

# **CEER Report on Renewable Energy Support in Europe**

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## INFORMATION PAGE

### Abstract

This document C10-SDE-19-04a is a CEER report on renewable energy support in Europe.

The main purpose of this document is to explore the renewable electricity support schemes currently in place in Member States across Europe.

This is considered timely given the timing of implementation of Directives 2009/28/EC and 2009/29/EC included in the Climate and Energy Package, respectively for promoting renewable energy and for cutting carbon emissions through the EU Emission Trading Scheme by 2020.

### Target Audience

Energy suppliers, traders, gas/electricity customers, gas/electricity industry, consumer representative groups, network operators, Member States, academics and other interested parties.

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### Related Documents

“Status Review of Renewable and Energy Efficiency Support Schemes in EU”, CEER, December 2008, Ref. [C08-SDE-05-03],

[http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_PUBLICATIONS/CEER\\_ERGEG\\_PAPER\\_S/Electricity/2008](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPER_S/Electricity/2008)

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## Executive Summary

One of the aims of the Climate and Energy Package is to reach a 20% share for renewable energy generation in EU energy consumption by 2020 in a cost-effective and economically efficient manner.

To the extent that support for renewable electricity is either passed on to the electricity prices or directly added to the electricity bill, the costs of achieving the agreed objectives will ultimately be borne by electricity end-users.

The work reported in this paper has involved assessing the expenditure to promote renewable energy through national support schemes at aggregate level through a shared methodology for a base year (2009).

The report was informed by responses received to questionnaires circulated to members of the CEER.

The report is the first attempt on the part of NRAs to collect data on support expenditures broken down by type of support scheme and type of technology. In the sixteen European countries, for which detailed data could be collected, support levels per unit of gross electricity consumed vary from 1 to 22 €/MWh, while the weighted average support is around 7.2 €/MWh (2009). The RES-supported electricity accounts on average for 10% of gross electricity generation.

Given the interest in ways to promote and finance renewable energy and taking into account also the undergoing debate in some countries on the effectiveness and efficiency of the policy instruments, which have been so far adopted to promote renewable sources, CEER future work could:

- improve comparability of data where necessary;
- extend the analysis to other European countries; and
- repeat the exercise on a regular basis to create time series data.

The CEER deliverable on “The impact of non harmonisation of national RES support schemes”, included in the Work Programme 2011, will build on these preliminary results.

## 1 Introduction

Given the strong interest in the cost of renewable energy technologies, the CEER conducted a project to investigate how renewable support schemes are financed and to provide for a consistent comparison of support schemes across Europe.

The figures presented in this document represent a first attempt to provide detailed data on support levels in 19 Member States broken down by technology and support instrument.

The CEER will consider future work to refine data and include all EU Member States in the analysis.

The CEER deliverable on “The impact of non harmonisation of national RES support schemes”, included in the Work Programme 2011, will build on the preliminary results shown in this report.

## 2 Estimates of the expenditure of legally binding renewable energy sources (RES) support schemes

### 2.1 Financing of legally binding RES support schemes

As many renewable energies are still relatively more expensive than conventional fuels, a variety of support schemes have been put in place in CEER Member Countries to accelerate their uptake and meet the EU's goal of sourcing 20% of its energy from renewable sources by 2020. Financing of support schemes varies considerably among countries.

The analysis presented here grouped national financing mechanisms into four categories:

- general taxes;
- specific non-tax levies in electricity bills;
- possible pass-through to end-users of costs borne by the Distributor/Supplier via a specific surcharge in bills; and
- possible pass-through into the wholesale electricity price of costs borne by the Generator or the Supplier without a specific surcharge in bills.

Answers have been collected from 19 National Regulatory Authorities (NRAs) (see table 1).

On the basis of information provided by national regulators, in seven countries (France, Ireland, Italy, Lithuania, Luxembourg, Norway and Spain) national support schemes are (at least partly) financed through specific non-tax levies like Public Service Obligations paid for by all customers. In Italy, this applies to both feed-in tariffs and feed-in premiums which are in place to promote the deployment of renewable generation. In countries where non-tax levies have been implemented, the institution responsible for fixing the level is usually the Government.

In Italy and Ireland a cooperation mechanism is in place between the Government and the NRA. In particular, the Irish Government sets the formula for non-tax levy determination while their calculation is devolved to the NRA. In Italy, the Government is responsible for the design of the national support schemes and the definition of the level of incentives whilst the NRA is in charge of setting and updating the relevant non-tax rate needed to recover the incentive related to feed-in tariffs and feed-in premiums.

In Spain there is a debate around the possibility to finance the costs of feed-in tariffs via general taxes (paid not only by electricity consumers) as the environmental benefits (among others) do not only affect electricity consumers.

Five other Countries (Austria, Belgium, Czech Republic, Germany and Hungary) have adopted support schemes in favour of RES-sourced energy which are financed by the possible pass-through to the end-user of the costs borne by the Distributor/Supplier via a specific surcharge which can be visible in the electricity bill.

