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## **PREOCUPĂRI ACTUALE ALE MANAGEMENTULUI ENERGIEI ÎN SPAȚIUL UNIUNII EUROPENE**

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## ACTUAL CONCERNS OF ENERGY MANAGEMENT IN U.E. SPACE

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### Summary:

*If in seventy the green energy was considered a utopia and treated as a dream of scientists, the situation was changed over the years and the vision of “a future of regenerable energy” has become a subject of debate.*

*Durable development of energetic sector and capitalization at a superior level of efficiency of all sources of energy, inclusive of the regenerables one, can insure the continuity and quality of providing the energy in European economy, with keeping the protections norms of environment.*

**Key words:** *durable development, green energy, energetical policy, sources of regenerables energy, management of regenerable energy.*

### 1. FOR A NEW PARADIGM AND NEW MODELS

Particularities of energetic industry had determined all national governments to consider necessary their total implication in energetic sector. These particularities, considered certitudes for a long time, are given by:

- *Natural monopoly* which is constituted by transportation and distribution activities in energy sector, which permit easy integration on vertical, as monopolies, of different activities;
- *Essential role for the community* which energy is playing, as a elementary resource, or as electricity, reason for which it felt the need of a strict governmental control;
- *Strategic character* for every economy of energetic sector, especially electricity, gas and in a small measure, oil.

These characteristics has contributed in creation of a traditional paradigm in relation government- energy industry, who had dominated for centuries, who is described under the form of a model of organization who involves central control over a net of primary and final energy. The structure of this model is dictated by:

- Exclusive rights to build and operate in energetic sector, of state or concessioned by it;
- Lack of any form of competition;
- Regulations in detail;
- High degree of forecast and strict control;
- Integral operation on vertical;
- Tariffs based on production costs.

The model functioned for a long period of time, accumulating the unhappiness much more obvious of customers regarding that, in none of the operation phases of energy system, they aren't part at the process of taking the decisions. Another major inconvenient was determined by the fact that the one's who forecast, run and operate the system aren't assume any risk and don't hurt if they're wrong. The cost of incompetence or of some wrong

judgments always have been paid by consumers, in their double quality, as consumers and fees payers.

This rigid relation, traditional, govern-industry of energy is affected, for some time, by a change that it seems irreversible. The old certitudes starts to shake up, and unconditioned acceptance of decisions token centralized doesn't work, in a much obvious way after '90. The new wave which take place to centralized regulations is regulation for competition. Natural monopolies, properties of the state or under his control, who works in a configuration technical centralized, starts to decay and to reorient towards clients and competition. Characteristics of new type of approach are different, and precisely:

- Separation of the activities, to permit competition every time is possible (instead vertical integration);
- Liberty to invest in concurential activities (instead of centralized planification);
- Liberty to contract in competitive countries (instead of fix tariff);
- Access to network and infrastructure;
- Surveillance of the system by independents regulators (instead of government) ;
- Adaptation to the information tehnology.

*After 1945*, democratic west-european governs had considered that in reconstruction after the war, a essential role is played by the energy and there fore the entire sector must be controlled by state. Industries have been nationalized, and to avoid abuse of power, was impress to public property solution and/or public control. So are born, among others, Electricite de France and Gaz de France in 1946, ENEL in 1962 in Italy. Having in sight the dominant role of states at that time in energy policy, the first Treaties of European Communities hadn't included among their objectives, the energy sector, but just some components oh this, as it's view further.

*The seventy energy crises* had conducts to energy interventions of industrialized countries in energetic sector. On European politic agenda has appeared a new problem, and exactly the one's who refer to security in energy supply. Expensive programs have been initiated for building nuclear plants and subventions have been allocated for alternative energies. International Agency of Energy was created, with purpose of survey the allocation of financial resources and encourage the diversity of alternatives forms of energy. In the same time, modest, becomes to appear national policies of energy and implementation agencies. With all these, some forecasts interventions in this traditional way have been proving rushed or even un-usefull, for that the capacity of lonely governs to intervene in energy politics had becomes to be impeach.

The advocates of new approach opened to market starts to appear in Great Britain and U.S.A. since seventy. Some structures of function who exist isolated, especially in U.S.A. , represented through independent manufacturers who debit energy in a public network, has generated the question if they couldn't extend, enlarging the number of actors in sector and encouraging the competition, for in a future to create a free market.

