RENEWABLE ENERGY REGULATION
IN SPAIN

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Vice Chairman
NATIONAL ENERGY COMMISSION

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Solar Heat Map

Regulation is the key factor
Spanish capacity installed

CAPACITY INSTALLED DIC 2008: 95,648 MW =
= 66,448 MW OS + 29,200 MW SS
Evolución de la potencia instalada en el régimen especial en España. (Diciembre_2008)
Evolución de la potencia instalada en el régimen especial en España. (Junio_2009)
Evolución del número de instalaciones en régimen especial en España. (Diciembre_2008)
Number of PV installations

INSTALACIONES FOTOVOLTAICAS

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of PV Installations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>5,000</td>
</tr>
<tr>
<td>1999</td>
<td>10,000</td>
</tr>
<tr>
<td>2000</td>
<td>15,000</td>
</tr>
<tr>
<td>2001</td>
<td>20,000</td>
</tr>
<tr>
<td>2002</td>
<td>25,000</td>
</tr>
<tr>
<td>2003</td>
<td>30,000</td>
</tr>
<tr>
<td>2004</td>
<td>35,000</td>
</tr>
<tr>
<td>2005</td>
<td>40,000</td>
</tr>
<tr>
<td>2006</td>
<td>45,000</td>
</tr>
<tr>
<td>2007</td>
<td>50,000</td>
</tr>
<tr>
<td>2008</td>
<td>55,000</td>
</tr>
<tr>
<td>2009</td>
<td>60,000</td>
</tr>
</tbody>
</table>
Evolución e incremento anual de la potencia instalada en Energía Solar. Diciembre_2008

Capacity PV installed
Share of production of Special System

Evolución anual de la demanda bruta y la energía vendida por el régimen especial nacional.
Energy production of Special System

Generated Energy in Spain (Renewables and CHP)

- CHP
- Wind
- Hydro
- Waste
- Biomass
- Waste Treat.
- Solar PV
- Total

GWh

Year:
- 1990
- 1991
- 1992
- 1993
- 1994
- 1995
- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002
- 2003
- 2004
- 2005
- 2006
- 2007
- 2008

Generated Energy in Spain (Renewables and CHP)
Share of green electricity in gross electricity consumption

Evolución de la participación que representan las energías renovables sobre la demanda en España

30% in 2010 Directive 2001/77/CE
CONTENTS

1. Economic regulation:

2. Access regulation:

3. Guarantee of origin:
   Order ITC 1522/2007
1. Economic regulation:
1. Economic regulation
Power Act 1997: Basic purpose

To establish the Spanish Electricity Regulation with the following three goals:

1. Guaranteeing the supply of electricity power
2. Guaranteeing its quality
3. Guaranteeing the supply of electricity power at the lowest possible cost

Environmental protection must be taken into account

With a transitional period: warranty by law
1. Economic regulation

Power Act 1997: Basic purpose

- To establish the Spanish Electricity Regulation with the following three goals:

  Environmental protection must be taken into account on
  - Environmental Impact Assessment
  - Integrated Pollutant Prevention and Control
  - Emission Trading
  - Special System of Generation (economic incentives)
  - Demand Side Management Programs (economic incentives)
1. Economic regulation

According to Law 54/1997

**SPECIAL SYSTEM**
- Generators $\leq 50$MW that use:
  - Cogeneration
  - Renewable energy
  - Wastes
- The energy produced can be incorporated into grid (priority of dispatching)
- Payments:
  - A *fixed tariff* (guaranteed purchase)
  - A *premium* in addition to the market price

**ORDINARY SYSTEM**
- Conventional generators
- Is obliged to participate in the market
- Payments: market price
1. Economic regulation

According to Law 54/1997

SPECIAL SYSTEM
1. Economic regulation

According to Law 54/1997

SPECIAL SYSTEM

- Natural Gas
- Other fuels
- Biomass

Heat and Electricity
High Energy Efficiency
Tariffs and Premiums
Suplement according to energy saving
1. Economic regulation

Methodology CNE

Criteria:

1. To reach the targets set in the indicative planning

2. Security and predictability of the economic supports

3. Improve the quality of this kind of energy in order to integrate it to the system

4. RES+CHP compatible with Electricity Market
1. Economic regulation

Methodology CNE

Criteria:

1. To reach the targets set in the indicative planning

   Economic incentives -> Energy and Environmental Policy tool (enough to obtain a reasonable profitability)
1. Economic regulation

