

# 2011

## The New Demands for Energy and its Effects on the EU Energy Policies



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2011/12/3

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### **Abstract**

Undoubtedly, energy security is of great importance in all developed economies .Indeed, an economic actor can guarantee its competitive power provided that it could secure safe and sufficient energy supplies .Therefore, the EU as an economic giant which has experienced a considerable economic growth during the past years ( except the period after the emergence of global financial crisis) cannot remain indifferent for providing its energy needs .Moreover , any plan or program for securing any big economy's energy security like the EU, besides being able to fulfill the current demands of energy ,it should also be able to have a precise and comprehensive assessment of the future demands and predict workable approaches for securing new demands .

In order to meet these goals , “Energy and Transportation Commission” as an expert body seeks for using the experts' ideas and advices and conducts some practical researches to devise new plans and programs with the aim of providing the EU's energy demands .The increase in the EU's economy size especially after the last enlargement in 2007 , has increased energy demands and turned the EU into one of the biggest energy consumers in the world .Although the new EU member states possess more natural resources in comparison to the old ones , these resources fail to provide the EU's energy demands .Moreover, the development of these new comers' industries has also made new demands in these countries which totally consume the new added capacity .Consequently, Russia is still considered as the EU's biggest energy supplier . However , thanks to the EU-Russia differences , this reliance is not welcomed by the EU authorities ( it is worth noting that the EU officials have strived to improve ties with Russia in recent years).

In this paper, we will try to examine the shifts in the EU's economic policies , especially in the energy sector resulted from new energy demands .Our findings show that in order to fulfill these new energy demands, the EU has devised the following approaches:

- Taking into consideration new geographical regions namely Africa;
- An attempt to increase efficiency in energy sector ;
- An attempt to access to new clean and renewable energy resources;
- An attempt to achieve an integrated internal energy market

**Key words :Energy Security, Energy Dependency, Natural Gas, Crude Oil .**

## **Introduction:**

Seemingly, it's worth having a brief overview on the history of energy security in Europe before focusing on the essay's main point which is an overview of the EU's challenges in energy security and approaches it could adopt to deal with the challenges.

Examining the historical stages and challenges the European countries faced for securing stable and sustainable energy sources and the policies adopted by these countries could help us both pursuing an efficient energy policy in this area and avoid the improper policies taken by EU member states in the future. Then, we will have a brief overview on the history of energy security in Europe from early years after world war II. At the end, we will provide some definitions on energy security.

1951 is considered as the beginning of our overview. The Second World War had great impacts on European countries' attitude towards energy supply. The first step in adopting a common policy in energy sector was the establishment of the European coal organization (ECO)<sup>1</sup>. Establishment of organization for European Economic cooperation (OEEC) was another means to boost collaboration among members.

At the time," oil still played the role of a secondary fuel and coal was more prominent." (Haghighi, 2007:39).

Negotiations held on June 1950, paved the way for creation of European Coal and Steel community (ECSC) in 1951.

"At the same time, the world oil market, previously no cohesive world oil cartel existed. Oil contributed about 8 percent of the total consumption of primary energy in western Europe... different European countries started looking for shares in different companies in the producing countries " (.Haghighi, 2007:39&40.)

Approaching the mid-1960s and especially 1956 SUEZ canal crisis, obviously highlighted the Europe's huge dependency and vulnerability even before the Middle eastern countries's oil supply.

Even before the Suez crisis Europeans had begun thinking of energy security. Euratom treaty established in 1957 with aim of developing nuclear energy in order to reduce its energy dependency. It should be mentioned that in 1950s, oil consumption considerably increased in comparison with coal.

In that time, we witness a mutual interest between European states and Middle Eastern countries in energy sector. However, surprisingly, even the establishment of OPEC in 1960, did not encourage the European countries to adopt a common energy policy.

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<sup>1</sup> The members of the European Coal organization were Belgium, Czechoslovakia, Denmark, France, Greece, Luxemburg, The Netherlands, Norway, Turkey, The UK, The US, USSR & Yugoslavia.