*At the middle of eighty*, new thinking has become to gain much more fans. The taboos of state control over the sector had become to fall, especially under the influence of two phenomenons: globalization of mondial economy and apparition of different governmental initiatives of liberalization of markets energy. Globalization brings in discussion the role of nation states, not in sense of reduction, but in that of their functions transformations and depolitization of national space for some economic sectors. Liberalization, as a directly consequence of globalization, implies in a necessary way a transfer of responsibility from state to private sector, in the same time with the proper assumption of regulations attributions of reglementation by governmental agencies.

In spite of co-existence of the two approaches, one traditional and another of market, the last become in ninety, if not necessary a reality for all states, at least a aspiration and a

new principle of organization.

Although, new paradigm contains yet questions at which attend answers. One is bound up of duration of effective implementation, as long as is know that structure and infrastructures of energy changes, very expensive, will take probably very long time, period in which governmental intervention will continue to be felt.

Another opened question remains the compatibility of energy policies with the environment and social one's, the lasts remaining, for a undefined time, in exclusive task of government.

## 2. A TABLE OF ENERGY IN EUROPEAN UNION

The U.E. member states can be split in two, from the point of view of *primary energy sources*, in three categories: net manufacturers, net importators and special category of cohesion countries. *Countries net manufacturers* are Holland, Danemarca and Great Britain.(see table 1).

Table 1.

*Fiducials values for electricity obtained from regenerables sources of energy.*

Country/year	year 1997 RSE <sup>1)</sup> (TWh)	Year 1997 RSE <sup>1)</sup> (%)	Year 2010 RSE <sup>1)</sup> (%)
Belgia	0,86	1,1	6,0
Danemarca	3,21	8,7	29,0
Germania	24,91	4,5	12,5
Grecia	3,94	8,6	20,1
Spania	37,15	19,9	29,4
Franta	66,00	15,0	21,0
Irlanda	0,84	3,6	13,2
Italia	46,46	16,0	25,0
Luxemburg	0,14	2,1	5,7
Olanda	3,45	3,5	9,0
Austria	39,05	70,0	78,1
Portugalia	14,30	38,5	39,0
Finlanda	19,03	24,7	31,5
Suedia	72,03	49,1	60,0
Regatul Unit - M.B.	7,04	1,7	10,0
<u>European Union</u>	338,41	13,9	22,0
<i>For comparison is presented : Romania</i>			
<i>Romania<sup>2)</sup></i>	<i>12,76</i>	<i>29,0</i>	<i>32,0</i>

*Note:* <sup>1)</sup> - RSE – regenerables sources of energy

<sup>2)</sup> - **Romania:** inclusiv electricity produced in hidro

*source:* “directive 2001/77/EC”/27 sept. 2001, regarding “promoting electricity produced from regenerables sources , on unique market of energy”

Once with the baring from Groningen in 1959, Holland has become the largest gas manufacturer of U.E. countries. Gas consuming, which exceed over 20% of total consumption of primary energy in comunitar space, is covered in great part by two large suppliers: Russia and Norway, on second places being Holland and Algeria. Danemarca is a net exporter of natural gas, but in a much smaller quantity than Holland. The oil necessary it covers from internal resources in a proportion of 98%. Great Britain is another big producer and exporter of energy, as one of the main actors in european policy, near Germany, France and Italy, Great Britain demands a more attentive look over his energy sector. Between 1980-1990, this sector, as the hole economy as same, has suffered major changes. Oil, gas and electricity manufacture industry has entered in a ample program of privatization, in spite of extreme powerfull opposition manifested by companies of state or public who had the absolute monopoly of these activities.

A total demonopolization, fallowed by bring into being of regulations institutions, has created the most free market of energy in Europe. The last domain who still remain in state monopoly is nuclear energy. The objective of governmental policy in energy domain was encouragement of competition, and government cut up only to established game rules.

**Countries net importers are:** Germany, France and Italy.

**Germany** is a big gas importer (78% from necessary in 1994) bring especially from Russia and oil (99% from necessary). Germany is, in the same time, an important manufacturer and transportator of energy in U.E. Coal production has decrease in the last few years, as in time the production of nuclear energy grows relative slow. Diversity of energy sources and security in supplying are two of major preoccupations of german state. Energy policy is not uniform in what it regards organization and implication of governmental authorities. In coal and nuclear energy, state has a major role, while oil sector is ruled by market free market rules. In gas domain, market is “divided“ on sections dominated by different companies (so called: “ organized market”). Nuclear energy is not looked with much enthusiasm, and coal industry, who still benefit of subventions acerb attacked by CE officials, is in continuous decline. Starting with eighty’s, environment protection becomes a prioritary objective of government and a major preoccupation in the energy field. So, Germany doesn’t fallow a jointed and unitary energy policy, one of the motives being his federal structure , which gives to lands great autonomy.

