EuroPEX
Association of European Power Exchanges

Renewable Energy • Energy Efficiency • Emission Trading

Benchmark on

Renewable Energy
Energy Efficiency
Emissions Trading

For:
Austria
Belgium
Czech Republic
France
Germany
Italy
Poland
Romania
Slovenia
Spain

EuroPEX Working Group on Environmental Market

July 2010

List of Content

EuroPEX
Association of European Power Exchanges

Renewable Energy • Energy Efficiency • Emission Trading

Summary

This document has been prepared by the members of the Working Group on Environmental Markets (WGEM) organized within EuroPEX (European Power Exchange Association) and aims at providing a simple guide of the different environmental policies implemented in several European countries, including Austria, Belgium, Czech Republic, France, Germany, Italy, Poland, Romania, Slovenia and Spain, to promote electricity production from renewable energy sources (RES), energy efficiency measures to reduce electricity and gas consumption, emissions reduction.

Europe has been very active in the last decade in tackling climate change consequences by introducing several initiatives, among which the Directive 2001/77/CE on the promotion of electricity from RES in the Member States, the Directive 2006/32/CE on energy end-use efficiency and energy services and the Directive 2003/87/CE establishing a scheme for greenhouse gas emission allowance trading within the Community. Both the Directive on renewables and the Directive on energy efficiency gave the Member States the possibility to choose their own policies, with the result of having a different scheme for each country.

The paper focuses on thee main topics, including promotion of renewable energy sources, energy efficiency and emission trading. According to assessment carried out by the members of the WGEM based on collected data from the eight aforementioned countries, it was found that:

- Feed-in-Tariff (FIT) and the market mechanism based on green certificates are the most used to promote renewables. Austria, Czech Republic, France, Germany, Italy, Slovenia and Spain are using FIT in different forms whilst Belgium, Italy, Poland and Romania are using GCM;
- Belgium, France and Italy have established certificate based market mechanisms, the others countries support energy efficiency by investment incentives and/or fiscal advantages;
- Only the Directive on Emission Trading established one single European market for EUAs (Emission Unit Allowances) that can be used to comply with the obligation regardless the country in which they have been issued.

R. Montoyer 31 Bte 9 * 1000 Brussels * Belgium * T: +32 2 512 34 10 * E: secretariat@europex.org * www.europex.org

SECTION 1. Renewable

I. Austria

I.1 Overview

The implementation of the GO for renewable electricity has been adopted in the Ökostromgesetz (Eco-electricity Act) which was passed in August 2002 and amended in 2006, 2007, 2008 and 2009. By this act an Austrian wide harmonized RES-E support scheme based on feed-in tariffs was set up starting in January 2003, when the Act came into force. The levels for feed-in tariffs are defined by ordinance of the Minister of Economic and Labor. The first ordinance was effective for plants approved in 2003 and 2004. Since then four subsequent ordinances have been published in 2006, 2008, 2009 and 2010 valid for plants of different dates of approval and start of operations.

GO are issued on request of the operators of RES devices. The Issuing Body is the grid operator for the grid area to which a RES device is connected. In line with the intention of the RES-E Directive, the Austrian GO system primarily aims to facilitate RES producers and traders to prove that the electricity they sell is renewable. As Austria has a high share of renewables (predominantly hydro) the GO shall assist Austrian companies to export hydro power as electricity with "high quality". For the Austrian market the main purpose of RE-GO is their use within the Austrian electricity disclosure scheme. The disclosure scheme requires each electricity supplier to inform its consumers of the fuel mix of its overall average electricity procurements over the preceding year. Consumers receive this information with their electricity bill. Purchases of renewable electricity can be proven by submitting the corresponding amount of GO to the regulator E-Control. GO for CHP were implemented through the electricity act [1]and similar to RE-GO, the issuing body for CHP-GO would be the grid operator for the according grid area (after the provincial governor has approved the production device as being high efficient CHP). Until now no request has been made at the provincial governor so the system is not implemented yet.

I.2 Disclosure

a. Legislation and regulations

Based on Electricity Liberalization Act 2000 (ELWOG 2000) the Austrian electricity market has been entirely open to competition since 1 October 2001. As the very first country in Europe, Austria has introduced a mandatory scheme for disclosure of generation attributes by the same date. This implied electricity suppliers (and other parties

[1] ELWOG Elektrizitätswirtschaftsgesetz, amendment of 2006

supplying final customers) in Austria were required to display on final customers' electricity bills the respective proportions of the different primary energy sources used to generate the electric energy supplied by them.

As the legal implementation of the scheme for disclosure of generation attributes has originally been done by the Federal Provinces, different kinds of schemes for disclosure of generation attributes have been set up; in some provinces electricity suppliers could choose whether to use "portfolio-disclosure" or "product -disclosure," and in others the electricity suppliers were obliged to use a "portfolio-disclosure." As this heterogeneous situation was not very favorable for costumers or suppliers, a unification of the schemes for disclosure of generation attributes was passed in July 2002, when the Austrian Parliament approved the Eco-electricity Act and an amendment of the Electricity Liberalization Act 2000, implementing a nation-wide scheme for disclosure of generation attributes (§§45 and 45a). This scheme has been obligatory since 1 July 2004, after an initial transition period. Now all electricity traders and suppliers must identify the primary energy sources their electricity is generated from, meaning that the portfolio mix must be displayed on the electricity bills. E-Control, the Austrian energy regulator, having the role of supervising the disclosure in Austria, published guidelines on disclosure in 2004. In the amendment of 2006 the regulation on the disclosure has been extended by adding disclosure of the environmental impact as well as disclosure on advertising material; minimum information concerning the environmental impact, CO2-emissions and radioactive waste that aroused from the production, has to be shown on the disclosure. Consequently, the guidelines published by E-Control were amended and it is recommended to show the environmental impact for CO2 -emissions and radioactive waste in g/kWh. For production devices with known (and certified) emission data, those should be used; for unknown emission data as well as for UCTE, default values for the different energy sources are provided. Every year E-Control monitors the disclosure of all of the electricity suppliers and pub- lishes a report "Stromkennzeichnungsbericht".

b. Tracked attributes

The disclosed attributes are:

- Energy sources in the fuel mix (expressed as percentage of the total amount of electricity supplied to final costumers. Relevant sources are:
  - solid/liquid biomass - biogas
  - landfill and sewage gas
  - geothermal energy, wind and solar energy, nuclear energy, hydropower
  - gas
  - crude oil and its products-
  - other and unknown (UCTE)
- CO2 -emissions in g/kWh

- Radioactive waste in g/kWh
- The legal basis as well as the labeling period (which is the past calendar or financial year)

In Austria a certificate-based tracking system is in place in which usually the certificates are traded together with the physical energy, although separate trading of the physical electricity and the certificates is also possible.

For the amounts of electricity supplied to final customers the fuel sources need to be displayed on a pro-rata-basis where there are certificates. For the other parts "electricity of unknown origin" has to be displayed and as additional statistical information the UCTE-mix has to be shown.

I.3 RE-GO specifications

In line with the RES-E Directive, Austrian GO specifies the energy source, the production date and location and the name of the generator. In addition all RE-GO specify the installed capacity of the corresponding RES device (the Directive requires specification of capacity only for hydro plants). RE-GO do not cover a standardized time period; the decision on the time period has to be agreed between the grid operator issuing the GO and the operator of the RES devices. Validity of GO is theoretically infinite. In reality, validity is limited as the GOs mostly are used for disclosure and the production period of the GO has to be within the labeling period. Disclosure has to be accomplished no longer than 4 months after the end of the financial year. Hydro stations have to be annually fuelled by at least 3% of renewable primary energy sources in order to be eligible to the GO system. E-Control (the regulator) is supervising the system and is operating a central registry for the GO. The standardized unit for the electronic records is 1 kWh. Although the issuing of certificates (on paper or via the registry) is not specified by law, the vast majority (84.2% in 2006) of the GOs are issued in the database.

a. Accreditation and verification

Only RES devices which have been accredited are eligible to receive GO. Accreditation is the responsibility of the "Bundesländer" (the counties). The accreditation is based on legal or accredited documents which have been issued and testified in the course of the licensing and approval procedure of the plant. Nevertheless the whole accreditation process is more or less based on self-declaration as no independent audit is foreseen as part of the accreditation process. Verification is organized at the level of the Bundesländer. In case an RES operator fraudulently or incorrectly obtains GO the possible sanctions include the corresponding RES operator loses the right to be eligible to the feed-in tariff system (in case of eligible devices) or the eligibility to receive GO and GO which have been fraudulently issued will be eliminated. Once a GO is "used" (e.g. for

electricity disclosure) it will be redeemed. Redeemed GO cannot be traded anymore. In the course of redemption the electronic record will be earmarked in the registry. The entity which uses the GO receives a redemption statement which reveals information on the purpose the GO has been used for. If a supplier uses the GO to prove compliance with the information on his disclosure label, this in- formation will be printed on the redemption statement.

b. Costs

The accreditation of RES devices as well as the issue of GO is free of charge for the plant operators. In addition the buyers of renewable electricity do not have to pay any fees for obtaining GO. Costs that occur to grid operators for issuing the GO can be allocated to system charges but have to be verified and approved by E-Control. All costs related to the registry are covered by E-Control.

c. Interaction with existing policy

By adopting the Ökostromgesetz, Austria has focused its support policy for renewable electricity to a feed-in system. RES generators receive technology-specific fixed feed-in tariffs that are paid by OeMAG (the Green Electricity Company). Supported electricity is transferred to the OeMAG who allocates it directly on an equal pro-rata basis to all electricity companies supplying final consumers. The feed-in tariffs paid by OeMAG are financed by a) the settlement price paid by the electricity suppliers for each allocated kWh of renewable electricity and b) by the "Zählpunktpauschale", a lump sum per meter paid by the final costumer. GO for supported electricity are directly transferred to the account of OeMAG, and from there allocated to the final suppliers together with the electricity.

d. Management of the feed in operations by OeMAG (www.oem-ag.at)

Since October 2006 „OeMAG Abwickungsstelle für Ökostrom AG" (Clearing and Settlement Agent for RES-E power inc.) operates in the sense of a public private partnership model all tasks related to FIT-management i.e.:

- Purchasing of the RES-E power for the prices as defined in the Eco-electricity Act
- Calculation of the RES-E power quotas
- Daily allocation of RES-E power according the quotas to power traders
- Managing newly approved subsidy quotas
- Administration of the subsidy applications

e. Support mechanisms

GO from RES devices which receive feed-in tariffs will be earmarked. Therefore GO will specify whether the electricity they represent has been supported by the feed-in system or not.

f. International trade

RES producers and traders who sell renewable electricity are obliged to transfer the corresponding GO on request to the buyer. If the buyer of renewable electricity does not request the linked GO, the GO expires or can be transferred to another buyer. Transactions of GO are usually linked to physical trading arrangements. Thus it is not explicitly foreseen that a separate market place will be introduced for trading the GO.

Export of GO is in the form of RE-GO or, where the production device is qualified, as RECS. E-Control has established an interface between the RECS-CMO and the registry as well as to the HUB.

Once a GO is transferred into the Austrian RECS system or to the HUB it is immediately redeemed in the Austrian GO system.

GO imports will only be recognized in the Austrian GO system if the exporting country has adopted appropriate legislation which complies with the requirements of the RES Directive. In case of doubt E-Control has been appointed to decide whether a country fulfils the conditions. The vision is that more and more countries will join the HUB to make international trade and transfer of RES-GO feasible.

g. Small generators

There are no capacity limits for small generators. The only preconditions are that RES devices are accredited by the Bundesland and that it is connected to the public grid in order to be eligible to the GO system.

h. RECS

The GO and the RECS system coexist. Operators of RES devices can be accredited for RECS as well. In that case each certificate produced is earmarked as RECS as well as RE-GO but it can only be used as RECS OR as a RE-GO.

1.4 CHP-GO specifications

a. Accreditation and verification

Only HE-CHP devies which have been accredited are eligible to receive GO. Accreditation is the responsibility of the Bundesländer. The accreditation is based on legal or accredited documents which have been issued and testified in the course of the

licensing and approval procedure of the plant.

b. Costs

The accreditation of CHP devices as well as the issue of GO is free of charge for the plant operators. In addition the buyers of renewable electricity do not have to pay any fees for obtaining GO. Costs that occur to grid operators for issuing the GO can be allocated to system charges but have to be verified and approved by E-Control. All costs related to the registry will be covered by E-Control.

c. Support mechanisms

Depending on the age of the CHP-plant there are different kinds of support mechanisms for CHP; existing and modernized plants receive an additional tariff for any (proved) supplemental costs whereas new plants are receiving investment grants.

d. International trade

GO imports will be recognized in the Austrian GO system if the exporting country has adopted appropriate legislation which complies with the requirements of Art 5.5 of the directive 2004/8/EU. In case of doubt the Bundesländer have been appointed to decide whether a country fulfils the conditions.

e. Small generators

There are no capacity limits for small generators. The only preconditions are that RES devices are accredited by the Bundesland and that it is connected to the public grid in order to be eligible to the GO system.

f. Coordination of RE-GO and CHP-GO

CHP-GO are not implemented in the Austrian database yet as there has not been any demand for it so far. In the case of arising demand, CHP-GO will be integrated in the existing registry and the generated GO will be earmarked with CHP.

If there are GO qualifying for more than one scheme (e.g. for RES and CHP), the production devices will receive 1 GO per kWh qualifying for both schemes and the owner will have to decide what it will be used for (either as CHP-GO or as RE-GO).

I.5 Feed In Tariffs

Very much depending on year of implementation.

II. Belgium

II.1: Description of the characteristics of each country

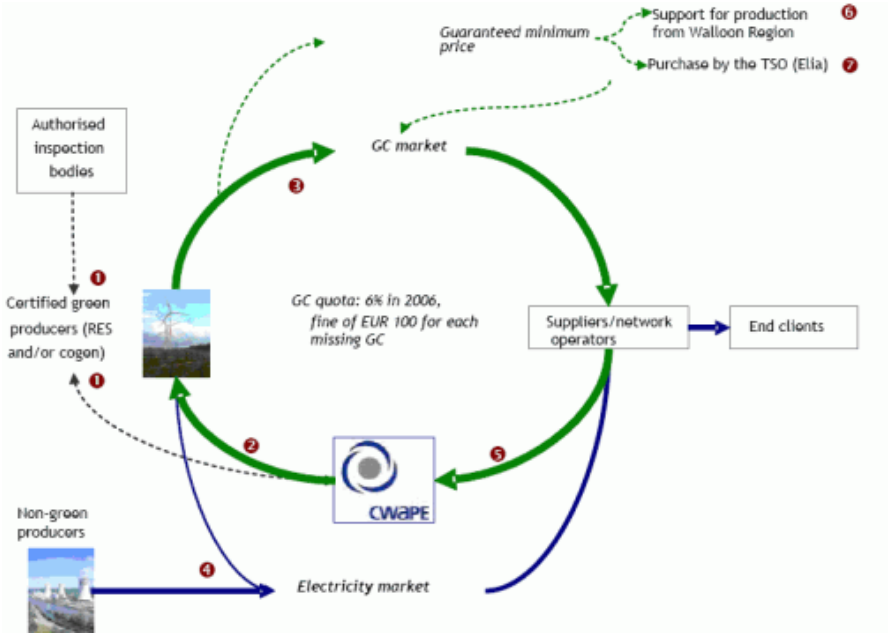
a. Legal framework and objectives

Belgium adopted a market based approach to support renewable energy, by installing a certificate-system. Within the framework of the European directive 96/92/EC1 concerning the common rules for the market in electricity, the Regions[2], issued laws, decrees and regulations concerning the organization of the regional electricity market. The Regions in Belgium are Flanders (the north of the country), Wallonia (the south) and Brussels (the city itself). Each region is controlled by its own government.

The regional Governments issued then orders concerning the promotion of the green electricity. They set out, among others, the system of green certificates applicable in each Region. Four types of green certificates exist in Belgium: the Flemish ones, the Walloon ones, the Brussels ones and the federal ones. In addition, a certificate system for combined heat and power production is in place in Flanders.

b. The system for the green certificates for the Walloon Region

Extract of the "Specific Annual Report for 2006 on the evolution of the green Certificate Market" issued by the CWaPE (reference: CD-7i04-CWaPE). The diagram below shows the green certificates (GC) support mechanism.



A producer wishing to register an electricity production unit submits a preliminary application for issue (PAI) to the CWaPE. A certificate guaranteeing origin (CGO)

[2] Within their competence area concerning electricity distribution - networks with a voltage less than or equal to 70 kV.

produced by an authorized inspection body must be included with the application in order to certify that the facility is compliant. Once the application has been accepted by the CWaPE, the production unit is registered as being certified for the production of green electricity (1). The production unit can be either a production unit for green electricity or a cogeneration unit. The amount of green certificates that the producer receives for each MWh depends on efficiency in CO2 emission of the unit compared to a classic similar unit fuelled by fossil fuels.

Each quarter, the producer sends readings from the energy meters to the CWaPE. The CWaPE then issues GCs(2) on the basis of these readings. Once in possession of the GCs, the producer can negotiate to sell them to any buyer active on the GC market (3). This is done independently of the sale of the physical electricity produced (4).

Each quarter, the electricity supplies in Wallonia declared by the suppliers and measured by the network operators are sent to the CWaPE. On the basis of this information, the suppliers and network operators are obliged to send the CWaPE a quota of GCs proportional to the amount of electricity supplied during the quarter. A fine of EUR 100 for each missing GC is levied (5).

As an alternative solution to the sale of green certificates obtained for production of electricity from renewable energy, the Decree makes provisions for a system of aiding production (guaranteed minimum price of 65€/certificate) (6). The federal Government has also made provisions for a system whereby the transmission system operator (TSO-Elia) is obliged to purchase green certificates at a minimum price. The green certificates bought by the TSO are then resold on the GC market (7).

More details can be found on the CWaPE website.

c. The system for the green certificates for the Brussels Region

With the ordinance of July 19th, 2001, the Brussels government has implemented a similar certificate system as the Walloon system in the Brussels Region. The differences with respect to the Walloon system relate to:

- the criteria for the approval of a production unit are different from Wallonia (f.i. the minimal reduction of C02 emissions compared to a reference unit is only 5% instead of 10% in Wallonia);
- since the Brussels area technically does not have sufficient green power production, a limited certificate import is allowed from Wallonia, whenever the importing party can proof that it has taken all possible measures to find Brussels certificates without success.

d. The system for green certificates for the Flemish Region

Since1 January 2002 a green certificate system has been in effect in the Flemish Region, with which Flanders aims to promote power generation based on renewable energy sources. The general principle of the green certificates system is similar to the system of the Walloon Region.

