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Comparative study

on the main renewable energy support mechanisms in European jurisdictions

2010

The new Renewable Energy Directive 2009/28/EC is now the main directive for promotion of renewable energy in the EU. The Directive repeals EU Directives 2001/77/EC and 2003/30/EC and sets out targets for all EU countries and many guiding principles. This Study provides an overview of the main mechanisms by which jurisdictions implement the Directive and promote renewable energy investment.

Contents

Introduction

The EU Directive 2001/77/EC has proven to be a milestone in the promotion of renewable energy in Europe. It has triggered the development of renewable energy to varying degrees in the EU Member States. In some countries whole new industries have emerged within the last few years.

A new milestone has been reached with the new EU Directive 2009/28/EC on the promotion of the use of energy from renewable sources. This Directive amends and replaces Directive 2001/77/EC by expanding its scope of application. It is envisaged that by the year 2020, 20% of Europe's energy will be gained from renewable sources. In order to reach this target, every Member State will have to fulfil an individual threshold.

In addition, the new Directive obliges every Member State to enhance its energy-efficiency by 20% and sets a target of 10% for energy from renewable sources in the field of public and private transport.

This Comparative Study highlights the national strategies in place or envisaged to fulfil these obligations, thereby highlighting the different ways in which renewable energy sources can be fostered.

Renewable technologies require subsidies in order to compete with the existing technologies and one can differentiate between three types of schemes which incentivise the development and use of renewable energy sources; a system of feed-in-tariffs, a system of "green-bonuses" and a system of green certificates. Every Member State has implemented its strategy in different ways; for instance, some have made distinctions regarding the duration of guaranteed payments (up to 20 years) or by the amount of subsidies.

It is interesting to observe, in respect of the financial promotion of single technologies, that guaranteed payments have become more or less harmonised in the different jurisdictions without regulative interference from the EU. This leads to the conclusion that a fair subsidy, diminishing over time, exists.

This Study also includes the mechanisms pursued by some non-EU Member States in order to highlight their increasing efforts to promote renewable energy.

Austria

Background

In Austria, renewable energy sources contributed 28.5% of the total energy consumption in 2007. According to the Directive 2009/28/EC on the promotion of the use of energy from renewable sources, amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, this share should rise up to 34% in 2020. The Austrian national goal is the stabilisation of energy consumption at 2005 levels.

Mechanism 1 – The Green Electricity Act (*Ökostromgesetz*)

WHAT IS IT?

The Austrian Green Electricity Act (which entered into force on 1 January 2003) was amended in 2009. The Austrian Green Electricity Act has established a nationwide tariff support for renewable ("green") energy. Its main goals are:

— to raise the proportion of electricity produced in installations from renewable energy sources to such an extent as to achieve in 2010 the national target of 78.1%;

— to promote renewable energy sources and achieve market maturity for new technologies;

— to ensure investment protection for existing and future plants; and

— to support the establishment of new plants and extension of existing plants producing green energy in order to ensure that in 2015 an overall 15% of the electricity supply to end-consumers out of the public networks is generated from green electricity plants.

HOW DOES IT WORK?

The Green Electricity Act obliges the so-called "Green Electricity Settlement Centre" (*Ökostromabwicklungsstelle*) to purchase green electricity from eligible generators at a fixed feed-in tariff prices (*Einspeisevergütung*). The Green Electricity Settlement Centre attributes the purchased electricity to the electricity traders, who are obliged by law to buy the attributed electricity at a fixed transfer price (*Verrechnungspreis*). The difference between the feed-in tariff for electricity and the fixed transfer price is raised by a metering fee expressed as a lump sum per metering point which consumers have to pay per metering point (*Zählpunktpauschale*). The amount of the fee depends on the grid level to which the consumer is connected but is independent of his actual consumption. The fee is fixed by law and amounts to EUR 15,000 per annum for connection to the high voltage net levels 1-4, EUR 3,300 to level 5, EUR 300 to level 6 and EUR 15 to level 7. The differentiation was introduced in order to arrive at a tenable distribution of the burden between households on the one side and industrial consumers on the other side. The levy is fixed at a level to allow about 38% of the overall financing to be covered by the levy.

WHO GETS THE BENEFIT?

Operators of plants producing energy from renewable energy sources, such as non-fossil energy sources (wind, sun, geothermal energy, tidal energy, hydro power, biomass, waste, landfill gas and biogas), including animal meal, spent lye or sewage sludge.

Mechanism 2 – The Austrian Act on Emissions Allowance Trading (*Emissionszertifikategesetz* - EZG)

The Austrian Act on Emissions Allowance Trading (EZG) was introduced by the government in 2004, implementing Directive 2003/87/EC and establishing a scheme for green house gas emission allowance trading within the Community and amending Council Directive 96/61/EC. The Austrian Act on Emissions Allowance Trading has been recently amended. Main goal of the act is the establishment of greenhouse gas emission trading scheme to provide a cost-effective reduction of greenhouse gas emissions. Companies that emit greenhouse gases receive a limited number of emissions allowances from the competent authority (in Austria the Federal Ministry of Agriculture, Forestry, Environment and Water

Management). If a company emits more greenhouse gas emissions than it has been allocated allowances, it may purchase allowances from other companies. Allowances are traded via traders (e.g. banks), at an exchange or directly between companies.

Mechanism 3 – Climate and Energy Fund (*Klima- und Energiefondsgesetz*)

The climate and energy fund is endowed with EUR 500m for the period of 2007 to 2010. It was established with the aim of contributing to the cost-efficient attainment of the energy goals of the Austrian government by supporting initiatives in the areas of climate protection and sustainable energy supply. The support will be concentrated in three main areas:

(i) research and development of sustainable environmental technologies and climate research;

(ii) the promotion of projects in the area of public and commercial transport; and

(iii) the promotion of sustainable energy technologies.

Belgium

Background

Belgium is a Federal State, in which Regions (Flemish Region, Walloon Region and Brussels-Capital Region) are in charge of the protection of the environment and, accordingly, of the promotion of renewable energy sources. However, the Federal State has implemented its own scheme, due to the fact that it remains competent for the energy produced in – and from – the North Sea. Furthermore, the Federal State is still responsible for the main taxes in Belgium.

Mechanism 1 – Tradable Green Certificates (TGCs)

Belgium is a Federal State, in which Regions (Flemish Region, Walloon Region and Brussels-Capital Region) are in charge of the protection of the environment. In response to the promotion of renewable energy sources, each Region and the Federal State has developed a Green Certificate Mechanism. This mechanism is built on the following principles:

— the regional or federal regulation authority issues a certain amount of TGCs to "green producers", based on the quantity of electricity produced from Renewable Energy Sources (RES). It is to be pointed out that, in Brussels and Wallonia, the issuing of TGCs is conditional on the saving of a certain quantity of CO_2 in comparison with the CO_2 emissions for conventional production in a modern benchmark facility.

— the regional legislations have fixed annual quotas applicable to suppliers (e.g. in Wallonia, 10% in 2010). This means that each supplier must send the Regulator the number of green certificates that corresponds to the number of MWh supplied to its end clients, multiplied by the quota. If the supplier does not adhere to the quota, it receives a penalty for each missing TGC. Suppliers have then to purchase enough TGC from green producers in order to avoid the penalty; this creates the market for green certificates. The market price of TGC is therefore less than that of the penalty.

in order to sustain the security of investments, regional (and federal) legislations have provided that TSO and/or DSOs must purchase TGCs at a fixed price, generally depending on the energy source.

— the support mechanism (issuing of TGC and/or purchase obligation at a fixed price) is valid for a certain period of time, depending on the Region and on the renewable energy source; and

— the price of TGCs is passed on the consumers. However, industrial consumers benefit from certain exemptions.

Mechanism 2 – Installation premiums

There are a large number of installation premiums provided in Belgium in order to promote the production of electricity from RES. Those premiums differ from one to another according to different criteria:

— the public authority who grants it (region, commune);

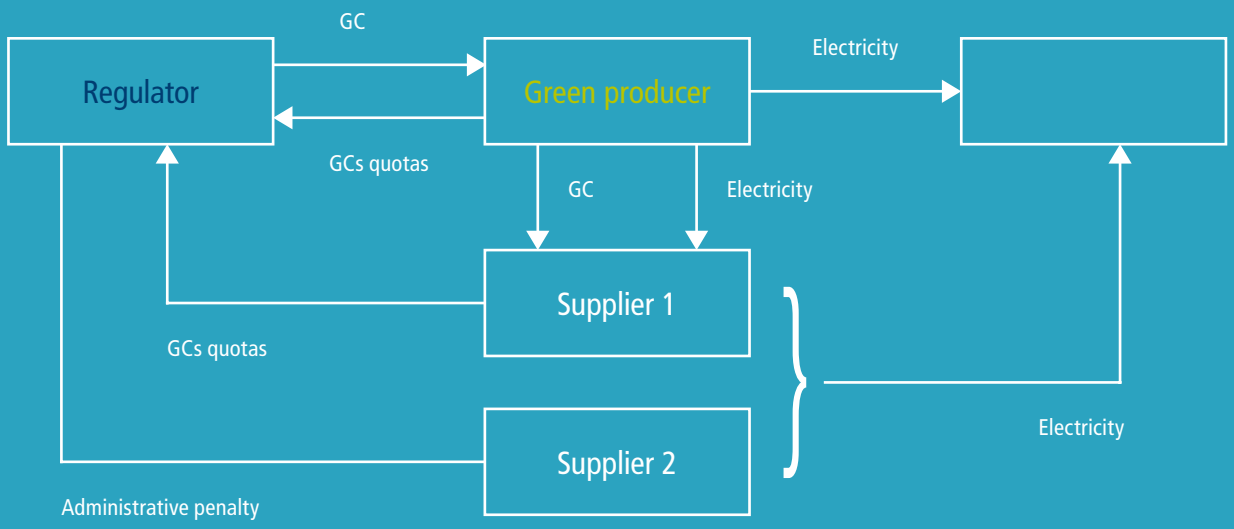
— the renewable energy source (solar, wind); and

— the nature of the producer (firm or particular).

Mechanism 3 – Offshore wind

The Federal State has created a specific support mechanism for the production of electricity from off-shore wind farms:

(i) within the mechanism of TGC's, the TSO has an obligation to purchase green certificates issued to the producer at the amount of 107EUR/MWh for the first 216MW generated and 90EUR/MWh for the remainder of generated MW; this obligation applies for a duration of 20 years;



(ii) for each concession, the cable connecting the wind farm to the transmission grid is financed by the TSO, to a maximum amount of EUR 25 million for the installation of a minimum of 216MW;

(iii) for each concession, the cable connecting the wind farm to the transmission grid is financed by the TSO, to a maximum amount of EUR 25 million for the installation of a minimum of 216MW.

Mechanism 4 – Part exemption to the "Federal contribution"

A federal contribution is owed by the end consumers in order to finance the public service obligations and the costs related to the functioning of the Federal Regulation Authority. This contribution is paid to the supplier who returns it to the commission or regulation.

This contribution is in particular intended to finance (totally or partially):

— the "denuclearisation" of some nuclear sites;

— the functioning costs of the Federal Regulator;

— the guidance and the social aid for the supply of energy to the most deprived inhabitants; and

— the federal policy for reduction of greenhouse gases, etc. The proportion of electricity from RES supplied to consumers is exempted from the duty related to the costs of the denuclearisation and for the federal policy for the reduction of greenhouse gases.

Mechanism 5 – Tax exemptions

The tax legislation provides for several exemptions for RES installations, e.g.:

— 6% VAT (instead of 21%) for the installation of PV Panels or wind turbines;

— tax reduction for all investments in energy savings or RES; and

— exemption to the "real estate prepayment" (*précompte immobilier*) on the installation of PV panels.

There are currently no support schemes for carbon capture and storage or gas from renewable energy sources in Belgium.

Bosnia and Herzegovina

Background

The complexity of the legal structure of Bosnia and Herzegovina directly impacts on its legislation as well as policies towards renewable energy sources.

BiH consists of two separate and distinct administrative entities: the Federation of Bosnia and Herzegovina (FBiH) and Republic of Srpska (RS), as well as the Brcko District which belongs to both of the above entities. The entities and the Brcko District have their own governmental structures as well as legislation, regulations and policies which means that RES, as well as any other area, may be subject to legislatory provisions at entity level i.e. FBiH or RS or Brcko District. In preparing this comparative study we have taken into account relevant legislation at all levels in order to provide a comprehensive overview of the situation in BiH.

Whilst Bosnia and Herzegovina has undertaken numerous international legal obligations relating to the development, promotion and increased use of renewable energy sources limited improvement has been made vis-à-vis energy efficiency and RES. The main reason for this is considered to be a lack of cooperation and coordination between the two above-mentioned entities in the energy sector.

Nevertheless, BiH continues its declaratory support for use of RES through, for example, a decision to join the International Renewable Energy Agency (IRENA) in 2009. This study looks at the RES promotion mechanisms at both State and entity levels.

The use of renewable energy sources in BiH and its potential

In BiH, most attention is given to wind and water as renewable energy sources. The share of RES in production of electricity in BiH is 45% and at the level of FBiH it is 35%. This is mostly due to extensively used hydroelectric (HE) power plants although there is growing development in the area of small HE power plants with preparations for cca 200 small HE power plants with a total strength of 177.44MW.

The legislative backdrop enabling exploitation of water power resources are concessions which allow a right to all natural and legal persons to use natural resources or other public goods for the purposes of improving the country's infrastructure. Even though demand for acquiring concessions has been constantly increasing, the extremely complicated and long-lasting bureaucratic procedure of having the subject concession approved is slowing down the process of utilising these sources of energy to its outmost extent.

Mechanism 1 — State level

In accordance with the Rules on connecting (to the electric grid) from 2008, the State Regulatory Commission for Electric Energy (DERK) encourages production of energy from RES by prescribing a bare 50% of the fixed charge for the connection.

However, this is minimised by the fact that energy production companies that utilise hydro-energy can only use this advantage if their installed energy power does not exceed 10MW.

Moreover, BiH has also signed a legally binding Energy Community Treaty on 25 October 2005 which created a gas and electricity market without internal frontiers and which calls for implementation of so-called *acquis communautaire* on energy, environment, competition and renewable electricity sources, showing a determination to focus on RES.

Mechanism 2 — Entity level

The legislation relating to RES in both the FBiH and RS is scarce, although for the most part it is harmonised. Thus the Law on Electric Energy of FBiH states as one of its goals the encouragement of domestic and foreign investments in RES, while the same law of RS ensures the production of electricity form RES.

Both laws state that facilities that produce electricity from RES can be considered "qualified producers" in accordance with the regulations of the Regulatory Commissions for Electric Energy (the Commission). Moreover, the Law on Electric Energy of RS stipulates incentives for companies producing energy from RES including waste all towards the purpose of achieving the goal of energy production from RES in accordance with the measurements of environmental protection and efficiency.