In Germany, the government is responsible for the definition of the feed-in tariffs and the regulator monitors the transfer of the energy and fees from the generator to the end-customer. The generator receives the feed-in tariff from the distribution system operator (DSO) who is compensated for the payment by the transmission system operator (TSO). The four TSOs equalise the costs among the four German control zones, so that every customer shares an equal burden. Each TSO passes on the costs to the supplier who can then pass the costs on via the so-called EEG-Surcharge<sup>1</sup> to the customer. The EEG-Surcharge can be shown to the customer in the bill.

The German Regulator also checks that the costs are displayed correctly. Utility companies are exempt from sharing this burden if they deliver to final consumers at least 50 percent of electricity, for which a feed-in tariff could be claimed under the EEG but is not actually claimed by the generator.

Ofgem (the British NRA) informed that in Great Britain the main support scheme for electricity from renewable sources, called the Renewable Obligation, places an obligation on UK suppliers of electricity to source an increasing proportion of their electricity from renewable sources. Suppliers meet their obligations by presenting sufficient Renewables Obligation Certificates (ROCs). Where suppliers do not have sufficient ROCs to meet their obligations, they must pay an equivalent amount into a fund, the proceeds of which are paid back on a pro-rated basis to those suppliers that have presented ROCs. Assuming suppliers pass-through the cost of buying the ROC (or paying an equivalent amount into the fund) into electricity prices, the renewable energy is paid for by consumers with no explicit component in tariffs or bills.

In Italy, the support schemes implemented by the green certificates are recovered via the pass-through into the wholesale electricity price of costs borne by the Generator without a specific surcharge in bills. Also in Sweden, the support schemes for RES-sourced electricity are financed through a market based system with tradable green certificates. In Poland, electricity suppliers have the obligation to buy and surrender green certificates or pay a

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<sup>1</sup> Renewable Energy Sources Act.

substitute fee. The cost of purchasing green certificates or paying the substitute fee is then passed through into the electricity price but isn't shown in bills.

In Estonia, financial resources to support RES-sourced electricity are collected through network tariffs. In Portugal, the last resort supplier is obliged to buy the electricity generated from renewable sources and the additional costs are included in the access tariffs.

Green Certificates in the three Belgian regions (Flanders, Brussels, and Wallonia) are principally financed through a pass-through to the end-user of the costs borne by the supplier. This cost, which consists of the purchase cost for green certificates and/or the fine in case the supplier doesn't succeed to reach the required quota, is mostly indicated separately. In Flanders and Wallonia, minimum regional guaranteed prices for green certificates per technology are defined. DSO's are obliged to purchase these green certificates. The difference between the purchase price (minimum guaranteed price) and the selling price on the market is financed through the distribution tariffs. For federal offshore electricity generation, the TSO is obliged to buy the green certificates at federal guaranteed minimum prices. The difference between the minimum guaranteed price for offshore certificates and the selling price on the market is financed by a surcharge in the electricity bills. When there is no market for these offshore green certificates, the selling price for the TSO is zero and the whole cost for buying the offshore green certificates is financed by this surcharge. One extra particularity for Flanders is the fact that for RES connected to the transmission grid, the difference between the federal minimum guaranteed price and the market price is also financed by this surcharge.

In Finland, support schemes for RES-sourced electricity are mainly financed through general taxes paid by all citizens. General taxes serve to finance support mechanisms also in Norway in addition to non-tax levies paid by customers in electricity bills. In Luxembourg, financing of a feed-in premium through general taxes will be in place till 2020 when it will be replaced by specific non-tax levies paid by all electricity consumers, as is already the case for the financing of feed-in tariffs.

Table 1: Overview of ways of financing RES electricity support schemes, 2009

Member State	General taxes	Non-taxes levies (e.g. PSOs)	Specific surcharge shown in electricity bill	Pass-through into electricity price	Other
Austria			√		
Belgium		√	√		Distribution tariff
Czech Republic			√		
Estonia					Network tariff
Finland	√				
France		√			
Germany			√		
Great Britain				√	
Hungary			√		
Ireland		√			
Italy		√		√	
Lithuania		√			
Luxembourg	√	√			
Malta					Retail electricity tariff
Norway	√	√			
Poland				√	
Portugal <sup>2</sup>		√			
Spain <sup>3</sup>		√			
Sweden				√	

## 2.2 Expenditures for promoting RES deployment

The aim of this section is to give an overview of the level of support expenditures for renewable electricity across Europe. Sixteen NRAs<sup>4</sup> provided data on support expenditures broken down by support instrument and technology. In order to guarantee comparability among data a common approach was envisaged:

- data were collected for the year 2009 under the accrual basis accounting<sup>5</sup>;
- the following instruments were considered separately: feed-in tariffs, feed-in premiums, quota obligations (Green Certificates), others;
- for each instrument, expenditures were broken down by main technology (onshore and offshore wind, solar, geothermal, etc.);
- in the case of feed-in tariffs the incentive part was estimated by subtracting the electricity wholesale average price from the overall tariff;

<sup>2</sup> Through the access tariff.

<sup>3</sup> Through the access tariff.