The general principle of the green certificates system is similar to the system of the Walloon Region with some differences among which:

- different rules to determine the number of issued green certificates: in Flanders, each approved production unit receives 1 green certificate per MWh of electricity produced;
- the green certificates concern only the electricity produced from renewable energy sources (and not high-efficiency cogeneration);
- the quota obligation differs in each Region;
- the quota return is realized on an annual basis (and not quarterly);
- the fine (125 €) and the guaranteed minimum price (0€ over 90€ up to 450€) are different;
- there is a link between the green certificates and the guarantees of origin, which can only be broken by returning the two certificates together for the quota obligation, in which case the VREG returns the guarantee of origin back to the supplier.

More details can be found on the VREG website.

e. The system for combined heat and power certificates for the Flemish Region

The general principle of the combined heat and power certificates system is similar to the system of the green certificates with some differences among which:

- different rules to determine the number of issued certificates;
- the combined heat and power certificates concern the electricity produced from high-efficiency cogeneration;
- the quota obligation is different from the other systems;
- the fine (45 €) and the guaranteed minimum price (0 to 27 €) are different.

More details can be found on the VREG website.

f. The system for off-shore certificates

The general principle of the off-shore certificates system is similar to the system of the green certificates in Wallonia with some differences among which:

- different rules to determine the number of issued certificates: the producer gets 1 green certificate per MWh electricity produced;

- since there are no consumers of off-shore electricity, there is no quota obligation on the suppliers. Instead, all certificates are sold to the TSO (Elia) at prices defined by law (in between 90 and 107 €).

More details can be found on the CREG website.

II.2: Import/Export - Guarantees of Origin

Guarantees of origin in Belgium are managed on a regional level, implying that three registries are governed with respect to the 'Belgian GoO'. The registries are operated by the issuing bodies, namely the VREG, the CWAPE and Brugel. In general, Belgium is an importing country, because a tax discount (of about 1.3 €/MWh) is given to electricity supplied with a guarantee of origin. For GoO's produced by high efficient cogeneration units, no import/export is possible, but their application in Belgium with respect to the tax discount remains valid.

As stated in Chapter 1.1, the GoO in Flanders is linked to the certificates system. A green producer will receive a green certificate for every MWh produced, and if the MWh is introduced in the electricity grid, a GoO is linked to the certificate. The combined product can be exported in which case the value of the green certificate part is lost. Therefore, if export is put into practice, common sense would suggest the user to use the green certificate part for its quota obligation, and export the returned GoO afterwards. Import and export to/from Flanders is possible with the following member states: Belgium (Wallonia), Belgium (Brussels), Austria, the Netherlands, Sweden, Finland and Norway (source: website AIB).

Since January 1st, 2007, the CWAPE issues GoO's in Wallonia. Export of these GoO is currently not yet possible, except for the Chapter 1 part, because of the fact that each guarantee of origin is received next to a green certificate, which is a financial support, and therefore, the Walloon GoO is not compliant with the AIB ECSS for export. Import of GoO is possible from Austria, Belgium (Brussels), Belgium (Flanders), the Netherlands, Sweden, Finland and Norway. Brussels follows a similar protocol.

Currently, guarantees of origin for the off-shore production of renewable energy do not yet exist. The legal framework is being drafted for the moment.

III. Czech Republic

III.1. Promotion of electricity production from renewable energy sources

The Parliament adopted in March 2005 the Act on the promotion of electricity production from renewable energy sources.

This Act regulates, in accordance with the legislation of the European Communities, the method of promoting the production of electricity from renewable energy sources and from mining gas from closed mines, the performance of state administration, and the rights and obligations of natural and legal persons connected therewith.

The purpose of this Act is, in the interest of protection of the climate and protection of the environment, to:

(a) promote the use of renewable energy sources ("renewable sources")

(b) ensure constant increase of the share of renewable sources in consumption of primary energy sources

(c) contribute to economical use of natural resources and sustainable development of society

(d) create conditions for fulfilment of the indicative target for the share of electricity from renewable sources in the gross consumption of electricity in the Czech Republic amounting to 8 % in 2010, and for further increase of this share after 2010.

Share of energy consumption from renewable sources in **2007** was in the Czech Republic **4,74%**.

a. Subject of promotion

Promotion pursuant to the Act is relevant to production of electricity from renewable sources produced in plants in the Czech Republic using renewable sources, excluding wind power plants located over an area of 1 km2 with a total installed capacity exceeding 20 MWe.

Promotion of electricity production from renewable sources is stipulated differently regarding the type of the renewable sources and the magnitude of the installed capacity of the production plant and, in case of electricity produced from biomass, also according to the parameters of the biomass laid down in an implementing regulation.

When determining promotion, the Energy Regulatory Office (Energetický regulační úřad; hereinafter referred to as the "Office") is providing economic advantage, for the purposes of exclusive combustion of solid biomass, for the use of waste biomass from production of timber and industrial processing of timber and, in case of combined combustion of solid biomass and a non-renewable energy source, for purpose-grown energy biomass.

The promotion is also relevant to production of electricity from mining gas from closed mines.

Rights and obligations of the entities on the market in electricity from renewable sources:

1) The transmission system operator or the distribution system operators are obliged to preferentially connect to the transmission system or to the grid systems plants for the purpose of transmitting or distributing electricity from renewable sources.
2) Producers of electricity from renewable sources eligible for promotion have the right to choose whether:
    a. to offer their electricity to operator of the regional grid systems or the operator of the transmission system; or
    b. to request a green bonus for this electricity.
3) Operators of the regional grid systems and the operator of the transmission system are obliged to purchase all electricity from renewable sources eligible for promotion (**mandatory purchase**) and to conclude a supply contract, if a producer has offered electricity from renewable sources.
4) Operators of the regional grid systems and the operator of the transmission system use electricity from renewable energy sources to cover losses.
5) If a producer of electricity from renewable sources eligible for promotion hasn't offered this electricity for mandatory purchase and has sold it on the electricity market, the operator of the relevant regional grid system or the operator of the transmission system is obliged to pay to the producer for this electricity a **green bonus** expressed in CZK/MWh.
6) In case of combined production of electricity from a renewable source and a non-renewable source, the promotion is provided only by means of green bonuses.
7) The right to payment of green bonus is applied to producers producing electricity from renewable sources for their own consumption.

b. Certificates of origin

On the basis of a written request from a producer producing electricity from renewable sources, the electricity market operator (OTE) issues a certificate of origin of electricity from renewable sources ("guarantee of origin").

The Ministry of Industry and Trade performs recognition of guarantees of origin issued in another Member States of the European Communities.

c. Conditions for promotion, purchase and recording of electricity production from renewable sources

The basic time period for evaluation of and accounting for purchase of electricity from renewable sources is 1 month.

Upon submission of data on the amount of electricity produced from renewable sources to the operator of the regional grid system or to the operator of the transmission system, the producer acquires the right to payment of green bonus.

d. Amount of prices for electricity from renewable sources and green bonuses

The Office always determines the purchase prices for electricity from renewable sources ("purchase prices") for the subsequent calendar year in advance, separately for the individual types of renewable sources and green bonuses, so as to:

a) create conditions for fulfilment of the indicative target for the share of electricity production from renewable sources in the gross consumption of electricity, which equals to 8 % in 2010, and

b) for plants being put into operation:

   1. fifteen-year period of recovery of investment is achieved with promotion by purchase prices, under the condition of compliance with the technical and economic parameters, including in particular the costs of an installed unit of capacity, efficiency of use of the primary energy contents in the renewable source and the period of use of the plant, which are stipulated in an implementing regulation;

   2. the level of revenues per unit of electricity from renewable sources is maintained, as a minimum, with promotion by purchase prices, for a period of 15 years from the year of putting the plant into operation, taking into account the price index of industrial products;

Example of support for different types of renewable energy sources

	Purchase prices of electricity supplied to the network [€/MWh]	Green bonus [€/MWh]
Small hydroelectric power stations commissioned on new sites after 1 January 2008	105 €	47 €
Wind power plants commissioned after 1 January 2009	91 €	63 €
Electricity generation using geothermal energy	175 €	122 €
Electricity generation using solar radiation after 1 January 2009, with an installed capacity of up to 30 kW	500 €	462 €

III.2. Energy management

The Parliament adopted in October 2000 the Act on Energy Management. This Act transposes the applicable laws of the European Communities and sets out:

a) Certain measures for increasing the efficiency of energy utilisation and the obligations of natural and legal persons in energy use;

b) Rules for the drafting of the National Energy Policy, Territorial Energy Policy, and the National Programme the Promotion of Energy Conservation and the Use of Renewable Sources of Energy;

c) Requirements as to the eco-design of energy-using products.

a. National programme for the promotion of energy conservation and the use of renewable sources of energy

The National Programme for the Promotion of Energy Conservation and the Use of Renewable Sources of Energy ("Programme") is a document embodying the objectives concerning the increasing of energy efficiency, improving of energy performance, and use of renewable and secondary sources, in line with the approved National Energy Policy and with the principles of sustainable development.

The Programme is elaborated by the Ministry of Industry and Trade in agreement with the Ministry of Environment, for a one-year period, and it is submitted to the government for approval.

Subsidies from the national budget may be provided for the implementation of the Programme for:

a) Energy-conservation measures designed to increase the efficiency of energy use and improve the energy performance of buildings;

b) Development of the use of combined electricity and heat generation and of secondary sources of energy;

c) Upgrading energy production and distribution facilities;

d) Modern technologies and materials for energy-conservation measures;

e) Developing the use of renewable and secondary sources of energy;

f) Developing the use of municipal waste in energy generation;

g) Awareness, education, training, and the provision of advice concerning energy management;

h) Science, research, and development in the sphere of energy management, energy conservation, and the use of renewable sources of energy;

i) Elaborating a Territorial Energy Policy and the tools for its implementation;

j) Introducing building energy performance documents and the carrying out of energy audits;

k) Incentives for small, medium-sized, and micro-enterprises manufacturing energy-using products, promoting the introduction of new processes that lead the way in complying with eco-design requirements.

b. Certain measures to increase the economical use of energy

Energy Efficiency

With respect to furnaces incinerating liquid, gas, or solid fuel, the owner or operator shall ensure a regular inspection of their efficiency.

For facilities used for central heating, with a nominal output in excess of 20 kW, for which more than 15 years have passed since their introduction into service, the owner or operator shall ensure a one-time inspection of furnaces and internal heat lines.

Energy Performance of Buildings

The builder, building owner, or condominium association ensures that the requirements as to the energy performance of buildings are met, and the comparative indicators set by an implementation regulation are complied with, and complies with the requirements set by the relevant harmonised Czech technical standards. The implementation regulation sets out the requirements as to the energy performance of buildings, comparative indicators, methods of calculating building energy-performance, and details relating to meeting those requirements.

The builder, owner of a building, or condominium association proves compliance with the requirements by means of a building energy performance document which is enclosed when demonstrating compliance with general technical requirements for the construction. The document constitutes a part of documentation in:

a) The construction of new buildings;

b) Major changes of completed buildings with an overall floor area in excess of 1,000 sqm, which have an impact on the building's energy performance;

A document for a new building, with a total floor area in excess of 1,000 sq m, shall include the outcomes of the assessment of the technical, environmental, and financial feasibility of alternative heating systems, which are:

a) Decentralised energy supply systems based on energy from renewable sources;

b) Combined generation of electricity and heat;

c) Distance or block central heating or, if required, cooling;

d) Heat pumps.

Combined Generation of Electricity and Heat

Each heat producer with a source having an aggregate output in excess of 5 MWt shall, in building new sources or when changing completed buildings with already built sources, subject the building documentation to an energy audit, in terms of the introduction of electricity generation.

Each producer of electricity from heat processes with a source having an aggregate output in excess of 10 MWe shall, in building new sources or when changing completed buildings with already built sources, subject the building documentation to an energy audit, in terms of the introduction of the supply of heat.

When a producer decides to implement combined electricity and heat generation, it shall comply with the rules for the design of the facility and for energy efficiency.

Energy Audit

An energy audit is carried out by an energy auditor. An energy audit shall be elaborated with the use of energy-efficient materials and processes, objectively and truthfully. An energy audit shall be completed with a written report that shall contain:

a. An assessment of the present level of the assessed energy facility and buildings;
b. The overall level of energy savings achieved, including the input and output information and calculation methods used;
c. A proposal of the selected variant recommended for the achievement of energy savings, including financial reasons.

The obligation to subject an energy facility or a building to an energy audit shall be binding upon the following persons having ownership or another right of use:

a. Every natural or legal person applying for a subsidy in the Programme, if the installed output of the energy source exceeds 200 kW;
b. Organizational components of the State, organisational components of the regions and municipalities, of the City of Prague, and organisations subsidised by public funds, with aggregate annual energy consumption higher than the value set by an implementation regulation;
c. Natural or legal persons, except for organisations subsidised by public funds, with aggregate annual energy consumption higher than the value set by an implementation regulation.

An energy audit may be carried out by a person settled in another European Union Member State, if that person engages in the work of an energy auditor in the Czech Republic temporarily or occasionally, provided that the person is:

a) A national of a European Union Member State,

b) Authorised to work as an energy auditor under the laws of another European Union Member State.

c. Amendments of the Act

The Act on Energy Management was amended several times in 2003, 2004, 2005, 2006, 2007 and 2008

IV. France

IV.1. Trading of Renewable Energy

According to the EU 2020 target, the French government has committed to meet a 23%-stake of renewable sources in its energy mix in 2020 (from 10% in 2005, mainly supplied by hydro units). This target has been specifically set to 25,000 MW installed for wind (810 MW in 2006) and 5,300 MW for solar (33 MW in 2006).

a. State-oriented supports

Since 2001, the main support mechanisms for renewable energy in France have been:

- feed-in-tariffs (FIT),
- public tendering procedures are also used by the government to set-up large renewable projects (the latest one, held in June 2009, was about installing at least one PV power station in each region of France for an overall capacity of 300 MW),
- tax credit enabling up to 50% of the renewable energy equipment investment to be recovered.

The FIT are the following (for continental France):

PV building-integrated	602 €
PV ground based	328 €
Offshore wind	130 €
Geothermal	120 €+ bonus on energy efficiency (0 to 30 €)
Onshore wind	82 €
Biogas	75 to 90 € + bonus on energy efficiency (0 to 30 €)
Hydro	61 € + bonus for small units (5 to 25 €)
Biomass	49 € + bonus on energy efficiency (0 to 12 €)

Those FIT are set by long term contracts (15 to 20 years) between the producer and the incumbents (mainly EDF). It means that EDF is the buyer of this production at a fixed price, and for the volume of MWh that is fed into the network. EDF recovers the price difference between the market and the FIT via a part of the CSPE ("Contribution au Service Public de l'Electricité": contribution to the public service of Power), which is paid by all final customers on their electricity bills. It boils down that the final customer

bears the cost arising at EDF to pay for renewable-energy-sourced electricity fed into the grid by whatever supplier.

So far, only large hydro power stations (which can economically compete with other technologies on the open market) are not using those FIT. All the other units produce under FIT contracts.

b. Market-based supports

On top of these very state-oriented mechanisms, France has 2 different systems for tracking and guarantying renewable: RECS green certificates and Guaranties of Origin (GoOs). Both give rise to OTC transactions, in separated markets.

France has been part of the RECS initiative since 2001, when Observ'ER, an association specialized in publishing reports about renewable energy, has been designated as the issuer of green certificates in France.

In 2005, in the POPE Law, the concept of GoO has been introduced and RTE (the French grid operator) designated by decree as the national issuer of GoOs.

Producers can use either the first or the second system for their green power, depending on their choice to use FIT or not.

Producers under FIT contracts are able to ask Observ'ER for green certificates (and then a RECS green certificate is provided for each MWh of renewable power fed into the grid) but cannot ask RTE for a GoO, since, by law, in that case, the GoO belongs to the buyer of the power.

This matter of fact has two consequences. All RECS green certificates are delivered to producers who are already supported by the FIT contracts. The existing GoOs in France come mainly from large hydro stations, as they are practically the only units out of the FIT scheme.

Today, green certificates are mainly used for disclosure purpose, as a vast majority of green power offers on the retail market are based upon green certificates.

GoOs are mainly exported to Italy, to help Italian suppliers to meet their individual mandatory targets set by the Italian scheme.

V. Germany

V.1. Trading of Renewables

In Germany the Renewable Energies Act (EEG) has the task of increasing the share of renewable energies in the total power consumption in order to ensure fulfilment of the aims of the latest EU Directive 2009/28/EC specifying a share of 20 percent of renewable energies. Germany has even set a national aim of 30 percent to be achieved by the year 2020.

Under the Renewable Energies Act (EEG) power transmission system operators (TSO) are obliged to give power from renewable energies priority and pay a fixed price – the so-called feed-in compensation – for this. So far, the power has been forwarded by the TSOs to utility companies afterwards (roll-over scheme). The costs for this subsidisation have been passed on to the consumer in the form of financing through cost allocation. This means power from renewable energies has not been part of the competitive market because of the guaranteed feed-in compensation.

The revision of the law in 2009 provides for the initial requirement for the TSOs to market the compensated power from renewable energies on the existing spot market (intra-day/day-ahead) of a power exchange from 01 January 2010. The revenue from the market prices achieved, in turn, will be used to finance the subsidisation in the form of the feed-in compensation. To that end, the four German TSOs have already been licensed for trading on the Power Spot Market of EEX in the course of the year 2009. Following the transfer of the German Power Spot Market from EEX to EPEX SPOT on 1 September 2009, the TSOs will market the power from renewable energies on EPEX Spot in the future.

a. Green certificates and Guarantees of Origin

In Germany an obliged green certificate mechanism is not in place yet. Due to the fact of the feed-in tariff of the Renewable Energy Sources Act there is no inducement to use a System of Guarantee of Origin in the form of certificates. Furthermore, the Renewable Energy Sources Act prohibits a multiple sale3 of renewable energy, i. e. operators use feed-in tariffs shall not be permitted to forward any guarantee for this electricity.

However, it is possible for market participants to trade green certificates on a voluntary basis within the European Energy Certificate System (EECS). Due to the fact that most of the suppliers come from abroad there is an excess of imports. The Öko-Institut acts as the national Issuing-Body. It is responsible for the registration of the guarantees of origin and the operating of the national registry. The trading takes place only OTC.

[3] Renewable Energy Sources Act, Section 56 "Prohibition of multiple sale".

VI. Italy

VI.1. Green certificates Mechanism

The Green Certificate System has been introduced in Italy to stimulate electricity production from renewable sources through a market mechanism, with the goal of replacing the old CIP 6/92 feed-in tariff system. The mechanism is based on the obligations for electricity producers, who can comply either by producing electricity from renewable sources and/or buying Green Certificate.