The Decision on Methodology for the Determination of Purchase Price for Electricity from Renewable Sources with Installed Power up to 5MW is one of the most important developments in the renewable energy sector. This decision has been introduced in both entities and identifies renewable sources such as water, wind, sun, geothermal and gas resources, biogas and biomasses. It sets up the methodology for determining prices for energy produced out of renewable sources, as they should be implemented by the utilities public companies. It also imposes an obligation on these companies to give advantage to renewable sources of energy over other conventional sources, thereby ensuring that these sources of energy are equally treated, towards a more efficient protection of the environment.

In addition to the above, all three existing public utilities companies, Elektroprivreda F BiH dd Sarajevo, Elektroprivreda RS ad Banja Luka and Elektroprivreda HZHB dd Mostar, are under an obligation to takeover and sell all energy produced from the RES thereby contributing to the commerciality of this type of energy source.

In the RS entity, in accordance with the Rules on issuance of authorisations, the Commission can adopt a special act with which it can decide on a simplified procedure in authorising the construction of facilities realising a power of up to 10MW and which use RES for the production of electrical energy.

One of the mechanisms that was intended to improve the situation is the Law on Fund for the protection of the environment of FBiH, which determined that the activity of the Fund was to gather and distribute the financial assets for the protection of the environment on the territory of FBiH, and would particularly be used, inter alia, for financing of the preparations for the production, implementation and development of program documents and similar activities in the field of conservation, sustainable use, protection and improvement of environment and the use of RES. However, reports demonstrate that this Fund has not been extensively used in the area of promoting and increasing use of RES in energy production.

Future prospects

Due to the absence of a strategy plan and program for the development of the energy sector of BiH, the Government of FBiH has established an expert group with a task of producing such a strategy plan for FBiH. The document, produced by the expert group ("Strategic Plan and Program for the Development of Energy Sector of FbiH") foresees the activities to be undertaken for the next 30 years. It has made a number of recommendations to the Ministry of Energy, Mining and Industry relating to RES including, inter alia, the adoption of special legislation relating to RES and the development of systems of incentives and subsidies by 2010. These have not been realised so far, but if all the recommended measures are implemented in the next few years it will greatly benefit the use of ample of renewable energy sources in BiH. The Government of RS is also preparing a similar strategy.

As far as PPP projects are concerned, the legislative framework has been introduced at different speeds. In the FBiH, a draft PPP law has been forwarded to the Federal Government by the Federal Ministry of Transport and Communication. The Parliament of Federation of Bosnia and Herzegovina is expected to consider the draft at the next assembly meeting in January 2010.

In RS however, the Law on PPP was adopted by the Parliament of Republika Srpska on 11 June 2009 and became effective on 10 July 2009. The Law is fully in compliance with the relevant EU Directives. The Law allows for a special form of long-term cooperation agreements whereby the public and private sectors can join resources, capital and professional knowledge in order to satisfy a public need. Given the significant potential for RES in BiH, we hope that PPP will be used as a method of realising this potential.

Bulgaria

Background

Bulgaria has a national target to achieve 11% share of the electricity produced from renewable energy sources in the gross electricity consumption by 2010 and to increase this share to 16% by 2020.

The draft of a new Energy Strategy for Bulgaria for the period up to 2020 (the "Energy Strategy") was announced by the Ministry of Economy and Energy in November 2008 but still has not been approved by the Government or Parliament. The Government is set to adopt the Energy Strategy during 2010 for the development of the renewable energy sources in Bulgaria for the period 2011–2020.

According to the Ministry of Economy, Energy and Tourism the renewable energy targets are achievable largely through hydro and wind energy although Bulgaria does have other renewable energy sources such as solar, geothermal and biomass, which have rapidly developed in recent years.

Mechanism 1 – The Renewable and Alternative Energy Sources and Biofuels Act

The Renewable and Alternative Energy Sources and Biofuels Act (the "Renewables Act" published in the State Gazette, issue 49 dated 19 June 2007 and amended in November 2008 and in December 2009) is the main legislative act setting out support mechanisms for renewable energy sources in Bulgaria. It implements the provisions of EU Directive 2001/77/EC.

Mechanisms to promote renewables under the Renewables Act currently include a mandatory off-take at preferential prices of the electricity produced from renewable energy sources and a right to priority connection to the grid.

MANDATORY OFF-TAKE AND FEED-IN TARIFF; LONG TERM POWER PURCHASE AGREEMENTS (PPAS)

The public utility wholesaler (the "National Electricity Company EAD" or NEK) and the electricity distribution companies (the EDCs) are obliged to off-take all electricity generated from renewable sources that is guaranteed by a certificate of origin. Certificates of origin are issued to the producers of renewable energy by the State Energy and Water Regulation Commission (SEWRC). SEWRC also recognises certificates of origin issued by the competent bodies of other Member States under the rule of mutuality.

To benefit from the mandatory off-take, renewable energy producers have to enter into long-term power purchase agreements with the NEK or the EDCs. In November 2008, the mandatory periods of validity of the PPAs were extended (from 12 years) by an amendment to the Renewables Act. PPAs are now concluded for a period of 25 years for geothermal and solar energy and a period of 15 years for electricity generated from hydro-electric plants with capacity of up to 10MW and other renewable energy sources. Operators of existing renewable power production facilities had to renegotiate their agreements by 31 March 2009 in order to benefit from the extended periods. The longer terms are also available to new entrants if their power production facilities start production before 31 December 2015.

The feed-in tariff for energy produced from renewable energy sources is updated by SEWRC annually by the end of March. Prices are based on 80% of the average end-sale price of the public wholesaler and the end-providers for the previous year and an additional payment set by SEWRC for each type of renewable source. The additional payment for each year is not less than 95% of the additional payment for the previous year. The new off-take tariffs for 2009 were published on 31 March 2009 showing some increase compared to the ones from the last year. The off-take price for electricity produced by solar panels has greater increase (around 5%) and off-take tariff for wind goes up around 1%.

The implementation of a green certificates system in Bulgaria is still pending. Under the Renewables Act, the Minister of Economy, Energy and Tourism is obliged by 31 December 2011 to prepare and present to the Bulgarian Government a draft legislation providing for market mechanisms and incentives to encourage the production of electricity from renewable sources.

PRIORITY ACCESS TO THE GRID

The Transmission System Operator (NEK) or an electricity distribution company which is located closest to the site is obliged to connect to the grid every new plant/facility for production of renewable energy, provided it complies with general connection requirements under the Energy Act 2003.

Grid operators must provide for minimal grid connection at the closest possible point of the transmission or the distribution network. The cost for interconnection from the production facility to the border of its property is borne by the producer. The cost for interconnection of the production facility from the border of the property to the grid is borne by the grid operator. The producer is only responsible for the direct cost of the connection. Any cost for the reconstruction and extension of the transmission and distribution network are borne by the grid operator and shall not be included in the cost for grid interconnection.

The practical difficulties in relation to the connection to the grid are one of the main issues related to the development of renewable projects in Bulgaria. This is particularly true for wind projects – while requests for connection far exceed the capabilities of the transmission and distribution grids (with most of the projects being concentrated in north-eastern Bulgaria, in regions with weak electrical grid), grid operators are reluctant to invest in their upgrade and extension.

Mechanism 2 – Investment support and PPP

Bulgarian investment promotion regime aims to support investments in specific and innovative industries, including renewable energy projects. To qualify for this support, projects have to meet minimum investment thresholds. Eligible investors are certified by the Bulgarian Investment Agency. The support mechanisms include:

— State investment in associated infrastructure;

— sale of State property directly to eligible investors (following a specific procedure);

— individual administrative assistance by the authorities and contact persons; and

— shortened deadlines for administrative assistance.

Public-Private Partnership (PPP) is also a generally available option despite lack of specific legislation. Various municipalities have adopted local PPP Ordinances and provide support of renewable energy projects.

Mechanism 3 – Various sources of funding and grants; EU accession funds

Sources of funding include the EBRD's Energy Efficiency and Renewable Energy Credit Line extended to seven local banks for on-lending to private sector companies for industrial energy efficiency and small scale renewable energy projects, supported by the Kozloduy International Decommissioning and Support Fund grant funding.

Funding is also available from EU energy funds such as "Intelligent Energy – Europe" and framework programmes for scientific research and presentations. EU accession funds are also available for mini-hydro power plants and small-scale projects.

Kyoto mechanisms, especially Joint Implementation (JI), are also available. In recent years, Bulgaria completed such JI projects with leading technology providers from Austria, Denmark, Japan and others.

Proposed changes in the Renewables Act

The Bulgarian Government is currently discussing changes to the Renewables Act which would be adopted and come into force by July 2010. The Government is expected to introduce certain obligations for renewable energy producers as a balance for the connection obligation of grid operators (for example, an obligation of the investor to have the project completed within a certain timeframe or to invest in balancing power stations), as well as a restriction on the maximum capacity of renewables that may be requested for connection to the transmission and distribution grids, and a new cost sharing mechanism. The government is also considering providing additional regulation of the sector. From November 2009 onwards various governmental sources have announced ideas for a temporary moratorium on some renewable energy projects given the huge number of recent applicants.

Croatia

Background

Since 2002 Croatia has become an EU member candidate and has ratified The Energy Community Treaty, Kyoto Protocol and the UN Framework Convention on Climate Change. New times have required a new energy strategy and Croatia's Energy Strategy was adopted in October 2009. It includes guidelines for time period until 2020. One of the main principles remains supporting investments in the renewable energy sector. This should reduce the import of electrical energy and Croatian dependency on an unstable world energy market.

The Croatian Government has targeted the generation of 5.8% of its electricity from renewable sources by 2010, and 20% by 2020. According to the new Energy Strategy, it is planned that the ratio of energy produced from Renewable Energy Sources (RES) and big hydro plants should be 35% of the overall consumed energy. As planned investments into big hydro plants will not be able to follow the growth of energy consumption, the planned ratio of 35% will depend on investments into the renewable energy sector. The Strategy also includes more detailed plans such as providing incentives for investment into wind farms until they reach the ratio of 9% or 10% of the overall consumed energy. The Croatian power system should absorb up to 1200MW of wind power till 2020. Today this figure is around 360MW (out of which app. 40MW is being used and 320MW is still free).

The latest official data shows that the ratio of electricity from RES was only 0.7% in 2007, and it is estimated that the ratio of RES has improved very slightly, amounting to 0.8—1.0% in 2008. The renewable sector in Croatia has therefore been marked by a hastened forming of the legislative framework so as to ensure a more effective implementation of RES.

Mechanism 1 – The Renewables Obligation (RO)

WHAT IS IT?

The Croatian Government encourages production of renewable energy through a system of incentives.

HOW DOES IT WORK?

Consumers pay an additional charge for a Feed-in-Tariff ("Charge") to their electrical suppliers. The Charge is included in the consumers' monthly electrical bill. The Croatian Market Operator (HROTE) collects the Charge from the suppliers and distributes them amongst eligible producers of electrical energy as the Feed-in-Tariff.

Recently the Charge has been decreased from 0.0271 to 0.005HRK/kWh. The decrease was due to the fact that investments into RES were not at the planned rate. Therefore, money for incentives was collected but there were only few investors that could use such incentives.

WHO GETS THE BENEFIT?

Producers of energy from renewable sources and co-generation may acquire eligible producer status and as such will receive the Feed-in-Tariff for the delivered energy. The amount of the Feed-in-Tariff is guaranteed for the period of 12 years. This term commences after the producer has obtained eligible producer status and executed relevant agreements with HROTE. The Feed-in-Tariff is harmonised once a year with the CPI for the previous year (CPI for 2009 is 105.8 and this has to be accepted by the Croatian Regulatory Agency). For a plant with over 1MW of installed capacity, depending on the type of RES it is using, the Feed-in-Tariff in 2009 shall amount to:

Type of RES:	Feed-in-Tariff for plants of ≤ 1MW of installed capacity	Feed-in-Tariff for plants of > 1MW of installed capacity
solar	HRK 2.2862–3.7015/kWh (Eurocent 31.32–50.71/kWh)	
hydro	HRK 0.7512/kWh (Eurocent 10.29/kWh)	HRK 0.4573–0.7512/kWh (Eurocent 6.26–10.29/kWh)
wind	HRK 0.6967/kWh (Eurocent 9.54/kWh)	HRK 0.7076/kWh (Eurocent 9.70/kWh)
geothermal	HRK 1.3718/kWh (Eurocent 18.80/kWh)	HRK 1.3718/kWh (Eurocent 18.80/kWh)
biomass	HRK 1.0342–1.3064/kWh (Eurocent 14.17–17.90/kWh)	HRK 0.9036–1.1322/kWh (Eurocent 12.39–15.51/kWh)
biogas	HRK 1.3064/kWh (Eurocent 17.90/kWh)	HRK 1.1322/kWh (Eurocent 15.51/kWh)
biofuel, landfill gas, gas from wastewater purifying plants	HRK 0.3919/kWh (Eurocent 5.37/kWh)	HRK 0.3913/kWh (Eurocent 5.37/kWh)
others (sea waves, tidal power, etc.)	HRK 0.60/kWh (Eurocent 8.22/kWh)	HRK 0.5443/kWh (Eurocent 7.47/kWh)

Mechanism 2 – Heat

Generally, generation of heat from RES has the same status as production of electricity from RES. However, the system of Feed-in-Tariffs shall not apply to the producers of heat from RES and co-generation until secondary legislation is adopted.

Today mechanisms are still missing for collecting the incentives from consumers as are the rules for acquiring the status of eligible producers of heat energy from RES and/or co-generation. The Ministry of the Economy, Labour and Entrepreneurship has been provided with funding and is currently in the process of drafting these by-laws. According to our information, these by-laws should be adopted in first quarter of 2010.

Mechanism 3 – Biofuel

The Act on Biofuels for transport has entered into force in May 2009. It envisages Feed-in-Tariffs for generators who produce, sell and deliver biofuels within the Croatian territory.

In order to benefit from the Feed-in-Tariff, the generators have to wait until all required by-laws are put in place, namely by May 2010.

Mechanism 4 – Investment Aid and PPP

The Croatian investment promotion regime aims to support investments in specific and innovative industries, including renewable energy projects. The Croatian Trade and Investment Promotion Agency may provide help to investors seeking investment aid from the Ministry of Economy, Labour and Entrepreneurship. There is a variety of mechanisms envisaged to support the eligible investments, such as tax deductions, customs exemptions and other means of financial support.

Croatia has recently adopted the necessary legal framework for Public-Private Partnership (PPP). However, due to lack of practice in this area, these projects may be burdensome and time consuming.

Czech Republic

Background

The Czech Republic has committed itself to produce 8% of the total gross national electricity consumption from renewable energy resources in 2010. An indicative target of 13% by 2020 is proposed for the Czech Republic. The share of electricity generation from renewable sources currently provided was 5.19% (as of 31 December 2008).

