

# contents

Incentivising Renewables: A European Analysis	1
Belgium	9
Czech Republic	11
France	13
Germany	15
Italy	17
The Netherlands	19
Poland	21
Romania	23
Slovakia	25
Spain	27
The United Kingdom	29

## Incentivising Renewables: A European Analysis

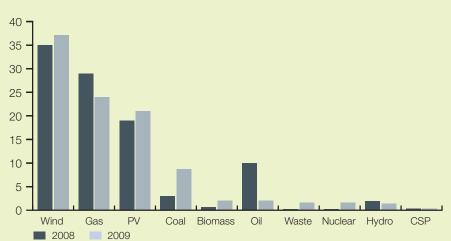
New renewable generation capacity is increasing rapidly across the EU due to commitments to produce 20% of our energy requirements from renewable sources by 2020. Whilst many Member States are taking different approaches to incentivising the deployment of renewables, common themes and barriers can be seen. This guide, drawing on expertise from across our European offices, analyses those themes and barriers and provides a brief overview of the specific mechanisms employed in Belgium, the Czech Republic, France, Germany, Italy, the Netherlands, Poland, Romania, Slovakia<sup>1</sup>, Spain and the UK.

Although increases in renewable energy generation capacity are already being seen (see inset box "2009 Renewable Generation Capacity"), it is clear that for many European countries, creating significant additional renewable generating capacity will be a major challenge requiring a step-change in policy, commercial and industrial capability and financing ingenuity. Each Member State is different with varying levels of renewable resources, different approaches to incentivising renewable projects and different barriers to the development of projects. However, looking across Europe, there are many commonalities faced by Member States and lessons can be learned by new entrants to this growing market. This guide identifies some of the common themes in the financial incentives available to encourage the deployment of renewables and also highlights some of the associated obstacles (resource / physical constraints, environmental, permitting and land issues, and commercial and financing issues). We use examples from different Member States throughout this guide based upon our experience advising on renewable energy projects in these countries.

#### 2009 Renewable Generation Capacity

In 2009, renewable energy sources accounted for 62% of new electricity generation capacity installed in the EU, comprising 17GW out of a total 27.5GW. This is up from 57% in 2008, suggesting that the 2009 Renewables Directive<sup>2</sup> and the financial incentives offered for renewables deployment are beginning to have an effect.

Wind power represented the largest of all energy sources at 37.1% in 2009, ahead of natural gas (24%), photovoltaics (21%), coal (8.7%), biomass (2.1%), oil (2.1%), waste incineration (1.6%), nuclear (1.6%), hydro (1.4%) and concentrated solar power (0.4%).



## Percentage (by energy source) of new electricity generation capacity installed in the EU in 2008 and 2009

Source: Renewable Energy Snapshots 2009 and Renewable Energy Snapshots 2010 published by the European Commission Joint Research Centre Institute for Energy (March 2009 and July 2010).

<sup>&</sup>lt;sup>1</sup> Please note that Clifford Chance does not have an office in Slovakia, although the relevant section was written by a Slovak-qualified lawyer from Clifford Chance's office in the Czech Republic.

<sup>&</sup>lt;sup>2</sup> Directive 2009/28/EC of the European parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

#### A Targeted Approach to Renewables

Under the 2009 Renewables Directive, EU Member States agreed collectively to generate 20% of EU energy through renewable resources by 2020. This target is shared among the Member States on a differentiated basis to reflect the fact that some states already have a higher baseline of renewables capacity; for example, in 2005 39% of Sweden's energy came from renewable sources, whereas Malta had none. As well as implementing the Renewables Directive by 5 December 2010, each Member State needed to submit a National Renewable Energy Plan to the European Commission by 30 June 2010 demonstrating how these targets would be met (see inset box "The Path to 2020").

#### **Financial Incentives**

It is well known that renewable energy capacity is significantly more expensive (cost/MWh) to develop than conventional "Creating significant additional renewable generating capacity will be a major challenge requiring a stepchange in policy, commercial and industrial capability and financing ingenuity"

(thermal) forms of electricity generation due to the high upfront capital costs and the ongoing operation / maintenance costs. This is particularly true for offshore development (wind, wave and tidal).

To encourage the commercial-scale deployment of renewables, a variety of financial incentive schemes have been developed in the EU and the two principal forms of support consist of "green certificates" and feed-in tariffs. Often only one system is used but some Member States operate both systems with the limited possibility of swapping between the two (for example Italy and now the UK for small scale micro-generation). Whilst a variety of support mechanisms are employed, we have observed that similar qualities and key themes are shared by many of the various financial incentives across the EU (please see insert box on page 3).

#### Green Certificates

Green certificate mechanisms are operated in, for example, Belgium, Italy, Poland, Romania and the United Kingdom. The basic structure of a green certificate mechanism works as follows:

 Qualifying renewable electricity generation is issued with green certificates;

#### The Path to 2020

Country	2005 Share*	2020 Target	On Course?
Belgium	2.2	13	×
Czech Republic	6.1	13	$\checkmark$
Germany	5.8	18	$\checkmark$
France	10.3	23	$\checkmark$
Italy	5.2	17	X
The Netherlands	2.4	14	$\checkmark$
Poland	7.2	15	$\checkmark$
Romania	17.8	24	$\checkmark$
Slovakia	6.7	14	$\checkmark$
Spain	8.7	20	$\checkmark$
UK	1.3	15	$\checkmark$
* D I I I			<b>C</b> 1

\* Percentage share of energy from renewable sources in gross final consumption of energy.

Although the 2009 Renewables Directive required Member States to each submit a National Renewable Energy Action Plan by 30 June 2010, early forecasting figures were submitted to the European Commission by Member States and these have been subjected to analysis by the Commission's Joint Research Centre.

Based on the early forecasts, there is reason to be optimistic - overall, Member States expect to exceed (but only by 0.3%) the 20% renewable energy target, with the main proportion sourced from wind, biomass, and hydro. The table on the left shows the progress of certain Member States.

