

Renewable Energy Policy Review

Belgium

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European Renewable Energy Council
26, rue du Trone
B-1000 Brussels

Tel.: (+32) 2 546 1936

Fax: (+32) 2 546 1934

www.erec-renewables.org

erec@erec-renewables.org

1. GENERAL INFORMATION

Population and geography

Belgium is situated in the west of Europe, bordered to the north by the Netherlands, to the east by Germany and the Grand Duchy of Luxembourg and to the south and the west by France. Although its surface area of 32,545 km² makes it a small country, its location has made it the economic and urban nerve centre of Europe.

Belgium occupies a surface area of 30,500 km² and has a population of 10.3 million, meaning a population density of 335 inhabitants per km². Belgium is the second most densely populated EU country after the Netherlands. Belgium accounts for 1% of the EU's total surface area and 2.7% of its population, yet its economic weight within the EU belies these figures.

Table 1: Belgian population according to province and region

Regions

	Population
The Kingdom	10.309.725
Brussels Capital Region	978.384
Flemish Region	5.972.781
Walloon Region	3.358.560
including German-speaking Community	71.287

Official population figures (2002)

Provinces

	Population
Antwerp	1.652.450
Hainaut	1.281.042
Limburg	794.583
Liège	1.024.130
Luxembourg	250.406
Namur	447.775
East-Flanders	1.366.652
Flemish Brabant	1.022.821
Walloon Brabant	355.207
West-Flanders	1.132.275

Belgium is a constitutional monarchy (member of the European Union since 1957).

The Kingdom of Belgium is a Federal State (article first of the Belgian Constitution) consisting of three regions namely:

- the Flemish Region,
- the Walloon Region,
- the Region of Brussels Capital.

The federal State preserves competences in many fields like, inter alia, the Foreign Affairs, national defense, justice, finances, the social security, as well as a significant part of the public health and interior businesses.

The Flemish Region, the Brussels-Capital Region and the Walloon Region have powers relating to the economy, employment, agriculture, water policy, housing, public works, energy, transport (except Belgian Railways), the environment, town and country planning, nature conservation, credit, foreign trade, supervision of the provinces, communes and intercommunal utility companies. They also have powers relating to scientific research and international relations in those fields.

An additional feature of the overall administrative structure is the legal entities referred to as linguistic communities:

- the Flemish communities
- French communities
- German Communities.

The country is also subdivided into 10 provinces and 589 communes. Brussels is the capital of Europe, the site of the headquarters of the European Commission, the Council of Ministers and the European Parliament. Other major international organisations, such as NATO, are also located in Brussels. 20% of Europe road traffic is performed by Belgian carriers. In addition, Antwerp is Europe's second largest port (after Rotterdam) and one of the 10 largest in the world. In 2000, the country's gross domestic product (GDP) was EUR 244 billion, or 2.9% of the EU's total GDP.

In 2000, per capita income was EUR 62,560, 20% above the EU average. In 1999, Belgium's GDP could be broken down as follows: agriculture 1.3%, industry 24.7%, private services 53.7% and public services 13.4%.

Furthermore, like most European countries, it has a high rate of unemployment (8.6% of the active population was unemployed in 2000). Belgium is a very open economy. Exports of goods and services accounted for nearly 76.5% of GDP in 1999, and imports nearly 73%. By way of comparison, the European average was almost 32.2% for exports and nearly 31% for imports. This trade focuses very much on the European market. Half the goods exported by Belgium are sold in neighbouring countries (Germany, France and the Netherlands), while one quarter go to other EU member states. Imports follow the same pattern more or less. This situation reflects Belgium's role as a hub within the EU - as mentioned above.

2. RENEWABLE ENERGY POLICY

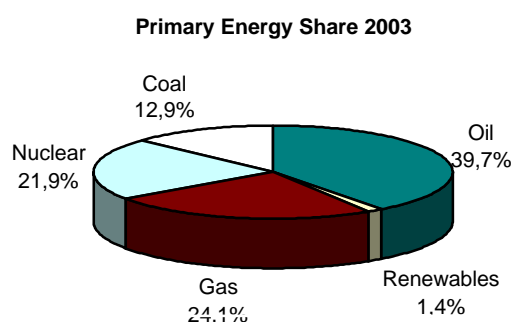
Energy and renewable energy country profile

Renewable energy plays only a small role in the Belgian energy scene due to its relatively small potential.

