

# Energy policy of the European Union: Impact of the renewable energies and perspectives for the year 2020

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## Abstract

In order to fight against the climatic change the European Union (EU) adopted at the beginning of 2007 a historical decision: The 27 countries members of the European Union (EU) will have to cover, with obligatory character, a 20 % of their power consumption with renewable sources in 2020. Previously the people in charge of the competent portfolios in energy policies of the countries members had decided that the bio-fuel have, with strictly obligatory character, a 10 % of the fuel market.

### KEY WORDS

Energetic policy of the EU. Policy of R+D+i. Macroeconomic indicators: employment, investment and foreign commerce.

## 1. Introduction.

The EU in the emulation to design an Energy Common Policy linked to the fight against global heating like unilateral target the reduction of CO<sub>2</sub> emission of 20 % in 2020 on the levels of 1990, fixing in addition, for 2050, a target of reduction of a minimum of 60 % and until of 80 %. The final target is to avoid that the average temperature of the planet does not increase any more of 2 centigrade degrees with respect to the pre-industrial levels.

The target is to define and to adopt a new economic model of high energy efficiency and low emission of gases of greenhouse effect based on the efficient use of renewable, the obligatory one use that in 2020 20% of the power consumption in Europe comes from renewable sources, and the power saving (the second target is to reduce a 20% the consumption of energy in 2020 on the current tendency).

The nuclear energy and the clean coal will occupy, as well, a strategic place, on the one hand the atomic energy will compute at the time of calculating the reduction of CO<sub>2</sub> emissions, and by other all the thermal power stations of coal that settle from 2020 will have to apply technologies of capture and carbon kidnapping. It is foreseen that the coal duplicates its importance in the production of electrical energy before 2030 being as well the source that more CO<sub>2</sub> emits.

## 2. Current situation: Non-fulfilment of the 2010 targets.

The target to guarantee the production of 20% of the energy in 2020 is formulated when there is practically impossible the fulfillment of the targets established for 2010 in the Board 2001/77/CE that proposes for this year that 12% of the energy consumption should come from renewable sources; Spain could be the only exception if moderates the power demand and maintains the rate of current growth. At level of all European Union and ideally, 10% will be reached.

On the other hand the target to reduce the level of CO<sub>2</sub> emission in a 20% for 2020 respect to 1990 levels requires designing additional measurements that complement of efficient way policies developed up until today.

## 3. Investment in Research, Development and Innovation (R+D+i): programs of the European Union.

The Scientific Research, the Technological Development and the Innovation are critical elements, as much in the subject of the Renewable Energies as in the design and development of technologies that allow the sustainable development of the fossil fuels, in particular the CO<sub>2</sub> capture and kidnapping. In this field and until 2015 there are foreseen the development of different projects from demonstration (15 before 2015) between which emphasizes the project of the City of the Energy in Spain.

In any case, where a greater guarantee of success is anticipated is in the ambience of the Renewable Energies.

The R+D+i will allow to reduce the costs of all the technologies, and very especially of the photovoltaic one, which, according to the Commission, already costs today 650 €/MWh, a 60 % less than in 1990; on the other hand, to generate a wind-MWh costs 65€ and one generated with biomasses ranges between the 20€ and the 180€

With this target the funds increase destined to R+D+i in energy, as much of the Seventh Program Framework (of 574 annual millions it passes to 886 annual millions, two third parts of which are for renewable and power efficiency) as the Program of Intelligent Energy (from 50 to 100 annual millions), in both cases between 2007 and 2013.

On the other hand, the Commission will cooperate with the member countries so that the Structural Funds and of

Cohesion also they benefit the development of the Renewable Energies and the linked technologies, and will present the First Strategic Plan of Power Technology in the first months of 2008.

#### **4. Cost forecast of the proposed targets.**

The cost of reaching the target of 20% will depend on the oil price in the international markets, since in the cost - benefit calculation - excluded the external costs - what more weighs there are 250 million annual tons of crude oil that the clean energies, for being indigenous, will avoid to matter in 2020 (the OPEC considers as target to maintain the price of the barrel over 60 dollars).

With a scene of low prices of the barrel (48 dollars), the considered annual cost is 18.000 million annual euros, but with the barrel placed in the prices reached in 2006 (78 dollars), the annual cost descends to 10.600 millions, approximately 20 euros by European citizen and year. Both numbers can reduce other 2.000 annual millions with a good election of the renewable mix. To these estimations it is necessary to add the price of the ton of CO<sub>2</sub> avoided. With the ton to 25 euros and a considered saving of 700 million tons in 2020, the saving reaches 200.000 million euros this year.

The crude Brent overcame for the first time the last week of September of 2007 81 dollars.

Unfortunately, a greater weakening of the dollar could still shoot plus the oil price. As the price of the crude oil raises, greater it is the probability that the growth of the world economy is reduced. The price of the barrel type West Texas also has overcome a new historical barrier, quoting to beginning of October of 2007 to 84 dollars that supposes an increase of 165 % in dollars and 98 % in euros, from the beginning of 2003.

In view of this information, the Commission concludes that adding the savings of imports (with the oil to 78 dollars) and of CO<sub>2</sub> emissions, the costs would be covered to reached the fixed target of renewable power contribution.

#### **5. Macroeconomic indicators: Investment, employment and foreign commerce.**

##### **5.1. Investment.**

In the course of the year 2007 the index S&P which groups 30 companies related to the energy produced with renewable sources has revalued 38,6%. In any case the companies are conscious of the risks linked to their new lines of development, (1) some of the new methods of energy production are not profitable in if same and they need from subsidy, (2) on the other hand is necessary to consider the potential risks derived from the regulation and the normative development.

The second line is the derived from the option to invest in specialized investment funds.

The funds of renewable energy have revalued from January to August, 2007 an average of 14% as opposed to 7,13% of the funds of global rent.

##### **5.2. Employment.**

Another important linked aspect is the creation of jobs. The European Commission calculates that, at present, 300.000 persons are directly used by the sector and thinks that, in 2020, this number might increase in other 650.000 direct jobs.

##### **5.3. Foreign commerce.**

Approximately half of this employment would be orientated to the exportation, so that, even registering a potential reduction in the rate of the internal growth, the external demand would be enough to mantain and to increase the employment.

#### **6. Energy sectors.**

##### **6.1. Electricity.**

To reach the targets of 2020, it is necessary to increase the support to the renewable energies emphasizing the sector of the electricity production going on from the current quota of 15% to 34%.

##### **6.2. Transport.**

In the first trimester of 2007, the ministers' summit with competences in Energy matter of the member countries decided that in 2020 10% of the fuel market of automotion of each State will have to be covered obligatorily with biodiesel.

##### **6.3. Thermal uses.**

The heating and the refrigeration approximately suppose 50% of the final consumption of energy of the EU, but only 9% of the same one is covered by renewable sources.

#### **Conclusions.**

Need to plan the energy policies in the long term to a minimum of 10 years before, being even advisable that, in certain sectors, establish programs of performance to 50 years.

Establishment of three axes of action:

(a) Design of a global strategic Plan agreed by the totality of the member countries promoting the programs of Joint Action (JA) and encouraging strategic projects assumed like proper for the EU to the margin of individual programs of the member countries.

(b) Incorporation of the renewable energies in the energy mix.

(c) Need to design politicities and performances of R+D+i that guarantee the optimization of the technological processes linked to the Renewable Energies guaranteeing their competitiveness opposite to other energy sources.

#### **References.**

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