Whilst respectable progress is being made by most, some countries are enjoying more success than others – Spain, Germany, Slovakia and Poland all predict a surplus by the end of 2020 (along with Bulgaria, Greece, Sweden, Lithuania and Estonia); whereas Belgium and Italy (along with Malta, Luxembourg and Denmark) forecast a deficit. It should be noted however, that Spain and Germany's forecasts both pre-dated their respective governments' announcements on the potential reduction in feed-in tariffs for solar power and, as a result, their forecasts may be over-optimistic.

### Successful financial incentives (i.e. those in which developers and funders have confidence):

- Cover all renewable technologies allowing for the fullest possible range of generation capacity to be developed, thereby increasing security of supply.
- Provide long-term (but finite) support providing developers and their funders with the certainty that their project will qualify for fixed support for the bulk of its operational life, irrespective of changes made to the incentive scheme in the future.
- Provide adequate levels of support so that the high cost of deploying renewables is sufficiently, but not overly, compensated.
- Differentiate renewable technologies on the basis that some technologies are likely to cost less to deploy than others, particularly once they have become well-established, whereas emerging technologies (for example wave and tidal) are likely to need additional support to compensate for the high research and development costs.
- Adapt to national circumstances not all renewable technologies are suitable for deployment in every country.
- Electricity suppliers have an obligation to source a certain (often increasing year on year) amount of electricity from renewable sources, the evidence for which must be obtained by the presentation of green certificates; and
- A penalty is payable in the event the obligation is not satisfied.

Those generating qualifying renewable electricity can sell their green certificates to suppliers, thereby creating a significant additional income stream.

#### Banding

In some EU Member States the obligation is structured (or "banded") so as to provide more support for less developed technologies over and above well-established technologies – for example, in the UK, tidal power generation attracts eight times the level of support than power generation from landfill gas. Member States which have a uniform support, like Poland, are looking at changing this to direct support where it is most needed to encourage innovation in newer technologies.

The table below shows the weighting applied to each renewable energy technology in Italy and the UK, where banded systems for green certificates operate. Banding generally favours marine-based technologies and biomass, which attracts additional support in the UK when the crops are dedicated energy crops or the relevant plant is CHP, whereas in Italy, biomass attracts additional support when the fuel



is sourced from within 70km of the relevant plant, thereby increasing its sustainability. Poland and Romania currently award green certificates on a uniform basis, irrespective of the technology employed.

The incentive offered through green certificates is an uncertain one since the price is agreed between the parties or is

#### Green Certificate Banding in the UK and Italy

	Wave	Tidal	Offshore wind	Biomass	PV	Geothermal	Onshore wind	Sewage gas	Landfill gas
Italy	x1.8	x1.8	x1.5	x1.3-1.8	-	x0.9	x1	x0.8	x0.8
UK	x2	x2	x2	x1 to x2	x2	x2	x1	x0.5	x0.25

"the sole risk associated with feed-in tariffs is climatic, unlike the green certificate system where additional risks arise from a potential for over-supply and price unpredictability"

based on the price of a trading market in addition the level of the obligation is set by the regulator. As a result green certificate systems tend to be complex and the artificial market created can lack stability causing concern to investors and funders as to the actual level of financial support achievable (although mechanisms are in place to reduce this possibility, such as the introduction of headroom which ensures that the level of the obligation is always above the actual volume of renewable generation). The need for stability is of particular relevance to longterm transactions, for example, Poland's targets only being set until 2017 leaves considerable uncertainty for investors as to the post-2017 position. Added to this is the lack of stability created by the tendency for certain Member States to

change their regulatory regimes. In the UK, for example, regular amendments to the "Renewables Obligation" regime have resulted in investment in the UK renewable market being less competitive than in other EU member states or indeed, the US.

#### Feed-in Tariffs

Feed-in tariffs have overtaken green certificates in terms of the number of schemes operated in the EU – they are employed for example in the Czech Republic, France, Germany and Spain and are becoming increasingly popular throughout the world. They generally work by:

 Imposing a requirement on electricity suppliers to purchase electricity from renewable generators; and



Requiring suppliers to pay a guaranteed amount or tariff for energy generated or "fed into" the grid. Tariffs tend to be indexed and available for the life of the scheme.

Different technologies and sizes of project may be subject to different levels of tariff and tariffs often decline at a set rate over time. Like the green certificates system, this encourages growth of particular technologies – in particular, photovoltaics currently attract considerably larger tariffs than other technologies in the UK, Germany, Spain and France for example.

Some regimes have placed a cap on the amount of production qualifying for a feed-in tariff, most notably in France for solar energy generation, and a similar situation is in place in Spain.

In the Member States in which they are available, feed-in tariffs have been very successful in encouraging renewables development, particularly on a domestic and small commercial scale. The schemes are generally regarded as being simpler than green certificate regimes as they do not rely on an artificial market structure – they provide certainty to investors and funders as the sole risk associated with feed-in tariffs is climatic, unlike the green certificate system where additional risks arise from a potential for over-supply and price unpredictability.

However, the success of some feed-in tariff schemes has resulted in some EU member states cutting back their schemes: for example, in Spain, solar and wind power targets were met early and it is increasingly likely that the Spanish Government will limit the right to receive feed-in tariffs as a result. The Czech Government is also considering reducing their tariffs for solar photovoltaic installations for similar reasons. In Germany, the Government has recently decided to decrease feed-in tariffs for photovoltaic installations, and in France, a decrease has recently been implemented.

#### Other incentives

A range of other incentives are available across Europe to encourage the growth in renewables including:

- Tax exemptions or deductions in relation to capital investments (employed, for example, in Belgium), reduced VAT rates for the construction of renewable energy plants (e.g in Italy), and income tax exemptions (for example, in the Czech Republic for the first years of a renewable energy plant's operation);
- A 'green bonus' is available in Slovakia, which a generator of renewable electricity can opt for instead of or in addition to the feed-in tariff;
- Priority access to the grid for electricity generated from renewable sources (employed in Poland); and
- Carbon prices "disincentivising" nonrenewable energy sources (for example, through the EU Emissions Trading Scheme).