Country Profile

Population	10.3	Millions
Area	30,510	km ²
Total Primary Energy Supply	58.75	Mtoe
Electricity Production	79.69	TWh
Electricity Prod. by source		
Fossil Fuel	38.55	%
Hydro	2.07	%
Nuclear	58.16	%
Other	1.20	%
Renew		

Source: CIA World Factbook 2001



Source: EUROSTAT 2002

Nuclear power is now the most important domestically produced energy supply in Belgium, providing 60% of electricity and over 20% of total energy use. The rest of Belgian energy supply is imported, following the decline of the domestic coal industry. Imported energy accounts for over 79% of the total energy used in Belgium. In the 1960s, hydrocarbons came increasingly into their own, providing 85 % of the energy supply as opposed to 13 % in 1973. But the petroleum crisis disrupted this situation: the share of petroleum had decreased and that of coal (largely imported) was redeveloped, particularly for the production of electricity. The use of natural gas increased (the Netherlands, Norway and Algeria currently supply the Belgian market).

In June 1991 the Council of Ministers adopted a target to reduce CO₂ emissions by 5% between 1990 and 2000. This target refers to total anthropogenic CO₂ emissions; there is no specific target for the energy sector. (source IEA Energy Efficiency Update Belgium). In the context of the EU's burdensharing arrangements, Belgium has committed itself to reducing its average emissions of greenhouse gases by 7.5% per cent between 2008 and 2012 compared with their 1990 levels.

Renewable energy contributed 1% of Belgium's total energy supply and 1.4% of total electricity supply in 2001 compared to EU averages of 5,8% and 15.5% respectively. (IEA Renewables Information 2003). Generally speaking, the traditional form of renewable energy used in Belgium is biomass, in particular wood and wood waste. It alone represents 90% of the contribution of RES to the country's overall energy supply; 8% is from hydropower and the remaining 2% from waste incineration. (conflicting stats on page 6) Other renewables such as wind and solar energy clearly play only a very minor role although, particularly in recent years, a gradual increase has been seen.

While there is potential for expanded renewable energy use in Belgium, it is extremely limited due to the lack of large hydro resources, by limited land available for biomass plantations, and by a small coastline (where wind resources are higher). The contribution of RES to the energy balance in Belgium is still very small. In 2001 RES accounted for about 830 ktoe of production as a whole (one of the smallest percentages in Europe)(source Eurostat 2003 page2.9.2). Indeed, one study gave an optimistic potential of renewable energy as 2.7-3.8% of TPES by 2010. Even this low level, however, is unlikely to be achieved unless renewable energy promoting policies are strengthened.

Renewable energy technology installed capacity in 2003

	Belgium
Population	10.2 m
SPV (MWc)	
Grid connected	1.06
Off grid	0.00
STH (2001 figure)	28.119 m2
(square meter installed)	2.7 m2
Average surface for 1000	
SHP (<10 MW) (2001 figure)	60 MW
Biogaz (Mtep) (2002 figure)	56
Wood (Mtep) (2002 figure)	0.28
Wind	56 MW

Source EurObserv'ER 2003/Sun in Action 2/EWEA

Hydro

Belgium is one of the few EU countries whose hydro capacity is made up mainly of small hydro plants(SHP) (< 10 MW). The Small Hydropower installed capacity has multiplied by 30 over the reference period 1990 to 2001 from 2MW to 60 MW. This 2001 capacity of **60 MW** represents around two-thirds of the economically exploitable potential, with any development of further capacity limited by environmental constraints. SHP electricity generation went up from 7GWh in 1990 to 246 GWh in 2001. The contribution of SHP to total electricity generation in Belgium has increased from 0.01% in 1990 to 0.31% in 2001. More remarkable is the SHP share in the electricity generation from hydropower. While in 1990 SHP represented 0.78% of the electricity generated from hydropower, in 2001 almost 15% of the electricity generated from hydropower corresponded to SHP

(source ESHA Report on Small Hydropower Statistics: General overview of the last decade(1990-2001))

Biomass

Biomass represents nearly half of Belgium's renewable energy use, and has grown slightly at a national level since 1990, contributing 231 ktoe in 1996(statistic to be taken from the completed table). The predominant use of biomass is mainly for heating in the residential sector in Wallonia. Biomass is used in all its diverse forms in Belgium, from wood wastes for domestic heating to industrial liquid waste for the production of biogas. In 2000 34GWh of electricity and 100 TJ of heat were produced from all kinds of Bioenergy (not including that produced in CHP) (source SPF Economie, PME, Classes moyennes et Energie) In Wallonia biomass represents a large part of the share of renewable energies, 88%. Food for heating and forestry waste constitute 77% alone.