In 1967, the Suez Canal crisis somehow motivated the European countries to pursue a common policy . For example, they sought to have a stockpiling for 90 day's consumption in the event of partial interruption of energy imports .Meanwhile, European countries tried to convince oil producing countries that Europe's markets are the most reliable markets in energy area .

1973 oil shock, once again drastically increased the oil prices from \$3 per barrel to \$11.65 which had great impact on Europe, causing high unemployment and recession.

In 1980 and early 1990s Iranian-Iraqi ,Iraqi-Kuwait wars respectively once again proved the vulnerability of European countries seriously strived for replacing other energy sources such as electricity , gas or nuclear energy.

“The period between 1987 and 2006 is marked by the collapse of the Soviet Union, the signing of the energy charter treaty, the adoption of the gas &electricity directives , the establishment of a European energy market and the discussion of the new constitution for Europe , with all their direct and indirect implications for Europe external energy security (Haghighi , 2007:62).

Today it's necessary for the EU to adopt a comprehensive and of course a common energy policy towards Russia; since it's largely dependent on Russia gas imports.

Now, we try to provide some proper definitions on energy security concept .it were first introduced by Copenhagen school in international relation theories .(Buzan, 1998) .This school of thought ,provides new definitions of security and alters the traditional framework of analysis of security .Beside military threats ,scholars of Copenhagen School, present four other threats including environmental ,social, economic political threats .in this theory ,adequate and stable supply of energy for state's economic prosperity is essential .( Terrif,1998:137 ) .However various definitions are presented on energy security . European commission defines it as the ability to secure providing the future basic energy requirements both with proper domestic sources and stable and accessible sources demand. (Bahgat, 2006 :965.)

Energy security depends on these factors :sufficient level of investment in developing sources and production capacity ; creating necessary infrastructures required for meeting increasing demands; and achieving a situation in which the risk of price increasing have been eliminated .

Barry Barton defines energy security as” the conditions in which a state or its citizens have access to energy sources with reasonable prices for a foreseeable future without a serious risk of supply.” (Barton ,Redwell and Others ,2004:11.)

John Gault maintains that “the EU's energy security implies that energy sources should be consistently supplied through workable transportation system .In order to secure energy security, the risk of any crisis in energy supply should be reduced to the minimum .Undoubtedly, energy security, has become an indispensable part of state's sovereignty and national security as well(.Gault, 2002:3.)Energy security exists when there are energy sources large enough to meet the needs of the political community (the energy demands) ,which include all military ,economic and societal activity .Those sources must be able

to deliver such quantities of energy in a reliable and stable manner, and for the foreseeable future .  
 (Raphael and Stokes, 2010:379) .

Facing various challenges in different historical stages in providing energy sources .the EU officials have largely appreciated the fact that energy is a very important factor or perhaps the most crucial one in promoting the EU's competitive power and its present economic status in global economy .The EU's economic growth in recent years and the considerable increase in the EU's total share in global trade and market have highlighted the significance of energy as an important factor for Europeans .The figures released by the EU officials in 2007 indicate that this entity introduced itself as the world's biggest importer and Second exporter (see Figures 1&2.)<sup>2</sup>(Eurostat yearbook, 2010; 469.)

Figure1

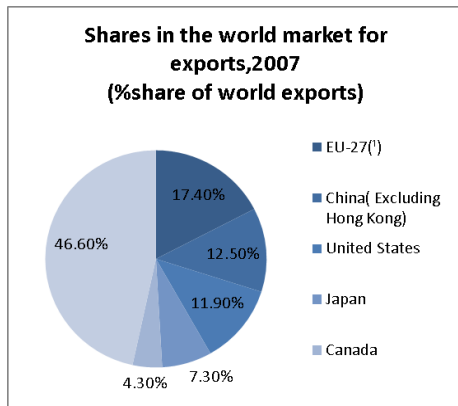
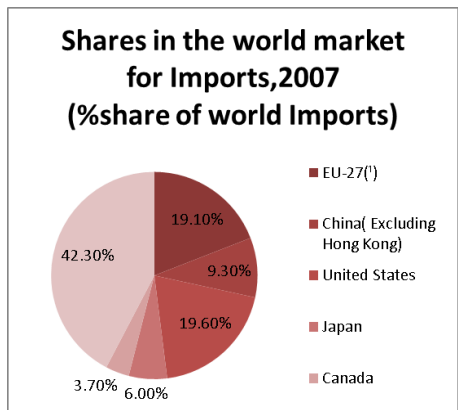


Figure2



<sup>2</sup> <http://epp.eurostat.ec.europa.eu/cache/itY-offpub/ch-9-2010/EN/CH-9-2010-EN.PDF>.