Methodology CNE

Criteria:

1. **To reach the targets set in the indicative planning**

  Share of 12% of **primary energy** from renewable energy

  Share of 30% of **electricity** from renewable energy

<table>
<thead>
<tr>
<th>Resource Type</th>
<th>Planning 1998 - 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Biomass and Biogas:</td>
<td>58 MW in 1998 -&gt; 2.300 MW in 2010</td>
</tr>
<tr>
<td>- Wind:</td>
<td>837 MW in 1998 -&gt; 20.200 MW in 2010</td>
</tr>
<tr>
<td>- Solar:</td>
<td>photovoltaic 1 MW in 1998 -&gt; 400 MW in 2010</td>
</tr>
<tr>
<td></td>
<td>CSP 0 MW in 1998 -&gt; 500 MW in 2010</td>
</tr>
<tr>
<td>- Hydro &lt; 50 MW:</td>
<td>1.190 MW in 1998 -&gt; 2.200 MW en 2010</td>
</tr>
<tr>
<td>- Cogeneration:</td>
<td>5.000 MW in 1998 -&gt; 8.400 MW in 2012</td>
</tr>
</tbody>
</table>
1. Economic regulation

Methodology CNE c

Projection of Capacity for Renewable Energy Sources
Year 2030

<table>
<thead>
<tr>
<th>Energy sources</th>
<th>Capacity, Mw</th>
<th>Share, %</th>
<th>Share, % RES / Total Capacity</th>
<th>Share, % RES / Total production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind</td>
<td>40.000</td>
<td>48,00</td>
<td>26,5</td>
<td></td>
</tr>
<tr>
<td>Solar</td>
<td>15.500</td>
<td>18,60</td>
<td>10,3</td>
<td></td>
</tr>
<tr>
<td>Photovoltaic</td>
<td>6.500</td>
<td>7,80</td>
<td>4,3</td>
<td></td>
</tr>
<tr>
<td>Thermo - solar</td>
<td>9.000</td>
<td>10,80</td>
<td>6,0</td>
<td></td>
</tr>
<tr>
<td>Biomass</td>
<td>4.400</td>
<td>5,28</td>
<td>2,9</td>
<td></td>
</tr>
<tr>
<td>Geothermic&amp;Sea waves</td>
<td>800</td>
<td>0,96</td>
<td>0,5</td>
<td></td>
</tr>
<tr>
<td>Hydro</td>
<td>22.630</td>
<td>27,16</td>
<td>15,0</td>
<td></td>
</tr>
<tr>
<td>Total RES</td>
<td>83.330</td>
<td>100,00</td>
<td>55,2</td>
<td>40</td>
</tr>
</tbody>
</table>
1. Economic regulation

Methodology CNE

Criteria:

1. **To reach the targets set in the indicative planning**

Construction cost
(investment rates € 2007 / kW)
1. Economic regulation

Methodology CNE

Criteria:

1. *To reach the targets set in the indicative planning*

<table>
<thead>
<tr>
<th>Construction costs, operating costs and efficiencies 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction cost</td>
</tr>
<tr>
<td>($ per kW)</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td><strong>New gas-fired CHP power plants</strong></td>
</tr>
<tr>
<td>Small</td>
</tr>
<tr>
<td>Large</td>
</tr>
<tr>
<td><strong>New biomass power plants</strong></td>
</tr>
<tr>
<td>Small to medium-scale CHP</td>
</tr>
<tr>
<td>Biogas digestion</td>
</tr>
<tr>
<td>Waste incineration</td>
</tr>
<tr>
<td>Cofiring</td>
</tr>
<tr>
<td><strong>New non-biomass renewables power plants</strong></td>
</tr>
<tr>
<td>Hydro - Large scale</td>
</tr>
<tr>
<td>Hydro - Small scale</td>
</tr>
<tr>
<td>Wind onshore</td>
</tr>
<tr>
<td>Wind offshore</td>
</tr>
<tr>
<td>Solar PV</td>
</tr>
<tr>
<td>Solar thermal</td>
</tr>
<tr>
<td>Geothermal</td>
</tr>
<tr>
<td>Tidal and Wave</td>
</tr>
</tbody>
</table>

Fuente: WEO 2008 Power Generation Cost Assumptions

IEA
1. Economic regulation

Methodology CNE

**Evolución del coste medio de generación eólica**

**Evolución de los costes medios de generación fotovoltaicos**

Horas medias: 2.200 h

Fuente: Energy Technology perspectives 2006, IEA.

