

**EVOLUTION OF THE EUROPEAN UNION'S  
ENERGY POLICY**

**Dissertation Submitted to the Jawaharlal Nehru University  
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**MASTER OF PHILOSOPHY**

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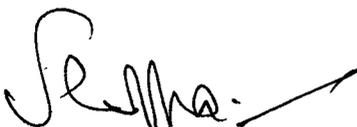
**DECLARATION**

The dissertation entitled, 'EVOLUTION OF THE EUROPEAN UNION'S ENERGY POLICY' submitted for the degree of MASTER OF PHILOSOPHY of Jawaharlal Nehru University is my original work. This dissertation has not been submitted for any other degree of this or any other university.

  
**RUNA ANAND**

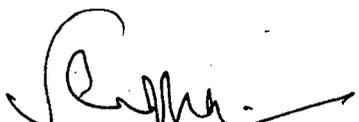
**CERTIFICATE**

We recommend that this dissertation be placed before the examiner for evaluation.

  
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*Dedicated To  
My Parents*

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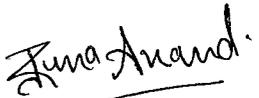
A special word of appreciation is to my brothers Amit Bhaiya, Abhimanyu, Abhijit and my sisters Nidhi, Aruna Didi and Jijaji and my friend Satya and kusum for their full cooperation they extended to me to complete this work. A sweet little thanks to my cutest Hanu.

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New Delhi

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**Energy Policy of European Commission In 1970s**

*Policy adopted by different member countries*

**Energy policy of European Commission in 1980s**

**Energy policy of European Commission in early 1990s**

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*ETAP Programme (1998-2002)*

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*CARNOT Programme (1998-2002)*

*SAVE II Programme (1998-2002)*

*Energy Efficiency Action Plan*

*General Targets for Saving Energy*

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*Provision for Energy Security in Energy Charter*

*Co-decision Procedure: The External Dimension of Trans-*

*European Energy Networks:*

*-The Northern Dimension of European Energy Policy*

*- Euro-Mediterranean Cooperation*

*-Granting of Community Financial Aid in the Field of Trans-European Networks*

*Energy Security and Enlargement*

**Environment**

*Thematic programme: Energy, Including Nuclear Energy, the Environment and Sustainable Development (1998-2002)*

*Intelligent Energy for Europe programme (2003-2006)*

*The Energy Dimension of Climate Change*

*Renewable Energy*

*Environment Policy and Enlargement*

**Nuclear Policy**

*EURATOM*

*EURATOM and Enlargement*

*SURE Programme to Promote Nuclear Safety in the TACIS Countries (1998-2002)*

*Nuclear safety in the Newly Independent States and the Central and Eastern Europe*

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## PREFACE

Energy affects every aspect of our life, it gives us light, heating, and provides us with fuel allowing us to use the transport and various appliances. With 460 million citizens, the EU is one of the largest energy markets in the world. The EU is rapidly moving towards an integrated market, governed by common principles, objectives and product standards. The EU also coordinates certain common activities, such as promoting energy research under its Research and Technological Development policy and supporting the establishment of Trans-European Energy Networks.

Energy landscape in Europe changes continually. The European Union is a key actor on the international energy market as the largest importer and as the second largest consumer in the world. The European Union is, however, dependent on imports for half of its supplies, while this dependence could even reach 70% by the year 2030, under current projections and policy. Originally the Community's energy policy concentrated on only two forms of energy: coal and nuclear power. In the 1970s there was also the need to alleviate the problems which had arisen as a result of the oil crisis. In the 1980s various limited initiatives were undertaken in conjunction with renewable sources of energy and energy efficiency.

Energy policy comprises government measures concerned with the production, transportation and use of energy commodities. Governments may adopt energy policies to meet goals such as economic growth, the distribution of income, industrial diversification and the protection of the environment. Since the large jump in energy prices in the early 1970s, governments around the world have played an increasingly active role in energy policy.

European Union's energy policy should be define in different way because it is somewhere between national and international energy policy. It is a part of general economic policy. It needs to be consistent with other important policies for example fiscal, monetary, trade, social, regional and environmental policies. Energy policy to be

framed in a particular way to meet the energy needs of the Community at minimum cost in real resources over time, while paying due regard to security of supply, public safety, protection of environment. The prime objective of any energy policy is to ensure that total energy demand is matched by total energy supply.

The European Union is facing new energy challenges for which it must have an appropriate energy policy. Security of energy supply and protection of the environment have been high on the agenda of the European Union's policy making in recent years. By a policy one means a combination of a clear vision of future, a coherent set of principals, arrangement of policy instruments adequate to the objectives that are set and the existence of sufficient legitimacy and authority to carry the measures through which they would achieve their proposed goals.

Historically, the states of Europe have regarded energy policy as a domestic prerogative, but today the EU as a multi-state organizational collectivity is engaged in a broad-ranging energy debate aimed at building an integrated approach. Pressure is growing for Europe to speak with a common voice through a competitive internal energy market and a strong external energy policy in order to ensure sustainable development, competitiveness, and security of supply. Europe is heavily dependent on oil and gas from external sources. Fifty per cent of European energy is imported, mainly from Russia, West Asia, Norway, and Algeria. However, new investments in energy infrastructure by the EU and individual member states are laying the groundwork for diversification of energy sources, while European companies are playing a prominent role in the development of future innovative energy technologies.

The EU's energy policy aims at once to address growing environmental concerns associated with the energy sector, such as global climate change, and to transform this growing concern for sustainability into opportunities for global economic and technological leadership. This overarching goal is supported by activities in three main energy policy areas (Utility Deregulation, Energy Security, and Protection of the Environment and Climate). These three areas represent the most significant pillars of EU energy policy.

The following research has been explored in two ways: firstly the evolution of the European Union's energy policy which started with the formation of the ECSC up to eastward enlargement in 2004 and later focuses on three areas, Utility Deregulation, Energy Security, Protection of the Environment and Climate which are vital to the energy policy of the European Union.

The first chapter defines the energy policy in general, its need for any nation, the concept of energy policy its objectives and approaches which plays important roles in European Union's policy making.

The second chapter gives simply the historical development of energy policy up to 1992. It will cover European Commission roles till early 1990s, important treaties, constitutional structure and institutional development inside organization.

The third chapter analyzes European Union's energy policy till early 2004 before enlargement. This section covers three important pillars of common energy policy, which are utility deregulation, energy security and environmental protection also nuclear policy after 1980s and lastly impact of all factors on enlargement.

The final chapter tries to analyze the overall perspective of the EU's energy policy, its problems future challenges and the prospects and make an attempt to come out with some general conclusion.

The study will basically <sup>follow?</sup> deal with the following methodological approach in the analysis of EU's energy policy: Neo-Liberal Institutionalism, Neo-Functionalism, Supranationalism and Intergovernmentalism. The study will rely extensively on both primary and secondary source material. For primary sources the study will chiefly rely on the official publications, documents, press release and official statements of the various institutions of the European Union, especially the European Commission and the European Council. Secondary sources will be derived from literature in the form of books and journals. The internet will also provide valuable sources and reference material.

## List of Abbreviations

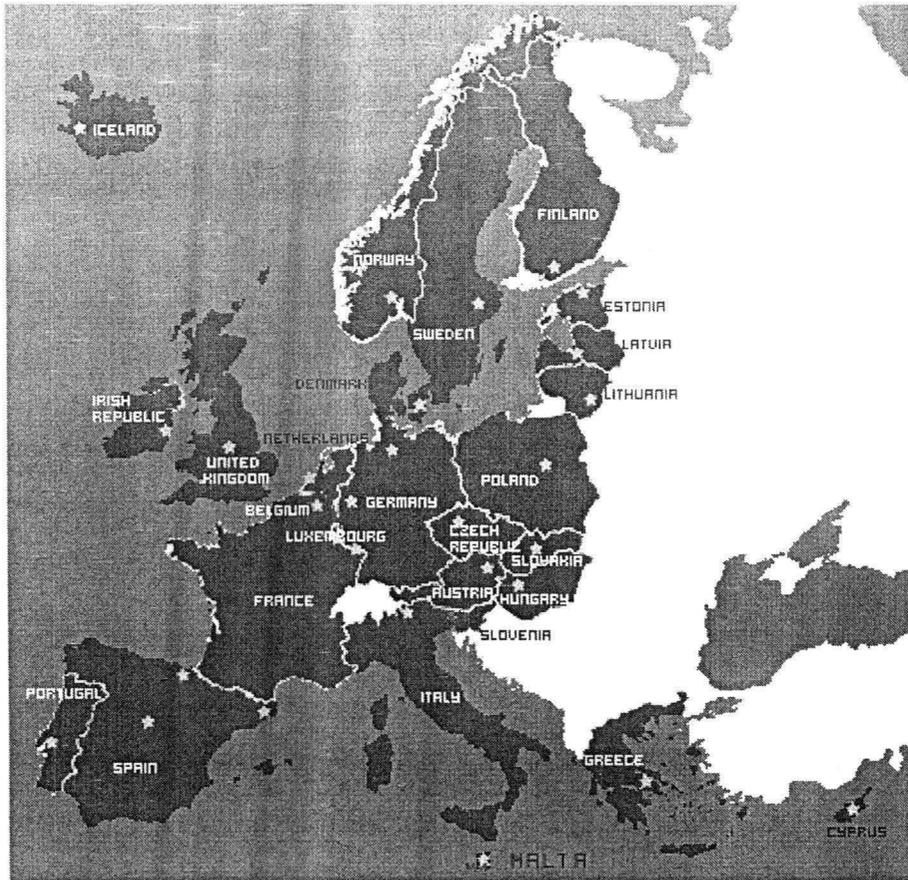
AIJ	Activities Implemented Jointly
AOSIS	The Alliance of Small Island States
BLEU	Belgium-Luxembourg Economic Union
CEE	Central and East European
CEP	Common Energy Policy
CIEP	Clingeandel International Energy Programme
CIS	Commonwealth of Independent States
CHP	Combined Heat and Power
CO <sub>2</sub>	Carbon Dioxide
EBRD	European Bank for Reconstruction and Development
EC	European Community
ECB	European Central Bank
ECE	Economic Commission for Europe
ECITO	European Central Inland Transport Organization
ECJ	European Court of Justice
ECO	European Coal Organization
ECSC	European Coal and Steel Community
EDF	Electricité de France
EEA	European Environmental Agency
EEA	European Economic Area
EEC	European Economic Community
EFTA	European Free Trade Association
EIB	European Investment Fund
EIE	Intelligent Energy for Europe
EIF	European Investment Fund
EMP	Euro-Mediterranean Partnership
ENIS	European Nuclear Installations Safety Group
ENP	European Neighborhood Policy
EP	European Parliament
ETAP	Environmental Technologies Action Plan
ETR	Ecological Tax Reform
EU ETS	European Union Emission Trading System
EURATOM	European Atomic Energy Community
EUROFER	European Confederation of Iron and Steel Industries
EU	European Union
FRG	Federal Republic of Germany
FTA	Free Trade Area
GDP	Gross Domestic Product
GDR	German Democratic Republic
GEF	Global Environment Facility
GHG	Green House Gases

GW	Gigawatta
G7	Group of Seven
G8	Group of Eight
IAEA	International Atomic Energy Agency
IEA	International Energy Agency
IEM	Internal Energy Market
IFNE	Infrastructure for a New Europe
IGC	Intergovernmental Conference
IMF	International Monetary Fund
IMP	Integrated Mediterranean Programme
ISTC	International Centre for Science and Technology
ITER	International Experimental Thermonuclear Reactor
JET	Joint European Torus
JI	Joint Implementation
JRC	Joint Research Centre
LNG	Liquefied Natural Gas
MAGP	Multiannual Guidance Programme
MDGs	Millennium Development Goals
MTCE	Million Metric Tons of Coal Equivalent
MW	Megawatt
NAPs	National Allocation Plans
NATO	North Atlantic Treaty Organization
NIS	Newly Independent States
NRWG	Nuclear Regulators Working Group
OECD	Organization for Economic Cooperation and Development
OEEC	Organization for European Economic Co-Operation
OPEC	Oil Producing Exporting Countries
PHARE	Programme of Community Aid for Central and Eastern European Countries
PRETIR	Project Acronym for Progress of Renewable Energy Target Setting, Implementation and Realization
QMV	Qualified Majority Voting
RAM-G	Regulatory Assistance Management Group
RES	Renewable Energy Sources
RMTC	Russian Methodological and Training Centre
R&D	Research and Development
RD&D	Research, Development and Demonstration
R &TD	Research and Technological Development
SEA	Single European Act
SEM	Single European Market
SIP	Shelter Implementation Plan
SMEs	Small and Medium-Sized Enterprises
SOEC	Statistical Office of the European Communities
SOS	Security of Energy Supplies
TACIS	Technical Assistance for the Commonwealth of the Independent States
TEC	Treaty Establishing the European Community

TEN	Trans-European Networks
TEU	Treaty on European Union
TOE	Tones of Oil Equivalent
TPA	Third-Party Access
TSOG	Technical Support Organization Group
UK	United Kingdom
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNDP	United Nation Development Programme
USA	United States of America
WB	World Bank
WEC	World Energy Conference
WEO	World Energy Organization
WEU	Western European Union

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**Map of the European Union**

**Source: -**

<http://images.google.co.in/imgres?imgurl=http://www.forbrugereuropa.dk/fileadmin/Filer/Forbrugereuropa>

## Introduction

- **UNDERSTANDING ENERGY POLICY**

### **Need of Energy Policy for Any Nation**

*Energy Policy for Energy Security*

*Energy Policy for Environmental Safety*

*Energy Policy for National Development*

### **Types of Energy Resources**

*Fossil Fuel Energy Resources*

*Alternative Sources of Energy*

### **Meaning of Energy Policy**

### **Objectives of Energy Policy**

### **Division of Energy Policy According to its Objectives**

*According to the time period*

*According to resources usage*

*According to the Area Coverage*

### **The Approach to the European Union's Policy Making**

*Intergovernmentalism versus Supranationalism*

*Games and competition*

*Neo-Liberal Institutionalism*

## CHAPTER -1

### UNDERSTANDING ENERGY POLICY

The world today is entering a new energy era requiring global action and cooperation. Concern is growing over the ability to match supply and demand. With present trends, as the global oil consumption is projected to grow by 1.6 percent a year, the world energy demand will increase over 50 percent by 2030, which will be simultaneously true for the European Union (EU). It is revealed in the statement of José Manuel Barroso, President of the European Commission that, and ‘The EU is already the largest importer and second largest consumer of energy in the world. We depend on external sources for 50 percent of our energy needs [and] this could rise to 70 percent by 2030. We have to do something about this, and we have to do it now...The year 2030 may seem a long time away, but it is the day after tomorrow in energy terms’ (*European union (2006): Recent EU developments on energy policy*, <http://europa.eu/rapid/pressReleasesAction>).

Meanwhile, the planet’s climate is getting warmer, portending serious long-term consequences for ecosystems and economies around the world. Energy is not only necessary for national development, but also plays important role in international relations. The physical availability of sources of energy is not enough. The appropriate utilization of energy requires best planning and strategic mechanism especially when this is related with any organization like European Union. The objectives of this chapter is to examine why energy policy is needed for any state or organization; how energy resources play important role in determination of the energy policy; what is the meaning of energy policy; what are the types of energy policy pursued at national and international levels? And finally, what energy policy EU has adopted?

#### I. NEED OF ENERGY POLICY FOR ANY NATION

Energy sources, that is, reservoirs of capacity for doing work is fundamental to a nation’s strength. According to Vasant (1971) energy is manifested in the use of electricity, coal,

oil, and so on, providing the muscle for meeting mankind's goals, whether political or economic. Energy is essential, yet its quantitative contribution to the strength of a nation is, at best unclear. Although energy is a diffused thermodynamic concept, the concept of national strength is ever more diffused. The ability of a state to maintain itself in competition with other states is dependent on a variety of factors. The power equation is not simple and almost every factor that makes any state powerful depends directly or indirectly on energy. Energy is directly related with the economy of a country; its research and developments. It also determines foreign policy of a state. For example, energy importers and energy exporters both determine their foreign policy very differently. Indirectly it is related with national security, military use, living standard of people and overall development of state. The need of energy policy does not ended here because now environmental problem is a major existential challenge to the humanity that is directly related to energy. To be able to respond to this combination of challenges state needs energy policy not only at domestic level but also at international level.

**(i) Energy Policy for Energy Security:** The Institute for National Strategic Studies and the Department of Energy presented a conference in November 1994 on 'Energy and National Security in the Twenty-First Century', Conferees concluded that 'the end of the Cold War, the increasing sophistication and dominance of market forces, environmental concerns, rapidly rising demand for energy in the third world, and other developments have significantly altered the energy security debate as the century winds to a close'(Clawson,1995:3). The collapse of the Soviet Union in 1991 eliminated the Russian threat to world supplies and opened the door for Moscow to become a key supplier of oil to the west. The rich energy resources of the former Soviet Union have attracted international interest and are providing a strong boost to the development of market economies in the region. This change necessitates a fundamental rethinking of the concept of energy security. On the other side market forces have reduced the need for governmental involvement in energy markets world wide but have not eliminated government's role in the energy security debate. Producers and consumers are ever more tightly linked in a global symbiotic relationship that significantly reduces the prospects of serious disruptions to energy markets. Now the government role is indirectly supporting

further evolution of market forces rather than direct intervention in market. The government remains responsible for insuring the free flow of energy resources at reasonable prices because the consequences of a major supply disruption are large and certain. To address these new elements of the energy security debate an appropriate energy policy is required. Phil Sharp, long-time chairman of the House Energy Subcommittee, vigorously argued that the best energy security policy is to have lots of people producing and lots of people distributing. He argued that the central imperative of energy security is having a strong and well developed domestic and international energy market. That would be capable of satisfying the demand of nation in difficult time also, mainly emphasized on role of free market. He suggested it might be 'wiser to learn to love imports' (Clawson, 1995:5).

Backing up Mr. Sharp, former Amoco Vice President John Lyman argued that we were unlikely to accept the large costs to avoid dependent and foreign oil. But, he noted, price spikes such as occurred during the gulf crisis encouraged congressional inquiry 'it is sometimes easier to talk about free markets than it is to see them in operation' (Clawson, 1995:6). Vito Stagiago denied any advantage of energy security through market rather that is tool in government's hand to accomplish its own political interest. He argued that 'energy security is an empty concept used to perpetuate bad, self-serving public policy' (Clawson, 1995:6).

Vito Stagiago's argument cannot be accepted that energy security is an empty concept. Energy is universally useful and after 1960's when oil has become highly significant both strategically and economically, importance of proper policy making by government becomes important. Vasant (1971) rightly called 'oil' as the major currency of the energy business and dominant energy resource. It is not difficult to see that, in an increasingly mobile world; oil is relatively easily transported and is used as a fuel in conjunction with engines and machinery. From the economic view point also, oil is becoming increasingly important as a commodity in world trade. As demands for energy grow in the developed countries, these nations are becoming increasingly less able to satisfy their needs from local supplies. Europe provides an excellent case in point; there

is virtually no hope of ever reconciling oil demands with locally available resources. Instead, Western Europeans must rely on their technical skill and commercial acumen for securing the needed supplies from the oil rich countries. In the present day environment, the strategic character of energy is inseparable from the geography. That energy resources must be discovered, brought from them ground, transported, processed, stored and delivered to an ultimate consumer implies a complex physical network that, even under the best of circumstances, requires an appropriate policy making.

**(ii) Energy Policy for Environmental Safety:** The interaction between energy and the environment would condition energy policy for the next 25 years, but the developed world considers the environment more an issue than does the developing. Clawson (1995) says rapidly rising energy demand in the third world will test market mechanisms in the future and give rising importance to environmental issues. Environment and energy are directly related. All types of environmental pollution more or less happen due to use of energy fuels, and that need proper environment policy at international level. 'The arithmetic contains the paradox that most of the concentrations of greenhouse gases now in the upper atmosphere were put there by the fossil-fuel consumption of what are now the world's developed, industrial and relatively rich countries the signatories to Annex-1 of the un convention on the climate change. If the governments of Annex-1 country seriously want to prevent or at least substantially reduce long-term future climate change, they cannot do it alone. They will need not only to develop polices which reduce their own energy demand and shift it towards low CO2 fuels' (Mitchell, 1996: 185). Therefore now emphasis has been given to the use and development of renewable energy sources than conventional energy resources. As Mr. Mandil emphasized, WEO-2006 reveals that the energy future we are facing today, based on projections of current trends, is dirty, insecure and expensive. But it also shows how new government policies can create an alternative energy future which is clean, clever and competitive – the challenge posed to the IEA by the G8 leaders and IEA ministers.

**(iii) Energy Policy for National Development:** Rather than becoming less significant, energy issues will continue to be central feature of the national development. It includes

economic development, social development, and standard of living as also sustainable development with security of state from other states. Military is another tool of national security and the use of energy into the military equation is as significant as any development in military history. The main use of energy for military purpose has been to provide mobility. 'In the nineteenth century, it was a lucky soldier who had one horsepower at his command...today, several hundred horsepower per soldier is probably more nearly the norm' (Vasant, 1971: 47). All new military application of energy has been challenged by the traditional establishment, this trend has nevertheless, continued strongly toward even more sophisticated use of energy by the military. Where and when this trend toward greater use of energy will stop is very difficult to predict. The magnitude of military demands for energy has become increasingly large as the mobility of military forces has increased.

The importance of energy in economic development is very much more than the modest contribution which the producer supplier industries make to the gross national product or its cost to that economy; serving as a catalyst as well as a fundamental input, it has both a qualitative as well as quantitative role in economic growth...Energy, therefore, is a critically important factor in three major aspects of economic life. Its use is closely related to the nature and the speed of economic development, to geographical variations in the standard of living, and to some key elements in spatial interaction (Manners, 1971: 15-23). Need of 'Energy' is central to sustainable development and poverty reduction efforts. It affects all aspects of development-social, economic, and environmental-including livelihoods, access to water, health, agriculture productivity, population levels, education and gender related issues. UNDP is also supporting the sustainable development through its special programmes Millennium Development Goals (MDGs) mainly for developing and poor countries by helping them in making proper policies related to energy and its use ( *The Renewable Energy Policy Project*, <http://www.crest.org/repp/index.html> )

## II. TYPES OF ENERGY RESOURCES

There is wide agreement that the use of 'conventional' fossil fuels-coal, oil and natural gas must sooner or later be incrementally replaced by 'renewable' (non-conventional, alternative, new energy resources) and 'semi-renewable' energy resources. The problem is that these energy resources, as they exist in nature, are not in a form that is useful for meeting human needs (Pryde, 1983:1-2). It was noted that some societies have made widespread use of 'non-conventional' forms of energy such as wind and biomass for centuries. Actually, most renewable forms of energy have been utilized in one manner or another since ancient times, and almost all underwent their period of technical perfecting and initial commercial application long prior to the current period of energy 'crises' and renewed interest. Pryde (1983) has shown historical development of energy use.

The following table explains that application of renewable energy sources were started around 1200 A.D by using wind mill. Oil well was discovered very late around 1850 and first nuclear electric power station was set up in 1954. Renewable energy sources had become known to mankind, comparatively before oil and nuclear energy, in that case renewable energy sources like wind and solar should be used at large level but it did not happen.

**Table: 1.1 History of Energy Development**

10,000,000 years ago-	human muscle
10,000,00 years ago-	fire (wood)
10,000 years ago-	horse, oxen
2000 B.C	- coal first used by Chinese
100 B.C	- waterwheel(stored solar)
1200 A.D	- wind mill
1750	- steam engine ( trains, boats)
1850	- first petroleum from " oil wells"
1880	- internal combustion engine

1882	-	first electric power station (hydro)
1892	-	first electricity producing wind machine
1905	-	first geothermal electric power station
1954	-	first nuclear electric power station
1968	-	first tidal electric power station
1970s	-	initial commercial use of photovoltaic cells
1980s	-	net energy produced by a fusion device

Source: Pryde, Philip .R (1983), *Non-Conventional Energy Resources*, New York: John Wiley & Sons INC: P-16.

Thus the decreasing reserves of fossil fuels and their increasing cost, the need for energy independence, the concerns over environmental imbalances, and the desirability of a broader mix of energy sources all argue strongly for the development of alternative energy resources. Author like Thielheim (1982) believes that energy sources are not main problem rather political control on these resources make it more problematic. As he says, The encyclopedia's much-discussed resource curse-defined as 'the inverse relationship between high levels of natural resource dependence and growth rates' is not analyzed as a problem of socialism versus capitalism. The problem with oil wealth is not oil but government control of oil.

Commoner and Lovins are very optimistic about renewable energy resources, they believe that renewable energy will replace the conventional energy problems; they mainly gave emphasis on solar energy (commoner, 1979 Lovins, 1979). But realist are not very optimist like idealist about renewable energy resources, they say that alternative and renewable forms of energy will still play a very minor role by the year 2000, and that fission reactors and coal will be the primary sources of energy that we will be relying on for the next several decades and well into the 21<sup>st</sup> century (Stobaugh and Yergin, 1980). The Stobaugh and Yergin (1980) study argues primarily for a balanced mix of energy resources, together with a heavy emphasis on conservation. The Pryde sees that needed

blend of idealism and reality as falling somewhere between the Commoner-Lovins position (the idealist) and the Stobaugh-Yergin position (the realist). That is, non-conventional sources will gain increasing use and acceptance, but their pace will probably be slower than Lovins and Commoner would argue. Pryde (1983) says future technological, environmental, fiscal and international events, of course, will greatly influence how closely the Commoner-Lovins ideals will be able to be reflected in the actual year's energy picture.

Pryde (1983) has divided energy resources on three bases: (1) gravitational (2) nuclear and (3) chemical or electrical. The only practical manifestations of gravitational energy on earth are tidal energy and hydroelectric power. Nuclear energy may be divided into two main categories: fission –the splitting of atoms and fusion-the joining of atoms. Finally, chemical and electrical energy are grouped together because both involved energy associated with the electron structure of molecules. He included 'semi-renewable' with 'renewable' and 'nonrenewable', because some types of energy resources, such as geothermal or fission, would be difficult to place into this type of binary classification. That classification can be seen in following table:

**Table: 1.2 Types of Energy Resources**

Primary (renewable)	Secondary (semi renewable)	Tertiary (non renewable)
Solar related:	Geothermal	Fossil fuels:
Solar	Nuclear fission(uranium)	Coal
Wind	Biogas( depending on	Oil
Biomass(energy farms)	source)	Natural gas
Ocean thermal	Nondepletable	Biotic: peat, wood (without
Stored water(hydropower)	Nuclear fusion(deuterium)	replanting)
Tidal		Gasoline, kerosene etc

Source: Pryde, Philip .R (1983), *Non-Conventional Energy Resources*, New York: John Wiley & Sons INC: P-8.

Vansant (1971) in his work has described division of energy resources that is based on Putnam's theory. As Putnam (1953) in his work *Energy in the Future* chose to place energy sources into two broad categories: 'Capital Sources' and 'Income Sources'. According to him, capital sources are those that have been inherited from nature and that, for practical purposes, are irreplaceable; income sources are those that are continually replaced by natural processes. Petroleum and Coal are capital energy resources. Peat a younger cousin of coal is perhaps on the fringe of capital source definition, borderline Wood is toward the income side. Solar energy, wind power, tidal power, and the like are more nearly true sources of income energy. Another way of expressing the nature of income energy is by using the term 'real-time'. A real time energy resource is one where the energy is both created and consumed on comparable time scales.

Addinal and Ellington (1982) has divided energy resources as fossil fuels (coal, oil and natural gas), their reserves and their potential for future development. And alternative sources of energy (solar, wind, wave, tidal, hydropower and geothermal power). They think that the nuclear energy will be best acceptable energy source in coming time.

#### **(i) Fossil Fuel Energy Resources**

**(a) Coal:** The 90 per cent of the world's coal resources are located in only three countries- the USSR, USA and China. In the period 1950-1979, coal was systematically replaced by oil and natural gas. Oil is easier to transport than coal, occupies less space and yields more energy per tone. For a considerable time, it was also cheaper, since coal was only competitive with oil when it was consumed close to its source.

**(b) Oil:** The deposits that we find and use today were all accumulated over 100 million years ago, and, like coal, they must be regarded as both finite and non renewable. It has been recognized for some years now (since long before the Middle East crisis) that the world's oil resources are being depleted at a rate than cannot be sustained. No very large

oilfields ( i.e. those with recoverable reserves in excess of 5000 million barrels) have been discovered since 1968, and to maintain the present level of production and reserves requires the discovery each year of two 'Alaska' or as much oil as has been found in the UK sector of the north sea in the last ten years. If the world economy is to continue to grow in the long term, oil consumption will have to be reduced and other primary energy resources will gradually have to replace oil. OPEC members are responsible for over 80 per cent of the world's reserves, and any oil scenario is obviously going to be influenced by their future pricing and supply policies

**(c) Natural Gas:** This is the general term given to a mixture of (mainly) hydrocarbon gases found in porous reservoirs in sub-surface rocks. Its origins are uncertain, but are thought to be similar to those of oil. The predominant gas is methane, which usually constitutes over 85 per cent of the total. Associated gas is usually found in conjunction with oil, and non- associated gas is apparently unrelated to oil. In the northern North Sea, for example, oil and natural gas are often found together, whereas in the southern North Sea, oil gas is found. In 1979, the estimated recoverable world reserves of natural gas stood at roughly 100 thousand mtce and world natural gas consumption in that year was roughly two thousand mtce. This implies a lifetime of about 50 years at this rate. Natural gas is in similar position oil that it is a highly versatile energy resource with a strictly limited life. In the short term, natural gas will probably be used to replace expensive oil wherever possible, and world consumption is therefore expected to continue to rise. By the turn of the century, however, production will probably have passed its peak and will be on the decline.

## **(ii) Alternative Sources of Energy**

**(a) Solar energy:** On a global scale, the solar energy that arrives in just two weeks is equivalent to the total energy stored in all the earth's known reserves of coal, oil and natural gas. Solar energy is mainly used for producing heat and biofuels and converting solar energy to electricity. There are, however, two disadvantages of solar energy. Firstly, the sun's energy is diffuse, i.e. it is spread out rather thinly. Secondly, it is intermittent,

since the sun shines only during the day, and, even then, is often obscured by clouds, so that its energy must be stored until needed.

**(b) Wind and the waves:** Wind is used as mechanical energy to drive generators and thus produce electricity. There are some conditions with wind energy also like solar energy wind power levels are in general higher in winter than in summer and higher during the day than at night. Also the greatest potential for wind-generated lies in remote areas, well away from the national grid systems, where it would be very expensive to provide centrally generated electricity. Waves and tidal also used for generate electricity.

**(c) Hydroelectric power;** the basic principle on which they operate is relatively simple. Natural rainfall is collected in a high- level reservoir as it runs off its catchments area and produce electricity.

**(d) Geothermal power;** Use the earth's internal heat to produce steam that can then be used to drive turbines and generate electricity in a conventional manner. Geothermal sources can also be used for space heating and horticulture and even for industry if local outlets are available.

One of the basic challenges involved in the use of energy is that very little energy is available in the form in which we want it. The ideal energy resource would be inexpensive, ubiquitous, renewable, and storable and would not have to be burned.

However, no single form of energy comes even close to meeting all these requirements, and few can be used directly.

### **III. MEANING OF ENERGY POLICY**

'Energy policy is not, and certainly should not be, an attempt reconciliation of the competing claims of various energy supply industries...Equally, it should not be regarded as a way of rationalizing past patterns of energy supply and demand or the present distribution of political power within the energy sector...Of necessity energy policy must be defined in terms of the future, because the decisions governing our present energy situation have already been taken, most of them many years ago'(Forman, 1977: 8).

This argument cannot be fully supported because to determine or examine the future energy policy first past and present energy policies should be judged. Without base superstructure can not be built, therefore after examine only past error and hurdles future energy policy could be predict. Energy policy not only compromises institutions related to policy formation but also industries related to energy, various interest groups, political negotiations at national and international levels because this is two levels game as Robert Putnam has explained it. One appropriate definition of the energy policy can be seen as following:

'Energy policy comprises government measures concerned with the production, transportation and use of energy commodities. Governments may adopt energy policies to meet goals such as economic growth, the distribution of income, industrial diversification and the protection of the Environment. Since the large jump in energy prices in the early 1970s, governments around the world have played an increasingly active role in energy policy'  
(Canadian Energy Policy to 1973, www.canadianencyclopedia.ca). ?

Energy policy not simply compromises a planning to address issues of energy production, distribution and consumption. It becomes important to know the objectives of energy policy; the types of energy policies; Like many other terms in current use, it is more easily defined in terms of what should be excluded from the meaning and what should be included in it, most of them many years ago; and finally the need of common energy policy.

#### IV. OBJECTIVES OF ENERGY POLICY

Dr. Walter Marshall, then chief scientist at the Department of Energy, defined the main objectives of energy policy as being 'to meet the energy needs of the country at minimum cost in real resources over time, while paying due regard to security of supply, public safety, protection of environment and where major change is in prospect, to the social consequences of change' (Forman, 1977:4). He went on to argue that these objectives could be promoted best by,

'making maximum economic use of indigenous energy resources, including-where appropriate-alternative energy sources; by ensuring, through an energy conservation

programme, that energy is used with maximum economic efficiency; and by maintaining a flexible balance between the United Kingdom's main primary fuels currently coal, oil, natural gas and nuclear-avoiding undue reliance on any one of them? (Forman, 1977:4). u.k. ?

