart of the world oil system, is circumvented by an Arch of Instability that ranges from Yemen in the South to Bahrain and goes deep to the Saudi Eastern Province (Qatif). In this province are located the greatest Saudi oil fields and the population is dominantly Shia (the 12% Shia population of Saudi Arabia is concentrated in this province). Qatif has experienced periodic upheavals and it is important to stress that the Abqaiq petrochemical complex that processes 7 MB/D, the most important of the world, is located in this province which harbours also the Gahwar field, the largest in the world, and Ras Tanura, the most important oil port of the world (exports 5 MB/D). The regional dispute between Saudi Arabia and Iran affects dramatically the situation in the whole Arabia Peninsula with the Saudis supporting the revolt in Syria, a close ally of Iran, and with the Iranians supporting the revolt in Bahrain and Qatif to foster instability in Saudi Arabia. The geopolitical situation is quite unstable and the consequences are deep in terms of increasing oil prices, threats to the supply, disruptions in production, restrictions in the export quantities and problems in the energy security system. A specific illustration of this geopolitical uncertainty is related to the Hormuz Strait from where 19% of European oil supply flows every day.

The Iranian Threat to close the Hormuz Strait

Figure 4

This is especially critical with the Iranian threat to close the Hormuz Strait where each day passes 30% of the volume of oil traded in the world. The Hormuz Strait is the most important bottleneck of the world oil transport system and its closure means the paralysation of the Japanese and South Korea economies and the semi-paralysis of China, US and Europe. It will be difficult for Iran to close the Strait on a permanent basis with a significative duration but even very focused actions will be translated into a huge increase of oil prices. In January 2012 when the Iranians made naval exercises in the Strait and threatened to close the traffic, oil prices jumped more than 4% in the same day. It is expected that rational decisions will prevail. The closure of the Strait will be interpreted as an act of war by all Gulf states and the US and Iran will be the most affected by these acts. In fact the Iranian National Budget is strongly dependent of the oil revenues and in 2011 Iran collected more than 100 billion US$ in oil exports. However, the current situation is a concern in terms of European oil security given that 19% of European oil supply comes from the Gulf. Incidentally, the current environment of geopolitical tensions and threats is a driver for high oil prices which affect the developed economies.

The Japanese Earthquake and Tsunami and the Consequences

Another key event that emerged in 2011 and became a game changer was the earthquake and tsunami that hurt Japan on the 11th March 2011. The power supply was disrupted with a likely permanent loss of a significant portion of Japan's nuclear power generation capacity. Even today 48 out of the 54 Japanese nuclear reactors are still paralyzed. The energy market provided a strong answer to replace the failure of the nuclear power generation and the LNG market was instrumental to this response. The LNG which implies the liquefaction of gas and its transport by sea (the gas liquefied occupies a volume which is 300 times lower), gave birth to a very flexible and versatile market and this proved to be a strong competitive advantage providing Japan, already the top LNG consumer, with additional LNG volumes of 8 to 10 million tonnes. Key LNG producers like Russia, Indonesia, Qatar and Oman have been quick to offer LNG cargos to help Japan to restore and maintain power supplies. In March 2011 the LNG prices moved up in the Pacific rim from 9 US$/MBTU to more than 12 US$/MBTU and this dynamic also lifted benchmark gas prices in Europe.[5] The European spot LNG market has played a crucial swing supply role and displaced more expensive pipeline gas. One effect of the Japanese crisis might be to push European gas market, currently split 50-50 between oil indexed and non-oil indexed pricing, back towards a period of strong oil indexation. But the desindexation of gas from oil prices, that developed strongly in the Atlantic Basin, is a trend that will be reinforced on the medium/long term and the role of European spot markets will be more significant. The role played by

[5] Argus Daily LNG Prices, News and Analysis, 31st March 2011.

LNG to overcome Japan power supply crisis, is the first key event that antecipated the change of the gas market in the medium/long term from a fragmented market to a globalized one.

The LNG market will be totally globalized by 2022/2025, the flexibility in LNG transport responds quickly to shifts in demand and LNG will be the driving force for the Globalization of the Gas Market.