It's also worth noting that unlike what some scholars maintain, the EU enlargement towards East has not significantly contributed to securing energy, thanks to these reasons 1: (these new members (except Bulgaria and Lithuania) do not possess considerable natural resources and ) 2: modernization of new member states' industries has increased energy consumption and the added energy capacity is totally used by these new comers' industries .It could be said that the EU enlargement has increased its share in global economy or in other words its size of economy and at the same time has increased the energy consumption in this union and consequently, it has become more dependent in energy imports . Therefore, one of the biggest challenges EU faces is the way to provide the required energy for such a powerful economic bloc .

### **Challenges :**

Generally, the concerns over energy security, mainly focus on natural gas than crude oil; since the gas transition is based on pipelines therefore, requiring long-term commitments and more cross-border agreements among producing, transit and consuming countries (.Raei, 2008:190.)

The important challenge the EU faces ,is that most of the member states ,are unwilling to hand over their control on energy policies to the EU authority &they often prefer their own national interests in energy security area to the EU concerns (raei,2008:191. )Despite the costs the European states have suffered due to not adopting an integrated and cohesive policy in energy sector, however ,still many are pessimistic about the possibility of coordination among EU member states' policies in this area , at least in near future.

Furthermore, another big challenge before the EU member states is their increasing dependence on Russia energy sources on the one hand, and Russia's instrumental use of energy factor in its relations with the west .on the other hand .it worth noting that the EU imports 40 percent of its natural gas &32 percent of crude oil from Russia( .Information prepared for the EC, 2011:10&12.)

The points that we have mentioned above indicate that the EU is seriously vulnerable before Russia's unstable and unpredictable behavior in energy field for example , Russian –Ukrainian disputed in January 2006 heavily influenced Europe's energy security &put the natural gas issue on the European states' political agenda. it also highlights “ a lack of physical and the poor severe shortages for several days “ (information prepared for the European council ,2011:18.)

Undoubtedly, energy sector will remain the key foundation for EU-Russian cooperation and “this country will remain the key gas supplier to Europe, as some of its major pipeline projects such as North stream and parts of the south stream become operational.” (Antonenko, 2010:116.)

In addition to the fact that still there are considerable differences among old member states in energy area, EU enlargement towards East in 2004 and 2007 respectively has also intensified these differences

and deepened the gap between their approaches towards Russia and the United States (Finon&Locatelli,2008):

Another challenge is the growing energy consumption in Europe which consequently leads to an increase in demand for more energy sources. It is expected that in 2030, the EU will consume more energy than 2000.<sup>3</sup>The following charts give us a useful comparison of EU energy consumption and EU energy production (see Figures 3&4)<sup>4</sup>