**France** is a net importer of energy. Imports almost all the oil and gas that he need and over 75% of coal. Strong development of nuclear sector was the normal result of excessive dependence towards the import of classic fuels. Although France detains reserves of oil and gas, internal production is stays at a low level. Sources of imports are Russia and Algeria, fallowed by Norway. France has a old tradition in which regards companies of state in energetic field. Electricite de France and Gaz de France are monopolists companies by traditions. Privatization of energy sector is on the agenda of governmental policy, but her it’s opposing , without the turbulence from Great Britain, syndicates and companies themselves. Environment protection , as an integrated component of energy policy, is still at the beginning.

**Italy** is poor in energetic resources and import from Algeria the bigger part from necessary gas, being as well the transit country for Algerian gas for Europe. It isn’t nuclear sector, as a result of moratorium imposed through referendum in 1987. Energetic sector is traditionally of state as in France. Energetic holding ENEI starts to be sale on components, and ENEL, the electricity company, is also on the way to be completed sold, on base of a plane of restructuration on activities. Being very dependent of energetic imports, Italy is especially preoccupied of increasing the energetic efficiency, but also of environment protection.

**Small countries<sup>1</sup> net importers of energy are Austria, Belgium, Finland, Sweden and Luxembourg.** Smaller countries, net importers of energy, will be favoured by a energy policy run from Bruxelles, rather than remain at latitude of member states. In this group of states exist yet important contrasts. Nordic countries from this group put a strong accent on environment protection and nuclear energy (being poor in resources comparing with their richer neighbours country, Danemarca and Norway), while Austria has a privileged position thanks to hydroelectric potential, which insure about 70% from internal energy production. Uses of biomass takes second place, with 11% from internal energy production. Belgium, in all devoid of fossil fuels, it's based on imports and nuclear energy, although there aren't any plans of development of this sector. Belgium is one of the strong fans of energy policy in U.E.

**Irlanda, Greece, Spain and Portugail,** countries who are benefit of a massive financial support from richer countries of U.E. through Social Cohesion Fund, are net importers of energy. They have a weaker energetic infrastructure than other states. Energetic sector is poor developed, technologies efficiency is reduced, and the transportation system for gas and electricity are not sufficient developed. For example, Portugal, who is based especially on his hidroelectrical potential, may import until 90% from energy consumed. Greece registered a spectacular increase of energy consumption – double in 1992 towards 1973 – tendence of growing into the future being even more spectacular. Almost 80% of from energy consumption is insured from imports. Spain imports over 80% of metan gas, all oil and almost half of coal. The moratory on athomic energy stopped development of nuclear sector in this country. In Irlanda, over 70% from consumption of primary energy is imported, and the procent will grow at the same time with exhaustion of internal gas resources. Because of that, orientation is on construction of conveyer pipe line for gas.

### 3. ENERGETICALLY POLITICS AND IMPLEMENTATION INSTRUMENTS

A free market needs rules but also institutions which watch over that these rules are respected. European Commission has this role of regulator. The role of Commission is yet less agreed by national governments, which consider that this position confers political power. In this context have place current changes in the concept of common energy politics.

**Green Card of Energy** is the first energetic study truly important realized after '70 in European space and represent the base of a strategy on long term of European Communities. His purpose wasn't to present solution, but to attentionated over present status of energy sector, and also on implications and consequences of energy consumption over economy and environment.

To improve safety in alimentation with energy and to response in the same time to environments requirements (especially in problem of climatic changes and planet heating), **Green Card** reveals the necessity that regenerables energy sources must become a more important part from structure of energy production. Until 2010, proportion of regenerables resources should reach at 12% towards 6% in 1998. In actual conditions yet, the growth will rise only at one procent, for that must have in sight complementary measures. Conventional sources of energy with reduced potential of contamination (black oil, natural gas, nuclear energy) are reconsidered, in sense of sustaining, through themselves, development of new energetic resources. On the other hand, the care of maintaining competition on energetic market don't give much space of manipulation to state subventions destined encouraging the producers of energy from regenerable resources. From this reason, European Commission consider that is necessary a minimum harmonization in subventions domain. Promoting of

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<sup>1</sup> Referring it makes at population number, in raport with U.E. average.

*green energy* through certificates or through a reform of fees of environment are two of the most vehiculated models.

Debate launched by Green Card revealed some directions of action, as it fallows:

1. Management of electricity

Demand consumption of energy must be controlled and conduct, especially through attentive observation of energetic efficiency and through diversification of primary energy sources.