Biogas from sewage sludge and industrial digesters is also used to produce electricity and heat. In November 2002 an enterprise in the agri-food sector opened the largest installation for biogas for cogeneration in Belgium. 2 motors with a total power of 2.5 Mwe were installed with a heat output of 2 MWth and a vapour production of 2 tonnes/h. If it runs as predicted, it will contribute an annual production of 14 GWh of green electricity and a CO2 reduction of 11.500 tonnes per year. (source Rapport de la Belgique concernant la mise en oeuvre des objectifs fixés en application de la directive 2001/77/CE du Parlement Européen et du Conseil du Septembre 2001 relative à la promotion de l'électricité produite à partir de sources d'énergie renouvelables sur le marché intérieur de l'électricité (JOCE L283 du 27/10/2001))

Wind

Wind contributes a tiny amount to electricity generation: Installed capacity reached 56 MW at the end of 2003 (Source EWEA) (compared to 9 GWh in 1995), mainly from Flanders. With regards to wind parks in the north sea, there are two projects that have received full or partial authorization to construct installations. Project Seanergy aims to install 50 turbines at 2 MW. The expected production is 330 GWh per year. Project C-Power aims to install 60 turbines at 3.6 to 5 MW. Expected production is between 712 and 900 GWh per year. Wallonia has a target of generating 370 GWh of electricity from renewables by 2010, 150 of this should come from wind installations in the Walloon region. Land space is limited so installations of more than 500 kW are privileged. .

Solar Thermal

The regions have started to support the use of solar domestic hot water (SDHW) systems by giving subsidies. The Walloon Region provides about 620 Euro in subsidies for an installation. Energy suppliers also provide subsidies on certain conditions. There is also an increasing number of municipalities providing subsidies. In October 2000 came the State Secretary's statement of intention to take scale measures to stimulate energy saving in the sector of private houses. According to this text, one of the elements to seriously reduce energy consumption is the use of solar energy for domestic hot water (DHW). The amount of the incentives granted depend a number of conditions, but on the average, the scale benefit for the installation of solar collectors for DHW is about 250 Euro. The government hopes that together with regional and other financial incentives this will make the installation of solar thermal systems much more attractive. (source Sun in Action

Solar Photovoltaic

National production of PV electricity was 110 MWh in 2000 (source SPF Economie, PME, Classes moyennes et Energie).

Since the first demonstrations of grid-connection of PV in 1996, a national regulation allows for bi-directional metering up to an installed capacity of 5 kVA per phase. This results in a pay-back tariff for photovoltaic energy of 0.15 Euro. Also a regulation is set-up to facilitate simple grid-connection of photovoltaic systems in the mentioned power range, in case the applied inverter is on the list of approved inverters.

Since 1998, an investment subsidy of 50% is granted for solar electricity systems in the Flemish region. This counts for the system costs up to a maximum of 7500 Euro/ kWp, excluding batteries. In 2000, the Belgian electricity producers Electrabel and SPE have added an extra 25% to this subsidy, resulting in a total of 75% of subsidy on the investment. These actions are not yet incorporated in a long term program for the market introduction of solar electricity in Flanders.