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
% Obligation	2.00	2.00	2.35	2.70	3.05	3.80	4.55	5.30	6.05	6.80	7.55

a. Obligations

Starting from the year 2002, all electricity producers from conventional sources or importers must comply with an obligation to inject into the grid an amount of electricity produced with renewable sources equal to 2% of the total electricity produced or imported in the preceding year. This obligation has been increased by 0.35% each year in the period 2004–2006 and by 0,75% each year in the period 2007-2012, as shown in the following table:

The target can be met either by producing electricity directly from renewable sources or by buying Green Certificates (GCs) from other producers. By March 31 of each year, starting from 2003, each producer and importer has to deliver an amount of GCs equivalent to its obligation.

b. Green Certification

A renewable plant that entered into operation after April 1, 1999, is eligible for Green Certification. GSE is responsible for the qualification of renewable plants. Technical features of plants that apply for qualification are examined by a commission; if the conditions are satisfied, the plant is qualified as a renewable plant and is eligible for Green Certification for 15 years in a row after the plant entered into operation.

GCs are issued by GSE on the basis of electricity produced in the preceding year or the expected production of the current year and the following year. Each GC represents 1 MWh of electricity produced with renewable sources, and it is identified by the year in which the production took place. The number of GCs issued is given by the quantity of MWh produced in one year times a K factor, which is related to the source used for the electricity production (1,00 for wind and hydro, 1,80, for biomass and tidal waves etc.)

A GC related to one year can be used to comply with the obligation of the same year or the following two years.

c. The Market

Gestore del Mercato Elettrico (GME) had a mandate to set up an organized market for GC trading.

In March 2003, the GME market entered into operation. Since then, several continuous trading sessions have been organized. They usually take place once a week where GME acts as central counterparty.

Operators must provide financial guarantees to be allowed to buy in the market. Sellers can sell GCs owned in their GC Registry account.

Bilateral contracts are also allowed. Starting from 2009, all bilateral transactions must be registered in the "Piattaforma Bilaterali CV"(PBCV), a functionality of the GME market where operators must declare prices and quantities involved in their transactions.

d. CIP6/92 Feed-in tariff system and the GC market

For some years ahead, we will have a transition phase in which both CIP 6/92 and GC mechanisms will function side by side. Indeed, renewable plant owners had the option of applying to remain in the CIP 6/92 system and have the right to sell electricity for eight years to Gestore Servizi Elettrici (GSE) receiving a feed-in tariff for the same period. GSE is consequently then able to both sell that electricity to the electricity market and GCs to electricity producers, as those plants are eligible for Green Certification. For those who had not exercised this option, which expired in 2000, there remained only the possibility of being qualified as a renewable plant to get Green Certification. Once the eight-year period is over, the plants under CIP 6/92 will no longer receive the feed-in tariff.

GSE can the sell the GCs into the market at a fixed price settled by law and equal, relatively to one year, to € 180 – electricity average price of the year

GSE will sell GCs in the market only is there is a situation of over demand, allowing electricity producers to sell their GCs without being overcrowded. When GCs owned by producers are enough to satisfy the demand, GSE will not sell any GC and will recover its costs through the electricity consumers' tariffs.

Even though the deadline to be still qualified as CIP6 plant expired in year 2000, some plants that applied for entered into operation later and then will still receive the feed-in tariff in the near future.

e. Verification

Every year, by March 31, all producers and importers must communicate to GSE the number of GCs to be cancelled in order to comply with their obligations. GSE cancels GCs from the operator's account in the Registry. The Authority for Energy and Gas (Italian Regulator) imposes a penalty for those who do not comply.

f. Temporary measure

In order to stabilize the market which recently has experienced an excess of supply, a temporary measure has been introduced. In each year of the 2009-2011 period, GSE will withdraw all GCs in excess, issued in the previous years, with respect to the quantity needed for the obligation. The redemption price will be equal to the weighted average of all GCs prices traded in the previous 3 years in the GME market platform, either through the organized market and bilaterally.

It should guarantee a balance between demand and supply till 2011 and a consequent support for prices.

g. GOs and Green Certificates

GOs cannot be used to comply with the obligation but an importer (obliged party) that provides a GO for each MWh imported is not eligible for obligation. The GOs must be presented to GSE that will evaluate if accept them or not. Should it refuse them, it must provide appropriate motivation.

The natural consequence of the exemption through GOs, given the price gap between Gos and Italian GCs, is that the overall demand of GCs from importers drops, with effects of market equilibrium.

VII. Poland

VII.1 Genesis of Polish Green Certificates Market

Entering of Poland into the European Union has obliged Poland to adapt applicable law regulations to the law regulations being in force in the European Union. The regulations mentioned above concerned – among others – promotion of electricity generated in renewable sources and in co-generation sources.

With reference to electricity generated in the renewable sources Poland had to adapt applicable Polish regulations to the regulations included in the Directive No KE 77/2001/WE. The Directive specifies share of electricity generated in the renewable sources in total amount of electricity consumed in individual member countries, and also it imposes the obligation to implement the system of so-called “certificates of origin”.

The Treaty of Accession assumes that Poland reaches the following share of consumption of electricity generated in the renewable energy sources in relation to final electricity consumption: till year of 2010 – 10,4%, till year of 2020 – 15% and till year of 2030 – 20%. Similar action has been used in case of so-called “cogeneration directive” dated on the year of 2004 (2004/8/WE) that promotes production of electricity in cogeneration with production of thermal energy. Adaptation of Polish law regulations to European

Union law regulations took place on March the 4th 2005, and consisted of amendments to the Power Law Act as well as the Environment Protection Act.

The adaptations included:

- Introduction of certificates of origin for electricity produced in the Renewable Energy Sources and in the co-generation,
- Establishing of the exchange trade of the green certificates issued on the basis of certificates of origin,
- Burdening the enterprises, which generate or trade in electricity and which sell the electricity to final recipients on the territory of Poland with obligation to obtain and submit for redemption **the certificates of origin** confirming generation of the electricity or payment of the replacement fee.

The regulations in distinct manner separate the commodity (electricity) and the system of designation of electricity generated in the renewable energy sources, composing simultaneously an additional source of income from sale of certificates coming from the certificates of origin.

Share in total amount of generated electricity amounted in in 2008:

- green electricity – 5,3 %,
- yellow electricity – 1,65 %,
- red electricity – 18,34 %

VII.2. Green Certificates

The stipulations stated in the Power Law Act oblige all power enterprises, which generate electricity trade in it and which sell the electricity to final recipients located on the territory of Poland to obtain and submit for redemption certificates of origin confirming the source of generation of the electricity or payment of the replacement fee.

On the basis of the Certificates of Origin, issued by the Energy Regulatory Office, the Green Certificates are issued. The Green Certificates is generated at the moment when the Certificates of Origin are entered into the account of the entity they are issued to. Number of the Green Certificates corresponds to amount of electricity specified in given Certificate of Origin.

Depending on type of generation source, specified in corresponding Certificate of Origin, there are following certificates:

- The Green Certificates issued on the basis of the certificates of origin for electricity generated in the Renewable Energy Sources,
- Two types of the Certificates issued on the basis of the certificates of origin for electricity generated in cogeneration:
    - The Certificates issued on the basis of the Certificates of Origin for energy coming from high-efficient Combined Heat and Power Units, gas fuel fired

or with total installed electrical power of the source lower than 1 MW ("Yellow Certificates"),

- The Certificates issued on the basis of the Certificates of Origin for energy coming from all other high-efficient Combined Heat and Power Units ("Red Certificates").

a. Obligation to buy and redeem the Certificates of Origin

Power enterprise that sells electricity to final recipients connected to the network on the territory of the Republic of Poland is obliged to:

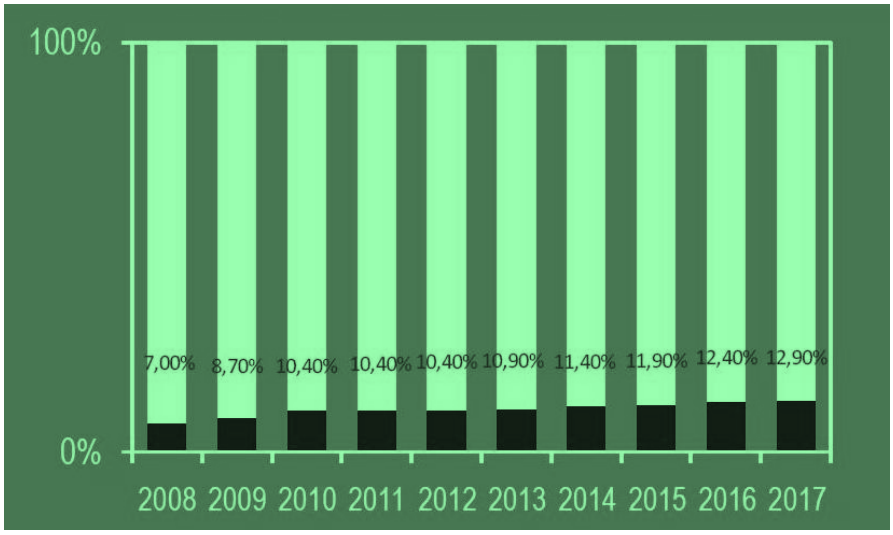
- obtain and submit for redemption to the Energy Regulatory Office the Certificate of Origin for energy generated in the Renewable Energy Sources and in the cogeneration, or
- pay the replacement fee according to lacking amount of the Certificates of Origin.

Number of the certificates, which are encompassed by the obligation as above, is a derivative of volume of energy coming – respectively – from the Renewable Energy Sources or generated in high-efficient Combined Heat and Power Units (yellow energy or red energy) that represent specified percent of total annual sale of the energy for final recipients by the obliged power enterprise – required for given year and resulted from applicable regulations.

VII.3. Green Certificates obligation

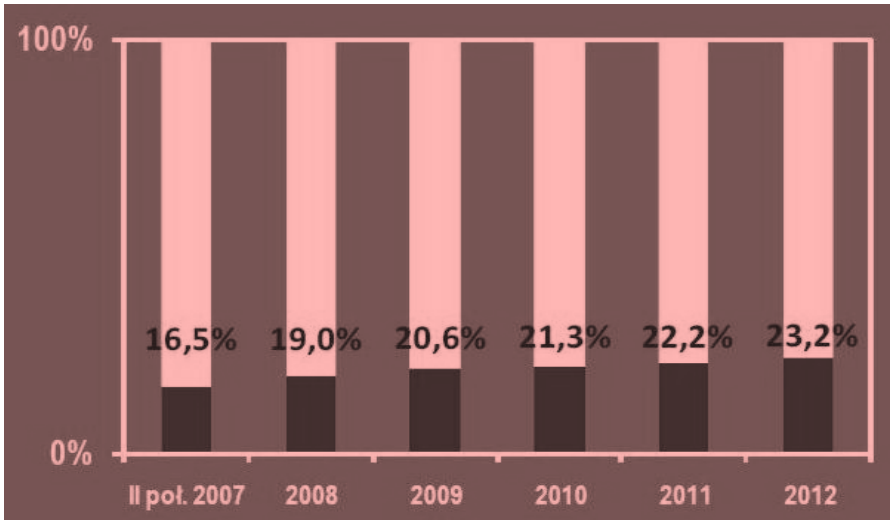
The obligation is considered as fulfilled if for given year quantitative share of the electricity sum resulted from the Renewable Energy Sources certificates of Origin submitted to the Energy Regulatory Office President for redemption or amount of the paid replacement fee in total annual sale of electricity by the enterprise amounts for individual years, respectively:

Green Certificates:



Yellow Certificates:

Red Certificates:



Per unit replacement fee in the Renewable Energy Source promotion system amounts to 258, 89 zloty/MWh in 2009 (in 2008 – 248,46 zloty/MWh). The value has been established in the Power Law Act and it is subject to annual valorization by an inflation index.

Per unit replacement fees in the cogeneration support system amounts in 2009 to:

- Yellow cogeneration – 128,80 zloty/MWh (in 2008 – 117,00 zloty/MWh)
- Red cogeneration – 19,32 zloty/MWh (in 2008 – 17,95 zloty/MWh)

The President of Energy Regulatory Office, in accordance with the Power Law Act, establishes per unit replacement fees for the cogeneration on the basis of average price of electricity sale on the competitive market, (exchange market) determined for the year preceding the year of establishing the per unit replacement fees, taking the following aspects into consideration:

- quantity of electricity coming from the high-efficient Combined Heat and Power Units;
- difference between the costs of electricity generation in the high-efficient Combined Heat and Power Units and sale prices for electricity on the competitive market;
- level of electricity prices offered for the final recipients.

a. Issuing and acquiring of the Certificates of Origin

The Certificates of Origin are issued by the President of Energy Regulatory Office (URE) – according to the motion of the power enterprise that generates electricity in the Renewable Energy Sources (after previous confirmation of effective delivery of the electricity to the power system by the Distribution / Transmission System Operator) – the Certificates of Origin compose confirmation of generation of the electricity. Issuing of the Certificates of Origin results in simultaneous entry in the Register on the record account of the Certificates of Origin for given power enterprise as well as conversion of them into corresponding number of the Green Certificates, which are booked automatically in the account. The entities obliged to obtain the Certificates of Origin can do that during the Certificate Market session or directly, by concluding bilateral transactions.

b. Settlement of the obligation

Redemption of the Certificates of Origin takes place according to the obliged entity motion. The obligation is settled in annual periods, for the finished year till March the 31st of the next year. According to present legal regulations the course of action for support of the cogeneration is to be in force only till the end of 2013 (that means that year of 2012 is to be the last year the CHP certificates are to be issued for that), while the

expiration of validity period for the support system of the Renewable Energy Sources Certificates of Origin is not planned.

The obligation concerning redemption of the certificates of Origin is additionally assisted by the obligation to buy the entire quantity of electricity generated in the Renewable Energy Sources connected to the networks located on the area of activities of given seller. The obligation is imposed "ex officio" on the sellers. The electricity is sold with average sale price being in force in previous calendar year. Such solution guarantees base amount of the income, what could be generated by given renewable source by the right of sale of green energy, what is obvious from the point of view of financing of investments of such type, and especially from external means.

Electricity generated in high-efficient Combined Heat and Power Units has obtained priority in access to the transmission networks.

VII.4. Green Certificates Trading

The Power Law Act also determines organization of trading in the Green Certificates under the Certificates of Origin, which are transferable and which compose an exchange commodity.

The Power Exchange Joint Stock Company has been entrusted with the right for organization of trading in the Green Certificates. PolPX has got the license of the Securities and Exchange Commission (Polish Financial Supervision Authority) since December the 16th 2003, and it fulfills all requirements specified in the Act dated on October the 26th 2000, concerning the commodity exchanges.

The Green Certificates Register for electricity generated in the Renewable Energy Sources was started on the day of December the 28th 2005 by PolPX ("the green registry).

Since the day of July the 1st 2007 PolPX has started the Register for Certificates for electricity generated in the high-efficient Combined Heat and Power Units:

- for electricity generated in the high-efficient gas-fired Combined Heat and Power Unit or in the Unit with total installed power lower than 1 MW ("the yellow register"),
- for electricity generated in the Combined Heat and Power Unit other than above mentioned ("the red register").

The Certificates of Origin Register is a heart of the support system for producers of electricity generated in the Renewable Energy Sources and in the Combined Heat and Power Units. Centralization of recording assures tightness of the support system and its transparency. Main goals of the register are as follows:

- identification of entities, which are entitled to the Green Certificates;

- identification of issued Green Certificates as well as electricity corresponding to those Certificates;
- recording of the Certificates of Origin as well as the Green Certificates resulting from them,
- recording of transactions concluded during the trading in the Green Certificates as well as possessions of the Green Certificates,
- conducting of process of redemption of the Certificates of Origin and expiration of the Green Certificates resulting from them.

In accordance with applicable law regulations the Green Certificates have the following characteristics:

- GCs are transferable and are the exchange-traded commodity;
- GCs are dematerialized, evidence of that is electronic record in the register recording system;
- GCs are a perpetual instrument, being subject to expiration together with the remitted Certificate of Origin (partially or in full)

Balances of the Certificates in the Registries:

As for June 30th 2009.	
Green Certificates	
Issued Green Certificates (kWh)	19 712 011 492
Remitted Green certificates (kWh)	17 054 552 568
Number of members of the Certificates of Origin Register	1060
Yellow Certificates	
Issued Green Certificates (kWh)	3 393 832 283
Remitted Green certificates (kWh)	1 662 548 155
Number of members of the Certificates of Origin Register	162
Red Certificates	
Issued Green Certificates (kWh)	34 572 751 252
Remitted Green certificates (kWh)	23 545 898 448
Number of members of the Certificates of Origin Register	170

VII.5. PolPX Certificates Market – the marketplace for trading Green Certificates

Together with the Green Certificates Register PolPX also runs obligatory Green Certificates Market (CM), the contracts for the Green Certificates under individual types of Certificates of Origin are quoted on that. The first transaction on the Certificate Market was concluded on the day of December the 28th 2005. In those days only contracts for the Green Certificates was quoted on the Market. In December 2007 within a framework of the Certificate Market the exchange started also trading in the Certificates for energy coming from the high-efficient combined heat and Power Units (yellow and red

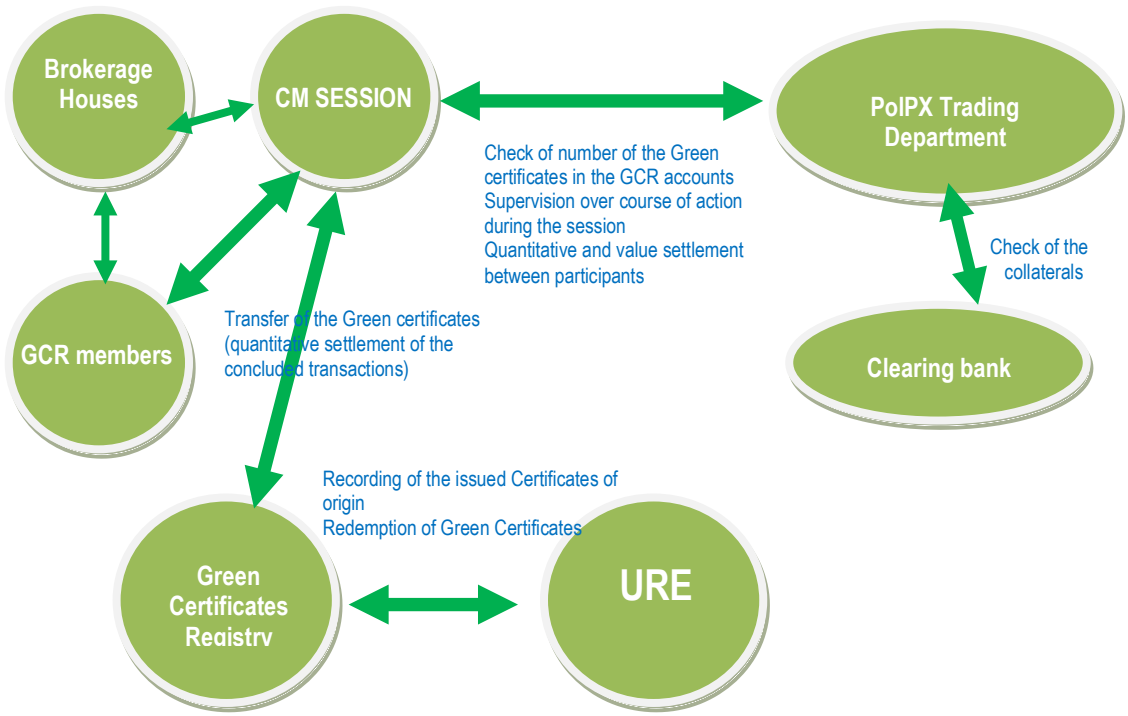
contracts). The first transactions on those contracts were done on the day of December 31st 2007.