Figure3

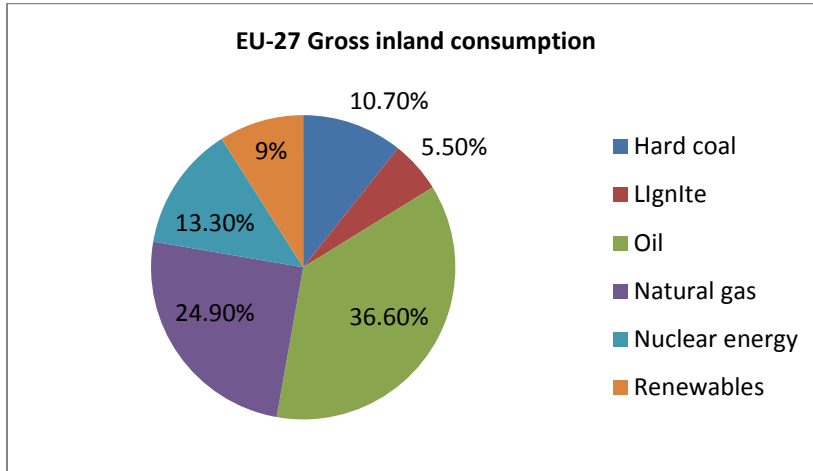
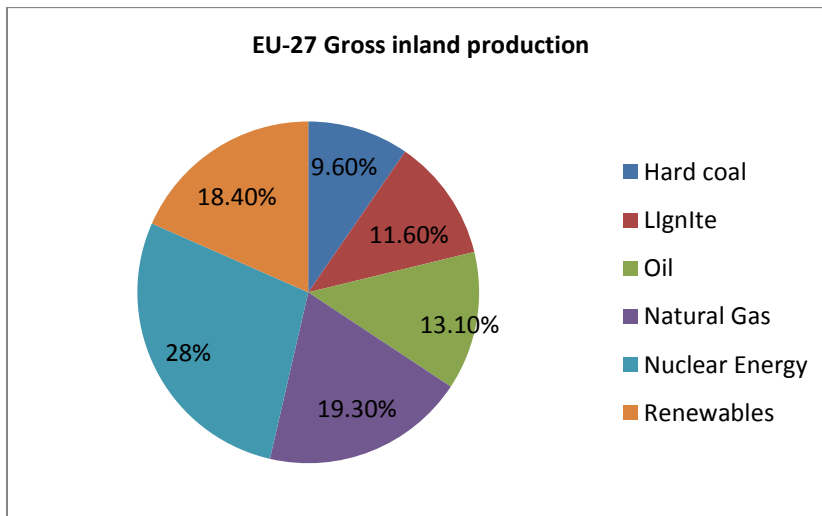


Figure4



<sup>3</sup> [www.ec.europa.eu\(European commission directorate for energy and transport :trends to 2030\)](http://www.ec.europa.eu/EuropeanCommission/directorate-for-energy-and-transport-trends-to-2030)

<sup>4</sup> <http://epp.eurostat.ec.europa.eu/page/portal/energy/data/database>

For instance ,transport and industry sectors consume more than half of the total energy in the EU ,while a quarter of energy is consumed by households (background on energy,2011:5).

Moreover, the EU's growing dependency on fossil fuels occurs in the context in which consuming these fossil fuels in global energy system will rise by 2030, & will make up 90 percent global energy demands.(kiani,2007:1.)

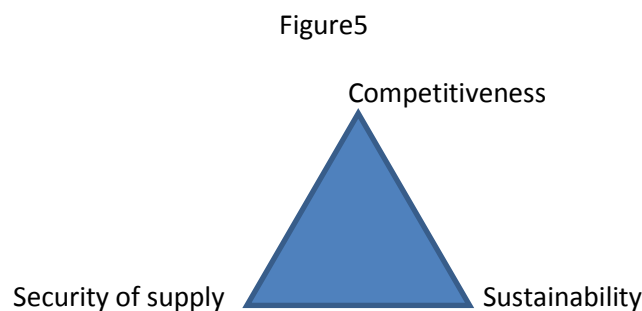
Another challenge is the EU's dependency on a limited energy supplier .Apparently, the EU should diversify its energy sources, however, in this field, it faces serious obstacles for example, and the recent unrest and instability in the Middle East and North Africa prove that this region could not be a reliable energy supplier in the long-term period.

What happened in these countries has dramatically influenced energy markets and increased energy prices Furthermore emerging economic powers especially BRIC countries whose constant economic growth entails an increase in their energy demands could also intensify the competition in global markets for achieving energy sources .

In sum," the challenges the EU faces are rising international prices, rising energy demands from third countries and scarcity of resources geopolitical instability as well." (OETTINGER, 2011:2.)