<sup>4</sup> For Denmark data was provided by the Danish Energy Agency.

<sup>5</sup> Under the accrual basis accounting, costs are recognised with respect to the period when revenues are earned while, under the cash basis accounting, costs are recognised when cash is actually paid.

- for Member States outside the Euro-Zone expenditure data was converted into euro using the average exchange rate of 2009.

Information on the volume of supported electricity was also collected.

Table 2 summarises the national support schemes<sup>6</sup> which are in place in a group of European countries taking into account only those instruments for which NRAs could provide expenditure data. Therefore other financial instruments, like local support schemes (e.g. local investment grants or soft loans) were not taken into account.

*Table 2: Overview of RES electricity support instruments by country and technology underlying the expenditures analysis, 2009*

Member State	Wind onshore	Wind offshore	Hydro (mainly small scale)	Geothermal	Solar PV	Biomass, Biogas and Waste, others
Austria <sup>7</sup>	Feed-in tariff		Feed-in tariff	Feed-in tariff	Feed-in tariff	Feed-in tariff
Belgium	GC	GC <sup>8</sup>	GC		GC	GC
Czech Rep.	Feed-in tariff Feed-in-premium		Feed-in tariff Feed-in-premium		Feed-in tariff Feed-in-premium	Feed-in tariff Feed-in-premium
Denmark <sup>9</sup>	Feed-in-premium	Feed-in tariff				Feed-in-premium
France <sup>10</sup>	Feed-in tariff Call for tenders		Feed-in tariff	Feed-in tariff	Feed-in tariff Call for tenders	Feed-in tariff Call for tenders (biomass)
Germany	Feed-in tariff	Feed-in tariff	Feed-in tariff	Feed-in tariff	Feed-in tariff	Feed-in tariff
Great Britain	GC	GC	GC		GC	GC
Italy	Feed-in tariff GC		Feed-in tariff GC	Feed-in tariff GC	Feed-in premium GC	Feed-in tariff GC
Hungary	Feed-in tariff		Feed-in tariff			Feed-in tariff
Lithuania	Feed-in tariff		Feed-in tariff		Feed-in tariff	Feed-in tariff
Luxembourg	Feed-in tariff Feed-in-premium		Feed-in tariff Feed-in-premium		Feed-in tariff Feed-in-premium	Feed-in tariff Feed-in-premium
Norway	Investment grants <sup>11</sup>					

<sup>6</sup> For Belgium the two regional Green Certificates systems (in Flanders and Wallonia) were also considered in addition to the federal Green Certificate mechanism supporting offshore wind generation.

<sup>7</sup> In Austria there are also investment grants for PV and hydro plants.

<sup>8</sup> In Belgium there is also an investment aid of 25 million euro (as a maximum amount) for the connection of each offshore wind-farm; it is spread over 5 years (i.e. a maximum of 5 million euro per year per wind-farm). See also note 30.

<sup>9</sup> For onshore wind, biomass and biogas technologies, most installations receive a feed-in premium but some of them can receive a feed-in tariff instead.

<sup>10</sup> Depending on the RES considered, call for tenders were organised (i) to complement feed-in tariffs where they seemed to provide less incentives than necessary (ii) to give locational indications or (iii) instead of feed-in tariffs fixed in advance.

<sup>11</sup> Currently Norway provides new wind power generation with investment support via the state owned enterprise Enova. Every project is considered individually and approved projects receive a given amount per GWh of assumed production for the economic life of the project.

Member State	Wind onshore	Wind offshore	Hydro (mainly small scale)	Geothermal	Solar PV	Biomass, Biogas and Waste, others
Portugal	Feed-in tariff		Feed-in tariff		Feed-in tariff	Feed-in tariff
Spain <sup>12</sup>	Feed-in tariff Feed-in-premium	Feed-in tariff Feed-in-premium	Feed-in tariff Feed-in-premium	Feed-in tariff Feed-in-premium	Feed-in tariff	Feed-in tariff Feed-in-premium
Sweden	GC	GC	GC	GC	GC	GC
The Netherlands	Feed-in tariff Feed-in-premium	Feed-in tariff	Feed-in tariff		Feed-in tariff Feed-in-premium <sup>13</sup>	Feed-in tariff

A broader description of the support instruments at European level is given in the CEER report *Status Review of Renewable and Energy Efficiency Support Schemes in the EU* (C08-SDE-05-03).

Detailed data on RES electricity support levels – broken down by support scheme and technology - are presented in Annex 3.

Table 3 shows the share of electricity receiving support compared to the total gross electricity production. In Spain, Portugal and Denmark the share of electricity receiving support is around or more than a quarter of the total generation. Norway and France have the lowest shares, 1.2% and 2.8% respectively. For the countries analysed, the share of electricity receiving support accounts for 10% of the overall electricity production.