Mechanism 1 – the Act on Promotion of Use of Renewable Sources

Act No. 180/2005 Coll., on Promotion of Use of Renewable Sources (the "Act") and the implementing legislation to the Act support the following renewable energy sources utilised in the Czech Republic: wind energy (except for wind power plants located over an area of 1km^2 with a total installed capacity exceeding 20MW); solar energy; geothermal energy; water energy; soil energy; wind energy; biomass energy; landfill gas energy; energy of sewage treatment plant gas; and energy of biogases.

Bearing in mind the protection of the environment and issues surrounding climate change, the main purpose of the Act is to:

(i) promote the use of renewable energy sources;

(ii) ensure a constant increase in the consumption of renewable sources as a primary energy source; and

(iii) create conditions to ensure that 8% of the Czech Republic's electricity is produced from renewable sources by 2010 and that this share increases after 2010.

The way in which electricity produced from renewable sources is promoted varies depending on the type of renewable source and the capacity of the production plant.

The Act provides two key measures: (i) renewable electricity producers will have a right of preferential connection to national transmission and regional distribution systems (the "Grid"); and (ii) renewable electricity producers can choose between two promotion pricing schemes.

Access to the Grid

The Grid operator is obliged, within the area stipulated in its licence, to preferentially connect a renewable electricity plant to the Grid for the purpose of transmitting or distributing electricity from renewable sources, provided that the producer requests connection and that the technical conditions for connection and electricity transport are satisfied. There are three distribution system operators (CEZ Distribuce, a.s., E.ON Distribuce, a.s., and PREdistribuce, a.s.) and one transmission system operator (CEPS a.s.) in the Czech Republic.

Promotion Pricing Schemes

The Act introduced two alternative promotion pricing schemes: Feed-in Tariffs and Green Bonuses which are the economic instruments supporting the development of renewable power plants.

Renewable electricity producers can choose between two promotion pricing schemes: (i) to offer electricity from renewable sources for purchase by the relevant Grid operator who is obliged to buy all the produced electricity

at set minimal prices and conditions (the "Feed-in Tariff"); or (ii) to sell electricity from renewable sources on the electricity market, in which case they will be entitled to a 'green bonus' (a fixed amount paid on top of the market price) from the relevant Grid operator (the "Green Bonus").

The Energy Regulatory Office will determine the Feed-in Tariff and the Green Bonus for the subsequent calendar year in its annual Price Decision issued by the end of November of the previous year. The amount available under the appropriate pricing scheme will depend upon the calendar year in which the plant was put into operation; thus the year of commissioning is crucial for renewable energy projects (commissioning means the day on which the producer started, in accordance with the decision on the award of a licence for the generation of electricity, to produce electricity and supply it to the Grid with the support of one of the pricing schemes).

The Feed-in Tariffs are computed to ensure a 15-year return on the investment into the renewable power plant, on the condition that certain technical and economic parameters are complied with: the costs of an installed unit of capacity, efficient use, the period of use of primary energy contents in the renewable source, and further information which can be found in the appropriate implementing regulation. At the same time, the Feed-in Tariff must not decrease by more than 5% year on year. Parliament is currently discussing a bill which would allow for a more significant decrease of the Feed-in Tariff. If the new law is enacted, it is expected the new regime shall apply for the 2011 Feed-in Tariff.

Producers must choose between the entitlement to the Feed-in Tariff or the Green Bonus. They are not entitled to both. However, the producer may switch between the Feed-in Tariff and the Green Bonuses once a year with effect as of 1 January of the following year. The request for the change must be delivered to the Grid operator in a prescribed form no later than on 30 November of the year preceding the year the change should take effect.

Mechanism 2 – Tax Incentives

The income from generation of electricity from renewable energy sources in the first calendar year of their operation and in the five years immediately following is tax-exempt. Please note that the definition of "renewable energy source" is slightly different in this case; for the purposes of the tax incentives these are small hydro-electric power plants with an output of up to 1MW, wind-powered electricity generating stations, heating pumps, solar-powered facilities, plants for biogas and wood-gas production and exploitation of energy generated therefrom, plants for other methods of generating electricity or heat from organic matter, facilities producing bio-degradable substances and facilities utilising geothermal energy. It means that some renewable energy sources (e.g. soil energy plants) are not included.

There are also specific real estate tax exemptions for renewable energy sources. Unfortunately, the law operates with the term "structures used exclusively for the purposes of improving the environment" which is again different to both definitions used in income tax legislation and in the Act. In principle, small hydro-electric power plants with an output of up to 1MW, wind-powered electricity generating stations, biogas plants, biomass plants, facilities utilising geothermal energy and solar power plants would qualify for the exemption.

Furthermore, renewable energy sources are exempted from so-called "energy tax". In principle, those renewable energy plants mentioned in the real estate tax exemptions would also qualify, with the exception that there is no power limit to the output of hydro-electric power plants.

Mechanism 3 – Subsidies

ECO-ENERGY

Eco-energy is part of the European Union Operational Programme for Business and Innovation 2007-2013, which supports seven areas of business process. Eco-energy covers the efficient use of energy: it is aimed primarily at small and medium enterprises and households which seek to reduce their use of primary resources by focusing on renewable and/or secondary resources. The programme is administrated by CzechInvest, the Investment and Business Development Agency. Possible eligible expenditures include purchases of land, building of facilities, engineering works and building documentation costs. Eligible projects are always set out in so-called "calls". The last call supported water, biomass and secondary sources of energy, while expressly disqualified photovoltaic, wind and geothermal power plants. The new call will be announced on 1 February 2010 and funds of up to EUR 3 billion should be available.

GREEN INVESTMENT SCHEME PROGRAMME

The objective of the programme of saving of energy and renewable energy sources on the revenues from sale of emission credits — Green Investment Scheme programme (GIS programme) is to support selected measures implemented in residential buildings by individuals and other entities owning residential buildings, e.g., support for new family houses which satisfy the requirements of passive energy standards and apartment buildings; insulation of their shell; replacement of coal, lignite, fuel-oil boilers and electricity heating by low-emission biomass boilers or heat pumps. The programme is administered by the State Environmental Fund and the funds of up to EUR 1 billion can be drawn from 1 April 2009 until 31 December 2012.

OTHER SUBSIDIES

Depending on the nature of renewable energy production, producers might be entitled to other subsidies. These are the programmes that focus, for example, on energy crops, biomass and biogas power plants or small-scale solar energy projects, and are primarily administered by the Ministry of the Environment.

France

Background

Pursuant to the European Directive on the promotion of electricity produced from renewable energy sources, the share of electricity produced from renewable energy sources should represent 21% of electricity consumption by 2010.

In addition, the Grenelle II bill, which was adopted by the *Senat* in October 2009 (and that will be in discussion in front of the *Assemblée Nationale* at the beginning of the year), has introduced an objective of 25.000MW of electricity produced from wind energy by 2020.

France has centred its renewable energy sources approach on feed-in tariffs on the one hand and a tendering procedure on the other.

Mechanism 1 – Renewable Energy Areas

In order to aggregate wind farms and to avoid their dispersion, the creation of wind power development areas was decided in 2005 (Article 37 of Law No. 2005-781 of 13 July 2005). This new legal framework enables wind farms to benefit from the power purchase obligation for projects located in areas set up by local authorities. Municipalities submit a request for permission to create wind power development areas (*Zones de développement éolien*) to the department concerned, *Préfet* (local State authority), who then consult neighbouring municipalities prior to any decision. Their decision is subject to three conditions: wind potential, grid connection possibilities and landscape protection (listing buildings and protected locations).

Five local State authorities were also asked by the ministry in charge of energy to prepare a planning document concerning offshore wind farms before April 2010. In addition, the Grenelle II bill would like to simplify the offshore wind farms implementation (neither building permit nor wind power development area will be required).

Last, the Grenelle 1 law dated 3 August 2009 creates Regional renewable energy plans.

Mechanism 2 – Power Purchase Obligation and Feed-in Tariffs

The power purchase obligation is the main incentive element of the French Government's energy policy. *Electricité de France* and Non-Nationalised Distributors (Article 23 of Law No. 46-628 of 8 April 1946) are bound to buy the energy produced from renewable energy sources at a fixed price, provided that production installations are connected to power grids and that the producers fulfil conditions.

Power production is limited to 12MW per site (Decree No. 2000-1196 of 6 December 2000, modified on 4 September 2007; and Decree No. 2001-410 dated 10 May 2001, modified on 4 March 2009), except for wind energy. In the latter case wind farms located in wind power development areas may not exceed or be lower than installed power defined by the local authorities.

Feed-in tariffs apply to renewable energy sources, and are calculated to improve private investments. Thus, total prices are equivalent to normal remuneration of funds invested by the producer. Furthermore each producer is assured that what is produced will be sold at a fixed price.

Feed-in tariffs are defined by a statutory order from the Minister of Economy, Industry and Employment for each technology.

Currently, tariffs have been introduced for wind energy (orders of 17 November 2008 and 23 December 2008), small hydro, photovoltaic energy (order of 12 January 2010), biomass and biogas (order of 28 December 2009), and electricity from Combined Heat and Power (CHP) and waste incineration.

Mechanism 3 – Tax incentives

The French government also introduced tax incentive measures in favour of renewable energy, such as:

— tax credits of 50%;

— reduction of 5.5% VAT for residential energy equipment using renewable energy sources; and

— subsidies of up to 40% granted for biomass heating plants.

Mechanism 4 – Pluriannual Investment Programme

The minister in charge of energy policy will forecast every two years, electricity generation capacity requirements, called "Pluriannual Investment Programme" (PPI), in order to ensure the electricity supply and demand is met. This document takes into account the national target for Renewable Energy Sources determined by the European Directive.

The PPI's main target is to identify the best investments for electricity production, by considering energy supply security.

PPI lays down objectives for the development of production means in France for each energy source and production method.

The order dated 15 December 2009 set objectives concerning renewable energy until 2020.

Mechanism 5 – Call for tender

The French Government may also invite parties to bid, which should then be organised by the Regulator (Energy Regulation Commission – CRE). This system has existed since 2000 and allows the Minister in charge of energy policy to take appropriate action where the PPI's goals have not been achieved.

Many invitations to tender have already been made since 2003 as regards different energy sources (biomass, biogas, onshore and offshore wind turbines).

Mechanism 6 – National round tables (e.g. *Grenelle de l'Environnement*)

In October 2007, France's Environment Round Table was organised by the Minister of Ecology, Sustainable Planning and Development. For the first time, the Round Table brought all the civil and public service representatives to the table, creating five colleges: State, unions, employers, non-governmental organisations (NGOs) and local authorities.

Different objectives have been laid down during the *Grenelle Environnement*, such as:

— consumption of 30–50% renewable energy in the French overseas departments and territories by 2020;

— research into second-generation bio fuels;

— research and development (R&D) program relating to the geological capture and storage of CO_2;

— plan for energy-efficient and low-input farming;

— carbon balance assessments of all administrative departments and a 20% improvement in energy efficiency;

— compulsory inclusion of environmental clauses in the French public procurement code; and

— study on the introduction of an energy climate tax.

On 23 July 2008, a recovery plan has been introduced by the Ministry of Energy as regards hydro-power.

Finally, a general plan for renewable energies was presented on 17 November 2008.

A first law was adopted on 3 August 2009 and a second law (Grenelle II) will be discussed at the beginning of the year in front of the Parliament (*Assemblée Nationale*).

Germany

Mechanism 1 – Renewable Energy Sources Act (*Erneuerbare-Energien-Gesetz* – EEG)

The backbone of the German renewable energy support mechanism is the Renewable Energy Sources Act (*Erneuerbare-Energien-Gesetz* or EEG), which was amended with effect as of 1 January 2009.

The EEG supports the production of electricity from wind and water power, solar radiation, biomass and sewage gas combustion, as well as geothermic energy. The EEG guarantees each plant operator a fixed tariff for electricity generated from these renewable energy sources. The tariff depends (among other things) on the type and capacity of the installation and the year of its commissioning.

Guaranteed tariff

The locally responsible transmission system operator is under a legal obligation to pay to the plant operator the guaranteed tariff for a period of, in general, 20 calendar years (and for the year the plant was put into operation). The fee depends on the tariff that is applicable in the year of commissioning and, in most cases, remains fixed during the 20 years that follow commissioning. The later a plant is put into operation the lower the fee that is paid to the operator (so-called "degression").

The EEG differentiates between different sources of renewable energy. Different tariffs and degression rates apply to each renewable energy source. The EEG of 2009 provides for the following tariffs and yearly degression rates:

photovoltaic energy:	31.94–43.01 Eurocent/kWh	7–11%
biomass energy:	7.79–11.67 Eurocent/kWh	1%
geothermy:	10.50–20.00 Eurocent/kWh	1%
landfill gas:	4.16–11.00 Eurocent/kWh	1.5%
offshore wind energy:	3.50–15.00 Eurocent/kWh	5% (starting in 2015)
onshore wind energy:	5.02–9.70 Eurocent/kWh	1%
water energy:	3.50–12.67 Eurocent/kWh	1%

The remuneration for electricity generated by offshore wind energy turbines amounts to Eurocent 13/kWh (plus Eurocent 2/kWh if the plants are commissioned no later than 31 December 2015) and is paid for a period of 12 years starting from the date of commissioning. This period may be extended by 0.5 months for each full nautical mile beyond 12 nautical miles seawards and by 1.7 months for each full metre of water depth exceeding 20 metres in order to further incentivise the erection of wind farms far offshore and in deep waters.

Grid connection

According to Sections 5, 8 and 16 EEG, a transmission system operator who is located closest to a renewable energy plant is obliged to connect the plant to the system, purchase all electricity produced by the plant and pay the guaranteed tariff. The plant operator generally bears the costs related to the connection and has to pay, as the case may be, an annual fee for the operation of the connection facilities to the grid system operator.

Due to the high costs of connecting an offshore wind farm to the grid, an exception applies to such wind farms. According to Section 17 para. 2a of the German Energy Industry Act (*Energiewirtschaftsgesetz* or EnWG), the responsible transmission system operator is obliged to build and operate the cable from the transformer station of the offshore wind farm to the technically and economically best connection point of the next transmission or distribution grid. As a consequence, the grid connection regime for offshore wind farms differs significantly from the regime for onshore wind farms and other renewable energy plants.

Mechanism 2 – Renewable Energy Heat Act (*Erneuerbare-Energien-Wärmegesetz* – EEWärmeG)

In addition to the EEG, the German government has passed a bill for the Renewable Energy Heat Act (*Erneuerbare-Energien-Wärmegesetz* or EEWärmeG) which came into force on 1 January 2009.

The EEWärmeG supports the expansion of renewable energy in heat production with the target of 14% of its total production of heat, hot water, cooling, and process heat from renewable energy, such as solar radiation, biomass, geothermic energy or waste heat, by 2020.