## Challenges to renewables development

Once the economic issues have been resolved there are still a number of challenges to overcome. Lack, or instability, of the natural resource is clearly a barrier to renewables development in certain countries. So, for example, lack or



intermittency of sun will act as a limit on solar energy development in northern countries such as the UK. Lack of space for significant renewable development can also be an issue, for example, in Belgium a short coastline and high population density mean that both onshore and offshore renewables deployment are hindered. Other considerations include:

#### Grid Capacity

One common theme among EU Member States is the grid challenge. The EU's grids are under considerable pressure to cope with new capacity provided by renewables. This is not only due to the amount of increased capacity expected, but also where that capacity will come from. In many cases, existing grids will need to

"One common theme among EU Member States is the grid challenge. The EU's grids are under considerable pressure to cope with new capacity provided by renewables" connect to environments or geographical locations where energy has never been generated before, for example, many kilometres offshore. At a time when traditional grid structures are often ageing, this gives rise to the need for huge investment in replacement and extended grid infrastructure, including the possibility of a European Supergrid – the proposal for an integrated international grid.

Renewables policy in some countries has already shown itself to affect grid operations. The Czech Republic, for example, is currently passing a law to significantly reduce feed-in tariffs for new solar plants. The high level of tariffs, combined with falling technology prices, have led to such a boom in PV production that Czech grid authorities are concerned that the grid has reached its limit and new grid connections are being limited as a result. A similar story can be seen in Italy.

In the current economic conditions, prioritising necessary investment in national grids to accommodate renewables growth will take considerable political resolve.



#### Permitting / Environmental issues

One significant obstacle to a rapid renewables revolution is the often bureaucratic and long-winded system of planning / zoning control. For example, in Spain, offshore wind farms are currently subject to a 2 year delay as strategic studies are carried out to identify suitable areas. Delays are frequently caused by the complexity of the applicable regimes, particularly in offshore areas. In the UK, the government has recently acted to consolidate the licensing process for offshore energy development in order to speed up the construction of new capacity.

Public opposition to renewables can often delay or halt the process, for example in France litigation has frequently been encountered to prevent the development of wind farms on aesthetic or noise grounds. In addition, environmental protection designations will often be in opposition to proposals to install renewable facilities. Thus, in Scotland, the UK's largest proposed onshore wind farm (181 turbines) was rejected due to its location in a habitat protected under the Birds Directive.

## Complex transaction structures and project constraints

As projects become larger to benefit from economies of scale and situated in more difficult locations, the transactions necessary to bring together all aspects of the development, including financing, are becoming more complex. This is most evident in the offshore wind sector where typically several parties will come together as a joint venture (JV) to develop a project. Increasingly popular is the adoption of an unincorporated vehicle to invest in the project, with a limited company "SPV" to hold land and permits. The unincorporated structure then allows each JV party to seek its own funding and negotiate its own off-take arrangements and (where relevant) trade its own green certificates.

Construction packages tend to be particularly complicated as a wide range of contractual packages need to be integrated together (sometimes 40 or more) and the complex inter-relationship of these packages increases risk, causing concern to investors and funders.

#### Supply Chain Pressures

The significant lead-in times for supply of components such as wind turbines have been widely reported. Less well-known but equally important is the limited availability of specialist ships to install offshore wind turbine equipment. For example, there are only two such ships available for construction in Germany. The availability of suitable port facilities to support offshore construction, as well as ongoing maintenance, is also becoming a problem, for example in the UK. Unless substantial investment is made in these types of facility, the problem will be exacerbated as demand for offshore generating equipment grows.

#### Investment and funding constraints

Many of the uncertainties and barriers mentioned in this guide will affect the way in which financiers view the risk of lending to renewables projects. Another issue is the level of financing and investment that will be necessary in the years to come. In addition to the difficulty of securing finance, meaning that developers may need to look to alternative sources of funds, renewables will be competing for financing with other types of energy project, including nuclear, coal / gas (with or without carbon capture and storage facilities).

#### **Final Comments**

Governments across the EU are working hard to encourage the development of

significant renewables capacity to meet or exceed 2020 targets. Financial incentives need to be maintained to continue to make investment in renewables attractive. But action on all fronts is needed to ensure that other barriers do not choke the chain of new supply.

7

Clifford Chance's Global Renewables Group offers depth in resource, local expertise and a long-term presence in, and commitment to, the key markets across the globe. Our market-leading team is comprised of acknowledged industry experts across all legal disciplines, providing top-tier renewables capability. If you would like to know more about the subjects covered in this guide, or about our Global Renewables Group, please contact any of the lawyers below or your usual Clifford Chance contact.