Table 3: Electricity volumes receiving RES support, 2009

Member State	Electricity receiving RES-support (GWh)	Total gross electricity production (Eurostat) (GWh)	Share of electricity receiving RES-support (%)
Austria	5,148	68,804	7.5%
Belgium	4,581	90,783	5.0%
Czech Republic	3,270	82,240	4.0%
Denmark	9,420	36,205	26.0%
France	15,090	542,390	2.8%
Germany	75,053	533,240	14.1%
Great Britain	20,373	375,663	5.4%
Hungary	2,127	35,999	5.9%
Italy	25,608	289,914	8.8%
Lithuania	628	14,251	4.4%
Luxembourg	140	3,841	3.6%
Norway	1,611	130,607	1.2%
Portugal	10,436	38,033	27.4%
Spain	79,122	276,399	28.6%
Sweden	15,570	137,198	11.3%
The Netherlands	8,715	112,231	7.8%

<sup>12</sup> Incentives are in place for offshore wind and geothermal generation but no plants have been installed so far.

<sup>13</sup> For small scale plants.

Table 4 highlights the expenditure on RES support schemes and the energy consumed in each country. In order to roughly estimate the burden of RES incentives on consumers' expenditure the overall incentives were divided by gross electricity consumption. Support levels per unit of gross electricity consumed vary from 1.1 €/MWh in France to more than 20 €/MWh in Spain.

Italy, Denmark, Germany and Portugal show an intermediate support level in the range of 8-12 €/MWh.

On average (weighted average) the level of support is around 7.2€/MWh consumed.

In Norway, investments grants are given to selected projects for their whole economic lifetime (usually 20 years). In the period 2001-2009, the selected applicants received 186 million euro.

Table 4: Total expenditures of RES electricity support schemes, 2009

Member State	RES-electricity support expenditure (million euro)	Gross electricity consumption <sup>14</sup> (Eurostat) (GWh)	RES-electricity support per unit of gross electricity consumed (€/MWh)
Austria <sup>15</sup>	307	69,584	4.42
Belgium	489	88,949	5.50
Czech Republic	150	68,595	2.19
Denmark	294	36,541	8.05
France <sup>16</sup>	556	516,455	1.08
Germany	5,618	520,968	10.78
Great Britain <sup>17</sup>	1,250	378,523	3.30
Hungary	83	41,515	2.00
Italy <sup>18</sup>	2,638	334,363	7.89
Lithuania	25	11,318	2.25
Luxembourg	16	7,259	2.27
Portugal	528	42,809	12.33
Spain	6,035	268,297	22.49
Sweden	478	141,884	3.37
The Netherlands	639	117,119	5.46

<sup>14</sup> This is defined as gross electricity production plus net imports. It was chosen instead of the more appropriate "final consumption" as the latter was not available for the year 2009 when the analysis was carried out.

<sup>15</sup> In Austria, PV and hydropower projects received investment grants amounting to 18 and 20 million euro, respectively in 2009. They were not included in the analysis.

<sup>16</sup> For France it was only possible to collect cost data on a cash basis accounting.

<sup>17</sup> The accounting period for the quota system starts in spring and not in January.

<sup>18</sup> In order to enhance comparability among countries, in Italy the green certificate base value was estimated for the year 2009 on an accrual basis accounting (80 €/MWh) and then differentiated by technology according to multiplicative coefficients set in the Italian legislation.

Table 5 presents both overall unit support levels (on supported electricity) and unit support levels broken down by technology. Where different support schemes were in place for the same technology in the same country, a weighted average incentive was computed using energy supported for each instrument as weighting. Support level ranges are very wide across the European countries considered, especially for wind and hydropower technologies. The incentive for solar PV generation is more uniform around the average level, with the notable exceptions of Sweden and Great Britain (both based on quota obligations).

In Norway the incentive level for wind installations increased in recent years: considering only the year 2009, new investment projects received a unit grant amounting (yearly) to 13.52 €/MWh.

Table 5: RES support levels broken down by main technology, 2009

Member State	Weighted average support level (on electricity supported) by technology (€/MWh)					Total (€/MWh)
	Wind onshore	Wind offshore	Hydro	Geothermal	Solar PV	
Austria <sup>19</sup>	31.05		5.05	80.45	523.55	59.71
Belgium	95.28	107.00 <sup>20</sup>	48.71		465.39	106.79
Czech Republic	30.47		22.56		464.32	45.91
Denmark	33.90	25.55				31.21
France	41.48		19.46	31.50	449.97	36.83
Germany	19.14	81.07	9.64	129.79	411.04	74.85
Great Britain	58.78	76.38	58.87		62.59 <sup>21</sup>	61.34
Hungary	44.67		40.98			39.07
Italy	77.66		82.03	80.48	432.70	103.00
Lithuania	41.99		30.41		408.10	40.53
Luxembourg	27.98		97.65		525.18	117.97
Portugal	49.11		42.86		282.81	50.57
Spain	42.58		42.78		429.37	76.27
Sweden	30.71		30.71		30.71	30.71
The Netherlands	64.77	84.21	91.49		119.81	73.37
<b>Minimum support</b>	<b>19.14</b>	<b>25.55</b>	<b>5.05</b>	<b>31.50</b>	<b>30.71</b>	<b>30.71</b>
<b>Maximum support</b>	<b>95.28</b>	<b>107.00</b>	<b>91.49</b>	<b>129.79</b>	<b>525.18</b>	<b>117.97</b>

<sup>19</sup> See note 25.