Neither the Brussels nor the Walloon region have a specific program for the promotion of solar electricity. In both regions a subsidy on ecological investments exists that amounts up to a maximum of 25%. Some municipalities grant a fixed investment for solar energy systems in general. The maximum amount of this subsidy is 625 Euro. (Source: 3E nv (www.3E.be))

In Flanders the installation of PV panels are exempted from the main part of the of the authorization obligation. As of the 1st of May 2002, the new decree of 18th May 1999 entered into force. It stipulates that no permission is required for PV panels or solar thermal panels on roofs up to a maximum of 20% of the roof surface area or at all on flat roofing. (source Rapport de la Belgique concernant la mise en oeuvre des objectifs fixés en application de la directive 2001/77/CE du Parlement Européen et du Conseil du Septembre 2001 relative à la promotion de l'électricité produite à partir de sources d'énergie renouvelables sur le marché intérieur de l'électricité (JOCE L283 du 27/10/2001))

RE Policy Outlook

Targets/Strategy /Climate change

The targets for renewable energy implementation are set at different levels. The Federal target is to raise the share of renewables (excluding waste) in electricity production from 1.9% (1999) to 3% in 2004. Official national targets after 2004 have not yet been set. The EU directive indicative target for electricity from renewable sources in 2010 in Belgium is 6%. The specific target for Flanders is 900 GWh electricity generated from RES by 2004 and 5% by 2010. Two thirds should be provided by wind energy, and the remainder is generated from biomass sources.

The Walloon government has set its targets at 4.1% by 2004, and 12% by 2010 (including CHP using waste). In the Walloon region, priority is given to use of biomass, including organic waste, followed by small-scale hydropower, active and passive solar thermal applications and wind energy. The Brussels region has not set targets on shares of energy consumption to be provided by renewable sources. (source ECN Renewable Energy Policies in Europe – Country fact sheets 2003)

Belgium has relatively small potential for renewable energy resources, one of the smallest in Europe. Its contribution to the final energy consumption in Belgium was about 1% in 2001. There was no active policy for promoting renewable energy implemented until 1998, resulting in limited use of renewable energy until very recently.

The limited use of renewable energy sources can be understood by the following characteristics:

- Belgium's limited renewable energy resources;
- the existence of large, centralised energy production systems or networks with good grid-connections, which enables consumers to benefit from economies of scale;
- the low relative price of conventional energies.

Belgian energy policy aims at meeting the following objectives:

- energy security and diversity;
- environmental protection, namely reduction of CO₂ emissions by 7.5% on the 1990 levels by the period 2008-12
- strengthening the technical capabilities of industrial exporting firms;
- an active involvement in EU and other international renewable energy programmes

Although there is much more emphasis on RUE (Rational utilization of energy) measures, regional governments have stated an objective of 5% energy consumption covered by renewable energy sources in 2010.

The Federal Government agreement of June 1999 contains commitments in order to bring about a sustainable energy policy, aimed in particular at emphasising the development of alternative energy sources.

An initial phase was achieved on 20th July 2000 with the adoption of the Federal Plan for Sustainable Development 2000 – 2004, which establishes the major policy guidelines in this field.

The Act of 29th April 1999 on the organisation of the electricity market established a support mechanism and the obligation to organise the internal market so that a minimum quantity of electricity is generated from renewable sources.

This Act has been transposed in the Royal Decree of 16th July 2002 relating to the establishment of mechanisms aimed at the promotion of electricity generated from renewable sources of energy. This decree organises a process for the renewable electricity producers to receive green certificates, and obliges the TGM to buy these green certificates and those delivered by the regions for 50 €/ GC. (source APERE PREDAC WP8, National Report Belgium) The producers of green electricity are also required to provide a guarantee of origin.

The National Climate Plan 2002 - 2012, drawn up by the Secretary of State for Energy and adopted by the Federal Government in October 2001, also contains a certain number of guidelines for energy policy which may potentially develop the recourse to renewable energies.

Since the 1st of January 2003, the installation of water heating systems that use solar energy and for the installation of PV panels in order to transform solar energy into electricity, benefit from a tax reduction of 15% on household taxes, to a maximum of 600 euro per habitation per year. There is an additional fiscal

deduction of 13.5% for energy saving investments, especially those concerning renewable energy, valid both for companies and private persons.

Financial incentives have also been set up on investment for RES at federal and regional level such as the ECHOP programme (Walloon region), subsidies for companies investing in RES (20% for SME and 10% for MLE) in the Flemish region, support to R&D programmes and investments and incentives for the renewable electricity market (€0.05 per kWh produced from wind and hydro energy and €0.025 per kWh produced from other RES (mainly biomass).

The evolution of the Belgian energy policy has been shaped by the general political evolution of Belgium, leading to the transfer of large competencies from the State to the Regions. The Federal authority is still responsible for the supply sector (the plan for electrical equipment; the infrastructure, the production and the transport of energy; the energy pricing, the taxation and trade practices).

