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Ministry of Economic Affairs

Directorate-General for
Energy Policy and Mines

**Directive 2001/77/EC of the European Parliament and of the Council of
27 September 2001 on the promotion of electricity produced from renewable energy
sources in the internal electricity market**

Report from the Kingdom of Spain on its national indicative targets (Article 3(2))

1. Background: current Spanish legislation

1.1 Law No 54/1997

The basic purpose of Law No 54/1997 of 27 November 1997 on the Electricity Sector is to regulate the sector in terms of supply, while guaranteeing quality and least cost. The Law includes the provisions of Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity.

The Law provides for two distinct electricity generation regimes: the Ordinary Regime and the Special Regime. Under the first, producers are paid for the energy they generate through a system of bidding via the market operator. Under the Special Regime, the price of electricity is established by adding together the average market price and a fixed premium set by the Government.

The Special Regime applies to electricity production in plants with a power capacity of no more than 50 MW in the following cases:

- autoproducers which use high energy-yield co-generation;
- where the primary energy used is one of the non-consumable renewable energies, biomass or any type of biofuel;
- where the primary energy used is non-renewable waste.

Lastly, the Law provided for a Renewable Energy Promotion Plan to be drawn up with a view to renewable energy sources covering at least 12% of overall primary energy demand by 2010.

1.2 Royal Decree No 2818/1998

The purpose of Royal Decree No 2818/1998 of 23 December 1998 on the production of electricity by plants using renewable energy sources or resources, waste or co-generation is the regulatory implementation, in respect of the Special Regime, of Law No 52/1997 on the electricity sector.

The following plants generating electricity from renewable sources are taken into account:

- those using thermal or photovoltaic solar energy as primary energy;
- those using wind power;
- those using geothermal energy, wave power or tidal power as primary energy;
- hydroelectric plants with a capacity of no more than 50 MW;
- plants using primary or secondary biomass as their main fuel;
- plants using municipal waste or other forms of waste not included in that category as their main fuel;
- those which process and reduce waste from the agricultural, livestock or service sectors with a power capacity of no more than 25 MW.

The Royal Decree establishes the administrative procedure for including plants in the Special Regime, the conditions for delivering the generated electricity and the economic arrangements, with particular attention to the setting and periodic review of the premium for each type of plant.

1.3 Spanish Renewable Energy Promotion Plan (2000-2010)

The Plan was drawn up pursuant to the aforementioned Law No 54/1997. It was approved by the Spanish Council of Ministers on 30 December 1999.

What is proposed is of a markedly indicative nature, having been formulated in a context of increasing liberalisation towards a single energy market within the EU framework. However, renewable energies are granted special treatment on account of their strategic nature and the intrinsic benefits they offer in various respects. They are characterised in particular by their indigenous nature, the substantial reduction in environmental impact resulting from their use, the strategic balance they create in terms of energy supply, and the infrastructure they will create for future sustainable development.

The Plan's most important contribution is its structural content, with the creation of a modern sector with a strong growth rate and a broad market, which is accessible if costs are optimised (market of critical size) and a high level of quality is achieved. It must also be borne in mind that Spain finds itself in an advantageous position thanks to relatively long-term R&D and development work, which has gained renown, solidity and influence in industrial circles both at home and abroad. This position is bolstered in the Plan, whose measures bring industrial value added, and not just in relation to the objective of achieving a specific contribution share by a given date. In other words, the Plan's design is one of sectoral and energy synergy.

The full text of the Promotion Plan is available at:

http://www.idae.es/index.asp?documentacion/catalogo_plan_fomento.asp

2. Energy targets for 2010-2011

2.1 Overall energy targets of the Promotion Plan

The Renewable Energy Promotion Plan's targets were set in accordance with Law No 54/1997 on the Electricity Sector, the objective being for renewable energies to meet 12% of Spain's overall energy demand by 2010. The Plan thus aims at a growing and sustainable share for renewable energies in Spain's future energy supply. This is illustrated in the table below, which sets out the energy targets in terms of primary energy, comparing the situation in 1998 with that forecast for 2010 under the Plan.

	PRODUCTION IN TERMS OF PRIMARY ENERGY (ktoe)	
	Situation in 1998 (base year)	Target situation in 2010
TECHNOLOGY AREA		
Electricity generation	3 608	11 424
Thermal uses	3 506	5 215
TOTAL RENEWABLE ENERGIES	7 114	16 639
<i>CONSUMPTION OF PRIMARY ENERGY (ktoe)</i>	113 939	134 965
<i>RENEWABLE ENERGY/ PRIMARY ENERGY</i>	6.2%	12.3%

The Plan's targets are related to projected consumption in 2010, as obtained in a Basic Saving Scenario and allowing for a significant curbing of the trend in demand as a result of active and effective energy efficiency and environmental protection policies. Nonetheless, the forecast consumption of 135 Mtoe in 2010 in this Scenario requires extra efforts to set the renewable energy growth targets quite a bit higher than earlier forecasts, given that an upturn has been observed in the growth rate of consumption. In other words, in addition to the efforts by the sector itself, the Plan's success will depend on effective implementation of energy efficiency policies.