<sup>20</sup> For each offshore wind-farm the RES support is composed of the minimum price for green certificates (107 €/MWh for the first 216 MW installed capacity and 90 €/MWh for installed capacity above 216 MW) and an investment aid for the offshore connection cable of max. 25 Mio€, spread over 5 years (5 Mio€/year). The figure of 107 €/MWh does not include the 5 Mio€. Including the amount of 5Mio€, which was paid for the only offshore wind-farm which was operational in 2009, leads to a real expense of 172.41 €/MWh (support of 8.18 Mio€ on green certificates and 5 Mio€ as an investment aid for a total offshore production of 76,435 MWh). This amount of 172.41 €/MWh is not representative for comparing support levels among different Member States.

<sup>21</sup> In April 2010, a new system of feed-in tariffs was introduced in Great Britain for small-scale renewables which included enhanced support for PV of up to 41.3p/kWh (472 €/MWh using the average April 2010 exchange rate of 1.143 €/£).

### 3 Conclusions

The aim of the analysis was to assess the impact of the expenditures to promote renewable energy through national support schemes at aggregate level for each country and on a comparable basis.

It is the first attempt on the part of NRAs to collect data on support expenditures broken down by type of support scheme and type of technology.

In the sixteen European countries for which detailed data could be collected, unit support levels on gross electricity consumed vary from 1 to 22 €/MWh, while the weighted average support is around 7.2 €/MWh (2009). The RES-supported electricity accounts on average for 10% of gross electricity generation.

Given the interest in ways to promote and finance renewable energy and taking into account also the ongoing debate in some countries on the effectiveness and efficiency of the policy instruments which have been adopted to promote renewable sources, CEER future work could be addressed to:

- improve comparability of data where necessary;
- extend the expenditures analysis to other European countries; and
- repeat the exercise on a regular basis to create time series data.

The CEER deliverable on “The impact of non harmonisation of national RES support schemes”, included in the Work Programme 2011, will build on these preliminary results.

## Annex 1 – CEER

In 2000, ten national energy regulatory authorities signed the "Memorandum of Understanding for the establishment of the Council of European Energy Regulators" (CEER). They had voluntarily formed the Council to facilitate cooperation in their common interests for the promotion of the internal electricity and gas market. The regulators work jointly through CEER to protect consumers' interests and to facilitate the creation of a single, competitive, efficient and sustainable internal market for gas and electricity in Europe. In order to cope with a growing number of issues and to improve cooperation at operational level, the regulators decided in 2003 to formally establish themselves as a not-for-profit association under Belgian law and to set up a small secretariat in Brussels. The CEER now has 29 members - the energy regulators from the 27 EU-Member States plus Iceland and Norway.

The work of the CEER is structured according to a number of working groups, composed of staff members of the national energy regulatory authorities. These working groups deal with different topics, according to their members' fields of expertise.

This report was prepared by the Sustainable Development Task Force of the Electricity Working Group.

## Annex 2 – List of abbreviations

Term	Definition
CEER	Council of European Energy Regulators
DSO	Distribution System Operator
ERGEG	European Regulators Group for Electricity and Gas
GC	Green Certificate
NRA	National Regulatory Authority
PSO	Public Service Obligation
TSO	Transmission System Operator
RES	Renewable Energy Sources
ROC	Renewables Obligation Certificate

### Annex 3 – Detailed table on RES support levels, year 2009

Source	Support scheme name	Type of scheme	RES support levels million €	Energy receiving support (MWh)	Unit support level (€/MWh)
<b>Austria</b>					
Hydropower	Green electricity act	Feed-in tariff (incentive only)	3.25	644,000	5.05
Wind (onshore)	Green electricity act	Feed-in tariff (incentive only)	59.46	1,915,000	31.05
Biomass	Green electricity act	Feed-in tariff (incentive only)	179.65	1,958,000	91.75
Biomass (fluid)	Green electricity act	Feed-in tariff (incentive only)	3.58	39,000	91.85
Photovoltaic	Green electricity act	Feed-in tariff (incentive only)	10.99	21,000	523.55
Biogas	Green electricity act	Feed-in tariff (incentive only)	50.30	569,000	218.56
Geothermal	Green electricity act	Feed-in tariff (incentive only)	0.12	1,500	80.45
<b>TOTAL</b>			<b>307.36</b>	<b>5,147,500</b>	<b>59.71</b>
<b>Belgium</b>					
Biomass	Flanders and Wallonia GC	Green Certificates	305.04	3,136,588	97.25
Hydropower	Flanders and Wallonia GC	Green Certificates	15.63	320,893	48.71
Wind (onshore)	Flanders and Wallonia GC	Green Certificates	84.17	883,412	95.28
Photovoltaic	Flanders and Wallonia GC	Green Certificates	76.19	163,717	465.39
Wind (offshore)	Federal GC	Green Certificates	8.18	76,435	107.00
<b>TOTAL</b>			<b>489.21</b>	<b>4,581,045</b>	<b>106.79</b>
<b>Czech Republic</b>					
Hydropower		Feed-in premium	21.53	865,653	24.87
Hydropower		Feed-in tariff (incentive only)	0.55	112,932	4.88
Photovoltaic		Feed-in premium	31.71	67,139	472.31
Photovoltaic		Feed-in tariff (incentive only)	8.42	19,290	436.49
Wind (onshore)		Feed-in premium	-	-	-
Wind (onshore)		Feed-in tariff (incentive only)	8.69	285,076	30.47
Biogas, landfill gas, sludge gas and mine gas from closed gas		Feed-in premium	27.13	431,558	62.86
Biogas, landfill gas, sludge gas and mine gas from closed gas		Feed-in tariff (incentive only)	6.52	106,755	61.07
Biomass		Feed-in premium	44.13	1,356,777	32.52