### **Solutions:**

Having mentioned the challenges the European Union confronts in securing its energy, we will examine the solutions or options by which the entity could overcome these challenges .Our main focus will be on the triangle of competitiveness, security of supply and sustainability as well (see Figure5) (Information prepared for EC,2011:14)



The approaches which could be taken by the EU to secure its energy security and the required energy could be classified as the following levels:

#### **a) Creation of an Integrated energy market**

According to report released by European Commission (February 4<sup>th</sup> 2011 ), the EU is committed to an integrated internal energy market by 2014 (conclusion of energy for EC,2011:1.) It obviously indicates that European authorities have realized the fact that in order to achieve an efficient energy policy for



providing Europe's energy, they have to adopt a common approach towards the main producing and transit countries (oettinger,2011:5)

Establishing a common energy policy would help Europe have more influence on setting the rates of energy carriers in global markets which is considered as a very vital factor in securing Europe's energy security.

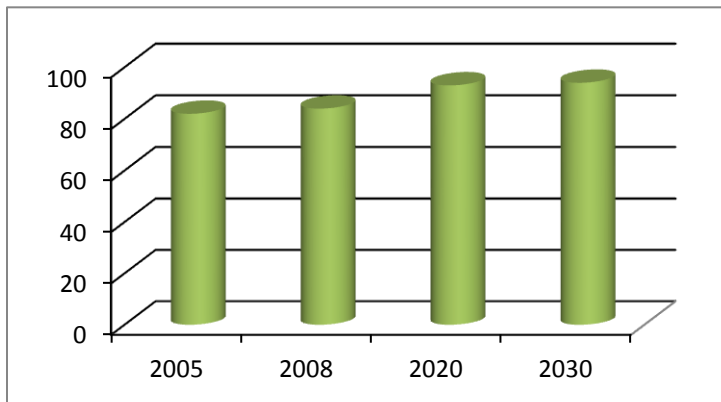
Finally, achieving an integrated internal energy market could carry significant benefits for Europe as a whole such as increase of 0.6-0.8 percent in GDP, creation of more jobs and a fall in inflation rates as well(.prepared information for EC ,2011:17.)

### **b) Diversification of energy mix**

Today, gas and oil imports constitute 2.5 %of the EU's annual GDP, or in the other words, this entity spends around £270 Billion for oil and £40 Billion for gas imports (Barroso, 2011:2)

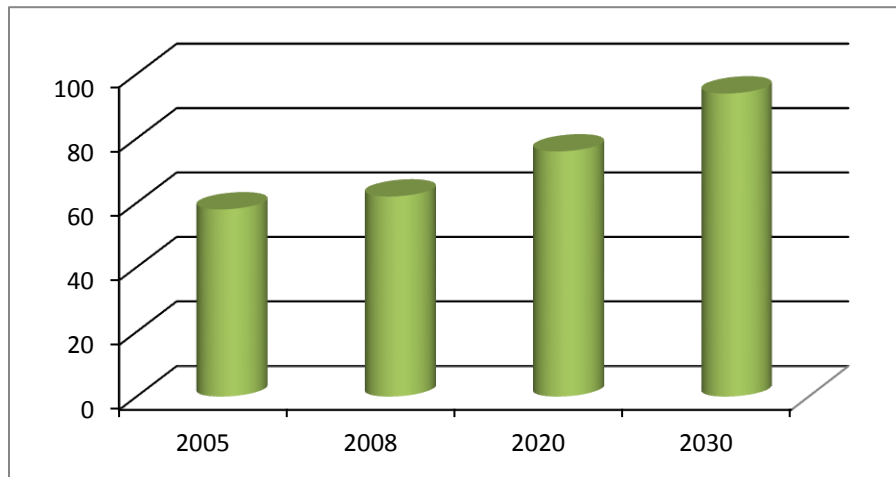
Limited fossil fuel resources, rise in Europe's energy demands and the EU's increasing dependence on gas and oil in upcoming years .(See Figures 6&7) .(Barroso, 2011:4) .Are unpleasant for the EU's officials and could be regarded as serious challenges for energy supply, having realized these challenges ,energy and transport commission decided to plan for diversifying the energy mix and using alternative energies such as renewable and clean energies (wind, water, solar) Biomass and Nuclear energy.