2. Fuels stocks

In 2004 , enlarged Union will consume over 20% of global oil production. For safety in alimentation with energetic fuels, it's necessary insurance of strategic oil stocks and coordination of their usage, also consolidation between S/M on crises time. A similar approach exist for gas stocks.

3. Safety of alimentation

For ensure the safety of alimentation with primary energy in Europe, has agreed for a new energetic partnership between E.U. – Russia , which will contain foresights regarding safety of the network , investments protection, major projects of common interest. Present Accord of Partnership and Cooperation U.E. – Russia, signed in December 1997 on teen years, has a limited power, much more under the power of Europeans Accords closed with states in course of adherence.

4. Sources of energy new and regenerables

That represents in present only 6% of energetical balance of U.E.. If the trend is mentained, they will cover only 9% from total consumption until 2030. The directive regarding promoting of energy produced from sources of renewable energy, makes an important step for attraction of investments in alternative sources. The legislative act contains stipulations which refers to programs of national support for energy manufacturers on regenerables energy sources bases, in conditions of granting of some guaranties of origin of produced electricity from these sources and supporting of tehcnical costs for recording to the network of energy suppliers.

5. Nuclear energy

Fears bound up planet heating has changed the perception on nuclear energy. Is a recognized fact that using nuclear energy and renewable one's, together with high energetic efficiency, conduct at limitation of greenhouse effect of gases evolves by fossil fuels. Total abandonment of nuclear energy means that 35% of electricity should be covered from other sources. For that, nuclear option remains open to European states who wishes. Although, processing and transport of radioactive fell remain an unsolved question. New states members and candidates who has old reactors must closed or modernized, as it is the case of nuclear groups from Dukovany from Cehia. Being a subject of major interest, nuclear safety will make the object of a series of regulated reports, it will elaborate a standard of common practices and a European mechanism of control and pre-review. States will need to build national systems of storage the radioactive fell.

6. Internal market of energy

Internal market of energy is the only one who can insure healthy competition and guarantee safety of alimentation with energy, reinforcing the competitiveness of European economy, but demanding trans-frontalier capacities improved.

7. Commerce with energy in U.E.

Commerce covers only 8% in case of electricity, and it's still need interconnectivity capacities. Exist a plan of gas infrastructure and electricity network development, and has been identified more projects of European interest.

8. Global concept of safety in alimentation

This challenge impose a effort of anticipation on long term and strong relations with other countries.

9. Decompression of consumption of economic growth is a tendency of common energy policy, through it tries reduction or stopping of negatives influences of energetic sector over environment and social life. Appliance recomanded is efficient usage of energy.

Another important aspect is represented by managerial measures taken of some European states on line of *sustaining and promoting regenerables resources of energy*. Some of these managerial measures are presented in table 2.

Table 2.

Managerial measures adopted by some european states concerning the sustain and promotion of the regenerabile sources of energy

## AUSTRIA

### *Sustaining the prices*

The obligatory aquisition of a minimum percent of green electricity (made of regenerable sources or cogenerating-CHP).	The minimum hight of green energy in the total volume of provided electricity: - 1th of october 2001: 1 % - 1th of october 2003: 2 % - 1th of october 2005: 3 % - 1th of october 2007: 4 % The trade with „green energy” is allowed between the delivering agents; if not respecting this obligation, they apply a compensatory tax.	
The regulation of the aquisition cost.	For the aquisition of „the green energy”, it has been fixed a minimum aquisition price.	It varies depending on the land, between 0,03 Euro/kWh and 0,07 Euro/kWh.
8% of the electric energy provided by the micro-hydro-electric plant is sold using the environment certificates.	All the suppliers have to reach this level, directly or trough certificates; if they don't respect this obligativity, a compensatory tax is in order.	

### *Fiscality measures*

The natural gases and electric energy tax	Is ment for financing the environment protection and for the energetic efficiency.	Natural gases: 0,044 Euro/m <sup>3</sup> Electric energy: 0,0073 Euro/kWh
The mineral oils tax	The decreasing tax at „biodiesel”	Biodiesel: 13 Euro Biodiesel for agriculture: ‘0’ Euro (diesel oil: 282 Euro).



The income tax.	The loans for investment in the regenerable energy.	The maximum limit for deduction is 7267 Euro.
V.A.T. (value-added tax)	The added value tax is cut for some regenerable energy.	The products made of biomass and biodiesel: 10% (V.A.T. currently is 20%).

