



Wind Energy in Spain Energy and Sustainable Development in the Mediterranean Monaco, March 30, 2007

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Initial Factors

- Driven by EU policy and a desire to diversify Spain's energy sources and reduce import dependence
- Widely supported by the society and all major utilities
- From just over 200 MW in 1997, the Spanish market has been steadily growing at annual rates of more than 30%
- Record level of 2,065 MW installed, a 33 percent increase on 2003, taking the total to 8,155 MW in 2004
- Government target of 13,000 MW installed wind capacity in 2010 has been updated to 20,000 MW in 2011
- The Government's new target would see wind energy supplying 15 percent national electricity consumption, up from 6.5 percent today.



Initial Factors

- generous capital and output subsidies in place
- high potential of wind energy in Spain (estimated by the government to be 2.8 GW)
- strong private sector initiatives
- take-off was triggered by federal requirement that utilities pay a guaranteed premium price for electricity from wind over the first five years of the project
- A new Electricity Act established a "Special Regime" for renewables, including wind, with guaranteed access to the grid and a premium payment for generated power
- The Renewable Energy Plan (PER) 2005-2010 will greatly contribute to a steady growth of the wind sector.



Tools

- new Electricity Act in 2004 established a "Special Regime" for renewables
- subsequent adaptations to the regulatory framework has fine-tuned the payment mechanism, linking it more closely to the wholesale electricity trading
- “Special Regime” any generation had to be purchased by the network operator at a fixed price, calculated by the government and contains a premium depending on the technology or fuel from which the electricity is generated

Barriers for wind energy development

Barriers / Obstacles	Measures	Responsibility	Calendar
Wind energy transport infrastructure is not sufficient.	Development of energy transport networks.	REE (Spanish Electric Network Company)	2006-2010
	Revise planning of gas and electricity sectors.	REE and Ministry of Industry	2006
Deficient energy connection legislation, low access to electric network and deficient operational conditions (O.M. 05/09/1985).	New Royal Decree facilitating connection to energy with special regime (renewable).	Ministry of Industry	2006
Inadequate management of wind power production.	Establishment in REE of an unique centre of operations for the “Special Regime” Energy.	REE and Ministry of Industry	2005-2006
	Development of coordination canters for wind power facilities or facilities located in a specific territory.	REE and utilities	2006-2007
	Expand application time to solicit financial incentives to upgrade old wind turbines.	Ministry of Industry	2005
Limit of current bonus and rates until total wind power reaches 13.000 MW.	Maintenance of Royal Decree 436/2004 but increasing the legal limit to 20,000 MW.	Ministry of Industry	2005



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Spanish Renewable Energy Plan 2005-2010 financing

- **The total necessary investment to reach the energy objectives is about 23.599 million € on the period 2005-2010.**
- **This will require private sector financing of about 4.719 million € and the remaining financing will come from the financial market (18.198 million €).**
- **The public support will provide about 681 million €**



Benefits

- Contributing to economic stability
- Reduce the commercial deficit
- Improvement and modernization of industry
- Employment generation
- Contribution to regional development
- GHG Reduction: total emissions avoided by the Plan until 2010 = 77 millions tons of CO₂ and the economic valuation of these avoided emissions at the same price of CO₂, is up to 1.540 million €
- Energy diversification benefits



Future Prospects

- objectives related to wind energy seeks for an increment of 12.000 MW in the period 2005-2010
- summing up by 2010 an installed total power of 20.155 MW



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