First, the EEWärmeG introduces a general obligation on all owners of new buildings to cover a certain amount of their heat energy demand from renewable energy sources. Alternatively, it allows owners to take other measures to decrease their energy consumption, e.g. the installation of highly effective insulation. The federal States are entitled to extend these obligations to existing buildings.

Secondly, the Federal Government provides financial aid for the use of renewable energy sources technology. According to the EEWärmeG, the Federal Government will allocate up to Euro 500 mio. annually for the support of renewable energy sources in heat production.

Finally, the EEWärmeG facilitates the development of district heating networks. Pursuant to the Act, local authorities are entitled to impose an obligation to use district heating in order to protect the climate and natural resources.

Mechanism 3: Combine d Heat and Power Act (*Kraft-Wärme-Kopplungsgesetz* – KWKG)

The KWKG guarantees each combined heat and power plant operator a fixed tariff for the produced electricity. The tariff depends (among other things) on the type and capacity of the installation and the year of its commissioning. Thereby, the development of new technologies and smaller plants shall be promoted.

Under the KWKG, just like under the EEG, a locally responsible transmission system operator is obliged to connect the plant to the system, purchase all electricity produced by the combined heat and power plant, and pay the guaranteed tariff. The fees are usually guaranteed for a period of 30,000 hours of operation at full power. A combination with the fees of the EEG is not possible.

Furthermore, the Federal Government provides financial aid for the development and installation of combined heat and power plants in new built or energetic renovated private and public buildings.

Hungary

Background

Enhanced utilisation of renewable energy sources is one of the chief concerns of the governmental energy policy, as stated in the government energy strategy and adjoining action paper. At present, electricity generated from renewable sources amount to approximately 5% of total consumption, which already exceeds the 3.6% commitment made towards the EU to be fulfilled by 2010 pursuant to the EU Directive on the promotion of electricity produced from renewable energy sources and the Accession Treaty of Hungary. The long-term goal of Hungary is to achieve a 13% share of renewable energy sources in the final energy demand by 2020.

A completely new electricity regulation entered into force in Hungary on 1 January 2008, which further liberalised the electricity sector and set forth a novel regime for supporting renewable electricity generation.

Mechanism 1 – Mandatory off-take and regulated feed-in tariffs

The new electricity regulation further enhanced the regime of mandatory off-take to support investment in the field of renewable electricity generation. Pursuant to the regime, substantial part of the electricity generated from renewable sources must be taken off by the Hungarian State-owned Transmission System Operator (TSO) (Mavir) at regulated prices, which, whilst being calculable, are generally also more favourable than market-determined prices. Traders, including universal service providers, power generating companies and electricity importers, must purchase from the TSO electricity generated from renewable energy sources according to a fixed percentage of their total electricity turnover/consumption. The off-take prices are defined according to the type of renewable source, whether the licence entitling for selling electricity under the mandatory off-take regime was issued before or after the effective date of the new regulation and the time of generation (i.e. peak, off-peak and deep valley periods). The off-take prices are amended each year in accordance with the Consumer Price Index as measured by the Hungarian Statistical Office. The renewable sources currently subject to the regime are wind, solar and geothermal energy, electricity generated by cogeneration or from biomass or biogas, and water energy, although severe restrictions may apply depending on the used source and the size of the plant.

Even though off-take prices are stipulated by law, the actual entitlement for a plant to sell electricity in the mandatory off-take regime is awarded by the Hungarian Energy Office (HEO), a body supervised by the Minister of Transport, Telecommunication and Energy. In such licence the HEO defines the annual amount of the electricity subject to mandatory off-take and the time period under which it is subject to mandatory off-take. Pursuant to the applicable law, the HEO mainly takes into account the business plan of the generator and the return on investment, therefore, any other subsidy (state or EU founds, surplus of emissions allowances generated by the project, if relevant) must be notified to the HEO, which shall adjust the amount and timeframe accordingly. Entitlement for participation in the mandatory off-take regime in the case of newly established wind energy projects is somewhat different (see below).

The regime of mandatory off-take is not carved into stone. Under the Electricity Act the Government is entitled to implement a so-called "green and cogenerated certificate system" in the future instead of the current mandatory off-take regime. Under the green certificate system, renewable electricity would be sold at market prices, but in order to finance the additional costs of renewables and to ensure that the desired amount is indeed generated, all consumers (or producers) would be obliged to purchase a certain number of green certificates according to their overall consumption (production). Thus, these would be more market-based instruments. However, no green certificate system has been introduced so far.

WIND ENERGY

According to unconfirmed expert opinions and industry experts, Hungary has a potential of over 1,000MW of wind energy, nevertheless only about 330MW have been licensed so far by the HEO, most of which is already operational or in the advanced phase of development. The already licensed wind farms are fully participating in the mandatory off-take regime.

At present, an open tender procedure is going on to grant entitlements to establish further wind energy projects, with an aggregate foreseen capacity of approximately 410MW. However, the tender procedure is designed in a bid-to-the-bottom manner, i.e. the less the applicant requires from the mandatory off-take the higher the chances are to win.

BIOMASS, GEOTHERMAL AND SOLAR ENERGY

Hungary has a great potential both for biomass and geothermal energy, although these sources are not exploited to the utmost possible level.

The energy produced from biomass plants represents the largest share of electricity produced from renewable energy sources. Biomass power plants may be subject to the mandatory off-take regime, provided they meet certain efficiency requirements.

Geothermal energy is unfortunately little used so far, although Hungary is rich in easily accessible thermal waters. However, an increasing number of small or medium scale heat-pump projects are implemented year-by-year, mostly for district heating purposes and supplying public buildings.

Utilisation of solar energy is yet immature in Hungary, and no big-scale solar farm project has been implemented to-date. However, household/small-scale use of solar panels is on the rise due to governmental support for energy efficiency investments of households and public buildings. Within the mandatory off-take regime the feed-in tariffs of solar electricity are not higher than those of the wind generated electricity.

Mechanism 2 – State subsidies and EU funds

EU funds and governmental sources are available for the implementation of small and big-scale renewable projects through the Operative Programme for Environment and Energy (2007–2013), managed by the National Development Agency.

In compliance with its obligations, Hungary has also implemented Directives 87/2003 and 101/2004 on EU emission trading. Pursuant to these Directives, Joint Implementation (JI) of renewable energy projects is possible under the Hungarian legal framework, and some projects have already taken advantage of emission reduction within the JI framework.

Italy

Mechanism 1 – The Green Certificates (GCs)

WHY HAS IT BEEN INTRODUCED?

The EU directive 77/2001 on the promotion of electricity produced from renewable energy sources (RES) has set the target for Italy to generate 22% of electricity from renewable sources by 2010.

WHAT IS IT?

In order to encourage the development of renewable energy, electricity suppliers and electricity importers shall supply or import a percentage equal to 2% (increased every year by 0.35%) of the supplied or imported energy that is to be produced from renewable energy sources. Each Green Certificate proves that as much as 1MWh has been produced from a renewable source. The Green Certificate shall then be bought by the *Gestore Servizi Elettrici* (GSE), a State company set up for the purpose of providing incentives to suppliers producing renewable energy.

HOW DOES IT WORK?

Until 31 December 2007 every plant producing renewable energy was entitled to a GC for every MWh produced for as long as eight years. Due to the unsatisfactory results achieved, from 1 January 2008 suppliers of renewable energy will be granted GCs for as many as 15 years. The GCs shall then be sold to the GSE, which will buy them back at a price set every year by the GSE itself according to the relevant government guidelines (in 2007 it was equal to EUR 13,749/MWh).

Mechanism 2 – The Energy Account

WHY HAS IT BEEN INTRODUCED?

An alternative way of providing incentives is also available to producers of photovoltaic renewable energy only. The reason for these peculiar rules applying to photovoltaic energy is, of course, the geographic position of Italy, which makes this particular legislation appropriate.

HAT IS IT?

Originally introduced in 2005, the so-called "Energy Account" has been significantly amended every year until 2007. Decree 283/2003 and the relevant implementing rules provide for a mechanism through which the producers of a photovoltaic plant can rely on two different and cumulative incentives. First, the energy produced from a photovoltaic plant can be sold to the GSE and to third parties (i.e. electricity grid local administrators). Additionally, the GSE pays to the producers of photovoltaic electricity a price called "Incentive Fare" (*Tariffa Incentivante*) for as many as 20 years. It has been calculated that the average price for building a photovoltaic plant is likely to be paid off by the combined effect of energy sold and the Incentive Fare in as long as ten years in the North regions and in seven years in the South.

The Incentive Fare, which adds to the revenue from the electricity sold, is granted for a period of 20 years. Under this Incentive Fare scheme:

— applications must be filed after commissioning of the plant;

— the national maximum power which may be supported is 1,200MW;

— the Incentive Fare increases with the level of architectural integration into buildings and with efficient energy use.

Photovoltaic plants commissioned from 1 January 2009 benefit from new Incentive Fare rates (EUR/kWh) varying on the basis of the type of the plant (integrated to an existing premise; partially integrated; non-integrated) and depending on the kW produced.

Are there any limitations?

According to the current legislation, the incentives shall no longer be available when the overall national production of photovoltaic energy has reached 1,200MW. However those who have been granted the Incentive Fare before such threshold is reached will continue to benefit from it for 20 years from the day it was granted.

Mechanism 3 – Simplified purchase arrangements with small RES operators

WHY HAS IT BEEN INTRODUCED?
The GSE offers simplified purchase arrangements with small RES operators and net metering. Under the simplified arrangements, producers may sell electricity injected into the grid to the GSE as an alternative to bilateral contracts or direct trading in the power exchange (*Borsa Elettrica*).

The electricity price that GSE pays to producers is set every hour in the power exchange, in the market zones where their plants are located.

WHAT IS IT?
The following plants are eligible for the simplified arrangements:

— plants with a nominal apparent power of less than 10MVA: RES plants or hybrid plants for the portion of electricity generated from renewable sources;

— plants of any power using the following renewable sources: wind, solar, geothermal, waves, tides, hydro (run-of-river only);

— plants with a nominal apparent power of less than 10MVA: non-RES plants or hybrid plants for the portion of electricity generated from non-renewable sources;

— plants having a nominal apparent power greater than or equal to 10MVA: plants using renewable sources other than wind, solar, geothermal, waves, tides and hydro (run-of-river only), provided that they are owned by self-producers.

Mechanism 4 – Net metering (*scambio sul posto*)

WHY HAS IT BEEN INTRODUCED?
The net metering scheme has been recently introduced under Italian law and its new regulation applies since 1 January 2009. Under the net metering scheme, producers/

users may inject into the grid electricity generated but not consumed immediately and then withdraw it from the grid to cover their consumption.

WHAT IS IT?

Producers/users receive an economic contribution from the GSE that adds to the value (at market prices) of electricity fed into the grid.

Generally, the net metering scheme is more profitable for producers/users if the yearly value of electricity injected into the grid is equal to or higher than the energy charges incurred for electricity withdrawn from the grid. Moreover, for all electricity traded under the scheme, the GSE will refund all charges incurred for using the grid to producers/users.

ARE THERE ANY LIMITATIONS?

The net metering scheme applies from 1 January 2009 to those applicants who have at their disposal plants producing from 20kW up to 200kW of energy from renewable sources.

The Netherlands

Background

The Dutch government aims to ensure that the Netherlands becomes one of the cleanest and most energy-efficient countries in Europe. These ambitions are set out in the Clean and Efficient programme of September 2007 and subsequent Dutch energy policy was set out in the Energy report 2008. The targets are: to increase the share of renewable energy up to 20% by 2020, to reduce greenhouse gas emission by 30% compared to 1990 levels, and to achieve a rate of energy efficiency improvement of 2% per year.

Mechanism 1 – Incentive scheme for sustainable energy production (*Stimulering Duurzame Energieproductie* or SDE)

The SDE scheme provides grants to investors for projects involving renewable electricity, renewable (green) gas and combined heat and power. SDE is a feed-in premium subsidy scheme and is not an investment subsidy. Applications for the SDE subsidy can be submitted by companies, organisations and private citizens. This subsidy scheme provides for a closed system in which a maximum budget is set each year for the issuing of new grants. The subsidy-eligible categories will be decided on each year. These categories are selected on the basis of three criteria: cost effectiveness, future prospects and innovative capacity. The SDE subsidy will be provided to the relevant generator for a maximum period of ten years. The level of the subsidy and the duration of support will vary with each technology. In addition, the subsidy will vary with the wholesale price of electricity.

The subsidy-eligible categories for 2009 and 2010 are: land-based-wind power, small-scale solar photo-voltaic installations, biogas production, waste incineration, small-scale biomass and hydropower.

In addition, on 24 November 2009 the SDE conditions for offshore wind for 2010 were published. The SDE subsidy for offshore wind will be assigned via a tender procedure. Parties in possession of a permit for an offshore wind energy project may apply for the SDE subsidy in the period from 4 January until 1 March 2010.

Mechanism 2 – Tax deduction for investments in energy-saving equipment and renewable energy (EIA)

As of 1997 the Energy Investment Allowance tax relief programme (EIA) gives a direct financial advantage to Dutch companies that invest in energy efficient equipment and renewable energy sources. In 2009 companies could deduct 44% of the annual investment costs for energy-saving equipment, such as purchase costs and production costs, from their fiscal profit up to a maximum of EUR 113 million per year. An 'Energy List' determines which type of equipment qualifies for this programme. The total budget for 2009 was EUR 145 million and for 2010 there will be EUR 150 million available.

Mechanism 3 – Heat

Almost a third of Dutch energy consumption involves heat. The majority involves low temperature heat which can be supplied by renewable sources, like environmental heat or geothermal heat, and residual heat. Private house owners can receive a subsidy on the purchase of thermal heating systems or heat pumps.

On 10 February 2009 the Dutch Senate passed the Heat Act (the "Act"). This Act regulates the supply of heat to private and business customers with a connection smaller or equal to 1,000kW. The Act

introduces price regulation and a licensing system. The Act has not yet entered into force.

Pursuant to the Act heat suppliers can apply for a subsidy to stimulate an efficient heat supply. The terms and conditions for this subsidy shall be included in a governmental decree. It is expected that the subsidy will resemble, or be incorporated into, the SDE. At this moment the decree has not yet been published.

Mechanism 4 – Emissions Trading

In 2008 the second phase of the EU Emission Trading Scheme started. The second National Allocation Plan covers the period 2008–2012. The Netherlands has a reduction target of 6% compared to the reference level of 1990.

In November 2008 the second National Allocation Decision Greenhouse Gas Emission Allowance 2008–2012 was published. This decision contains the total quantity of allowances that is allocated, the allocations of allowances to individual installations and the part that is issued annually.

Mechanism 5 – Priority access to the grid

Due to the development of wind energy, the construction of new power plants and the growth in decentralised power generation the demand for transmission capacity is increasing. The increase in demand requires grid expansion and additional transmission capacity. Pursuant to a new legislative proposal grid operators must give priority access to renewable energy in case of a shortage of transmission capacity. At present it is not yet clear who shall bear the costs for the congestion management system.