Dr. Walter Marshall has defined objectives of energy policy in national context, particularly related with United Kingdom. Other scholars may not agree that energy policy is related with nation only or it can be tackled in isolation with a single objective. | ?  
As Jones (1989) said, energy policy today has to be formulated in an international as well as a national setting. It is a part of general economic policy. It needs to be consistent with other important policies-for example fiscal, monetary, trade, social, regional and environmental policies. In most important countries, the objectives of energy policy include: (Jones, 1989:2)

- to maintain on a secure basis the supplies of energy needed to meet demand;
- to avoid a situation in which energy again becomes a constraint on economic growth as it was in the 1970s and early 1980s;
- to minimize costs of meeting energy needs, taking into account costs to the community as a whole as well as direct costs of supply;
- to minimize adverse environmental results from energy production and use.

Addinal and Ellington (1982:86) have also believed that energy policy could not work in separation. <sup>? isolation ?</sup> In policy formation they can not ignore, from where they import energy for accomplishment of their national energy demand. So, they talk about balance between supply and demand. 'The prime objective of any energy policy is to ensure that total energy demand is matched by total energy supply'. But, this objective can sometimes be difficult to achieve, as it happened during oil crisis.

'The 1974 Middle East oil crisis that upset this idyllic state of affairs was basically economic in its effect since it was not the amount of available oil that changed overnight but rather the price of that oil. The industrialized nations of the west were not able (or willing) to foresee that such a crises was virtually inevitable sooner or later, and, as a result, all energy policies suddenly looked rather frail. This situation does not occur very often, but when it does, it is either a result of extreme demand circumstances or unforeseen operational difficulties or, in some cases, inadequate planning' (Addinal and Ellington, 1982:86-87).

Therefore they talk about proper energy policy. It is, however, not sufficient that total demand supply simply be balanced. Since an adequate energy policy should also aim to provide the required energy 'mix'. This involves analyzing the energy supply situation from both sides. On the one hand, existing and potential sources have to be examined with a view to deciding how future supplies can be guaranteed. This approach must then be reconciled with the opposite approach of trying to identify the future needs of the various energy consuming sectors.

The chief elements intrinsic to an energy policy are: What is the extent of energy self-sufficiency for this nation; Where future energy sources will derive; How future energy will be consumed among sectors; What fraction of the population will be acceptable to endure energy poverty; What are the goals for future energy intensity, ratio of energy consumed to GDP; What is the reliability standard for distribution reliability; What environmental externalities are acceptable and are forecast; What form of "portable energy" is forecast (e.g. sources of fuel for motor vehicles) How will energy efficient hardware (e.g. hybrid vehicles, household appliances) be encouraged How can the national policy drive province, state and municipal functions What specific mechanisms (e.g. taxes, incentives, manufacturing standards) are in place to implement the total policy (Energy Policy, 2004). ?

## V. DIVISION OF ENERGY POLICY ACCORDING TO ITS OBJECTIVES

Energy policy formation is not an isolated work. It compromises many other factors along with it because, this policy accomplish the different agenda of different nations. It can be seen in relation to strengthening the economy of any state and also for substantial development of state therefore, it can be said that it is related to different objectives. For acquiring different goals energy policy has been divided into several objectives. I have divided energy policy for convenience as follows:

**(i) According to the time period**

**a. long-term energy policy**

**b. medium- term energy policy**

**c. short –term energy policy**

**(ii) According to resources usage**

**a. traditional energy policy**

**b. modern energy policy**

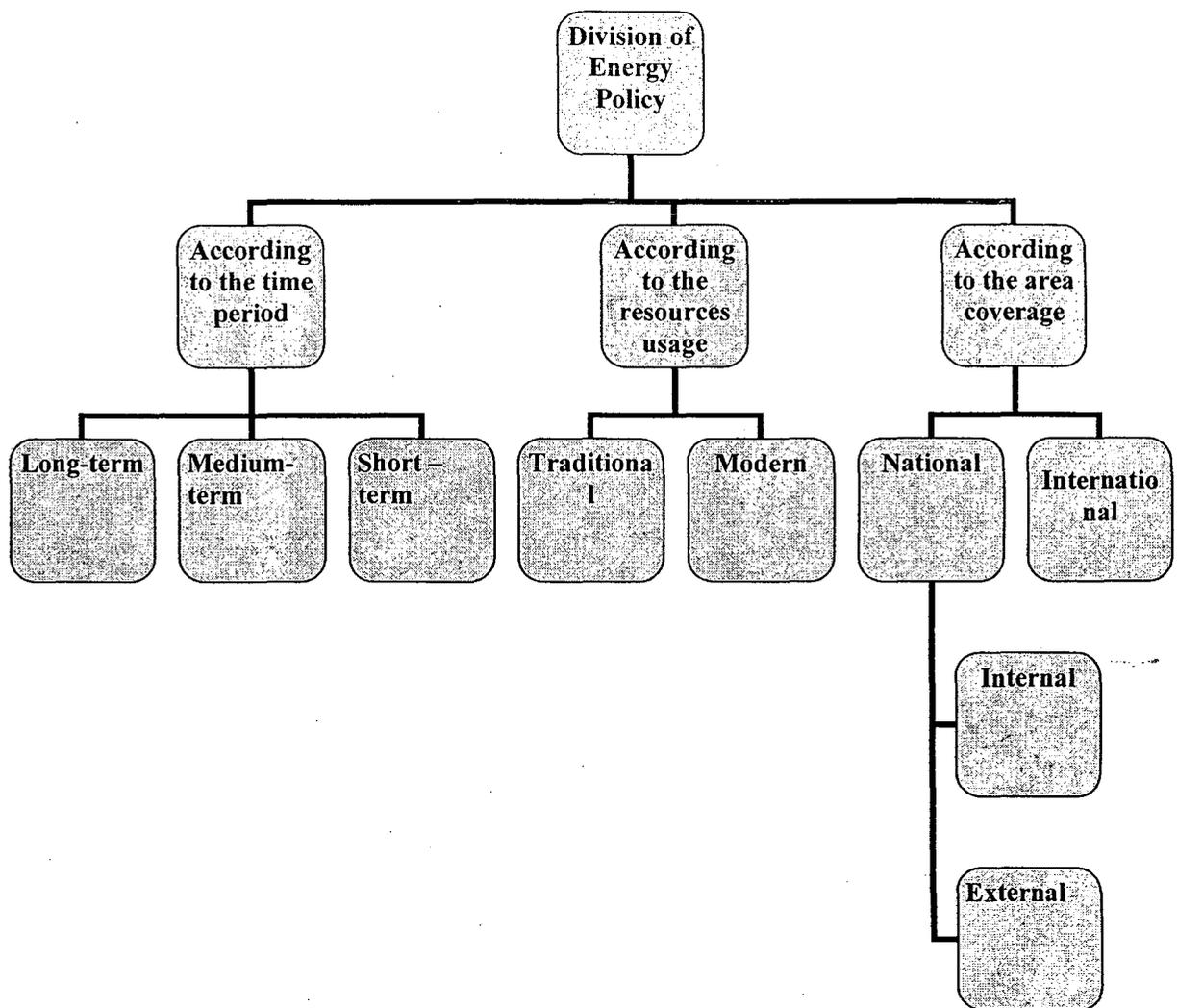
**(iii) According to the area coverage**

**a. national energy policy**

**a-1 internal energy policy**

**a-2 external energy policy**

**b. international energy policy**



**Fig: 1.3 Division of Energy Policy**

**(i) According to the Time Period**

Under this section different policy maker set different goals to achieve in different time period. Short- term objectives, are mainly based on to face sudden crisis in energy world and medium-term objectives, are to recover the loss suffered during sudden crises but long- term objectives, are real objectives that every country want to get, these objectives are related to make one country energy sufficient means they would be able to fulfill the needs of energy of its population.

At international level also the international organizations mainly based on energy policy set their goals for different time period. These objectives are not constant rather it changes according to demand of time, such as during industrial revolution all wanted to develop technologies for efficient use of coal, then they concentrated on oil, then nuclear energy and today energy is directly related to environment, so objective is to develop renewable energies and make world safe. As U.S. Department of Energy Secretary Samuel Bodman said in his speech at Harvard Business School Global Leadership Forum, 'what we have now is a global economy that needs oil to grow. What we need are options to achieve that growth while, at the same time lessening, our dependence on fossil fuels and increasing our use of cleaner, more secure sources of energy. In short, we need to diversify. Doing so will not be cheap and will not be easy. But it is, most certainly, necessary. In fact, everything depends on it, so let's get to it'. The energy problem world is facing today is not occurred suddenly, after 1990s it is increasing very rapidly. Jones (1989) had favored for governments policy to consider some action to ease the long-term objectives. He has discussed five themes particularly related to guarding against medium and long-term uncertainty.

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- **Improving the Working of Energy Markets:** Despite the progress in the 1980s, there are still many ways in which the working of energy markets could be improved. The arrangements for sustaining high-cost coal production in the UK and Germany clearly cannot abolished overnight but they are having some adverse effect on the development in other IEA countries of low-cost coal industries, which can make an important long-term contribution to the security of energy supplies. The situation could be made worse by new barriers to energy trade. For example, the introduction by the USA of a fee on the import of oil would probably need to be accompanied by elaborate arrangements for equalizing the costs it imposed on different oil companies. It would reintroduce into the US oil market rigidities similar to those which made it so difficult for the USA to react quickly to the changing oil environment of the 1970s. It might well be copied by the European community and Japan, leading to similar in these areas. It would mean that the economies of IEA countries would come to depend on high-cost energy in a way which

reduces their competitiveness, particularly with the industrializing countries (Jones 1989:7).

- **Energy Conservation:** It will reduce the environmental consequences of energy production and use in a way which is consistent with energy production. There is undoubtedly substantial scope for promoting investment in efficient energy use on an economic basis. A new IEA study (International Energy Agency, 1987) estimated that there was a potential for reducing energy demand in 2000 by efficiency measures by 25 <sup>2007/</sup> per cent below what it would otherwise. Perhaps 15 per cent of this will be achieved on present impacts, as a result of the actions of all types of consumers. That leaves 10 per cent still to be achieved. There are clear limitations in the energy market which mean that it is unlikely to be achieved, even under relatively high energy prices, without government action. Government action to promote energy conservation can be implemented by instruments which are relatively flexible and easily adapted to changing circumstances. They include: wide-ranging information and education activities; the dissemination of new demonstrated technologies; the development of innovative methods of private financing of energy consumption investments; the systematic pursuit in all public sector activities of efficiency in energy use on an economic basis; and mobilization of all who can contribute to the promotion of conservation- the energy industries (particularly the utilities), the energy conservation industry, local authorities and voluntary groups (Jones, 1989:7-8).

- **Indigenous Energy Production:** In the present situation, it is clearly desirable for governments to adapt, to a new situation of low prices, fiscal regimes for energy production which took, for governments, a large part of the economic rent at a time when prices were high. To a large extent, this has already been done in IEA countries, either by the automatic reduction of the tax regime to the requirements of marginal producers. To do nothing, may mean that indigenous energy resources, which could make a substantial and economic contribution if energy prices rise again, are not developed, thus accelerating any future prices rise. On the other hand, to subsidies development, whether by grants or by special tax concession to the industry, could lead to new herd of white

elephants, like the non- conventional energy projects started in the late 1970s and early 1980s in the USA and Canada. This dilemma is made even more difficult by the fact that to do nothing will increase the likelihood that the resources will be needed- while to subsidies will increase the risk of uneconomic projects. Jones (1989) says that it is one of the energy policy problems which will be best tackled on a case- by-case basis, rather than with general policy measures.

- **Diversification of Energy Supplies:** What ever is done about conservation and indigenous production, policy against uncertainty must include the avoidance of undue dependence on any one source of energy. For all countries, this means securing a pattern of primary fuel use which avoids undue reliance on any one fuel, particularly in electricity generation. For those countries which depend heavily on energy imports, it also means obtaining those imports from a wide variety of sources. Thus Japan has built up a wide range of source of imports: coal from Australia and the USA; natural gas from a number of Pacific Rim countries and the North West shelf project in Australia, and oil from a variety of Middle East sources (Jones, 1989:8)

- **Research, Development and Demonstration:** Research, development and demonstration (RD&D) polices have an important part to play in maintaining long-term ability to meet unexpected developments. It would clearly be wrong, in present circumstances, to launch massive new way- out projects, such as those started in the late 1970s and early 1980s in synthetics and non-conventional oil sources, which subsequently had to be cancelled. But it is important to maintain such RD&D efforts as are necessary to bring technologies which may be needed in the medium and long- term, to a point where they can provide options in line with the changing requirements of energy policy. The more progress that can be made by RD&D in reducing technological uncertainty, the easier is the decision to make a choice between technologies when the time comes. The development of new technologies may be particularly important when long-term demand and supply trends look especially ominous. Given the long-term importance of RD&D, it is a matter for concern that both government and industry expenditure on energy RD&D has been falling. In 1980, IEA governments spent \$ 10

billion (in 1986 US dollars) in this area in 1986 the figure was \$7 billion (Jones, 1989:9). Jones, believes 'there is no simple answer to the problems of energy policy, whether it be to leave everything to the market or to adopt a government plan which sets out clear lines of action for many years to come. Second, it is not possible to eliminate uncertainties expect at unacceptable cost. The role of energy policy is therefore to cope with the uncertainties which affect the energy sector. Third in energy as in other areas of Policy, governments have multiple and sometimes conflicting objectives. A changing balance has to be struck between them. It follows that policy must be kept flexible and must be adjusted from time to time to meet changing circumstances. The policies of today will not necessarily apply tomorrow.

In view of the long lead times involved in increasing the supply of energy, whether through nuclear power or new energy technologies, conservation and rational energy use will have to be given the highest priority in the short and medium term. Without rational use of energy in short and medium term it is very difficult to be energy sufficient in future and with the help of medium and short term energy policy only, it will be possible to bridge the gap between energy supply and demand without serious economic friction. 'Energy prices will be at the centre of such a policy. But this does not exclude additional supportive measures by governments to accelerate market processes and stimulate economic transactions to take special measures. This also involves actions at the international level' (Lantzke and Miller, 1982:8). Any state never move with only one time period objective, actually all are related with each other either they move parallel or complement each other. This is a step by step process in which various factors are also involved. International decisions related to energy give impact on nations and national policies influences international decision.

Evans (1978) is against this general background that the particular national energy policies neither have to be drawn up, neither paying too much attention to the short-term pressures nor aver estimating the inevitability of certain long-term trends but balancing out the various forces at work and reconciling technical feasibility with political imperatives.

(ii) **According to the Use of Resources:** this section will deal with objectives of energy policy that is based on use of resources those are traditional and modern. Forman (1977) has described the traditional habit of energy policy making has been to assume that the energy which the country will need at any future time can be equated with the total of energy demand forecast for that time. However, this method of proceeding deliberately avoids a number of vital prior questions, such as whether the total forecast energy demand is susceptible to government influence or whether its component parts should be allowed to develop or decline simply in response to market forces. Since conscious decisions not to interfere with future patterns of energy demand can be just as significant and far-reaching as any likely decisions to do so, it is clear that the government of the day cannot avoid taking a view on future energy demand, in both aggregate and disaggregated form, and that it has a duty to act in the light of that view. Stelzer (1989) has discussed the characteristics of traditional energy policy formation.

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- **Lack of Faith in Markets:** Traditional policy makers cannot be relied upon market mechanism as the ultimate determination of who shall use what fuels, where, in what quantities, and at what cost. This belief has two bases. First, many in government do not feel that the current distribution of goods and services in proportion to that (unfairly distributed) income, via the price system, is also unfair. (so here doubt is related with fairness of the income-distribution system that underlies use of price as an allocative tool, that one of the leading powers energy policy...). Such antipathy to the market mechanism as an allocative tool has a second basis: the politician's fear that overtly higher prices for energy will result in his being outset. They preferred tax- financed subsidies to visibly higher prices (Stelzer, 1989:20).

- **The Sumptuary Mentality:** The second major element reflected in the traditional energy policy is somewhat more difficult to describe. 'The motives for these sumptuary laws varied: among them were the feelings that luxury and extravagance were in them wicked and harmful to the morals of the people and the endeavor to encourage home industries and to discourage the buying of foreign goods'. President Carter once told his country man that '...too many of us now tend to worship self-indulgence and

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consumption, piling up material goods cannot fill the emptiness of lives which have no confidence or purpose.' This was entirely consistent with his view that energy policy is the 'moral equivalent of war', to be won by establishing a new conservation 'ethic' (Stelzer, 1989:48).

- **Anti-Risk Attitude:** The third general element underlying specific energy policy proposals is the creation of an atmosphere that forces private enterprise to cede the field to government. This is accomplished by fostering an attitude that is anti-risk. It seem to be attempting the risk-free society, one in which motivation is subordinate to safety, progress to risk aversion. So to the two underlying forces identified as justifying government intervention-lack of confidence in the price system and a feeling that there is something evil about 'excessive' acquisition of material things- add another basic element: the desire for a risk -free society, a desire promoting the private sector to leave more and more of its ordinary activities to government (Stelzer, 1989:47).

- **National Security and Autarky:** A final basis for most energy policy proposals is that national security requires 'energy independence', or autarky. As David Henderson (1986: 43) put it in his 1985 Reith Lecture that often though not always, the case for self-sufficiency is argued with reference to a country's need to ensure security by minimizing dependence on foreign sources. The outside world is seen at best as unreliable and subject to instability, at worst as actively hostile.' Stelzer (1989:48) has given the incident about, President Nixon launching 'project independence' in 1973, told Americans, 'let us set as our national goal...that by the end of this decade we will have developed the potential to meet our own energy needs without depending on any foreign sources'. Given the fact that the fundamental basis of past energy policies was to conceal costs-to prevent from revealing to consumers the cost of incremental consumption decisions, it is little wonder that energy policy contributed to excessive consumption and periodic shortages, and then that source of energy. And if worse comes to worst and the market system fails to correct errors rapidly enough, so that there are local shortages, price fluctuations enable consumers to adjust gradually to the new situation and also prompt the increased flow of supplies to the region that is short. In modern way of energy

policy give emphasis on market rather than government total control on energy resources. No doubt today governments are coming forth for regional cooperation in energy sector as in Europe. Nevertheless governments want to keep their control on energy they do not believe totally on free market policy.

**(iii) According to the Area Coverage:** Energy policy according to area it covers, can be divided in two parts first, national that can seen internally and externally and second, international.

**(a) National Energy Policy:** A national energy policy is comprised by set of measures involving that country's laws, treaties and agency directives. The energy policy of a sovereign nation may include following measures: national policy regarding energy generation, transmission and usage; legislation on commercial energy activities i.e. trading, transport, storage, etc; legislation affecting energy use, such as efficiency standards, emission standards; instructions for state owned energy sector assets and organizations; active participation in, co-ordination of and incentives for mineral fuels exploration and other energy-related fiscal policies related to energy products and services i.e. taxes, exemptions, subsidies. The dominant issue of energy policy is to get rid of energy crisis, the risk of supply and demand. Current energy policies also address environmental issues. Some governments state explicit energy policy, but, declared or not, each government practices some type of energy policy. There are a number of elements that are naturally contained in a national energy policy, regardless of which of the above measures was used to arrive at the resultant policy.

Some of scholars believe that developed and strong economy is very important to cure energy crisis easily than other factors. 'Energy self-sufficiency need not be the paramount goal of a country can adjust to dependence on foreign sources of energy. Energy self sufficiency is beneficial only if other conditions are in place to make an economy flourish' (Marcus, 1992:74). This can be seen in case of Japan and France, they made substantial progress in decreasing their dependence on Middle East oil after 1973 crisis, Great Britain also after discoveries of oil in the North Sea became virtually independent of foreign oil, and however, it invested capital to develop the energy sector

and boosted its declining economy. Moreover, Great Britain had troubled managing its energy industries. The Thatcher government's privatization program was only partially successful. Japan's adjustment consisted of many elements. It developed interests in countries and companies in the Middle East and elsewhere that had energy production capabilities. It charged up its export sector to help pay for higher energy bills. It stepped up conservation efforts and diversified the types of energy used, including the development of nuclear power. France adjusted to the post-1973 situation by stressing nuclear power and conservation. On a per capita basis, France became the world's leader in nuclear power production (Marcus, 1992:74).

Energy policy is an issue related with not only national level but also global level and it requires lots of political negotiations but it can not be ignored that with economic, social and other factors also plays very important role. Energy policy has also qualitatively and quantitatively effect on nation. 'The discussion of such revolutionary energy developments without considering their economic and societal ramification is at best politically naïve, and at worst leads nations into societal crises... when it suddenly became an issue of great political importance- as happened with energy after 1973. Furthermore, the dramatic change in energy development, the very reason for energy's prominence as a political issue, also implied changes in the values of key variables that had remained stable for a long time in the past and which, therefore, had been assumed to be constant. People can honestly differ in the evaluative of the probability of change and what this change is likely to be, qualitatively and quantitatively' (Baumgartner and Midttum, 1987:5)

**-Energy Policy inside the State:** Even within a state it is proper to talk about energy policies in plural. Influential entities, such as municipal or regional governments and energy industries, will each exercise policy. Policy measures available to these entities are lesser in sovereignty, but may be equally important to national measures. In fact, there are certain activities vital to energy policy which realistically cannot be administered at the national level, such as monitoring energy conservation practices in the process of building construction, which is normally controlled by state-regional and

*incomplete reference*

municipal building codes (Energy Policy 2004, [http://en.wikipedia.org/wiki/Energy\\_policy](http://en.wikipedia.org/wiki/Energy_policy)). As recently in Pakistan a gas pipeline was blown up by militants near Quetta. A Balochistan official blamed tribal militants, who are fighting for a greater share of the Province's rich minerals wealth, for the blast (The Hindu, New Delhi, 11 February 2007: P-12).

Political factors in national energy policies some time creates the complexities. Political involvement in the energy industries- through regulations, stimulation and protection, and direct participation with contradictory policies come to be pursued within the same country and economy. 'In Britain, for example, the coal industry is protected from oil on the one hand, but its markets in the long run are threatened by the development of a nuclear power technology which is heavily underwritten by government funds. The coal industry, the gas and the electricity industries are nationalized and are responsible ultimately to parliament through the minister of power; the oil industry, in contrast, remains within the private sector. Government policies in many fields- fields such as taxation, imports, land use, clean air legislation, and distribution of industry policies- affect the several fuel industries' (Manners, 1964:186). Not only in Britain but in many other countries also energy industries face same problems. John F. Kennedy, as senator from Massachusetts, has argued that, 'the time has come to put some common sense and consistency into the way this country handles its vital fuel supplies' (Manners, 1964:187). Any attempt which might be reconciling contradictory public policies in the energy sector will have to be as mindful of these interests as it is of the criteria for a rational policy.

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The legitimate bases upon which a national energy policy can be formulated is best related to long term policy criteria only. Other aspects of energy policy, such as short run problems or the efficiency of fuel utilization, are not considered which follows. An energy policy should seek to remove any inconsistencies that exist within an already existing pattern of government action affecting the energy industries. The exploitation of fossil fuels involves the use of non-renewable natural resources, and it is by maximizing their long -term utility that the best interests of a country will be served. For consumers

are essentially interested in short term gains and tend to neglect the importance of the developing world is an extreme example of this situation. With the longer term goals of conservation by, at the very least, preventing, if possible, the sheer waste of natural resources. It is, of course, easier said than done. Nevertheless, these objectives should be the corner stone of a national energy policy.

A more controversial criterion in the formulation of an energy policy arises to what extent should a country allow itself to become dependent upon foreign sources of energy? McClesky (1960) notes that, the degree to which different western European countries in the late 1950s depended upon foreign sources of energy ranged from 100% in the case of Luxemburg to 9% in the case of West Germany. Military and strategic arguments have been used, but military reasons for a high level of national self-sufficiency in energy supplies carry only a limited conviction.

There is, however, an economic argument which can be employed to justify a degree of national self-sufficiency in energy supplies. It is related to the balance of payments and it has been touched upon earlier<sup>? where?</sup>. It is sometimes reasoned that energy imports must be limited to ensure the availability of foreign exchange for those needs of an economy which can only be imported or which are relatively more expensive to import. The strength of the reasoning clearly depends upon the economic circumstances facing individual countries. For some developing countries the argument carries much weight, and there are occasion in developed countries, particularly at times of economic dislocation (for example, in Western Europe after world war second), when it also holds. But for the developed economies generally the argument is less tenable, since the cost of energy represents such a small part of the total value added in the production of most goods, and the foreign exchange earning from the export of manufactures produced with imported energy more than cover its delivered costs.

If an energy policy is going to place some importance upon consumer choice as a means of indicating the relative efficiency of different supplies, then a further criterion must be to ensure that the costs of the several energy industries are reflected reasonably

in their prices. It is their marginal costs; other times it is average costs. Sometimes a price is determined by the value of energy in the market (Manners, 1964:190).

The final criterion for a national energy policy concerns not so much the final objectives of a policy, but rather the means of achieving it changing economies, shifting demands and new techniques mean that energy geography is in a constant state of transformation. This can lead to localized economic dislocation and social distress in the energy industries: unemployment on the coalfields of Western Europe is a good case in point. As a result, strong case exists for ameliorating such situations, not by supporting a 'dying' industry or region indefinitely, but by instituting policies which are designed to limit the speed of change and so minimize the degree of social upheaval during the period of adjustment.

A national energy policy, therefore must seek to remove the conflicts within, and the inconsistencies of, existing governmental policies towards the energy industries. It must seek to provide the necessary political reconciliation between the extravagances of the market and the needs of conservation. It must weigh the validity of strategic and economic arguments for the restriction of energy imports. It must monitor the relationship between energy costs and prices. It must seek to ameliorate localized social distress resulting from change in the energy economy. And it must operate from a base of existing energy industries and vested interests.

So government plays important role at national and international level. Inside state he handles the internal pressure with appropriate allocation of energy resources. And outside state tries to negotiate for reasonable prices. There are many other roles has assigned to them as to make the markets work better, rather than to circumvent them. 'The first step, of course, is to see to it that energy prices provide consumers with the right signals as to how much to consume. Recent talk of producer- consumer 'cooperation' to establish 'reasonable' price for oil are based on fanciful notions'(Stelzer, 1989:44). 'Thus the meaning of energy policy must also compared a fair minded attempt by government to influence future levels and categories of energy demand, whether by

the issue of information, the use of exhortation, the introduction of incentives and taxation, or the imposition of physical controls affecting either the production or the use of energy' (Forman, 1977:8).

**(b) International Energy Policy:** International energy policy includes, a) international energy sector treaties and alliances; b) general international trade agreements; c) special relations with energy-rich countries, including military presence and domination. National energy planners generally try to underestimate the degree of interdependence of the world energy economy which persists despite the strenuous effort and ambitions of government programmes designed to create regional, if not national, energy self-sufficiency among the major industrial powers. Any change in world energy market more or less influences every country. After the crisis in the world energy market and the world economy generally in 1973-74, with its multiple and continuing ramifications for industrialized and non-industrialized countries alike, public awareness of the gravity of the situation has receded. In 1977 the former US Secretary of State, Dr. Henry Kissinger, could warn without any hint of exaggeration that, 'failure to solve international energy problems could bring about the destruction of the current world order. Aside from the more obvious and immediate possibilities that at any time the huge cash surplus of the oil-producing countries is capable of being developed to disrupt the world monetary and financial system, or that a deepening recession among the industrial countries at least particularly derived from the energy crisis may be aggravated by a renewal of national autarky'. Douglas Evan has tried to give reason behind interdependence of world energy (Evans, 1978:1).

The **first** and most striking feature about the global energy picture is the extraordinary rapid postwar growth in overall consumption. 'In 1950 world energy demand amounted to 2600 million metric tons of coal equivalent (hereafter called mtce) comprised of 1600 million tons of coal, 700 million mtce of oil, 260 million mtce of natural gas and 40 million mtce of hydro power, by 1972 total world energy consumption had soared to 7600 million mtce, of which nearly half, that is 3350 million mtce, was accounted for by oil. The expectation in late-1973 was that world energy consumption

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would each around 16000million mtce by 1985 at the most conservative estimate' (Evans, 1978:29-30). The dramatic increases in world consumption can be broadly accounted for by both spread of industrialism and an increased rate of per capita consumption as part of growth of a technological sophisticated form of industrialism. There has been a manifest growth in total world population also affected energy consumption because that was related with low energy areas.

The **second**, no less striking, feature of world energy consumption was that, by 1970, the industrialized world obtained 94 per cent of its total energy requirements from fossil fuels. This pattern, which followed the lead of the united states (which had long relied upon coal, oil and gas), was in stark contrast to the non-industrialized countries, representing 70 per cent of the world population, who remained heavily reliant on traditional 'local' energy sources such as work animal feed, fuel wood, wind power and direct waterpower (Evans, 1978:30).

The **third** was published findings of the ninth World Energy Conference (WEC), held in Detroit in 1974; cast an interesting light on the precise breakdown of recoverable reserves as between solid fuels and other sources of energy. This included the surprising result to some that around half of world recoverable reserves are in the form of solid fuel. This only underlines the fact that coal represents by far the largest share of fossil energy *or labeled* in the world. They include Japan with three years, France with five years and Israel with four years. It confirms the general vulnerability and urgency of energy policy to each of these three highly industrialized nations (Evans, 1978:31-32).

A **fourth** and final general feature of world energy is its heterogeneity, meaning that among the various categories of energy each has its distinctive usefulness in especial spheres, a factor which needs incorporating into future energy demands, the newer – alternative energy resources, which include, solar, geothermal, hydro and tidal energy – represent the heterogeneity of energy sources in the long term. The impact of the alternative energy sources before the end of this century is not likely to be substantial for a variety of discernible reasons. Generally speaking they have three main shortcomings:

first, they provide only low grade heat; second they demand as yet an inordinately high level of capital investment; and third, they are frequently located some distance from the ultimate centers of consumption, greatly increasing the storage and transmission costs (Evans, 1978:32). *repealed*

An interesting definition of energy policy has been adopted by John Mitchell (1996). He says 'Energy Policy is a Taxi'. Energy Policy, in today's term, is therefore generally a vehicle which can carry a variety of other policies, but it is a useful vehicle, it matters that it has a competent driver, who knows how to get to the destination the passenger wants, that the cost is shown clearly on the meter, and that the brakes and steering work. In this sense a good energy policy is like a London taxi. Who shares the ride? The energy – geopolitical links are very diverse each subject involves a slightly different group of actors and exposure to different sets of non-energy policies like, a multitude of forums for the Middle East, each with a different focus. The most important- the peace process has no close energy implications. For the Iraqi sanctions the forum is the security council- far removed from energy specifics; for European-Russian issues, there is no political forum in which to put energy along side the wider issues, one success-the energy charter treaty had a political rather than an energy origin, but has yet to be proved operational; for the complex of nuclear questions, the existing international forums and mechanisms are focused on the problems of connections with weapons and not with the question of international cooperation over the civil future of nuclear energy etc. In the 'taxi' metaphor, competing drivers and passengers benefit from a framework which reduces the risks of incompetence and the costs of bargaining. For international relations the consequence of complexity is that there is no single forum or process (below the UN Security Council) in which all the energy-related issues could be brought together. Coordination within administrations and between countries with similar interests is essential to achieve results (Mitchell, 1996: 190). *2*

In the 'new geopolitics', energy is generally a vehicle for wider policies- foreign and security policies on the supply side and in climate change, other environmental objectives on the demand side. These policies operate in and around markets and the

largely a cut-price job

private sector. The analysis showed cases where 'geopolitics' wider than energy would determine or at least shape energy developments. There are also reverse possibilities cooperation to achieve and share the benefits of certain major energy 'projects', defined in the widest senses, could contribute to wider cooperation and put constraints on the development of conflicts (Mitchell, 1996: 191).

The criteria on which any energy policy is based are basically the same today as they have always been in the past. Apart from meeting the total demand with the correct mix of energy sources, a satisfactory policy should not involve too great a capital investment, should not result in large-scale unemployment and should not be based on obsolete technology (or on science fiction). In addition, it should be flexible, so that national changes in energy usage and international changes in circumstances can be accommodated. In short, the overall policy should make economic and social sense, and should leave the door open for the emergence of new technologies and new energy options. The ability of any energy policy to cope with change, either internally or externally initiated, is, in practice, very limited (Addinal and Ellington, 1982:87-90).

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## VI. THE APPROACH TO THE EUROPEAN UNION'S POLICY MAKING

Policy making is a complex issue. Even in democracies, where systems of governments are institutionalized and generally predictable, it is not always clear how agendas are developed, who makes policy, why some options are adopted and others ignored, and whether the policies pursued have worked or not. And when, policy making is related with organization like EU, than it becomes more complex. Actually it is very difficult to conceptualize what kind of organization EU is. 'It is, always in constant transition, a highly complex, multi-faceted system; it embodies both supranational and intergovernmental features. Rather it is 'sui generis'-the only one of its kind' (Nugent, 1989: 465). With the European Union, the public policy process adopts a new level of complexity. Not only are the policymaking structure and principles of the EU very different from those found in conventional state systems, but the EU is still evolving, the balance of power among EU institutions and member states is constantly changing, and

the forces at work in the policy making are replete with such adjectives as complex, unique, inefficient, unpredictable, unstable, distinctive, arcane, and fragmented. Wallace and Wallace (2000) talk about the “intellectual maze” that faces the student of EU policy-making and Richardson (1997) concludes that the complexity of the EU policy process demands the use of multiple concepts from multiple models.