**Perspectivas Globales de la Energía Eólica 2006. Global Wind Energy Council**
1. Economic regulation

Methodology CNE

1. To reach the targets set in the indicative planning

Comparación precios ventas a Tarifa RD 661/07 vs. RD 436/04

- RD 436/2004
- RD 611/2007

<table>
<thead>
<tr>
<th>Source</th>
<th>Cost (€/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cog. g.nat. (10 MW)</td>
<td>1.00 - 2.00</td>
</tr>
<tr>
<td>Cog. g.nat. (30 MW)</td>
<td>1.00 - 2.00</td>
</tr>
<tr>
<td>Cog. fue (10 MW)</td>
<td>1.00 - 2.00</td>
</tr>
<tr>
<td>Eólica (30 MW)</td>
<td>1.00 - 2.00</td>
</tr>
<tr>
<td>Minih. (5 MW)</td>
<td>1.00 - 2.00</td>
</tr>
<tr>
<td>Minih. (20 MW)</td>
<td>1.00 - 2.00</td>
</tr>
<tr>
<td>Biom. b6.1 (3 MW)</td>
<td>1.00 - 2.00</td>
</tr>
<tr>
<td>Biom. b7.1 (3 MW)</td>
<td>1.00 - 2.00</td>
</tr>
<tr>
<td>Biom. b7.2 (3 MW)</td>
<td>1.00 - 2.00</td>
</tr>
<tr>
<td>Biom. b8.3 (3 MW)</td>
<td>1.00 - 2.00</td>
</tr>
<tr>
<td>RSU (40 MW)</td>
<td>1.00 - 2.00</td>
</tr>
</tbody>
</table>
1. Economic regulation

Methodology CNE

1. To reach the targets set in the indicative planning

**Concentrating Solar Power**

- **CSP 2009**
  - Tariff: 28,7603 c€/kWh

- **SOLAR PV 2009 (1ST. CALL)**
  - Roof P <= 20 kW: 34,00 c€/kWh
  - P > 20 kW: 32,00 c€/kWh
  - Ground: 32,00 c€/kWh
1. Economic regulation

Methodology CNE

Criteria:

1. To reach the targets set in the indicative planning

2. **Security and predictability of the economic supports** - To eliminate the regulatory risk (warranty by law). Non retroactive
   - Less uncertainties to investors (and Banks) and less cost to the consumers
     - Economic incentives are assured during the life of the installation (existing capacity)
     - Every 4 years or when planning is fulfilled, economic incentives are updated (only for new capacity)
1. Economic regulation

Methodology CNE

Criteria:

1. To reach the targets set in the indicative planning
2. Security and predictability of the economic supports
3. Improve the quality of this kind of energy in order to integrate it into the system
1. Economic regulation

Methodology CNE

Spanish power system is practically an isolated system

*It is necessary to improve the quality of this kind of energy in order to integrate it into the system*

- Forecast obligation, and fulfill it (cost of deviations):
  - RES + CHP with capacity greater than 15 kVA
- Supplement for voltage control
- Wind energy must withstand faulty situations (to improve dynamic stability)
- **Belong to a dispatching center** (if their capacity are greater than 10 MW)
- If the plant joins the market, ancillary services could be provided
1. Economic regulation

Methodology CNE

3. Improve the quality of this kind of energy in order to integrate it to the system

TSO (Tec. System Operator)

Control Center for Special System Energy:
- Maximum Special System Energy on the grid
- Maximum Security System
1. Economic regulation

Methodology CNE

Criteria:

1. To reach the targets set in the indicative planning.
2. Security and predictability of the economic supports ->
3. Improve the quality of this kind of energy in order to integrate it to the system
4. RES+CHP compatible with Electricity Market

Two ways:

- Selling electricity to regulated tariff =RT
  (ie. wind 2007=73 €/MWh)
- Selling electricity in the market: market price+premium = MP + PR (ie. wind 2007: 55,7+29,3= 85 €/MWh)
  - Cap and floor
  - Participate with a representative company
  - Cap 85 €/MWh
  - Floor 71 €/MWh
1. Economic regulation

Methodology CNE

Comparación precios ventas a mercado RD 661/07 vs. RD 436/04

Reference Market Price=55,7 €/MWh
1. Economic regulation

Methodology CNE

Market incentive 2004 vs Incentive 2007 (cent_euro/kWh)