Mechanism 6 – Crisis measures

In response to the economic crisis the Council of Ministers last year introduced the Crisis and Recovery Bill to accelerate administrative proceedings and decision making for projects regarding sustainability, energy and innovation. The Crisis and Recovery Bill aims to accelerate and simplify the necessary procedures for wind farms projects, heat & cold projects and energy-saving modifications in houses. Originally it was aimed that the Bill would enter into force as of 1 January 2010. However, due to a delay in the Senate the effective date of the Bill is postponed.

Poland

Background

The Polish Energy Law implemented the RES Directive on 1 October 2005, which introduced certain mechanisms supporting renewable energy generators.

Mechanism 1 – Obligation to purchase renewable energy

Suppliers of last resort (LRS, i.e. companies delivering electricity to household customers who do not exercise their third-party access rights) are obliged to purchase all electricity offered to them and generated from renewable energy sources and supplied to the electricity grid within the area of operation of the relevant LRS. The purchase is affected at the statutory price equal to the average price of electricity prevailing in Poland in the preceding calendar year, announced annually by the Regulator (the purchase price in 2009 was PLN 155.44/MWh, approx. EUR 38/MWh).

All entities trading in heat are obliged to purchase thermal energy offered to them and generated from a renewable source located in Poland up to a maximum volume corresponding to the total demand of the relevant entity's customers who are connected to same heat transmission system as the renewable energy source in question.

Mechanism 2 – Certificates of origin

The Polish Energy Law also obliges all suppliers of electricity to end customers to annually redeem documents certifying generation of electricity from a renewable source (so-called "green certificates") in respect of the volume of electricity representing a prescribed portion of the aggregate annual sales to the end customers of the relevant supplier. The volumes of electricity to be covered by green certificates in each calendar year are set out in secondary legislation to the Energy Law. Redemption of green certificates also exempts suppliers of electricity to end customers from the excise tax in relation to the volume of electricity covered by the redeemed certificates (PLN 20/MWh, approx. EUR 5).

According to the Ordinance on obligation to purchase electric energy from unconventional and renewable sources dated 14 August 2008, the volume of electricity to be covered by green certificates will increase from 7% of the aggregate volume of electricity sold by the relevant supplier to its end customers in 2008, 8.7% in 2009, 10.4% in 2010–2012 to 12.9% of such volume in 2017. Suppliers may also meet their obligation by paying a "substitution fee" for the volume of electricity not covered by green certificates (PLN 240/MWh, approx. EUR 59/MWh, indexed by Polish inflation annually from 2008; for 2009 the substitution fee amounts to PLN 258.89/MWh, approx. EUR 64). However, payment of the substitution fee does not exempt suppliers of electricity to end customers from the excise tax in relation to the volume of electricity covered by that payment.

Consequently, the legislation (indirectly) sets the maximum price (cap) of green certificates (substitution fee + excise tax). No minimum price is guaranteed by the law. For as long as the LRS are required to apply regulated tariffs, pricing of green certificates is also influenced by the Regulator, who determines the maximum price acceptable as a "justified cost" in tariffs of LRS – such price amounted to PLN 247 per certificate in 2009 tariffs.

Mechanism 3 – Connection to the grid

Electricity grid operators have a statutory obligation to connect all applicants to their grids, subject to such connection being economically and technically viable. The fee charged for such interconnection is normally determined on the basis of the actual interconnection cost. However, in case of renewable energy sources, the fee amounts to half of such cost. From 1 January 2011 this "discount" will be applicable only to installed electric capacity below 5MW.

Mechanism 4 – Excise exemption

Electricity generated from renewable sources is exempt from excise tax (the general rule is that in Poland excise is payable by those selling energy to end customers).

Other renewable energy support mechanisms:

— Within the area of its operations, an electricity grid operator is obliged to give priority to transmission of energy produced from renewable sources, subject only to maintaining the reliability and security of the national power system.

— Entities generating electric energy from renewable sources with a total capacity not exceeding 5MW are exempt from:
(i) fees relating to entries in the register of certificates of origin;
(ii) stamp duty for the issuance of certificates of origin;
(iii) stamp duty for the issuance of a licence to generate electric energy from the relevant source.

— Operators of renewable energy sources with a total capacity not exceeding 5MW are exempt from the otherwise applicable annual licence fees.

— Costs of co-financing investments related to the development of renewable energy sources are defined by the law as a category of "justified costs" subject to pass through in gaseous fuels, electricity and heat tariffs.

— Electricity generated from wind powered sources is subject to specific balancing principles (balancing on hourly rather than daily basis).

— Operators of renewable energy sources, who have developed such sources on their own agricultural land, may deduct 25% of the incurred investment costs from their agricultural property tax.

Mechanism 5 – Additional financing sources

Development of renewable energy sources may be funded on favourable terms using preferential loans and grants from institutions such as the National Fund for Environmental Protection and Water Management, Ekofund, Bank Ochrony Środowiska (Environment Protection Bank), Krajowy System Zielonych Inwestycji (National System of Green Investments) and from European Union dedicated funds.

Romania

Mechanism 1 – Qualification for priority dispatch

Under Law 13/2007 (the "Energy Law") and Law 220/2008 (the "Law on promotion of renewables"), the dispatch of electricity produced from renewable sources has priority, as long as the safe operation of the electricity network is not endangered. A renewable energy facility may qualify for priority after submitting a written application to the National Energy Regulatory Authority (ANRE).

A qualification certificate is usually issued annually, covering the facility's entire renewable energy production and giving the generator certain preferential rights such as: for any renewable energy not sold under power purchase agreements freely negotiated between the parties, to make offers for trading on the Day Ahead Market (DAM) operated by the Operator of the Romanian Energy Market (OPCOM) and; to benefit from special promotion systems for renewable energy (e.g. accelerated depreciation of investments in renewable energy sources).

Mechanism 2 – Compulsory quotas and green certificates

Romania has been using a combined compulsory quota with the trading of green certificates as its main support mechanism. This has recently been amended and completed to extend its term and increase the number of green certificates for certain renewable resources, as well as the minimum and maximum prices and the annual quotas.

A new law promoting renewable energy was passed in the last quarter of 2008. The Law on promotion of renewables introduces the concept of technology banding, requires transmission and distribution operators to guarantee transportation and distribution of renewable energy, exercise non-discriminatory transport and distribution tariffs and provides for incentives for developing renewable energy projects.

According to the Romanian support mechanism, energy, regardless of its source, is sold at the market price. This price is established based on offer and market demand, and agreed by the generators and suppliers/traders through power purchase agreements. In addition to the market price, each generator of energy from renewable sources which qualifies for the support mechanism receives one green certificate[1] for each MWh of green energy delivered into the national grid from Transelectrica (the transmission and system operator).

The green certificates received by the generators of energy from renewable sources can be traded independently of the quantity of energy they represent (i.e. 1 MWh) on the green certificates market (which is separated from the energy market) or on the centralised green certificates market set up by OPCOM. The minimum and maximum price levels for green certificates are established by law. Until 2014, the minimum price per certificate is EUR 27 and the maximum EUR 55. The minimum and maximum price levels are reviewed each year and indexed with the Consumer Prices Index. Starting from 2015, the minimum value of the green certificates cannot be lower than the minimum value applicable in 2014.

Every year, each electricity supplier is obliged by law to acquire annually a number of green certificates equal to the value of the compulsory quota established by Law on the promotion of renewables listed below, which are then multiplied by the quantity of electricity supplied that year to its end-consumers, expressed in MWh.

The Law on promotion of renewables established the following percentages (compulsory quotas) of Romania's gross national consumption of electricity to be constituted by renewable energy as follows:

[1] Under the Law 220/2008 the number of green certificates per MWh is variable depending on the source of energy (two certificates/MWh for wind farms and three for biogas stations). However, these provisions (i.e. concerning the number of green certificates granted to generators of renewable energy are not currently being implemented by the Romanian authorities). The authorities have chosen to wait for the approval of the European Commission, on the basis that: (i) there is the risk that the European Commission does not approve the wording of the legislation; and (ii) the criteria that must be met by renewable energy generators to qualify for the supporting scheme are not currently in force (these should have been established by secondary legislation (Government Decisions in Romania) which have not been passed yet).

— 2010 8.3%
— 2011 8.3%
— 2012 8.3%
— 2013 9.0%
— 2014 10.0%
— 2015 10.8%
— 2016 12.0%
— 2017 13.2%
— 2018 14.4%
— 2019 15.6%
— 2020 16.8%

After 2020, the Ministry of Economy is due to establish compulsory quotas, provided that the quotas cannot be lower than the quota applicable in 2020 (i.e. 16.8%). In the event of non-compliance, a supplier must pay to Transelectrica EUR 70 for each non-acquired certificate. The amounts collected by Transelectrica will be distributed (in accordance with the transparent and objective criteria) to grid operators, who will in upgrading the national grid to facilitate better access for renewable sources.

The allocation of green certificates depends on the type of renewable technology. For example, from 2008 to 2014, wind energy producers receive two green certificates and starting in 2016 one green certificate per 1MWh delivered into the network, while biomass energy producers receive three. The quota support is available for 15 years to all new facilities (i.e. commissioned between 1 January 2004 and 31 December 2014).

According to the Law on promotion of renewables, all types of power plants using renewable sources to produce electricity qualify for the support mechanism (i.e. combined compulsory quotas with trading of green certificates) except for hydro plants with an installed power exceeding 10MWh. The support mechanism shall apply to new energy facilities for a 15-years period starting from the date of commissioning of the new energy facility.

Mechanism 3 – Mandatory take off

Generators that qualify for the green certificates supporting scheme may also sell their entire output to the local supplier (a supplier that holds a supply licence covering the area where the generator is located and supplies energy to consumers located in the area) at a regulated tariff of approx. EUR 30/MWh. This option of the generator is doubled by a legal obligation of the local supplier to purchase all the output of the generator that qualifies for the green certificates trading scheme following the generator's request.

Mechanism 4 – Fixed tariffs

Law 220 mentions an additional mechanism for promoting the production of energy from renewable sources without further developing how this mechanism will work. It would appear that the Romanian legislator intended to give the Government an opportunity to choose in the future between the two mechanisms (i.e. compulsory quotas combined with green certificates and fixed tariffs). However, at present the structure and operation of this promotion mechanism is unknown. Perhaps the secondary legislation, which is meant to detail and complete the Law on promotion of renewables, will shed light on this subject[2].

Mechanism 5 – State aid

State aid to encourage renewables is available under various schemes operating from 2009–2013. One is targeted specifically at renewables whilst others support investments in general.

The schemes are only available for:

(i) projects which have not been financed from any other public funds and where the funding was sought and approved in principle before work has begun (preliminary studies do not count);

[2] Under the law on promotion of renewables, the Government had the power to issue secondary legislation to provide further details on the provisions of the law. The secondary legislation is supposed to refer in principle to the criteria that a producer should meet to qualify for different supporting schemes and the documentation that has to be filed by a producer to be registered with the relevant authorities and benefit from the supporting schemes. Such legislation was due to enter into force within 90 days of the entering into force of the law on promotion of renewables. Please note that by the date of this study no secondary legislation has entered into force yet.

(ii) initial investments such as the acquisition of land, machines, know-how to set up a new unit or expand an existing one, or to make fundamental changes in the global production process;

(iii) investment in entirely tangible assets, including land (up to 10% of eligible costs), buildings, equipment or installations;

(iv) investment in entirely intangible assets for small and medium companies (or up to 50% of eligible costs for large companies), such as patents, licenses, know-how;

(v) a mixture of tangible and intangible assets but not VAT, interest and other commissions, second hand equipment or operational costs.

The schemes are open to companies of all sizes and sectors apart from fishing, real estate development and ferrous metallurgy. Costs which are eligible under one scheme cannot be counted under another. Any costs which are wholly or partly eligible under more than one scheme will be allocated to the scheme with the higher upper limit.

The renewables specific scheme will support initial investments of up to EUR 50 million in electricity and heat production from renewable technologies such as solar, wind, biomass, biogas, geothermal, wave, micro-hydro (systems with an installed capacity of less than 10MW) and waste fermentation gas. The aid can cover up to 50% of eligible costs for large companies, 60% for medium sized companies and 70% for small companies, with the remainder provided by the recipient. The general investment schemes will contribute up to EUR 28.125 million for initial investments and up to a maximum of 50% of all eligible costs where they reach EUR 50 million or more. The recipient must contribute the remainder.

Other mechanisms

The law on promotion of renewables also provides for various incentives granted to generators of power using renewable resources as follows:

(i) accelerated depreciation for investments in energy facilities using renewable sources;

(ii) tax exemptions for any reinvested profit from a renewables project for three years from the project's commission date;

(iii) reduction by 50% of costs of authorisations and licenses;

(iv) financial contributions from the State budget for new jobs; and

(v) up to 50% of medium- or long-term loans guaranteed.

In addition, investors can benefit from ways of access and amendments of existent infrastructure as needed for the development of the project.

The conditions and the period for which the incentives are to be granted will be subject to secondary legislation.[3]

[3] See footnote 2 for details related to the entering into force of the secondary legislation.

Russia

Mechanism 1 – The Kyoto Protocol

In 2009 Russia adopted several central legislative acts allowing the realisation of two Kyoto Protocol structures: Joint Implementation and the Green Investment Scheme. The Clean Development Mechanism, allowing countries to earn tradable Certified Emission Reduction credits for emission/reduction projects in non-Annex I countries remains unregulated in Russia.

(A) JOINT IMPLEMENTATION (JI)

According to Article 6 of the Kyoto Protocol, for the purposes of fulfilling its obligations under Article 3 any party may transfer to or acquire from any other party Emission Reduction Units (ERUs) awarded for the implementation of projects aimed at reducing anthropogenic emissions or at increasing absorption of greenhouse gases in any sector of economy.

Under Russian law, JI within the framework of the Kyoto Protocol allows Russian companies (owning sources of greenhouse gases) to obtain additional financing for the ecological results of investment projects. The main participants in such joint projects are the owner of the source of emission (project host) and the investor (which can be represented by a Russian company only).

Government Decree No. 843 dated 28 October 2009 (replacing the former 2007 Decree which provided for an unreasonably long and complex JI process) sets out the procedure for state approval of a JI project:

Notwithstanding the importance of the new JI rules adoption in Russia, a number of issues remain unresolved. For instance, the need for a Russia-based investor means that the transfer of ERUs will take place (or, at least, be from sources) on the territory of the Russian Federation, whereas it was possible under previous rules to structure JI projects in such a way that the transfer of ERUs would take place offshore through Emission Reduction Purchase Agreements. This may entail specific Russian tax consequences (e.g. profits tax and VAT) and cause uncertainty about the legal regime of the contractual relationships between the project host, investors and buyer of ERUs insofar as the legal nature of the ERUs remains somehow unclear under current Russian legislation.