According to Zeff and Pirro (2001) understanding the EU policy process would be easier if the EU had a formal constitution: a single, permanent, codified document that could function as a blueprint for the powers and responsibilities of the “government” of the EU. Instead, debates among the governments of the member state, struggles for influence among the major EU institutions, new laws adopted by the EU, and decisions reached by the European Court of Justice decide policies in European Union. 1997

The brief summary of the policy cycle in the EU goes through, the European Council, the European Commission, the Court of Justice and the European Parliament and the Council of Ministers. McCormick (2001) says that the pressures on the policy process are those that are informal and unstructured rather than that are formal and structured. He illustrates ‘Compromise and bargaining’ as the one of the important approach because the balance of power is still not clearly defined, and where the “government” is effectively a coalition of the representatives of 25 member states. The compromises are driven by the competing needs not just of national governments, but of local governments within the member states, of local, national and trans-European interest groups, and of regional disparities that make the needs of poorer states such as Ireland, Portugal, and Greece different from those of wealthier states such as Germany, Denmark, and the Netherlands. He also added ‘Subsidiary’ at the core of the character of the EU, its precise meaning and implications are open to debate. An attempt was made in the Maastricht treaty to define the powers of the EU by focusing on subsidiary and insisting that EU should act only if ‘the objectives of the proposed action cannot be sufficiently achieved by the member states and can therefore, by reason of the scale or effects of proposed action, be better achieved by the community by Article 5’ (McCormick, 2001:14). However, there is no longer agreement about what kinds of

actions are better undertaken at one level or the other, and no formal agreement about how responsibilities should be shared among the member states and the EU institutions. McCormick (2001) made an attempt to list the balance of policy responsibilities, but the balance is constantly changing, both within and among policy areas.

Table 1.4 shows that there are three types of policies: **first**, only EU decides about that policy like trade, agriculture, environment etc; **second**, states have full command over that policies like foreign policy, education and defense, etc; but **third**, category is shared one to which EU and states both try to influence it and ‘Energy Policy’ comes under that list. In other words shared policy shows interdependence of EU and member states on each other also. Whenever, issue of interdependence between state and EU comes we cannot ignore most important approach of ‘intergovernmentalism’ and ‘supranationalism’.

**Table: 1.4 Balances of Policy Interests between the EU and the Member States**

European Union	Shared	Member States
Trade policy	Transportation	Foreign policy
Agriculture	Development cooperation	Defense policy
Fisheries	Monetary policy	Education
Competition	Employment culture Regional	Policing
Environment	policy	Criminal justice
Immigration	<b><u>Energy</u></b>	Tax policy
Consumer policy	Rural development	Citizenship
Cross border crime	Vocational training	Health care
European culture	Small & medium Enterprises	Postal services
Cross border banking	Information networks	
Working conditions	Export promotion	
EU's transport		

network		
Custom issues		

Source: McCormick, John (2001), Policy Performance in European Union in Zeff, E. Eleanor and Ellen B. Pirro (ed.) (2001), *The European Union and the Member States: Cooperation, Coordination and Compromise*, London: Lynne Rienner Publishers: P-15.

**(i) Intergovernmentalism versus Supranationalism:** Nugent (1989) has defined 'Intergovernmentalism' as arrangements whereby nation states, in situations and conditions they can control, cooperate with one another on matters of common interest. The existence of control, which allows all participating states to decide the extent and nature of this cooperation, means that national sovereignty is not directly undermined. Anderson and Eliassen (1993) also believe that until the beginning of the 1990s the EU system of policy-making was mainly studied from the three perspectives one of them is the 'intergovernmentalism'. This perspective has been revitalizing in the 1990s, particular through the work of Moravcsik (1993, 1995, and 1998). In most of the major areas of public policy and decisions are still mainly taken at the national level. Virtually all major decisions on the general direction and policy priorities of the EU are taken in the European council: that is, in the forum containing the most senior national representatives. The Commission and the European Parliament, the two most obvious 'supranational political rivals' to the European council and the Council of Ministers in that their responsibility is to look to the EU as a whole rather than to specific national interests, are restricted in their decision-making powers and cannot impose policies that the representatives of the member states do not want.

Supranational approach involves states working with one another in a manner that does not allow them to retain complete control over developments. That is, state working with one another in a manner that does not allow them to retain complete control over developments. That is states may be obliged to do things against their preferences and their will because they do not have the power to stop decisions. 'Supranationalism thus takes inter-state relations beyond cooperation into integration, and involves some loss of

national sovereignty' (Nugent, 1989: 475). Defining the terms of the supranational characteristics of the EU, the Commission does much to frame the EU policy agenda. Indeed, in quantitative terms most EU legislation is issued in the name of the Commission. In the Council of Ministers, Qualified Majority Voting (QMV) is now common. This is partly a result of changing norms and expectations, and partly a result of the treaty reform that have brought about extensions of the policy spheres in which QMV is permissible. The European parliament may not enjoy the constitutional status and authority of national parliaments, but its influence over EU decision-making is enhanced by the co-decision procedure created by the Maastricht Treaty and extended by the Amsterdam and Nice Treaties, and by a range of other powers it has acquired –including the right to confirm the appointment of new commission president and colleges. Both 'Intergovernmentalism' and 'Supranationalism' are thus important features of the functioning and nature of the EU. As Pollack has put it in analyzing the role of the Commission in terms of principal-agent relationships, 'supranational autonomy and influence...is not a simple binary matter of "obedient servants" or "runway Eurocracies", but rather varies along a continuum between the two points"(Pollack, 1998: 218).

Other concept is usually identified with 'Neo-Functionalism' is an institutional approach emphasizing functional relationships, where political processes have a role to play too. The idea of political spillover is partly in line with a pluralist perspective on the role of interest groups, but it also emphasizes the role of supranational institutions and in particular the Commission. This perspective experienced a temporary revival in the late 1980s and early 1990s (Keohane and Hoffmann 1991, Taylor 1996). Anderson and Eliassen (1993) have focused on a formal legal-political-administrative perspective that is mainly empirically descriptive. It is perspective whose exponents sometimes go into great detail about the relationship between the EU legal-administrative system and the various national systems.

**(ii) Games and competition:** Peter (2001) has given three sets of interconnected 'games' being played out in the EU: a national game among member states, which are trying to extract as much as possible from the EU while giving up as little as possible ; a game

played out among EU institutions, which are trying to win more power relative to each other; and a bureaucratic game in which the directorates-general in the Commission are developing their own organizational cultures and competing for policy space. The institutions and the member state have different definition of the European interest, and they often sacrifice that interest on the sake of their own more narrow political and economic goals.

Matlary (1997) thinks member governments are probably the most decisive actors in European and EU energy policy, since this is a new area where the EU institutions enjoy no formal competence. She uses a model that is often referred to as Putnam's 'two-level games'. In that Putnam (1988) argues that a government is able to 'play games' at both the domestic and at the international (here EU) level once it has gained access to the latter arena. For example, if government is finding it difficult to gain acceptance for an unpopular policy at home, it may invoke international commitments such as binding eu rules. Likewise at the international level it may argue that domestic constraints make it unable to fulfill an international obligation. it follows from this that a government that enjoys autonomy in particular issues are, here energy, can play games at both levels, whereas one that is severely constrained by domestic interest groups cannot do easily, although it can invoke international commitments to save off domestic policy battles. According to Putnam (1988) a government is a gate-keeper between the domestic and the international levels. Here we must assume that the government is able to distinguish clearly between domestic and EU policy – making, and that information and policy activity takes place at both levels. Indeed the attraction of Putnam's model lies in its suggestion that this mechanism explains why governments accept EU-level policy making and have been signed away political power to the EU in the treaties. She demonstrated some drawbacks in Putnam's framework that does not address the role of non-state actors at the international level. The ECJ, the Commission and the EP are not assumed to be actors in the way that governments are.

Even McCormick (2001) has also expressed almost similar views under term of 'Democratic Deficit'. In democracy policymakers are directly or even indirectly

accountable to voters this is not true for EU. While it is true that most legislative and policy proposals are subject to lengthy debates involving many interested parties, the average citizen has little input into the process of adoption, and key meetings both within the commission and the Council of Ministers are closed to the public. 'While public opinion has played an increasingly important role in EU policy making with the growth of lobbying, direct elections to parliament, the creation of the European Ombudsman, and the Commission's effort to promote transparency, the result is that policy making in the EU remains largely and elitist, top-down phenomenon' ( McCormick, 2001:15-16).

**(iii) Neo-Liberal Institutionalism:** The study of policy making is related with new method of research that comes under 'Liberal Institutionalism' or 'Neo-Liberal Institutionalism'. 'This is new approach that present challenge to realist and neo-realist thinking. The roots of this version of neo-liberalism are found in the functional integration scholarship of the 1940s and the 1950s and regional integration studies of the 1960s, when European Nations planned to set an institution under the title of European Commission. These studies suggest that the way towards peace and prosperity is to have independent states pool their resources and even surrender some of their sovereignty to create integrated Communities to promote economic and growth or respond to regional problems, the European Union is one such institution that began as regional Community for encouraging multilateral cooperation in the production of Coal and Steel' (Baylis and Smith, 2005: 212-213). Keohane and Nye (1977) say that the third generation of liberal institutional scholarship was the transnational and complex interdependence of the 1970s. Theorists in this camp presented argument that suggests the world had become more pluralistic in terms of actors involved in international interactions and that these actors had become more dependent on each other.

The core assumptions of neo-liberal institutionalisms include: states are key actors in international relations, but not the only significant actors. States are rational or instrumental actors, always seeking to maximize their interests in all issue-areas through cooperation. So states are less concerned with gains or advantages achieved by other states in cooperation arrangements. But the greatest obstacle to successful cooperation is

non-compliance or cheating by states. Cooperation is never without problems, but states would shift loyalty and resources to institutions if these are seen as mutually beneficial and if they provide states with increasing opportunities to secure their international interests. Policy making encourages more cooperation at local, national, and international levels. Neo-liberal is focusing their research on issue of institutions associated with managing the process of Policy making.

From the foregoing discussion we gather that the energy policy has become an essential requirement for any state or organization today. The policy related to energy deals mainly with the question of energy security, environment related issues and national interest that includes economy of that state with its goal of social upliftment, sustainable development and advancement in research and technology. Exploitation of energy resources has changed with time, realization of energy sources started with use of muscle power while today renewable energy sources are being used. Moreover, many technologically advanced states have been making efforts to substitute fossil fuels like coal, oil, wood and natural gas with renewable energy sources like solar energy, winds and wave's energy, biofuels, etc. So energy policy is mainly related with energy production, consumption and distribution. Energy policy's main objective is to make a balance between energy supply according to demand. These objectives are based on various standards like the time period for which policy is required, availability of resources and the expanse of the area it would have to cover. European Union's energy policy possesses very specific characteristics that are similar in nature of its organization. Mitchell's definition of energy policy as 'taxi' can be considered here as appropriate synonyms, which carry many other policies. However, this taxi of the European is very different from what Mitchell has said, because it carries with it not only national energy policy but also international energy policy and many other unique factors. Policy making is not an easy task. It is influenced by many factors when it is related with European Union. The understanding of the energy policy of the European Union has been dominated various approaches among whom, intergovernmentalism and supranationalism have occupied the most dominating position. Though the present study will emphasize all important approaches, the main focus will be on the way to find out which of the two -

intergovernmentalism and supranationalism - is emerging as the most dominating policy approach in the evolution of energy policy making . In the next chapter attention would be given to clarify and analyze the nature of the European Union's energy policy, the it has developed through different stages, and what policy has been adopted in crisis period, etc. In sum the European Union's energy policy stands somewhere between national and international energy dimensions of this organization.

## CHAPTER- 2

40-66

- **EUROPEAN UNION'S ENERGY POLICY TILL 1992**

- Energy Policy of European Commission In 1950s**

- European Coal and Steel Community (ECSC)*

- The Constitutional Structure and Institutions of European Coal and Steel Community*

- The Constitutional Structure and Institutions of European Atomic Energy Community*

- Energy Policy of European Commission In 1960s**

- Energy Policy of European Commission In 1970s**

- Policy adopted by different member countries*

- Energy policy of European Commission in 1980s**

- Energy policy of European Commission in early 1990s**

## CHAPTER- 2

### EUROPEAN UNION'S ENERGY POLICY TILL 1992

This chapter deals with the European Commission's (EC) role in energy policy making. The main area of study will include important treaties; specific policy is adopted by EC in field of energy and conflict between national interest and Commission's interest. This section is simply giving historical background of policy development since 1950 till early 1990. Various authors have divided time-period of the evolution of energy policy based on different characteristics as mentioned below. In this chapter for convenience, the stages of energy policy evolution is discussed with reference to a ten year time period. 'The EC attached great importance to the energy sector is demonstrated by the fact that two of the three treaties on which the EC is based are especially concerned with energy' (El-Agraa, 2001:295).

N. J.D. Lucas (1977) has discussed the historical development of energy policy formation in EC in following way first; from the end of the war to the mid-1950s. Under this he discussed how the World War II demolished the established framework of energy supply in Europe. Then focused on initial efforts made by European countries before establishment of European communities: European Coal Organization (ECO), then European Central Inland Transport Organization (ECITO), an institution much like the ECO, also Economic Commission for Europe (ECE) and Organization for European Economic Co-Operation (OEEC). He explained Schuman plan and establishment of ECSC in detail with institutional development. His work emphasized 1956 war in West Asia and closure of the Suez Canal. Second, is a time of vision (1950-1967) where he touched mainly upon EURATOM and efforts of Jean Monnet's behind that important treaty, and how France had served its specific nuclear interest through EURATOM treaty. Third, a time of perseverance (1968-1973) deal with different industries and related policies like-coal, oil, natural gas, nuclear and electricity. **Finally** about the late 1970s he dealt with oil crisis, with Community efforts parallel to international efforts to solve that problem. How new member's entry like that of Britain was not successful in

adjustment with EC policy and its institutional parts, rather it tried to pursue its own interest.

Ali, M. El- Agraa (2001) division of time period is almost similar to that of Lucas (1977). His **first**, part is Policy efforts (1951-1973) that cover overall the same time period as Lucas analysis. However, idea is similar in both the analyses as to how Commission tried to develop an energy policy of any sort, but got only limited success. Governments largely rejected the Committee's attempts to gain access to energy policy; instead, they exercised benign neglect towards the energy sector. This inertia on energy policy reflected the largely untroubled energy markets of the period. However, when there was concern over supply in the 1950s and 1960s (such as in the wake of the Suez crisis), governments were keen to retain their autonomy. **Second**, Energy crisis, 1973-1986- the reaction to the 1973-74 oil crisis confirmed the change in orientation of energy policy proposals away from markets and towards security. New emphasis was given to security of supply to keep balance with global energy markets. Important role played by International Energy Agency (IEA), how it superseded EC's efforts to solve the oil crisis. 'New Strategy' was adopted, new objectives were set up regarding reduction of oil imports, the development of domestic energy capabilities (notably nuclear power) and the rational use of energy. **Finally**, the new energy policy agenda: competition and the environment in late 1980s to late 1990s, the new agenda rests on two broader objectives: the creation of a competition-oriented single energy market and the pursuit of environmental protection.

Lastly, Andersen (2001) explained the driving force behind the EU's energy policy. His chapter focuses on the interrelationship between attempts to create a common EU energy policy, on the one hand, and the institutional development of the EU (and its predecessors), on the other hand. We can distinguish four stages in the development of EU energy policy as follows. In the **first**, from 1946-57 energy supply was a major problem facing the (then) six members (of the ECSC). Energy was mostly indigenous coal supplies. Energy co-operation filled wider economic and political co-operation. In the **second** period, from 1957-72, energy was not regarded as an issue of great concern.

Cheap imported oil replaced coal, and although this was a period of marked advances in European co-operation, this was not reflected in the energy sector. In the **third** period, from 1972-85, energy re-entered the EU agenda and this time as a problem of oil prices and supplies. Common policies largely failed. The **last** stage, from the late 1980s to the late 1990s represents a revitalization of attempts to introduce a common EU policy.

In the foregoing discussion of literature scholars have divided time-period almost in similar ways like after Second World War till 1973 that marked the Commission efforts in energy policy making and conflict between Commission and national interest. In the second phase since 1973 till 1980, the main focus was on oil crisis and commission is failure to solve that problem. Finally, since late 1980s till early 1990s the Commission set up new objectives for energy policy related with energy security, the creation of a competition-oriented single energy market and the pursuit of environmental protection. In other words it can be said that from early 1990s Commission and member states became really conscious to make European Union's energy policy stronger.

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## **I. ENERGY POLICY OF EUROPEAN COMMISSION IN 1950s**

There are some authors like Bideleux and Taylor (1996), who believe that European integration was to be a means of uniting Christian Europe against the 'threat' of Communism and the Soviet 'menace' and of binding Western Europe more closely to the U.S.A and NATO. This can be believed as one of the reasons of the establishment of European Commission. (The most important was the destruction of established framework of energy supply in Europe during Second World War.) Before the war 90 per cent of primary energy came from coal; the war disrupted production and distribution. The traditional structure of exports from the coal producing countries, like Germany, Poland and the United Kingdom, collapsed (Lucas, 1977:1). 'In Belgium and the Netherlands between 30 and 40 per cent of production survived, 70 percent in France and only 85 per cent even in the United Kingdom'(Lucas, 1977: 2). Before the establishment of European Commission (EC) some organizations were established to deal with energy related problems, as after the war an *ad hoc* intergovernmental institution known as the European Coal Organization (ECO) was formed, for allocating coal as fairly as possible among

competing needs. By May 1947 the total production of coal in the states of the ECO had doubled in two years and in parts of Western Germany had almost tripled. Nevertheless, despite this statistical success, coal remained scarce and the harsh winter of 1946/47 caused terrible hardship on the continent of Europe (Lucas, 1977:2). In May 1947 the tasks of the ECO and the European Central Inland Transport Organization (ECITO) were taken over by a new regional Commission of the Economic and Social Council of the United Nations- the Economic Commission for Europe (ECE). A year later, in May 1948, the Organization for European Economic Co-operation (OEEC) was established (Lucas, 1977, 3). By 1950 the German economy had revived to such an extent that the allies could no longer plausibly expect to exert control over the German coal and steel industries through the international Ruhr authority (Lucas, 1977, 3).

During the establishment of the European Commission all member states had it self-interest of joining it, mainly France and Germany were prominent among them. It has been emphasized that the creation of the European Coal and Steel Community (ECSC) represented a desire to satisfy French national interests by ensuring the continued economic recovery of France. For instance, Germany was keen to participate in the ECSC because it provided a means of rehabilitation (Blair 2006, Lucas 1977). While the smaller nation of Belgium, Luxembourg and the Netherlands realized that they could not economically afford to distance themselves from the markets of France and Germany

#### **(i) European Coal and Steel Community (ECSC)**

The 1951 Treaty of Paris creating the European Coal and Steel Community (ECSC) and the 1957 Treaty of Rome establishing EURATOM were devoted to the coal and nuclear sectors (El-Agraa, 1980). The 1951 ECSC treaty reflected the dominance of coal in the energy balance of member states, as well as its role in the steel industry; by tackling coal, most EC energy supply and demand issues were addressed. The 1957 EURATOM treaty sought to foster co-operation in the development of civil nuclear power, then perceived as the main source of future energy requirements. The creation of the ECSC in 1952 had been influenced by the efforts of Jean Monnet and Robert Schuman (Lucas 1977, Dinam 2000, and Blair 2006). On 9 May 1950 the Schuman plan had argued the need for

Franco-German coal and steel production to be placed under one common authority. The fear of the erosion of sovereignty proved to be a recurring theme in U.K. policy towards European integration. As a result, the U.K. did not participate in the negotiations which commenced in June 1950 to discuss the implications of the Schuman plan (Dinam 2000). On other side, Germany was very hopeful about this initiative. Heinrich Von Brentano, who was soon to become the then West Germany's foreign minister (1955-61), declared:

'We are not signing the Schuman plan because it improves our economic and political position, but because we regard the basic idea of close co-operation between all European States as a good one. At the same time we welcome it in the economic and political interest of Germany' (Bideleux and Taylor, 1996:8).

In 1951, the ECSC was signed by Belgium, France, Germany, Italy, Luxembourg and the Netherlands. The ECSC introduced a common free steel and coal market, with freely set market prices, and without import or export duties or subsidies.

## **(ii) The Constitutional Structure and Institutions of European Coal and Steel Community**

Energy policy in the EU has a firm legal basis: *coal* is covered by the European Coal and Steel Community (ECSC) treaty, particularly Article 3 (general objectives) and Articles 57-64 (production and prices) (Dinam, 2000:163). Article 2 of the ECSC Treaty states that the European Coal and Steel Community shall have as its task to contribute, in harmony with the general economy of the Member States and through the establishment of a Common Market which will enhance economic expansion, growth of employment and a rising standard of living in the Member States (*About the EU Origins and Developments the Treaties*, [http://www.eu2007.de/en/About\\_the\\_EU/Origins\\_and\\_Development/The\\_treaties.html](http://www.eu2007.de/en/About_the_EU/Origins_and_Development/The_treaties.html)).

The supranational design of the ECSC meant that it was distinct from previous initiative to foster European integration institution such as the Council of Europe. The four institutions that governed the ECSC were a High Authority (subsequently the European Commission), Council of Ministers, Court of Justice and Common Assembly.

The ECSC was significant because it was the first attempt to integrate European states into a structure that was distinct from intergovernmental cooperation (Lucas 1977, Bideleux and Taylor 1996, Blair 2006). 'The decision-making powers on the coal and steel industries in these countries were transferred to an independent supranational body, the High authority' (Dinam, 2000:181). Other important part of ECSC was its Consultative Committee that used to advise the Commission on ECSC-related initiatives and proposals i.e. energy policy, external trade agreements, and so on. The Committee meets about six times a year.

'In the notion that supranational control of heavy industry could prevent further world wars were a suggestion that it had caused them in the first place' (Dinam, 2000:180). The ECSC also developed a European scrap policy that, provided for a strategic reserve that limited hoarding, smoothed out the price cycle, Break-throughs also occurred in harmonizing taxes. By the mid-1950s West Germany had become the engine of Europe's economic development (Lucas 1977). Its best years were during the boom of 1955-1957. At the time of the treaty both the cost of mining coal and the price at which it was sold differed widely between the six countries. Maximum prices for coal were therefore fixed to avoid prices hardening. The mechanism was to fix in the principal coal fields:

- an upper limit on price for each type of coal, being a weighted average of prices of the various grades;
- a ceiling for each type of coal above which no grade could be sold;
- a ceiling price for certain grades, most importantly blast furnace coke.

The chief problem, evidently, was to calculate the average and ceiling prices. A system of compensation was introduced to help the Belgian and Italian coal mining industries to adapt progressively to the new conditions. High Authority reviewed its price-fixing scheme in March 1954; it launched an attack on all coal cartels in Germany, Belgium and France. Eventually, during 1955-56, the High Authority gave up price control in the Ruhr.

By 1950 the first large European oil refineries were in operation, at Fawley Pernis in the Netherlands and Marseilles (Lucas, 1977). The closure of the Suez Canal after the

1956 war created unfortunate condition for European communities, (Lucas 1977, El-Agraa 2001) for the coal industry the total demand for energy increased still faster and the industry simply could not keep pace; oil was imported to make up the deficiency, with no immediate ill effect on the coal industry. But 1957 was a turning point. Until 1957 oil had been as a supplementary fuel, thereafter perceptions changed.

### **(iii) The Constitutional Structure and Institutions of European Atomic Energy Community**

Jean Monnet had realized the importance of nuclear energy in 1950s as it reveals in his statement, 'The United States of Europe, means a federal power linked to the peaceful exploitation of atomic energy'(Lucas,1977:11). The European Atomic Energy Community (EURATOM) came into existence simultaneously with the European Economic Community on January 1, 1958. Moreover, the treaties establishing both Communities were signed together in Rome on March 25, 1957. Jean Monnet first proposed an organization, along the lines of the successful European Coal and Steel Community (ECSC), to promote the peaceful use of atomic energy; Monnet knew that coal was rapidly losing its position as the basis of industrial power and, by extension, military might. Atomic energy had already revolutionized strategic doctrine and seemed posed to replace coal and oil as the main energy source of the future. Other ECSC member states disliked the EURATOM idea, not least because they distrusted French motives (Europa year book, 2005:227).

Nuclear energy is covered by the European Atomic Energy Community (EURATOM) treaty, in particular Articles 40-76 (investment, joint undertakings, and supplies) and Articles 92-100 (the nuclear common market); and *overall energy policy and energy policy in other fields* are covered by the European Economic Community (EEC) treaty, particularly Article 103(4) (supply difficulties) and Article 235 are implicit also in the Single European Act (SEA) (Dinam, 2000:163). France was anxious about the possibility of Germany possessing nuclear weapons and also acting as a means of reducing the dependence of Western Europe's energy requirements on the Middle East.

As a result it was agreed at the 1955 Messina Conference to examine the possibility of creating a Custom Union and an Atomic Energy Community. These proposals were investigated by the Spaak Committee and resulted in the Treaties of Rome. The EURATOM was based on the same institutional structures as the European Coal and Steel Community (ECSC), with there being a Commission, a Council of Ministers, a Court of Justice and an Assembly. During its time of existence the EURATOM, Commission had three presidents: Louis Armand (1958-59), Etienne Hirsch (1959-62) and Pierre Chatenet (1962-67). The EURATOM Commission consisted of five representatives, with one each from Belgium, France, Germany, Italy and the Netherlands because Luxembourg was not a member of the commission (Blair 2006, Europa year book 2005).

The formation of the EC could be described as a kind of 'insurance policy' taken out by six countries (Bideleux and Taylor 1996). The European Coal and Steel Community served better the interests of the French steel industry than those of the West German mines. The same applies to EURATOM, which was set up predominantly for the purpose of financing the French nuclear programme (Zaborowski 2006, Bideleux and Taylor 1996). EURATOM was conceived to ensure there was enough energy to form a stable basis for economic growth and also to allow for the development of a European nuclear sector. Again the plan was that integration in the energy field would lead to further political integration, creating the conditions necessary for the development of a powerful nuclear industry which will provide extensive energy resources. For that again Monnet was instrumental in this endeavor. At the time of the creation of EURATOM, also in 1957, the importance that oil would assume in the industrialized world was not yet fully appreciated (Matlary, 1997). In Messina Conference stress was given on putting atomic industry in common and creating a general common market. Spaak Report proposed to establish in EURATOM a common organization which would not only promote the formation and rapid growth of the nuclear industry but which would help with the transition of the whole economy from coal to a nuclear base. The functions of the organization would be:

- research, development, and dissemination of knowledge;

- to establish common standards of safety in nuclear affairs;
- to facilitate investment;
- to promote security in supply of nuclear fuel and ensure equality of access;
- to assure a common market in all related materials, equipment and personnel.

Spaak report only focused on nuclear energy and related area and failed to address issues related with general common market. The Hartley Report had great merit; it clearly foresaw the transition from a self-sufficient or energy exporting region to a region heavily dependent on imports, and it correctly described the problem that this would bring, including the strategic dependence. It was also commendably skeptical about nuclear energy, but in common with most other contemporary works the study failed to predict the astonishing penetration of European markets by petroleum (Lucas, 1977).

In end of 1950s although EC failed to do something concrete in the advancement of energy policy, one thing positively happened was EURATOM treaty. As it was mentioned above EURATOM Treaty was strongly backed up by France because they had their technical expectations from EURATOM they were (Lucas, 1977:26)

- to obtain information about nuclear technology development of other countries;
- to obtain access to fuel;
- Germany would supply finance, an industrial base, nuclear technology and the chemical expertise required for reprocessing irradiated fuel elements to obtain plutonium for weapons;
- France also considered it essential to prevent Germany from developing its own nuclear industry, either independently or in co-operation with the U.S.A.

The French obtained everything they wanted. EURATOM had responsibility for control of all nuclear fuel other than that produced for defense. France also obtained explicit recognition of her right to explode atomic bombs. Finally, she obtained a concession that the sharing of nuclear information (Lucas, 1977:27).

France took a special interest in the treaty as it was already the leading member state in terms of nuclear research, and hence stood to gain financially from EEC research funds. Germany was not enthusiastic about EURATOM, but needed French support for

the Common Market in general. France was uninterested in developing the EEC-a general Common Market and preferred the sectoral integration of various economic areas (Matlary, 1997). France proposed the founding of EURATOM in 1955 to create, among other things, a common European nuclear market, a supply mechanism for Uranium and a European enrichment plant. Other hidden interest of France was to decrease United States influence on energy sector; however, the United States supplied Uranium more cheaply and offered to do so to Germany. This led to the conclusion of a treaty that contained no strong measures to create a common European nuclear sector. The United States became the key supplier of enriched Uranium and France developed a national nuclear sector. As George put it, 'even if the compromises written into the treaty were not enough, the first years of EURATOM's life were sufficient to kill it in themselves' (George, 1991:121). Although EURATOM began to fund joint research programmes, both Italy and Germany had already started their own nationally funded programmes in order to prevent France from continuing to dominate this sector. These countries also wanted to procure reactors built in the United States, something that was unpopular with the French.

## **II. ENERGY POLICY OF EUROPEAN COMMISSION IN 1960s**

In 1960s EURATOM lost its importance because it had poor relation with the EEC, and when the EURATOM institutions merged with those of the EEC and the ECSE in 1967, EURATOM virtually lost its own identity. Dinam (2000) has given some reasons of it's declining such as: the other member states' suspicion of France's nuclear policy, an abundance of cheap imported oil in the 1960s, and despite the oil crisis in the 1970s growing environmental and safety concerns about atomic energy resulted in EURATOM marginalization. Through Merger Treaty in 1967 the institutions of the ECSE, the European Economic Community and EURATOM were amalgamated into a single institutional structure (Dinam 2000, Blair 2006). The Treaty consolidated the institutional structures: a single Council, a single Commission, a single administration of the Communities and a single budget were established. Article 9 of the Merger Treaty said: 'A Commission of the European Communities (hereinafter called the 'Commission') is

hereby established. This Commission shall take the place of the High Authority of the European Coal and Steel Community, the Commission of the European Economic Community and the Commission of the European Atomic Energy Community' (*About the EU Origins and Developments the Treaties*, [http://www.eu2007.de/en/About\\_the\\_EU/Origins\\_and\\_Development/The\\_treaties.html](http://www.eu2007.de/en/About_the_EU/Origins_and_Development/The_treaties.html)).

The merger of the Communities in 1968 saw the Commission renew its efforts to develop a CEP. In its document 'first guidelines towards the EC energy policy' the Commission noted that barriers to trade in energy persisted and stressed the necessity of a common energy market. Such a market, based on the needs of consumers and competitive pressures, would help obtain security of energy supplies at the lowest cost. To this end commission suggested three broad objectives: a plan for the sector involving data collection and forecasting as a means of influencing members' investment strategies; measures to bring about a common energy market (tackling issues such as tax harmonization, technical barriers, state monopolies, etc.); measures to ensure security of supply at lowest cost (El-Agraa, 2001: 297). In November, 1969 after they had received the *Guidelines*, that the Council met to discuss the document. The Council approved the fundamental principles of the guidelines and asked for concrete proposals as soon as possible. Some proposals were set up like an upper limit on excise duties on fuel; to amend the EURATOM Treaty to strengthen the supply agency; tax concessions and attractive loans: a proposal to the extent oil stocks to the equivalent of 90 days supply and non-discriminatory terms in transport. Lucas (1977) said none of them had been accepted by the Council by the end of 1971. The only development of substance up to the 1971 was to prolong the Community system of aid to the coal industry. The basis of the producer was modified slightly; member states were authorized to grant aid for the closure of pits, capital investment, training and stockpiling.

According to El-Agraa (2001) the proposals proved difficult to put into practice partly because of the scale of objectives and the contradictions between the substance of different goals, but mainly because of the resistance of member states to the goals. Even though the Council approved the strategy, it ignored most of the Commission's

subsequent attempts to enact the proposals. The principal measures adopted in the wake of the Commission's proposals concerned oil stocks (following OECD initiatives) and some requirements for energy investment notification. These actions owed more to growing concern about security of supply than to the creation of a common energy market, and presaged a wider shift in Commission and member state perceptions of the priorities of energy policy. The reaction to 1973-74 oil crises confirmed the change in orientation of energy policy proposals away from markets and towards security.

### **III. ENERGY POLICY OF EUROPEAN COMMISSION IN 1970s**

In the five years from the merger of the executives to the end of 1972 there was no significant step towards a common energy policy. Lucas (1977) gave two reasons for this poor performance: the lack of political will among member states and lack of leadership from the commission. Other side Matlary(1997) argues that the different import needs and energy consumption patterns of member countries like Britain was nearly self-sufficient in both oil and gas whereas, Italy imports close to 80 per cent of its energy there has not been a major rationale to develop an energy policy at the EU level.