### ***Grants and loans***

The law regarding promoting the environment.	Grants for investments for all kinds of environment projects.	The limit of the grant is, in general, between 10% and 30%.
Loans	For improving the quality of RSE used in tourism.	The minimum limit is 36.336 Euro; the loan is for a period of 5 years to 12 years.
Support for investments in the domestic sector	For using the RSE (thermic pumps, solar energy, biomass) by all the domestic consumers.	It varies depending on the land
Support for agriculture	For some types of RSE for the investors in the agriculture.	

### ***Areas and managerial measures***

The south of Austria	The grants draft for solar energy	Support for direct investments for solar thermic energy and thermic pumps.	Since 1993
The north of Austria	The grants for environment Funds.	Grants for thermic energy using bio-masa, for thermic pumps, solar thermic energy	Since 1985
Tyrol	The grants for regenerable energy.	Direct support: investments for recovering the heat, RSE for producing hot water and heat, connecting to the urban thermic systems.	
	The grants draft for solar energy	Direct support: investments for solar energy and for producing hot water and heat	Since 1992

VORARLBERG	The grant for Biogaz	Direct support for investments	Direct support plus 50% of the utility cost; (guaranteed prices for 15 years)
	The grant for the solar thermic energy	Support for direct investments and for using the thermic solar energy for producing hot water and heat.	1991

## **BELGIUM**

### ***Sustaining the prices***

The obligation of acquisition of 3% of the produced electricity from RSE.	The companies must acquire, at a reasonable price, 3% of the electric energy from regenerable sources. This requirement can be achieved by marketing „the green certificates” starting with the year 2002.	The non-observance of this obligation is punished with a fine.
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### ***Fiscality measures***

The sulf tax for fuel oil.	RSE are excepted.	
The income tax	13,5% of the investments for RSE can be deducted from the profit.	

### ***Grants and loans***

The state grant for investments.	Investitions for wiring for RSE that are used in hospitals and schools.	Subventions of almost 20%.
The Fund for Producing the Electric Energy.	For promoting the RSE projects and demonstrative projects.	The total volume of the grant in 1999: 5 millions EURO.

***Areas and managerial measures***

Flandra	The grant for investments	Demonstrative projects: until 35% of the cost.	Grants of almost 20%.
Bruxelles	The grant for investments	For investments in the boilers that capture the solar energy for producing the domestic hot water.	Grants of almost 35%, the maximum limit being 990 EURO.
Research-development		Research and development for RSE.	Aprox. 3,5 mil. Euro/year.

**DENMARK**

***Sustaining the prices***

The obligatory character of acquisition	For the electric energy of RSE or of cogenerating by bio-masa.	
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***Fiscality measures***

The immunity of the energy tax	All the electric energy of RSE is immune to the tax. (the energy tax, CO <sub>2</sub> and sulf represent taxes on compustion, not on production).	The estimated grant: 126 millions Euro.
The immunity of CO <sub>2</sub> tax	All the electric energy of RSE is immune to the tax. The producers get refunds.	(the tax is based on the carbon content of the electric energy based on coal) The refund: 0,001 Euro/kWh.
The sulf tax	The amount: depending on the concentration of sulf of the energetic products.	(all the incomes from the energy taxes on energy, CO <sub>2</sub> and sulf are being transformed in grant drafts in the energy field).
Reduceing the income tax	The shareholders of the private companies who procude wind energy can choose a system, where the first 400 Euro of the incom from the wind energy are immune to the tax.	

***Grants and loans***

Grants through the Danish Environment Agency	The grants for the investments in the RES wiring and for promoting programs of the RSE.	The grants cover between 15% and 30% of the investment, with a maximum limit of 132.000 Euro.
The grants for the solar cells	A supporting program of the investments for a 5 years period	Total finance: 27 millions Euro/year.
Research-development.	Grants for the budget for sustaining the research in the field of RSE.	17,2 millions Euro/year.

***Sustaining the prices***

The regulation of the acquisition price of the electric energy.	The customer is obliged to buy electric energy of RSE according to the principle of „avoided prices”	
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**FRANCE*****Sustaining the prices***

The contracts for delivering the wind energy (The program EOLE 2005).	A certain capacity of delivering constitute a certain offer demand. The supply contract is signed with the one that has the best price. The market and the price are guaranteed for the next 15 years.	The estimated grant: 2,9 millions EURO/year.
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***Fiscality measures***

Reducing the V.A.T.	At the fire wood they apply the V.A.T. of 5,5% (other energetic products: 19,6%).	
Liquidation	The specific rate of liquidation for investing in the RSE.	Liquidation 100%.