Source	Support scheme name	Type of scheme	RES support levels million €	Energy receiving support (MWh)	Unit support level (€/MWh)
Biomass		Feed-in tariff (incentive only)	1.45	24,663	58.60
<b>TOTAL</b>			<b>150.12</b>	<b>3,269,842</b>	<b>45.91</b>
<b>Denmark</b>					
Wind (onshore)		Mostly feed-in premim	180.00	5,310,000	33.90
Wind (offshore)		Feed-in tariff (incentive only)	35.00	1,370,000	25.55
Biomass and biogas		Mostly feed-in premim	79.00	2,740,000	28.83
<b>TOTAL</b>			<b>294.00</b>	<b>9,420,000</b>	<b>31.21</b>
<b>France</b>					
Wind (onshore)		Feed-in tariff (incentive only)	323.86	7,808,127	41.48
Photovoltaic		Feed-in tariff (incentive only)	66.08	146,854	449.97
Hydropower		Feed-in tariff (incentive only)	117.71	6,047,270	19.46
Geothermal		Feed-in tariff (incentive only)	1.56	49,529	31.50
Biomass		Feed-in tariff (incentive only)	20.93	409,082	51.16
Biogas		Feed-in tariff (incentive only)	25.61	629,192	40.70
<b>TOTAL</b>			<b>555.75</b>	<b>15,090,054</b>	<b>36.83</b>
<b>Germany</b>					
Hydropower		Feed-in tariff (incentive only)	47.02	4,877,200	9.64
Landfill gas, sewage treatment gas, mine gas		Feed-in tariff (incentive only)	3.72	2,019,500	1.84
Biomass		Feed-in tariff (incentive only)	2,119.67	22,979,900	92.24
Geothermal		Feed-in tariff (incentive only)	2.44	18,800	129.79
Wind (onshore)		Feed-in tariff (incentive only)	737.70	38,542,200	19.14
Wind (offshore)		Feed-in tariff (incentive only)	3.04	37,500	81.07
Photovoltaic		Feed-in tariff (incentive only)	2,703.94	6,578,300	411.04
<b>TOTAL</b>			<b>5,617.53</b>	<b>75,053,400</b>	<b>74.85</b>
<b>Great Britain</b>					
Biomass	Renewable Obligation	Green Certificates	127.54	1,501,078	84.96
Anaerobic Digestion (AD)	Renewable Obligation	Green Certificates	5.56	47,385	117.43
Co-firing of biomass	Renewable Obligation	Green Certificates	45.66	1,553,940	29.38
Co-firing of energy crops	Renewable Obligation	Green Certificates	1.90	32,322	58.77

Source	Support scheme name	Type of scheme	RES support levels million €	Energy receiving support (MWh)	Unit support level (€/MWh)
Dedicated biomass with CHP	Renewable Obligation	Green Certificates	38.49	327,455	117.54
Dedicated energy crops	Renewable Obligation	Green Certificates	0.18	1,520	117.54
Dedicated energy crops with CHP	Renewable Obligation	Green Certificates	0.29	2,485	117.54
Sewage gas	Renewable Obligation	Green Certificates	33.05	564,290	58.57
Hydro	Renewable Obligation	Green Certificates	124.19	2,109,585	58.87
Landfill Gas	Renewable Obligation	Green Certificates	286.21	4,879,548	58.66
Wind (offshore)	Renewable Obligation	Green Certificates	159.66	2,090,330	76.38
Wind (onshore)	Renewable Obligation	Green Certificates	426.22	7,251,482	58.78
Photovoltaic	Renewable Obligation	Green Certificates	0.64	10,200	62.59
Tidal Flow	Renewable Obligation	Green Certificates	0.13	1,099	117.54
Wave Power	Renewable Obligation	Green Certificates	0.00	31	58.77
<b>TOTAL</b>			<b>1,249.72</b>	<b>20,372,748</b>	<b>61.34</b>
<b>Hungary</b>					
Hydro over 5 MW	KAT	Feed-in tariff (incentive only)	-	160,006	-
Hydro under 5 MW	KAT	Feed-in tariff (incentive only)	2.55	62,170	40.98
Biomass	KAT	Feed-in tariff (incentive only)	65.35	1,561,483	41.85
Gas from waste deposit	KAT	Feed-in tariff (incentive only)	0.69	16,417	42.26
Sewage gas	KAT	Feed-in tariff (incentive only)	0.11	2,688	41.80
Biogas	KAT	Feed-in tariff (incentive only)	0.97	23,400	41.51
Wind (onshore)	KAT	Feed-in tariff (incentive only)	13.42	300,346	44.67
			<b>83.09</b>	<b>2,126,510</b>	<b>39.07</b>
<b>Italy</b>					
Biogas	All-inclusive tariff	Feed-in tariff (incentive only)	52.10	290,163	179.54
Biomass	All-inclusive tariff	Feed-in tariff (incentive only)	13.16	80,297	163.92
Wind (onshore)	All-inclusive tariff	Feed-in tariff (incentive only)	0.06	298	217.45
Landfill gas	All-inclusive tariff	Feed-in tariff (incentive only)	4.66	41,222	113.07
Sewage gas	All-inclusive tariff	Feed-in tariff (incentive only)	0.01	67	114.00
Hydropower	All-inclusive tariff	Feed-in tariff (incentive only)	42.59	316,635	134.52
Photovoltaic	Conto Energia	Feed-in premium	302.78	696,225	434.88
Hydropower	Green Certificates	Green Certificates	556.63	6,957,915	80.00