The Regions are competent in the legislation governing the distribution of gas, electricity and heat by *intercommunal* utilities, who have a key role in the development of RES and the promotion of RUE; the implementation of Regional and Federal policies aimed at promoting RUE; the management of natural resources and the development of renewable energies. The promotion of renewable energy is mainly the responsibility of the regional government. This means that the support for renewable energy is not uniform throughout the country, and relies on the wealth and willingness of local government to support it.

Name of Policy	Policy Type	Renewable Energy	Date	Level of action
Electricity distribution (Flemish Region)	Net Metering / Connection	All renewables	<u>2004</u>	<u>Flanders</u>
Financial support for demonstration projects	Demonstration Project	All renewables		<u>Flanders</u>
Green Certificate Scheme - Federal	Portfolio Standard	All renewables	<u>2003</u>	<u>National</u>
Green Certificates Scheme - Flanders	Portfolio Standard	All renewables	<u>2001</u>	<u>Flanders</u>
Green Certificate Scheme - Wallonia		All renewables	<u>2002</u>	<u>Wallonia</u>
Solartherm Wallonia	Demonstration Project	Solar thermal	<u>2000</u>	<u>Wallonia</u>
Support for Solar in Brussels Region	Grants Renewable Energy Industry	Solar thermal	<u>2003</u>	<u>Brussels Region</u>
Support for solar in Flanders	Grants Renewable Energy Industry	Solar photovoltaic Solar thermal	<u>2002</u>	<u>Flanders</u>
Tax deduction for environment friendly R&D investments	Corporate Tax Incentive	All renewables	<u>1992</u>	<u>National</u>

Other Federal level initiatives for the promotion of RES:¹:

A scientific commission, called the AMPERE commission (Analysis of the Means of Production of Electricity and the Restructuring of the Electricity Sector). Investigates the different options for electricity production in Belgium, taking into account the environmental and economic challenges of the future. A national program for CO2 emissions reduction. The program includes several measures addressing both the private and the public sectors and includes the promotion of RUE, CHP and RES development. (However, no CO2 tax has been implemented in Belgium and this limits the potential effectiveness of this programme).

The Federal Planning Bureau establishes the Federal Report on sustainable Development every two years. It gives a description and assessment of the existing situation and policy in terms of sustainable development, as well as the evolution foreseen in the case of unchanged and changed policy. Following the conclusions of the Federal Report, a Federal Sustainable Development Plan is established every four years, it outlines a series of measures to remedy the weak points and harmful tendencies, among which measures to develop RES.

There are several national schemes that focus on investment support. These include a 20% federal subsidy for investments in renewable energy installations by hospitals and schools (the Royal decree of 1983), a subsidy for investment for energy efficiency and renewable energy technologies and tax reductions for industrial investments in renewable energy systems. Further, the RUE/Electricity Generation Fund is used to support industrial product development and demonstration projects on renewables.

¹ INSTITUT WALLON DE DEVELOPPEMENT ECONOMIQUE ET SOCIAL ET D'AMENAGEMENT DU TERRITOIRE ASBL, *RES Policy Report for Belgium*, 1999, (s.l.e), p.13.

In the industrial sector, a percentage of the investment costs on energy efficiency and renewable energy measures can be deducted from the taxable income. The percentage is determined by the Ministry of Finance on an annual basis. In 2002 the rate of eligible deduction was 13.5%. The relevant regional governments are responsible for the certification of eligibility and conformity of the completed investment. (source ECN Renewable Energy Policies in Europe – Country factsheets 2003)

The initiatives for the promotion of RES at Regional level are:

Walloon Region: Initiatives by the Walloon Region include:

- the inventory of available resources,
- information campaigns,
- training of the professional sector, decision-making tool creation. In March 2002 the Walloon Region has adopted a decree related to the promotion of electricity from RES.
- The regional area development programme (S.D.E.R) sets out the strategic vision for the development of Wallonia and serves as a reference document for the authorities. It fixes the policy framework to be adopted in the various sectorial policies in order for them to be implemented in a co-ordinated manner throughout the territory. (Source APERE National Report Belgium 2003)

Brussels-Capital Region: The potential for RES in the Brussels-Capital Region, essentially an urban area, is very limited, for which reason most of the government actions are to promote RUE.