(B) GREEN INVESTMENT SCHEME (GIS)

This legal structure provided for by the Article 17 of the Kyoto Protocol allows inter-governmental emission trading and Assigned Allocation Units trading. This mechanism realisation in Russia had not been possible before 27 June 2009, when a special Government Order No. 884-r was adopted. According to this Order, Sberbank was appointed to participate in the implementation of pilot projects for GHG emission trading. Moreover, MED, with the participation of both Russian Ministry of Foreign Affairs and Sberbank, was empowered to negotiate on conclusion of international treaties (memoranda of understanding) relating to participation in carbon trading for submission to the Russian Government.

Mechanism 2 – Climate Change Levy & Levy Exemption Certificates (LECs)

According to Article 16 of the Federal Law on Environmental Protection of 10 January 2002, a negative impact on the environment must be paid for. The forms of such negative environmental impact are determined by the federal legislation.

Negative impacts on the environment include:

— emission of polluting and other substances into the atmosphere;

— dumping of polluting and other substances and microorganisms into surface water reservoirs, underground water reservoirs and onto catchment areas;

— pollution of the underground and soil;

— disposal of production and consumption waste;

— pollution of the environment with noise, heat, electromagnetic, ionising and other types of physical influences; and

— other kinds of negative environmental impacts.

The Tax Code of the Russian Federation does not include charges for environmental pollution, waste disposal and other harmful impacts (climate change levies) in the list of federal taxes and duties. Climate change levies are not regarded as taxes.

The correctness and timely payment of such levies is controlled only by the Russian ecological, technical and atomic supervision agency (*Rostechnadzor*).

The adoption of the Federal Law on environmental protection was not followed by the quick development of a system of laws and regulations required for the practical implementation of that law. Many procedures for developing such a system envisaged by the law have not been introduced yet. No Federal Law has been adopted on charges for environmental pollution. There is no system of tax or other benefits for the companies employing advanced environmental technologies and implementing ecological measures. There are no procedures for limiting, suspending or terminating the operations of companies that cause harm to the environment.

At the same time, on 27 January 2009 the Government has adopted regulations in respect of State ecological control and assessment. The State control (which includes, in particular, control of ambient air protection, land control, control of use and protection of water objects, etc.) is now realised by the Federal service of nature use supervision against all companies and persons. This may be regarded as a first step towards the practical implementation of mechanisms provided for by the Federal Law on environmental protection.

Mechanism 3 – Offshore wind

IIn 2002 the first joint international project in the field of wind power generation was implemented and was supported by RAO UES of Russia, the administration of the Kaliningrad region, the Ministry of Energy of the Russian Federation and the Ministry of Economy and Energy of Denmark. The construction of this wind power generation station became possible due to SEAS Energi Service A.S., a Danish company, which was assisted in its efforts by the Danish Energy Agency.

The park of wind power generators consisting of 21 wind power units is located on an area of approximately 20 hectares. Its total capacity is 5.1MW.

However, Russian legislation in the field of application of non-traditional renewable energy sources, including wind energy, is not well developed. A first step forward towards the encouragement of the renewable energy sources use was made by the Federal Law "On energy saving and energy efficiency increase" dated 23 November 2009. For instance, in accordance with this document, all State (regional and municipal) programs in the energy saving field must provide for the increase in secondary energy sources and/or renewable energy sources use. Moreover, the aforementioned Law establishes several tax incentives in this sphere, including investment tax credits for companies investing in creation of objects representing renewable sources of energy.

Mechanism 4 – Heat

The use of renewable energy sources, including biomass, is not widely spread in Russia. There are only a few installations designed for such purposes. For example, with assistance from IC-Tula, a limited liability company, an agricultural farm in the Tula region has assembled a gas generator system HERLT HSV 800. There are now plans to organise the mass production of gas generator heating systems in Russia.

In addition, the State Duma (lower house of the Russian Parliament) is now working on a draft Federal Law to determine the State policy in the field of generation of heat from renewable sources. The draft in question, named "On heat supply", was passed by the State Duma in the first reading on 11 November 2009 and is expected to be sent for a second reading in February 2010.

Mechanism 5 – Various sources of funding

Financing is provided by the Government of the Russian Federation and by investors.

Slovakia

Background

On 11 January 2006, the Slovak government approved the Energy Policy of the Slovak Republic for the next 25 years. One of the aims of the Energy Policy is to increase the percentage of renewable energy sources as part of electricity production.

Renewable energy sources (including large hydroelectric power stations) account for the production of approximately 5.2TWh of electricity, which represents approximately 16% of domestic electricity consumption. According to the Energy Policy, the overall utilisable potential of certain types of renewable energy sources provides an opportunity to increase their proportion in electricity production to 19% in 2010 and 24% in 2030.

Pursuant to the Strategy of Increased Utilisation of Renewable Sources of Energy in the Slovak Republic as adopted by the Slovak government on 25 April 2007, there is a target increase in the production of electricity from renewable energy sources (excluding production from large hydroelectric power stations, which is dominant in Slovakia) of 4% of the total electricity consumption corresponding to 31,000GWh in 2010. There is also a target increase in the production of electricity from renewable energy sources of 7% of the total electricity consumption corresponding to 32,900GWh in 2015.

Directive No. 2009/28/EC on the promotion of the use of energy from renewable sources, which amends and subsequently repeals Directives 2001/77/EC and 2003/30/EC, sets a target share of energy from renewable sources in gross final energy consumption of 14% in 2020 for Slovakia.

Mechanism 1 – Act on Support of Renewable Sources of Energy and on high-efficiency cogeneration

Act No. 309/2009 Coll. on Support of Renewable Sources of Energy and on high-efficiency cogeneration as amended (the "Renewable Energy Act") became effective as of 1 September 2009 (some provisions became effective on 1 January 2010). The Renewable Energy Act transposes EC Directives No. 2001/77/EC and No. 2004/8/EC and provides a legal framework for promoting the production of electricity from renewable energy sources and high-efficiency cogeneration.

Under the Renewable Energy Act, measures promoting electricity produced from renewable sources and from high-efficiency cogeneration ("electricity") vary depending on the type of renewable source and capacity of the production plant. In general, power plants with lower installed output are promoted more than larger ones.

The Renewable Energy Act stipulates that an electricity producer of electricity from renewable energy sources has the

(i) right to priority connection of its facility for electricity production into the regional distribution grid;

(ii) right to priority access into the grid, transmission, distribution and supply of electricity;

(iii) right to off-take of electricity for the electricity price on loss;

(iv) right to additional payment; and

(v) right for assuming the liability for divergence by the regional distribution grid operator.

Mandatory off-take of electricity

The regional distribution grid operator, to which the power plant is connected directly or through the local distribution system, is obliged to off-take all such produced electricity, and that for the electricity price on loss. The price on loss shall represent the arithmetical mean of the electricity prices for the purpose of covering loss of all regional distribution grid operators and is calculated on the basis of the schemes determined by RONI.

The right for off-take of electricity and the right for additional payment only relates to (i) power plants with an overall installed capacity up to 125MW, and (ii) power plants with an overall installed capacity up to 200MW provided that the electricity is produced by a highly efficient combined production and the share of the renewable sources in the fuel exceeds 20%.

The guaranteed off-take of electricity applies to the power plants for the period of 15 years from commencement of the facility operation or the year of reconstruction or modernisation of the technological part of the electricity production facility. Further, the guaranteed electricity off-take applies to the whole operating life of the power plant with an overall installed capacity up to 1MW.

Grid operators cannot avoid mandatory off-take on the premise that the output of solar/wind power plants tends to fluctuate. However, they are able to limit or regulate the amount of electricity produced by these fluctuating energy sources.

The mandatory off-take is a right available to electricity producers rather than an obligation. The Renewable Energy Act does not exclude the possibility that the producer also supplies electricity to other entities under a commercial contract. If however, the electricity producer wants to apply for support in the form of mandatory off-take of its electricity for the electricity price on loss by a grid operator or for additional payment (as explained below), then the producer is obliged to supply the entire volume of its produced electricity to the regional distribution grid operator, from which the producer claims support.

Price of electricity and additional payment

The price of electricity produced from a solar power plant is regulated by RONI by way of a generally binding decree as a fixed price. This price should be higher than the normal market price of electricity.

In determining the price, RONI shall take into consideration

(i) the type of renewable source of energy,

(ii) the technology used,

(iii) the term of commencement of the electricity production, or the term of its reconstruction or modernisation, and

(iv) the size of the installed capacity of the facility of electricity producer.

In the event that the electricity producer receives aid under support programs financed either by the State (or EU funds) upon construction of its facility for electricity production, the price for electricity shall be reduced by the percentage stated in the Act.

The electricity price on loss, for which the regional distributor grid operator mandatory off-take the produced electricity, is normally lower than the regulated price of electricity for the determination of the additional payment. As a result, the electricity producer has the right to an additional payment (this right is limited in general to electricity production of up 10MW, but the amount varies according to the type of the renewable source of energy and the technology used), which corresponds to the difference between the regulated price of electricity for the determination of the additional payment and the electricity price on loss.

The regulated price of electricity for the determination of the additional payment (for power plants commissioned after 1 January 2010 i.e. the regulated fixed price of electricity) in the years following the year in which the solar power plant was commissioned, is equal to the price in the year in which the solar power plant was commissioned. Although not a mandatory obligation, RONI may increase the price of electricity by the core inflation coefficient. The above indicates that the support is conceived so that the price of electricity for the determination of the additional payment in the year when the power plant is put into the

operation is significant, and this price will be used for the next 15 years to calculate the support.
The additional payment should be paid by the regional distribution grid operator, to which the facility of the electricity producer is connected or on whose delineated territory it is located. The right for additional payment applies to a power plant for the period of 15 years from commissioning the power plant or from the year of its reconstruction or technology upgrade.

An electricity producer who wants to claim support under the Renewable Energy Act is obliged to submit to the regional distribution grid operator a RONI-issued certificate of origin of the electricity produced from renewable energy sources.

Mechanism 2 – Financial mechanism

State support of renewable energy sources includes several financial mechanisms, including grants, funds, and contributions administrated by various ministries.

Households may receive funding of as much as 25% of the acquisition cost in scope of the scheme of higher biomass and solar energy use. In April 2009, the Slovak government allocated approximately EUR 8 million to the program of larger utilisation of biomass and solar energy in households. The aim of the program is to support installation of biomass boilers and solar collectors, which serve for heating and warming-up water for family houses and residential buildings. The installed equipment must satisfy certain prescribed technical parameters. The contribution for installation of solar collectors varies between EUR 50 and EUR 800 for 1m2 of the installed area. The amount of the contribution for the biomass boiler is determined as 25% of its acquisition price. The maximum amount of the contribution for the biomass boiler must not exceed EUR 830.

The above program is designed to provide an important stimulus for the installation of solar collectors and biomass boilers which will comply with environmental acceptability with the aim of increasing the utilisation of renewable energy sources in the Slovak Republic, and ensuring efficient coverage of energy needs of Slovak households.

All other sectors may use structural funds. Besides financial measures earmarked for financing of projects using renewable sources, there are also EU structural funds for the period of 2007–2013.

The Environmental Fund, which provides a yearly subsidy of EUR 1 million, is also regarded as promoting renewable resources. Financial means provided by the Ministry of Agriculture and Ministry of Environment are usually granted for various projects on biomass utilisation.

The Economy Ministry is considering the impact of favourable price regulation on consumer electricity prices since photovoltaic and wind energy is significantly more expensive than electricity from sources such as hydro-energy and biomass.

This could result in legislative changes or (as in the Czech Republic) a reduction in financial support that would slow down the expected development of solar/wind energy.

Mechanism 3 – Tax incentives

Electricity produced from renewable sources, provided it is supplied directly to end consumers of electricity or consumed by a legal entity or an individual who produced it, is exempt from electricity excise tax (the tax is currently EUR 1.32/MWh) as stipulated by the Act No. 609/2007 on the Excise tax on Electricity, Coal, and Natural Gas.

Mechanism 4 – New renewable energy projects

Investment plans for the construction of power plants with an installed capacity above 1MW must comply with the government's long-term energy policy. This involves applying for a certificate of compliance from the Economy Ministry, accompanied by confirmation that the project has been approved by the transmission/distribution grid operators to which the plant will connect. Currently, there is a bill in the legislative procedure under which this 1MW limit will be decreased for solar and wind power plants to 100kW. This is intended to reduce the number of new power plants. Unless the distribution or transmission grid operator approve the investment plan for construction of a new power plant, the Economy Ministry will not issue a certificate of compliance and the power plant cannot be built.

The transmission grid operator SEPS has already issued rules for approving new solar projects, to prevent an uncontrolled increase in the number of projects. Under the rules, it will only approve projects with up to 120MW aggregate solar generating capacity with installed capacity between 1–4 MW.

SEPS has also currently temporarily suspended the issue of statements to the investment plans for construction of the wind power plants until the study on the impact of the wind power plants on the transmission grid is completed.

Slovenia

Background

The Energy Act (*Energetski zakon*, Official Gazette of the Republic of Slovenia No. 27/2007 et al., hereinafter referred as EZ) sets out the legal framework for electricity generated from renewable energy sources. Pursuant to the EZ, every five years the Government of the Republic of Slovenia adopts national targets with respect to the future consumption of electricity generated from renewable energy sources for the following ten years.

The Resolution on the National Energy Programme (*Resolucija o Nacionalnem energetskem programu*, Official Gazette of the Republic of Slovenia No. 57/2004, ReNEP) coordinates the future operations of institutions dealing with the energy supply and determines goals and mechanisms for ensuring the reliable, competitive and environment-friendly supply of electricity services.

Mechanism 1 – Guarantee of origin

To obtain support, producers of electricity prove that their electricity is produced from renewable energy sources with guarantees of origin. The Slovenian Energy Agency (*Javna Agencija Republike Slovenije za energijo* or JARSE) issues the guarantee of origin upon a producer's request if he fulfils the following conditions: (i) the electricity generating plant (the "plant") has a valid declaration (Regulation on issuing of the Declarations for the production units and of the Guarantees of Origin, *Uredba o izdaji deklaracij za proizvodne naprave in potrdil o izvoru električne energije*, Official Gazette of the Republic of Slovenia No. 8/2009 determines inter alia conditions and proceeding of obtaining a declaration) and (ii) he proves that during the period to which such guarantee refers the plant has been operating in compliance with regulatory requirements.

The guarantee of origin is valid for five years and is issued for each reporting period after the expiry of a calendar month. Only one guarantee of origin can be issued for certain quantity of electricity generated from a certain plant. In the Republic of Slovenia the following data of a guarantee of origin issued in a Member State has the same proving power as data from a guarantee of origin issued by the Energy Agency: (i) the energy source from which the electricity was generated, (ii) the date and place of the production and (iii) in the case of hydro energy, its capacity.