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# Belgium

2005 Baseline	2.20%
2020 Target	13%
Main Renewable Sources	Wind, PV and hydro (run of water)
Green Certificates?	Yes. Each of the three regions: Flanders, Wallonia and Brussels (in respect of their own territories) and the Belgian Federal State (in respect of offshore wind power in the North Sea) have put in place a green certificate system. The four systems are comparable, but procedures for obtaining the certificates and for complying with the obligations vary.
	The green certificates systems broadly work as described in the main section of this guide, although the obligations rest on suppliers and transmission or distribution system operators.
	In common with other systems, the required number of green certificates required to be surrendered is equal to a percentage of the energy supplied to end customers. In 2010 the obligation levels were Wallonia: 11.75%; Flanders: 6% and Brussels: 2.75%.
	Apart from the market system for green certificates, the three Regions and the Federal government have put in place a system that guarantees a minimum price.
	Although the green certificates are freely transferable within the regional system in which they are issued, an area of uncertainty remains as to how far the certificates are recognised by other regions*. It has been proposed that this issue will be resolved by means of a cooperation agreement to be concluded among the federal and regional authorities.
	* The only exception is that green certificates issued in Wallonia are recognised in Brussels (although only for ten years following the relevant facility commencing operations).
Feed-In Tariff?	No
Other Incentives	Increased investment tax deductions are applied to certain qualifying energy saving investments. The increased investment deduction is <i>a non-recurring</i> tax deduction applied on the investment value of the asset. For example, for the financial year ending 31 December 2010, the increased deduction amounted to 13.5%.
	Alternatively, and provided certain conditions are complied with, Belgian companies can apply the <i>recurrent</i> investment deduction, which implies that the investment deduction is calculated each year as a percentage of the annual depreciations (and not on the investment value) performed on the assets concerned. This increased recurrent investment deduction is determined on the basis of the basic investment deduction and is increased by 17%. As such, for the financial year ending 31 December 2010, the increased recurrent investment deduction amounts to 20.5%. The recurrent investment deduction is only applicable with regard to assets which are used to promote the research and development of new products and future-oriented technologies and may be subject to aggregation by the competent authorities.
Additional Comments	Particular issues hindering the development of renewable energy in Belgium are the lack of natural resources and space, for example, Belgium only has 66 km of coastline, which reduces its ability to develop marine-based renewables on a significant scale (unlike the UK and Germany).
	The government of the Flemish region announced recently that the minimum price for green certificates derived from solar panels will be decreased automatically over the years to come. It is expected that Wallonia and Brussels will follow this example.

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## Czech Republic

2005 Baseline	6.1%
2020 Target	13%
Main Renewable Sources	Hydro, photovoltaic, wind and biomass
Green Certificates?	No, although a green bonus is available (discussed below) which is similar, although does not place an obligation on any party to acquire a specific number of certificates.
Feed-In Tariff?	A fixed feed-in tariff ("FIT") payable by electricity distribution system operators ("DSO") is available to renewable electricity generators. Once a generator obtains the FIT applicable in the year of commissioning of its plant, it is entitled to receive such FIT for the entire expected lifetime of the plant (20 to 30 years). The duration of the entitlement to the FIT and the amount of the FIT depends on the source of renewable energy used. Until the end of 2010, particularly generous support has been provided to photovoltaic ("PV") plant operators (around EUR 0.50/kWh), irrespective of the size and location of the plant. However, on 1 January 2011, the subsidies for newly commissioned PV plants were reduced to approximately EUR 0.23/kWh, and from 1 March 2011, subsidies will only be available to PV plants with an output of less than 30kW and only if such plants are located on roofs or facades of buildings. Moreover, a special 26% tax has been introduced, reducing the revenues from electricity sales generated by PV plant operators. This tax applies to all PV plants commissioned in 2012 can be reduced by max 5% as compared to the FIT available for plants commissioned in 2011. The 5% reduction limit does not apply if the expected period of return on investment of the relevant type of renewable energy source is less than 11 years (so far, this has only applied to the PV sector).
Other Incentives	Green bonus - generators of renewable electricity can opt for a 'green bonus' (instead of the FIT) if they sell electricity on the market for market price. The green bonus is slightly higher than the FIT, but applies only if the generated electricity is actually sold on the market. A generator may switch between FIT and green bonus once a year. Priority to connect and supply - generators of electricity from renewable sources have a priority right to connect their facilities to the electricity distribution or transmission grid, and a priority right to supply electricity to the grid. In practice, this means that if a generator opts for the FIT (as opposed to a green bonus), it will be able to sell all the electricity it generates to the DSO for the price set by the relevant FIT. Indexation - the FIT is indexed by 2-4% every year.
Additional Comments	The current FIT scheme has been particularly successful in relation to PV plants. The relatively high FIT, together with falling technology prices, caused a boom in the PV sector between 2008 and 2010. As a result, the total installed capacity of PV plants in the Czech Republic has risen from 65,74 MW on 1 January 2009 to approx 1,600 MW by 1 January 2011. This boom provoked concerns relating to (i) the electricity price for the end customers, and (ii) the stability and safety of the entire electricity grid. As a result, the above mentioned 26% tax on revenues from sales of electricity generated by PV plants has been introduced (with retroactive effect), and no new permits for construction of PV plants are likely to be granted in the future. In view of the above described regulatory actions, it is unlikely that any new large PV plants will be commissioned after 1 March 2011. Also, news has recently been reported in the Czech press that certain investors are willing to take steps against the Czech Republic in response to the introduction of the 26% tax and the subsequent loss of revenues. These steps would probably consist of commencement of arbitration proceedings under the relevant bilateral investment protection treaties and/or complaint of a breach of the Treaty on the functioning of the EU, although it remains to be seen whether such steps will be taken in reality and, if so, to what extent they will be successful. On the other hand, there are no comparable restrictions relating to other renewable energy resources.

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## France

2005 Baseline	10.3%
2020 Target	23%
Main Renewable Sources	Hydroelectricity, wind and solar
Green Certificates?	No
Feed-In Tariff?	<ul> <li>A feed-in tariff scheme implemented in 2000 obliges Electricité De France (EDF) and other 'non-nationalised operators' to purchase electricity produced by hydroelectricity, wind and solar panels.</li> <li>In order to benefit from the feed-in tariff, producers must obtain an authorisation to operate an electricity production facility. They must also obtain a power purchase certificate which then allows them to enter into a purchase agreement with EDF or non-nationalised operators.</li> <li>The level of remuneration available depends on the type of renewable technology used:</li> <li>Hydroelectricity: 6.07 c€/kWh (with a premiums for small installations and regular production)</li> <li>Maritime hydraulic: 15 c€/kWh</li> <li>Onshore wind (mainland France and Corsica) 8.2 c€/kWh (reducing over time)</li> <li>Offshore wind 13 c€/kWh (reducing over time)</li> <li>Solar 27.6 c€/kWh to 58 c€/kWh depending on factors such as region and, for example, position of photovoltaic panels</li> </ul>
Other Incentives	None
Comments	The French Government has frozen the purchase obligation applicable to photovoltaic facilities for three months as from 10 December 2010 by decree n° 2010-1510, with the exception of facilities whose operators had notified their acceptance to the technical and financial proposition for grid connection before 2 December 2010. This three months period is expected to allow the French government to provide clarification on the solar regime. A new reduction of the tariffs is likely to occur.