The Re-Emergence of the Atlantic Basin and Consequences for Europe

Finally during the last years a string of oil and gas discoveries in the Atlantic Basin may change the strategic balance in the energy market with deep positive implications for Europe.

The string of oil discoveries in Brazil deep-offshore, in the Pre-Salt formation of Santos Basin, created conditions for the emergency of a new oil province of the same magnitude as Kuwait with reserves that may ascend to 70 billion barrels. This adds to the huge discoveries of oil and gas in the French and British Guyana, to the discoveries made on the other side of the Atlantic in the offshore of Ghana with the Jubilee Field and the positive implications for the Niger Delta. Angola may grow its oil and gas reserves with the exploration of the potential of the Pre-Salt following Brazil who has found the way to locate and produce its deep water Pre-Salt fields. By the next decade Brazil could be producing twice as much as Venezuela, traditionally the oil power-house of South America. The Atlantic basin is also home to huge gas shale discoveries from North America to Argentina. On the heavy oil and tar sands we cannot ignore the magnitude of Venezuela Orenoco extra-heavy oil reserves and Canada Athabasca Tar Sands which in total may represent two Saudi Arabias.

In aggregation it is fair to say that for the first time in the last decades a key challenge may emerge in the Atlantic Basin to counter-balance the role of the Middle East. In geopolitical terms, the re-emergence of the Atlantic Basin, where more than 90% of the relevant world offshore discoveries are concentrated, from the Gulf of Mexico to deep offshore Brazil, from Ghana and Niger Deep waters to Angolan fields, gives to the Atlantic Ocean a key role in the future energy supply of the western hemisphere. The change in strategic balance has deep implications for the west and specially for Europe.

3. Energy Security and Global Challenges in Europe

The concept of Energy Security that still prevails today in Europe is based on the architecture that emerged from the first oil shock in 1973. Nothing substantially changed and this can be dangerous for the future. In the US the process of redefinition of the energy security framework has started long time ago. Jan Kalicki and David Goldwyn[6] formulated a definition of energy security for the XXI century as "the ability to access resources which are necessary for the continuous development of the national power" drawing the attention to the capacity to secure the resources and the ability to protect the world economy from the effects of extreme volatility.

Putting the things in context, the 1973 threats ranged from the disruption of supply in producing countries to the repetition of the oil embargo and the price volatility in the market. Those elements led to the formulation of an energy security framework based on the following strategic responses:

- The creation of the Petroleum Strategic Reserves in the developed countries (SPR)
- The creation of the International Energy Agency (IEA) as a Platform to defend the interests of the consuming nations

[6] Jan Kalicki and David Goldwyn, "Energy and Security: Toward a New Foreign Policy Strategy", Woodrow Wilson Center Press, Washington, 2005.

- The definition of standards for the Automobile Industry to reduce the fuel consumption (in the US this law became known as "CAFE" which stands for "Corporate Average Fuel Efficiency")
- The building of "spare capacity" in key producing countries

The Global Security Challenges in the XXI century are wider and the threats are multiple. They can be summarized as follows:

- Terrorism
- Internal destabilization in producing countries
- Erosion of the "spare capacity"
- Increasing dependence on OPEC
- Disruption of production and distribution power networks
- Emergence of hurricanes like Rita and Katrina
- Black-out's
- Extreme price volatility
- Climatic threat
- Demographic factor
- Unsustainability of the existing Energy model

Fig. 5 summarizes the threats and strategic responses that affect the Energy Security in the XXI Century

Figure 5

THE CONCEPT OF ENERGY SECURITY

	THREATS	STRATEGIC RESPONSES
XX CENTURY	▪ Disruption of supply by producing countries ▪ Repetition of oil embargo of 1973 ▪ Price volatility in the market	▪ Creation of Petroleum Strategic Reserves (SPR) ▪ Criation of the International Energy Agency (IEA) ▪ Standards for the automobile industry (CAFE / USA) ▪ Build "spare capacity" in producing countries
XXI CENTURY	▪ Terrorism ▪ Internal destabilization in producing countries ▪ Erosion of "Spare Capacity" ▪ Increasing dependence on OPEC ▪ Katrina and Rita hurricanes type ▪ Disruption of production and distribution power networks ▪ Black-out's ▪ Extreme price volatility ▪ Climatic Threat ▪ Demographic factor ▪ Unsustainability of existing energy model	▪ Reduction of OPEC dependence ▪ Shift Energy Model ▪ Bid on renewables, biofuels, hydro-electric, nuclear, biomass, micro-generation ▪ New policy on Strategic Oil Reserves ▪ Creation of Strategic Gas Reserves ▪ Diversification of supply sources (axis Mediterranean/Atlantic/Central Asia) ▪ Integration of China and India in the International Energy Agency (IEA) ▪ Building of EU single Integrated Energy Market