Source	Support scheme name	Type of scheme	RES support levels million €	Energy receiving support (MWh)	Unit support level (€/MWh)
Geothermal	Green Certificates	Green Certificates	66.87	928,815	72.00
Wind (onshore)	Green Certificates	Green Certificates	442.91	5,536,325	80.00
Landfill gas	Green Certificates	Green Certificates	48.33	755,085	64.00
Other Biogases	Green Certificates	Green Certificates	36.01	450,131	80.00
Biomass	Green Certificates	Green Certificates	55.93	388,423	144.00
Biofuel	Green Certificates	Green Certificates	155.14	1,939,238	80.00
Biomass (waste)	Green Certificates	Green Certificates	7.63	73,324	104.00
Waste	Green Certificates	Green Certificates	31.78	305,610	104.00
Photovoltaic	Green Certificates	Green Certificates	0.34	4,311	80.00
Hydropower	CIP6 incentivation	Feed-in tariff (incentive only)	34.80	455,011	76.48
Biogas	CIP6 incentivation	Feed-in tariff (incentive only)	84.10	540,923	155.47
Biomass	CIP6 incentivation	Feed-in tariff (incentive only)	305.37	1,971,605	154.88
Urban waste	CIP6 incentivation	Feed-in tariff (incentive only)	271.62	2,232,193	121.68
Wind (onshore)	CIP6 incentivation	Feed-in tariff (incentive only)	55.37	880,231	62.90
Geothermal	CIP6 incentivation	Feed-in tariff (incentive only)	69.33	763,641	90.79
<b>TOTAL</b>			<b>2,637.52</b>	<b>25,607,690</b>	<b>103.00</b>
<b>Lithuania</b>					
Hydropower		Feed-in tariff (incentive only)	2.44	80,311	30.41
Wind (onshore)		Feed-in tariff (incentive only)	16.60	395,196	41.99
Photovoltaic		Feed-in tariff (incentive only)	0.01	22	408.10
Biomass		Feed-in tariff (incentive only)	6.39	152,166	41.99
<b>TOTAL</b>			<b>25.44</b>	<b>627,695</b>	<b>40.53</b>
<b>Luxembourg</b>					
Hydropower	Compensation mechanism	Feed-in tariff (incentive only)	0.06	2,779	97.65
Hydropower	Environmental premium	Feed in premium	0.21		
Biogas	Compensation mechanism	Feed-in tariff (incentive only)	2.67	47,221	75.76
Biogas	Environmental premium	Feed in premium	0.91		
Wind (onshore)	Compensation mechanism	Feed-in tariff (incentive only)	0.93	63,472	27.98
Wind (onshore)	Environmental premium	Feed in premium	0.85		
Photovoltaic	Compensation mechanism	Feed-in tariff (incentive only)	1.28	20,316	525.18