Contacts



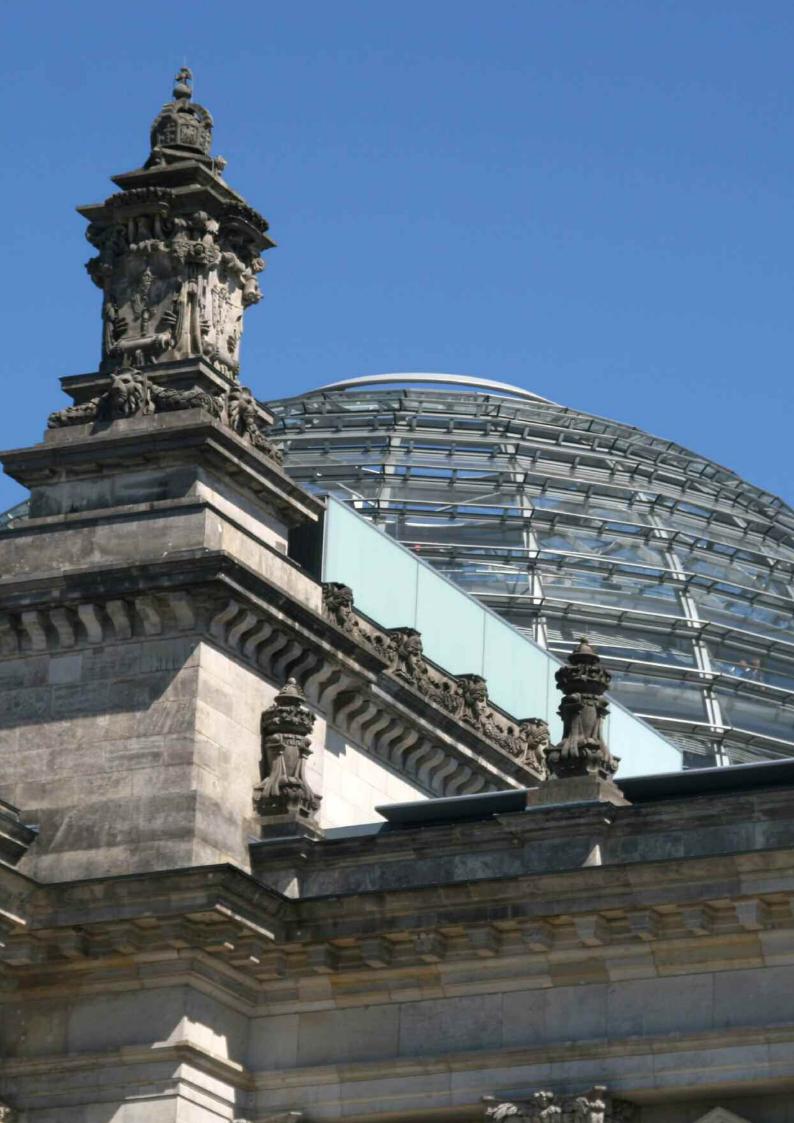
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# Germany

2005 Baseline	5.8%
2020 Target	18%
Main Renewable Sources	Onshore wind, offshore wind, photovoltaic, biomass and hydro
Green Certificates?	No
Feed-In Tariff?	<ul> <li>Yes - a feed-in tariff has been in operation since 1990.</li> <li>Grid operators are obliged to connect facilities producing electricity from renewable energies to their grid; to purchase the electricity produced by those facilities as a priority; and to pay compensation rates guaranteed by law for a period of 20 years.</li> <li>The level of remuneration available depends on the type of renewable technology used and, within this band, remuneration varies according to factors such as location and size of the facility and the point in time the installation is initially commissioned: <ul> <li>Hydro: 3.5 c€/kWh - 12.67 c€/kWh</li> <li>Offshore wind: at least 13 c€/kWh for 12 years increasing to 15 c€/kWh depending on the location of the turbines</li> <li>Onshore wind: 9.2 c€/kWh to 43.01 c€/kWh</li> <li>Biomass: 7.79 c€/kWh to 11.67 c€/kWh depending on the size of the relevant facility</li> <li>Geothermal 10.5 c€/kWh to 20 c€/kWh depending on the size of the relevant facility and the start of operations.</li> </ul> </li> </ul>
Other Incentives	None
Comments	The already highly developed onshore wind infrastructure means there is a lack of natural resources for more onshore wind in the future. The first offshore windfarms are operational after initial delays and the environmental impact of these first farms is monitored very closely by the respective public authorities to decide on further offshore projects. In addition, the German Parliament has decided to lower the feed-in tariff for photovoltaic energy due to the considerable increase in this sector recently – the amendment is effective from 1 July 2010.