Participation in the certificate market enables producers of electricity coming from the Renewable Energy Sources to sell their Green Certificates profitably and the power enterprises obliged to buy those Green certificates – to fulfil the obligation imposed on them.

The role of Green Certificates Market in the functioning support systems:

- GC Market supports the investments concerning new Renewable Energy Sources in order to fulfill the quantitative obligation resulted from the Treaty of Accession to the European Union,
- liquidates existing market pathologies (multiplied turnover of invoices, dividing of the Certificates of Origin),
- equalize chances of acting on the market for all entities (uniform access to market information concerning price and volume, the same abilities to buy / sell the Green Certificates),
- optimizes costs of purchase of the Green Certificates by introducing competition between different technologies used in the Renewable Energy Sources in case of saturation of the Market.

Organization of Green Certificates Market



a. Trading on the Certificate Market

Trading in the Green Certificates takes place on the Certificate market (CM) during the session and as OTC transactions. Green Certificates are quoted in the uniform quotation system (fixing) and in the system of continuous trading.

Trading in the Green Certificates takes place twice a week – on Wednesdays and Fridays. Trading in the Yellow and Red Certificates take place once a week, on Fridays.

Volumes on PolPX Certificates Market in 2008

Months	Volume for CM session in 2008 MWh	Volume for off-session transactions in 2008 MWh	Volume for CM session in 2008 MWh	Volume for off-session transactions in 2008 MWh	Volume for CM session in 2008 MWh	Volume for off-session transactions in 2008 MWh
	Green Certificates		Yellow Certificates		Red Certificates	
January	127 857	193 648	17 346	47 452	23 000	1 653 304
February	303 692	419 353	21 552	101 768	292 298	4 365 170
March	145 021	266 098	718	10 190	248 609	2 240 597
April	91 436	339 935	140	2 475	3 983	941 154
May	71 129	249 951	1 295	123 595	24 560	1 281 560
June	59 591	414 686	485	110 341	16 057	1 497 869
July	67 222	496 948	7 252	144 140	15 226	709 312
August	65 306	200 310	3 934	254 467	24 340	1 927 397
September	119 351	413 907	6 653	102 845	34 270	1 455 256
October	263 858	857 054	8 506	82 531	87 519	718 742
November	151 031	453 359	8 017	114 181	39 400	492 550
December	171 525	811 941	16 522	559 226	97 731	2 909 440
Year Total	1 637 020	5 117 190	92 419	1 653 211	906 993	20 192 352

b. Prices of Green Certificates on PolPX Certificates Market

Prices on the Certificates Market depend on current and future relations between the demand and the supply of the Certificates of Origin. New investments as well as amount of obligations have great impact on the prices. The amount of the replacement fee also affects maximum price of the Green Certificates.

Prices on PolPX Certificates Market in 2008

Months	Weighted mean OZEX 2008 index PLN/MWh	Weighted mean for the off session transactions 2008 PLN/MWh	Weighted mean KGMX 2008 index PLN/MWh	Weighted mean for the off session transactions 2008 PLN/MWh	Weighted mean KECX 2008 index PLN/MWh	Weighted mean for the off session transactions 2008 PLN/MWh
	Green Certificates		Yellow Certificates		Red Certificates	
January	238,94	216,08	117,08	114,19	17,73	19,37
February	239,46	215,34	116,15	113,16	17,72	17,17
March	240,86	210,40	113,00	110,13	17,50	17,40
April	239,52	214,06	115,00	113,00	17,41	16,82
May	241,01	215,51	116,59	110,40	17,38	16,90
June	241,17	221,81	116,49	112,60	17,37	16,60
July	241,88	226,41	116,31	110,83	16,74	16,57
August	241,94	223,65	115,42	113,36	17,17	17,17
September	240,34	229,26	113,95	111,24	17,18	17,17
October	240,51	231,18	115,08	111,81	17,20	17,20
November	242,15	233,46	114,75	110,37	17,44	17,07
December	243,61	231,12	115,04	110,89	17,56	17,20
Year Total	240,79	224,85	115,71	111,61	17,52	17,29

VIII. Romania

VIII.1: Description of the characteristics of each country

a. Legal framework and objectives

Primary Legislation

Law 220 / 27 October 2008 for the establishment of the promotion system of the energy produced from renewable energy sources.

Government Decision 443 / 10 April 2003 - It adapts the provisions of the EU Directive 77/2001 (on the promotion of production of electricity from RES on the internal market) to the Romanian specific conditions.

Government Decision 1892 / 4 November 2004 - Establishes the promotion system for the electricity produced from RES.

Government Decision 1535 / 18 December 2003 - Assess the RES potential in Romania and establishes the strategy for RES development in the context of Romania adhesion to EU.

Government Decision 890 / 29 July 2003 "ROAD MAP" - It sets the specific tasks and targets, as well as the evolution milestones for the Romanian power market. [Ministry of Economy and Commerce]

Secondary Legislation

Regulatory Authority for Electricity and Gas (A.N.R.E.) Decision 424 / 2006 - Concerning the assessment of the fulfillment of the mandatory Green Certificates quotas acquisition by the electricity suppliers and of the shares of allocation of the amount of money resulted from the quotas non-fulfillment. A.N.R.E. Ordinance 52 / 2005 - This Ordinance establishes the tariff for the electricity acquisition from the hydro producers which have not portfolio contracts and for the electricity sold by the producers which participate in the system for E-RES promotion.

A.N.R.E. Ordinance 46 / 2005 - It modifies the quota obligation for GC acquisition by the electricity suppliers, for the year 2005.

A.N.R.E. Ordinance 45 / 2005 - Allocation procedure for the amount of money collected from the suppliers' penalties for quota non-compliance.

A.N.R.E. Ordinance 40 /2005 - Regulation for Green Certificates Market's organization and operation.

A.N.R.E. Ordinance 22 /2004 - Procedure for surveillance of guarantees of origin issuing for the electricity produced from RES.

The aim of the legal framework described above is to ensure a proper system for producing electricity from RES by applying mandatory quota system combined with the green certificates trading "at fix price" mechanism.

The national targets regarding electricity produced from RES are 33% for 2010, 35% for 2015 and 38% for 2020.

The renewable energy sources considered for national targets achievement are:

- Hydro units with installed capacity <=10 MW as well as hydro units with installed capacity > 10 MW.
- Wind energy
- Solar energy
- Geothermal energy and combustion gas associated with
- Biomass
- Biogas
- Gas from the fermentation of the wastes from landfill
- Gas from the fermentation of the sediment from the sewage treatment of used waters.

The mandatory annual quotas are established by law (Law 220/2007) for the period 2008 – 2020. For the period 2020 – 2031 the mandatory quotas will be established by the related ministry, but they will have to be higher than the ones established for 2020.

The mandatory annual quotas of green certificates to be achieved by the end consumers' suppliers are established and made public by ANRE till 15th of March on each year for the previous year.

The Transport System Operator (National Company Transelectrica) receives monthly from the producers and the Network Operators where the producers are connected notifications concerning the quantities of electricity from RES delivered into the network. TSO is also issuing to producers, on monthly basis, the Green Certificates for the quantity of E- RES produced and delivered into the network in the previous month and collects the amount of money corresponding to the penalties from the suppliers which not fulfilled their quota at the end of the period of conformity.

The producers of electricity from RES are receiving:

a) A green certificate for each 1 MWh produced and injected into the network from new or refurbished hydro units with installed capacity of maximum 10 MW;

b) A green certificate for each 2 MWh produced and injected into the network from old hydro units with installed capacity of maximum 10 MW;

c) Two (2) green certificates for each 1 MWh produced and injected into the network from hydro units with installed capacity of maximum 1 MW/unit;

d) Two (2) green certificates, for the period till 2015, and one (1) green certificate for the period starting with 2016, for each 1 MWh produced and injected into the network by wind energy producers;

e) Three (3) green certificates for each 1 MWh produced and injected into the network by biomass, biogas, gas from the fermentation of the wastes from landfill, gas from the fermentation of the sediment from the sewage treatment of used waters and geothermal energy and combustion gas associated energy producers.

f) Four (4) green certificates for each 1 MWh produced and injected into the network by solar energy producers.

ANRE qualifies electricity producers which use RES eligible sources, for being eligible for the support scheme.

The Green Certificates value represents an additional income received by the producers for the "clean" energy that they deliver into the network.

The price of electricity sold is determined on the electricity market

The additional price received for the Green Certificates sold is determined on a parallel market, separated from the electricity market, where are traded the environmental benefits of the "clean" electricity production.

The producers and suppliers of electricity from RES could trade the green certificates by the means of two market mechanisms:

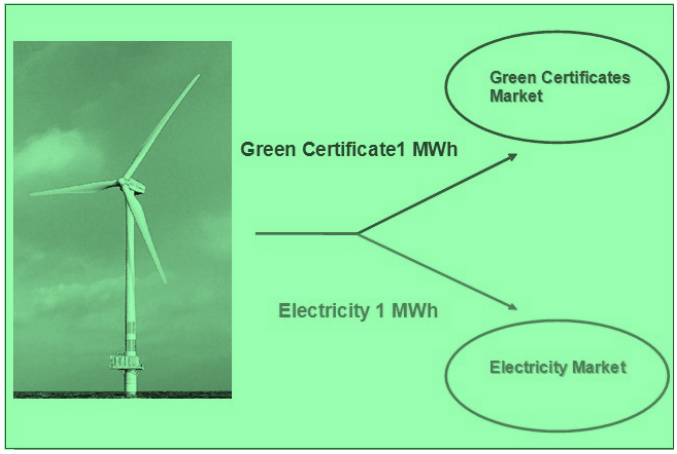
- Bilateral contracts negotiated between producers and suppliers

- On a Centralized Market organized and administrated by OPCOM – Romanian Power Market Operator.

The price of Green Certificates varies in a range established by Government Decision, [Pmin ÷ Pmax]. The minimum price is imposed in order to protect the producers and the maximum price to protect the consumers.

For the period 2008-2014 the trading value of Green Certificates ranges between a minimum value of 27 euro/certificate and a maximum value of 55 euro/certificate. The value in Romanian Currency (Lei) will be calculated at the exchange rate determined by Romanian National Bank as the average exchange rate for the month of December of the previous year. (Law 220/27.10.2008).

Electricity is traded separately from Green Certificates



b. Trading platform

As market operator OPCOM is performing the following tasks:

- Registers the participants on the Green Certificates Market;
- Forecasts and publishes the demand and the offer of Green Certificates Market at the national level;
- Registers the bilateral contracts for Green Certificates trading between the electricity producers from RES and the electricity suppliers;
- Set up and administrates *the Green Certificates Register;*
- Provide the trading framework for the Green Certificates Market on the Centralized Green Certificates Market;
- Receives the sell/buy offers for Green Certificates from the Producers/Suppliers;
- Determines and publishes the Centralized Green Certificates Market Clearing Price and the number of Green Certificates traded each month on the Centralized Green Certificates Market;
- Publishes each month the cumulated demand and the cumulated offer of Green Certificates for the current year;

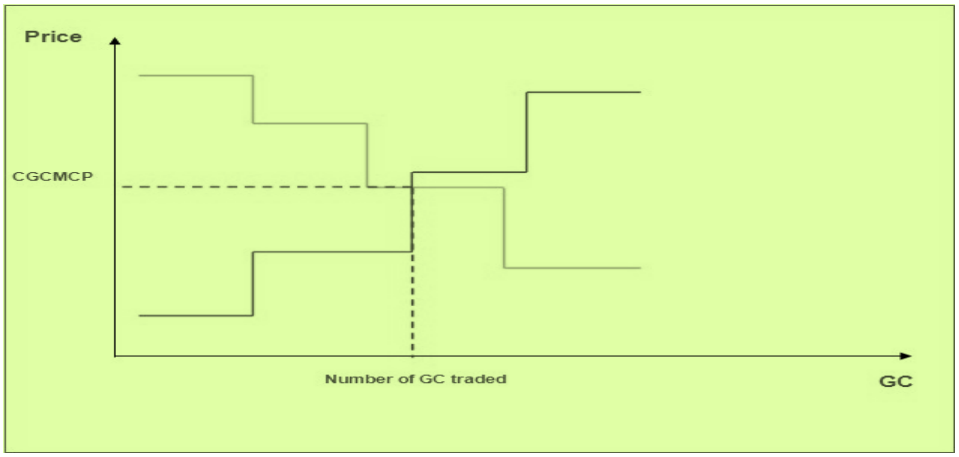
- Determines the payment obligations and the receiving rights for the Centralized Green Certificates Market participants.

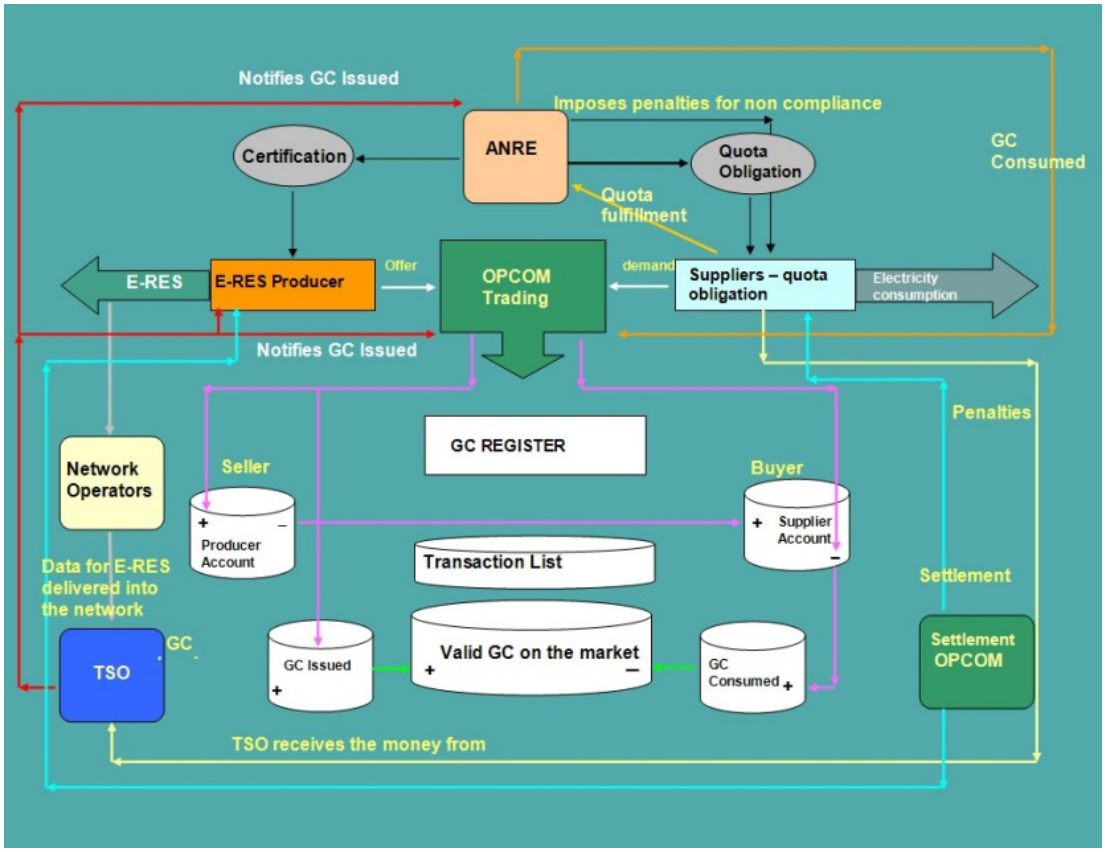
As responsible institution for organization and administration of the Centralized Green Certificates Market OPCOM is performing the following tasks:

- Undertakes the offers and transmits receiving confirmations
- Validates the offers and transmits Notifications concerning the offers acceptation or rejection.
- During the Transaction Day, determines the number of Green Certificates traded and the Centralized Green Certificates Market Clearing Price (CGCMCP)
- Elaborates and transmits to each participant the Settlement Notes

Centralized Green Certificates Market Clearing Price (CGCMCP) and Number of Green Certificates Determination

- The offers represent couples price-number of Green Certificates: at least a couple and maximum three couples.
- CGCMCP and the number of GC traded are determined at the intersection point of the curves offer-demand:





VIII.2. Import/export - Guarantees of Origin

a. Legal framework

The primary law applied in the respect of Guarantees of Origin is represented by the Electricity Law 13/2007. The electricity produced from RES is certified by the means of Guarantees of Origin issued by ANRE (Article 63).

In the same way, the electricity produced in high efficiency cogeneration units is certified also through the Guarantees of Origin issued by ANRE (Article 69).

According with the secondary legislation (ANRE Ordinance 23/2004), ANRE is the initiator and the administrator of the Unique Registry for Guarantees of Origin.

IX. Slovenia

The feed-in support scheme as a tool to subsidize and thus advance the use of renewable technologies for the production of electricity was first introduced in Slovenia in 2002. In 2008 the scheme was changed in order to comply with new EU legislative requirements and to speed up the development of RES and high-efficiency CHP projects. At the end of 2009 there were 568 power plants included in the scheme, predominantly hydro and solar PV. The total installed capacity was about 210MW, not counting large power plants that co-fire biomass and coal.

Until the end of March 2010 the above figures increased by about 180 units with a combined installed capacity of 20 MW. Most of the development is due to solar PV, hydro, biogas and partly CHP.

The following entities have a role in the support scheme operation:

- System operators (TSO (Elektro Slovenija d.o.o.) / DSO (SODO d.o.o.)): grid connection, production data
- Regulator (Energy Agency of the Republic of Slovenia): issues guarantees of origin, issues decision to grant support
- Market operator (Borzen (Centre for RES/CHP support)): contract with power plant

The Centre for RES/CHP support (CP) is one of the tasks performed by Borzen, the Slovenian Power Market Operator. It was introduced by a recent change in the Energy Law that came into effect on 12. July 2008 (introduction of the new support FIT scheme).

The CP administers the electricity feed-in support scheme for RES (renewable energy sources) and CHP (high-efficiency cogeneration) power plants and, based on the Slovenian Energy Law, carries out also the following tasks, related to:

- guaranteeing the security of electricity supply based on usage of domestic primary energy sources,
- ensuring an adequate level of installed capacity for the production of electricity and
- programmes for efficient use and saving of electricity.