***Grants and loans***

The program “Biogaz”.	Based on an auction procedure, the program is created for endowment for the warehouse of ment for the endowment of the waste dumps with waste burning equipments	The stimated grant: 1 million Euro.
The program of producing	The grant for developing the	Grant : 166,4 millions

the bio-fuel	investitions.	Euro/year.
HELIOS 2006	grants for investitions for the domestic hardware for heating the water with solar energy.	Grants of aprox. 1 million Euro/year.
Projects regarding the energy from the wood products.	Grants for investitions or for research.	Grants of aprox. 10 mill Euro/year. The maximum limit of the grant: 70%
The investment funds "FACE"	The grants for investition for RSE, most of them for investition in the network.	Grant: 15 millions Euro/year.
Research-Development	Is is estimated that France spends aprox. 1% of the total Research/Development budget for RSE.	The average anual grant: 4 millions Euro - 5 millions Euro.

## GERMANY

### *Fiscality measures*

The tax on mineral oil, the immunity for the bio-fuel	For the methylene-ester made of seeds of rape, the tax is with 0,76 Euro/l smaller by reporting to the others bio-fuels.	
The deduction of the income tax	Deductions for investments for some types of RSE.	

### *Grants and loans*

Direct grants for RSE	Granted as a compensation for the electric energy tax, wich is applied also for the RSE	Finance : 118 millions Euro/year
The loans at Deutsche Ausgleichsbank.	Loans with low interest, for the RSE investitions.	The grant was not qualified.
The 4-th Energy Research Program	The purpose is sustaining the research and cutting the emissions of CO <sub>2</sub> – by saving the energy or using RSE.	Maximum finance: 383 millions Euro/year.
Governmental Fund for RSE	Includes individual measures for sustaining RSE, like : wiring captors of solar heat, thermic pomps, small power plants, PV plants, biomass and biogas plants.	Until 2002: about 10,2 millions Euro/year.
Program: 100.000 roofs	Photo – voltaic roofs are granted by a long therm loan, with zero interest .	The grant limit:max 100%, max. 500.000 Euro.

Research – Development	Almost 30% of Research/Development budget of Germany is consuming for regeneratives.	
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## GREECE

### *Sustaining the prices*

Buying electric energy obtained by RSE	The state financed units are obliged to buy all the electric energy obtained by RSE ( excepting the one produced in big powerplants), at fixed price, in the first ten years of exploitation.	The price is expressiblePrețul este exprimat ca procent din prețul plătit de consumatorul final (70% – 90%).
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### *Fiscality measures*

The income tax decrease	The acquisition and installation expenses for domestic hardware based on RSE can be deducted from the personal income tax. The conventionals person can benefit from accelerate liquidation	It can be deducted 75% from expenses.
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### *Grants and loans*

The Development Law, grants and rates of low interest.	The grants main Law; RSE benefit from the grant as costs patial finance, and from the capital increase or preferential rates.	The grants maximum limits are applied for sustaining electrical energy production made of RES and cogeneration .
The operational program of European Union „ Energy”	The sustain of the investements for developing RSE (excepting the wind energy project from Crete). It can't be granted more than 26% from the entire finance regarding the wind energy	Estimated funds 171 mill. Euro + loans from BEI The grant limits for investements : - active solar energy: 35% – 50%; - passive solar energy and wind energy: 40%; - geothermal energy and biomass: 45%; - photovoltaic: 50 – 55%.
Research – Development		7,8 millions Euro

## IRELAND

### *Sustaining the prices*

The demand: the Energy Alternative (AER-Alternative Energy Requirement)	The offer demand procedure, partially financed by the European Union, where the RSE challenge for long term delivery contracts with the public units. The prices are granted and sustained „above the avoided costs” due to unutilisation of the non-fossils fuels.	The actual level of the AER grant is estimated to 10 millions Euro/year
The prices sustain for wood gasification projects.	The prices are distinctly fixed by national.	

### *Fiscality measures*

Loans for income tax	Program support for developing small enterprises, specially for specialized ones in hydro energy production.	Limit : 317.400 Euro.
Exception from RSE tax	Wind energy investements and biomass are excepted .	Up to 50% of the investements costs can be deducted from company profits (deduction maximum limit: 9,5 millions Euro).