In the absence of similar interests in energy there was perhaps little that the Commission could do. The only force which might have molded a common policy at that stage was a threat from outside that was realized first time in 1971, 'it was decisions taken by the U.S.A., Japan and the U.S.S.R would affect the Community and that energy supply could only be effectively handled if it were seen and treated as an international affair' (Lucas, 1977: 53). The idea of making Commission's energy policy stronger, started after 1973 oil crises, when the oil producing countries decided that in future they would fix the oil price unilaterally. Subsequently the price of crude oil delivered in Community ports rose to more than three times its price before the war and five times its price before the Teheran-Tripoli agreements (Lucas, 1977). After that some member states argued that energy policy should start from a common internal policy-in particular common regulation of the oil market, and other states argued that energy policy should begin from a common front to the world outside. The Commission considered this a false dilemma and proposed to do both concurrently.

‘The oil crises of the 1970s prompted serious consideration of energy policy, by giving rise to concerns about security of supplies’ (Jones, 1990:340). In October 1972, Edward Heath had inserted a paragraph into the Paris Summit Communiqué asserting the Community’s need ‘to formulate as soon as possible energy policy guaranteeing certain and lasting supplies under satisfactory economic conditions’ (Dinan, 1994, Lucas 1977). El-Agraa (2001) in the table has shown that by 1970 over 60% of the EC’s needs were imported, leaving it highly vulnerable to the supply disruptions and price increases of 1973-74.

**Table: 2.1 EU Energy Balances (Mtoe)**

Years	Energy production	Net imports	Supply
1960	360.3	206.2	551.4
1970	408.1	650.2	1015.0
1980	584.3	687.6	1218.1
1990	711.1	649.7	1328.4
1995	749.0	658.2	1380.7
1996	773.4	685.9	1428.5
1997	767.0	699.9	1421.2

Source: El-Agraa, Ali. M. (ed.) (2001), *The European Union Economics and Policies*, London: Prentice Hall: P-298.

Figures for all years are for EU-15

Supply includes adjustments for stocks.

However the ‘oil shock’ of 1973-74 led to multilateral cooperation and the creation of the International Energy Agency, which aimed to erect a buffer against price hikes and introduce an emergency oil-sharing mechanism (Matlary, 1997:12). The basis of the oil sharing scheme was that member countries should keep stocks, control demand and conserve energy (Lucas 1977). France’s refusal to join the IEA presented a great problem to the Commission. The Commission tried to set up an identical oil sharing scheme within the EEC, to make France in practice, but not in name, a member of the IEA, but France then and since would have nothing to do with oil sharing. In March 1975 France appeared to accept the principle of an MSP and to reconsider its refusal to join an oil

sharing scheme. The only actual commitment by France in the Communiqué was to seek 'protective mechanism' for new energy sources (Lucas, 1977).

In August 1973 the Commission submitted to the proposals for creating a common internal market. The Commission also sent two memoranda to the council. One discussed how the community could help directly to finance investment in her energy sources; the other discussed how the community could create confidence in others to finance investment. The Commission asserted that the efforts being made by private enterprise and national governments should be supported by a Community effort. In the second paper, the Commission argued that the Community should agree to a policy aimed at promoting investment in energy sources other than imported oil by specific incentives, and that the investment should be safeguarded against any future fall in the price of imported oil by some form of safety net. In July 1974 the council also approved a resolution on the rational use of energy, which bound them to try to consume 15 per cent less energy in 1985 than the amount forecast for that date in January 1973(Lucas, 1977:67).

The shock of oil price increases reinforced the reassessment of energy policies in member states and the Commission. The Commission attempted to develop a more strategic approach to the management of energy supply and demand. The 'New Strategy', which was only agreed to after much wrangling and dilution envisaged a number of targets to be met by 1985 (El-Agraa, 2001:297). These included the reduction of oil imports, the development of domestic energy capabilities (notable nuclear power) and the rational use of energy. The policy, while only indicative, mobilized resources for R&D and promotional programmes on energy, covering conventional and nuclear technologies but also renewable and energy efficiency technologies. The new strategy also provided the basis for a handful of directives designed to restrict the use of oil and gas. New objectives were set up for year 1985, 1990, 1995 and 2010 as El-Agraa (2001) has discussed (see table 2.2). In 1985 EC's energy policy was focused merely on more production of oil, natural gas, coal and electricity. In 1990s focused area shifted to reduce energy demand and oil consumption. First time they introduced, to increase the use of

renewable energy sources as an energy policy objective. In 1995 important objectives were added related to market opening and environment, focus was also given to enhance development with non-member countries. In 2010 determining objectives will be related to market integration, sustainable development, environmental protection and supply security.

**Table: 2.2 The EU's Energy Objectives For 1985, 1990, 1995 and 2010**

<p><b>1985 objectives</b></p> <ul style="list-style-type: none"><li>-To increase nuclear power capacity to 200 GW.</li><li>-To increase community production of oil and natural gas to 180 million tones oil equivalent.</li><li>-To maintain production of coal in the Community at 180 million tones oil equivalent.</li><li>-To keep imports to no more than 40% of consumption.</li><li>-To reduce projected demand for 1985 by 15%.</li><li>-To raise electricity contribution to final energy consumption to 35%.</li></ul>
<p><b>1990 objectives</b></p> <ul style="list-style-type: none"><li>-To reduce to 0.7 or less the average ratio between the rate of growth in gross primary energy demand and the rate of growth of gross domestic product.</li><li>-To reduce oil consumption to a level of 40% of primary energy consumption.</li><li>-To cover 70-75% of primary energy requirements for electricity production by means of solid fuels and nuclear energy.</li><li>-To encourage the use of renewable energy sources so as to increase their contribution to the community's energy supplies.</li><li>-To pursue energy pricing policies geared to attaining the energy objectives.</li></ul>

**1995 objectives**

- To improve the efficiency of final energy demand by 20%
- To maintain oil consumption at around 40% of energy consumption and to maintain net oil imports at less than one-third of total energy consumption
- To maintain the share of natural gas in the energy balance on the basis of a policy aimed at ensuring stable and diversified supplies.
- To increase the share of solid fuels in energy consumption.
- To pursue efforts to promote consumption of solid fuels and to improve the competitiveness of their production capacities in the community.
- To reduce the proportion of electricity generated by hydrocarbons to less than 15%.
- To increase the share of renewable in energy balances.
- To ensure more secure conditions of supply and to reduce risks of energy price fluctuations.
- To apply community price formation principals to all sectors.
- To balance energy and environmental concerns through the use of best available technologies.
- To implement measures to improve energy balance in less-developed regions of the community.
- To develop a single energy market.
- To co-ordinate external relations in the energy sector.

**2010 objectives**

- To meet treaty objectives, notably market integration, sustainable development, environmental protection and supply security.
- To integrate energy and environmental objectives and to incorporate the full cost of energy in the price.
- To strengthen security of supply through improved diversification and flexibility of domestic and imported supplies on the one hand and by ensuring flexible responses to supply emergencies on the other.

- To develop a coordinated approach to external energy relations to ensure free and open trade and to secure investment framework.
- To promote renewable energy resources with the aim of achieving a significant share of primary energy production by 2010.
- To improve energy efficiency by 2010 through better coordinated of both national and community measures.

Source: El-Agraa, Ali. M. (ed.) (2001), *The European Union Economics and Policies*, London: Prentice Hall: P-299.

During the first oil shock, the EC attempted a crises management role but failed even to provide a united front. Member states pursued their own policies or worked through the International Energy Agency (IEA). The IEA overshadowed the EC both in breath of membership (covering all the OECD countries except France) and in terms of its powers on oil sharing in a new crisis (El-Agraa, 2001: 297).

**(i) Policy adopted by different member countries:** During 1973 oil crisis the differing energy situation have led to different governmental responses, some relying more on the domestic market as it relates to the global energy market and other relying on governmental intervention, directly or through quasi-public corporations. Roughly 80 per cent of the energy industry assets in the United Kingdom, France, and Italy are state owned. The **Belgian** approach has been one of private production in all sectors, with governmental intervention used sparingly and as a last resort. The Danes have a closer public scrutiny over energy matters but leave the production up to private firms. The policy of **Luxembourg** is tied to Belgium through the Belgium-Luxembourg Economic Union (BLEU) (Kelley, 1977).

‘**The Netherlands** was worst hit at the beginning of the crisis; Germany supported the Netherlands’ (Dinan, 1994: 84) call at the Copenhagen summit for a concerted community response. The policy of the Netherlands is aimed at obtaining the cheapest supply, with security from indigenous natural gas, oil supply diversification.

The **French** were trying to drag EC energy policy along the line of their central planning philosophy. They are seeking widespread nuclearization and through this a degree of energy autonomy, at a cost they perceive as lower than development of other sectors. Since 1973 cheapness of supply has taken a lesser position in French policy (Marcus, 1992:86-87).

The **Italian** response to energy problems has been based on Italy's traditional lack of indigenous energy resources. Special marketing trusts have been organized to expand exploration globally and diversify sources of supply, with a policy of obtaining the cheapest possible imports. Italy favors the general thrust of EC energy policy, since the Italians perceive energy distortions in the Nine's as causing disruptive competition.

The **British** prefer transnational direct industrial cooperation on major energy projects rather than intergovernmental action. Their policy is to seek full control over all their own energy sources, and so no strong central EC policy can be allowed to emerge prior to the full development of their own national energy policy (Kelley, 1977:127). The British response to the 1973 crisis was less vigorous than that of other countries because of the North Sea Oil discoveries and other impediments in the British economy (Marcus, 1992:86-87).

**Federal Republic of Germany's (FRG)** policy in the EC has been to avoid over centralization and to preserve the FRG position of cartelizing energy industries for economic efficiency. Like the United Kingdom, the Federal Republic of Germany prefers transnational industrial cooperation on energy projects; and like the United Kingdom, it has made considerable use of the OECD for joint projects. The overall FRG policy has been to seek economic supplies through diversification of sources. The West German public has brought political pressure to bear on the Bonn government regarding FRG financial support of the EC, and so any energy action at the center in the EC must at least appear to bring direct benefits to the Federal Republic of Germany or not cost the West Germans any more of their wealth.

Since the different member states had varied policies, they have allowed no effective central policies to evolve that would be binding on all. The EC's policy has been possible

only in narrow sectoral actions. Efforts to secure a coal policy showed that a comprehensive approach was needed. Its "New Energy Policy Strategy" in 1974 only applied well-known energy concerns and agreed-upon principles to national forecasts in the changed circumstances following the oil crisis. They have affirmed that the EC shall only be able to issue objectives to guide nationally autonomous energy policies. The nine have given an energy R&D budget on alternative sources to the commission to administer, however, 'which shows that they do want these problems to be dealt with in a somewhat common European manner, in the hope that here the EC forum will give them the most benefits at the least cost' (Lucas 1977:55).

As we have already seen during 1960s, EURATOM was loosing its importance, though in 70s some efforts had been made by Commission to save it. In 1970 the Standing Committee on Uranium Enrichment (COPENUR), to keep up to date on uranium enrichment, recommended on community needs. In July 1973 when Britain became a member, it was close to destroying the EURATOM research agencies. At the time the EURATOM budget was less than one-fifth of one percent of the money being spent in the Community on nuclear matters, which is some indication of how ineffective has been the attempt to make this a common endeavor (Lucas 1977:56). But France and the United Kingdom reckoned that this was still too much for the benefit they were getting; they demanded a large reduction in the budget. For a time it was believed that EURATOM might be scrapped, but eventually, a strong defense by the Commission, a research budget was agreed. In 1977 the Commission began granting loans on behalf of EURATOM to finance investment in nuclear power stations and the enrichment of fissile materials. An agreement with the International Atomic Energy and controls the EU'S Joint Research Centre (JRC) conducts research on nuclear safety and the management of radioactive waste (Europa year book, 2005:227).

#### **IV. ENERGY POLICY OF EUROPEAN COMMISSION IN 1980s**

By 1980 the energy picture in the community had started to change significantly in the direction of the energy objectives. Pearson (1989) says that in 1973 over 60 per cent of

Europe's energy requirements were being met by oil, almost all of which was imported. In response, the European Community adopted in 1974 its first long-term energy objectives for 1985. The objectives were designed to reduce dependency on oil through improved energy efficiency and increased contributions from other fuels. In general EC had been successful in achieving these aims.

Table 2.3 shows the enormous change that has taken place in the Community energy situation. In 1973 oil was by far the predominant source of energy in the Community. Natural gas was providing around 12 percent of energy needs while nuclear power in the Community was, in 1973, still in its infancy. Apart from oil there were no significant imports of other fuels.

**Table: 2.3 Energy Consumption and Import Dependence in the European Community 1973-1986 (the 10 Member States)**

Inland energy consumption	1973		1980		1986	
	mtoe	%imported	mtoe	%imported	mtoe	%imported
Oil	564	100	488	85	429	69
Natural gas	116	3	169	26	183	33
Solid fuels	222	9	224	22	214	24
Nuclear	18	-	41	-	131	-
Hydro	9	-	13	-	12	-
Total	931	66	936	55	970	43

Source: Pearson, Peter (ed.) (1989), *Energy Policy in an Uncertain World*, London: The Macmillan Press Ltd: P-30.

Marcus (1992) assumes that declines in energy consumption in 1979-1982 occurred partly because of higher energy prices and partly because of the economic stagnation that hit industrial production particularly hard. Short-term changes in energy consumption took place because of the climate and the business cycle. Long-term changes were

structural or involved energy efficiency improvements. Pearson (1989) assumes that by 1980 the share of oil in total energy consumption had fallen significantly because indigenous oil, mainly from the North Sea, was helping to reduce dependency on imports. Natural gas consumption grew strongly during this period increasing by close to 50 per cent although most of this increase came from imports. The same trend of increasing imports was true of coal. But from an energy security viewpoint these trends are not alarming, as most of the major external suppliers of coal and gas to the Community were not large suppliers of other energies. So whilst EC was still dependent on imports for well over half of energy requirements in 1980, the sources of these imports were much more diversified than in the past.

In 1985 the Commission completed a major study, entitled "Energy 2000", of energy prospects for the rest of this century. Its purpose was to explore the main factors which could influence the Community's future energy situation. By 1986 the success of the Community's energy policy in achieving the long-term energy objectives was clearly visible. Dependency on imported energy was down to 43 per cent, the growth in North Sea oil production and the very substantial increase in nuclear energy, which accounted for over one-third of electricity production in the Community in 1985. The Community's long term energy objectives had consistently identified the electricity sector as offering the most potential for fuel diversification. While in 1973 nearly 45 per cent of the Community's electricity was generated from hydrocarbons, by 1986 it came down to only 14 per cent of the electricity generated. Pearson believes that with time energy market also changed so it would be difficult to achieve objectives for energy. 'The energy market today is very different to the market we experienced in the 1970s and early 1980s, none of the 1995 objectives will be easy to attain' (Pearson, 1989:32).

In the period 1973-88 much attention was devoted to security of supply, research and conservation. In 1986 the Single European Act (SEA) was adopted that brought changes to the decision-making procedure of the Community. That gave power to European parliament also.' The European Parliament (EP) was now able to play a more active role' (Meerhaege, 1989). In an Internal Energy Market (IEM) the Commission

suggested there must be competition, transparency and open energy market. Work on developing an IEM started in 1988. The first stage was to open access to gas and electricity supply, the opposition to this was formidable, particularly in the energy industry. The council returned the most controversial directive, on gas transit, to the Commission at its meeting in may 1990. The directive was adopted in October 1991 by a majority vote. The second stage of the IEM consisted of a draft directive on the further opening up of the gas and electricity grids, presented in the form of two draft communications in late 1991 and later merged into one directive. Matlary (1997) described the main concept in second stage was of third-party access, which would further open up the grids and allow third parties, that is sellers and buyers, to demand transmission of their energy against a given tariff. The proposal met very heavy resistance and had not been adapted even to the end of 1996. *update!*

From 1988-95 work on developing an IEM continued, despite widespread opposition from energy-sector interests and even governments. Although the member governments supported the idea of an IEM, but they tried to reserve the parts of it that directly affected their domestic energy sectors. In other words they supported the general concept, seeing that it might bring advantages to energy trade, but were worried of losing national control over energy policy. Matlary (1997) talked about integration of one sector with other, 'energy is a weak area in EU policy making and shows that it has been moving towards increased integration in some areas'. As he said from 1988 onwards EC energy policy developed markedly both as an integral part of the internal market and beyond. By the time of the launch of the IEM in 1988, general integration had taken place formally with the adoption of the single European act, and informally in the energy sector as a whole as energy policy increasingly came to include transnational issues such as energy shortages, the environmental problems in Central Europe, the environment in general, and so on. The scope of EC energy policy was thus continually being extended beyond the deregulatory nature of the IEM- policies. El-Agraa (2001), simply said that in late 1980s the new energy policy agenda was adopted by EC that was marked by competition and the environment.

Despite all difficulties the IEM proposals implied an increased role for the EC in energy policy. Matlary (1997) has given four reasons: first, third-party access and even the 'weaker' open access decision in 1990 implied that the Commission would oversee and define the conditions and tariffs for such access. This would require more centralized power in a new deregulatory agency within the EC or the Commission itself. Secondly, the Commission controlled some of the financing of energy developments in the less advanced economies of the community. This eventually resulted in a new competence being included in the Treaty of European Union (TEU) for the development of infrastructure, the so-called Trans-European networks. Thirdly, the Commission intensified its application of the rules on competition from about 1990 onwards by attacking not only the practice of monopoly but also the very existence of monopoly companies in the energy sector. It also began to intervene much more forcefully in national coal subsidy schemes. Fourthly, the Commission came to be perceived by interest groups as the major energy policy-maker in the European scene. The energy industry increasingly formed European-wide interest groups whose sole task was to lobby the EC, and the Commission's ability to incorporate these groups into the formal and informal negotiating system meant that it increased its own role as a negotiating partner and received expert knowledge as input to the political process.

## **V. ENERGY POLICY OF EUROPEAN COMMISSION IN EARLY 1990s**

Matlary (1997) argues that external events backed the precondition for much of energy development. The energy supply problems in the CIS and Central Europe gave rise to the idea of the energy charter. Furthermore, internal reform facilitated the process of agenda building around energy policy. The procedural changes contained in the single European act made decision-making more efficient and removed the possibility of proposals being blocked by a single member state. Thus both national and interest group opposition could in some cases be overcome. This is the reason to progress towards a Common Energy Policy and an Internal Energy Market, although progress was very slow.

In 1991 European Energy Charter was signed at The Hague. It provided a set of principles and objectives for the achievement of Pan-European Cooperation in the field of energy with a view to achieving greater security in European energy supplies by creating a grid of supply lines that would link the resources available in Eastern Europe to Western Europe. Eastern European countries would in return receive investment from Western Europe (Blair, 2006).

‘In fact, the Charter covers a wider area than its name suggests. The signatories included all the Western Europe, all the countries of Central and Eastern Europe, all 15 of the Ex-U.S.S.R states and the U.S.A, Canada, Japan and Australia. The principles set out in the Charter are for wide-ranging co-operation based on open and competitive markets’ (WEC Commission, 1993:184).

European Energy Charter was a landmark step in development of European energy policy. Matlary (1997) has reviewed it very positively that it established a free market regime for energy trade, an extension of the IEM principles to the CIS (Commonwealth of Independent States), Central Europe and most of the western world , and other significant aspects of the charter form part of a common energy policy. Furthermore, legislation on competition was increasingly applied to monopoly practices in the energy sector, and there were attempts to integrate environmental concerns into the IEM, for example a carbon tax and criteria for loans and financial aid to the energy sector in central Europe.

Dinam (2000) analyzed the Energy Charter and said in his very genuine words, that in 1991 Europe’s main motive behind energy charter was to help the Soviet Union develop its vast oil and natural gas industries and to secure imports of Soviet energy into Western Europe. The continuous negotiation was made to implement the charter. By the time the treaty was signed by fifty countries in Lisbon on 17 December 1994 it had lost its importance.

In Dinam own words:

‘the initiative had lost much of its luster: the Soviet Union had collapsed, and many of its successor states lacked the political skills and legal capacity to negotiate effectively; the United States distrusted the initiative, seeking it as a European effort to edge the united states out of lucrative Eastern European economic opportunities; and the EU had largely

lost interest. Today, the energy charter is more significant as a case study of indifferent international negotiation than as instrument of post-cold war, pan-European economic development.' (Dinam, 2000:163)

An overall view of the decade of 1980s gives us the impression that there was not very significant development in EC's energy policy. However, it cannot be denied that Internal Energy Market paved the way for progress in other energy related areas. On that basis EC tried to build concrete energy framework for future. Those other areas were liberalization and privatization in market, in other words market reform. The second policy related with environment and the third area of concern was energy security. Andersen (1993) described those perspectives in the following way First, the EU's internal-market programme where competitive policy plays a major role. The most important changes in the last few years are related to the internal market directives on the electricity and gas markets. One important source of change was EU's internal market programme. The internal market opened up for a number of initiatives in the energy sector, as part of a general deregulation policy (Matlary, 1991).

Cram (1999) says the production, transmission and distribution of electricity and gas have historically been regulated by European governments, usually under a monopoly system. As a result, energy costs in Europe have been considerably higher than those in countries where competition among energy supplies exists, while this is the government's responsibility to ensure availability of electricity and gas at a reasonable price to all citizens. In the absence of government regulation, it was argued, competition would result in a diminution of service and higher prices to customers in outlying areas. On the other hand, major energy consumers, particularly industry, looked forward to deregulation, which would offer them greater flexibility of supply and lower prices. The debate proceeded throughout the 1990s with the member states lining up on the issue- France as leader of the states seeking to preserve the status quo and the U.K., already in the middle of deregulation, leading the 'liberalizing'trends. The debate centered on the degree to which national monopoly transmitters of energy should be required to open their system to others wanting to supply the market and the terms under which such supplies would become available. After long debate the issue was resolved in favor of liberalization- first for electricity and then for gas.

Second the EU's attempts to establish a common environmental policy as key instrument. Bergesen (1991) also supported environmental policy as another major source of policy initiatives affecting energy. As Matlary (1997) focused environmental policy as integration with energy policy and El-Agraa (2001) all have mentioned that in late 1980s or in early 1990s EC objectives of energy policy was shifting according to demand of traditional needs to modern problems, that reveals in the report of the Commission also; (WEC Commission,1993:182)

‘Report of the Commission of the European Communities, Energy in Europe’, September 1992, asserts that, whilst primary energy demand in the Community will increase, and ongoing improvement in energy intensity will require additional efforts by both public and private sectors, the major challenge in Europe could come not from matters of traditional supply and demand but rather from growing environmental concerns, reflecting local, regional and global issues. As the regional report also states, these will require increased investment, the introduction of new market instruments and more effective energy efficiency policies.’

The third policy area was foreign policy that became linked to the wider EU Co-Operation through the Maastricht Treaty. The European Energy Charter and the Charter Treaty which were attempts by EU to create international market regimes that could support reform in the former East Bloc and thereby secure EU's energy supplies. In other words this is related with security of energy because EC heavily depends on imports of energy supply. Therefore, it became inevitable to make good relation with energy rich states to secure energy supply according to demand.

This section can be concluded with the final words that European Union that was European Commission before 1992 was although not very successful in the enhancement of appropriate energy policy; however, it tried to make proper use of resources which its member states possessed. European Commission actually worked on trial and error concept, establishment of ECSC, EURATOM and EEC all were very helpful in development of further stage. From 1950 till 1970s it was learning process for

organization and time for institutional development. In late 1980s Commission has taken initiatives for advancement of Common Energy Policy that is continuing process. The main agenda for common energy policy are utility deregulation, energy security and environmental protection. These all three important areas will be discussed in adjoining chapter in detail.

- **EUROPEAN UNION'S ENERGY POLICY AFTER 1992**

- Utility Deregulation**

- Electricity and Gas Directives*
    - European Union and its Periphery*
    - Market Liberalization and Enlargement*

- Energy Security**

- Policies and Programme Related with Energy Security*
    - ETAP Programme (1998-2002)*
    - Framework Programme (1998-2002)*
    - CARNOT Programme (1998-2002)*
    - SAVE II Programme (1998-2002)*
    - Energy Efficiency Action Plan*
    - General Targets for Saving Energy*
    - Cogeneration*
    - Provision for Energy Security in Energy Charter*
    - Co-decision Procedure: The External Dimension of Trans-European Energy Networks:*
      - The Northern Dimension of European Energy Policy*
      - Euro-Mediterranean Cooperation*
      - Granting of Community Financial Aid in the Field of Trans-European Networks*
    - Energy Security and Enlargement*

- Environment**

- Thematic programme: Energy, Including Nuclear Energy, the Environment and Sustainable Development (1998-2002)*
    - Intelligent Energy for Europe programme (2003-2006)*
    - The Energy Dimension of Climate Change*
    - Renewable Energy*
    - Environment Policy and Enlargement*

- Nuclear Policy**

- EURATOM*
    - EURATOM and Enlargement*
    - SURE Programme to Promote Nuclear Safety in the TACIS Countries (1998-2002)*
    - Nuclear safety in the Newly Independent States and the Central and Eastern Europe*

## CHAPTER- 3

### EUROPEAN UNION'S ENERGY POLICY AFTER 1992

In the previous chapter we have seen European Commission's energy policy had become more focused and according to demand of time in early 1990s. The Treaty of Maastricht (*Treaty on European Union*, <http://europa.eu.int/en/record/mt/top.html>) was signed on 7 February 1992 and entered into force on 1 November 1993. It created what is known as the European Union today About the EU. In this chapter area of analysis is mainly based on energy policy adopted by European Union (EU) since 1990s till 2004. This chapter will cover three most important areas of energy policy that has been adopted by EU in late 1980s and in early 1990s. In that it deals with first, utility deregulation, second security of supply and third environment. Under Utility Deregulation focus will be on privatization and liberalization in natural gas and electricity sector. Under security of supply all new programmes will be discussed that emphasis on making secure supply of energy. EU's relation with other energy rich countries will also be discussed in this section because the main interest of the European Union behind relationship with these countries at international level is based on energy security. Finally, environment will cover all important programme related with environmental aspects like climate change and renewable energy (carbon emission tax and other problematic aspects of energy policy will be discussed in next chapter). Nuclear energy has given very important place in European Union's energy policy and it has been already discussed in previous chapter under the title EURATOM. In this chapter also new programme related to nuclear energy will be discussed under same title 'EURATOM'.

In December 1995, the European Commission issued a white paper entitled "An Energy Policy for the European Union" (*European Commission issued the white paper; "An Energy Policy for the European Union*, <http://energytrends.pnl.gov/eu/eu004.htm>).

According to this white paper, an EU energy policy goal is supported by activities in three main energy policy areas: utility deregulation, energy security, and protection of the

environment and climate. These three areas, each of which is described below, represents the most significant pillars of EU is energy policy.

## **I. UTILITY DEREGULATION**

In 1986 Jacques Delors launched the wider process of deregulation and liberalization within the European Union. The objective in opening the internal market to competition was to improve efficiency, lower costs of production, ensure security of supply, attract foreign capital and divest the heavily regulated, cumbersome, integrated state entities. Liberalization was undertaken initially against a background of a perceived oversupply of oil, a changed perception of gas as a “noble” fuel, too precious to be wasted on power generation, and increasing concern about the environment. This last factor fuelled the drive towards environment friendly gas and the encouragement of energy-saving Combined Heat and Power (CHP) for new generating capacity. The European Commission’s approach was to achieve a gradual, democratic acceptance of competition, avoiding excessive regulator and accepting the need for subsidiary, the right of member states to choose the tactics for scoring the competition goal which suited them best (Bossely, 2000:8).

### **(i) Electricity and Gas Directives**

Proposals for introduction of internal market directives in the energy sector were sent to the Council of Ministers (energy) in July 1989 (Andersen, 1993). In 1990 as a first tentative step, the Commission adopted an electricity transit directive and a directive on transparency of electricity prices, but this still only concerned trade between monopolistic transmission and utility companies. This was followed in 1992 by a proposed directive on “common rules” for the internal electricity market, proving for regulated, compulsory Third-Party Access (TPA) to transmission systems to allow producers in one member state to sell to consumers in a different member state. This did not seek to introduce a uniform system of detailed regulation across the EU, just to agree to the basic principles of the internal market (Bossely, 2000). The electricity directive was passed in October 1990, and came into force in July 1991(Andersen, 1993:112). The new directive required suppliers to provide the Statistical Office of the European Communities (SOEC) with

three types of information on a regular basis: price, pricing systems and breakdown of consumers and consumption volumes (Lyons 1994:7).

The aim of the investment transparency directive was to ensure exchange of information to achieve a better coherence of large-scale investment projects in the community. This stage in the deregulation of the EU'S electricity and gas markets introduced more ambitious objectives and more comprehensive regulatory measures. This led to strong political reactions from member countries and their industries (Austvik 1991, Capouet 1992). The new proposals attacked 'the heart of the gas and electricity industries with practicing monopolies' (Lyons, 1994: 5). The Commission wanted to introduce competition that would fundamentally alter the relationship between suppliers, transmission operators, distributors and consumers (Stern 1992, Austvik 1991). By that time, it was already clear that many member states and affected industries were opposed. The EU Commission prepared directive proposals and presented to the council of ministers (energy) in January 1992. The complex proposals basically required that member states did three things (Lyons 1994:10):

1. abolish exclusive rights regarding electricity generation and the building of gas and electricity transmission lines;
2. oblige vertically integrated companies to unbundl their accounting and management systems;
3. introduce TPA rights to a limited number of high volumes gas and electricity consumers so that they could choose suppliers from throughout the community.

It was clear that an agreement on the proposals on electricity and gas markets could not be reached in the short run. France proposed a third option -a single-buyer model in place of commission's proposal of TPA in 1993. A common thread throughout is that all procedures must be objective, transparent and non-discriminatory. To audit this objective, integrated companies must keep separate accounts for or "unbundled", generation, transmission and distribution, so that any discrimination, cross-subsidization or distortion of competition can be identified and eradicated.

The first half of 1992, made the completion of the license directive a priority. The license directive demonstrated that a non-member country (like Norway) could achieve access to the EU internal decision-making was another confirmation of the political weight that energy issues were given by member states in the EU. The license directive was passed in May 1994 and entered into force in mid-1995. It was the last energy-specific directive-proposal from the commission. 'The 'grand plan' from the early 1990s was abandoned, at least for the time being, this reflected not only the opposition in the energy sector, but also more general political problems in the EU' (Andersen, 1993:114). The Commission faced fewer adversaries in the areas of electricity and gas liberalization but this opened the way for a directive proposal for hydrocarbon licensing. This directive was to regulate the granting and use of authorization for prospecting, exploration and production (Lyons 1994).

Cram (1999) says after long debate the issue was resolved in favor of liberalization- first for electricity and then for gas. The Directive marks the first major legislative step toward the creation of an open and competitive European electricity market. The electricity directive, adopted in 1996, provides that a part of national electricity markets, i.e. the largest energy users, will be gradually opened, initially covering 25.37 percent of the market, but rising to 80% by 2003 (*Research into trends in worldwide energy R&D and the adequacy of R&D policy and investments*, <http://energytrends.pnl.gov/eu/eure.htm>).

With the principles established on electricity, the gas sector followed, with a directive in 1998 providing for a phased liberalization of the almost 100 billion euro gas markets in the EU. Within two years of entering into effect, 20 per cent of consumption is to be liberalized rising to at least one third after ten years. Cram (1999) says that in the case of electricity, the market may force a more rapid degree of de facto liberalization. 'The timetable for market opening was revised: the electricity and gas markets would be fully liberalized by July 2004 for non-household customers, while all customers (including households) will be able to choose their supplier by 1 July 2007 at the latest' (Bertoldi, 2006:1819).

Fully liberalizing and integrating the EU's energy markets will be an exceptionally difficult task because of the major differences in attitudes and existing institutions among Member States. For example, the United Kingdom has been a leader with regard to energy market liberalization. Deregulation and privatization of the electricity industry began here in 1989 and was completed in 1998, allowing all consumers now to choose their electricity providers. In France, on the other hand, the government has largely resisted pressures for deregulation. Some 95% of the country's electricity generation, transmission and distribution system remains in the control of a single state-owned firm; Electricité de France (EDF). According to Brower France is far behind in opening of gas market also. 'Despite much effort, the European Union's progress towards a single, liberalized natural gas market remains uneven. Three-quarters of total gas demand in the EU has been opened to competition. However, France lags behind many states' (Brower, 2001:21). Allan (2000) says four states: Finland, Germany, Sweden and the U.K. have fully opened their markets. The gas directive came into force on August 2000, two years after it was adopted.

From following Table 3.1 it seems comparatively gas market is much more liberalized and open than electricity. Townsend also approved this, "most member states seem to be going further and faster in their gas market opening than required by the directive" (Townsend, 2000: 10-12). It reveals that Finland, Germany, Sweden and United Kingdom has completed all the rules set up by European Union and successfully opened its electricity market 100 per cent. According to data given by table only Germany and United Kingdom have been able to open their gas market 100 per cent.