The feed-in scheme, as well as other tasks, are financed through dedicated add-on charges on the network fee bills of all users of electricity in Slovenia. The total amount of funds (for RES / CHP support) is currently projected at roughly 70 million EUR per annum before taxes.

a. Types of support

Power plant owners have the option of choosing between two types of support:

- "guaranteed purchase" (GP), where CP takes over the electricity from the power plant and sells it to the market (the producer is thus included in the special balance group, operated by CP)
- "operating support" (OS), where the producer sells its energy on the market while CP only pays a premium as a difference between the full ("guaranteed purchase") price and the market price, which is determined ex ante on a yearly level, based also on plant type.

RES producers with installed capacity over 5MW and CHP producers with installed capacity over 1MW can only receive the "operating premium" type of support.

The feed-in system is based on guarantees of origin. All producers included in the scheme must issue and transfer to CP guarantees of origin as proof of RES / CHP production. CP also administers the Guarantees of Origin Registry in Slovenia, in cooperation with the Energy Agency of the Republic of Slovenia (energy regulator), which is the issuing body for the Slovenian domain.

b. Methodological determination of the level of support

The level of operating support or guaranteed purchase is determined on the basis of reference costs published in the Methodologies for Determining Reference Costs. They are composed of fixed and variable reference costs:

Reference costs = Fixed reference costs + Variable reference costs

The fixed part of reference costs is methodologically determined every five years, or earlier if there are significant changes to capital costs and other investment parameters. They are determined on the basis of investment costs and operating costs. Once the producer enters the system, their fixed reference costs remain the same for the entire duration of receiving support.

Variable reference costs are determined only for those RES generating plants where the input fuel represents a financial cost. The variable part of the reference costs shall be determined annually on the basis of changes to the reference market price of electricity and input fuels - determined by the Energy Agency of the Republic of Slovenia.

In accordance with the methodology, for some power plants (such as solar, hydro or wind power plants) all reference costs are defined as fixed; this means that the GP price after entering the system remains fixed and the OP level changes with regard to the reference market price of electricity, published annually by the Energy Agency of the Republic of Slovenia.

Specific nature of solar pv power plants

It is stipulated in the methodology that the reference costs for solar power plants shall be reduced by 7% each year with regard to the baseline level in 2009.

However, by entering the support system the costs become fixed and do not change anymore in the case of the power plant in question.

For example: A solar power plant is awarded a decision allocating support in 2010 (or the decision allocating support stipulates reference costs for 2010). The reference costs amount to (level for 2009 * 0.93). These reference costs serve as the basis for the determination of the level of support for 2010 and all subsequent years, even if, for example, the power plant changes the type of support in three years.

For outdoor solar power plants (power plants from the 2302 class in accordance with the regulations governing the uniform classification of facilities) additional restrictions already apply in the issuance of the decision allocating support pursuant to Article 14 of the relevant Decree for RES (total yearly quota 5 MW).

Determination of the level of support

GP level (year i) = reference costs (year i)

*OS level (year i) = reference costs (year i) – (reference price of electricity (year i) * factor B)*

Reference market price of electricity $_{2010}$ = 53.41 EUR/MWh

Reference market price of electricity $_{2009}$ = 65 EUR/MWh

B factor -> reflects constancy of production, size of plant and its perceived achievable market price (see tables below)

Unofficial English translations of relevant legislation

1. Decree on Support for Electricity Generated from Renewable Energy Sources (Official Gazette of the Republic of Slovenia, No. 37/2009)

2. Methodology for Determining Reference Costs of Electricity Generated from Renewable Resources No. 360-81/2009-1

3. Decree on Support for Electricity Produced in High-Efficiency Cogeneration of Heat and Power (Official Gazette of the Republic of Slovenia, No. 37/2009)

4. Methodology for Determining the Reference Costs for High-Efficiency Cogeneration No. 360-82/2009-1

Links to unofficial translations are available on the following web page:

http://www.borzen.si/eng/centreforreschpsupport/aboutthecentre

c. Guarantees of Origin

The Decree on issuing of the Declarations for the production units and of the Guarantees of Origin (OG RS, No. 8/2009) regulates the issuing of the guarantees of origin anew, and has been adopted in the beginning of 2009. At the same time, the role of guarantees of origin changed with the Act amending the Energy Act (OG RS, No. 70/2008), since they became one of the conditions for the receipt of the support for electricity, generated from renewable sources and in highly efficient cogeneration. The regulator (Energy Agency of the Republic of Slovenia) is the issuing body for guarantees of origin (GoO) for the Slovenian domain, while Borzen maintains the registry, which was established in cooperation with Energy Agency of the Republic of Slovenia, and is an upgrade of the pre-existing central guarantees of origin database. The users can issue, transfer, and redeem (cancel) GoOs in a transparent and simple manner using the internet. Different lists supported by the GoO Registry enable a permanent overview of user's accounts. Data can also be exported and freely processed using appropriate software. Users, oriented in trading, can take advantage of the Registry's special function – GoO Exchange. The exchange is available for all users that wish to buy or sell guarantees of origin.

GoO Registry consists of a web portal and a database. A web portal serves for overview, entry, and printing of required data in database, however, all information on issuing, transfer, printing, and redemption of GoOs is saved. (Guarantees of Origin Registry – entry page *(https://poi.borzen.si))*

There are a few different user profiles available in the GoO Registry, and each profile has specific set of functions. The profiles in the Registry are the following:

- general public,
- producer,
- trader,
- system operator,
- AGEN-RS (Energy Agency of the Republic of Slovenia),
- administrator.

The Registry enables the following basic functions:

- entry of energy production data (by system operator),
- issue of GoOs (by producer),
- transfer of GoOs to another producer or trader's account (by producer or trader),
- export of GoOs (by producer, trader),

- import of GoOs (by producer, trader),
- redemption of GoOs (for their own use or third parties),
- generation of reports (public list of registered devices; availability of other reports depends on the user profile),
- GoO bulletin-board style exchange (by producer, trader).

The system supports the following types of GoOs:

- RES GO,
- CHP GO and
- Hybrid plants GO (e.g. biomass co-firing with coal).

In 2009 2.281.834.754 kWh GoOs were issued, out of which 2.049.836.594 kWh was for production in 2009. Total cancellations amounted to 1.896.755.000 kWh, and there were 239.313.000 kWh of transfers.

X. Spain

X.1. Renewable Energy

Both the Renewable Energy Plan (PER), in effect from 2005 to 2010, and the Energy Saving and Efficiency Strategy for Spain 2008-2012 (PE4+) establish a series of measures to obtain substantial improvements in energy efficiency indices. The PE4+, directed fundamentally to end-users sectors, proposes among others, technological improvement in equipment and industrial processes.

Within the energy sector, the PER establishes objectives that will enable reaching a 12.1% contribution of renewable resources of primary energy consumption by 2010, and a 30.3% electricity production with these resources of the gross consumption of electricity.

a. State-oriented supports. Feed-in tariffs.

Among others, the most relevant measures promoted by the State, are:

- Feed-in-tariffs, as the main mechanism to promote renewable energy sources.
- Promotion of public tendering procedures for State-owned facilities for small hydro plants.
- Some limited public financial support to promote photovoltaic and biomass investments. No specific tax exception policies are in place.

The RD 661/2007 fixes the structure and the size of the feed-in tariffs, depending basically on the technology, size (MW), year of construction of the installation and the 'remuneration option' chosen by the producer. Basically, the idea is that some categories of producers can choose between (minimum period is one year):

- Fixed prices. The seller that selects the FIT receives the spot price from OMEL, since it must present an unconditional bid (at zero price). The final price is settled by the national regulator (CNE, Comisión Nacional de la Energía).
- Receive a premium in addition to a market price (either spot, forward or OTC) for the energy. The final amount to be received has a cap-floor mechanism and is also settled by the CNE.

Fixed prices and Premiums are constant up to the 15th, 20th or 25th year, and then reduced. There is and annual revision based on inflation and extra bonuses for energy efficiency. There are several tranches depending on the installed power for every plant type. There are also annual established quotas for every plant type.

Examples for FIT and premium are summarized in the following table (all in €/MWh):

Technology	FIT	Premium	Cap	Floor
Photovoltaic	320			
Solar thermal	269	254,0	344	254
Onshore wind	73	29,3	85	71
Geothermal	69	38,4		
Hydro < 10 MW	78	25,0	85	65
Hydro < 50 MW	66	21,0	80	61
Biomass agric.	147	100,1	151	143
Biomass industrial	108	61,9	112	104
Biogas	80	37,8	90	74

b. Market-based supports. RECs and GoOs.

Currently there is no official certificate system for renewables in place (RECs). The renewables promotion policy is conducted entirely through the feed-in tariff system.

However, a Guaranties of Origin (GoOs) system has been already established. Order ITC/1522/2007 regulates the Guarantee of Origin for electricity produced from renewable sources and high-efficiency co-generation. Its goal is to promote the transparency of those energy sources rather than promote investments. The order assigns to the national regulatory body (CNE) the responsibility of issuing and registering the GoO certificates.

The system started in 2007 and their purpose is providing the consumers with a detailed information about the origin of the electricity consumed. This initiative is the adaptation of Directive 2001/77/EC. Redemption of guarantees of origin takes place when they are assigned to final customers by the retailers. They acquire GoO certificates though the producers, and also they can enhance their 'renewable mix' by trading those GoOs.

No imports of GoOs have taken place so far. Exports to Italy (only destination so far) represented a volume of 232 GWh for 2007 and 353 GWh for 2008.

SECTION 2. Energy Efficiency

I. Austria

In Austria there is no system for white certificates in place.

II. Belgium

See section 1:

- Flanders: CHPC certificate
- Wallonia and Brussels: green certificate based on CO2 reduction

Furthermore, a couple of mechanisms to support investment based on subsidies or fiscal advantages are put into place.

III. France

III.1. Energy Efficiency in France

In France, a tradable white certificates mechanism called "Certificats d'Economies d'Energie" (CEE) is in place since July 2006, in the framework of a law called "Programme d'Orientation de la Politique Energétique" (passed in 2005), which covers amongst other energy aspects, demand-side management and renewable energy.

This law places an obligation on around 2 500 suppliers of electricity, gas, domestic fuel, LPG, cooling and heating, to save energy in the residential and commercial markets. This obligation is set for a given period. France has achieved in july 2009 its first 3-year-period.

The overall target is set by the French Government, and administered by the French Ministry of Energy and Sustainable Development. The national target related to the first period has been set to 54 TWh Cumac[4] of final energy. Then, this target has been shared out between the different sources of energy (57% electricity, 26% gas, 13% domestic fuel, 4% others) and then between the different obliged energy suppliers, considering their market share in volumes and prices in the residential and commercial markets. It has

[4] The unit of the mechanism is the MWh Cumac ("CUMulé ACtualisé": cumulated during a certain period and discounted during this same period with a 4% yearly rate): all energy efficiency actions give a right to a certain amount of certificates, valued in MWh Cumac. For example, the installation of a class A+ freezer which saves 50 kWh/year during a 10 year-life-time will produce 422 kWh Cumac.

to be noticed that during the first period, 80% of the obligations were concentrated on two suppliers.

To fulfill their obligation, these obliged companies can either implement projects reducing their customers' energy consumption, and therefore be provided with a certain number of certificates, or buy certificates on the market. These certificates are materialized in accounts on a registry.

If a supplier cannot manage to reach its target by the end of the period, by showing the appropriate number of certificates on its account, it is liable to pay a penalty of 20 € for each missing MWh Cumac. If the supplier manages to do better than its target, the certificates in surplus are bankable[5] or can be sold on the market.

The transactions on the CEE market are done on a bilaterally basis. This market has been very limited (less than 4% of the underlying volume has been traded).

IV. Germany

In Germany a market based system of tradable white certificates as a verification of energy efficiency measures is unlike in UK, France, Italy or Belgium not in place yet.

V. Italy

V.1. Energy Efficiency Certificates Mechanism

Italy has introduced two energy-efficiency decrees to provide an incentive for energy saving. According to these decrees, distributors of electricity and gas must achieve a saving target on the total consumption of their own customers. A yearly national target has been set for the period 2005–2009, measured in tonnes-of-oil equivalent (toe) to be saved. Those targets have been extended to the 2010-2012 period as follows:

[5] In order to fulfill the obligations of the following periods, as each certificate has a life-time of 10 years.

Energy Savings Targets

Year	Electricity decree (Mtoe)	Gas decree (Mtoe)
2005	0.1	0.1
2006	0.2	0.2
2007	0.4	0.4
2008	1.2	1.0
2009	1.8	1.4
2010	2,4	1,9
2011	3,1	2,2
2012	3,5	2,5

Energy saving can be obtained through energy efficiency projects. Each project, after verification of the amount of electricity or gas or primary energy saved, is eligible for Energy Efficiency Certificates (EECs) also called White Certificates. Those EECs will be used by distributors to comply with their obligations, as they must deliver an amount equivalent to their target to the Authority for Energy and Gas.

The introduction of a market mechanism for EECs allows other parties, such as energy service companies, to find participating in the market attractive and profitable. The Energy Efficiency Mechanism is very similar to the Green Certificate mechanism and and goes through obligations, a certification phase, a market, and a verification phase.

a. Obligations

Distributors of electricity and gas must achieve a saving target on the total consumption of their own customers, starting from 2005.

The national target is shared between distributors according to their relative weight. This weight is obtained by dividing the electricity or gas consumed by their customers with national consumption. To comply with their obligations, every year distributors must deliver to the Authority for Energy and Gas a number of EECs equivalent to their annual target. To avoid a negative effect on prices due to the oversupply situation that recently occurred, if the EECs will exceed more than 5% the quantity needed by obliged parties for compliance, then the underlying toe amount will be added as additional saving target for the following year.

b. Certification

A project that introduces energy efficiency is eligible for certification. The Authority for Energy and Gas (Regulator) is responsible for certification and has standardized several projects, indicating the amount of electricity, gas, or primary energy (measured in toe) the project can save. Other non-standardized projects can be evaluated on a case-by-case

basis, and each will receive one EEC for each toe saved. Distributors, Energy Service Companies (ESCOs) and companies with an energy manager can make projects and ask for a certification accordingly.

Once a project has been certified, GME can issue EECs into the operators' accounts as GME also organized and manages the Registry.

c. Market

GME has received the mandate to set up a market platform to allow operators to trade certificates as well as the Registry to manage operators' accounts.

Market rules are very similar to those for GCs market. Session take place usually once a week according to a continuous trading model; the guarantee system provides that buyers must deposit an amount (30€/EEC) to be allowed to buy, while sellers can sell only EECs deposited in their accounts into the Registry.

GME is not acting as central counterparty. Invoices must be sent from sellers to buyers.

Bilateral contracts are also allowed, provided that they must be registered in the Registry and prices and quantities must be declared.

d. Verification

By May 31 of the year following that of their obligations, distributors of electricity and gas must deliver an amount of EECs equivalent to their savings target. The Regulator is responsible for verifying the compliance. For those who do not comply, a penalty will be applied (not disclosed but proportional to the costs an obliged party should face to make projects).

For each EEC delivered for compliance, a tariff reimbursement is given to obliged parties as a partial rebate for the costs faced in implementing projects. For year 2008 obligation, the amount obliged parties received for each EEC was equal to 88,92 €/EEC.

e. Economics of Energy Efficiency Mechanism

Distributors that undertake an energy efficiency project can have three streams of income.

The first comes from an agreement between distributors themselves and the end-user who will benefit from the project. As the total cost of the project is paid for by the distributor, it is usual to make an agreement where the end-user for a given period of time will pay back to the distributor part of the money saved as a result of the efficiency project. After that period, the end-users will receive the entire benefit of the project.

The second comes from a partial reimbursement of project costs paid for by the distributor and not covered from other sources. All distributors that undertake a project

are eligible for tariff reimbursements for each tonne-of-petroleum equivalent saved with a project, up to the full realization of the target.

The third comes from the EECs sold in the market, when the distributor undertakes several projects and the total number of EECs obtained is more than that required to comply with their obligations.

ESCOs and companies with energy managers can also make energy-efficiency projects without having an obligation to comply with. They find sources (usually with a "third-party financing" contract) to cover project costs and then obtain two income sources both from an agreement with end-users and from selling EECs into the market.

As distributors can benefit from tariff reimbursements, the market mechanism allows this component to be transferred partially or totally from distributors to ESCOs, when the project is undertaken by ESCOs.

VI. Romania

VI.1. Legal framework

The fundamental objective of the intelligent energy policy set by the National Strategy for Energy Efficiency is the increase of Romania's energy efficiency at every level – natural resources, generation, transportation, distribution, sale and final consumption – by an optimal use of the specific mechanisms of the market economy, the estimations pointing a 40% decrease in energy intensity in the whole national economy by 2015, compared to 2001.

Romania's intermediary objective set for 2010 is the level of 940 thousands toe, corresponding to 4.5% of the average energy consumption for 2001-2005, or 1.5% per year for the first three years.

The objective has been determined by taking into consideration Romania's energy savings potential in the economic fields touched by the Directive No. 2006/32/CE, respectively: industry, other branches than the ones included in the National Allocation Plan for Emission Allowances, dwelling and tertiary sectors and transportation.

- Law No. 199/2000 on the efficient use of energy, amended and completed by the Lay No. 56/2006;
- Law No. 3/2001 on the Kyoto Protocol ratification;
- Governmental Emergency Decision No. 174/2002 on the establishment of special measures for the thermal refurbishment of multi-storey residential buildings, approved by the Law No. 211/2003;
- Government Decision. 1535/2003 on the "Valuation of Renewable Energy Resources Strategy";

- Government Decision 443/10.04.2003 on the promotion of electricity generation from renewable energy sources;
- Government Decision 163/2004 on the approval of the "Energy Efficiency National Strategy";
- Government Decision 219/2007 on the high efficiency cogeneration;
- Law No. 13/2007 – The Electricity Law.

Institutional Framework:

- the Ministry of Economy and Ministry of Public Finance, through their specialized units;
- the Romanian Agency for Energy Conservation (ARCE);
- the Ministry of Development, Public Undertakings and Housing (MDLPL), for dwellings;
- the Ministry of Environment and Sustainable Development (MMDD);
- the Ministry of Interior and Administrative Reform (MIRA), for the local administration;
- the Ministry of Transportation (MT), for the transportation sector;
- the National Energy Observer (OEN);
- the Romanian Fund for Energy Efficiency.

VI. Slovenia

At the end of 2009 the Decree of ensuring savings of energy for end users was published in the official journal (OG RS, No. 114/2009) and came into effect in 2010. It does not contain "trading" provisions such as white certificates, but instead introduces obligations for all suppliers of energy to deliver savings which are financed by a dedicated surcharge (para-fiscal levy) on the price of electricity, itself as well introduced by the abovementioned decree.

The efficiency requirements are not limited to electricity but are extended to practically all forms of energy supplied – natural gas, LPG, gasoline, heating oil, heat, steam etc. Suppliers can choose the field where energy efficiency projects are carried out – all that matters is the final energy saving. For example, an electricity supplier could opt to perform projects in the district heating sector.

The initial target is set at 1% at a yearly level.