## ITALY

### *Sustaining the prices*

„Preferential” price for regenerative.	National law authority oblige a preferential price for the acquisition by RSE (The price decrease after 8 years of wire function); it offers a certain profit level by lower prices for regenerable.	- small hydro power plants (up to 3 MW): 0,83 Euro/kWh; -wind and geothermal power plants : 0,1 Euro/kWh; - PV, biomass, waste: 0,15 Euro/kWh; (after 8 years of function: 0,53 Euro/kWh).
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### *Fiscality measures*

CO <sub>2</sub> Tax	The incomes are partly used for promoting.	
Sulphur tax		Up to 125 Euro/t for high sulphur concentration; - up to 62 Euro/t for low sulphur concentration

Regional Law for tax	The regions can impose fuel taxes to finance, among others, RSE projects.	
The bio-diesel fuel except from taxing	It doesn't pay taxes up to 125 distributed kilotones.	The total estimated grant limit: 50,4 millions Euro.
Preferential V.A.T.	The solar energy captions systems benefit of a lower V.A.T.	V.A.T. of the solar energy captions systems: 10% (instead of 20 %).
The rebate for thermic energy consumption	If biomass is used as fuel, is applicable a lower rates tax for certain climate areas .	Rebate rates: 0,01 Euro/kWh.

### ***Grants and loans***

Grant program, "10.000 photo voltaics roofs"	The program ment for creating 10.000 roofs on a 5 years period.	up to 75% capital grant.
The National Program for Thermic Solar Energy	The purpose is the installation of 3 millions m <sup>2</sup> solar panels until 2010.	
Research-developement	Budget funds for research/developement	Funds granted between 1995 - 1998: 39,3 mill EURO (estimated average)

### **HOLLAND**

#### ***Sustaining the prices***

The aquisition necessity	By laws, the provider is obliged to accepte all the electric energy produced of RSE	
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#### ***Fiscality measures***

The energy tax – sustaines ecological and low energetic intensity projects	The electric energy produced of RSE and the heat energy are tax-free. Energy saving projects – tax free.	The grant was estimated to 14 mill Euro in 1998 and grew constantly until present time.
The environment tax for fuel and uranium	The tax for fossils fuels (calculated so: 50% for the energetic value and 50% on the carbon component). The uranium tax is a compensatory pase.	
The deduction of the environment projects tax	For certain investments in the field of energy saving and regenerable sources: between 40% and 52% of the	



	investment costs which are deducted of the profit/income.	
The flexible liquidation	The companies can decide the length of the liquidation for the investments ment for environment projects.	The estimated grant for RSE: 27 mill Euro.
Income tax-free for „green investments”	The interests are tax-free for certain major ecologic investments.	The estimated grant; 7 mill Euro/Year.
Tax-free	The bioethanoll is tax-free.	Grant : 6 mill. Euro/year.

### ***Grants and loans***

The program „Wastes and Biomass”	Grants for using biomass and wastes and for supporting of the demonstratives, tehnological projects	Grant: 4,08 mill Euro
The program „Wind energy promoting”	Grants for promoting the investments and for tchnic/industrial .	Grant:3,76 mill Euro
The program „Solar Energy-Photovoltaic”	Grants for supporting the projects of technic/aplicative developement.	Grant: 12 mill Euro
The program “thermo-solar energy”	Grants for plumbing and technology developement.	Grant: 1,8 mill Euro
Grants for solar heat active systems.	Encourageing the solar heat capture systems developement.	Grant: 3,6 mill Euro

### **PORTUGAL**

***Portugal is in a unique situation because internal energy production is exclusivly provided by regenerable resourses of energy..***

### ***Fiscality measures***

Redused quote of Cote reduse de V.A.T.	For RSE used equipment (ex solar panels )	5% (normal V.A.T: 17%).
Reduced income taxes	Reduction applied when buying the equipment used with RSE.	20% from investment or maximum 125 euro can be deducted
Research-Development	Budget finance for C/D; cca. 2/3.from Research/Development fund is beeing fated RSE	În 1999, 1,2 millions Euro.

## SPAIN

### *Sustaining the prices*

Special help treat for producers	Selfproducer; RSE consumers have guaranteed acces to the network and also benefit for the fix prise (80-90% from the final prise value)	
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### *Fiscality measures*

Tax free	Oils and fuels bassed on vegetal origin alcohol are excepted from taxes	
Deduction from the income tax	Deduction of investments and equipments who are improving the inviroment	10% deduction from the aquization price when the tax is draw

### *Grants and loans*

The plan to economize energy and energetical efficiency	Finance of demonstrative project and promoting of RSE ( special atention for IMM)	Maximum subvention on the project (2,3 millions Euro Maximum ceiling: - small hidro (15% for IMM, others, 5%); - eolian power station(40% for IMM, 30% others); - therrmic-solar energy (208 EURO/mp); - PV(max. 7 EURO/Wp); -geothermal energy (40%); - biomass (20-40%); subventions: 32 mil. €.
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## SWEDEN