**Table 3.1: EU Electricity and Gas Market Opening 2000**

	Electricity	Gas
<b>Directive-Mandated Minimum Opening</b>	<b>30%</b>	<b>20%</b>
Austria	32%	49%

Belgium	35%	59%
Denmark	90%	30%
Finland	100%	90%
France	30%	20%
Germany	100%	100%
Greece	30%	0%
Ireland	30%	75%
Italy	35%	96%
Luxembourg	40%	51%
Netherlands	33%	45%
Portugal	30%	0%
Spain	54%	72%
Sweden	100%	47%
United Kingdom	100%	100%
<b>EU Average</b>	<b>66%</b>	<b>79%</b>

Source: <http://energytrends.pnl.gov/eu/eure.htm>

In 2003, the European Council and Parliament issued a new directive on the common market for electricity, repealing the directive from 1996. This directive has been followed by the formal establishment of a 'European Regulators Group for Electricity and Gas to work in close cooperation with the European Commission' (Larsen, 2006:2858). These regulatory agencies play an important role in the implementation of the directive and the establishment and development of a competitive European electricity market.

Avati (2000:b, 22-23) writes that Gas demand is expected to grow from 299m tones of oil equivalent (mtoe) in 1998 to 401m toe in 2020, a rise of nearly 44%. This will raise the share of gas in EU energy supply in the same period from 21% to 27%. Some two-thirds of this increase will go into power generation, including Combined Heat and Power production (CHP). By 2020 nearly 45% of total EU gas consumption will be for electricity generation. Increasing gas will also help the EU meet the commitment it made at the 1997 Kyoto Conference on climate change to reduce greenhouse gas emissions by 8% between 2008 and 2010. Today's combined-cycle gas turbine technology using natural gas can cut carbon dioxide emissions by more than 50% for each produced unit of electricity, from the level of existing coal-fired plants, as well as reduce Sulphur Dioxide (SO<sub>2</sub>) and Nitrogen Oxide (NO<sub>2</sub>) emissions. And for that demand the EU relied on its periphery or neighboring countries. In 1998 EU imported 40% of its gas supply, from only three countries: Russia, Norway and Algeria. By 2020 gas dependence expected to grow around 67%.

### **(iii) European Union and its Periphery**

EU has to set up appropriate policy related to its energy dependence on its periphery because they import 70% of their energy demand from them. Gault (2004) says that European energy security requires, first, that the new production capacities in the periphery regions be developed in a timely manner along with adequate transportation systems to deliver the energy to European markets. 'Projections made by the IEA indicate that European oil demand will rise by an average of 0.5 per cent per annum to 2030, while gas demand will at 2.1 per cent annum over the same period' (Gault, 2004:177). Other projections reveal similar trends. Of course, the rates of growth of oil and gas consumption will be influenced by European policies concerning market liberalization and competition, encouragement of renewable energy, excise taxes, the rate of retirement of nuclear power plants and other policies. The European Commission's green paper on energy security strategy argues that the Union suffers from having no competence and no Community cohesion in energy matters. There is the Euro-Mediterranean Partnership (EMP), whose primary aim is to draw partner countries into a free area by 2010. The fact is European Union primarily depends more on Russia,

Algeria, Norway and the Netherlands for energy supply than Middle East. Gault (2004) says comparatively there are a number of reasons to expect that additional energy supplies for Europe will come first from the periphery rather than from West Asia and Gulf. Resources from the West Asia and Gulf will be drawn towards faster-growing markets in Asia. European dependence on West Asian oil supplies decreased from 1980s onwards from two-thirds to only one third now.

According to Avati (2000a) the EU's security survey showed that, except for Greece, all member states were affected by a cut-off of Russian gas in the Ukraine. They could not manage without it for more than 12 months with the exception of Portugal and Spain. EU countries could survive for over a year with a complete loss of Algerian gas. The commission's analysis showed that the seven member states accounting for over 90% of the EU's 1998 gas consumption- Austria, Belgium, France, Germany, Italy, the Netherlands and the U.K. could endure their most serious possible break in deliveries by using flexibility, storage and interruptible demand. Denmark, Luxembourg and Spain would, in addition to these measures, have to call on cooperation agreements with other member states, including the provision of additional supplies of liquefied natural gas (LNG). But Finland, Greece, Ireland, Portugal and Sweden would be handicapped in a crisis by the lack of physical interconnections, making cross-border help impossible or very difficult.

Importance of gas in EU's energy supply can be seen in following table. In 1985 EU gas demand was 198 mtoe while in 1998 it was almost double around 299 mtoe and in 2000 it was 338 mtoe. EU is trying to reduce its dependence on imports in area of gas, in 1985 it produced 132 mtoe gas and imported 69 mtoe gas and in 2000 it produced 204 mtoe and imported 133 mtoe gases. Author has predicted that this proportion of dependence will change and in future EU dependence on imported gas will increase as such in 2010 EU net gas production will be 191 mtoe and it will import 210 mtoe.

**Table 3.2: Importance of Gas in EU Energy Supply**

Million toe	1985	1995	1998	2000	2010	2020
Eu gas demand	198	273	299	338	401	431
Energy demand	1,241	1,366	1,401	1,454	1,556	1,612
Share of gas (%)	16	20	21	23	26	27
Eu gas production	132	167	180	204	191	141
Net gas imports	69	109	120	133	210	290
Import dependency (%)	35	40	40	39	52	67

Source: Avati, Helen (2000b), "Ensuring Gas Supply Security", *Petroleum Economist*, 67(1):23.

Gas market liberalization will eventually help promote security in many ways, but an abrupt switch to competitive markets can also prove disruptive to the development of new gas supplies. Gault (2004) says the EU policy of liberalizing internal energy markets will encourage the private sector to expand internal EU energy transportation interactions, complementing the expansion of external sources and enabling new import sources to reach distant EU markets. The EU appears, to have accepted the principle of long-term take-or-pay contracts, which are necessary for the financing of new gas supply projects. 'By 2020, 67% of the EU's demand for gas will have to be met from external sources and up to 40% of this gas will be sourced from the world's largest producer, Russia' (Kemper, 2000: 28). Russia is the biggest supplier of energy to EU; it has also participated since October 2000 in the 'EU-Russia Energy Partnership', which aims to improve the legal and security framework for investment in energy transportation projects linking Russia and the EU. EU is also encouraging countries to implement the European Energy Charter Treaty that implement non-discriminatory treatment of each other's nationals in relation to energy trade, investments and transit. Kemper (2000) highlights the convergence of interests between Russia and the EU in the area of energy co-operation. On the one hand, the EU has a growing demand for energy imports, and wishes to reduce its dependence on other supply sources such as West Asia. On the other

hand, Russia ‘needs huge investment to maintain and develop effectively its energy resources’ (Konoplyanik, 2004:34). That foreign capital forms a vital component of the Russian government’s overall strategy for economic growth.

Gault in a very interesting analysis shows that not only EU needs its periphery, but in same way, they also need European market. ‘The periphery countries already exporting oil and gas to Europe are at present more dependent on European markets than Europe is dependent on suppliers’ (Gault, 2004: 179). The following table reveals truth of his statement in percentage of oil and gas supply.

**Table 3.3: Mutual Energy Interdependence, 2000**

supplier	Europe’s dependence on supplier (1)		Supplier’s dependence on European markets (2)	
	Oil	Gas	oil	gas
FSU (3)	29%	66%	78%	98%
North Africa	19%	31%	77%	96%

Notes:

- (1) Share of Europe’s total imports coming from supplier, ‘Europe’ includes all of Europe other than Belarus, Russia and Ukraine.
- (2) Share of supplier’s total exports going to Europe.
- (3) Former Soviet Union.

Source: Gault, John (2004), “European energy security and the periphery” in Dannreuther, Ronald (ed.) (2004), *European Union’s Foreign and Security Policy*, London: The Cromwell Press: P-179.

Heaton (2004) has shown some new emerging energy areas who might challenge old established energy rich countries. As he continues, Russia will probably continue to dominate the market in much of Eastern and Central Europe. It is increasingly keen to muscle into more western areas, such as the U.K. But there are many other countries where Russia will face stiff competition as from Norway and the Netherlands. Algeria is likely to be the major supplier, but there are good prospects for Libya and Egypt to grab a

significant slice of the action, either by piped gas or LNG. LNG will provide access to other producers too remote for piped supplies to be an option, such as Nigeria and Qatar. Already well established in France and Spain, LNG looks set to become a major part of the UK market. New sources in the Caspian, such as Azerbaijan, will be coming on stream in the next few years. These could be very important in providing alternatives to Russian gas for southeastern Europe, and supplying Central Europe if demand there grows sufficiently. "Reserves in the Caspian basin are estimated to be in the region of 160bn-200bn barrels of oil equivalent, making it the third-largest store of oil and gas after the Middle East and western Siberia". Therefore, the EU should look for the "creation of a Caucasian stability pact or a treaty between the EU and Caspian countries" (Brower, 2000: 41). IEA's scope had now become outdated and that its role should be reviewed in the light of growing energy globalization keeping this fact in mind, in September 2002 the European Commission proposed increasing the emergency oil and natural stock requirements. There are also proposals to pipe gas from Iran, and potentially from Iraq, through Turkey. 'In June 2002, EU foreign ministers agreed to open negotiations on a trade and cooperation agreement with Iran' (Gault, 2004:178).

Emerson (2002) says as a non-OPEC exporter of oil, Norway can have an important impact on oil supply and price. Norway is likely to satisfy the green power requirements because most of its power is generated by renewable sources, and it therefore has an interest in being included in such a scheme.

#### **(iv) Market Liberalization and Enlargement**

In 2004 the EU was joined by 10 new members-Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. This has created a significant impact on EU's energy markets and new investment opportunities to existing EU utilities. Townsend (2003:d) says the new Central and East European (CEE) entrants are already taking steps to implement the EU's directive on gas and electricity aimed at creating a single market. 'Electricity companies have been able to operate across European borders since 19 February 1999' (James, 2001: 30).

However, as is the case among existing EU members there are disparities in the levels of implementation, as November's IFNE (Infrastructure for a New Europe) summit heard. Encouraging new entrants to harmonize their energy sectors with those of the existing member states will be key factor to ensuring security of supply across an expanded EU. All the candidate countries have had to adopt a new overall energy policy, restructure their domestic sectors, prepare for the internal energy market through the electricity and gas directives and improve their energy networks.

Waston, (2004: b) described the liberalization of Hungary's gas market from the starting of this year is part of the EU-wide process to open up member states' electricity and gas sectors to competition. Using the telecommunications business as its inspiration, the Commission hopes that the twin forces of deregulation and innovation will transform these stodgy businesses into modern, streamlined and efficient utilities. Another driving force for opening up the candidate countries' gas markets is the heavy investment in the region by European energy firms that have taken part in the regional privatization and set up operations in the liberalizing markets. Among the major foreign investments is the 49% stake Gaz de France and Ruhr gas bought in Slovak Gas Company in 2002; Ruhr gas' parent company, E.On, has operations in the Czech Republic and Hungary; and in 2001, RWE gas acquired a 59% stakes in medusa oil & gas in Poland. Liberalization of the gas market is as much a function of political will as anything else. There is a lot of behind-the-scenes pressure from the commission for these countries to open their markets as fully and as quickly as possible, because the success of the liberalization of the EU's gas markets is an all-or-nothing affair-for it to work properly, all markets must be deregulated.

Liberalization and opening of energy market is not equally beneficial for every member state. Quinlan (2000) says that powerful national gas monopolies- the former British gas, Germany's Ruhr gas, the Netherlands's Gasunie, Gaz De France, Italy's Snam, Belgium's Distrigas, and others. These companies were successful in attracting the large resources needed to construct pipeline networks. Their market dominance allowed them to buy gas under large-volume take-or pay contracts, which, in turn, allowed oil

companies to make large investments in field developments. On the basis of the UK's experience, the resulting increase in gas-against-gas competition will soon result in lower prices. But other European countries are not in such a fortunate position. If, as a result of liberalization, fragmented supply structures develop in other countries, the new marketing companies are likely to be buying their gas from large, probably foreign, producing companies. The miss-match between volumes required and volumes available does not signify well for contract negotiations. EU's liberalization measures will not create a balanced market and could result in increased powers for the big exporters. The problem is that the four large suppliers to continental Europe- Russia, Algeria, Norway and the Netherlands- are all represented by single selling entities; Russia's Gazprom, Algeria's Sonatrach, Norway's GFU and the Netherlands' Gasunie (owned 50% by the state and 25% each by shell and Exxon Mobil).

According to Avati (2000a) the market mechanism may need to be complemented by political support and regional co-operation schemes. Coordination, formal and transparent exchanges of information is also required. In spite of having all problems EU has now a large surplus of electricity generating capacity. With the development of an EU single market in electricity, the generating surplus is likely to drive prices down.

## **II. ENERGY SECURITY**

Ensuring energy supply security is a second key objective of EU 25 energy policy. 'The EU is trying to define a comprehensive energy security policy and to ensure that this policy is compatible with liberalized energy markets' (Gault, 2004:170). The Oil Crises of the 1970s, prompted serious consideration of energy policy, by giving rise to concerns about security of supplies (Jones, 2001:340). Security of energy supplies (SOS) refers to the safeguarding of oil supplies starting from the oil crisis in the early seventies that triggered the formation of the 3-months IEA oil reserves. Since then, many situations have broadened the scope of the concept of SOS. Today SOS covers a wide range of issues, involving different timeframes, energy carriers, infrastructure, geopolitical relations, and market power in liberalizing markets. In the past few decades the role of

natural gas has increased. Natural gas reserves are spread more widely over the globe than oil reserves (Egging, 2006:2762). Now focus has been shifted from oil to natural gas. Europe's 'inevitable and spectacular worsening of dependence on outside supplies' lends greater urgency to the need for Member States to coordinate their energy security efforts and to work together to reduce their collective energy vulnerabilities (*Statistics Research into trends in worldwide energy R&D and the adequacy of R&D policy and investments*, <http://energytrends.pnl.gov/eu/eure.htm>). Thus, the objectives of EU policy with regard to energy security are basically to reduce dependence on outside supply then to ensure sufficient Community coordination during crises and to develop an effective EU-wide fuel stock management system.

The EU is also seeking to enhance its energy security through a variety of policy actions aimed at diversifying both Europe's internal fuel mix and its external sources of energy supply. The Commission considers all major fuel types (fossil, nuclear, renewable) and energy efficiency important elements of long-term energy security and is encouraging Member States to maintain a broad portfolio of energy supply options and to ensure that there is a broad internal energy resource base.

**(i) Policies and Programmes Related with Energy Security:** Jones (2001), the EU has a Multiannual Framework Programme (1998-2002) for action in the energy sector and six specific programmes, that is SAVE promotes energy efficiency; ALTENER for renewable energy sources; ETAP for studies, analyses and forecasts; SYNERGY for international cooperation; CARNOT for clean and efficient use of solid fuels; and SURE for nuclear transport safety. Besides this there are several other programmes that will be discussed in detail in their respective sections. Only those Policies and Programme are taken here which are directly related with energy security.

**(ii) Framework Programme (1998-2002):** Main objective of this programme is to cover three major areas of energy policy: security of supply, competitiveness, and environmental protection (*Energy Framework Programme (1998-2004)*, [http://ec.europa.eu/dgs/energy\\_transport/evaluation/activites/doc/reports/energie/energy\\_](http://ec.europa.eu/dgs/energy_transport/evaluation/activites/doc/reports/energie/energy_)

fp\_final\_report\_en.pdf). It does not aim to replace member states' initiatives nor other community initiatives, but endeavors to reinforce the complementary and coherence between these different actions. The framework programme was replaced by the Multiannual "Intelligent Energy for Europe" programme.

**(iii) ETAP programme (1998-2002):** to promote a cooperative approach between the communities, the member states, non-community countries (including the applicant countries), international organizations and other interested parties to analysis of energy problems and trends at community level. The financial reference amount has been set at euro 5 million (*Eco-innovation for a Sustainable Future*, [http://ec.europa.eu/environment/etap/index\\_en.htm](http://ec.europa.eu/environment/etap/index_en.htm)). The Commission is responsible for the financial execution and implementation of the programme, once adopted. Participation in the ETAP programme is open to the associated central and eastern European countries and to Cyprus.

**(iv) CARNOT Programme (1998-2002):** to promote the use of clean and efficient solid fuel technologies (coal, lignite, peat, ormilson, oil shale and the heavy fraction of petroleum products). 3 million euros has been allocated to the programme, including 1.2 million euros for the period 1998 to 1999 (*CARNOT Programme*, [http://ec.europa.eu/energy/rtd/carnot/index\\_en.htm](http://ec.europa.eu/energy/rtd/carnot/index_en.htm))

**(v) SAVE II Programme (1998-2002):** establishment of a programme to stimulate energy efficiency measures, encouraging investments in energy conservation, and improve the energy intensity of final consumption. Euro 66 million for the period 1998 to 2000 had been allocated (*SAVE Programme II*, <http://europa.eu/scadplus/leg/en/lvb/l27017.htm>)

**(vi) Energy Efficiency Action Plan:** to reduce energy consumption by improving energy efficiency in order to protect the environment, to increase security of supply and to establish a more sustainable energy policy. Energy efficiency means reducing energy consumption without reducing the use of energy-consuming plant and equipment. The

aim is to make better use of energy. Energy efficiency means promoting behavior, working methods and manufacturing techniques which are less energy-intensive. The measures to promote energy efficiency form part of the wider objectives of the European Union's energy and environmental policy (*Energy action plan for energy efficiency*, <http://www.euractiv.com/en/energy/energy-efficiency-action-plan-gets-greenlight>). Greater energy efficiency has a major role to play in meeting the targets set in the Kyoto protocol. It encourages a more sustainable energy policy and is a key element in the security of energy supply in the EU, a subject which has given cause for concern in recent years. The action plan is a follow-up to the Commission communication adopted in April 1998 on the rational use of energy and the council resolution on energy efficiency. It constitutes a framework for Community activities in this area and applies until 2010.

This summary presents the measures proposed by the action plan and, where gives an update of certain measures taken since its adoption. There are many barriers to energy efficiency: as inefficient use of energy in the industrial sector; Commercial barriers are also a major obstacle to improving energy efficiency, as they can prevent access to technologies and the spread of efficient energy forms. The proposed action for energy efficiency is divided into three categories:

**(a) Measures to Integrate Energy Efficiency into Other EU Policies**

There are six main areas: **transport**, the transport sector is a priority for energy efficiency as it is responsible for 30% of final energy consumption; **modern enterprise policy**-it is necessary to encourage sustainable development. This primarily concerns industries and can be achieved through voluntary agreements; **regional and urban policy**-this dimension should be integrated into the allocation of resources through the structural funds, the cohesion fund, etc; **research and development**-the fifth framework programme of research and development and in particular the energy programme contribution to the research in this area. Of the 1042 million allocated to energy between 1999 and 2002, 440 million will be allocated to energy efficiency; **taxation and tariff policy**-the Commission considers initiatives in these two areas important for improving energy efficiency. Tax exemptions for investments in energy efficiency are a possible

example. The Commission has already proposed an EU framework for taxation of energy products; and **international co-operation and pre-accession activities**-approximation of legislation, harmonized efficiency standards, etc, as well as a measure of international liberalization are desirable, in this context, the energy charter concluded with third countries and the participation of accession countries in programmes such as save are important initiatives.

**(b) Measures to Strengthen and Expand Existing Measures:** it is necessary to strengthen and expand measures in four priority areas: **transport**, the Commission has already set ambitious targets for this key sector, such as reducing the average co2 emission of new vehicles by one third by 2005-2010; **household appliances, commercial and other equipment:** the proposed measures principally concern labeling systems and minimum standards for energy efficiency. In November 2001, the EU concluded an agreement with the United States which introduced a labeling system for office equipment (the Energy Star programme); **industry (including electricity and gas companies)** there are plans to: make long-term agreements in industry; increase combined production of heat and power (CHP); increase the role of energy efficiency in the energy services offered by distributing companies.

**(c) New Policies and Measures:** new policies must be put in place in order to meet the targets. Some of them have already been implemented on a small scale in the member states such as: the promotion of energy-efficiency in public procurement; Co-operative technology procurement and Energy audits in industry and their tertiary sector etc.

**(vii) General targets for saving energy:** The target is to save an annual quantity of energy equal to 1% of the quantity of energy supplied or sold to the end customers, calculated for the base year indicated in Annex-I of the proposal. Member states are to appoint one or more new or existing independent public sector authorities or agencies to ensure overall monitoring of the process set up to achieve these targets. To promotion of energy end-use efficiency and energy services, member states are to remove barriers to the demand for energy services and ensure that energy distribution and energy retail

businesses that sell electricity, natural gas, heating oil and district heat actively promote energy services as an integral part of the distribution and sale of energy to clients, either directly or via other energy service providers (*Energy efficiency action plan gets green light*, <http://www.euractiv.com/en/energy/energy-efficiency-action-plan-gets-greenlight/article-158528?Source=RSS>). Those activities should refrain which could hamper the supply of energy services. Supply information on their end clients which is needed to develop and implement programmes to improve energy efficiency. Member states are to ensure that energy services, programmes or other services aimed at improving energy efficiency are offered to all eligible clients, including Small and Medium-sized Enterprises (SMEs), consumers and voluntary groups of small customers.

**(viii) Cogeneration:** The green paper on security of energy supply published in 2000 highlighted the need to limit the energy dependency of the EU and reduce greenhouse gas emission. However, Carbon dioxide emission in the EU is currently on the rise, making it difficult to meet the commitments under the Kyoto protocol. Natural gas is the most commonly used primary energy to fuel cogeneration plants. However, renewable energy sources and waste can also be used. Electricity/heat cogeneration installations can achieve energy efficiency levels of around 90%. The process is more ecological, since during combustion natural gas releases less Carbon Dioxide and Nitrogen Oxide than oil or coal. The development of cogeneration could avoid the emission of 127 million tones of CO<sub>2</sub> in the EU in 2010 and 258 million tones in 2020. There are already examples of regulatory developments in some member states, such as Belgium (green certificates and cogeneration quotas), Spain (new decree on the sale of cogeneration electricity) or Germany (new law on cogeneration). Cogeneration saves energy and improves security of supply (*European Union cogeneration plan*, [http://www.inforse.dk/europe/eu\\_cogen-di.htm](http://www.inforse.dk/europe/eu_cogen-di.htm)). There is considerable unexploited potential for cogeneration in the member states. The forthcoming legislative framework on cogeneration should overcome the major obstacles:

- Inadequate control of longstanding monopolies;
- Inadequate support from regional and local authorities;
- Incomplete liberalization;

- Regulatory obstacles having a negative effect;
- No European standards for network connection.

**(ix) Provision for Energy Security in Energy Charter:** at the meeting of the European Council in Dublin in June 1990, the prime minister of the Netherlands suggested that cooperation in the energy sector could stimulate economic recovery in Eastern and the then Soviet Union and ensure security of supply to the community. The energy charter treaty and energy protocol on energy efficiency and related environmental aspects both entered into force on 16 April 1998. Its objectives are:

- The promotion of energy efficiency policies consistent with sustainable development;
- The creation of conditions which induce producers and consumers to use energy as economically, efficiently and environmentally soundly as possible;
- The fostering of cooperation in the field of energy efficiency.

The contracting parties undertake to establish energy efficiency policies and legal and regulatory frameworks which promote, inter alia, the efficient functioning of market mechanisms, including market-oriented price formation.

**(x) Co-decision Procedure: the External Dimension of Trans-European Energy Networks:** The communication stresses the importance of energy interconnections with third countries for the development of economic trade and the need to secure supplies (*Commission communication on the external dimension of trans-European energy*, <http://europa.eu/bulletin/en/9810/p102087.htm>).

In all member states, demand for natural gas is increasing along with its market share. The communication describes the progress of natural gas interconnections with the Russian, Algerian and Norwegian gas fields. The objectives for the Community are as follows:

- to maintain a high level of diversification of external gas supplies so as to establish a climate of competition between existing and potential suppliers;
- to improve flexibilities of gas transfers;
- to increase underground storage capacity.

Central and Eastern European Countries generally depend on one external supplier i.e. Russia. The challenges for those countries are then to improve security of supply and attempt to diversify their sources, for example through interconnection with Western European countries, the reaction of underground storage capacity and the development of gas pipelines, as regards electricity, most of mainland Europe is covered by the TESIS network, linking up the CENTREL and UCPTE systems. The NORDEL network which covers Scandinavian countries is connected to the UCPTE network. The following new interconnections are currently being studied:

- connection of the Balkan countries to the UCPTE network;
- connection of the Baltic states to the NORDEL or CENTREL/UCPTE networks;
- connection of the Mediterranean countries to the UCPTE networks;
- connection with the CIS countries.

The Commission is carrying out a survey of the various Community actions to promote energy network projects in third countries that it intends to pursue. Apart from identifying projects of mutual or regional interest, the Community is encouraging the interconnection of energy networks on the scale of the European continent by other actions of a political nature such as:

- The signing of the energy charter treaty, the implementation of which will contribute to securing investment in the signatory third countries and establishing the right of transit on networks across these countries;
- Reference to energy infrastructures in association, partnership and cooperation agreements;
- implementation of coherent energy policies with funding under programmes such as SYNERGY, MEDA, PHARE, and TACIS;
- use of instruments such as the EIB and the European Investment Fund (EIF) to finance investment for energy network projects, particularly in candidate countries.

The Commission invites the member states and the third countries concerned to collaborate closely in order to interconnect energy networks on a wider scale, with the aim of improving the security of energy supply, economic and social cohesion and the

functioning of the internal market and contributing to the competitiveness, environment protection and external cooperation objectives of the Community.

**(xi) The Northern Dimension of European Energy Policy:**

The northern dimension concept focuses on the countries bordering the Baltic Sea and on the North West region of Russia, including Kaliningrad. The development of the energy market of the northern European regions has been largely dependent on the existence of national resources (coal in Poland, hydroelectricity and oil in Norway etc). In addition to these, it is important to consider the political willingness to develop some particular sources of energy, such as nuclear or renewable energy sources. The future development of the sector is influenced by a number of factors: liberalization, particularly as regards the introduction of competition between fuels, privatization, the requirement for increased environmental protection and the debate about fuel choices (*A Northern Dimension for the Policies of the Union: Current and Future Activities*, <http://europa.eu/bulletin/en/9810/p102087.htm>). The “Nordic” energy market can be described as widely diversified. It is described below in terms of the objectives of European energy policy, mentioning also the problem of nuclear safety.

European interest in this region is mainly related with energy security. The countries of this region are import-dependent, with the exception of two major energy exporters, Norway and Russia. Russia’s abundant resources cover a substantial share of the European Union’s gas and oil consumption (17% and 16% respectively). Poland has significant coal resources while the Baltic States and Denmark have limited indigenous energy resources. Because of the importance of Russian and Norwegian energy supplies, the northern dimension represents an essential frontier for security of supply. Transit in this region, especially of oil products and gas, will be increasingly important in view of the expected rise in European Union’s consumption. The Union has moreover, financed interconnections projects from the budget of the trans-European networks. Fuel choices, induced by the existence of natural resources, have strongly influenced the energy policies of these countries leading to the institution of market distorting protective policies. These protective mechanisms may not survive in a global and liberalized energy

market. Therefore, an important prerequisite for improving security of supply in the energy sector is the establishment of stable conditions for trade and investment. The framework for such stability is provided by the energy charter treaty, which has been ratified by most of the northern dimension countries, with the exception of Poland, Russia, Norway and Iceland. The communication sets out a number of strategic guidelines to strengthen the northern dimension of European Union's energy policy and identifies specific actions to be taken. The following fields are at the forefront and should benefit from this approach. These approaches are the following:

**a. Closer cooperation with industry:** The new industrial environment will be one of competition, regulation and new standards. As regards the authorities, the old planning function should be replaced by a new approach to investments in the companies and a less directive role for the ministries, while the competition regulator will see its role reinforced.

**b. Infrastructure completion, market interconnection and restructuring:** increased interconnection between gas and electricity networks will lead to the integration of the northern markets into that of the European Union.

**c. Developing and strengthening the environmental dimension:** the environmental and sustainable development must be integrated into energy policy. As part of the enlargement process, for example, community programmes such as SAVE and ALTENER are open to applicant countries.

**d. Improvement of nuclear safety:** the closure of unsafe nuclear plants, the promotion of a nuclear safety culture, and the environment of waste management are among the objectives to be achieved to ensure greater nuclear safety both for the northern countries and the European Union. Strengthening the northern dimension of European energy policy will help to increase the contribution of these regions to achieve the EU energy policy objectives of security of supply, competitiveness and environment. At the same

time, this process may help the European Union to reinforce the effectiveness of its energy actions in the region.

**(xii) Euro-Mediterranean Cooperation:** relations between the European Union and Mediterranean countries are governed by “the Euro-Mediterranean Partnership” set up in Barcelona in 1995 (*The EU Mediterranean and Middle East policy: Creating an area of dialogue, cooperation and exchange*, [http://ec.europa.eu/external\\_relations/med\\_mideast/intro/index.htm](http://ec.europa.eu/external_relations/med_mideast/intro/index.htm)). The partnership is made of 12 partner’s countries around the Mediterranean: Algeria, Cyprus, Egypt, and Israel, Jordan, Lebanon, Malta, Morocco, Palestinian authority, Syria, Tunisia and Turkey. It covers a large range of policies. It also draws on more general commission initiatives such as the green paper on the security of energy supply and the draft white paper on the common transport policy. For cooperation in area of energy security EU had set up a Euro-Mediterranean energy forum, an action plan for the period 1998-2002 has been also implemented. The EU is encouraging the Mediterranean partners to accede to the Energy Charter Treaty.

Integration of Mediterranean markets and development of interconnections with EU has been done with a view to enhancing the security of energy supply. The interconnection of infrastructure between Mediterranean countries and also between them and the EU is planned. Modernization of the existing infrastructure has been also given a priority. The enlargement of INOGATE, the EU programme aiming to promote the construction and interconnection of oil and gas infrastructures between the EU and regions such as the Caspian Sea has also been considered.

Sustainable development for partner countries in this sector is based on energy efficiency requirements, energy saving and environmental protection. Renewable energy has a major role to play and also represents the diversification of energy sources. The European Union’s programme is aiming to develop a European satellite navigation system with global coverage under its space programme Galileo (*Navigation, timing and*

positioning: *The Galileo Programme*,

[http://ec.europa.eu/comm/space/programmes/galileo\\_en.html](http://ec.europa.eu/comm/space/programmes/galileo_en.html)).

**(xiii) Granting of Community Financial Aid in the Field of Trans-European Networks:** For development of energy security the EU provides financial help to some countries. The conditions and procedures for granting community aid to projects of common interest in the field of Trans-European networks are related to transport, energy and telecommunications (*Community financial aid to trans-European networks*, <http://europa.eu/scadplus/leg/en/lvb/l24096.htm>). Eligibility criteria for such aid are:

- projects of common interest financed by the member states and identified within the framework of the guidelines referred to in Article 155 of the Amsterdam treaty;
- projects financed by the member states, by regional or local authorities or organizations working within an administrative or legal framework that makes them similar to public organizations.

The total amount of community aid may not exceed 10% of the total investment cost. The commission may produce an indicative Multiannual Programme to serve as a reference for the annual decisions allocating community aid for projects. Community aid is granted on a priority basis to projects according to their contribution to the objectives set out in Article 129b of the treaty and to the other objectives and priorities defined in the guidelines referred to in Article 129c(1) of the treaty. It is intended for projects that are potentially economically viable and for which the financial profitability at the time of application is deemed insufficient. The decision to grant community assistance should also take account of:

- the maturity of the project;
- the simulative effect on public and private finance;
- the soundness of the financial package;
- direct or indirect socio-economic effects, in particular on employment;
- the environmental consequences.

The financial reference amount for implementation of the proposed regulation for the period 2007-2013 is 20.69 billion euros, of which 20.35 billion is for transport and 304 million for the energy.

#### **(xiv) Energy Security and Enlargement**

The European Union is a key actor on the international energy market as the largest importer and as the second largest consumer in the world. Energy is a major economic and geopolitical factor. The European Union is, however, dependent on imports for half of its supplies, while this dependence could even reach 70% by the year 2030, if nothing is done. For natural gas, dependence could reach 70 %; for oil 90% and for coal even 100%. Most likely, enlargement will only reinforce these trends, despite the fact that certain candidate countries are producers of primary energy (e.g. Poland for coal and Romania for oil and gas) that could help in energy security of EU. Repetition

Jones (2001) writes in detail about European initiative towards integration in keeping energy security mainly as an essential issue. At the end of 1995 a 'status report' on EU integration in energy policy included the following 'formal competences': the development of infrastructure in the EU region, especially in the less developed nations, and also beyond the EU region into Central Europe and across the Mediterranean; the granting of aid for the general development of the energy sectors in this region; the restructuring of aid to coal production in line with general EU state aid policy and the ECSC rules; the merging of energy and environmental policy as mandated in the treatment on political union; intervention in national energy sectors to prevent monopolistic practices, and the continued existence of energy monopolies, based on the common policy on competition; and acting on behalf of the EU in IEA and UNCED (*UN conference on environment and development*, <http://www.un.org/geninfo/bp/enviro.html>). Formal policy-making roles have included establishing and administering control over some aspects of the transmission of gas and electricity, as well as setting the tariffs for such transportation; and implementing, managing and ensuring adherence to the rules of the charter until the end of 1995, when a

separate charter organization was established. Through this and other policy instruments, the EU has a major actor in the restructuring of the energy sectors of Central Europe and the CIS.