While suppliers above a certain threshold (300 GWh per annum for electricity suppliers) have to perform the projects themselves, the Slovenian Environmental Public fund takes care of projects for smaller suppliers.

Borzen manages the funds related to the field of electricity, the Slovenian Environmental Public fund manages funds for other types of energy.

VII. Spain

The strategy about energy efficiency is set in the '2008-2012 Action Plan under Spain's Energy Saving and Efficiency Strategy' (PE4+).

The current Plan (PE4+), which defines a framework for a joint effort to achieve energy savings of 9% in 2016, but the more ambitious target, included in the decision of the European council dated 9 March 2007, namely to achieve levels of savings of 20% by 2020.

The Plan consists of a set of concrete measures which specifically target seven disaggregated sectors: Industry, Transport, Construction, Public Services, household and office automation equipment, agriculture, and energy transformation. The Plan's objective is to reduce energy consumption by 44 million barrels of oil, which is equivalent to 6 million tonnes oil equivalent, over the 2008-2011 timeframe. This target is equivalent to 10% of Spain's annual oil imports. The plan's measures are subdivided into four lines of action. A first cross-cutting line of action, a second mobility line, a third line focused on buildings and a fourth line for saving electricity.

The most remarkable incumbent measures for saving electricity are:

1. One low energy bulb will be distributed free of charge in 2009 and another in 2010, by including gift vouchers on the electricity bill. In total, around 49 million free low consumption bulbs will be distributed to all consumers.
2. To complement the preceding action, six million low consumption bulbs will be distributed through a 2x1 voluntary programme to replace incandescent bulbs.
3. In the case of electricity consumption by national government, the mandatory target of a reduction of 10% will be set, to be effective in the first half of 2009, compared to the same period in 2008. This level of savings will be maintained continuously over the three-year period.
4. As regards public lighting, the energy efficiency of outdoor lighting systems will be improved.
5. In addition, the energy consumption of street lighting on motorways will be reduced by 50%.

6. A regulation will be put forward to allow urban and interurban rail companies to offset electricity recovered during braking from their bills.

Overall, these 31 measures will have a cost of 245 million euros, which will be spread over the period in which the Plan is in effect. This sum will mainly be financed by the institution IDAE. With the promotion of these measures, the total estimated energy savings in 2011 will be in the range of 5.8 to 6.4 million tonnes oil equivalent, which is equal to saving between 42.5 and 47 million barrels of oil.

SECTION 3. Emission Trading

I. Austria

I.1 National Laws and Regulations

At national level the Austrian Act on Emissions Allowance Trading (Emissionszertifikategesetz – EZG) is the core of Austrian legislation on emissions trading. The EZG has transposed the EU Emissions Trading Directive 2003/87/EC into national law.

The number of allowances to be allocated in the relevant trading period is first of all determined in the National Allocation Plan (NAP). After the NAP has been approved by the European Commission, it is made legally binding in the form of an Allocation Ordinance (Zuteilungsverordnung).

For the Austrian emissions trading registry the EU Registry Regulation 2004/2216/EC and its amendments according to Regulation 2007/916/EC and 2008/994/EC are directly binding. In addition, at the national level a registry ordinance has been issued, which stipulates that Umweltbundesamt GmbH is responsible for the technical implementation of the registry supported by a registry service point.

Monitoring and reporting of emissions is regulated by the Commission Decision for Establishing Monitoring and Reporting Guidelines 2007/589/EC. The decision has been complemented at the national level by the so-called Monitoring, Reporting and Verification Ordinance (Überwachungsverordnung-, Berichterstattungs- und Prüfungs-Verordnung).

I.2 Reduction Target

According to the burden sharing commitment of the Kyote Protocol, Austria's target of GHG reduction for the average emissions in phase 2 (2008-2012) is **-13%** compared to the baseline of 1990.

I.3 Operators

In Austria, about 200 energy-intensive industrial installations are obliged to participate in emissions trading. The sectors concerned include power supply (power plants, district heating plants, and refineries), the iron and steel industry, cement and other mineral industries, the paper industry and other installations in sectors such as the chemical industry and particle board manufacturing. The operators of these installations receive allowances from the competent authority (Austrian Federal Ministry of Agriculture,

Forestry, Environment and Water Management).

I.4 National Allocation Plan

Phase 1

The total amount of emissions allowances to be allocated to about 200 Austrian companies was about 33 million allowances per year.

Phase2

The Allocation Plan for 2008-2012 was submitted to the European Commission for approval in February 2007. On 2 April 2007 the Commission decided that the total amount of allowances had to be reduced from 32.8 to 30.7 million allowances per year. In addition, the Commission ruled that the refinery, integrated steel and district heating sectors may not be treated unduly favorable. In addition, the maximum percentage of Kyoto units from JI/CDM that operators may use was reduced from 20 % to 10 % of the total allocation to each individual installation.

I.5 Registry

In line with the legal provisions, the Austrian emissions trading registry is jointly managed by Umweltbundesamt GmbH and ECRA GmbH. Umweltbundesamt GmbH has the overall responsibility for the management of the registry and serves as a contact point for national and international authorities. ECRA GmbH, on the other hand, is responsible for the operational management of the registry and provides account holders with information and support.

I.6 Auctioning

The Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW) is responsible for the sale of EUAs, which can be used for compliance under the EU Emissions Trading Scheme (EU ETS) during the second trading period. As a result of an EU-wide tendering procedure, Climex & ÖEKV will carry out the auctions which will therefore take place on the Climex trading platform.

According to the Austrian allocation plan and the respective ordinance, 2 million EUAs in total in the second trading period - accounting for 1.3% of the total amount - will be auctioned throughout the period.

I.7 Exchange Based Emissions Allowances Trading

EXAA- Energy Exchange Austria runs an organized and regulated spot market for EUAs using double sided/double bidding auctions since June 2005. As of March 2010 the trading platform has 34 members from 10 countries.

The orders placed by the market participants are first collected in a closed order book and none of the trading participants are able to view the bids of the others. Auctions are conducted on the respective exchange trading days (currently once a week every Tuesday). Market participants are informed of the prices determined at the auction (market clearing price = MCP) and the volumes allocated to the individual market participants immediately after the auction. Participants who are willing to sell have to submit their CO2 certificates before the auction takes place. Basically the CO2 certificates of EXAA members remain on the registry account of the exchange. After a written instruction (email or fax) the certificates will be transferred back to the owners. For buying certificates participants can choose between deposit of a bank guarantee or transfer of cash money to the EXAA bank account in advance. In case of cash deposit the money remains at the bank account until the assets are exhausted or the participant submits a refund instruction (by email or fax).

I.8 VAT

VAT invoicing and crediting is handled in two different ways, depending on the country where the member is registered.

1) For Austrian companies all transactions including fees are settled including a VAT of 20%.
2) For all "non Austrian companies" independently if EU member or not, the "Reverse Charge Rule" is applied. All transactions including fees are settled without VAT.

On Invoices and credit notes respectively the following comments are printed:

Invoice: Supply not taxable (§3 Abs 13 UStG)

Transaction Fees: Supply not taxable (§3 Abs 13 UStG)

Credit Notes: Reverse Charge Supply (§19 Abs 1c UStG)

II. Belgium

The Emissions trading in Belgium is governed by 4 governments, depending on the region in which a plant is located. A cooperation agreement adopted in 2002 formalised cooperation between the federal state and the three regions (Flanders, Wallonia and Brussels) with a view to ensuring optimal integration of the policies of the different authorities and guaranteeing a coherent and ambitious National Climate Plan. The cooperation agreement also resulted in the setting up of the different structures – such as the National Climate Change Commission – needed for implementing the Kyoto Protocol and for sharing data and reporting information to European and international bodies.

The internal burden sharing agreement (8 March, 2004) between the federal and regional governments constituted an important step forward, establishing differentiated targets and a clear framework for the responsibilities of the different federated entities. Belgium moved further down the road to meeting its Kyoto target with the development of its National Allocation Plan, approved on October 10, 2008 by the EC, in accordance with the European Emission Allowance Trading Directive (2003/87/EC). The emission trading system became operational in Belgium in 2005 with the creation of a national registry, operated by the federal government (www.climateregistry.be). It constitutes a key instrument that will be used to help energy-intensive sectors improve their energy efficiency while optimising costs.

The climate policies implemented by the regional and federal authorities have also evolved appreciably in recent years. The structures necessary for the use of the Kyoto project-based mechanisms are being put into place. The federal state and the three regions have already set their objectives and have initiated and are financing Clean Development Mechanism and Joint Implementation projects. Market parties are not allowed to use ERU and CER from nuclear units to cover their own emissions.

In each of the regions, allowances are given for free to the market parties (both for 2005-2007 and 2008-2012), based upon the Kyoto benchmark, or for the energy sector, reference years 2005-2006. A special treatment is formalized for new entrants. For the period of 2013 to 2020, a full auctioning mechanism is envisaged. In case market party emissions more then allowed, an obligation to buy the additional emission allowances in the market is imposed. If not done by the defaulting party, a fine is imposed of 100 €/ton, while the obligation to buy the allowances remains.

Belgium has to reduce its emissions by -7,5% in 2008-2012 compared to the reference year of Kyoto. The three regions (Flanders, Wallonia and Brussels) received more emission allowances then the total allowed for Belgium by Europe, and the compensation is made by the Federal government via the flexibility mechanisms under Kyoto and via internal measures (about an average of 2,46 Mton/year).

Obligations of the regions, compared to the Kyoto reference year:

Flanders: -5,2% (82.463.432 ton),

Wallonia: -7,5% (50.620.651 ton),

Brussels: +3,475% (4.156.582 ton)

a. Flanders:

A benchmarking convenient for the non-energy industry was signed: individual statement between the government and the industrial party to become worldclass top in efficiency by 2012. If the industrial party cannot improve its process sufficiently by 2012, an obligation to buy EUA, CER or ERU is imposed to obtain the desired reduction in emissions. In return, the government promises not to impose additional tax measures or financial consequences to the subscribers with respect to its energy efficiency or emissions policy. (www.benchmarking.be) The energy sector contributes to the reduction of emissions via the green certificates and cogeneration certificates system (equivalent of 7.5 Mton/year). The Flemish government is buying a part of the EU obligations on the emissions market (about 3.479 Mton/year for 2008-2012), via JI and CDM mechanisms proposed by the industry, or participations in international support organisations for emission reductions.

Regarding CER and ERU in Flanders, CER and ERU can be used by the non-energy sectors up to 9,1743% of the annual emission allowance by a company, under certain restrictions. The energy sector is allowed to import CER and ERU up to the same percentage, but taken from the verification period 2005-2006. The actual limit differs from company to company, or sector to sector. CER and ERU are for 2,5% of the total quotum transferrable to the next generation (as long as they are not RMU) for Belgium. CER and ERU are bankable towards the next period (2013-2020), if converted to EUA. Currently, the NCC has not yet determined how this bankability is transferred to the market parties. Banking EUA was not possible for the first period to the second one, but is possible from the second to the third period. Borrowing is not allowed, unless as a consequence of a disciplinary measure (when not enough EUA's were returned in the previous period).

Flanders: return date for the second period: 30 april 2013

b. Brussels:

Brussels allows for an import of CER and ERU up to 8% of companies' obligations in the period 2008-2012. A total emission of 4407 kt CO2 is targeted, in which 4227 kt CO2 is allowed by the Kyoto norm, and the remaining par is bought by the Brussels government via its participation in CDM and JI projects. There is no direct legal link between the CO2 allocation plan and the green certificates system.

c. Wallonia:

For each unit submitted to the Kyoto protocol, a maximum percentage of 4% of the obligation on EUA may be provided by CER and ERU. About 2,3% of the target imposed on Wallonia by Europe is bought by the Walloon government via a participation in CDM and JI projects. There is no direct legal link between the CO2 allocation plan and the green certificates system.

III. Czech Republic

III.1. Emission Trading in Czech Republic

The Parliament adopted in December 2004 the Act on the conditions of greenhouse gas emission allowance trading. This Act transposes the relevant regulations of the European Communities and lies down:

a. the rights and obligations of operators of installations and other persons regarding greenhouse gas emission allowance trading,
b. the procedure for the issue of a greenhouse gas emissions permit and decisions on changes thereto,
c. the procedure for the issue and allocation of greenhouse gas emission allowances and conditions of trading therein,
d. the competence of public administration authorities,
e. penalties for breaches of set obligations.

a. Amendments of the Act

The Act on the conditions of greenhouse gas emission allowance trading was amended in:

- 2006
- 2008
- 2009

b. Allowance Trading Registry

The registry is administered by the electricity market operator (OTE).

c. Trading Periods

The emission trading started in the Czech Republic in 2005.

From 2005 till 2007 it was only the period of the European Union Greenhouse Gas Emission Trading Scheme (EU ETS).

In October 2008 the EU registries were connected to the International Transaction Log (ITL) administrated by the secretariat of United Nations Framework Convention on Climate Change (UNCCC).

The current trading period is from 2008 till 2012.

d. Trading platforms

In the Czech Republic there is no organized platform for trading with emission trading units. Contracts are mainly done on a bilateral basis. Some Operators or Traders use foreign organized trading platform, mainly BlueNext, ECX or EEX.

e. Treatment of CO2 allowances

Based on the Czech Act on the conditions of greenhouse gas emission allowance trading the allowance is “an asset value corresponding to an installation operator’s entitlement to discharge the equivalent of a tonne of CO2 into the atmosphere”.

f. The National allocation plan for 2008 - 2012

The total maximum allocation of allowances for the period 2008-2012 is five times the annual quota fixed by the European Commission, namely 86 835 264 allowances.

The reserve for new entrants is 1.29 million allowances a year and covers both known (declared) new entrants and unknown new entrants. Unused allowances from this reserve will be sold at auction in the latter half of 2012.

g. The use of ERUs and CERs from project activities

The operators of installations may meet their obligations under the system for trading in greenhouse gas emission allowances by surrendering emissions reduction units (ERU) and certified emission reductions (CER) from projects instead of allowances, up to a maximum of 10% of the total allocation for a specific installation. There is no annual limit for the use of ERUs and CERs, and operators will be able to use project units in the period 2008-2012 up to the ceiling fixed as a percentage of the total allocation.

IV. France

IV.1. Targets

Following the Directive 2003/87/CE regarding the set-up of a European-wide emission trading system, France has implemented and launched a CO2 market in 2005.

a. Phase I

France target for the first Phase (2005-2007) was 156,5 Mtons of CO2 per year. This target has then been broken down between various industries, and then between 1,126 specific facilities. The reference document that establishes this allocation is called "Plan National d'Allocation des Quotas" (PNAQ). The fine for not fulfilling the obligations (restitution of the quotas at the end of the Phase) has been set to 40 € per ton.

b. Phase II

The target has been established to 132,4 Mtons per year for Phase II (2008-2012), corresponding to a decrease of 5,9% compared to Phase I, spread over around 1,100 facilities and the fine has been increased to 100 € per ton.

c. The market

The registry is operated by "Caisse des Depots et Consignations".

In April 2005, Powernext has launched a spot market with a delivery versus payment mechanism, based on an electronic continuous trading platform open 5 days a week.

This carbon activity has been sold in December 2007 to NYSE-Euronext, which has created a joint venture with Caisse des Depots et Consignations, Bluenext. Bluenext operates this market nowadays, and has launched, on top of the spot EUA market, EUA futures and CER spot and futures, which are cleared at LCH.Clearnet.

d. CO2 status and VAT

The Ordinance of 15 April 2004 implementing the EU ETS Directive provides that an EUA is "a unit of account representative of the emission of one tonne of carbon dioxide equivalent".

In France, EUAs cannot be considered as property rights, since the State can at any time take them back, and the rights enjoyed over such EUAs are limited in time. But it is not a "standard" administrative authorisation either, since the EUAs can be sold for a certain price and without a prior authorisation of the public authority. Therefore, EUAs should be considered a new kind of administrative authorisation, close to financial instruments, but with a certain control of the State.

In addition, the French Monetary and Financial Code was also amended by the Ordinance of 15 April 2004. It results from this amendment that EUAs as such have not been included in the list of financial instruments. Accordingly, trading in EUAs will not fall under the specific regulatory regime which governs trading in financial instruments. Transactions on EUAs will be governed by the provisions of the Environmental Code, as amended by the Ordinance of 15 April 2004, and where the Environmental Code is silent, by common contract law under the provisions of the Civil Code. CO2 was, thereof, subject to VAT.

However, transactions on future contracts that use EUAs as underlying assets will be governed by the provision of the Monetary and Financial Code. Specific provisions with respect to investment services, investment services providers, financial solicitation, regulated markets (trading, clearing, and settlement), public offering of financial instruments, and the protection of investors in general shall apply.

In June 2009, the French Budget Ministry has made CO2 exempt from value-added tax, following rumors of VAT fraud.

V. Germany

V.1. Emissions Trading in Germany

According to the Kyoto Protocol the European Union agreed to cut its emissions by percent during the second trading period 2008-2012 (compared to 1990). Germany will reduce its greenhouse gas emissions by 21% during this period.

In Germany, operators of 1,665 installations currently participate in emissions trading. This includes all large combustion plants (thermal output of more than 20 MW) and larger installations of energy-intensive industries such as steelworks, refineries and cement works.

Compared to the first trading period the total amount of annual allowances will be reduced by 57m tonnes of CO2 during the second trading period. For the period 2008-2012 the annual amount of allowances for the emissions trading sector is limited to 451.86m tonnes of CO2.

The German Emissions Trading Authority (DEHSt) at the Federal Environment Agency is the national authority entrusted with the implementation of the market-based climate protection instrument of emissions trading identified in the Kyoto Protocol under the mandate of the EU Emissions Trading Scheme Directive, the Greenhouse Gas Emission Allowance Trading Act (Treibhausgas-Emissionshandelsgesetz, TEHG) and the German Allocation Acts (ZuG 2007 and ZuG 2012). DEHSt is responsible for operating the national emissions registry. All emission allowances and their trade are recorded at the DEHst registry.

While companies received 100% of allowances free of charge during the first trading period, almost 10% of allowances will be sold in Germany during the second trading period. A directive of the German Bundestag especially regulates the auctioning of an annual 40 million emission allowances for the years 2010 to 2012 which were not allocated to power plant operators free of charge. The Directive on the auctioning of emission allowances (Emissionshandels-Versteigerungsverordnung, EHVV 2012) regulates that for the next three years (2010 to 2012) the same quantities of allowances shall be auctioned each week at one of the existing emissions trading exchanges, in the form of the products traded there (spot and futures markets). Until the end of 2009, an award procedure will determine which exchange is most suitable.

a. Emissions trading on European Energy Exchange

Since 2005 EEX offers emissions trading based on the EU Emission Trading Scheme (EU ETS). The so called EUA (EU Allowances) are traded on the Spot and Derivatives Market. EEX brings together orders (purchasing and selling) in a strictly anonymous and supervised trade.