Figure6



Oil Consumption

Figure 7



### Gas Consumption

We also point to the attempts made by the EU to diversify its energy mix .It's of great significance to mention that the entity has been committed to observe environmental standards in its efforts and commitments to reduce the produced carbon and green house emission have imposed some limitations on these plans.

#### B-1) Nuclear Energy

Due to different reasons, nuclear energy has been largely taken into account by European officials <sup>5</sup> The establishment of European Atomic community (Euratom) in 1957 was among the early attempts by Europeans in peaceful use of nuclear energy, expansion of nuclear cooperation and exchange of nuclear knowledge among European countries .This project was carried out with the aim of reducing Europe's dependence on fossil fuels .reduction in the produced carbon (CO) and less environmental damages are other advantages of nuclear energy .According to figures<sup>6</sup> 15 %of the EU's energy consumption and one third of produced electricity are supplied by nuclear energy. However it should be noted that application of this energy source has created some difficulties .maintenance of the health of nuclear power plants workers and prevention of environmental damages caused by possible malfunction of nuclear power

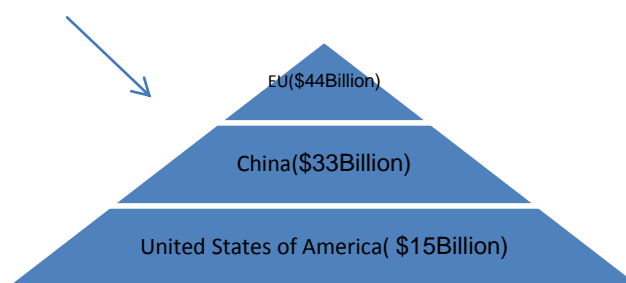
<sup>5</sup> <http://ec.europa.eu/energy/nuclear/index/en.htm>.

<sup>6</sup> <http://ec.europa.eu/energy/nuclear/index/en.htm>.

plants (like what happened in Chernobyl) are among the major obstacles in achieving this type of energy and usually is protested by environmental groups (<http://ec.europa.eu>)<sup>7</sup>.

B-2) Today, renewable energies are largely taken in to consideration due to different reasons such as their non-polluting nature ( EC,2010:7.)Based on 2020 Energy Strategy (20-20-20 plan ) and article 194 envisioned in Lisbon Treaty , the EU is obliged to increase the share of renewable energies in its energy mix to 20 percent by 2020.(EC,2010:4). To attain this goal, the entity has heavily invested in this area and also has the highest amount of investments among leading economic powers.(see Figure8) (Barroso ,2011:9).

(2009 GLOBAL INVESTMENT OF RENEWABLE ENRGIES)Figure8



In 2007, 10 percent of the EU's net energy consumption and 62 percent of produced electricity in 2009 were provided through renewable energies (EC :2010:6.)Thanks to the above mentioned advantages the renewable energies have .They are considered among top priorities of the EU authorities and the entity seeks to provide the two third of its produced electricity through these energies by 2020 (EC:2010:7.)

### **C)Diversification of Energy Markets**

As it was mentioned in the challenges part, one of the challenges the EU confronts in securing its energy supplies is the limited numbers of energy suppliers .the entity provides its energy demands .Europe mainly provides its energy from OPEC members and Russia that due to imbalanced EU-Russian relations and instability in the Middle Eastern and OPEC countries it could pose some threats in security energy security (Information prepared for EC,2011:10.) To deal with these challenges, an effective strategy which is necessary to be developed is seeking new energy markets and regions in order to provide the EU's energy through different markets and resources .Some regions like Africa and central Asia with enormous oil and gas fields are considered as proper options for Europe to provide its energy through various markets and somehow break Russia's monopoly.

By adopting such a strategy, Europe could both secure its energy security and play a more positive and key role in setting the prices of energy carriers.

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<sup>7</sup> <http://ec.europa.eu/energy/nuclear/index/en.htm>.