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## Italy

2005 Baseline	5.2%	
2020 Target	17%	
Main Renewable Sources	Wind, hydro and solar	
Green Certificates?	<ul> <li>Yes. Renewable Energy Certificates (RECs) provide evidence of the use of renewable energy sources and are given in equal proportion to the renewable electricity generated (each worth 1 MWh) by qualifying plants, multiplied by a variable factor which depends on the technology used:</li> <li>Wave x1.8</li> <li>Tidal: x1.8</li> <li>Offshore wind: x1.5</li> <li>Biomass: x1.3-1.8 (depending on distance of the "fuel" to the relevant plant)</li> <li>Geothermal: x0.9</li> <li>Subject to various conditions, relevant plants are eligible for RECs' for 8-15 years.</li> <li>The Italian Green Certificates' system, which is the current incentive system available for wind plants is currently under review. Specifically, a draft of a new legislative decree, which will implement the 2009 Renewables Directive, is now under discussion. The definitive text will be probably approved by the end of this year. According to the draft currently available, plants fuelled by renewable energy sources which enter into operation from 1 January 2013 will be entitled to benefit from incentive tariffs similar to the incentive tariffs now available under the "Conto Energia" for photovoltaic plants (see 'Feed-In Tariff?'), after entering into a convention with the GSE (the authority for the promotion of renewable energy in Italy). As from 2015, Green Certificates will be converted into rights to benefit from the new incentives tariff.</li> </ul>	
Feed-In Tariff?	Yes. To be eligible, plants must have begun operating after December 2007, have a yearly normal capacity not exceeding 1 MW and, for wind farms, an electrical capacity not exceeding 0.2MW. The tariff may be revised every three years by the government in order to ensure that investment in renewable energy is adequately remunerated.	
Other Incentives	Government in order to ensure that investment in renewable energy is adequately remunerated. The second Conto Energia (Ministerial Decree No. 25336 of 19 February 2007), setting out the criteria for incentives for the production of electricity by photovoltaic plants that started operations by 31 December 2010. Incentives are in the form of payments, the level of which depends upon the installed capacity of the plant and whether the plant is fully-integrated, partially-integrated or not integrated into the building. A higher level of incentive is awarded to those plants which are architecturally integrated. The Ministerial Decree 6 August 2010 ("the third Conto Energia") set out the criteria for incentives for the production of electricity by photovoltaic plants that start operations from 1 January 2011 to 31 December 2013. The third Conto Energia distinguishes between three types of photovoltaic plants: (i) solar photovoltaic plants; (ii) integrated photovoltaic plants with innovative features; and (iii) solar concentration plants. As for solar photovoltaic plant, the distinction between (i) not integrated plants, (ii) partially-integrated plants, and (iii) architecturally integrated plants provided under the second Conto Energia has been abandoned and has been replaced by a distinction between (i) integrated plants and (ii) not integrated plants. The general levels of incentive tariffs have been decreased; however, they should be sufficiently profitable for developers. A higher level of incentive is awarded to the integrated plants. A special category includes plants where the photovoltaic panels are integrated on pergolas, greenhouses, or other roof-like coverings. These special category plants are eligible for an incentive tariff equal to the arithmetic mean between the incentive tariffs available for integrated plants and the incentive tariff equal to the other plants. Qualifying thermodynamic plants benefit from an incentive scheme under which operators receive a payment dependent u	
Comments	Complex regulation subject to rapid development is likely to produce uncertainty in the market. In addition, there may be unforeseeable fluctuations in RECs prices, especially in long-term transactions.	

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## The Netherlands

2005 Baseline	2.4%
2020 Target	14%
Main Renewable Sources	Onshore wind, biomass and energy from waste
Green Certificates?	No
Feed-In Tariff?	Yes (exact mechanism to be decided mid-2011)
Other Incentives	<ul> <li>With the accession of the new Dutch Cabinet in October 2010, the renewable energy policy in the Netherlands has been founded on amended principles. Previously, various forms of renewable energy were subsidised on the basis of the SDE (subsidy for renewable energy) policy guidelines. The new cabinet has replaced the SDE with the SDE+ mechanism.</li> <li>The focus of the SDE+ will be a cost-efficient approach. Each year, subsidies will be granted in four phases. Each phase will have its own subsidy cap per kWh for electricity and green gas, such that the first phase will have the lowest caps and the last phase the highest. However, a total cap for all phases will apply and subsidies are granted on a first-come-first-served basis. This implies that, for example, if the total cap is reached during phase 2, then phases 3 and 4 will not be applied during that calendar year and further applications will not be allowed. In this manner the Dutch Cabinet wants to prioritise 'cheap technologies'. Once a project has been granted a subsidy, it will continue to receive it at the same level as on annual basis for 15 years. The total budget for subsidy granted in 2011 is EUR1.5 billion.</li> <li>Although the final technologies for which SDE+ will apply still need to be assessed, the following were (at least) specifically mentioned in a letter from the minister of Economic Affairs of 30 November 2010:</li> <li>Onshore wind;</li> <li>Green gas e.g. landfill gas;</li> <li>Heat; and</li> <li>Biomass.</li> <li>Basic (maximum) compensation for phase 4 in the first year is set at EUR 0.15 per kWh and EUR 1.32 per Nm<sup>3</sup> for green gas. A "free category" (with no specific limit) for more expensive technologies has been established and would be decided on a case-by-case basis.</li> <li>Whilst the subsidies under SDE were funded from the general tax income of the Dutch State, the subsidies under SDE+ will be funded by the introduction of a form of feed-in tariff, and possibly coal and gas taxes. The bill for the introduction of t</li></ul>
Comments	The Dutch government is firmly committed to achieving its renewable energy targets. In addition to ongoing investments in onshore wind, in summer 2010 subsidies were granted for two large offshore wind projects. This reflects significant improvements in the investment climate for the renewable energy sector. However, the sector would benefit even further from improved legislation providing greater security about grid access and more long term certainty about subsidy levels. Initiatives to achieve such improvements are developed, but have not yet been implemented.