European Commodity Clearing AG (ECC) as clearing house of EEX guarantees clearing and settlement of contracts and booking of emission rights at the national registry (DEHSt).

Since December 2007, EEX cooperates with Eurex AG in emissions trading to link financial service providers and the energy industry. In the framework of the cooperation market participants can trade also CER Futures and EUA Options.

b. Value-added tax

Emission allowances spot products are subject to the value-added tax. Derivatives, on the other hand, are not subject to value-added tax.

VI. Italy

VI.1. Emission Trading in Italy

a. Italy's National Allocation Plan

In the first commitment period 2005-2007 of the Directive 2003/87/CE, Italy had a total cap 223,1 MtCO2, while in the second period 2008-2012 the allowed cap was 195,8 MtCO2.

b. GME Market Platform

As Directive 2003/87/CE established a scheme for greenhouse gas emission allowance trading within the Community, GME organized a venue for trading GHG emission units, providing Italian and foreign operators with a useful operational instrument for marketing and managing their emission units.

Operators must have a holding account in the Italian National Registry or in other European Registries and may find their trading counterparties in GME's Market and negotiate emission permits under certain and predefined rules.

GME's electronic platform manages spot-delivery trades of EUAs (European Unit Allowances) for Phase II (2008-2012). The platform is also designed for the trading of CERs (Certified Emission Reductions) and ERUs (Emission Reduction Units), as per Directive 2004/101/EC (or Linking Directive).

GME acts as a central counterparty in all transactions made in the market. The role of central counterparty assigned to GME completely eliminates the counterparty risk and simplifies the administrative-accounting tasks associated with participation in a regulated market.

To trade in the market, buyers are required to make a single payment to GME as initial deposit guaranteeing all of their purchases. The trading system will accept trading orders only if they are completely covered by the available deposit. Sellers must transfer allowances on the GME Registry account to be allowed to sell.

After the market session each seller will issue a single invoice to GME and each buyer will receive a single invoice from GME.

c. VAT on transactions in the GME market

Market Participants holding a VAT identification number in Italy shall be subject to VAT at the standard rate of 20%. No VAT shall be applied to Market Participants established in an EC Member State. Conversely, in the case of a purchase, GME shall receive an invoice without VAT and then integrate it with the Italian VAT under the reverse charge procedure.

Market Participants established outside the European Community shall be subject to VAT at the standard rate of 20%.

Where, within 11 calendar months, beginning on the date of issuing of the invoice by GME, the customer established outside the Community can provide GME with adequate documentation certifying that the previously traded emission units or allowances have been cancelled outside the Italian territory, GME shall issue a credit memo to reverse the previous operation totally or partially. At the same time, GME shall issue a new invoice for the cancelled emission unit/s or allowance/s without applying VAT, based on the customer's request of adjustment of the invoice.

In case of a purchase from a Market Participant established outside the Community, GME shall receive an invoice without VAT and then integrate it with the Italian VAT under the reverse charge procedure.

VII. Romania

VII.1. Legal framework

Romanian authorities transposed the European Union Directives (2003/87/CE, 96/61/CE, 2004/101 a.s.o.) and issued the needed legal framework, respectively:

- Government Decision 1877/2005 regarding the approval of National action plan in the field of climate change,
- Government Emergency Ordinance 195/2005 regarding environment protection,
- Government Decision 780/2006 regarding the scheme for greenhouse gas emission allowance trading,
- Ministry Order 1897/2007 for approving the procedure for greenhouse gas emission allowance authorization, for the period 2008-2012,
- Ministry Order 1474/2007 for approving the Regulation regarding the GES National Registry management and operation,
- Government Decision 60/2008 GES Allocation National Plan for 2007 and period 2008 – 2012.

a. Institutional framework

Ministry of Environment and Sustainable Development coordinates the implementation of all the regulations issued as result of European Directives 2003/87/CE si 2004/101/CE, issues the secondary legislation, setup the total number of issued GES as well as the allocation methodology.

National Environment Protection Agency is the institution entitled with National Registry administration.

VIII. Slovenia

The cap for EU ETS emissions in Slovenia for 2008 – 2012 was set at 8.3 m t CO2, while verified emissions in 2007 were above 9 m t CO2 and rose by 3.8% in the period between 2005 and 2007. For 2009 it is expected that there will be a deficit as well, but a reduced

one due to the effect of the economic crisis. Most of the deficit is expected in the energy sector.

There is no organized trading for emission units in Slovenia and out of approximately 100 companies / installations involved, very few are active in trading. Those that are active use domestic or foreign brokers or foreign exchanges.

IX. Spain

Following the Directive 2003/87/CE regarding the set-up of a European-wide emission trading system, Spain has implemented and launched a CO2 market in 2005.

The registration of rights established in Spain was created by Law 1/2005 under the designation of Registro Nacional de Derechos de Emisión (RENADE). The Spanish Government assigned the management of RENADE to the company IBERCLEAR.

a. Phase I

For all the sectors concerned, the 2005-2007 Plan has registered an allocation deficit of 4.1%. This deficit is concentrated in the power generation sector, with a 15%. In contrast, both the industry and the combustion have issued a - 6.1% - 22.5% respectively compared to the allocation made.

In Spain, the transfers have affected a total of 199.4 million rights, of which 130.1 were internal transactions, 54.8 in imports and 14.6 in exports.

b. Phase II

Total emissions of the sectors subject to emissions trading have decreased by 12.4% in 2008 over the previous year.

The power generation sector, responsible for more than 50% of emissions has registered a decline of 16.1%. The evolution of different technologies is very uneven. The emissions in coal generation decrease by 36.3%, while the increase for the combined cycle is 32.9%. It shows therefore a shift in the thermal generation to less emitting technology. In the industrial sector there was a decrease in emissions in 2008 also remarkable, reaching 10.2%.

Regarding the comparison between emissions and allocation of rights, considering the set of installations affected by the trading scheme allowances, there is a deficit of 5.9%.

c. The market

The only Spanish initiative for an organized market so far is SENDECO2. This spot market negotiates European Unit Allowances (EUA) and Carbon Credits (CER's) and tends to specialize for Small and Medium companies. They started operations in September 2005. The total volume of rights negotiated is small, with an average of 85 Mt CO2 per month during 2007.

Other Spanish brokers involved in OTC trading are CO2 Spain, Capital Markets, CO2 Solutions and Factor CO2.

d. CO2 status and VAT

First Assignation by the State

In general, the transfer of allowances received the consideration of the provision of services subject to VAT. However, in the case of free allocation of allowances by the State to the operators (which, as we have seen today is the major route of original acquisition of rights) should be understood that the State is not acting as company or sector but in exercising a public function and, therefore, that free allocation should not be taxable.

It should be noted that this thesis could be a problem in the future in connection with allocations of Rights by the State in exchange for money because that means that a State is not acting as an entrepreneur or professional and, therefore, that such actions fall outside the scope of VAT, would understand that the price change allocations should be subject to Onerous Transfer Tax.

Subsequent transfers

The main question that arises in connection with transfers of rights in exchange derivative pricing by operators, especially in the context of cross-border operations is the location for VAT purposes of such operations.

The general location of services for VAT purposes is that they are located in the country of the establishment of the provider (in this case in the country in which the residence of the seller of Rights). A Spanish company that bought rights in France is not compelled to pay French VAT, but pay Spanish VAT and deduct it in the same statement. This solution may generate market distortions in the European Emissions Trading Scheme because it is more attractive for applicants to purchase emission allowances outside their country of residence to avoid the potential financial costs (applicable VAT is 16%).

Some proposals have been made to exempt CO2 transfers from VAT, similar to France, in order to avoid such problems.

ANNEX 1. Emissions Cap Table

Member State	*1st period cap*	*2005 verified emissions*	*Proposed cap 2008-2012*	*Cap allowed 2008-2012*	*JI/CDM limit 2008-2012 in %*
Austria	33.0	33.4	32.8	30.7	10
Belgium	62.1	55.58	63.3	58.5	8.4
Czech Rep.	97.6	82.5	101.9	86.8	10
Estonia	19	12.62	24.38	12.72	0
France	156.5	131.3	132.8	132.8	13.5
Hungary	31.3	26.0	30.7	26.9	10
Germany	499	474	482	453.1	12
Greece	74.4	71.3	75.5	69.1	9
Ireland	22.3	22.4	22.6	21.15	21.91
Italy	223.1	225.5	209	195.8	14.99
Latvia	4.6	2.9	7.7	3.3	5
Lithuania	12.3	6.6	16.6	8.8	8.9
Luxembourg	3.4	2.6	3.95	2.7	10
Malta	2.9	1.98	2.96	2.1	tbd
Netherlands	95.3	80.35	90.4	85.8	10
Poland	239.1	203.1	284.6	208.5	10
Slovakia	30.5	25.2	41.3	30.9	7
Slovenia	8.8	8.7	8.3	8.3	15.76
Spain	174.4	182.9	152.7	152.3	ca. 20
Sweden	22.9	19.3	25.2	22.8	10
UK	245.3	242.4	246.2	246.2	8
Total	2057.8	1910.66	2054.92	1859.27	-

Italy	Germany	France	Czech Republic	Belgium	Austria	
yes	no, but market participants can trade GCs voluntarily within the European Energy Certificate System (EECS).	no quotas, but GC exist	no	yes	No	**GCs Market Mechanism**
yes	no	up to 20 years	no	yes	No	**Organized market**
15 years (8 yrs for plant that enterd into operation before 2006, 12 yrs for those who entered into operation in 2006 and 2007)	20 years (15 years for hydropower > 5 MW)	?	15	Depending on the region and the technology used, in between 10 and 20 years	n/a	**Years of certification**
1 for wind, 1,8 for biomass, 1,5 for wind off-shore	-	1	-	- In Flanders: 1/MWh - In Wallonia and Brussels: depending on the efficiency of the unit/its carbon emissions reduction - Off-shore wind: 1/MWh		**Number of GCs per MWh**
5.30	-	NA	-	-Flanders (GC): 5,25% - Flanders (CHPC): 3,73% - Wallonia (GC): 9% - Brussels (GC): 2,5%		**% of obligation 2009**
78.58	-	no idea	-	-Flanders (GC): ~107€ - Flanders (CHPC): ~41€ - Wallonia (GC): ~88€ - Brussels (GC): ~89€		**GCs Price 2008**
			the second option how to support renewable sources are Green premiums (Green bonuses) to the electricity market price			**Other**

Spain	Slovenia	Romania	Poland	
no	no	yes	yes	**GCs Market Mechanism**
yes	Not for GCs	yes	yes	**Organized market**
n/a	n/a	(number of years receiving Green Certificates) • 15 years for E-RES produced in new installations, • 5 years for E-RES produced in installations from import, which were used out of Romania, • 10 years for E-RES produced in hydro installations until 10 MW refurbished • 3 years for E-RES produced in hydro installations until 10 MW not refurbished Subject to that installations are commissioned or refurbished until the end of 2014.	n/a	**Years of certification**
-	n/a	• 1 GC for 1 MWh E-RES delivered into the network from hydro power plants • 1 GC for 2 MWh E-RES produced in hydropower plants with installed capacity between 1 and 10MW and that are not refurbished and are not new • 2 GC for 1 MWh E-SRE delivered into the networkfrom hydropower plants with a capacity less than 1 MW/unity installed capacity • 2 GC for 1 MWh E-SRE for wind power plants until 2015 and 1 GC for 1 MWh starting with 2016 • 3 GC for 1 MWh E-RES delivered into the network from biomass, bioliquid, gas from wastes fermentation, geothermal and combustion gas associated • 4 GC for 1 MWh E-RES delivered into the network from photovoltaic installations.	1000	**Number of GCs per MWh**
-	n/a	6.28	RES = 8,70 CHP (gas-powered or <1 MW) = 2,90 CHP (other) = 20,60	**% of obligation 2009**
-	n/a	43.08 €	RES = 55,52 CHP (gas-powered or <1 MW) = 27,23 CHP (other) = 4,15	**GCs Price 2008**
	n/a	Data are in conformity with the Law 220/2008. This Law will be changed, and Romanian Regulator was not issued the secondary legislation in order to apply its provisions. Until now, was issued 1 GC for 1MWh for all types of technology which participate in the GC market.		**Other**

ANNEX 3. Feed in Tariff

Italy	Germany (feed-in tariffs 2010-2018)	France	Czech Republic	Belgium	Austria	
Only for some plants already in operations. New plants must apply for GCs	since 1990 (Energy Grid Feed Act, since 2000 Renewable Energy Sources Act EEG)	yes	Yes, it's one option to promote renewable sources, the worth depends on a type of source	no	Yes	**Feed in tariff**
	new construction: from 32 to 126,70 €/MWh, depending upon size and year of implementation				From 0 Cent/kWh to 6.23 Cent/kWh depending upon size and year of implementation. Different time horizons.	**Hydro**
	onshore: from 45,90 to 92 €/MWh offshore: from 28,50 to 130 €/MWh depending upon the year of implementation				9,70 Cent/kW 13 years horizon (new in 2010) 7,53 (2009), 7,54 (2008), 7,55 (2007), 7,65 (2006) with 10 years horizon + 2 years reduced	**Wind**
	basic tariff from 71,20 to 115,50 €/MWh plus bonus, both depending upon typ of production and year of implementation				10,00 to 14,98 Cent/kW (new in 2010) lower the years before	**Biomass**
from 353 to 480 €/MWh, depending upon size and integration	from 108,20 to 395,70 €/MWh, depending upon size, typ and year of implementation	from 328 €/MWh (on the ground) to 602 €/MWH (integrated in the building)	494 or 498 €/MWh, depending upon size		25,00 to 38,00 Cent/kWh or Investment subsidy <= 5 kWp (new in 2010) , depending upon size, typ and year of implementation lower the years before	**Photovoltaic**

Spain	Slovenia	Romania	Poland	
yes	Yes, from 2002; updated system from 2009; 15 years RES, 10 years CHP (values for year 2010)	no	no	**Feed in tariff**
< 10 MW **FIT:** 83€/MWh. Or **Market price + prime** (26€/MWh) with lower cap 69€/MWh and upper cap 90€/MWh 20 years horizon **< 50 MW** FIT: 69 to 83€/MWh. Or Market price + prime (22€/MWh) with lower cap 65€/MWh and upper cap 85€/MWh 25 years horizon	Premium: From 28,50 EUR/MWh (>10MW) to 59,54 EUR/MWH (<50kW) Price: from 82,34 EUR/MWH (<5MW) to 105,47 EUR/MWh			**Hydro**
On Shore: **FIT:** 77€/MWh. Or **Market price + prime** (31€/MWh) with lower cap 75€/MWh and upper cap 90€/MWh 20 years horizon **Off Shore**: **Market price + prime** (89€/MWh) with upper cap 171€/MWh	Premium: From 40,81 EUR/MWh (>10MW) to 52,65 EUR/MWH (<50kW) Price: 95,38 EUR/MWH (<5MW)			**Wind**
FIT: from 75 to 170 €/MWh depending on the origin (industrial, cattle, forest, agriculture). Or **Market price + prime** (from 36 to 128 €/MWh). 15 years horizon	Premium up to 177,14 EUR/MWh, price up to 225,74 EUR/MWh; lower values for co-firing and use of waste wood; higher values may apply for biomass CHP			**Biomass**
(all in €/MWh) < 0,1 MW: 466 < 10 MW: 442 < 50 MW: 243 25 years horizon	Price up to 477,78 EUR/MWh, premium up to 430,78 EUIR/MWh; reference price decreases yearly for new installations;	no	n/a	**Photovoltaic**

APPENDIX 1

UNOFFICIAL CALCULATIONS OF THE LEVELS OF SUPPORT for 2010 for RES

NOTE: Calculations do not take into consideration any supplements or deductions because of, for example, subsidies received!

1. Hydroelectric power plants

1. Hydroelectric power plants	Reference costs	GP price (EUR/MWh)*	B factor	2009 OS level (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	105.47	105.47	0.86	49.57	59.54
small - less than 1 MW	92.61	92.61	0.86	36.71	46.68
medium - from 1 MW up to 10 MW	82.34	82.34	0.90	23.84	34.27
large - over 10 MW up to 125 MW	76.57	/	0.90	18.07	28.50

***2010 guaranteed purchase price is identical to 2009 guaranteed purchase price**

Note: For producers receiving support under the old system, pursuant to Article 42 of the Act amending the Energy Act EZ-C and Decision "Sklep o premijah za električno energijo, proizvedeno v hidroelektrarnah (Ur.l. Republic of Slovenia, št. 85/2009)", the following baseline levels of support (the referred levels do not include deductions!) shall apply until they join the new system (conclude an Agreement with the Centre for RES/CHP support on the basis of a final decision allocating support, issued by the Energy Agency of the Republic of Slovenia) or until 31st December 2011:

- Up to and including 1 MW: Uniform annual price: 65.72 EUR/MWh; Uniform annual premium: 12.10 EUR/MWh
- More than 1 MW and up to 10 MW: Uniform annual price: 63.41 EUR/MWh; Uniform annual premium: 10.00 EUR/MWh

The uniform annual premium level may be amended if the referred decision is amended.
All types of power plants that received support under the old system (not only hydroelectric power plants) shall receive the old levels of support until a new Agreement is concluded with the Centre for RES/CHP support; however, for other types of power plants the support level under the old system is no longer adjusted.