Mechanism 2 – Connection to the grid

At the request of a producer, distribution and transmission system operators are obliged to connect to the grid every plant that has: (i) a valid energy authorisation, (ii) consent for connection to the grid and (iii) a valid declaration for the plant. Moreover, an investor in a plant may file a request to connect a plant that does not have a valid declaration but must obtain the declaration within six months of completion of the construction and commencement of operation. An investor with a valid declaration does not bear the costs related to the eventual strengthening of the transmission and distribution grid necessary for the plant connection.

The system operator will not decline the connection permit to the investor. The investor bears the production costs of the interconnection line from the plant to the grid connection.

Mechanism 3 – Support

Pursuant to the EZ, support can be granted when: (i) the costs of electricity generation, including the normal market yield in relation to the invested assets, exceed the electricity price on the market and (ii) nominal electric capacity of a plant does not exceed 125MW. The Decree on Support for Electricity Generated from Renewable Energy Sources (*Uredba o podporah električni energiji, proizvedeni iz obnovljivih virov energije*, Official Gazette of the Republic of Slovenia, No. 37/2009, hereinafter referred as "the Decree on Support") determines that supports are granted to outdoor photovoltaic plants with nominal electrical capacity amounting to 5MW per year. The Decree on Support *inter alia* determines the detailed definition of support, the method of determining prices for guaranteed purchases and the level of support provided as financial operating aid for the current operation and the way of obtaining support.

The support cannot be granted to plants that first began operating more than 15 years ago. Therefore, support is granted for a maximum period of 15 years or for a shorter period, depending on the first operation of a plant.

Support is granted to a plant that has received the guarantee of origin. It is exercised either as:

— a guaranteed purchase of generated electricity supplied in the grid or financial operating aid for plants whose nominal electrical capacity is lower than 5MW; or

— financial operating aid for other plants with nominal electrical capacity of more than 5MW.

Support is paid for net electricity generated which a plant either: (i) supplied to the grid, (ii) sold on the market or (iii) used as its own off-take. Reference costs form the basis for: (i) the price determination stipulated in the contracts on guaranteed purchase and (ii) the amount of financial operating aid in the contracts on the provision of support. Reference costs are determined in EUR/MHh of net electricity generated.

Generally, the following rates will be applicable for the guaranteed purchase in the period from 2009 to 2013:

— hydro energy: EUR 82.34—105.47/MWh;

— wind energy: EUR 95.38/MWh;

— solar energy: EUR 289.98—477.78/MWh;

— geothermal energy: EUR 152.47/MWh;

— biomass energy: EUR 167.43—224.35/MWh (or determined individually);

— biogas: EUR 129.15—160.05/MWh;

— gas generated from mud of wastewater treatment plant: EUR 66.09—85.84/MWh;

— landfill gas: EUR 61.67—99.33/MWh;

— biodegradable waste: EUR 0—77.44/MWh.

Financial operating aid is the difference between the reference cost and reference market price of electricity. Generally, the following rates apply:

— hydro energy: EUR 18.07—49.57/MWh;

— wind energy: EUR 30.84—43.38/MWh;

— solar energy: EUR 204.22—420.58/MWh;

— geothermal energy: EUR 92.67/MWh or determined individually;

— biomass energy: EUR 26.40—165.20/MWh or determined individually;

— biogas: EUR 0—102.85/MWh;

— gas generated from mud of wastewater treatment plant: EUR 0—26.04/MWh;

— landfill gas: EUR 0—39.53/MWh;

— biodegradable waste: EUR 0—17.64/MWh.

Further, the ReNEP provides a number of measures and instruments to increase the share of renewable energy source, *inter alia*:

— investment subsidy for renewable energy sources (on the basis of CO_2 payment relief or with direct subsidy);

— assuring credit facility with lower interest rate for investments in renewable energy sources;

— assuring mid-term stability of electricity redemption prices from the plants.

Spain

Background

In accordance with the Draft Renewable Energies Plan 2011–2020 submitted to the European Commission by the Spanish Ministry of Industry, Tourism, and Trade, it is estimated that Spain's renewable energies should contribute by 22.7% to the final gross consumption of energy in Spain by the year 2020. The contribution of renewable energies to the production of electrical energy should reach 42.3% by the same year. Such previsions indicate that Spain should exceed the objectives fixed for the said period by the Directive 2009/28 on the promotion of the use of energy from renewable sources.

The Spanish market for renewable energies has faced high levels of investment. Most of the investment thus far has been directed towards solar energy as a result of the geographical location of the country and the system of incentives put in place.

Mechanism 1: The Energy Sector Act 54/1997 and the Royal Decree 661/2007 on the Production of Electricity in the Special Regime.

Royal Decree 661/2007 was adopted in 2007 as a response to growing investments in the sector. It established a more beneficial payment regime than that previously in force. The main objective of the Royal Decree 661/2007 was to further develop the Energy Sector Act in relation to the economic and legal regime applicable to installations producing energy from renewable sources. An important modification to tariffs in relation to photovoltaic installations was made by the Special Regime Register in 26 September 2008 (Royal Decree 1578/2008).

WHAT ARE THE BENEFITS OF THE SPECIAL REGIME?

Installations that qualify for the Special Regime enjoy the following benefits:

— connection and access to the grid of the company responsible for the distribution or transport of electricity subject to the capacity of the network;

— transfer of all of the installations net production of energy whenever its absorption by the corresponding network is feasible;

— to receive one of the two types of payment envisaged being either the regulated tariff or a special bonus (note this does not apply to all renewable energy sources); and

— to sell all, or a part of, the installations net production through direct lines.

WHO QUALIFIES UNDER THE SPECIAL REGIME?

The following installations qualify under the Special Regime where their installed capacity does not exceed 50Mw:

— installations that use high efficiency co-generation or other forms of residual energy;

— installations that use renewable non-consumable energies such as biomass or bio-fuels;

— installations that use non-renewable waste; and

— plants for treatment of agricultural and livestock waste.

Installations over 50Mw fall under the normal regime. However, there are certain economic benefits available for installations whose installed capacity is over 50Mw but less than 100Mw.

HOW DOES IT WORK?

1. Royal Decree 661/2007 on the Production of Electricity in the Special Regime

The owners of installations benefiting from the Special Regime may choose among two types of payment, namely:

— to sell the electricity produced in exchange for a regulated tariff expressed as Euro Cents per kWh.

  The regulated tariff is dependent on the category to which the installation pertains, the capacity installed and in some cases on the age of the installation.

— to sell the electricity produced on the market at the price the market determines.

  In this case, the selling price is the one that comes as a result of the organised market, or of the negotiations held, additionally complemented, where applicable, with a special bonus expressed in Eurocents per kWh. In other words, should the operators opt to participate in the market, the bonus obtained will vary according to the market price determined on an hourly basis. The value of the final payment that the installation receives will depend on the technology used.

2. Special Regime for the Photovoltaic Installations registered after 26 September 2008 – Royal Decree 1578/2008

The tariffs of the Royal Decree 661/2007 were excessive and produced a greater than expected expansion of the photovoltaic energy sector. By means of the Royal Decree 1578/2008, the payments relating to photovoltaic installations have been significantly reduced. This regulation is only applicable to photovoltaic installations falling under the Special Regimen Register of Energy after 26 September, 2008. The regulation sets only a tariff and this tariff is dependent on the type of photovoltaic installation. To receive the tariff, it is necessary to first register in the Payment Pre-assignment Register. There are four official announcements each year setting specific tariffs. By example, the first tariff of 2009 was:

Type		Tariff (c€/kWh)
"Solar Roof"	</=20 MW	34.00
	> 20 MW	32.00
Photovoltaic Park or ground installations		32.00

3. Installations with capacity > 50Mw

The government may decide to grant, following consultation with the Autonomous Communities, the right to receive a bonus to installations with an installed capacity that exceeds 50Mw. The beneficiary installations are obliged to negotiate freely on the market.

Mechanism 2: Guarantees of origin

This system was implemented in 2007 by a regulation issued by the Ministry of Industry, Tourism and Commerce (Ministerial Order 1522/2007 regarding the energetic guarantees of origin). The certificates serve as accreditations which certify that a number of kilowatt-hours of electric energy produced by that producer comes from the renewable sources or from high-efficiency co-generation plants.

The certificates are issued, and the entire System of the Guarantees of Origin is managed by, the National Commission for Energy, who makes annotations in specific accounts created for this purpose. The information on which they are based comes from the Administrative

register of the installations for the production of the electric energy, which is in the responsibility of the Ministry of Industry, Tourism and Trade. Once sold, the certificates are cancelled from the corresponding accounts.

Mechanism 3: Technical Building Code

The Code, adopted in March 2006, requires that newly constructed buildings make use of solar energy. It demands that warm water is produced by solar thermal energy in the minimum share of between 30% and 70%, depending on the daily demand volume. It also requires a minimum contribution by photovoltaic energy in new buildings from the tertiary sector. For example, for offices whose surface is larger than 4,000m², a part of their electrical energy must be covered by photovoltaic installations. It is estimated that this mechanism will reduce CO_2 emissions by up to 55%.

Mechanism 4: Tax incentives

As determined in the Royal Legislative Decree 4/2004, which approved the consolidated text of the Law on the Tax on Societies, a company that invests into the production of renewable energies may benefit from a deduction of 10% of the investment value.

No deductions from income tax are available for physical persons at the moment, but municipalities may apply optional discounts when determining tax obligations of neighbours who invest in renewable energy sources. These include:

— a reduction of up to 50% of the Economic Activities Tax;

— a reduction of up to 50% of the goods and Real Estates Tax; and

— a reduction of up to 95% of the Tax on the Constructions, Installations and Works.

This incentive is contained in the text of the Law on the Local Tax Offices Royal Legislative Decree 2/2004 which approves the consolidated text of the Law on the Local Tax Offices.

Switzerland

Mechanism 1 – The Swiss Federal Energy Act and the Swiss Federal Energy Ordinance

WHY HAS IT BEEN INTRODUCED?

Switzerland intends to increase the share of electricity from renewable sources by 10% of its current energy consumption by 2030. Today, Switzerland already generates 58% of its electricity from renewable sources, with hydropower plants contributing 97% of that renewable energy.

WHAT IS IT?

The Swiss Federal Energy Act and the Swiss Federal Energy Ordinance are Switzerland's main mechanisms for encouraging the development of renewable energy. The most important element set out in these regulations is a compensatory feed-in remuneration for electricity generated from renewable energies (hydro energy up to 10Mw, photovoltaic energy, wind energy, geothermal energy, biomass energy).

HOW DOES IT WORK?

Since 1 January 2009 an annual charge of up to 0.6 centimes (~ 0.378 Eurocent) per kilowatt hour is levied on high voltage grid transmission costs, resulting in a distributable amount of about 260 million Swiss Francs (~ EUR 170 million) per year. The Swiss Federal Energy Ordinance sets forth the principles governing the compensatory feed-in remuneration as well as the remuneration rates (centimes per kilowatt hour) for various types of facilities

— hydro energy: 7.5–35 centimes (~ 4.725–22.68 Eurocent) per kWh

— photovoltaic energy: 49–90 centimes (~ 30.87–56.70 Eurocent) per kWh

— wind energy: 17–20 centimes (~ 10.71–12.60 Eurocent) per kWh

— geothermal energy: 17–30 centimes (~ 10.71–18.90 Eurocent) per kWh

— biomass (waste combustion): 10–12.5 centimes (~ 6.31–7.875 Eurocent) per kWh

— biomass (sewage gas): max. 24 centimes (~ max. 15.12 Eurocent) per kWh

— biomass (other): 15–39 centimes (9.45–24.57 Eurocent) per kWh

In general, these remuneration rates will be applicable for a period of 20–25 years, depending on the respective technology (e.g. hydro energy 25 years, wind energy 20 years).

Some rates (e.g. photovoltaic energy) may be gradually reduced over that period of time in view of the anticipated technological progress. These reductions will only apply to newly registered production facilities, which will then receive their remuneration based on a constant rate throughout the entire period of remuneration.

New or upgraded facilities register with the national grid company "swissgrid" starting 1 May 2008. Since there were so many registrations for compensatory feed-in remuneration the total cost ceiling has already been reached and from 1 February 2009 all new registrations were put on a waiting list.

Producers of electricity from renewable energies who opt out of the new feed-in remuneration can continue to sell their green energy on the free market.

The network operator has to accept all electricity produced by the renewable energy plant. The plant operator, however, generally bears the costs of the connection to the network.

Mechanism 2 – The Swiss Federal CO_2 Act

WHY HAS IT BEEN INTRODUCED?

Switzerland has ratified the Kyoto Protocol and committed itself to reduce greenhouse gas emissions between 2008–2012 by 8% from 1990 levels. After it became obvious that this goal would not be met by voluntary measures alone a CO_2 fee was introduced based on the Swiss Federal CO_2 Act.

WHAT IS IT?

The Swiss Federal CO_2 Act focuses on the reduction of fossilbased energy consumption (CO_2 emissions from these sources are to be reduced by 10% from 1990 levels).

HOW DOES IT WORK?

Since 1 January 2008 a fee of 12 Swiss Francs (~ EUR 7.56) per tonne of CO_2 emissions is to be collected on fossil combustibles (heating oil, gas) based on the Swiss Federal CO_2 Act. This fee will be increased to 36 Swiss Francs (~ EUR 21.71) starting 1 January 2010.

Companies will be exempt from the CO_2-fee if they agree with the Federal Government on a reduction of their CO_2 emissions to a certain level (and subsequently meet that target).

Negotiating such reduction targets and thus gaining exemption from the CO_2-fee are key priorities for energy-intensive sectors such as the cement, paper, glass and ceramics industries.

Ukraine

Mechanism 1 – The New Energy Strategy for Ukraine until 2030

The New Energy Strategy for Ukraine until 2030, which was approved by the Ukrainian Government in spring 2006, estimates that Ukraine will nearly quadruple its use of non-conventional energy sources, which under Ukrainian legislation include renewable and waste energy sources, from 10.9 Mtoe in 2005 to 40.4 Mtoe (Million Tonnes of Oil Equivalent) in 2030. This initiative would require investing some UAH 60.4 billion (EUR 7.9 billion) into the energy sector. The highest growth is expected in the use of solar energy, wind farms and low-potential heat, although the growth will start from a very low base as currently the installed capacity in this sector (including small hydro power plants) amounts to 0.18 GW. Nevertheless, the total capacity of power plants generating electricity from alternative energy sources (except for biofuel and small hydro plants) is supposed to grow to 2.1 GW in 2030.

The Strategy envisages the development of renewables in accordance with the fundamental principles of the "Green Book: European Strategy for Secure, Competitive and Sustainable Energy". The Energy Strategy set out a number of incentives to stimulate renewable energy production and use, but most of them have yet to be implemented into the legislation.