- RD 436/2004
- RD 611/2007

SOLAR THERMAL 2009

- Premium: 27,1188 c€/kWh
- Cap: 36,7252 c€/kWh
- Floor: 27,1228 c€/kWh

Concentrate Solar Power
1. Economic regulation

Market participation

<table>
<thead>
<tr>
<th>Year</th>
<th>Ventas a tarifa</th>
<th>Ventas a Mercado de ofertas</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>3200</td>
<td>1800</td>
</tr>
<tr>
<td>2003</td>
<td>3500</td>
<td>2000</td>
</tr>
<tr>
<td>2004</td>
<td>2800</td>
<td>2500</td>
</tr>
<tr>
<td>2005</td>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>2006</td>
<td>1500</td>
<td>1800</td>
</tr>
<tr>
<td>2007</td>
<td>2000</td>
<td>2500</td>
</tr>
</tbody>
</table>

GWh: Gigawatt Hours

Ventas a tarifa: Sales at tariff
Ventas a Mercado de ofertas: Sales at market offers

How the mechanism works?

- The regional Governments have the competence to authorize the special system plants
- The plants choose an alternative to sell the electricity
- The Spanish regulator pays the premium
- Total yearly amount of regulated tariffs and premiums are included in the access tariffs paid for by consumers
- The Spanish regulator makes proposals of regulated tariffs and premiums for new generators every 4 years
## 1. Economic regulation

### Cost of Special System 2007 and 2008 for the power consumer

<table>
<thead>
<tr>
<th>AÑO</th>
<th>TECNOLOGIA</th>
<th>Potencia Instalada (MW)</th>
<th>Energía Vendida (GWh)</th>
<th>Nº Instalaciones</th>
<th>Retribución Total (Miles €)</th>
<th>Precio Medio Retribución Total (cent€/kWh)</th>
<th>Prima equivalente * (miles €)</th>
<th>Prima equivalente * (cent€/kWh)</th>
<th>Sobrecoste (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>COGENERACIÓN</td>
<td>6.059</td>
<td>17.616</td>
<td>872</td>
<td>1.335.326</td>
<td>7.580</td>
<td>596.712</td>
<td>3.387</td>
<td>2.7%</td>
</tr>
<tr>
<td></td>
<td>SOLAR</td>
<td>693</td>
<td>495</td>
<td>19.988</td>
<td>214.811</td>
<td>43.384</td>
<td>194.051</td>
<td>39.191</td>
<td>0.9%</td>
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<tr>
<td></td>
<td>EÓLICA</td>
<td>14.447</td>
<td>27.474</td>
<td>632</td>
<td>2.146.716</td>
<td>7.814</td>
<td>994.760</td>
<td>3.621</td>
<td>4.4%</td>
</tr>
<tr>
<td></td>
<td>HIDRÁULICA</td>
<td>1.909</td>
<td>4.120</td>
<td>928</td>
<td>318.940</td>
<td>7.741</td>
<td>146.190</td>
<td>3.548</td>
<td>0.7%</td>
</tr>
<tr>
<td></td>
<td>BIOMASA</td>
<td>558</td>
<td>2.173</td>
<td>92</td>
<td>192.155</td>
<td>8.843</td>
<td>101.043</td>
<td>4.650</td>
<td>0.5%</td>
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<tr>
<td></td>
<td>RESIDUOS</td>
<td>569</td>
<td>2.722</td>
<td>33</td>
<td>167.806</td>
<td>6.165</td>
<td>53.674</td>
<td>1.972</td>
<td>0.2%</td>
</tr>
<tr>
<td></td>
<td>TRAT.RESIDUOS</td>
<td>527</td>
<td>3.397</td>
<td>43</td>
<td>316.889</td>
<td>9.328</td>
<td>174.453</td>
<td>5.135</td>
<td>0.8%</td>
</tr>
<tr>
<td></td>
<td><strong>Total 2007</strong></td>
<td><strong>24.732</strong></td>
<td><strong>57.997</strong></td>
<td><strong>22.586</strong></td>
<td><strong>4.692.644</strong></td>
<td><strong>8.091</strong></td>
<td><strong>2.260.882</strong></td>
<td><strong>3.898</strong></td>
<td><strong>10.1%</strong></td>
</tr>
<tr>
<td></td>
<td>SOLAR</td>
<td>3.354</td>
<td>2.492</td>
<td>49.971</td>
<td>1.127.994</td>
<td>45.268</td>
<td>968.055</td>
<td>38.850</td>
<td>3.2%</td>
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<tr>
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<td>EÓLICA</td>
<td>15.578</td>
<td>31.355</td>
<td>694</td>
<td>3.157.146</td>
<td>10.069</td>
<td>1.144.597</td>
<td>3.650</td>
<td>3.8%</td>
</tr>
<tr>
<td></td>
<td>HIDRÁULICA</td>
<td>1.961</td>
<td>4.497</td>
<td>941</td>
<td>432.393</td>
<td>9.615</td>
<td>143.755</td>
<td>3.197</td>
<td>0.5%</td>
</tr>
<tr>
<td></td>
<td>BIOMASA</td>
<td>580</td>
<td>2.466</td>
<td>98</td>
<td>281.613</td>
<td>11.420</td>
<td>123.326</td>
<td>5.001</td>
<td>0.4%</td>
</tr>
<tr>
<td></td>
<td>RESIDUOS</td>
<td>579</td>
<td>2.734</td>
<td>34</td>
<td>239.450</td>
<td>8.759</td>
<td>63.970</td>
<td>2.340</td>
<td>0.2%</td>
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<tr>
<td></td>
<td>TRAT.RESIDUOS</td>
<td>554</td>
<td>3.088</td>
<td>44</td>
<td>342.385</td>
<td>11.089</td>
<td>144.203</td>
<td>4.670</td>
<td>0.5%</td>
</tr>
<tr>
<td></td>
<td><strong>Total 2008</strong></td>
<td><strong>28.763</strong></td>
<td><strong>67.720</strong></td>
<td><strong>52.664</strong></td>
<td><strong>7.651.179</strong></td>
<td><strong>19.298</strong></td>
<td><strong>3.304.434</strong></td>
<td><strong>4.880</strong></td>
<td><strong>10.9%</strong></td>
</tr>
</tbody>
</table>