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## Poland

2005 Baseline	7.2%
2020 Target	15%
Main Renewable Sources	Hydroelectricity, onshore wind, biomass
Green Certificates?	Yes. Enterprises which generate or trade in electricity and sell to a final offtaker as well as, to a certain extent, final offtakers trading with energy at the commodity exchange and brokerage houses trading with energy at the commodity exchange, are required to acquire certificates and to present a number of them in a proportion that corresponds to the amount of renewable energy generated calculated by reference to sales to end users to the energy regulatory authority. The green certificates are issued by the Polish energy regulatory authority to renewable energy generators, confirming, among other things, that a renewable energy generator produced a certain amount of renewable energy over a certain period of time. They are issued on the application of a given energy generator and on the basis of data provided by the operators of the grid transmission or distribution system to which the given renewable energy generator is physically connected. The support scheme applies to all technologies, regardless of their efficiency and costs. Obliged entities which do not present certificates are required to pay compensation. Failure to present certificates or pay compensation leads to the imposition of a financial penalty by the energy regulatory authority.
Feed-In Tariff?	No
Other Incentives	The operator of the electricity system is obliged to ensure that electricity generated from renewable energy sources has priority of transmission. By law suppliers of last resort are obliged to purchase electricity generated from renewable energy sources. The obligatory purchases are made at the average price on the competitive market for the preceding calendar year determined yearly by the energy regulatory authority. The energy regulatory authority is obligat to announce the average price by 31 March of the following year. Any entity not meeting its obligation to purchase electricity from renewable energy sources is subject to a financial penalty. Electricity generated from renewable technologies is exempt from excise duty.
Comments	The grid needs substantial reinforcement. As there has been no investment in the grid infrastructure in the last three decades, it is too weak and underdeveloped to cater for new capacities from renewable sources. Investors have indicated that unclear rules for connection to the grid and complicated spatial management regulations are a hindrance to development.

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## Romania

2005 Baseline	17.8%
2020 Target	24%
Main Renewable Sources	Hydroelectricity, wind
Green Certificates?	<ul> <li>Yes. Suppliers of electricity to end consumers are obliged to acquire a minimum number of green certificates based on the quantity of electricity they supply each year to end consumers. The regulatory authority establishes the quota of green certificates to be acquired by electricity suppliers. In 2009, this is 0.589%. Suppliers that do not meet this mandatory quota are bound to pay a fine of EUR 110 for each green certificate that is not delivered. Starting with 2011 such value will be updated every year.</li> <li>For 2008-2025, the value of a green certificate is between EUR 27 and EUR 55. Starting with 2011 such values will be indexed every year. Currently, all producers of electricity from renewable sources receive 1 green certificate per MWh of electricity generated, regardless of the type of renewable source. However, according to the legislation in force, different number of green certificates should be issued depending on the type of renewable energy source deployed. Such differentiated scheme is not, however, fully applicable, as it should be approved by the European Commission.</li> <li>Producers and suppliers of electricity from renewable sources can trade green certificates on an internal centralized market and on a bilateral contracts market for green certificates. Until the achievement of the national objective, the Romanian state can cooperate with other European Union member states with respect to transfer of renewable energy, common projects for the production of renewable energy, harmonisation of support schemes.</li> </ul>
Feed-In Tariff?	No
Other Incentives	The default suppliers are obliged to purchase electricity produced from renewable sources in plants with an installed capacity of maximum 1MW at regulated prices. Producers of electricity from renewable sources have priority access to the transport/distribution network, subject to the safety of the National Energy System.
Comments	Only limited wind energy capacity can currently be connected to the grid due to imbalance risks and poor grid infrastructure. The permitting procedure overseen by local authorities can be lengthy and bureaucratic.

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## Slovakia

2005 Baseline	6.7%
2020 Target	14%
Main Renewable Sources	Photovoltaic, hydro, wind, geothermal, biomass, biogas and biomethane
Green Certificates?	No, although a 'green bonus' is available (discussed below)
Feed-In Tariff?	A fixed feed-in tariff ("FIT") payable by electricity distribution system operators ("DSO") is available to renewable electricity generators. Once a generator obtains the FIT applicable in the year of commissioning of its plant, it is entitled to receive such FIT for the entire expected lifetime of the plant (15 years). The duration of the entitlement to, and the amount of the FIT depend on the source of renewable energy used. Until the end of 2010, the following support was provided to photovoltaic ("PV") plant operators: (i) EUR 430.72/MWh
	(up to 100 kW PV); (ii) EUR 425.12/MWh (from 100 kW PV to 10 MW). However, as of 1 January 2011, the support for PV plants has been reduced to: (i) EUR 387.65/MWh (up to 100 kW); (ii) EUR 382.61/MWh (from 100 kW PV to 10 MW). Also, as of 1 April 2011, support will only be available to PV plants with an output of less than 100 kW and only if such plants are located on the roofs or facades of buildings.
	No special tax has been introduced and it is not expected that any such tax will be introduced.
	The FIT available for plants commissioned before 1 February 2011 can be reduced by a maximum of 10% in 2012 as compared to the FIT available in 2011. From 1 February 2011, this rule will no longer apply to new hydro and PV plants, ie. the FIT may be reduced for subsequent years without limitation.
Other Incentives	Green bonus - although the green bonus is not formally established under Slovak law, a generator of renewable electricity can opt for a 'green bonus' (instead of, or in addition to the FIT) if it consumes all or a majority of the electricity produced. The green bonus is slightly lower than the FIT.
	Priority to connect and supply - generators of electricity from renewable sources have a priority right to connect their facilities to the electricity distribution on transmission grid, and a priority right to distribute and supply electricity to the grid. In practice, this means that if a generator opts for the FIT only, it will be able to sell all of the electricity if generates to the DSO for the price set by the relevant FIT.
	Indexation - the FIT is indexed by a formula reflecting nuclear inflation, however use of the indexation is at the discretion of the regulatory body.
Additional Comments	The current FIT scheme has been particularly successful in relation to PV plants. The effectively high FIT, together with falling technology prices, caused a boom in the PV sector in 2010. As a result, the total installed capacity of PV plants in the Slovak Republic increased from 31 MW on 1 January 2010 to approximately 428 MW by 1 January 2011.
	The boom caused concerns about: (i) electricity prices for end customers, and (ii) the stability and safety of the entire electricity grid. As a result, the above-mentioned reduction of PV support was introduced. Given the above, it seems unlikely that any new large PV plants will be commissioned after 1 April 2011.
	On the other hand, there are no comparable significant restrictions relating to other renewable energy sources.