Estrade-Mane (2006), the Clingendel International Energy Programme (CIEP) analyst diagnosed a “growing exposure to security supply risks for the European Union” this growing exposure is explained in the green paper of the EU. The problem of the EU security in energy supply is basically a matter of availability of crude oil and gas. In other words, the cause of the problem of EU energy security is that it consumes-and will continue to do so-a quantity of hydrocarbons far exceeding the production capacity of its member states. For this reason, hydrocarbons have to be imported from third countries, most of which are considered unstable. This is the origin of the energy instability and, for this reason, the EU must ensure, in the future, an increased and constant supply of oil and gas. This situation calls for various measures about which the European Commission (1994), has launched in 2001 a wide debate (*Green Paper 'Towards a European Strategy for the Security of Energy Supply* <http://europa.eu/rapid/pressReleasesAction.do?>). Measures in the energy sector should aim at a more stable flow of energy, ultimately underpinning the Union's efforts to ensure peace, stability, security and prosperity. In this, the European Union's enlargement process has a key role to play.

Since then, the EU's directorate general for energy and transport clearly speaks about the regional approach to energy supply and in the framework of the European Neighborhood Policy (ENP); there has been a proposal of creating an energy ring. Both initiatives are also in accordance with the 2003 Communiqué of the Commission named on the development of energy policy for the 'Enlarged European Union', its neighbors and partner countries (*Theorizing the European Neighborhood Policy: Disorder and Reordering in the Mediterranean*, <http://ideas.repec.org/p/erp/euirsc/p0168.html>). Furthermore, this document reinforces the regional aspect of the European energy security, in so far as its aim is to promote “the development of a real energy community in the wider European area. Such a development will promote shared prosperity, stability and sustainable development”. Because, together with the neighboring countries and our

partners, the European Union can face the challenges of growing external energy dependence, the need to address infrastructure issues on a regional level Estrade-Mane (2006).

The energy 'acquis communautaire' (the body of common rights and obligations which bind all the Member States together) is supposed to be adopted by the applicant countries. In view of the energy acquis, candidate countries need notably to: decide on an overall energy policy with clear timetables for restructuring the sector; prepare for the internal energy market, improve energy networks; prepare for crisis situations, particularly through the constitution of 90 days of oil stocks; waste less energy and increase the use of renewable energies such as wind, hydro, solar and biomass in their energy balance and improve the safety of nuclear power plants (*The Negotiation Procedure Acquis Communautaire*, [http://www.kypros.org/CYEU/eng/04\\_negotiation\\_procedure/acquis\\_communautaire.htm](http://www.kypros.org/CYEU/eng/04_negotiation_procedure/acquis_communautaire.htm) ). These developments are all the more significant because; energy policy has been as a relatively uninteresting area in the study of EU integration. There is room for a European regional strategy because of the growing importance of gas, the birth of the euro, the fact of Russia being a "non-aligned" energy agent and, lastly, the expected scarcity and the greater interest in securing the energy supply. Furthermore, Estrade-Mane claims the creation of the stated geo-energy space will give Europe an instrument to establish better relationships and bring about a higher degree of multilateralism in the international energy scene.

### **III. ENVIRONMENT**

The third major objective of EU energy policy is environmental protection. The Commission believes that the goals of greater economic competitiveness and environmental protection are not necessarily in conflict, and those policies that move industry to invest in new, cleaner, and less energy-intensive technologies: principally in the energy efficiency and renewable areas will prove an advantage rather than a penalty to European firms in the long term. Matlary (1997) says that environmental policy has a

rather short history in the EU. There have been several 'action programmes' since 1973. The first three of these contained no specific proposals for change. However, the fourth programme, which ran from 1987 until the year 1992, was comprehensive. A new programme was published in March 1992 covering the period until the year 2000. The late 1980s and early 1990s were very important because then EU gave importance to energy policy. In 1990 two important changes had taken place according to Andersen and Kjell (2001) these are: first, environmental policy, in contrast to energy policy, had become part of the Treaty of Rome through the Single European Act reform in 1987. Second, environmental protection had been defined as a horizontal policy area—a general concern to be taken into account in other policy areas. These changes gave the environmental policy greater weight. As Collier says, however, (Collier, 1996:136) 'in reality, environmental issues receive little attention in a number of member states and, without being forced by the EU, they would take no action'. In 1990s environment got specific attention 'the treaty, in articles 130r to 130t raised environment action to the status of a policy' (Goodman, 1990:260).

Kelley (1977) sees in the energy-environment debate energy as a means to an end, not an end in itself. Thus the rational use of energy and environmental protection are seen as two sides of the same coin, regardless of member-state differences over particular policies. There are various important policies adopted by the European Union in the context of environmental safety. These are:

**(i) Thematic Programme: Energy, Including Nuclear Energy, The Environment And Sustainable Development (1998-2002):** The objective of this programme is to reconcile economic growth and protection of the environment. At the core of this development is the pursuit of economic growth compatible with respect for the environment. The research and technological development (RTD) projects comprise six key actions, total budget of which is euro 2125 million.

**a. Sustainable management and quality of water:** research will focus on the following issues: water resources management; preventing pollution of ground water and surface

water resources and Surveillance, early warning and communication systems. Fund allocated for this programme is 254 million.

**b. Global change, climate and biodiversity:** The objective of this programme is developing a scientific, technological and socio-economic basis to study changes in the environment such as loss of fertile land and habits, global warming, disappearance of large tracts of forest, water contamination, etc. research will be based on ecosystem interaction with the soil, water, the atmosphere and the oceans, human impact on environment, observation and surveillance. Budget for this is euros 301 million. In the framework of the Kyoto protocol on climate change, the future effects of these environmental changes are being investigated

**c. Sustainable marine ecosystem:** The main aim of this is to promote the development of sustainable integrated management of marine resources and contributing to the marine aspects of EU's environment and sustainable development policies. In this connection, the common fisheries policy and integrating environmental policy play a highly significant role in working out the right approach to the marine environment and sustainable development. Fund for this programme is euros 170 million.

**d. The city of tomorrow and cultural heritage:** this programme is developing rational management of urban planning in order to promote and protect culture and quality of life. Also, rich historical buildings and cultural heritages to be preserved and renovated. Fund for which is euro 170 million.

**e. Cleaner energy systems, including renewable energies:** the green paper on energy supply presented by the commission in November 2000 notes that there is a risk that energy consumption in Europe will increase by about 20% by 2020. The two points of reference for research activities are the Kyoto protocol, requiring an 8% reduction of greenhouse gas emission between 2008 and 2012, and the target for developing renewable energies which is 12% by 2010. Euro 479 million is proposed for this programme. Areas for research:

- Clean generation of electricity and heat from coal, biomass or other fuels, including combined heat and power
- Development and demonstration, including for decentralized generation, of the main new and renewable energy sources, in particular biomass, wind and solar technologies, and fuel cells
- Integration of new and renewable energy sources into energy systems
- Cost-effective environmental abatement technologies for power production

**f. Economic and efficient energy for a competitive Europe:** This is providing reliable, clean, efficient safe and cost-effective energy services to enhance the competitiveness of industry and respect for the environment. Fund is euro 547 million.

**(ii) Research and technological development activities of a generic nature:** This will deal with natural hazards; earth observation satellite technologies; socio-economic aspects of environmental change in the context of sustainable development. Budget decided for this is euro135 million.

**(iii) Intelligent energy for Europe programme (2003-2006):** the previous energy framework programme (1998-2002) focused on competitiveness, security of supply and combating climate change. This new programme is aimed at providing financial support for local, regional and national initiatives in the field of renewable energy, energy efficiency and the energy aspects of transport. This is also committed to creation, enlargement and promotion of structures and instruments for sustainable energy development; the budget is euro 200 million for the period 2003-2006 (*Intelligent Energy Europe*, <http://www.managenergy.net/conference/eie1103.html>). There are some specific aims also such as: to provide the necessary factors to promote energy efficiency and develop renewable energy sources with a view to reducing energy consumption and CO2 emission ; to develop resources and instruments which can be used by the member states to monitor and evaluate the impact of the measures adopted by the member states; to promote efficient and intelligent schemes for the production and consumption of energy based on solid and sustainable foundations, through awareness-raising and education.

To achieve these aims, the programme must ensure that there is a real change in energy behavior in the EU on the part of individuals as well as industry and enterprise. The programme is divided into four fields, some of which match the earlier programmes to provide and reinforce continuity: first the SAVE field, which is concerned with improving energy efficiency and the rational use of energy, in particular in the construction sector and industry, budget is 69.8 million; second the ALTENER field, which is concerned with the promotion of new and renewable energy for the centralized and decentralized production of electricity and heat, and their integration into the local environment and energy system .Budget is euros 80 million; third the STEER field (*Steer Programme*, <http://europa.eu/scadplus/leg/en/lvb/l28071.htm>) which is concerned with supporting initiatives relating to the energy aspects of transport and fuel diversification by using renewable energy sources fund given to this programme which is euro 32.6 million; fourth the COOPENER field, which is concerned with supporting initiatives for the promotion of renewable energy and energy efficiency in developing countries budget for this is 17.6 million.

The EU contribution may not exceed 50% of the cost of the measure; the rest may be covered by either public or private funds or by a combination of the two. The budgetary allocation is flexible in order to respond more fully to changing needs in the sector. The commission, assisted by a committee will be responsible for the implementation of the programme. The programme is open to any legal, public or private person established in the territory of the EU, the candidate countries and the countries of the European Free Trade Association (EFTA) and the European Economic Area (EEA).

**(iv) The energy dimension of climate change:** The Commission is part of the third conference of the United Nations on climate change to be held in Kyoto in December 1997. The communication describes if the current situation persists, this would lead to: an increase in CO<sub>2</sub> emission of 8% between 1990 and 201- for the whole of the European Union. The Community has committed itself to a 15% reduction in its emission of greenhouse gases by 2010, compared with the reference year 1990. It proposes that all the

OECD countries and the countries with economies in transition should commit themselves to the same policy. The communication contains a list of possible action to achieve the goal of reducing greenhouse gases emission including:

- encouraging energy savings;
- stepping up the SAVE and the JOULE-THERMIE Programmes which help to reduce CO<sub>2</sub> and which support the new energy saving technologies; SAVE I has also made it possible to issue a series of legislative proposals such as a European energy consumption labeling system for household appliances and efficiency standards for boilers, refrigerators and freezers;
- entering into a dialogue with the energy supply industry with a view to promoting more efficient production and services and enabling them to save energy;
- promoting energy management, particularly in urban centers;
- promoting combined heat and power production initiatives, as co-generation can contribute to the reduction in emissions;
- encouraging ways of producing electricity which offer various possibilities for introducing zero carbon fuels or using low carbon fuels;
- integrating the goals of reducing greenhouse gas emissions into all policies such as agriculture and forestry's, environmental protection and waste management, transport, research and development, and fiscal policy;
- ensuring close coordination between RTD programmes and energy;
- limiting other greenhouse gas emission apart from CO<sub>2</sub> ( methane, natural gas and nitrous oxide);
- examining fiscal instruments and the resources to be mobilized to finance the promotion of energy management and renewable.

The goals fixed for reducing greenhouse gas emission imply significant changes in current structures. To achieve this end, the Commission must first:

- quantify the costs of the EU'S current negotiating position ( reduction by 15% of greenhouse gas emission between now and 2010);
- conduct a precise analysis of the energy situation within the EU in order to identify those sectors and players who consume energy and produce emission in order to define suitable policies and measures;

- adopt a comprehensive strategy implying the coordination of all measures directly affecting energy, including those in other sectoral policies;
- develop an integrated approach associating the member states and the community at community, national, regional and local level in order to achieve the agreed reduction targets and the burden-sharing decided upon between the member states.

#### **(v) Renewable Energy**

In the 1970s and 1980s of the last century, the policy emphasis for renewable energy on state level was on research and technological development. Within the European Union, Germany was the largest contributor to R&D. Other countries with a substantial contribution to European Union's renewable energy R&D are Italy, the Netherlands, Spain Sweden and the United Kingdom. In the 1990s of the last century, the emphasis shifted gradually to actual implementation. Until now, (Blok, 2006: 251) 'the national policies have led the market penetration of renewable energy, e.g. wind energy by Denmark, Germany and Spain, solar photovoltaic by Germany, solar heating by Austria and Germany'. He further continued by giving date of renewable energy production in member countries as production of wind energy grew by 40% per annum in the period 1990-2000 and growth continued thereafter. Nearly 80% of the OECD wind energy production is now in the European Union. But also for solar photovoltaic and biomass electricity production growth rates are high. In spite of that some initiatives have been taken by member countries the success of the European Union is partial in this field. The growth in wind electricity production has led to a strong European wind turbine industry but Europe has a market share of just 22% in a worldwide market share of 90%.

At the European Union level in 1997 the white paper had published that can be considered as a landmark. For the first time, a target for the contribution of renewable energy was formulated: the contribution was to double, from 6% in 1997 to 12% in 2010. Renewable energy policy in Germany really was a success and led to rapid development of wind turbines and photovoltaic systems. The negative side is that the German is not

followed by many other countries. Sweden was quite early with turbine technology development, but deployment has been limited over years. In recent years another debate has emerged between two different policy paradigms that are related with “subsidies or quota”. Germany and other countries, like Spain, provide fixed feed in tariffs for renewable electricity delivered to the public grid. Others, like the United Kingdom, Belgium and Poland, apply a renewable energy obligation that is known as renewable portfolio standards, where a certain fraction of the electricity delivered to customers should come from renewable sources. One another way to stimulate the uptake of renewable electricity is to stimulate the voluntary market for renewable energy.

The development of renewable energy share in the current Union as Blok (2006) says will not increase from 6 to 12%, but reach only to 8-10%. The development of wind energy is above the 1997 expectations, but all other renewable energy sources are performing substantially below target. In December 1997, the European Commission adopted the ‘white paper for a community strategy and action plan, energy for the future: renewable sources of energy’. The objective is to increase the use of Renewable Energy Sources (RES) to an amount that equals 12% of the EU gross inland energy consumption by 2010. European Union framework that has been implemented since the adoption of the white paper in 1997-renewable energy policy in the Community is still very much national policy. The European Union’s common policy mainly consisted of three elements: (i) supporting technology R&D;(ii) setting medium and long-term targets; and (iii) providing boundary conditions (like a system for guarantees of origin).Actual incentives for market penetration of renewable energy were hardly present.

In 1999 the European commission started the work for the period 1999-2003 with the intention to kick-start the implementation strategy set out in the white paper. Within the PRETIR project (acronym for progress of renewable energy: target setting, implementation and realization) a monitoring protocol was developed, including a set of transparent indicators (e.g. share of renewable, installed amount of renewable), through which monitoring of policy development with regard to renewable energy sources in the EU-15 member states can take place.

An electricity generation through renewable energies sources Harmelink, et.al. (2006) say in 2001, the European Parliament adopted the directive on the promotion of electricity from renewable energy sources. The overall target is to increase the share of renewable electricity production to 22% of total electricity consumption in 2010. The directive holds indicative targets for the share of renewable electricity production for each EU member state. Same year a draft directive on biofuels was proposed. The aim is to increase the consumption of biofuels to 2% of the consumption of diesel and gasoline in 2005 and 5.75% in 2010. Other targets were set up for other renewable energy resources: the largest growth in the EU until 2010 is expected in wind power; the second largest growth in the period 1999-2010 is expected in use of biomass sources; little growth is expected in the use of geothermal sources; large growth is expected in the use of active solar thermal energy in the European Union.

#### **(vi) Enlargement and Environment Policy**

The EU-directive on the promotion of electricity produced from renewable energy sources gives the accession countries of the EU a target for their renewable energy sources development until 2010. Due to the directive many accession states have already begun to pay more attention to the topic and to introduce more systematic policies. Six of the accession states have introduced minimum tariffs which were one of the main success conditions. The ten states which will join the EU in May 2004 and other two countries Bulgaria and Romania which will probably join the European union in 2007 as well as turkey( accession date is still unclear). Most of these 13 candidate countries have had a century-long tradition in the utilization of RES, primarily in biomass and then in hydropower. However, the communist regimes were convinced of the superiority of large-scale systems and converted the energy sectors into centralized units. A comparative study of these accession countries Reiche (2005) mentioned that in Latvia all small hydropower plants were decommissioned between 1963 and 1977. In the recent history there was a better environment for renewable in the accession states. Old hydro installations are reactivated, the use of biomass is being extended and wind, solar as well

as geothermal paths are taken up. After this it can be said that Latvia is the leading nation among the candidate countries regarding the use of renewable energy sources. Two thirds of the produced electricity came from renewable in 2001. He added further that not only in Latvia but also in Romania, Slovenia, Slovakia, and Turkey the share of renewable in the electricity market is above average due to natural conditions, which make a high production of electricity from hydropower possible.

Cyprus does not have hydropower capacity to generate electricity but it has more solar collectors installed per capita than any other country in the world. Reiche (2005) says again that the Czech Republic is forerunner in the field of bio-fuels; they already amount to seven per cent of all automotive fuels. In Poland there are more than 100,000 small-scale wood heat plants. Hungary is a pioneer in geothermal energy which is used for district heating in as many as nine towns. Poland has the highest percentage of coal in its electricity market world-wide. The country will be the most important coal nation in the enlarged European Union. Reiche compares Poland with some large EU member states by saying that in 2001 more hard coal was produced in Poland than in Germany, Great Britain, France, and Spain together. In 2001, more coal was exploited in the candidate countries (4553.22PJ) than in the EU-15 (4017.03PJ).

In oil and gas all candidate countries with the exception of Romania mainly depend on imports. They mainly imported oil and gas from Russia before disintegration. On one side these countries are hopeful to join the EU in 2004 and keeping that point in view the EU had already started making policy towards these accession states, other side these transition countries are still in energy policy have nearly the same structure of dependence on Russia as it was before 1990. The EU is very worried and more concerned about nuclear energy in these countries. Only six countries among the candidate countries do not have nuclear power stations. It is no surprise that some of them such as Latvia and Turkey (hydropower) as well as Cyprus (solar energy) belong to the forerunners in renewable energies. Altogether there are 26 reactors in the candidate countries; one more is under construction in Romania. Comparatively in western Europe many countries have decided to phase out nuclear power after the Chernobyl disaster in 1986, Reiche (2005)

says that among the candidate countries only Poland followed these examples when more than 85 per cent of the inhabitants in the concerned Gdansk-province had voted against the already partly built nuclear power station in Zarnowiec in a referendum in 1990. Reiche predicated that until 2009 eight reactors –which means nearly every third one– have to be closed.

European Bank for Reconstruction and Development (EBRD) is giving financial support to these countries for the decommissioning of the reactors. This requirement from the EU might become one of the main driving forces for future renewable energy development. One of the biggest obstacles for renewable energy development in the candidate countries are institutional barriers and the lack of domestic financial sources. However, there are several possibilities for obtaining external financial support. External supports are also coming from global level as from the Global Environment Facility (GEF) and the World Bank (WB) also, which finances a large geothermal project in Poland, Compared to support from external forum the EU, on its own level, is doing well through its different programmes, the important one of which is ALTENER programme. In 1990 the council established the ALTENER programme, which aimed to increase the contribution of RES, such as wind, solar, biomass and small-scale hydropower, within the community. The programme finished at the end of 1997, having supported 278 projects since 1993, at a cost of ECU 26.9m. A replacement programme for 1998-2002, ALTENER II, was allocated a budget of euro 77m. A green paper on ways of promoting RES in the EU was issued in November 1996. These sources provided less than 6% of the total energy produced in the EU at that time. In May 1998, following the publication of a report by the Commission in late 1997, the Council committed the EU to increasing the use of RES to 12%by 2010. The campaign for take-off, initiated after the 1997 report, set out a framework for action, with four main objectives: developing 1m. photovoltaic system; establishing wind-farm-generating capacity of 10,000MW; reaching 10,000 MW (thermal) of biomass installation; and integrating RES to meet the total electricity requirements of 100 communities. The renewable energy partnership scheme works to involve public and private partners in the campaign. In January 2000 the Commission submitted a proposal for an EU energy-efficiency labeling programme. In May the EU set

out a fourfold strategy on the promotion of electricity from RES in the internal energy market, based on the 1997 report: member states were to set and comply with national targets for the future consumption of energy from RES, consistent with the commitments entered into under the Kyoto protocol, and to introduce a system for certifying the origin of electricity from RES; operators of transmission and district networks were to be encouraged to give priority to RES electricity; and measures were to be taken to establish a harmonized support system for RES producers. In December 2000 an action plan on energy efficiency was adopted, setting out measures to integrate energy efficiency into other EU policies and programmes. In June 2003 the EU adopted a new programme entitled intelligent energy for Europe (EIE), the aim of which was to strengthen the security of supply and to promote energy efficiency and RES. The EIE, which was basically a support programme for non-technological actions, was to run from 2003 until 2006, and was to receive funding totaling euro 200m- 250m in May 2004.

ALTENER is the only specific European programme for renewable energy there are some general European programmes as well like SYNERGIE, PHARE, IPSA, and SAPARD. Above mention these general programmes work mainly through bilateral co-operation. In one of these types of programmes during the pilot phase for Joint Implementation (JI), Latvia hosted the most AIJ-projects (Activities Implemented Jointly). Of a total of 27 AIJ-projects in co-operation with Germany, Sweden and the Netherlands, 16 are located in the field of renewable energies. In co-operation with the Dutch government an ambitious 60MW JI-wind energy project is planned in Poland which would almost double wind energy capacity in all the candidate countries. One of the very important programmes of the EU the SAVE programmes have also helped a lot in development of renewable energy sources. Based on the sources of Europa year book (Europa Year Book, 2005:226) the Commission has consistently urged the formation of an effective overall energy policy. The five-year programme, 'SAVE' programme, introduced in 1991, emphasized the improvement of energy efficiency, reduction of the energy consumption of vehicles and the use of renewable energy. A second five-year programme, SAVE II, was initiated in 1995, covering 1996-2000. This aimed to continue the work of the first programme and to establish energy efficiency as a criterion for all eu

projects. In February 2002 SAVE was integrated into the 'energy, environment and sustainable development.

Welsh (1996) deals with the concept of an important programme of the EU Trans-European Networks (TEN). These are cross-frontier links in the fields of transport, telecommunications and energy infrastructures which bind the economic of the member states more closely together and have the effect of drawing the peripheral regions of the Community closer to the centre. Examples of tens include the channel tunnel, the undersea electricity cable that links Britain with France and enables French nuclear powered energy to be sold to British consumers, and cross-frontier and cross-frontier telephone links. This programme if it would have been developed properly in the EU then it would be able to link its accession countries also.

There is large scale of differences between candidate countries those are positive and negative also in nature. One of the biggest differences between EU-15 and candidate countries concerning the chances for renewable energies is the public awareness which is very, high especially in Northern Europe. In Denmark, for example, there are more than 3000 co-operative wind turbines and between 100,000 and 150,000 individuals that own them. 20 per cent of the Dutch households had already decided for green electricity by January 2003. As described above, the cognitive environment is only developed on a low level in the candidate countries (with the exception of Cyprus and partly Latvia).

Another difference that is positive in nature for accession countries is that the pressure from international obligations such as the Kyoto protocol can not be seen as a driving force for renewable energy development in the accession states in the short term because they have already reached far more CO<sub>2</sub>-emission-reduction than necessary, whereas ten out of EU-15 member states are behind their obligations set in the so-called "burden-sharing agreement" of June 1998 (Planning to tackle climate,1998) . In contrast to the Kyoto protocol the EU-directive on the promotion of electricity produced from renewable energy contains ambitious targets for the EU member states as well as the

candidate countries and may become a crucial success condition for renewable energy development.

There are more countries in the EU with favorable regulation for renewable energy sources than in the candidate countries. Under EU-15 Some of European Union states have potential to develop renewable energy resources based on Voogt and Uytendaele, (2006) study. It reveals of that not only Denmark, Finland, but also Ireland and to a lesser extent Sweden have large potentials for renewable electricity production. In spite that the leading wind energy countries- Germany and Spain have installed successful minimum payment systems. Almost all old installations in Denmark are based on this system, too, and Austria and France also introduced this tool in 2002-2003. Whereas Germany, for example, guarantees investors the feed-in tariff for a period of 20 years, the Czech Republic and Slovenia decided on their remuneration on a year-by-year basis. Only Hungary and Estonia offer investors long-term security. In many western European countries like Germany, Spain and Denmark, for example, there are more domestic manufacturers producing wind turbines than in the candidate countries.

In spite of all differences there exist some similarities also between candidate countries and EU-15. First, in most of the EU member states and the candidate countries getting permission for procedures belong to the biggest hurdles, it can be said that bureaucratic problems in work exist every where. In Poland, for instance, between 10 and 16 different permits on local, regional and provincial level are required to apply at the energy regulatory authority for a concession to built wind turbines. In Greece, another example of very complicated bureaucratic licensing, renewable energy sources installations require the agreement of more than 35 public-sector entities on central, regional, prefecture and local level; in addition the agreement needs to conform to four national laws and seven ministerial decrees other similarity in official level the administrative responsibility for renewable energies lies with the ministry of economic affairs in almost all member and candidate states.

Second similarity is based on use of hydropower in electricity market. The EU's directives on the promotion of the electricity by renewable energy sources in market, whereas the EU-directive sets no limit for hydropower use, the United Kingdom, the Czech Republic, Romania, and Slovakia exclude hydropower above ten megawatt; in Germany and Hungary the limit is five mw, in Latvia even two megawatt.

Third one is related with nuclear power station in EU and its accession countries. There are seven countries without nuclear power stations in the EU and six countries without nuclear power stations among the candidate countries. It is no coincident that some of them such as Austria, Latvia and Portugal ( hydropower), Denmark( wind energy) and Cyprus( solar) belong to the countries most successful in renewable energies in Europe- the missing availability of fossil fuels and nuclear power might be one explanation for that. There are seven countries which decide to phase out the utilization of nuclear power: Austria, Belgium, Germany, Italy, Lithuania, the Netherlands, and Sweden. In Bulgaria and Slovakia nuclear capacity is going to be reduced. This might increase the share of renewable energies in energy supply in the long run. Another success condition for both the EU-15 and the candidate countries might be that they are predominantly dependent on energy imports. Beside the improvement of the environment and creation of new jobs renewable are helping to become independent from countries such as Russia and to get a self-sufficient energy system.

According to Reiche (2005) the most important condition for success might be that a general change in the use of renewable energies is starting to take place. From centralized to more de-centralized applications. In other words, other programmes related with market opening and liberalization will increase the competition that will slow down the prices. This reduces prices in some cases, and in any case fits into the dominant belief system of the energy industry. Co-combustion of biomass and offshore-wind energy is compatible with the traditional large-scale system. Offshore-wind energy is a realistic perspective for all countries with the exception of Austria and Luxembourg on the one hand and Czech Republic, Hungary, and Slovakia on the other all of which have no coasts.

Finally, in last it can be said that the further evolution of renewable energy sources in the EU-15 and its Accession States will most likely depend on a combination of prices and political support. Putting an end to price distortion by removing subsidies for conventional fossil and nuclear energies and internalizing external costs would be a decisive step for a better competitiveness of renewable energy sources. Ratification and progressive tightening of climate change agreements in later commitment periods (after 2012) will also help. From about 2005 onwards, due to the report on the success of the different RES promotion systems currently in use in the EU, as provided in the EU-directive 2001, a Community framework on support schemes for renewable energy sources electricity may be proposed which in the medium and long-term would further bring down renewable energy sources prices. Also, the EU has an important self-interest at stake in the development of renewable energy sources throughout the world-not only as the biggest exporter of renewable energy technology, but if they do not favor RES they will also face intense competition for oil and gas resources from rapidly industrializing states in Asia and Latin America.

#### **IV. NUCLEAR POLICY**

Nuclear energy is an important source of electricity and the civil nuclear industry is also a major source of employment. Nuclear energy is much debated issue in recent, every country wants to develop its nuclear energy for its peaceful purpose like generating electricity, etc. The European Union should be better prepared in scientific, technical, financial and organizational terms to deal with the challenges of nuclear energy. With the time many policies have been developed under EURATOM related with research and training programme in the field of nuclear energy.

##### **(i) EURATOM**

Since nuclear energy was expensive and the necessary investment costs could not be met by individual states, the founding members joined together to form EURATOM. The

general objective of the treaty is to contribute to the formation and development of Europe's nuclear industries, so that all the member states can benefit from nuclear energy and to ensure security of supply. Treaty sets EURATOM the following specific tasks (Europa year book, 2005: 227):

- to promote research and ensure the dissemination of technical information (via the thematic programmes under the 6<sup>th</sup> RTD framework programme. for example) it has also established a Joint Nuclear Research Centre. The Joint Research Centre (JRC) has grown into one of the leaders in nuclear research in the Community and also in research in fields such as the environment or food safety;
- to establish uniform safety standards to protect the health of workers and of the general public and to ensure that they are applied;
- to facilitate investment and ensure the establishment of the basic installation necessary for the development of nuclear energy in the EU;
- to ensure that all users in the eu receive a regular and equitable supply of ores and nuclear fuels( supplies ensured by the euratom supply agency set up by the treaty);
- to make certain that civil nuclear materials are not diverted to other (particularly military) purposes.

The EURATOM treaty established an extremely comprehensive system of very strict safeguards to make sure that materials re not diverted from their intended civil used declared by the member states. The EU has exclusive powers in this domain, which it exercises with the aid of a team of 300 inspectors who enforce the EURATOM safeguards throughout the EU. The EURATOM safeguards are coordinated with the safeguards applied by the IAEA under Tripartite Agreements concluded between the member states, the Community and the IAEA. In the event of an infringement on the part of persons or undertakings of the obligations imposed, the Commission may impose sanctions on them. These sanctions include:

1. a warning;
2. the withdrawal of special benefits such as financial or technical assistance;
3. the placing of the undertaking under the administration of a person or board for a period not exceeding four months;

4. total or partial withdrawal of source materials or special fissile materials.

To foster progress in the peaceful uses of nuclear energy EU is working with other countries and international organizations such as IAEA and others. It is also working for establishment of joint undertakings; such undertakings are set up for a specific project of fundamental importance to the development of the nuclear industry in Europe, as in joint European Torus (JET) and ITER.

#### **(ii) EURATOM AND ENLARGEMENT**

As a result of EURATOM, the EU pursues a harmonized community approach to nuclear energy with which candidate countries must comply. Nuclear power is an important energy source for Eastern European Countries (candidates or new members of the EU). However, the safety standards in their nuclear power plants and the level of protection of the public and workers are not always sufficient. In this context, the Commission is endeavoring to improve the situation via the PHARE programme. Since the collapse of the Soviet Union, many of the new independent states face the same problems. In their case the Commission is using funds from the TACIS programme.

The Community institutions (principally the Commission, the Council and the European Parliament) are responsible for implementing the treaty and for the two specific EURATOM bodies: the supply agency and the safeguards office. The only amendments made to the EURATOM treaty by the constitutional treaty are adoptions to new rules established by the constitution, particularly in the institutional and financial fields. A declaration by five member states-Germany, Ireland, Hungary, Austria and Sweden-notes that the main provisions of the EURATOM treaty have not been amended since it entered into force and need to be updated. These five countries therefore favor the idea of convening an intergovernmental conference as soon as possible to revise the treaty.

The seventh EURATOM Framework Programme (2003) comprises research, technology development, international cooperation; dissemination of technical information and exploitation activities as well as training. It is set out in two specific programmes: Fusion energy research, nuclear fission and radiation protection. The overall proposed amount

for the implementation of the seventh framework programme for the period 2007 to 2011 is euro 3092 million.

The JOULE programme promotes pure research on the use of non-nuclear energy and renewable energy sources, such as solar energy, wind-power, and biomass energy, under the EU'S research and technological development policy. Joule focuses on four areas: the rational use of energy; renewable energy sources; fossil fuels; and the dissemination of energy technology. THERMIE, a companion program, promotes the application of such research (Dinam, 2000:310).

THERMIE is the application (market-oriented) side of the non-nuclear energy research program under the aegis of the EU's research and technological development policy. It includes projects to advance or implement innovative energy techniques, processes, or products for which the research and development plan has been completed; dissemination of information on innovative energy technologies; and support for small and medium-sized enterprises (Dinam, 2000:454).

The EURATOM programme comprises two key actions, controlled thermonuclear fusion and nuclear fission, as well as generic activities in the radiological sciences and support for research infrastructure. This programme also includes shared-cost actions, training grants, concerted actions and accompanying measures. The total sum of euro 979 million has been allocated to fulfill this objectives.

**Key actions 1 controlled thermonuclear fusion:** thermonuclear fusion means fusion of light atomic nuclei to obtain a heavier helium nucleus. The success of the research activities depends on international cooperation as in the case of the International Experimental Thermonuclear Reactor (ITER) which is a project set up in 1988 in which the EU, the US, Japan and Russia work together. The other main line of research is the JET which is established in 1991 the first major fusion facility in the world, Switzerland, the Czech Republic, Hungary, Latvia and Romania are also members of the JET project (Europa Year Book, 2005:227). It put Europe in the lead in developing nuclear fusion.