2. Wind power plants

2. Wind power plants	Reference costs	GP price (EUR/MWh)*	B factor	2009 OS level (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	95.38	95.38	0.80	43.38	52.65
small - less than 1 MW	95.38	95.38	0.80	43.38	52.65
medium - from 1 MW up to 10 MW	95.38	95.38	0.80	43.38	52.65
large - over 10 MW up to 125 MW	86.74	/	0.86	30.84	40.81

***2010 guaranteed purchase price is identical to 2009 guaranteed purchase price**

3. Solar PV power plants

Power plants with 2009 reference costs

3.1 Solar power plants - on buildings	2009 reference costs	2010 GP price (EUR/MWh)	B factor	2009 OS level (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	415.46	415.46	0.88	358.26	368.46
small - less than 1 MW	380.02	380.02	0.88	322.82	333.02
medium - from 1 MW up to 10 MW	315.36	315.36	0.91	256.21	266.76
large - over 10 MW up to 125 MW	280.71	/	1	215.71	227.30
Solar power plants - integrated	**2009 reference costs**	**2010 GP price (EUR/MWh)**	**B factor**	**2009 OS level (EUR/MWh)**	**2010 OS level (EUR/MWh)**
micro - less than 50 kW	477.78	477.78	0.88	420.58	430.78
small - less than 1 MW	437.02	437.02	0.88	379.83	390.02
medium - from 1 MW up to 10 MW	362.66	362.66	0.91	303.52	314.06
large - over 10 MW up to 125 MW	322.82	/	1	257.82	269.41
3.2 Solar power plants - self-standing structures	**2009 reference costs**	**2010 GP price (EUR/MWh)**	**B factor**	**2009 OS level (EUR/MWh)**	**2010 OS level (EUR/MWh)**
micro - less than 50 kW	390.42	390.42	0.88	333.22	343.42
small - less than 1 MW	359.71	359.71	0.88	302.51	312.71
medium - from 1 MW up to 10 MW	289.98	289.98	0.91	230.83	241.38
large - over 10 MW up to 125 MW	269.22	/	1	204.22	215.81

***Guaranteed purchase price is identical to the reference costs; reference costs for integrated power plants are 15% higher than those in class 3.1.**

Power plant with 2010 reference costs

3.1 Solar power plants - on buildings	2010 reference costs	GP price (EUR/MWh)	B factor	2010 OS level (EUR/MWh)
micro - less than 50 kW	386.38	386.38	0.88	339.38
small - less than 1 MW	353.42	353.42	0.88	306.42
medium - from 1 MW up to 10 MW	293.28	293.28	0.91	244.68
large - over 10 MW up to 125 MW	261.06	/	1	207.65
Solar power plants - integrated	**2010 reference costs**	**GP price (EUR/MWh)**	**B factor**	**2010 OS level (EUR/MWh)**
micro - less than 50 kW	444.34	444.34	0.88	397.34
small - less than 1 MW	406.43	406.43	0.88	359.43
medium - from 1 MW up to 10 MW	337.27	337.27	0.91	288.67
large - over 10 MW up to 125 MW	300.22	/	1	246.81
3.2 Solar power plants - self-standing structures	**2010 reference costs**	**GP price (EUR/MWh)**	**B factor**	**2010 OS level (EUR/MWh)**
micro - less than 50 kW	363.09	363.09	0.88	316.09
small - less than 1 MW	334.53	334.53	0.88	287.53
medium - from 1 MW up to 10 MW	269.68	269.68	0.91	221.08
large - over 10 MW up to 125 MW	250.37	/	1	196.96

4. Geothermal power plants

4. Geothermal power plants	Reference costs	GP Price (EUR/MWh)	B factor	2009 OS level (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	152.47	152.47	0.92	(determined individually)	103.33
small - less than 1 MW	152.47	152.47	0.92	92.67	103.33
medium - from 1 MW up to 10 MW	152.47	152.47	0.92	92.67	103.33
large - over 10 MW up to 125 MW	(determined individually)	/	0.92	(determined individually)	(determined individually)

***2010 guaranteed purchase price is identical to 2009 guaranteed purchase price**

Where the annual useful heat deployment exceeds 30% of the input geothermal energy, the RES generating plant shall be eligible to a supplement of 10% of the operating support for this RES generating plant.

5. Wood biomass power plants

5.1 Power plants using wood biomass

5.1 Power plant using wood biomass	2009 variable costs - VPRC(0)	2009 GP price (EUR/MWh)	2009 OS level (EUR/MWh)	B factor	2010 reference costs	2010 GP price (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	(determined individually)	(determined individually)	(determined individually)	0.88	(determined individually)	(determined individually)	(determined individually)
small - less than 1 MW	62.40	224.35	165.20	0.91	225.74	225.74	177.14
medium - from 1 MW up to 10 MW	51.92	167.43	107.63	0.92	168.60	168.60	119.46
large - over 10 MW up to 125 MW	(determined individually)	(determined individually)	(determined individually)	0.92	(determined individually)	(determined individually)	(determined individually)

For the division of reference costs into variable and fixed costs see relevant RES Decree and its Annexes.

5.2 Wood biomass co-firing where wood biomass represents more than 5% of the total primary energy fuel input

5.2 Wood biomass co-firing >5%	2009 variable costs - VPRC (0)	2009 GP price (EUR/MWh)	2009 OS level (EUR/MWh)	B factor	2010 reference costs	2010 GP price (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	51.20	GP not possible	42.74	0.88	103.68	GP not possible	56.68
small - less than 1 MW	51.20	GP not possible	42.74	0.91	103.68	GP not possible	55.08
medium - from 1 MW up to 10 MW	51.20	GP not possible	42.74	0.92	103.68	GP not possible	54.54
large - over 10 MW up to 125 MW	(determined individually)	/	(determined individually)	0.92	(determined individually)	/	(determined individually)

For the division of reference costs into variable and fixed costs see relevant RES Decree and its Annexes.
For the use of wood biomass from source A1, Annex V to the Decree on Support for Electricity Generated from Renewable Energy Sources (RES), bearing certificates of sustainable wood biomass production, the variable part of the reference costs given in points 5.1 and 5.2 shall be increased by 10%.
For the use of wood biomass from source A2, Annex V to the Decree on Support for Electricity Generated from Renewable Energy Sources (RES), the variable part of the reference costs given in points 5.1 and 5.2 shall be decreased by 10%.
For the use of wood biomass from source A3, Annex V to the Decree on Support for Electricity Generated from Renewable Energy Sources (RES), the variable part of the reference costs given in points 5.1 and 5.2 shall be decreased by 35%.
In their application for a decision allocating support, the beneficiary shall inform the Energy Agency of the Republic of Slovenia of the structure of the sources used. The structure shall be determined or confirmed in the decision. The beneficiary shall inform the Centre for RES/CHP support of the shares of individual sources in their application for the Agreement, which is sent to the beneficiary by the

Centre of RES/CHP support on the basis of the issued decision. On the basis of these shares, the Centre for RES/CHP support calculates the weighted reduction or increase of the level of support.

5.3 Adjusting the variable part of reference costs for RES generating plants using biomass

Based on the published methodology, the variable part of reference costs shall be adjusted in line with changes to the prices of wood biomass (contained in the forecast published by the Energy Agency of the Republic of Slovenia) on the basis of the following equation:

VPRC (i) = I_{WB} * VPRC (0)

VPRC (i) is the variable part of the reference costs for the coming year in EUR/MWh

VPRC (0) is the baseline variable part of the reference costs for the year 2009 in EUR/MWh

I_{WB} is the index of the wood biomass price; **for 2010 = 1.02233**

The total reference costs shall also be changed in line with the changed variable part of the reference costs.

6. Power plants using biogas

6.1 Biogas obtained from biomass

6.1 Biogas obtained from biomass	2009 variable costs - VPRC (0)	2009 GP price (EUR/MWh)	2009 OS level (EUR/MWh)	B factor	2010 reference costs	2010 GP price (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	41.33	160.05	102.85	0.88	160.56	160.56	113.56
small - less than 1 MW	44.00	155.76	96.61	0.91	156.31	156.31	107.71
medium - from 1 MW up to 10 MW	44.59	140.77	80.97	0.92	141.42	141.42	92.28
large - over 10 MW up to 125 MW	/	/	/	1	/	/	/

For the division of reference costs into variable and fixed costs see relevant RES Decree and its Annexes. Support is not intended for units with more than 10 MW.

Where the annual useful heat deployment exceeds 15% of the input biogas energy, the RES generating plant shall be eligible to a supplement of 10% of the operating support for this RES generating plant. Heat from biogas plants used for obtaining biogas shall not be deemed to be useful heat.

Where manure and slurry represent annually more than 30% of the volume of substrate for obtaining biogas, the RES generating plant shall be eligible to a supplement of 10% of the operating support for this RES generating plant. Where manure and slurry represent annually more than 70% of the volume of substrate for obtaining biogas, the RES generating plant with a nominal electrical capacity of up to 200 kW shall be eligible to a supplement of 20% of the operating support for this RES generating plant.

6.2 Biogas obtained from biodegradable waste

6.2 Biogas from waste	Reference costs	GP price (EUR/MWh)*	2009 OS level (EUR/MWh)	B factor	2010 OS level (EUR/MWh)
micro - less than 50 kW	139.23	139.23	/	0.88	92.23
small - less than 1 MW	139.23	139.23	80.08	0.91	90.63
medium - from 1 MW up to 10 MW	129.15	129.15	69.35	0.92	80.01
large - over 10 MW up to 125 MW	/	/	/	1	/

***2010 guaranteed purchase price is identical to 2009 guaranteed purchase price**; support is not intended for units with more than 10 MW; unlike 6.1, the total reference costs are defined as »fixed«.

Where the annual useful heat deployment exceeds 15% of the input biogas energy, the RES generating plant shall be eligible to a supplement of 10% of the operating support for this RES generating plant. Heat from biogas plants used for obtaining biogas shall not be deemed to be useful heat.

6.3 Adjusting the variable part of reference costs for RES generating plants using biogas obtained from biomass

Based on the published methodology, the variable part of the reference costs shall be adjusted in line with changes to the prices of maize silage substrate contained in the forecast from the Energy Agency of the Republic of Slovenia on the basis of the following equation:

VPRC (i) = I_S * VPRC (0) + N * (1 – I_S)

VPRC (i) is the variable part of the reference costs for the coming year in EUR/MWh

VPRC (0) is the baseline variable part of the reference costs for the year 2009 in EUR/MWh

I_S is the index of the maize silage substrate price; for 2010 = **1.01738**
N is the corrective factor for *VPRC* in EUR/MWh

Size of plant	N
< 50 kW	11.90
< 1 MW	11.90
from 1 up to 10 MW	7.14

7. Power plants using biogas from the processing of wastewater treatment plants sludge

7. Biogas from wastewater treatment plants sludge	Reference costs	GP price (EUR/MWh)*	B factor	2009 OS level (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	85.84	**85.84**	0.92	26.04	**36.70**
small - less than 1 MW	74.42	**74.42**	0.92	14.62	**25.28**
medium - from 1 MW up to 10 MW	66.09	**66.09**	0.92	6.94	**16.95**
large - over 10 MW up to 125 MW	/	/	1	/	/

***2010 guaranteed purchase price is identical to 2009 guaranteed purchase price**; support is not intended for units with more than 10 MW.
Where the annual useful heat deployment exceeds 15% of the input energy of biogas derived from sludge from wastewater treatment plants, the RES generating plant shall be eligible to a supplement of 10% of the operating support for this RES generating plant. Heat from biogas plants used for obtaining biogas shall not be deemed to be useful heat.

8. Power plants using landfill gas

8. Landfill gas	Reference costs	GP price (EUR/MWh)*	B factor	2009 OS level (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	99.33	**99.33**	0.92	39.53	**50.19**
small - less than 1 MW	67.47	**67.47**	0.92	7.67	**18.33**
medium - from 1 MW up to 10 MW	61.67	**61.67**	0.92	2.52	**12.53**
large - over 10 MW up to 125 MW	/	/	1	/	/

***2010 guaranteed purchase price is identical to 2009 guaranteed purchase price**; support is not intended for units with more than 10 MW.
Where the annual useful heat deployment exceeds 15% of the input energy of landfill gas, the RES generating plant shall be eligible to a supplement of 10% of the operating support for this RES generating plant.

9. Power plants using biodegradable waste

9. Biodegradable waste	Reference costs	GP price (EUR/MWh)*	B factor	2009 OS level (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	/	/	0.92	/	/
small - less than 1 MW	77.44	**77,44**	0.92	17,64	**28.30**
medium - from 1 MW up to 10 MW	74.34	**74,34**	0.92	14,54	**25.20**
large - over 10 MW up to 125 MW	(determined individually)	**(determined individually)**	0.92	/	**(determined individually)**

***2010 guaranteed purchase price is identical to 2009 guaranteed purchase price**; support is not intended for units with less than 50 kW.
Where the annual useful heat deployment exceeds 30% of the input energy of biodegradable waste, the RES generating plant shall be eligible to a supplement of 10% of the operating support for this RES generating plant.

UNOFFICIAL CALCULATIONS OF THE LEVELS OF SUPPORT for 2010 for CHP

NOTE: Calculations do not take into consideration any supplements or deductions because of, for example, subsidies received!

10. CHP plants using wood biomass

10.1 CHP plants using wood biomass – annual operating hours up to 4,000

CHP wood biomass up to 4000 OH	2009 variable costs - VPRC (0)	2009 GP price (EUR/MWh)	2009 OS level (EUR/MWh)	B factor	2010 reference costs	2010 GP price (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	(determined individually)	(determined individually)	(determined individually)	0.85	(determined individually)	(determined individually)	(determined individually)
small-scale - less than 1 MW	33.43	326.70	269.50	0.88	327.45	327.45	280.45
medium-sized - lower - 1 MW up to 5 MW	31.46	/	192.28	0.93	253.43	/	203.76
medium-sized - higher - 5 MW up to 25 MW	27.73	/	126.56	0.93	187.62	/	137.95
large - lower - 25 MW up to 50 MW	28.65	/	93.31	0.96	156.34	/	105.07
large - higher - 50 MW up to 200 MW	(determined individually)	/	(determined individually)	0.96	(determined individually)	/	(determined individually)

For the division of reference costs into variable and fixed costs see relevant CHP Decree and its Annexes.
For the use of wood biomass with certificates of sustainable wood biomass production from the first paragraph of Article 12 of the relevant Decree, the variable part of the reference costs shall be increased by 10%. For the use of by-products and residues from the wood processing industry, the variable part of the reference costs shall be reduced by 10%. For the use of end-of-life wood, the variable part of the reference costs shall be reduced by 35%.
In their application for a decision allocating support, the beneficiary shall inform the Energy Agency of the Republic of Slovenia of the structure of the sources used. The structure shall be determined or confirmed in the decision. The beneficiary shall inform the Centre for RES/CHP support of the shares of individual sources in their application for the Agreement, which is sent to the beneficiary by the Centre of RES/CHP support on the basis of the issued decision. On the basis of these shares, the Centre for RES/CHP support calculates the weighted reduction or increase of the level of support.

10.2 CHP plants using wood biomass – annual operating hours over 4,000

CHP wood biomass over 4000 OH	2009 variable costs - VPRC (0)	2009 GP price (EUR/MWh)	2009 OS level (EUR/MWh)	B factor	2010 reference costs	2010 GP price (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	(determined individually)	(determined individually)	(determined individually)	0.90	(determined individually)	(determined individually)	(determined individually)
small-scale - less than 1 MW	33.43	220.05	160.25	0.92	220.80	220.80	171.66
medium-sized - lower - 1 MW up to 5 MW	31.46	/	111.17	0.94	172.97	/	122.76
medium-sized - higher - 5 MW up to 25 MW	27.73	/	67.99	0.94	129.71	/	79.50
large - lower - 25 MW up to 50 MW	28.65	/	46.46	0.97	110.14	/	58.33
large - higher - 50 MW up to 200 MW	(determined individually)	/	(determined individually)	0.97	(determined individually)	/	(determined individually)

For the division of reference costs into variable and fixed costs see relevant CHP Decree and its Annexes.
For the use of wood biomass bearing certificates of sustainable wood biomass production from the first paragraph of Article 12 of the relevant Decree, the variable part of the reference costs shall be increased by 10%. For the use of by-products and residues from the wood processing industry, the variable part of the reference costs shall be reduced by 10%. For the use of end-of-life wood, the variable part of the reference costs shall be reduced by 35%.

In their application for a decision allocating support, the beneficiary shall inform the Energy Agency of the Republic of Slovenia of the structure of the sources used. The structure shall be determined or confirmed in the decision. The beneficiary shall inform the Centre for RES/CHP support of the shares of individual sources in their application for the Agreement, which is sent to the beneficiary by the Centre of RES/CHP support on the basis of the issued decision. On the basis of these shares, the Centre for RES/CHP support calculates the weighted reduction or increase of the level of support.

11. CHP plants using fossil fuel

11.1 CHP plants using fossil fuel – annual operating hours up to 4,000

CHP fossil fuel up to 4000 OH	2009 variable costs - VPRC (0)	2009 GP price (EUR/MWh)	2009 OS level (EUR/MWh)	B factor	2010 reference costs	2010 GP price (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	59.64	233.71	178.46	0.85	232.01	232.01	186.61
small-scale - less than 1 MW	59.39	152.33	95.13	0.88	150.52	150.52	103.52
medium-sized - lower - from 1 MW up to 10 MW	44.69	/	57.34	0.93	115.89	/	66.22
medium-sized - higher - 5 MW up to 25 MW	49.86	/	53.41	0.93	111.69	/	62.02
large - lower - 25 MW up to 50 MW	44.90	/	55.00	0.96	115.40	/	64.13
large - higher - 50 MW up to 200 MW	40.94	/	44.73	0.96	105.28	/	54.01

For the division of reference costs into variable and fixed costs see relevant CHP Decree and its Annexes.

11.2 CHP plants using fossil fuel – annual operating hours over 4,000

CHP fossil fuel over 4000 OH	2009 variable costs - VPRC (0)	2009 GP price (EUR/MWh)	2009 OS level (EUR/MWh)	B factor	2010 reference costs	2010 GP price (EUR/MWh)	2010 OS level (EUR/MWh)
micro - less than 50 kW	59.64	175.86	117.36	0.90	174.17	174.17	126.10
small-scale - less than 1 MW	59.39	121.81	62.01	0.92	119.99	119.99	70.85
medium-sized - lower - from 1 MW up to 10 MW	44.69	/	33.01	0.94	92.22	/	42.01
medium-sized - higher - 5 MW up to 25 MW	49.86	/	32.03	0.94	90.96	/	40.75
large - lower - 25 MW up to 50 MW	44.90	/	29.44	0.97	90.49	/	38.68
large - higher - 50 MW up to 200 MW	40.94	/	21.10	0.97	82.30	/	30.49

For the division of reference costs into variable and fixed costs see relevant CHP Decree and its Annexes.

11.3 Adjustment of the variable part of reference costs

CHP plants using wood biomass

The variable part of the reference costs of CHP generating plants using wood biomass shall be adjusted to take into account changes in the prices of wood biomass contained in the forecast from the Energy Agency of the Republic of Slovenia, using the following equation:

$VPRC(i) = I_{WB} * VPRC(0)$

VPRC (i) is the variable part of the reference costs for the coming year in EUR/MWh

VPRC (0) is the baseline variable part of the reference costs (year 2009) in EUR/MWh

I_{WB} is the index of the wood biomass price; for 2010 = **1.02233**

For the division of reference costs into variable and fixed costs see relevant CHP Decree and its Annexes.

CHP plants using fossil fuel

The variable part of the reference costs of CHP generating plants using fossil fuel shall be adjusted to take into account changes in the prices of natural gas contained in the forecast from the Energy Agency of the Republic of Slovenia, using the following equation:

$VPRC(i) = I_G * VPRC(0) + N(i) - N(0) * I_G$

VPRC (i) is the variable part of the reference costs for the coming year in EUR/MWh

VPRC (0) is the baseline variable part of the reference costs (year 2009) in EUR/MWh

I_G is the index of the price of natural gas; for 2010 = **0.94625**
N(i) is the corrective factor for the coming year in EUR/MWh; **N (2010) = N (0)**
N(0) is the value of the corrective factor in year 2009 in EUR/MWh
For the division of reference costs into variable and fixed costs see relevant CHP Decree and its Annexes.

Size of plant	N(0)
< 50 kW	28.01
< 1 MW	25.68
1 to 5 MW	9.33
5 to 25 MW	9.40
25 to 50 MW	7.68
50 to 200 MW	6.40