En la tecnología Solar se contemplan 11 MW termosolares

- PV installations after 30th September 2008
- A pre-assign remuneration register

- Four calls per year, to allow a maximum capacity of:
  - Roof: $\frac{2}{3} \times 400 \text{ MW/ano}$
  - Ground: $\frac{1}{3} \times 400 \text{ MW/ano} \ + \ (\text{extra 100 MW in 2009 y 60 MW in 2010})$

- Flexible mechanism to transfer capacity between roof and ground installations, if the call capacity is not reached

- When the call capacity is reached the tariff for the next call is reduced 2.5% (10% / year)

- **TARIFF for the first call 2009:**

  - **Type I: roof**
    - \( P \leq 20 \text{ KW} \) 34,00 cent\(€/kWh\)
    - \( P > 20 \text{ kW} \) 32,00 cent\(€/kWh\)

  - **Type II: ground**
    - Every capacity: 32,00 cent\(€/kWh\)

Remark: the updated tariff for existing plants is 45,00 cent\(€/kWh\)

- A pre-assign remuneration register

1. Access and connection point to the power network
2. Administrative authorization
3. Municipal permit for works
4. Guarantee deposit's (20 €/kW)
5. Economic resources or financing > 50%
6. Agreement about equipment purchasing > 50%
7. Access point to the gas network, if any
8. Favorable report using water resources, if any
9. Additional guarantee deposit's (20 €/kW, except 100 €/kW for CSP)

Summary

Advantages
- Effectiveness
- Efficiency
- Improve the quality of the RES energy
- RES+CHP compatible with Electricity Market

Disadvantages
- Some windfall profits in the market in a transitional period (from RD 434/2004 to RD 661/2007)
- Follow-up of real costs are necessary
2. Access regulation:
RD 1955/2000 and CNE Proposal 22April

Try to Eliminate Grid Barriers

- Discriminatory access conditions, and non-objective and non-transparent procedures for grid access
- Insufficient grid capacity available
  - Lack of available network capacity
  - Lack of transparency on network data
  - Low investment levels on expand networks
- Long period to obtain authorisation for grid connections
- High grid connection costs

**Resolution of Economy Minister 4th Dec 2000**

1. **ACCESS (TPA):**
   - Right to transmit energy through the network of another agent
   - There is a relationship with the power market
   - Controversies are resolved by CNE

2. **CONNECTION:**
   - Physical connection
   - Safety and technical quality
   - Controversies are resolved by Regional Governments

Right to the network access

- It is possible to restrain it only by lack of capacity: to avoid risks in the safety, regularity and quality of the supply

- Limits to access must be solved with the non-existing reserve of capacity principle -> It doesn’t have influence on temporal preference in the connection

- Constraints are solved:
  - Transmission: Belong to a dispatching center and applying grid codes Mandatory planning avoid permanent constrains (every 4 years)
  - Distribution: Automatic disconnection equipments and grid codes.