European Commission finances this programme, total sum allocated is euro 788 million.

The Commission may finance:

- the capital costs of specifically defined projects, at a uniform rate of 45%;
- specifically defined activities carried out under a multilateral agreement between EURATOM and associated organizations, at the maximum rate of 75%;
- procurements and services supplied by industry, at a maximum rate of 100%.

**Key action 2 nuclear fission** (142 million): the main objective of this is to ensuring the safety of nuclear installation and improving the competitiveness of European industry. Special attention will be given to waste storage and public attitudes while exploring innovative concepts that are economically sustainable in the long term context. Nuclear energy is of considerable economic importance as it emits no greenhouse gases. It is an alternative option in view of the need to reduce CO2 emission. Nuclear energy supplies a third of electricity consumed in EU and it is a highly reliable source of energy. The EURATOM treaty signed in 1957 transferred responsibility for nuclear safety to the EU. Accordingly, the Joint Research Centre (JRC) has carried out extensive high-level research in collaboration with special laboratories in the member states. Euro 142 million has been decided for its research programme. Areas of research are:

- operational safety of existing installations;
- safety of the fuel cycle;
- safety and efficiency of future systems;
- radiation protection.

**Key action 3 Research and technological development activities of a generic nature:** these activities are designed to help the EU to maintain and improve its scientific capacities in a limited number of general areas of research not covered by the key actions. The aim is to consolidate knowledge in the radiological sciences in order to generate the safety and efficacy of industrial and medical uses of radiation. Research will cover:

- radiation protection and health;
- environmental transfer of radioactive material;
- industrial and medical uses and natural sources of radiation;

- internal and external dosimeter.

Euro 39 million is total budget from that euro 10 million is for Support of research infrastructures the objective is to optimize access to infrastructures in a way that is conducive to the competitiveness of nuclear industry.

**(iii) SURE Programme to promote nuclear safety in the TACIS countries (1998-2002):** The main objective of this programme is to review the transport of radioactive materials in the community; to help the TACIS countries to improve their systems of safeguard; to promote industrial cooperation and cooperation between regulatory bodies and the TACIS countries to help those countries achieve high safety standards. A reference amount of euro 9 million has been granted to the programme, including euro 3.6 million for the period 1998 to 1999. The remaining amount for the period 2000 to 2002 may be reviewed in the light of the new financial perspective (2000 to 2006).

Sure programme also support to the development of accounting and control systems for nuclear materials. They also give training to TACIS countries in the matter of nuclear safeguards and check the development of modern logistical, evaluation and control equipment and the relevant training. In spite of that industrial cooperation with TACIS countries is also one of the important agenda. The Community's financial contribution to these actions is between 80 and 100% of their total cost. The Commission is responsible for the implementation (financial and otherwise) of the programme. It is assisted in these tasks by a "regulatory" committee.

**(iv) Nuclear Safety in the Newly Independent States and the Central and Eastern Europe :** The Commission (European Commission, 1998) adopted a communication in March 1998 setting out the actions taken by the Community in the area of nuclear safety in Central and Eastern Europe and in the newly independent states (NIS). The communication contained proposals for future orientation. The present communication aims to provide an update on developments in this sector since 1998 and to present the Commission's current approach to this subject. The Commission approach is based on two main objectives which are fully in line with the policy of the international community. In the short term, to improve operational safety; to make technical

improvements to plants based on safety assessments and to enhance regulatory regimes. In the long term, to examine the scope for replacing less safe plants by the development of alternative energy sources and more efficient use of energy and to examine the potential for upgrading plants of more recent design. Generally, the Commission works to promote policy dialogue, through technical and financial assistance and to ensure a high level of human protection in the member states and neighboring countries. The instruments used include:

**(a) The financial framework:** the PHARE (for Central and Eastern Europe) and TACIS (for the NIS) community programmes to provide technical assistance as well as a number of other programmes. EURATOM loans given on an international level, the EU contribution to the nuclear safety account administered by the European Bank for Reconstruction and Development (EBRD). Pre-accession funds to support nuclear safety in the candidate countries. Priority is given to this as part of EU enlargement.

**(b) The political framework:** in 1992, committees and working parties were set up, bringing together nuclear regulators from the EU, the NIS and countries in Central and Eastern Europe, notably the concert group and the nuclear regulators working group (NRWG). The European Nuclear Installations Safety Group (ENIS) was formed bringing together nuclear regulators and operators from the member states and candidate countries.

**(c) Progress made in nuclear safety in these countries is as follows.**

- Agreement to close non-up gradable units in Lithuania, Slovakia and Bulgaria. The commission is now working closely with each government to ensure the implementation of the agreed closure commitments and has established three national PHARE programmes.
- A major contribution to dealing with the problems at the Chernobyl nuclear power plant and the decision to shut it down on 15 December 2000.
- Continuous on-site assistance in 14 NIS and in Bulgaria.
- Independent regulatory authorities have been strengthened through eu technical and financial assistance, notably through the CONCERT and NRWG group.

- Increased nuclear safety levels in the nuclear power plants under construction in Slovakia, the Ukraine and in Russia through PHARE and TACIS (linked with possible EURATOM loans).
- Improved operating practices thanks to the provision of equipment.
- Attention has been focused on the problem of waste management and environmental hazards in Central and Eastern Europe. The situation is being comprehensively documented and imported.
- The profile of the issues related to the decommissioning of nuclear facilities has been raised to take account of other factors, such as technical, legal or environmental issues.
- The opening of the Russian methodological and training centre (RMTC) was an important factor in the establishment of a state system for nuclear material accounting and control in Russia.

Furthermore, the EU has provided support for the development and improvement of energy strategies, including the development of alternative energy sources and improving energy efficiency. In 1992 the community helped to create the International Centre for science and technology (ISTC) in Moscow, which also operates in other NIS countries to redirect the talents of nuclear weapons expert following the fall of the Soviet empire.

The Budget allocated over the period 1991-1992, the EU committed a total of euro 913 million to efforts in this sector. Euro 192 million in PHARE and euro 721 million in TACIS, including a euro 100 million contribution to the Chernobyl shelter fund. A total of 950 projects have been financed, 300 under PHARE and 650 under TACIS. The financial support likely to be provided by the EU is limited compared with needs.

Candidate countries nuclear energy generation will continue to play an important part in the overall energy mix in at least six of the candidate countries in the foreseeable future. Seven of the thirteen candidate countries have nuclear power plants either in operation or under construction. Three of the candidate countries, Bulgaria, Lithuania and Slovakia, have undertaken to decommission nuclear power units which are considered

not to be upgradeable at a reasonable cost. The Commission is therefore involved in the implementation of closure commitments on one hand and in nuclear safety issues such as the modernization of existing plants on the other. The Commission has begun to provide financial support for the closure of units in Bulgaria, Lithuania and Slovakia. The closure will take place in stages. In Bulgaria, kozloduy units 1 and 2 will be closed before 2003 the decision on closure dates for units 3 and 4 will be taken in 2004. The Commission understands that closure will take place by 2009 at the latest. The two Bohunice VI units in Slovakia will be shut down in 2006 and 2008 respectively. The Commission estimates that the total support will amount to euro 150 million for Slovakia and euro 165 million for Lithuania by the end of the present 2000-2006 financial perspective. The Commission has proposed a multi-annual assistance package of euro 200 million for the period up to 2006. The delivery of half of this amount will depend on the confirmation in 2002 on the understanding on definite closure dates for kozloduy units 3 and 4.

This support will come under PHARE via EBRD-managed international grant funds established on 12 June 2000 to aid the decommissioning of these three stations. It is essential that high safety levels are maintained during the transition period. With regard to other nuclear safety questions, some of the nuclear reactors are either Soviet or Western design and can be upgraded to acceptable safety levels (Bulgaria 2, Romania 2, Slovakia 4, Slovenia and Croatia 1, Hungary 4, Czech Republic 5 reactors to be developed) the commission will develop, together with the candidate countries concerned define other measures that will have to be taken before further assistance is given:

- support for nuclear regulators through the “Regulatory Assistance Management Group”( RAM-G) and Technical Support Organization Group ( TSOG);
- short term urgent safety improvements to the reactors that will have to be closed down. No community assistance will be considered for projects which could contribute to prolonging the operation of these reactors beyond the provisions of the agreed closure commitments;
- in specific cases, support for the safety enhancing programmes of VVER 440-213 and VVER 1000 reactors, in the form of regulatory review, project management and operational assistance;

- co-operation on research under the fifth framework programme;
- strengthening of the regulatory and institutional infrastructure with regard to radioactive waste and spent fuel;
- safeguards projects aimed at preventing illicit trafficking.

It has been difficult to agree to a general approach to safety issues with some of these countries, mainly due to the fact that both the community budget and that of the candidate countries available for nuclear safety projects is very small in relation to needs. There are also differences between the different countries: geographical, industrial or even willingness to engage in this debate, amongst others. Future policy of the Commission has to bear these factors in mind. The levels of nuclear safety programme in the NIS is the development and implementation of strategies for dealing with spent fuel, decommissioning and managing nuclear waste and Contribution to international initiatives such as the G7/EU initiative on the closure of Chernobyl. There is also some future plans that includes: strengthen the role of the national nuclear safety authorities to encourage improved licensing procedures and to ensure involvement in all relevant nuclear activities; help to improve the corporate structures of nuclear utilities and industrial nuclear operators in order to bring about a financially sound electricity and nuclear sector; providing EURATOM loans and to Promote and develop safeguards projects with three major objectives: training of inspectors and plant operators, accountability of nuclear material and implementation of measures at plant level to promote illicit trafficking etc. All these plans will be monitored by the Commission.

**(d) National Aspects of the NIS:** The Commission is working with the Armenians with regard to its closure, alternative sources of supply and on-site assistance at the Medzamor nuclear power plant. In Kazakhstan; the Aktau nuclear power plant has benefited from on-site assistance since 1994. Moreover, a rather unique case in the NIS, the government decided to decommission the plant in 1999. For the time being, assistance is limited to preparing for decommissioning. Russia clearly wishes nuclear energy to continue to be predominant in its overall energy mix. It continues to build new reactors and has a policy of prolonging of the life- span of its reactors. The EU and Russia have co-operated in a

number of projects under TACIS. There are fundamental differences between the EU and Russia in their approaches to nuclear safety. This is especially clear from Russia's persistent breaches of its agreement on nuclear safety with the EBRD. Russia has a policy of extending the life of its first-generation reactors to exceed the nominal lifetime of 30 years. The Commission does not advocate such a policy. The Ukraine received a grant of euro 100 million under the TACIS nuclear safety programme 1994-1996. The Commission focused on the following priorities during this period: the establishment of a decommissioning plan for the Chernobyl reactors, to ensure that the two new reactors to be built are in accordance with international safety standards. The shelter implementation plan (SIP) is now being implemented at present under a special fund managed by the EBRD to which TACIS contributed euro 90.4 million over 1998-1999. Since 1991, the Commission has made an important contribution towards improving nuclear safety in these countries. The Commission must also continue to contribute to building an economic and legal environment to ensure that the necessary work can be completed.

This chapter has covered the energy policy of European Union before eastward enlargement only. Where EU main objective in opening the internal market to competition was to improve efficiency, lower costs of production, ensure security of supply, attract foreign capital and divest the heavily regulated, cumbersome, integrated state entities. Liberalization and privatization was important to introduce for achieving a gradual, democratic acceptance of competition, avoiding excessive regulator and accepting the need for subsidiary, the right of member states to choose the tactics for scoring the competition goal which suited them best. In spite that for environmental-friendly gas and the encouragement of energy-saving Combined Heat and Power (CHP) for new generating capacity. It is sad that till study only four member countries out of fifteen as Finland, Germany, Sweden and the U.K has fulfilled the goal set by EU for market opening there is long way to go for other member states also. Security of energy supplies is related with utility deregulation only and many programmes like SAVE, ALTENER, ETAP, SYNERGY, and CARNOT. Environmental protection is another important pillar of energy policy and member states are coming together to give more importance to development of renewable energy sources as substitutes of fossil fuels.

Nuclear reactors in newly independent countries and accession countries are a very problematic issue that European Union is also trying to solve through negotiation with these countries. Even European Investment Bank is providing aid to these countries to develop other resources for electricity generation or other energy related development. EU has been doing this so that the Central and Eastern European Countries will fulfill the policy requirement before accession. There are still many challenges ahead that EU has to overcome to make its energy policy a success. These challenges and prospects are discussed in the subsequent chapter.

## **CHAPTER- 4**

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## CHAPTER- 4

### CHALLENGES AND PROSPECTS

After Second World War, European countries came together to solve energy problem. With their consistent effort they were able to solve some of the major problems. But the making of the Common Energy Policy for the members of the EU remains a far dream for them. This chapter will focus on the various problems that EU faced in the evolution of energy policy and at the same time prospects and future of EU's energy policy will be discussed.

The European Union's energy policy can be seen as conflict between two extremely different approaches of policy making, which is very much responsible for direction in which energy policy is moving today. These two important approaches are 'supranationalism' and 'intergovernmentalism'. Hartley (2004) prefer to call EU as a "supranational" organization. He says that it does not merely operate in relation between states but has power over members. He added further that the supranational organization itself must have significant powers that can be more than the member states acting together. The EC bureaucracy, the Commission, has such powers. In practice, it seems that intergovernmental approach in which nations give importance to their national interest has been superseding the supranational approach from the very beginning. M.F.Spaak, on the other hand, focused on supranational ideas which afterwards started changing. As Lucas also said :( Lucas, 1977:104)

"...M.F.Spaak as director general of EC held strongly to the opinion that energy policy should be an integrative force in the community and not simply a means of coordinating national policies... After that a director-general from the U.K., introduced different ideas about the nature of European energy policy. The different ideas that may now be pressed more powerfully are those that are customarily styled 'pragmatic' might argue that energy is being tackled adequately for the most part on a national basis..."

*significance of this quote?*

The first two attempts, making of European Coal and Steel Community and EURATOM treaty, were 'failed attempts at supranational regulation' (George and Ian, 2001: 82). Member states had very different interests in various forms of energy as France wanted to develop its nuclear sector and Germany had to support its coal industry. Therefore the High Authority of the ECSC never became truly supranational. For Matlary (1997) the Oil Crisis in 1973 had shown differences between these two approaches very sharply. A state centric approach was always in the centre of all intergovernmental conference negotiations. Moravcsik (1998) also support this claim that have dominated much of the EU's agenda and which have produced land mark changes to the EU, including the Single European Act (SEA), the treaty on European Union (TEU), the Amsterdam treaty and the Nice Treaty.

Supranational approach, where European Union's organization would have control on policy making, which will adhere to development of all member states is not seen practically because large member states had always dominated decision-making process. Slapin (2006) makes the strongest argument for the 'large member states' approach in which the EU's three largest member states: Germany, France, and the UK always molded decisions in their favors. Moravcsik and Calypso (1999) say that although supranational actors lack the sources of power available to member states, such as size, domestic constraints, and a formal veto over IGC outcomes, supranational actors may influence negotiations through informal agenda-setting powers.

Till date the EU has not succeeded to develop its common energy policy. Evans (1978) says that historically, the slow development of a common energy policy was due to three principal factors. First, responsibility for energy was divided between the various organs of the Communities: the Paris treaty conferred responsibility for coal on the European Coal and Steel Community; the Rome Treaty assigned oil, natural gas, electricity and hydro-power to the EEC Commission, and left nuclear power development and control to EURATOM. Second, at the outset of the Community there was no mention of a Common Energy Policy for the fairly simple reason that there was no apparent need to Co-ordinate differing energy sources since coal was still the king. In 1950, for

instance, coal provided 75 per cent of Community's energy requirements and oil a mere 10 per cent. Overnight the Community had become the richest oil importer in the world for which the multinationals provided a cheap and plentiful source of energy throughout the 1960s. Thirdly, historical but also very contemporary reason why the common energy policy has made such slow progress is that, in order to come into full operation, it would need to cut across national policies, nationalized industries and fiscal policy; in short, to challenge the national energy interests across the board. This has been the most fundamental reason for moving slowly toward a common policy, the more so because different sources of energy are not of equal importance in each country. On one side Italy, Netherlands and Luxembourg with only small or non-existent coal outputs-for long favored cheap fuel policy, effectively supporting the prevailing trend toward imported oil. By contrast, each of West Germany, France and Belgium operated major coalfields, with West Germany in particular providing 75 per cent of the six's coal requirements. Their arguments for self-sufficiency, effectively an argument for increased reliance on coal, were overruled by the availability of cheap imported oil.

Kelley (1977) gave four general sets of limitations in the choice of Community or Common Energy Policies (1) geographic, geologic, and technical limitations; (2) limitations due to national structures and approaches; (3) the global energy market and the existence of other international forums in which the Nine can seek solutions; and (4) the EC context itself. Matlary (1997) thinks that energy policy is one of the 'weakest' policy areas of the EC/EU. She added that energy policy may develop beyond national policies in the 1990s, but that it remains an area where national policies are very strong indeed and national interest many times create barrier in development of common policy. The main reason behind this is why nations are so much involve in energy policy making Padgett (1992) finds that 'the strategic economic importance of the energy sector meant that policy autonomy was guarded jealously by national governments'.

Far from realism Forman (1977) argued that member nations can develop policy formation from common platform if they take appropriate action which would minimize the risk and maximize the benefit to the group as a whole. For example, the energy rich

nations-like the United Kingdom should seek to influence world market conditions by developing new alternative sources within their own borders. On the other hand, the financially rich but energy poorer nations-such as France, Germany or Japan- should make available much of the capital which will be needed to assist the development of new energy technologies and should offer secure and attractive markets for some of the energy output.

It is not acceptable reason that the division of responsibility of energy between the various organs of the Communities refrained from the making of European Union's common energy policy, because division of responsibility of energy does not mean it is slowing down the process; rather different organs can properly adhere to development of its assigned area only because they would have to deal with limited and specific area only. On the other hand, every energy source have its importance especially for nuclear, it is much higher than other because it can work as renewable energy sources, also it can help in electricity generation with less environment pollution. Jean Monnet as a visionary realized the importance of nuclear energy and gave proposal for establishment of EURATOM. It may be argued here that the main problem was not separation of responsibility but European Community's (EC) institutional weakness that occurred became the member states had given priority to their national interest first. In other words, it can be said that the supranational approach of policy making was not able to dominate intergovernmental approach of policy making.

A hindrance to the development of Common Energy Policy (CEP) was the fact that the ECSC wanted to promote coal in opposition to the nuclear lobby surrounding the EURATOM bureaucracy. At that time few political actors in the EC sensed that oil was on the rise as the dominant source of energy in Europe mainly when Britain discovered its oil resources and became an oil producer in the 1970s. From then onwards the case for individual national energy policies became prominent. Then at the time of Oil Crisis in 1973 EC countries opted for the path for bilateral agreements. Later on France chose an independent strategy, and thus further delayed the possibility of a common energy initiative in the EC. It becomes clear that the High Authority of the ECSC was not given

the supranational role envisaged in the Treaty of Paris. Some authors still believe that the 'EU is still far from a Common Energy Policy, but since the late 1980s a number of important EU initiatives have been taken to strengthen the supranational influence on the energy policy' (Matlary 1991, Lyons 1992, 1994, Padgett 1992).

The experience of the Oil Crisis of 1973 prompted the Western industrial nations to act on a road to formulation of the EEC Common energy policy. Before making strategy on CEP, the community wanted to implement some basic criteria such on: first, to maintain price levels to the consumer as low as possible; second, to ensure reasonable profitability to guarantee sustained investment; and third, to create the framework for greater conservation by consumers. These objectives were not easy to achieve and actually they were related to the long term policy. Hence the Commission aimed at two major initiatives: first, the guaranteeing of the security of supply by means of diversification of domestic and foreign energy sources; and second, the creation of a unified market for energy based on competition, privatization and liberalization. Later on environmental safety also added in this category with sustainable development.

To summarize the present state of the attempt to create an EEC Common Energy Policy, it can be said that there exists a three-tier strategy, main objectives adopted by EU in area of utility-deregulation, security of energy supply and environmental protection. So it can be said that when EU will able to achieve all of these three important objectives then only they will able to develop common energy policy on European level.

## **I. Challenges Related With ECSC and EURATOM**

Both the ECSC and the EURATOM has been considered as failed treaties since the ascendance of oil and gas as the dominant energy sources. Some data reveals how gradually production of steel and coal declined inside community. Church and David (1994) have given a survey that in the first half of the 1960s the current twelve members of the Community collectively produced in excess of 400 million tones of coal annually. Then switch to cheaper energy sources, such as oil and gas, by 1991 production was only

slightly over half of this level at 208 million tones. Steel production had stabilized in the early 1990s at around 136 million tones per annum. By the late 1970s this had shifted to overseeing and cushioning the decline of the Community's coal and steel industries. There has been some pressure to integrate the ECSC and EURATOM in a chapter on a CEP in the new treaty to be negotiated at the intergovernmental conference in 1996-97, but there is little support for this on the part of member governments. The task confronting the coal sector in Europe in the 1980s and 1990s is that of restructuring and reducing production. The ECSC expires in 2002 and its fate beyond that date is uncertain. Nuclear energy, on the other hand, remains important in the EU and may receive a boost from the twin concerns of import dependency on and the environmental problems caused by oil. In spite of its all advantages EURATOM never got much attention that it required, it even faced financial problem. ?

George and Ian (2001) highlighted problem related with budget. In 1964 there was a deadlock over the size of the budget. A second crisis in 1966 meant that EURATOM went into the merger year of 1967 having to survive on the system of 'provisional twelfths' which allowed no more than one-twelfth of the previous year's budget to be spent each month until agreement was reached on the new budget. In spite of budget a number of explanations have been offered for the failure of EURATOM. First, the external environment that favored the creation of EURATOM had changed by the time it became operative. Moreover, internal rivalry between member states increased with time.

Lucas (1977) raised a question 'Is nuclear energy competitive?' the reason behind his forecasting was the low cost of nuclear energy; the technology, safety standards and variation of cost between reactor types and according to size were uncertain. No doubt EURATOM was used by the French government that was closely linked to its high politics issue of nuclear weapons. On the other side the Commission failed to develop a transnational network of interests around the nuclear energy issue which could create a momentum that would overcome national rivalries. And there was little incentive to go on with difficult and capital-intensive nuclear projects.

## II. Challenges Related With Electricity and Gas Market Opening

Another important initiative of European Union was market opening. Some important directives were passed related with gas and electricity. The schedule set down in the directive is being ignored by most member countries<sup>why</sup> (Avati, 2000a:16). Townsend also criticized single market <sup>qual</sup> “we are not really there yet in terms of a single market. There will be a lot to do within the EU before we can claim to have an internal energy market. This is because many of the biggest EU states are unwilling to adopt it” (Townsend, 2003a: 30-31). He focused on EC published assessment of the implementation of the market directives, which identified several areas causing “particular difficulties”. Problem related with electricity and gas is the following. For electricity these include:

- differential rates of market opening have reduced the scope of benefits to customers from competition, leading to higher prices than otherwise to small businesses and households, and distorting competition between energy companies by allowing the possibility of cross-subsidies at a time when companies are restructuring themselves into Pan-European suppliers;
- disparities in access tariffs between network operators, which, because of the lack of transparency caused by insufficient unbundling and inefficient regulation, may form a barrier to competition;
- the high concentration of power generating capacity among existing companies and an associated lack of liquidity in wholesale and balancing markets impedes new entrants; and
- insufficient interconnection infrastructure between member states and, where congestion exists, unsatisfactory methods for allocating scarce capacity.

For gas main difficulties include:

- similar concerns to those for electricity about the unequal level of market opening;
- inappropriate tariff structures and large and unexplained disparities in network-access tariffs between countries and regions for transportation and distribution

transactions, which form a barrier to competition and provide revenue for cross-subsidies;

- lack of transparency regarding the availability of infrastructure capacity, both internally and cross-border, as well as capacity-reservation procedures, which do not allow third parties the flexibility to change their gas sources or their customer base without incurring increased costs;
- concentration of gas production and imports in a few firms and the slow development of gas-trading hubs, which often means new entrants find it difficult to buy wholesale gas on reasonable terms; and
- balancing regimes that are unnecessarily stringent, being non-market reflective of the costs incurred.

These difficulties have created wide disparities across the EU. To remove these disparities the author has suggested some steps to be taken such as: customers must be able to switch suppliers easily; more supplies must be made available; the market share of dominant suppliers must be reallocated; more-liquid trading hubs must be created; capacity at key cross-border points must be adjusted; and a homogenous regulatory framework must be put in place across the EU. Based on analysis only Austria and the UK have a clear mark on all these elements. For the rest, it depends solely on the domestic political situation. 'European liberalization of the electricity market is still young and much can be expected in terms of changes and harmonization of market conditions and regulatory practices. Therefore, it is premature to expect a definite model of the European independent regulator' (Larsen, 2006:2867). Therefore the EU single energy market would require "a huge action plan" if it is to become a reality. European Union must think on critical issues related to supply, such as supply security and, in particular, the dangers of using restrictive, long-term contracts from gas producers (such as Algeria) that prohibit the sale of gas to third parties. This could prevent gas under these contracts being traded onwards as a normal commodity.

An underlying objective of the directive is to take action to protect consumer's right and make them available commodity on lower consumer prices. The idea which came with market liberalization theory that market opening will give rise to competition

that will lead to drives prices down. Bossley and Gavin (2005) pointed out that Gas prices have risen and given the lag between oil and oil-linked gas price, the worst is yet to come. Competition between them may be rather ineffectual if they are all purchasing from the same wholesaler". The report also says gas markets in too many "member states are dominated by one or two players". Many of the European market participants that were active in 2000 are no longer active. Lea (2005) considers that there is sharp contrast between the promise of open European energy markets in the 2003 directives and the reality on the ground.

### **III. Challenges Related With Security of Supply**

Europe is tied to its periphery by umbilical cords carrying energy, the lifeblood of Europe's economy. The capacities of the oil pipelines and natural gas transportation systems bringing energy to Europe from Russia, the Caspian region, the West Asia and North Africa will need to expand sharply in coming decades to meet Europe's expanding energy requirements.

Some time internal factor of countries also affects energy supply. For EU political instability of its periphery will affect energy security Brower (2000) has given some example like the risk regarding Russia is of a disruption of exports due to a breakdown of relations with Ukraine, the country which transits more than 90% of Russian gas to Europe. For Algeria, the greatest danger is a politically-motivated halt to supplies, resulting from a terrorist attack which damages gas supply infrastructure. Since each of these sources supplies several member countries, the effect of a stoppage would be geographically widespread. European policy options are limited first because oil markets are global by their nature and second a supply interruption can occur anytime because of price impact. Price swing is one of the important problems related with energy supply and that is also related with political disturbances of those countries.

One major problem can not be ignored that is related with security of infrastructure like long distance oil pipeline etc. With time challenges and problems come

in different forms and gradually it becomes more severe, it takes lots of time to fulfill that damage if one is not aware before that destruction. After 9/11 terrorist attack nothing is secure from terrorist target. Hueper (2004) tried to draw attention towards this new problem related with energy security. He says

“Despite the heightened popular interest in energy infrastructure security-influenced in part by the terrorist attacks on the US on 11 September 2001- mitigating physical security risks in the world’s oil and gas provinces is a challenge that energy companies have grappled with for decades. Hundreds of attacks each year on oil and gas pipelines and infrastructure around the world”... “New technologies (including fiber optics) have been introduced that can improve greatly pipeline and energy-facility security efforts. Present-day and anticipated threats are likely to apply to specific aspects of projects, especially in the case of a long-distance pipeline, where certain portions of the route may be more risk-prone. An understanding of the motivations, goals and modus operandi of potentially hostile elements is essential from the perspectives of both companies and host governments” (Hueper, 2004:4-6).

This problem is very important although the EU have faced it earlier when they got problem in getting energy from Algeria, because the terrorist attack had damaged gas supply infrastructure. Now it is time of using possible alternative security measures. On the other side for Europe, the avoidance of future price ‘shocks’ ultimately requires long-term efforts to attack conditions in periphery countries which underlie political instability: poverty and inequality, unemployment, corruption, poor governance, lack of political and economic opportunity, and perceived injustice. In general, the periphery countries from which Europe needs to draw additional volumes of oil and gas, and upon which Europe will become increasingly energy dependent over the next two decades, have significantly lower incomes per capita than do European countries

#### **IV.Challenges Related With Environment**

**(i). Renewable Energy:** The Community can have little influence on the energy supply but can influence energy demand. One possible solution to both the above problems is to reduce energy consumption by improving energy efficiency through relying on renewable energy resources. With regard to climate change and the availability of fossil raw materials, renewable energies will have to play a larger role in the longer term. Natural gas is regarded as an important raw material for hydrogen production, also an attractive fuel on account of its greater statistical range and greater availability. However, it has to

be kept in mind Wietschel, and others (2006) indicated that gas resources are limited and that the use of gas in other sectors, such as electricity production and space heating is increasing, too. 'The substitution of fossil fuels with biofuels has been proposed in the EU as part of a strategy to mitigate greenhouse gas emissions from road transport, increase security of energy supply and support development of rural communities' (Ryan and others, 2006:3193).

To meet the growing energy demand, fossil fuels are the most cost-efficient in the short term. Egging, and Steven (2006) said natural gas has a lower carbon content than coal and oil, about 50 percent lower than coal, and 25 percent lower than oil, which makes gas a favored fuel from an environmental perspective. The EU wants biofuels and biodiesel and bioethanol- to account for 5.75% of automotive-fuels consumption by 2010 and by up to 20% by 2020. This policy has two objectives: reducing pollution and increasing security of energy supply by producing the fuel from locally grown crops. Based on Lewis' study (2005) Germany has the highest absolute and per capita consumption of biodiesel in the EU because of its favorable tax regime- the country consumed of conventional diesel, at 30m tones, consumed just 300,000 tones of biodiesel in 2004. Containing no Sulphur or aromatics, biodiesel is a far cleaner-burning fuel than conventional diesel.

However it is not financially sound energy source because cost of biodiesel- estimated to be twice that of conventional diesel and cannot improve energy-supply security. Other problem with this is related with the shortage of land resources, high feedstock costs, agricultural protectionism and an unshakeable dependency on oil. Although the production of biodiesel in Germany reached 1.04 million tones in 2004 and 170,000 tones of bioethanol were produced in Spain in 2003. However, under current conditions, it seems that it will take time, large scale, innovation and higher fossil fuel prices before European biofuels will be able to compete on a cost-effectiveness basis with imports from Brazil or alternative abatement options. Construction of a suitable hydrogen infrastructure will be a challenging tasks for EU -25 Say Wietschel, and others (2006) the

annual infrastructure costs amount to 0.3% and 0.07%, respectively, of the expected gross domestic product of the EU-25 in 2030.

**(ii). Carbon or Energy Taxes:** Dinam (2000) says that the two most important issues, nuclear safety and the greenhouse effect, have as yet remained totally unsolved although it is precisely such trans-border problems that are suitable for action at the European level. The issue of whether to have a so-called carbon tax (also known as carbon dioxide/hydrocarbon fuel tax, or carbon /fuel tax somewhere as energy tax) is one of the longest-running issue of the European Union. 'The climate policy which surged to the top of the political agenda around 1990 created a new context for EU's energy policy' (Lyons 1994: 53). The greatest immediate hazards, however, come from the burning of hydrocarbons fuels, coal, oil and natural gas. The emissions from this burning pollute the immediate environment and, through the atmosphere, the environment hundreds or thousands of miles away. In addition, the production, use and dispersal of chemicals and plastics sometimes have an accumulative effect on the environment (Andersen and Kjell 2001, Goodman 1990) therefore it become necessary to take some initiative to stop this pollution. Collier (1996) says that despite great issue uncertainty, there is a general consensus that preventive action is necessary. And the Framework Convention on Climate Change (FCCC), agreed at the Rio Summit in 1992, is a first step towards global action on the problem.

The 1992 communication, entitled 'a community strategy to limit carbon dioxide emissions', emphasized in particular the important role of reductions in energy demand, an increase in energy efficiency and a modification of the energy sources used. It was accompanied by proposals for four specific measures as follows:

- a framework directive on energy efficiency (SAVE);
- a directive on a combined carbon/energy tax;
- a decision concerning the specific actions for greater penetration of renewable energy resources (ALTENER);
- a decision concerning a mechanism for monitoring community CO<sub>2</sub> emissions and other greenhouse gases.

Furthermore, the Commission's energy technology support programme (THERMIE) was expected to contribute to emission reductions. The different measures and programmes were expected to contribute different proportions of the required reductions as shown in table.

**Table 4.1: Projected Emission Reductions from the EU Climate Change Strategy**

Proposed measures for stabilization	Expected CO2 reduction %
Carbon/energy tax( and accompanying national measures)	6.5
SAVE	3.0
THERMIE	1.5
ALTENER	1.0
Total	12.0

Source: Collier, Ute (1996), "The European Union's Climate Change Policy: Limiting Powers?" *Journal of European Public Policy*, 3(1):126

In reality, the achievement of proposed CO2 reduction is far from supposed to achieve. However, by 1995, the proposal for a combined carbon tax has been blocked by making several changes like: the save programme on energy efficiency has been turned into a framework directive, with doubts about its effectiveness; the ALTENER programme on renewable is under-resourced and mainly consists of non-binding targets; proposals for reducing CO2 emissions from cars were delayed because of disagreements within the commission and seem unlikely to make progress; a proposal for least-cost planning in the energy sector was promised but delayed.