In relative terms, the target of 12% by 2010 involves doubling the 1998 share of renewable energies in Spain; in absolute terms, it means generating sufficient resources to multiply the 1998 contribution of 7.1 Mtoe by 2.3, to achieve 16.5 Mtoe by 2010.

In this Basic Scenario, renewable energies in 2010 will need to meet additional consumption of 9 525 ktoe per year, with a very different source distribution from the current one. This includes, notably:

- a major increase in the proportion of biomass, involving a huge development and installation effort, especially as the basis for electricity production;
- a fall in the relative importance of hydraulic energy, which will grow less than the other technology areas;
- extraordinary growth in wind energy, representing 11.2% in the new structure;
- definitive backing for the mature and high-potential sector which is low-temperature solar energy;
- a significant appearance by emerging technologies such as thermoelectric solar, biofuels, solid municipal waste, biogas and photovoltaic solar.

The shift is essentially towards electric technologies with safer and more stable markets, rather than thermal technologies with resources in a higher-risk market.

2.2 Electricity generation targets under the Renewable Energy Promotion Plan

The table below sets out the situation of electricity generation from renewables in 1998 (the base year in the Promotion Plan) and the targets for 2010.

	Situation in 1998 (base year)		Target situation for 2010	
	Capacity MW	Production GWh	Capacity MW	Production GWh
Biomass	189	1 139	1 896	13 948
Thermoelectric solar			200	459
Hydraulic	16 221	30 429	16 571	31 129
Mini-hydraulic	1 510	4 680	2 230	6 912
Wind	834	2 002	8 974	21 538
Biogas			78	546
Photovoltaic solar	8	15	144	218
Solid municipal waste	94	586	262	1 848
Total renewables	18 856	38 851	30 355	76 596

The targets clearly reflect very major growth in most technology areas.

In terms of overall contribution to the consumption of primary energy, biomass has the largest projected growth, the objective being an increase of 5.1 million toe, destined for electricity generation, representing a 30-fold increase over the current contribution.

Wind power makes the second largest contribution to primary energy consumption in 2010, multiplying its 1998 contribution by more than 10.

New applications are planned for the solar technologies, as well as very significant growth for existing applications, though their contribution to the primary energy balance is smaller than that of either biomass or wind. The new applications include the installation of 200 MW of thermoelectric solar energy using the technology developed at the Almería research centre. For photovoltaic solar energy, the target involves multiplying the current level of production by 15, though its contribution will remain very small.

Biofuels and biogas for electricity production are two further areas (of new development for the former and substantial growth for the latter), with forecast contributions of 500 ktoe and 150 ktoe respectively in 2010.

Production of electricity from solid municipal waste will treble.

The mini-hydraulic targets involve increasing current capacity and production by almost 50%, while scarcely any growth is forecast for hydraulic power with a capacity greater than 10 MW.

2.3 October 2002 target review

The "Planning of the Electricity and Gas Sectors. Development of Transport Networks 2002-2011" document, approved by the Spanish Government in October 2002 and ratified by the Parliament, expects greater demand for primary energy than is foreseen in the Renewable Energy Promotion Plan scenario. For instance, wind power, which the Plan estimated would be around 9 000 installed MW in 2010, is as much as 13 000 MW in the Planning document. Similarly, the forecast installed capacity in biomass plants,

which the Promotion Plan put at 1 900 MW, rises in the Planning document to 3 100 MW.

The table below gives the forecast for total national production of electricity from renewable sources in 2011.

	Capacity MW	Production GWh
Biomass	3 098	22 784
Thermoelectric solar	200	459
Hydraulic	16 571	31 129
Mini-hydraulic	2 380	7 376
Wind	13 000	28 600
Biogas	78	546
Photovoltaic solar	144	218
Solid municipal waste	262	1 846
Total renewables	35 733	92 958

Three possible scenarios were considered in the abovementioned forecast study. In the middle scenario, overall demand for electricity in 2011 was estimated at 303 758 GWh.

In this case, production from renewable sources represents 30.6% of the total if account is taken of large-scale hydraulic, and 20.4% if it is not.