Connection installations and reinforcement of the existing grid must be paid for by new plants

⇒ Access controversial procedure

CNE Proposal 22 April 2009

- From 1998 to end 2008 the capacity installed of Special System has increased from 4,544 MW to 28,763 MW (+24,200 MW)


- Economic incentives are the main tool of energy policy to reach *planning targets*

- Other tool is the right of third part access to the network which would be compatible with the security of the power system:
  - To add a new SO tool: setting area constrains
  - Study of access to the grid of new generator -> to considerate the production of existing generators (to avoid constrains)
  - Mandatory fulfill of the planning develop of the network (transmission and distribution)
  - Publicity of the nodal capacity

- **Simplified procedure to register small plants**

- **Priority of dispatch for renewables and cogeneration**
3. Guarantee of origin:

Order ITC 1522/2007
3. Guarantee of origin regulation: O ITC 1522/07

- **Directive 2001/77/EC:** Renewables
  - **Article 5:** Guarantee of origin to demonstrate where this energy proceed

  - It is crucial to differentiate **guarantee of origin** (it is a voluntary mechanism that shows environmental attribute) and **tradable green certificates** (it is a mandatory regulation for some agents in order to generate a demand of certificates which have the objective to function like a support system).

- **Directive 2004/8/EC:** High Efficiency Cogen
  - **Article 5:** Guarantee of origin to demonstrate where this energy proceed

- **Directive 2003/54/EC:**
  - **Common Rules by the power market (tracking)**
  - **Article 3.6:** Suppliers must show consumers in their bills and promotional information:
    - Mix of generation which origin the electricity retailed last year
    - Environmental impact (at least CO2 emissions and radioactive wastes of this mix)
3. Guarantee of origin regulation: O ITC 1522/07

Aspects

- System Annotations in Count: Web Page CNE
3. Guarantee of origin regulation: O ITC 1522/07

System Annotations in Count: Web Page CNE
3. Guarantee of origin regulation: O ITC 1522/07

System Annotations in Count: Web Page CNE
3. Guarantee of origin regulation: O ITC 1522/07

System Annotations in Count: Web Page CNE

<table>
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<tr>
<th>Instalación</th>
<th>Ubicación</th>
<th>Titular Instalación</th>
<th>Categoría</th>
<th>Potencia (kW)</th>
<th>Sistema Apoyo</th>
<th>A Exportar</th>
<th>Año</th>
<th>Expedidas (kWh)</th>
<th>Tipo Energía</th>
<th>Fecha Anotación</th>
<th>Estado</th>
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3. Guarantee of origin regulation: O ITC 1522/07

System Annotations in Count: Expeditions 2008

Las garantías expedidas mediante el Sistema de Garantías de Origen representan el 16 % de la producción nacional del 2008 y el 53 % respecto de la producción nacional procedente de fuentes de energía renovables y de cogeneración

Año 2008

Resumen Garantías de Origen Expedidas

<table>
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<tr>
<th>Tipo de Energía</th>
<th>Régimen</th>
<th>Categoría</th>
<th>Nº instalaciones</th>
<th>Potencia (MW)</th>
<th>Producción Declarada (GWh)</th>
<th>Garantías Solicitadas (GWh)</th>
<th>Garantías Expedidas (GWh)</th>
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(1) Las Garantías solicitadas para exportar no están descontadas de las garantías expedidas
Año 2008

Evolución de Garantías de Origen expedidas

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<th>Transferidas GWh</th>
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</table>

% sobre GdO's Expedidas

- 0,7%
- 90,1%
- 9,2%
- 100,0%

El 9,2% de las Garantías expedidas cuyo último tenedor es un Titular de Instalación se han cancelado por caducidad el 31/03/2009.
3. Guarantee of origin regulation: O ITC 1522/07

System Annotations in Count: TRACKING:
MIX GENERATION AND SUPPLY
End of presentation

www.cne.es
Información Estadística sobre las Ventas de Energía del Régimen Especial