The Katrina Effect on the Energy Security Concept

One event that changed the perception about the energy security and that fostered the need to rethink the existing model, was related to the consequences of the Katrina and Rita hurricanes that triggered an integrated shock in the energy system of the US.

For the first time in history we had the simultaneous collapse of the Drilling Platforms, the Production and Pipeline systems, the Refineries, the Energy Distribution System. It never happened before. Katrina and Rita brought a new perspective to the security demonstrating how fundamental is the entire chain to feed the electrical grid.[7] We need a new energy framework able to protect the system as a whole. Furthermore the current energy system is under pressure, collapses happen more often, shortages of power supply occur more frequently like the ones in Ruhr Basin in Germany in 2004, in Italy in 2003, in North America (US/Canada) in 2003, in Brazil in 2004 and 2009 (where 18 of the 24 Brazilian states were affected by a black-out).

Fig. 6 shows the different dimensions of Katrina effects on the energy system

Figure 6

Current Threats to Europe Energy Security

In terms of current threats to Europe Energy Security they can be summarized as follows:

- Emergence of a Failed State in the Mediterranean Basin (e.g. Libya) with all the consequences in terms of disruption in energy production, increase of piracy attacks, disruption in trade and flows, impact on oil prices and insurance costs

[7] Daniel Yergin, "Ensuring Energy Security", Foreign Affairs, Vol. 85, nº 5, April 2006

- Geopolitical instability in North Africa producing countries with disruptions in oil and gas supply to Europe. This happened already in 2011 when oil and gas supply of Libya was interrupted. Italy depends on Libya for 15% of its gas supply through the Greenstream Pipeline and 20% of oil; and the disruption in Libya created concerns for the future.
- The Key role of Algeria as an important European oil and gas supplier may be affected by instability; Algeria provides 19% of the gas supply to Europe, the network of Algerian pipelines Medgas and Magreb is crucial to supply the Iberian Peninsula. Furthermore the Transmed pipeline and the future Galsi project are critical for Italy and the Southern Mediterranean; a disruption in the Algerian pipeline system will affect significantly European Southern countries and the Mediterranean Basin.
- North Africa provides 12% of the European oil and 19% of European gas; a key strategic response of Europe is to help the North Africa countries to establish democratic regimes, stabilize the institutions and enter in a new era of development. This is a key step to avoid major disruptions in the oil and gas flow and improve European energy security.
- The Middle East represents 19% of the oil supplied to Europe and threats like the closure of the Strait of Hormuz are quite damaging for the continent. The stabilization of the Arabian Peninsula and the containment of the level of disruption in oil and gas production, created by the upheavals in Yemen, Syria and Bahrain, is crucial to avoid a new rally on high oil prices, disruption in supply and threats to the energy security.
- Europe holds only 16.2 billion barrels of oil corresponding to 1.3% of world reserves; this is a structural fragility of the continent; the European oil production is 5 MB/D but the consumption is three times more
- EU refining capacity is stagnated for many years and has not been upgraded to cope with the more heavy oil that flows today to the market
- European oil and gas companies are facing growing difficulties to have access to new reserves; European oil production is in decline specially in the North Sea
- Some EU countries, especially in Eastern and Central Europe, depend strongly on the Russia gas and this has created complex situations in the past when the interruption of Russia energy supply in 2006, 2007 and 2009 left European populations without gas at the peak of winter.
- A key EU fragility is the inexistence of a true open energy market in Europe

Proposed EU Strategic Responses

In broad terms the EU needs to develop strategic responses to manage and minimize its fragilities and increase the energy security of the continent. The history of energy shows clearly that a time of crisis is followed by a break point during which the government policies, the social, environmental and technological forces begin to rebalance and reshape the world energy complex.[8]

[8] Peter Tertzakian, "A Thousand Barrels a Second", McGraw-Hill, 2006.