#### **D) Optimizing Energy Consumption**

Based on 202-202-20s strategy, the EU is obliged to reduce 20 percent of its energy consumption by 2020 (Barroso, 2011:7) . In order to achieve this goal , the entity had better pursue two solutions :a) an approach to reduce energy consumption and ways to optimize energy consumption or increase the energy efficiency which could in turn help reduce energy use .In regard to the first solution, in response to the question” how national governments could help people reduce their energy consumption” 48 percent said that governments could subsidies energy efficient solutions, 25 percent stressed on providing more information on efficient use of energy by governments, while 21 percent stated that stricter efficiency standards for energy consuming equipment should be adopted. (Eurobarometer, 2010:10)

European citizens “opinion on whether or not national governments should support the development of new and clean energy technologies and products” were interesting .31 percent said yes, through tax intensive for energy efficient products or technologies, 31 percent, yes through public funding for such research an 30 percent stated that it should be done with prohibiting use of products and technologies which are not up to energy efficiency standards. (Eurobarometer, 2010:14).

Based on what was mentioned, it could be concluded that optimizing and reducing energy consumption (through modernization of technologies applied in energy infrastructures) could be used as two parallel approaches in addition to diversification of energy mix and energy supplies with the aim of dealing the challenges and providing the EU’s energy demands.

#### **Conclusion and Suggestions:**

What is energy security? What is the relationship between a secure energy supply and economic prosperity? What is the status of energy security in the EU’s economic policies as an economic giant? What are the entity’s challenges in pursuit of its policies? What are the options the EU could take to deal with the challenges it faces in increasing energy security? What have been the impacts of Europe’s recent developments on the EU’s energy policies?

In this essay, we tried to answer these questions .Firstly, we made a brief historical overview over the importance of energy in EU’s cohesive policies .Energy security as a key factor in economic growth has always been taken into consideration by European officials .The success of EU’s economic cohesive policies and consequent dramatic economic growth has highlighted energy security for Europeans .In fact, expansion of EU’s size of economy has increased the entity’s dependence on energy and turned it into the biggest world energy consumer .As the continuation of the EU’s economic requires deepening of EU’s integration, security of energy security without adopting common policies by EU members is impossible.

The EU also faces challenges in providing its energy demands .Huge dependence on fossil fuels ,limited numbers of EU's energy partners and an increase in energy consumption are among the major obstacles the EU faces .

However The European countries ' divergent energy policies in energy sector is considered as the major challenge this entity faces .the EU enlargement towards East has also intensified this problem .

We also examined the solutions and approaches the EU could take to overcome the obstacles it faces in securing energy security and four solutions were explained:

- Creating an integrated energy market within European Union;
- Investments on alternative energies (such as renewable and atomic energies) and biomass;
- Diversification of energy sources ;
- Optimizing of energy consumption

Our findings indicate that in comparison with other economies, the EU needs more energy sources . What is of great importance is what the entity has exercised in securing its energy security is necessary but not sufficient .At the end these approaches are suggested:

- ✚ Holding specialized conferences and seminars with the aim of developing the idea of European common interests' .Indeed, the EU should be capable of defining and explaining common interests and threats in energy sector to persuade individual European countries to adopt common policies and achieve a cohesive energy policy.
- ✚ Paying more attention to Iran as a country which has the world's second largest natural gas reserves after Russia and one of the most influential OPEC members with enormous oil reserves is very crucial .this country could be a reliable partner for supplying EU's energy needs. However, there are some obstacles in this area which could be summarized as: 1) due to security challenges and threats to its territorial integrity, Iran's foreign policy is security oriented than economy oriented .obviously, those states whose priority in foreign policies are focused on economic issues invest far more in this area and try to formulate and regulate their policies based on mutual interests with their foreign partners. As long as Iran's security concerns are not removed, we could not predict a transport outlook in near future especially in energy sector.2) Iran is incapable of modernizing its refinery equipment and cannot absorb foreign investments due to the sanctions imposed by the West .As it was repeatedly mentioned in this essay, the EU suffers from the lack of a common policy in energy sector which in turn creates some ambiguities for energy producing countries including Iran in dealing with Europe By removing this obstacle and taking in to consideration Iran, the entity could secure the flow of energy . Having potential for new significant gas discoveries, producing a small share of gas resources and skilled and cheap manpower are among major advantages of Iran which have been ignored thanks to different problems in recent years.

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