Pressure for an EU-level tax coming from that three member states (Denmark, Germany and the Netherlands) were threatening to introduce carbon taxes unilaterally, thus infringing the Commission's attempt to harmonize taxes for the proper functioning of the single market. The tax also fitted in with a general growth in interest in market-based instruments to achieve environmental objectives. First proposals for a tax were put forward in a communication to the council in late September 1991.

According to the 1992 proposals, the tax was to be based half on CO<sub>2</sub> emissions (expressed in tones) and half on the calorific value of the fuel(expressed in gigajoules), with exemptions for renewable energies(except large-scale hydropower). The taxes had been phased in from 1993 to 2000. They had been applied to non-renewable sources of energy and most heavily applied to those fossil fuels which produce the highest levels of Carbon Dioxide emissions and contribute to global warming.

Goodman (1990) says one of the main objectives of the proposed tax was to meet target of maintaining Carbon Dioxide emission at 1990 levels in the year 2000. The United Kingdom set itself a later target date of 2005. 'In December 1994 it became clear that a common EU CO<sub>2</sub> tax could not be achieved' Andersen and Kjell (2001). In mid-1995 it was apparent that only two members, Germany and Belgium, would come anywhere near their self-imposed targets for controlling carbon dioxide emissions. The Commission said other policies would have to be adopted, and suggestions included further speed restrictions on all vehicles. The proposals have met with fierce opposition from vested interests and from the governments of the poorer member states who stand to lose most from the rise in energy costs because of increase in their production costs. The economic downturn has strengthened opposition to the proposals because they are seen as raising costs and reducing international competitiveness.

The amount of revenue raised by the proposed tax would be a staggering 50 billion ECU each year, approximately. Since the Union is responsible for about 15 per cent of the world's emissions of Carbon Dioxide and has only 6 per cent of the world's population, it was vital that the other nations were persuaded to follow similar policies. The framework was drawn up in May 1995 and applied from 1 January 1996. The EU also hoped to win support for such a tax from all OECD (and other) countries in the Rio Conference in 1992. According to Bohringer and others (2006) in the Kyoto protocol the EU has committed to reducing greenhouse gas emissions by at least 8% by the years 2008-2012 compared to 1990 levels. In the subsequent burden-sharing agreement, the EU-15 target was broken down into targets for individual member states. The implied

targets range from -28% for Luxembourg, and -21% for Denmark and Germany, to +25% for Greece and +27% for Portugal compared to 1990 levels.

According to the EU directive on emission trading (2003) Schleich and others (2006) believe that the European Union Emission Trading System (EU-ETS) is the world's largest Emissions Trading System and help achieve the EU'S obligations under the United Nations framework convention on climate change and the Kyoto protocol in a cost-effective way .National Allocation Plans (NAPs) that helps member states financially to reduce carbon dioxide emission.

Georogopoulou and others (2006) predicate that member states will be much more demanding in the subsequent 5-years period 2008-2012 than the present with respect to the effort for emissions reductions. European states tried to carry out some plans to minimize or at least stabilize carbon emission by carbon tax system. Despite some positive signs, there appears to be a lack of political will to establish an effective EU-level response to the problem of climate change. Other issues such as uncertainty about costs, economic concerns and heavy industrial lobbying, have also influenced policy developments. 'The climate issue was at the top of political agenda in 1990, in EU environmental policy. Five years later, the EU'S climate change strategy has almost faded away. The European Union has to date failed to implement an effective response to the climate change issue' (Collier, 1996:122).

After facing problem in implementation of its carbon tax policy from different sector in European Union. A number of concessions were made which had substantially weakened the effect of the tax. First, member states had been authorized to grant tax reductions. Second member states would also have been allowed to grant temporary total exemptions to firms that have embarked on 'substantial efforts to save energy or to reduce CO2 emissions'. This vague statement was liable to tax interpretation and the exemptions seriously compromised the effectiveness of the tax, as they meant that the largest consumers of energy in the EU would have paid the lowest rates of tax, thus giving them little additional incentive to invest in energy efficiency Collier (1996).

The main objection came from the UK, which was vehemently opposed to any European intervention in tax matters. Furthermore, France wanted a pure carbon tax, to protect its nuclear industry. Finally, in the Essen Summit in December 1994 the European council consider common parameters to enable every member state to apply a carbon tax, 'if it so desires'. Hence, some member states may apply a tax but the majority will probably not. However, the increased emphasis on the issue of subsidiary since the early 1990s has altered the general policy-making climate. The idea of subsidiary, as outlined in the Treaty of European Union (TEU), is that the EU should take action: 'only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the member states' (Collier, 1996:122). The issue of subsidiary is likely to continue to influence developments and its interpretation will invariably be based on political expediency rather than environmental needs. Although Ecological Tax Reform (ETR) is widely accepted to be a policy with desirable effects, its implementation has been limited by problems of political acceptability (Dresner and others, 2006:895). Policymakers, business groups and the general public all cited lack of public awareness of ETR as a major impediment to its political acceptance (Clinch and others, 2006: 968).

A major potential impediment to environmental tax reform is the structure of government. A major stumbling block may be the unwillingness of some finance ministers to accept the principle. In addition, the composition of the parliament in a country and the relative strengths of the various parties will have a significant impact on the success or otherwise of an ETR policy. In those countries where coalitions are common, it is more likely that the smaller green parties will have more influence and this may speed the introduction of ETR. However, it is harder to introduce environmental taxes if people's real earnings are falling. Haar, and Lawrence, (2006) the authors undertake a critical assessment of the intellectual foundations supporting the new European Union Emissions Trading Scheme (EU -ETS), despite its considerable scope, the authors found that officially sponsored research and academic efforts in support of ETS were surprisingly limited. Importantly, in advance of implementation, a definite consensus on both the potential economic impact and the usefulness of the scheme in reducing the GHG emissions had not been reached. In addition, continuing disagreement

over the Kyoto agreement itself-especially with regard to its potential costs and benefits-further frustrates efforts to rigorously justify a policy in support of reducing GHG emissions. Bohringer and others (2005) suggest Emissions Trading System EU member states must allocate their national emission budgets under the EU burden sharing agreement between energy-intensive sectors that are eligible for European emissions trading and the remaining segments of their economies that will be subject to complementary domestic emission regulation.

Other problem is what Newbery (2005) have shown in his work that the same fuels has been taxed at widely different rates in different countries while different fuels are taxed at widely different rates within and across countries. The EU energy tax harmonization and Kyoto suggest that the time is ripe to reform energy taxation. For all these reasons, energy is a politically sensitive subject, and at various times most countries have felt the need to redefine an energy policy. It becomes necessary for EU to discuss how energy taxes might rationally be set. That is not to deny that changing taxes is always politically fraught, and different polities will find some changes difficult, if not almost impossible. Nevertheless, the recent trend towards explicit charging for external energy costs, through prices determined by emissions trading, requires a reconsideration of the pricing and taxation of energy.

Except carbon there are other energy sources that creates problem for environment nuclear energy is one of them. 'Nuclear energy for electricity generation carries the greatest long-term hazard to the environment although enormous expenditures and engineering skills go into reducing the risk factor' (Goodman, 1990:259). The environmental lobby and green parties have opposed nuclear power on safety issues-think Three Mile Island, Chernobyl -and enforced the phasing-out of nuclear programmes in a number of countries. Lea (2005) has given data of nuclear reactors in some important members of EU and their view about its future. France: the biggest nuclear generation in the world, with 52 reactors with a total generating capacity of 62 gigawatta (GW). Accounts for 86% of the country's electricity supply and is considering building a new generation of reactors. Germany: more than 20GW of capacity and 18 reactors. However,

the decision has been made to phase them out and all plants should be closed within 20 years. Sweden: reckoned to be at the right end of operational excellence in the nuclear industry, nuclear generation powers more than half the country. It is uncertain whether it will close down its existing nuclear power stations, but new build is very unlikely. Spain: nine reactors provide nearly a quarter of the country's electricity. The growing influence of the green lobby, plus a traditionally anti-nuclear socialist government puts question marks over the nation's nuclear future. Belgium: more than half of the country's 10 GW of power generating capacity is nuclear. Government policy is for a shut-down of all plant after 40 years of operation. Italy: no nuclear capacity, after the country voted to exit the business in a referendum in 1986. Uk: a dozen reactors produce 23% of the country's electricity- the equivalent of nearly 12 GW of capacity. According to Msimang (2005) Tony Blair, the UK prime minister, sees climate as "probably-long term-the single most important issue we face as a global community". As a result, there is a real possibility that the UK government will pursue the development of more nuclear plants as a means to address the country's growing need for emissions-free electricity.

Environmental groups were very angry because in early 1995 the Commission had abandoned the commitment the European Community made at the Rio Earth Summit in 1992 on stabilizing carbon dioxide emissions. The Council of Ministers has refused to commit itself to reducing Carbon Dioxide emissions after 2000. Evidence submitted to the Commission in early 1995 indicates that carbon dioxide emissions in the Union was not stabilized but actually rose by over 6 per cent between 1990 and 2000. They might rise by a further 15 per cent between 2000 and 2015. While the European Union fails to act vigorously, the 36 small nations form The Alliance of Small Island States (AOSIS) many of which are barely above sea level are becoming increasingly concerned by the prospect of global warming and rising levels.

#### **V. Challenges related with enlargement or Central and Eastern Europe:**

This study is covers the evolution of energy policy in European Union till 2004 before its Eastern European enlargement. No doubt energy is key factor behind eastward enlargement. European Union has adopted policy for energy development in Eastern and

Central European countries. "Energy is the cornerstone of Europe's integration" (Brower, 2000: 41). The Commission has consistently tried to link energy and the environment with sustainable development in Eastern Europe. '...the acute need for more and cleaner energy in Central Europe has served to accelerate the merging of energy and environmental policy and the development towards a stronger degree of common energy policy' (Matlary, 1997:71).

European Bank for Reconstruction and Development (EBRD) and the European Investment Bank (EIB) have financed for CEEC development. Both the CIS and the Central European countries are members of the European Environmental Agency (EEA), an EU institution found in 1990. Matlary (1997) says that the Commission stressed the need for a Pan-European medium-term energy strategy. Based on proposing all financial instruments here the main agenda was that, help given to Central Europe to reduce its dependence on Russian energy and that assistance in developing alternative gas import sources is provided. Importantly the EU encouraged gas uses by technical and financial means and the development of the gas grid would contribute to environmental improvement. Energy plays a pivotal role in the EU'S relationship with Eastern Europe, both in terms of the development of energy infrastructure, the funding of energy-efficient projects, and the energy charter treaty. International organization such as the World Bank and the IMF are dealing with economic restructuring in Central Europe, but Matlary (1997) approved the EU's role is more comprehensive in that. It is also seeking to aid political transformation. Conditions for the EU membership are of both a political and an economic nature, tied to the criteria of a market economy and democracy. However the use of energy as a key to adaptation has been prominent.

World Energy Council (WEC Commission, 1993:187) has given data why Central and Eastern Europe depend on west for energy, because they consumes some 4% of world commercial primary energy use, and has a little over 6% of world proven coal reserves and well under 1% of world proven oil and natural gas reserves. The region will continue to import primary energy from other countries, especially oil, natural gas and nuclear fuel. The political changes of recent years have caused the region to look

increasingly to the West for primary energy supplies. A basic problem with them is the shortage of hard currency and the residually low domestic energy prices which cannot fund purchase in western markets.

Waston (2004a) indicated through his work that the European Union's (EU) original 15 member states (EU-15) will fall short of meeting the target of obtaining 12% of all energy 22% of all electricity from renewable sources by 2010. The EU-15 are on course to achieve only a 10% share for renewable energies of total electricity consumed with a 18-19% share by 2010; 3.4 percentage points short of the 22% target. It expects renewable to account for 10% of total energy produced by the end of the decade, compared with the target of 12%. Only Denmark, Germany, Finland and Spain are on tracks- the efforts of the rest were denounced as "meager".

However, analysts say that, but for a few exceptions, the poorer and less progressive Central European nations remain far too reliant on traditional sources of energy. In this condition it would be not possible for enlarged EU-25 to adopt a new target of producing 20% of all energy from renewable sources by 2020. The accession countries are committed to doubling the share of electricity from renewable sources to 11% in the seven years between the time of signing the accession treaty and 2010. As result, renewable share must increase much faster in the accession countries than on existing member states. To achieve this, experts say the region's governments must rapidly speed up reform of legislation and introduce a draft of new incentives for renewable energy. The market penetration is low, the policy support schemes are only just starting and the required effort to reach the 2010 target must be greater.

A non-governmental organization (WWF) ranked Lithuania and the Czech Republic top among the eight Central European countries joining the EU with Slovenia in last place, In terms of progress with renewable energy source. It argues that chief among the problems is a lack of political will, caused by Czech politicians and the state being too closely aligned with traditional energy producers, such as the nuclear industry and the power monopoly.

The issue related to nuclear energy in Eastern Europe is one of important problems. The Commission has also attempted to develop a policy for nuclear energy in Eastern Europe. At least three nuclear plants have been deemed dangerous by the International Atomic Energy Agency: Chernobyl in Ukraine, Kozludoy in Bulgaria and Bohunice in Slovakia. The problem that faces the West and the EU in particular as the major coordinator of policy for the area was identified by Matlary (1997) in the following two ways (1) it will be extremely costly to upgrade or shut down these plants, and (2) if they are shut down, how wills the shortfall in energy be met? Their closure could pose a threat to gas supplies to the EU because there will be a much greater need for Russian gas for domestic use. This implies that the reactors should be upgraded rather than shut down. There is a need to improve the first-generation pressurized water reactors, the VVER 230s and the 11 operating Chernobyl RBMK design reactors.

The EU tried its best to solve this problem whether it can be upgraded or if that was dangerous then it should be shut down. On the other side, the EU also favored to shut down those nuclear reactors which were financially problematic. The EU started its coordination from 1990s. From the G-7 summit in Milan in July 1994 the EU offered \$200 million in an initial grant to Chernobyl. This was followed up by loans from international institutions such as the World Bank and the EBRD. In addition, the EU offered 500 million ECUs, 100 million ECUs of which was a grant from the TACIS programme and the rest a EURATOM loan. The West demanded that Ukraine immediately shut down two of the three at Chernobyl and upgrade the rest, and also that it should restructure its energy sector by imposing market prices for energy. Till now nuclear problem is unsolved in Eastern European countries.

The opinion of some authors related to development in these is very critical as Hampshir and Steven (2001) write that although some Eastern European countries are doing well, many steps have been taken to development of infrastructure related to energy policy like power plants and refineries have been set up as sources of jobs. They continue further that these are more related with propaganda and national pride-regardless of market needs, often poorly executed or badly located. Incomplete

infrastructure gives only the illusion of progress. Two big drives for change in Eastern Europe are national pride and the desire for international respect.

## **VI. The Role of the Interest Groups in Policy Making**

Interest groups play very important role in policy making process, European Union's energy policy is also not untouched by it. These groups are so powerful that sometimes they mould decisions in their desired way. However, interest groups are important to the general EU policy-making process in more than the traditional way of national lobbying because they are permanently represented on many of the committees through which all draft proposals pass, and are invited to provide input and reactions in the early stages of policy formulation in the EU. Large consumer groups, especially in industry, have actively lobbied for an internal energy market, but smaller, private consumer groups have less visible as Brussels lobbyists. In the opinion of Matlary (1997) interest groups play a major role in the energy policy making. Major energy companies have joined forces to create European federations, and these are well represented in Brussels. There are several types of interest groups these are related with different energy sources and it can be said they become active when their policy is attacked. These groups and their relative energy field are following: EUROPIA (oil); EUROGAS (gas); FORATOM (nuclear); CEPCEO (coal); and EURELECTRIC (electricity). Studies of various policy sectors show that there has been an increase in lobbying efforts in Brussels in the post-85 period.

Interest groups to save their interest opposed the IEM and third party access. With regard to the carbon tax and other environmental measures interest groups are increasingly demanding that all rules must be harmonized so as to avoid distortions of competition. This is evident in the industry's rejection of the carbon tax while insisting that if accepted it must be a tax covering all relevant competitors; in other words it should be a global tax. These interest groups probably had a major impact on the final decision to modify the tax proposal. Demands of different interest groups are very different. For Matlary (1997) there were some difference of opinion among the interest groups representing the various energy forms, EUROPIA, the oil industry group and its

'UPSTREAM' colleagues in the E&P forum stressed that a CEP should be based on maximum reliance on market principles. The EU should primarily focus on providing a stable regulatory environment so as to ensure a level playing field.

The nuclear industry has been largely without a lobby group, but FORATOM, the European federation of nuclear trade associations, has tried to increase its role since about 1995. While aim of FORATOM was to create good trade relations for the upgrading of nuclear power stations in Eastern Europe. It recognizes that the future may be fraught with problems of liability in the case of accidents. It looks to the EU as the actor most able to solve this problem through bilateral or multilateral agreements.

In final words it can be said that interest groups in the energy sector have pursued their strategies in both the arena not only national but also on the EU level also. There was a shift in the venue of lobbying activity in the period 1985-95, and although national lobbying continues, the EU has become an increasingly important arena. It can be supposed that these interest groups may be one of the reasons that force states to take decision on EU level in benefit of national interest that support the intergovernmental approach rather than supranational. Some time interest or pressure groups do some positive work also like green peace group within EU are forcing it to take firm decision on environmental safety and sustainable development.

## **VII. ADVANTAGES OF ENERGY POLICY**

Energy policy of European Union is not totally a story of failure. There are some advantages also as the EU has already achieved a degree of success in respect to its energy objectives like: reduction of energy dependence, development of crude oil substitutes, energy saving, and so on. Since 1975 the Community has seen a considerable increase in primary energy production, especially as a result of increased oil production in UK. ECSC is accepted as largest failure by many, nevertheless the ECSC still fulfils many of the functions entrusted to it when it was first established. These areas were: (Church and David, 1994:363) firstly, the ECSC regulates the common market for coal

*style of writing*

and steel. In the 1970s when many member state governments to see their coal and steel industries decline beyond the levels to which they had been reduced following the depression in both industries that time ECSC helped to maintain competition within member state's market through its policy. Secondly, the Community attempts to protect domestic producers from outside competition by restricting imports of foreign coal and steel either through tariffs or quotas. The rules governing steel imports have effectively remained unchanged since they were formulated in 1978. Thirdly, the Community is heavily involved in granting aid to regions affected by the closure of coal mines or of steel plants. In the period 1975-91 such involvement saw the ECSC invest ECU 6723 million in creating over 435,000 jobs in affected areas throughout the Community through the RESIDER (steel) and RECHAR (coal) initiatives. The United Kingdom was the largest recipient of this aid, receiving over ECU 2466 million. Finally, the ECSC is a major source of funds for research and development into projects centering on steel production, health and safety in mines, and pollution control around steelworks. In 1991, 142 projects related to the steel industry were approved, while ECU allocated 18 million to 82 projects on health and safety and pollution control. Even today European Coal and Steel Community were ceased in 2002 but not all ECSC activity ceased after July 2002. The Research Fund for Coal and Steel (RFCS) continued to be in existence and working for research work in these areas.

In 1967 EURATOM lost its identity and importance after Merger Treaty. Nevertheless, EURATOM did pursue important activities in a variety of areas. As Church and David (1994) say three of its area remain central to its continued existence today. Firstly, EURATOM has ensured the continued production of atomic energy by guaranteeing supplies of natural uranium for which community producers are 70 percent reliant on imports. This it has achieved through the conclusion of long-term supply contracts with the world's main producers. More recently, proposals have been put forward to create a single market in nuclear power plant components. Secondly, EURATOM has sought to maintain and improve safety within the atomic energy industry and all sectors related to it. Every year EURATOM officials check over 800 installations throughout the Community, with the safeguards directorate annually checking over 203

tones of plutonium and 200,000 tones of low enriched natural uranium. Such checks have also been extended to plants in Central and Eastern Europe where the safety of nuclear installations has become a major environmental concern particularly since the Chernobyl disaster of 1985. Since 1989 these checks have been accompanied by intense cooperation on nuclear safety with the new governments in the region. On a more global level, EURATOM has worked closely with the international atomic energy agency in promoting nuclear safety. Finally, EURATOM has been instrumental in developing research into the non-military applications of atomic energy, primarily through the European fusion programme. Such research, which in the period 1988-92 received ECU 735 million in funding from the community, has also approved the wider development of R&D within the EC.

In later period introduction of single market and utility deregulation has some positive side also for EU. Europe's energy industries are intended to help European firms to compete globally by reducing their energy input costs. Townsend (2000: b) see this attempt in favor of EU by saying demand for power generation, linked to the liberalization of the electricity sector and the new emerging gas markets, is driving consumption growth in Western Europe. This policy forced Eastern Europe also to focus on privatization of their energy market if they want to access European Union. Eastern European countries are utilizing aid and policy that is made for them by EU. Vorsatz and Gergana (2006) have highlighted some of them like European Investment Bank in the period 1998-2003 gave aid to the CEE countries for investments in roads compared to 17.5% in rail and 7.5% in urban transport. Poland has achieved a remarkable improvement of about 46% in its energy intensity over the 1989-2002 periods. In the Czech Republic and Hungary, the gain has been between 15% and 25%. While the Polish progress is considerable, the improvement for Hungary and the Czech Republic is slightly better. Important meaning is here, EU-15 should not be fearful towards its eastward enlargement they have some positive legacy also. It is well known in the former Soviet Union they had centralized market system Vorsatz and Gergana (2006) described advantages of that system, as a result of integrated settlement planning, it was often possible to utilize the waste heat of power plants or industrial plants as district heating or

other heat needs. Therefore, cogeneration is not a new invention in the former socialist world, but rather common practice in several CEE countries. Another positive legacy of the planned economy was the low rate of individual consumerism. For instance, the rate of packing was very limited during the socialist era, and reusable packaging was common and they also maintained low volume of household waste. This high level of reusing and recycling materials was not only the result of the low spending power of salaries, but also of the supply limited economy of socialism. Based on these arguments it can be said that these CEE countries will definitely help in energy saving policies, some of them are rich in using renewable energy sources.

Many are skeptical about development of renewable energy because of its drawbacks as it is financially very costly also. One solution could be the EU should think about providing subsidies to those farmers who want to produce energy related crops. Agricultural budget should be revised. Then only farmers would also be able to apply for aid from the agriculture budget to grow energy crops, which can be used for bio-mass power stations. Renewable energy development is a long time process. If we want to use solar, waves and wind energy there is not guarantee of when sunrays will be suitable, nor is there measure of wind speed or idea of the time of waves. To ensure a better result in this field attention should be given to the development of more sophisticated technology. Renewable energy sources can only save the world from environmental problem by replacing traditional energy sources which are very limited and cannot be generated again in limited time.

The carbon tax is the most controversial issue involving energy and environmental policy in the EU. The carbon tax proposal, if it is adopted properly it can help in reducing carbon dioxide emission and environmental pollution. On the other hand Matlary (1997: 68) believes that taxing pollution will not only help the protection of environment by reducing emission problem but also adhere to generate revenue.

## CONCLUSION

The demand of energy is growing day by day and every nation now and then tries to acquire more and more energy for the present as well as future. Today energy has become one of the most important dimensions of partnership between two countries; it also occupies a key position in the deliberations of regional as well as world organizations. In other words, it is a demand of time for development. Need of 'Energy' is central to sustainable development and poverty reduction efforts. It affects all aspects of development-social, economic, and environmental-including livelihoods, access to water, health, agriculture productivity, population levels, education and gender related issues. The physical availability of sources of energy is not enough. The appropriate utilization of energy requires best planning and strategic mechanism especially when this is related to any organization like European Union.

The evolution of European Union's energy policy which this study examines has tried to critically evaluate the process of energy policy making. Through this research work an attempt has been made to answer some basic problems related to energy policy making in EU. These aspects are: problems which EU is facing from making of European Commission up to enlargement; it also analyses the ways which EU had adopted to solve obstacles imposed by internal and external actors in energy policy making; the role of non state actors, like NGOs, pressure group, etc, exert on energy policy making and, finally EU 's energy policy towards its new member states.

The EU's energy policy's main objectives are; to avoid a situation in which energy again becomes a constraint on economic growth as it was in the 1970s and early 1980s; to minimize costs of meeting energy needs, taking into account costs to the Community as a whole as well as direct costs of supply; to minimize adverse environmental results from energy production and use. In other words, it can be said that the prime objective of energy policy is to ensure that total energy demand is matched by total energy supply. But, this objective can sometimes be difficult to achieve, as it happened during oil crisis of 1973.

In the post-War period many member states were willing to engage in a new form of cooperation and to create supranational structures to administer common policies: because the destruction made by Second World War had mainly broken the backbone of European countries. It meant a huge loss of energy resources that was key to their overall development; then they considered that individual governments were not able to deal adequately with the challenges and they agreed for cooperation. One noteworthy point is Europe established such organizations that would decide policies for all member states and in response states would have to lose some of their sovereignty. Before the establishment of European commission some initial efforts were made by European countries: European Coal Organization (ECO), then European Central Inland Transport Organization (ECITO), also Economic Commission for Europe (ECE) and Organization for European Economic Co-Operation (OEEC) but these was not very successful. During the establishment of the European Commission all member states had their self-interest of joining it; mainly France and Germany were prominent among them. It has been emphasized that the creation of the European Coal and Steel Community (ECSC) represented a desire to satisfy French national interests by ensuring the continued economic recovery of France. For instance, Germany was keen to participate in the ECSC because it provided a means of rehabilitation. While the smaller nations of the Belgium, Luxembourg and the Netherlands realized that they could not economically afford to distance themselves from the markets of France and Germany

Through Merger Treaty in 1967 the institutions of the ECSE, the European Economic Community and EURATOM were amalgamated into a single institutional structure The Treaty consolidated the institutional structures: a single Council, a single Commission, a single administration of the Communities and a single budget were established. The merger of the Communities in 1968 saw the Commission renew its efforts to develop a CEP. In its document 'first guidelines towards the EC energy policy' the Commission noted that barriers to trade in energy persisted and stressed the necessity of a common energy market. Such a market, based on the needs of consumers and competitive pressures, would help obtain security of energy supplies at the lowest cost. During the oil crisis the Community's efforts, parallel to those of the international

community, to solve that problem was not very successful because the member states tried to pursue their own interests. However, when there was concern over supply in the 1950s and 1960s (such as in the wake of the Suez crisis), governments were keen to retain their autonomy. Energy crisis in 1970s confirmed the change in the orientation of energy policy proposals away from markets and towards security. 'New Strategy' was adopted, new objectives were set up regarding reduction of oil imports, the development of domestic energy capabilities (notably nuclear power) and the rational use of energy. And the new energy policy agenda: competition and the environment in late 1980s to late 1990s, the new agenda rests on two broader objectives: the creation of a competition-oriented single energy market and the pursuit of environmental protection. In the absence of similar interests in energy there was perhaps little that the Commission could do. The only force which might have molded a common policy at that stage was a threat from outside that was realized for the first time in 1971.

In 1986 the Single European Act (SEA) was adopted that brought changes to the decision-making procedure of the Community. As far as concern for the creation of a single market is concerned it is a part of the energy policy and has long been a priority of the Community. The Commission aim here is to provide the EU with the most effective, safest and most competitive energy market. The creation of single market, to ensure the transparency of prices, the next step was to remove certain restrictions so that companies would enjoy equal access to explore and prospect for hydrocarbons. France has been the most active country in the IEM process. It has sought to shape the IEM in a way that benefits its domestic electricity interests, and has thus pursued an offensive international strategy. Germany had no clear domestic energy strategy. The German government had used the EU demands as a weapon against the domestic coal companies and trade unions, thus adopting an offensive international strategy to solve a domestic problem. However the German government was not autonomous enough to do so. The presence of the Italian government is pervasive in the energy sector, which was dominated by the state holding company and all its subgroups so she adopted defensive domestic strategy. Britain instituted all the elements of the IEM at the domestic level in its own process of energy

privatization between 1980 and 1995 against the wishes of energy sector groups the government privatized all public energy companies, starting with oil and gas in 1986.

Some of the programmes on the EU's energy policy till 2004, has been also the main area of investigation. They include the following, **(1)** Framework Programme for actions in the energy sector (1998-2002) which seeks to enhance the transparency effectiveness, coordination of the activities of the European Union in the energy sector and to promote renewable energies through its main areas for work like ETAP, SYNERGIE, ALTENER, SAVE. **(2)** Thematic programme (1998-2002) which included nuclear energy, global change, climate, biodiversity, the marine ecosystem, cleaner energy system including renewable energy, the environment and sustainable development. It also added economic and efficient energy for a competitive Europe. **(3)** ETAP programme (1998-2002) to promote a cooperative approach between the communities, the member states, non-community countries, including the applicant countries, international organizations and other interested parties to analyze the energy problems. **(4)** Carnot Programme (1998 -2002), to promote clean solid fuel technologies. **(5)** SURE Programme (1998- 2002), to promote nuclear safety in the TACIS countries. **(6)** Multiannual Programme (2003-2006) for sustainable development, security of energy supply, competitiveness and environmental protection. The Commission has adopted a new Multiannual Programme 'Intelligent Energy for Europe- 2003-2006' with a budget of 215 million Euro to boost ALTENE, SAVE , COOPENER, STEER programmes.

Environmental problem is a major issue to be solved, that is directly related to energy. To solve that, the Commission needs energy policy not only at national level but also at world level. The planet's climate is getting warmer, portending serious long-term consequences for ecosystems and economies around the world. The ideal energy resource would be inexpensive, ubiquitous, renewable, and storable and would not have to be burned. The highly controversial proposal for the introduction of a Carbon Dioxide (CO<sub>2</sub>) tax has not yet been implemented internally because of strong opposition by a number of member states or industrial sectors involved and different states are

implementing it differently; externally lack of support at international level as two major powerful country the United States and Japan those are very much responsible for environmental problem also are not giving their proper support on this issue as it is known USA is not ready to reduce green house gases inside country. Even renewable energy is also not so much safe as the governments are expecting, using biofuel to tackle global warming by reducing carbon dioxide emission, many researches have shown that it causes more harm than good and the production of crops for biofuel would directly affect the food security. Since the beginning of last year, the price of maize has doubled. The price of wheat has also reached a 10-year high; already there have been food riots in Mexico and reports that the poor are feeling the strain all over the world. Farmers would respond to better prices by planting more, but it is not clear that they can over take the booming demand for biofuel. Even if they do, they will catch up only by ploughing virgin habitat. Even biofuel is worse for the planet than petroleum. The UN has just published a report suggesting that 98 per cent of the natural rainforest in Indonesia will be degraded or gone by 2022. But they reckoned without the planting of palm oil to turn into biodiesel for the European market. This is now the main cause of deforestation there and it is likely soon to become responsible for the extinction of the orangutan in the wild. But it gets worse. As the forests are burned, both the trees and the peat they sit on are turned into carbon dioxide.

A report by the Dutch consultancy Delfty Hydraulics shows that every tone of palm oil results in 33 tones of CO2 emissions, or 10 times as much as petroleum produces. Biodiesel from palm oil causes 10 times as much climate change as ordinary diesel. In February 2007 the European Commission was faced with a straight choice between fuel efficiency and biofuels. It announced that it would make up the shortfall by increasing the contribution from biofuel. In that case the EU must think about more appropriate energy sources by keeping global safety and substantial development in mind. The EU has already taken initiative in that sense still target is far from reach.

Till date the EU has not succeeded to develop its common energy policy. The slow development of a common energy policy was due to only major countries are playing important role in EU energy policy. Nations give priority to their national interest in EU's energy policy. Historical but also very contemporary reason why the common energy policy has made such slow progress is that, in order to come into full operation, it would need to cut across national policies, nationalized industries and fiscal policy; in short, to challenge the national energy interests across the board. This has been the most fundamental reason for moving slowly toward a common policy, the more so because different sources of energy are not of equal importance in each country. Therefore it can be said that energy policy is one of the 'weakest' policy areas of the EC/EU. Though, energy policy may develop beyond national policies in the 1990s, but that it remains an area where national policies are very strong indeed and national interest many times create barrier in the development of common policy. The main reason behind this is why nations are so much involved in energy policy making that the strategic economic importance of the energy sector meant that policy autonomy was guarded jealously by national governments.

After analysis it can be argued that member nations can develop policy formation from common platform if they take appropriate action which would minimize the risk and maximize the benefit to the group as a whole. To summaries the present state of the attempt to create an EU Common Energy Policy, it can be said that there exists a three-tier strategy. The main objectives adopted by the EU in area of utility-deregulation, security of energy supply and environmental protection. So it can be said that when the EU achieves all of these three important objectives then only they will be able to develop Common Energy Policy on European level. One of the main areas of concern is impact of the enlargement process on the European Union's energy policy making. The enlargement process has widened the scope of EU's policy making.

At last, it is true to say that Europe's future depends on its energy supply being safe, ecologically sustainable and affordable. It is not enough to simply ensure that sources of energy are physically available; the security of supply is closely linked to the policy of sustainable development, economic factors, development of the energy markets and the socio-economic situation in the European Union.

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