### *Sustaining the prices*

The necessity to respect the quotes thought green certificates , sistem that came into force in january 2003	The electric energy consumers will be obliged to buy geen certificates	The result: general increse of energy prise;quotes are made for the period 2003-2010
Bonus for eolian energy	Producers has deductions of energy taxes for the eolian energy that they are producing	The subvention is estimated to 11 millions Euro/year

### *Fiscality measures*

CO <sub>2</sub> tax	Tax for crude oil,carbon, cox, natural gas, who are used in energetical purposes and also	0,039 Euro/kg CO <sub>2</sub> . entreprise who produce are paying just 50% of the tax.
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	as fuel for domestic flights.	
Energy tax	Payed by the domestic consumers and the business service (production is beeind excepted). The production at a small scale from RSE is also tax-free, partially or totally	Approximately 0,01 Euro/kWh. Deductions are pitched for fuel used to electricity production, considering the tax payed by the consumers
Sulphur tax	Applied for carbon,crude oil,fuel used in aviation (domestic flights)and also for peat.	Ceiling : 3,16 Euro/kg SO <sub>2</sub> (for fuel used in domestic flights 1,38 Euro/kg SO <sub>2</sub> ); sales applied for some reduced measures for the sulphur content
Noxa tax	The tax is beeing payed from industry,conformity with the level of transmisions	Level: 4,2 Euro/kg capacity over 25 GWh.
Flexible liquidation	Certain ecological projects Investors may choose for a favourable liquidation program	
Excepting of bio-fuel	Bio-fuels are excepted of taxes	

### ***Grants and loans***

Maintenance of investments for wind energy	Eolian turbines with capacity over 200 kw.	15% of investment price
Maintenance of investments for CHP (regenerable sources or cogenerating) who work with bio-fuel	The power station holder must warrant the use of a bio-fuel percentage.	25% of costs (max. 316 Euro/kWh).
Research-Development	Governmental subventions for research-development for thier regenerable	Annual finance approximately of 10,2 millions Euro untill 1997 ( in present, the value is much higher).

### **UNITED KINGDOM OF GREAT BRITAIN**

#### ***Sustaining the prices***

Obligation of aquisition non-fossil fuel (2002)	All electric energy supliers must aquire 10% from thier RSE electric energy	As a result it has a general price growing for electric energy; the program is going on a period of 25 years
Obligation of aquisition RSE	Electric energy supliers must	The program is beeing used

( in United Kingdom and North Ireland)- project which will be finalized in 2018.	acquire a certain amount of electrical energy made of non-fossil funds for a exact period (nuclear or RSE)	since 1989 and is being financed from a tax which was applied for all electrical energy made from non-fossil fuel. The annual estimated average finance until 1998:10,1 millions Euro.
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#### ***Fiscality measures***

Fuel fossil tax (prevalied drawn during the obligation of aquisition of the electricity produced of non-fossil fuels)	Consumers pay an electrical energy bill which include a tax made from fossil fuels.The amounts are prizes for RSE producers to balance the taxes. .	Tax percentage: England / Wales: 0,7%; Scotland : 0,8%; North Ireland: 1,5 – 2%.
Tax called „Climatic change of inviroment”	The electrical energy supliers collects this tax from consumers-conventional persons (the tax is beeing estimated based on the level of CO from electric energy); the electrical energy made of RSE is tax-free with the exception of the one made in big powerplants.	Current level: 0,0006 Euro/kWh.
The program „Green Fuel””	Reduced taxes for biodisel and CNG/LPG	The tax is 0,3 Euro smaller then tax for other types of fuel

#### ***Grants and loans***

Capital incese for RSE tehnology.	Assistance help for offshore wind projects, „energy crops” and biomass (small level)	Budget: 140 millions pounds/10 years
Subventions for biomass productivity		Only for biomass producers.

### **4. CONCLUSIONS**

The European Comunity , the states that are in the UE, are involved totally in energy sector. There are made major efforts for abandoning the traditional paradigms and working with new ones. In this framework they pay much attention on insuring energy compatibility with inviroment and social ones.

In this paper work i save a special place for the energy picture from UE. I divided the whole UE states, bassed on their primary energy source, into 3 categories and i spotlight all particularities, orientations and special measures insisting on the need to build thoroughfare

for gas transportation. I gave a special attention to the energetical policy and implementation instruments. I left from the thought that a decentralized market dont need particularry rules but it needs institutions who can watch that rules are beeing obided. This role has been taken by the European Committee who is involved in elaborating and making the concept of common policy energy a fact.

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