Source	Support scheme name	Type of scheme	RES support levels million €	Energy receiving support (MWh)	Unit support level (€/MWh)
Photovoltaic	Environmental premium	Feed in premium	9.39		
Sewage (sludge) gas	Compensation mechanism	Feed-in tariff (incentive only)	0.18	5,852	30.63
<b>TOTAL</b>			<b>16.47</b>	<b>139,640</b>	<b>117.97</b>
<b>Norway</b>					
Wind (onshore)	Enova projects	Investment grants	9.28	1,610,700	5.76
<b>TOTAL</b>			<b>9.28</b>	<b>1,610,700</b>	<b>5.76</b>
<b>Portugal</b>					
Wind (onshore)		Feed-in tariff (incentive only)	367.37	7,480,117	49.11
Photovoltaic		Feed-in tariff (incentive only)	39.46	139,518	282.81
Hydropower		Feed-in tariff (incentive only)	34.98	816,165	42.86
Urban waste		Feed-in tariff (incentive only)	16.31	457,581	35.65
CHP (biomass, biogas)		Feed-in tariff (incentive only)	69.63	1,542,593	45.14
<b>TOTAL</b>			<b>527.76</b>	<b>10,435,974</b>	<b>50.57</b>
<b>Spain</b>					
Wind (onshore)		Feed-in tariff (incentive) or premium	1,570.00	36,871,000	42.58
Biomass		Feed-in tariff (incentive) or premium	197.00	2,674,000	73.67
CHP		Feed-in tariff (incentive) or premium	1,031.00	21,496,000	47.96
Hydropower (mini)		Feed-in tariff (incentive) or premium	224.00	5,236,000	42.78
Waste		Feed-in tariff (incentive) or premium	86.00	2,891,000	29.75
Waste treatment		Feed-in tariff (incentive) or premium	325.00	3,894,000	83.46
Photovoltaic		Feed-in tariff (incentive)	2,602.00	6,060,000	429.37
<b>TOTAL</b>			<b>6,035.00</b>	<b>79,122,000</b>	<b>76.27</b>
<b>Sweden</b>					
Hydropower		Green Certificates	74.98	2,441,642	30.71
Wind (onshore)		Green Certificates	76.48	2,490,409	30.71
Biomass		Green Certificates	299.90	9,765,983	30.71
Peat		Green Certificates	26.76	871,437	30.71
Photovoltaic		Green Certificates	0.01	212	30.71
<b>TOTAL</b>			<b>478.12</b>	<b>15,569,683</b>	<b>30.71</b>
<b>The Netherlands</b>					

Source	Support scheme name	Type of scheme	RES support levels million €	Energy receiving support (MWh)	Unit support level (€/MWh)
Biomass	Milieukwaliteit Elektriciteitsproductie (MEP)	Feed-in tariff (incentive only)	299.00	3,758,777	79.55
Hydropower	Milieukwaliteit Elektriciteitsproductie (MEP)	Feed-in tariff (incentive only)	7.40	80,887	91.49
Wind (onshore)	Milieukwaliteit Elektriciteitsproductie (MEP)	Feed-in tariff (incentive only)	245.00	3,768,897	65.01
Wind (offshore)	Milieukwaliteit Elektriciteitsproductie (MEP)	Feed-in tariff (incentive only)	67.20	798,000	84.21
Photovoltaic	Milieukwaliteit Elektriciteitsproductie (MEP)	Feed-in tariff (incentive only)	0.66	9,700	68.04
Waste gas	Milieukwaliteit Elektriciteitsproductie (MEP)	Feed-in tariff (incentive only)	1.33	93,078	14.29
Biomass	OV-MEP	Feed-in tariff (incentive only)	17.10	175,840	97.25
Wind (onshore)	Stimulerend Duurzame Energieproductie (SDE)	Feed in premium	0.87	26,862	32.39
Photovoltaic- small scale	Stimulerend Duurzame Energieproductie (SDE)	Feed in premium	0.82	2,653	309.08
<b>TOTAL</b>			<b>639.38</b>	<b>8,714,694</b>	<b>73.37</b>

**Notes:**

The figures reported in the above table were collected and estimated - when necessary for enhancing comparability across the countries - by NRAs. The only exception is Denmark, for which data were provided directly by the Danish Energy Agency.

**Austria:** there are also investment grants for PV and hydro plants which are not included in the table: in 2009 they amounted to 18 and 20 million euro respectively.

**Belgium:** for each offshore windfarm the RES support is composed by the minimum price of green certificates (107 €/MWh for the first 216 MW installed capacity and 90 €/MWh for installed capacity above 216 MW) and an investment aid for the offshore connection cable of max. 25 Mio euro, spread over 5 years (5 mio €/year). This investment aid is not included in the table.

**Denmark:** for onshore wind, biomass and biogas technologies, most installations receive a feed-in premium but some may receive a feed-in tariff instead.

**France:** it was only possible to collect costs data on a cash basis accounting.

**Great Britain:** the accounting period for the quota system starts in spring and not in January. In April 2010, a new system of feed-in tariffs was introduced for small-scale renewables, which included enhanced support for PV of up to 41.3p/kWh (472 €/MWh using the average April 2010 exchange rate of 1.143 €/£).

**Italy:** In order to enhance comparability among countries, the green certificate base value in Italy was estimated for the year 2009 on an accrual basis accounting (80 €/MWh) and then differentiated by technology according to multiplicative coefficients set in the Italian legislation.

**Norway:** Currently Norway provides new wind power generation with investment support via the state owned enterprise Enova. Every project is considered individually and approved projects receive a given amount per GWh of assumed production for the economic life of the project (usually 20 years). The incentive level for wind installations increased in recent years: considering only the year 2009, new investment projects received a unit grant amounting (yearly) to 13.52 €/MWh.

**Exchange rates for 2009:** CZK/EUR (26.4349); NOK/EUR (8.72783); POU/EUR (0.89094); LITAS/EUR (3.4528) ; HUF/EUR (280.327).