Mechanism 2 – "Green" Tariffs

The Ukrainian parliament adopted a law on subsidised tariffs for electricity produced from non-conventional sources, i.e., green tariffs. The Wholesale Electricity Market of Ukraine has an explicit obligation to purchase all volumes of electricity produced from alternative energy sources at the green tariff.

The green tariff is established by the National Energy Regulation Commission for each generating company separately and will be effective until 1 January 2030. The green tariff shall differ from one type of an alternative energy source to another. The law foresees that the green tariff will be the established retail tariff for second-class consumers (58.46 kopecks for 1 kW/h [Eurocent 5.38]) multiplied by the green tariff index, which is equal to:

FOR WIND FARMS:

— 1.2 – if the capacity is lower than 600kW;

— 1.4 – if the capacity is lower than 2MW;

— 2.1 – if the capacity is more than 2MW.

FOR BIOMASS

— 2.3.

FOR SOLAR:

— 4.4 – for roof installations with the capacity lower than 100kW;

— 4.6 – for roof installations with the capacity more than 100kW;

— 4.8 – for ground installations.

FOR HYDRO

— 0.8.

The green tariff, as established separately for each generator producing electricity from alternative energy sources, may not be less than a fixed minimum green tariff rate established by the National Energy Regulation Commission. In turn, the fixed minimum green tariff rate is denominated in Euros pursuant to the official EUR/UAH exchange rate established by the National Bank of Ukraine as of 1 January 2009 (UAH 10.86 for EUR 1).

Mechanism 3 – Alternative Types of liquid and gaseous fuels

The Law of Ukraine on Alternative Liquid and Gaseous Fuels, adopted in 2000, introduces the framework for financial mechanisms to stimulate biofuels and other alternative fuels. Recently adopted changes to the law set a target for alternative fuels to achieve 20% of national fuel consumption. With the aim of stimulating the production of biofuels, different tax incentives are being introduced from 1 January 2010:

— ten years' exemption from corporate profit tax for all profits from the sale of biofuel by biofuel producers; from co-generation projects or heat generation by biofuel fed power stations and from sales of Ukraine-produced equipment used to make or rebuild biofuel facilities, vehicles or power installations, by the equipment producers;

— nine years' VAT exemption for imports of equipment fed by bioethanol fuel and equipment to construct or modernise facilities to produce biofuel and vehicles fed by biofuel (as long as no equivalent equipment is produced or available in Ukraine);

— five years' proportionate exemption from excise duty for the biocomponent element of biofuels; and

— five years' zero-rated excise duty for crude ethyl alcohol used to make bioethanol and bioethanol used to make biofuel.

Mechanism 4 – Hydropower and bioenergy

Most of the country's renewable energy today is generated from hydropower and biomass-fired heating boilers. Biomass is probably the most promising renewable energy source in Ukraine. At present, the contribution of biomass to Ukraine's energy balance is about 0.5%. Only about 0.7Mtoe are currently used – primarily firewood for domestic purposes as well as for fuel in forestry and wood processing enterprises. The biomass raw material base which includes livestock manure, straw and lumber mill waste is estimated up to 91.55MToe (according to 2007 statistics data). The agricultural wastes potential is about 21.4Mtoe (according to scientific estimates).

— In 2006, the government adopted an action plan to boost biofuel production with the objective of reaching 623,000 tonnes annually by 2010 and increasing the rapeseed harvest at the same time to 7.5 million tonnes. However, these objectives were not reached. The parliament also introduced a licensing regime for bioethanol production, allowing it to be produced from biomass or ethyl alcohol by private businesses as well as by the State. Production, storage and marketing of biogas and the liquid fuel produced from biomass are also subject to mandatory licensing.

— Recently a new draft law related to bioethanol and biodiesel was submitted to the Ukrainian parliament. If adopted, the law will provide for a mandatory use of biofuels in the fuel production with a proportion of bioethanol and biodiesel equalling to 5.75% in the general fuel production.

Hydropower is the most developed renewable energy source in Ukraine today and is the least expensive power source on the wholesale electricity market. Of the country's 4,600MW of hydropower capacity, the majority is in large-scale hydro, which is a mature technology. Environmental organisations in Ukraine predict that hydropower production may reach 15.1TWh/year by 2030 and up to 25TWh/year in 2050. Analyses show that currently Ukraine has realised only 10% of its small capacity hydro potential.

Mechanism 5 – Joint Implementation Mechanism of the Kyoto Protocol

The Ukrainian ratification of the Kyoto Protocol has increased the attractiveness of renewables and opened new opportunities to finance them. The Kyoto Protocol's

joint implementation (JI) mechanism can potentially bring foreign investment into Ukraine's renewable energy sector. Ukraine has recently completed all the steps required to enable JI projects in the country to obtain Emission Reduction Units (ERUs) and to enable the Government to trade Assigned Amount Units (AAUs) under the Kyoto Protocol. Ukraine is eligible for both Track 1 and Track 2 procedures for JI project registration. At the end of 2008 Ukraine successfully connected to the International Transaction Log and subsequently transacted the first ERUs. In the first quarter of 2009, Ukraine signed the first agreement on the sale of AAUs within the framework of the Green Investment Scheme, committing to transfer 30 million AAUs to Japan and use the proceeds for so-called "green investments" in Ukraine. The Kyoto protocol should be viewed as an important tool that can facilitate financing for renewable energy projects, given that Ukraine is considered one of the most attractive countries for JI Projects after Romania and Bulgaria and the JI country with the second largest volumes of potentially marketable AAUs after Russia.

Mechanism 6 – Wind energy

Currently, Ukraine has eight commissioned and running State wind power plants (WPPs) with a total capacity about 83MW. The WPPs share of total electricity production volume is very small. The estimated technical potential capacity of wind energy in Ukraine is 16GW, which could generate up to 30TWh/year. The Energy Strategy for Ukraine until 2030 projects that wind power will generate 2TWh/year in 2030.

One of the main documents relating to regulation of the wind power sector used to be the Complex Wind Farms Construction Programme which covered the period between 1997–2010. Under this programme the total capacity of wind power generation in Ukraine was supposed to reach 1990MW by 2010, but this target was not reached in time. The Programme provided for state investment of UAH 3.064 billion (more than USD 600 million). However, most of the planned construction projects were never implemented due to poor financing. As a result of these problems only UAH 497.3 million (less than USD 100 million) was received by the government between 1997 and 2006. Since 2006 the Complex Wind Farms Construction Programme had been financed by the Government (about UAH 80 million or USD 10 million per year).

The Government is also actively trying to incentivise construction of wind farms through the introduction of green tariffs. There are still no private commercial WPPs in Ukraine, but a few construction projects are currently ongoing in Crimea, Donetsk, Mykolayiv and Zaporizzhya regions.

The Ukrainian government also declared that the project related to production of the megawatt-class wind turbines to be started in 2010–2012 will be one of the most important strategic investment projects and provides for the state investment of UAH 2.5 billion (approximately USD 304 million) during the next ten years.

Mechanism 7 – Cooperation, research and development

Several scientific organisations and institutes in Ukraine are pursuing renewable energy research, development and demonstration. In addition, some companies in the defence and aerospace industries have converted their production facilities towards manufacturing renewable energy systems or their components. There have been many attempts to use the existing research, technology and engineering base. However, very few have been successful, especially when it comes to marketing those technologies.

Ukrainian State agencies are cooperating and implementing energy saving projects and developing new and renewable sources of energy with foreign organisations such as NEFCO, ADEME, SIDA as well as international organisations such as EBRD, the World Bank, IFC, USTDA, OPIC, etc.

In particular, in 2009 EBRD allocated USD 8 million to the development of energy saving projects.

Mechanism 8 – Various sources of funding

Ukraine has a program of state support for the development of non-traditional and renewable energy sources and small hydro power plants. The target set for renewables is 19% of generation by 2030. Current State budget financing is limited to wind energy only and is not enough to significantly boost the development of the sector. However, the EU has devoted UAH 319 million (EUR 27.7) to support implementation of the Energy Strategy for Ukraine in 2009. In Ukraine, major deals will experience some difficulties with debt financing due to the economic downturn and regardless will require more sophisticated approaches to structuring. International financial institutions are investing increasing amounts in Ukraine. The IFC declared its intention to invest about USD 500 million in 2010 to support implementation of different projects (including those related to the power sector). EBRD approved the allocation of USD 50 million to development of the alternative power sector in Ukraine. The World Bank will dedicate USD 250 million in 2010 for implementation of the power projects in Ukraine.

United Kingdom

Background

The UK Government has committed to sourcing 15% of its energy (across the electricity, heat and transport sectors) from renewable sources by 2020, representing an increase in the share of renewables by almost a factor of seven from about 2.25% in 2008. The UK Government's assumption is that this would involve producing 30% of electricity from renewable sources, 12% of heat and 10% of road and rail transport. The UK is also aiming to reduce its emissions by 18% by 2020 compared to 2008 levels, and to cut its emissions by 80% below 1990 levels by 2050, as required by the Climate Change Act 2008.

Mechanism 1 – The Renewables Obligation (RO)

WHY HAS IT BEEN INTRODUCED?

The RO was introduced in 2002 to incentivise the generation of electricity from renewable sources. It has been amended to reflect developments in UK policy since that time (notably in 2009 with the introduction of banding) and will be amended again in 2010 to reflect the Government's aim to increase the share of electricity generated from renewable sources to 30%.

WHAT IS IT?

The RO is the UK Government's main mechanism for encouraging the development of renewable electricity. It imposes an obligation on electricity suppliers to submit a certain number of certificates (known as "renewable obligation certificates" or ROCs) to Ofgem each year or to make a payment into Ofgem's buy-out fund. Suppliers may meet their obligation by either method or a combination of the two.

HOW DOES IT WORK?

The RO works by creating a demand from electricity suppliers for ROCs, which are awarded to generators in respect of the renewable electricity they generate. To ensure that this demand is maintained, the number of ROCs which suppliers are required to submit each year will always be set at least 8% (or 10% from April 2011) ahead of the number of ROCs which are expected to be awarded to generators. Assuming that there is a shortage of ROCs in the market, the value of a ROC reflects the "buy-out price" that a supplier would otherwise have to pay to Ofgem and the "recycling payment" that a supplier who submits a ROC receives from the buy-out fund created from the payments made by suppliers who meet their obligation (in whole or in part) by making a payment.

WHO GETS THE BENEFIT?

Originally, 1 ROC was awarded for each MWh of electricity generated from renewable sources. However, following a long period of consultation, the Government introduced a "banding" regime in 2009 which consists of awarding more ROCs per MWh of electricity generated from emerging renewable technologies and fewer ROCs to technologies that are better established.

The bands in effect on 1 April 2009 were as follows:

Technologies	ROCs / MWh
Landfill gas	0.25
Sewage gas / Co-firing of biomass	0.5
Hydro / Onshore wind / Energy from Waste with CHP / Co-firing of biomass with CHP / Co-firing of Energy crops / Geopressure	1
Offshore Wind / Co-firing of Energy Crop with CHP / Dedicated Biomass	1.5 [1]
Wave / Tidal / Solar / Geothermal / Dedicated Energy Crops (with or without CHP) / Dedicated Biomass with CHP	2

Mechanism 2 – Feed-in Tariffs

The Energy Act 2008 included provisions for the introduction of a feed-in tariff system (FIT) for renewable generators with a maximum capacity of 5MW or less as it was felt that a simpler and more certain mechanism than the RO was needed for small-scale generators. The Government has yet to set out the final details of the scheme, but it has committed to introducing it with effect from 1 April 2010 and it will involve electricity suppliers offering tariffs to eligible generators for electricity they consume onsite and electricity they export to the grid. The tariffs will differ depending on the renewable technology used.

[1] Following a review, certain offshore wind farms will be eligible to receive 2 ROCs per MWh generated

Mechanism 3 – Climate Change Levy & Levy Exemption Certificates (LECs)

The "Climate Change Levy" (CCL) is a tax levied on the supply of energy to non-domestic end-users. Renewable electricity is however exempt from the tax. Electricity suppliers prove that they have supplied exempt renewable electricity by obtaining LECs with the electricity they buy from renewable generators. This provides renewable generators with an additional income stream.

Mechanism 4 – Offshore wind

Following its successful first two Rounds in 2000 and 2003, the UK Government announced on 10 December 2007 the commencement of a Strategic Environmental Assessment (SEA) to determine the location of 25GW of additional UK offshore wind energy generation capacity by 2020. This follows the 8GW planned for Rounds 1 and 2, bringing the total planned UK offshore wind energy generation capacity to 33GW by 2020.

Round 3 differs from Rounds 1 and 2 through two key activities: (i) the Government's UK offshore energy SEA which will determine the location of sensitive sites and the most appropriate sites for offshore wind farm development; and (ii) the Crown Estate's Round 3 programme. In Round 3 the Crown Estate will take a more prominent lead role in that it has developed a co-investing model, which combines the technical experience of the offshore wind industry with efficiencies generated by the Crown Estate's access to resources and stakeholders. The Crown Estate will not be involved in the construction or operation of wind farm sites.

Mechanism 5 – Emissions Trading

CLIMATE CHANGE ACT 2008

The UK adopted the Climate Change Act 2008, which requires the UK to reduce its greenhouse gas emissions by 80% by 2050 compared to 1990 levels. The Act created a new statutory committee, the Climate Change Committee, which is responsible for advising the UK Government on the preparation of five yearly carbon budgets (the first carbon budget covers the 2008–2012 period), which the Government will need to implement in order to ensure that the overall emission reduction target set in the Act is reached.

EU ETS UPDATE

7% of the EU emission allowances to the UK for Phase 2 of the EU Emission Trading Scheme (EU ETS) were put aside by the UK government to be distributed by way of auction. The government introduced Auctioning Regulations last year and held its first auction of EUAs in November 2008, with almost four million allowances sold.

The UK Government will now need to work on the implementation of the latest EU ETS Directive for Phase 3 (2013–2020), which will heavily reform the functioning of the EU ETS, in particular with the introduction of full auctioning of allowances for the power sector.

Mechanism 6 – Heat

Currently, CHP is incentivised through the Renewables Obligation and there are a number of grants available to encourage renewable heat, but the UK government has committed to introducing a comprehensive support mechanism, to be known as the Renewable Heat Incentive, by 1 April 2011. We are expecting a consultation paper setting out the details of this incentive to be issued early in 2010.

Mechanism 7 – Transport

The Renewable Fuel Transport Obligation imposes an obligation on suppliers of fossil fuel for road transport to source a gradually increasing proportion of the fuel they supply from renewable sources. The government has committed to amending or extending this obligation in line with its 2020 renewable energy target. We are expecting a consultation paper to be issued on this early in 2010, with the relevant legislation to come into effect in December 2010.

Mechanism 8 – Various sources of funding

Sources of funding include the Government's Technology Programme, Carbon Trust's Applied Research Programme and Technology Acceleration Activities, and the EU's Framework Programme for Research and Technical Development. In addition, a large number of funding sources are available for community, agricultural and micro-generation renewable initiatives.

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