Fig 7 summarizes some of the key dimensions for building an energy security framework in the EU

Figure 7

These strategic responses can be as follows:

- Shift the Energy Model: the current energy model is a source of external dependence and fragility; a consistent bid on domestic resources ranging from renewables, biofuels, hydro-electricity, nuclear, biomass and microgeneration needs to be addressed
- Reduction on OPEC Dependence: a new look to the Atlantic Basin in order to minimize the supply from the Middle East and promote the development of the resources in the Atlantic Basin is crucial to change the geopolitical and strategic balance in the future.
- Diversifying Supply Sources: which means to focus on the reinforcement of the Mediterranean, Atlantic and Central Asia axis
- Building the EU single integrated Energy Market: an open and competitive market is today a key element of Energy Security and there is neither integrated policy nor a single market. The reinforcement of EU energy monopolies unbalances the market, restrains competition and foster the resistance to liberalization. The economic and financial crisis may trigger the return of national protectionisms preventing Europe of building an Integrated Energy Market. EU is a formidable economic power but lacks political convergence and will. The liberalization of EU Energy Market, the unbundling of Energy Facilities and Utilities leading to cut profit margins in gas distribution and reducing Gazprom appetite for European energy assets, the increase in the inter-connections between electric grids and pipeline networks, all these policies lead necessarily to less Russia ability to play one European country against the other and to the improvement of European Energy Security
- New EU Policy on Strategic oil Reserves and Strategic Gas Reserves to prepare the continent for disruptions in supply and threats to energy security

- Integration of China and India in the International Energy Agency to reinforce the consumers platform in order to reach better influence in the energy market
- Ensure the security of supply *cooperating with Russia who shall become a key strategic partner of Europe but avoiding an over-reliance on Russia and diversifying the sources of supply*
- Reinforce the cooperation with Norway in order to support the country who is a key EU energy provider (19% of the oil and 13% of the gas), in the "hidden" war made by Russia in the Arctic region; a broad agreement EU/Norway/Russia is important
- Tackle the "Russian Issue" treating Russia as an European strategic partner, building a win-win approach based on the existing interdependence leading Russia to renounce to the "threats policy" and to the use of bilateral agreements to play some EU countries against others
- Change the architecture of Energy Security with the increase in size of oil and gas strategic reserves, coordinate EU countries policies, review the mechanisms of utilization, coordinate policies to defend consuming countries interests vis a vis the volatility and overcome disruptions in supply
- Review EU storage policies**:** the current situation renders the EU vulnerable to shut-off's and it is important to expand EU storage capacity, increase cross-border links and understand that storage and transportation capacity provides a buffer to supply and demand shocks
- Update EU electricity grids**:** EU electricity infrastructure is ageing, recent black-outs and power failures are an illustration of this; there are enormous opportunities to promote new investments and provide jobs with the modernization of EU electricity grids (smart grids).
- Reconfiguration of EU refineries to face the booming demand for diesel; diesel cars are 30% more efficient and the existing refining systems need to be updated; opportunity to promote investment and cooperation
- Push for the Energy Conservation Policies in order to consolidate changes in consumers behaviour induced by the economic and financial crisis; the support of renewables and clean technologies should not be disregarded avoiding the mistake that followed the second oil shock
- Energy as a potential engine for growth**:** avoid "business as usual" policy because unregulated free markets and private capital will not solve the needs for decarbonization of the economy and the minimization of the climatic threat; energy may act as an economic driver with public policies, investment and fiscal incentives to promote a low carbon society and more efficient use of energy and innovative technologies. Taking into account the greatest challenges of the XXI century the bid on the economy of energy is a good strategic choice.[9]

[9] António Costa Silva, "Europe and Russia: How the Energy Partnership can Work?", "Bureau of European Policy Advisers – Monthly Briefing", UE, Brussels, December 2008.

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