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# Spain

2005 Baseline	8.7%
2020 Target	20%
Main Renewable Sources	Solar (photovoltaic and thermo), wind, hydroelectricity, biomass and biogas
Green Certificates?	No
Feed-In Tariff?	Spanish legislation creates two regimes applicable to the production of electric energy: the ordinary regime, which is applicable to conventional power plants; and the special regime, which is applicable to power plants using renewable energy sources.
	Feed-in tariffs, regulated premiums and applicable supplements are paid to installations operating under the special regime by the Spanish National Energy Commission. Special regime electricity producers may choose the type of remuneration they wish to receive, based on either the sale of the energy produced at the rate of a feed-in tariff or the sale of the energy produced at the pool price supplemented by a premium.
	All renewable technologies are equally eligible for assistance but the amount of financial assistance available varies because the feed-in tariff and the applicable premium are specific to each type of technology used. For example, traditionally the highest feed-in tariff has been that of solar photovoltaic installations, although this scenario is changing due to the latest modifications approved by the government in order to reduce the Spanish tariff deficit.
Other Incentives	Supplements are available for installations meeting, for example, requirements of efficiency.
Comments	In November and December 2010 the Spanish Government approved new regulations concerning, amongst other things, the economic regime applicable to renewable energy, mainly affecting solar photovoltaic, solar thermal and wind power installations.
	The principal modifications that the new regulations have introduced to the economic regime applicable to the above technologies may be summarised as follows:
	Photovoltaic installations may only receive a feed-in tariff during the first 28 years of operation.
	The feed-in tariff for photovoltaic installations recorded at the Remuneration Pe-Assignment registry as from the first call of 2011 will be decreased by 5% for roof installations of 20KV or less, 25% for those larger than 20KV, and 45% for ground-mounted installations.
	With regards to thermoelectric technology, those plants to which Royal Decree 661/2007 applies must sell the net energy produced, in accordance with option a) of Article 24.1 of said Royal Decree, during the first full 12 months after the date on which definitive start-up certificate is issued. Those plants which have obtained their certificate prior to 9 December 2010 will, automatically and as applicable, sell the energy produced in accordance with said option a) of Art 24.1 during at least the 12 months following 1 January 2011.
	With regards to wind power technologies, between 1 January 2011 and 31 December 2012, the reference premium for those plants subject to Royal Decree 661/2007 will be reduced by 35%. This reduction does not apply to those plants subject to the First Transitional Provision of said Royal Decree. After 1 January 2013, the values of the premiums established in Royal Decree 661/2007, updated therin, will continue to apply.
	With regards to the three technologies, a limit has been placed on the number of equivalent hours (the ratio between the net annual production in KWH and the nominal capacity of the plant in KW) of operation of these technologies which are entitled to tariff or premiums.



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# The United Kingdom

2005 Baseline	1.3%
2020 Target	15%
Main Renewable Sources	Offshore wind, onshore wind, biomass, hydro and landfill gas
Green Certificates?	<ul> <li>Yes - the Renewables Obligation was introduced in 2002. Suppliers satisfy their obligation by either purchasing green certificates (known in the UK as ROCs) from generators of qualifying renewable electricity or paying a "buyout" price, currently £36.99. The price is set annually and is due to be updated later in 2011. ROCs are currently awarded to generators on a banded basis as below to be reviewed by 2013:</li> <li>Landfill gas: 0.25 ROCs/MWh</li> <li>Sewage gas: 0.5 ROCs/MWh</li> <li>Onshore wind; hydro; and energy from waste with CHP: 1 ROC/MWh</li> <li>Biomass: 1 ROC/MWh / 1.5 ROCs/MWh / 2 ROCs/MWh depending on specific technology</li> <li>Offshore wind, tidal, wave, photovoltaic, geothermal: 2 ROCs/MWh</li> <li>Money paid into the "buy-out" fund is distributed to suppliers who satisfied their renewables obligation by purchasing (and surrendering) ROCs. The current obligation for the period ending on 31 March 2011 is 0.111 ROCs per MWh.</li> </ul>
Feed-In Tariff?	<ul> <li>Yes – introduced by the last Government in April 2010. The feed-in tariff only applies to microgeneration (5MW and below) and to proven renewable energy technologies. FITs must be offered by licensed suppliers with 50,000 or more domestic customers. Tariffs will be payable for export to the grid at 3p/kWh irrespective of the generation technology; and for the generation itself, tariffs will be payable according to the size of the scheme and the renewable technology deployed:</li> <li>Anaerobic digestion: 9p/kWh to 11.5p/kWh for 20 years</li> <li>Hydro: 4.5p/kWh to 19.9p/kWh for 20 years</li> <li>Photovoltaic: 29.3p/kWh to 41.3p/kWh for 25 years (projects commenced in later years will face reduced tariffs) depending on (amongst other things) the size of the project</li> <li>Wind: 4.5p/kWh to 34.5p/kWh for 20 years (projects commenced in later years will face reduced tariffs). As part of a major package of proposed reforms to the UK energy market, a new feed-in tariff system has been proposed and is subject to consultation for generators of low carbon electricity (including nuclear). A review of the feed-in tariff system is expected to be undertaken in 2012, to take effect from April 2013.</li> </ul>
Other Incentives	The Climate Change Levy (currently £4.70/MWh) is payable by industry, commerce, agriculture and the public sector for electricity consumed. Renewably generated electricity is awarded with one Levy Exemption Certificate (LEC) for each MWh. Under the proposed energy reform package mentioned above, the Government is proposing to extend the Climate Change Levy to generation level, to include those generators who produce electricity from fossil fuels (these were previously exempt). The rates will be set to take account of the carbon content of the particular fuel used.
Comments	The Renewable Obligation is likely to undergo a transition into the feed-in tariffs scheme, and may be gradually phased out. The new feed-in tariff system is expected to be introduced in 2013. Under the proposals mentioned above, from April 2017 new schemes would be eligible for FITs instead of the Renewables Obligation. Until April 2017, the Government are considering whether there should be a choice of feed-in tariff or ROCs for large generation projects.

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