In this framework, the Region has initiated a promotion and information campaign for solar domestic hot water systems, including subsidies for the installation of solar thermal systems. The Region also supports R&D and demonstration projects and provides subsidies for RES investments.

Flemish Region

The Division Natural Resources and Energy of the Ministry of Flanders carries out the implementation of the energy actions from the Flemish Climate Policy Plan.

- Imposing on the distribution grid controllers a 'RUE public service obligation' as of 2003. The grid controllers must guarantee actions for end-users, which result in 1% yearly saving of primary energy in the delivered electricity.
 - Subsidies for energy saving investments: 20% for small enterprises and 10% for medium and large enterprises
 - Tax abatement: a maximum of 600 euro per year can be deducted from the tax amount for amongst others; roof insulation, replacement of old heating boilers, PV-solar installations (private persons)
 - Exemption of charges for the transport of renewable electricity over the distribution grid
 - Guaranteed minimum price for green electricity certificates
 - The introduction of a guarantee of origin system for green electricity
 - Premiums and support measures by the DSO's for energy audits and advising, thermal solar energy investments, heating pumps, cogeneration and other energy efficiency measures.
 - Energy demonstration projects: 35% investment support
 - Photovoltaic subsidy scheme: 50% investment support
 - Grants to municipalities and societies promoting renewables
 - Voluntary agreements, the so-called benchmarking covenants with industry
- (source Ministry of the Flemish Community Administration Economy, Division Natural Resources and Energy, Energy Policy in Flanders)

Electricity

The RES-E Directive sets the national indicative target for the share of gross electricity consumption to be met from renewable energy sources at 6% in 2010;

Distribution of electricity produced from renewable sources within Belgium is free of charge. (source Ministry of the Flemish Community Administration Economy, Division Natural Resources and Energy, Energy Policy in Flanders)

In April 99, Belgium passed a law implementing the EU Directive on the liberalisation of electricity markets, which regulates third party access for eligible customers and negotiated access for transit and high volume transmission.

The 1995-2005 Electric Equipment Plan was approved by the government in January 1996 and includes measures aiming to increase the production of electricity from renewable energy resources (hydroelectricity, solar, wind, biomass and biogas). This is projected to increase renewable electricity capacity by 35 MW by 2005. The Belgian CO₂ reduction programme cites strengthening of Electric Equipment Plan as part of the climate change response strategy and the government has asked the CCEG to continue its study of tariffs that would be favourable to the increased use of renewable electricity. However, a guaranteed market for renewable electricity does not exist in Belgium.

From the 31st of July 1998 2 extra – Belgian Franks (0,05 EUR) were given for each kWh produced from Wind and SHP. For photovoltaic installations < 3KWp net metering is allowed. There was no monopoly of production of electricity but a license was needed to use the grid or to distribute electricity. To stimulate independent production from renewables, the extra-frank(s) were paid by the electricity company that bought the electricity of the independent producer.

While the system of feed in tariffs will continue to exist, Flanders and Wallonia regional governments decided to introduce a (regional) green certificate system. Therefore, at least 3 systems will coexist in the future¹⁴. Concerning the National feed-in tariff, solar PV, wind, biomass and small hydro all benefit from a price support (net of electricity) of between 4.25 cents €/kWh and 12.5 cents €/kWh.

From 2001 companies that produced electricity are obliged to obtain a certain percentage of their total production from renewable sources (10.000 KWh/certificate), or to buy the corresponding number of green certificates. At the end of the year the difference between the amount of electricity sold for the year and the amount for which a green certificate was asked for, is checked and fines were possible for those producers that did not reach the level of production from renewable specified. To obtain a certificate, an application has to be sent to the VREG (Flemish office for regulation of electricity and gas markets). A certified bureau has to visit the energy-installation and has to deliver an attestation that renewable energy is being produced at the site.

In Wallonia the green certificate system came into effect on October 1st 2002.. The quota for the first obligation period ending on 31 December 2003 has been set at 3%. This percentage will increase by one point per year till 2007 –4% in 2004, 5% in 2005, 6% in 2006 and 7% in 2007–. The Government will decide upon further objectives in 2005 according to achievements. Green generators in Wallonia get a green certificate per each 456 kg of CO₂ avoided emissions, which means one green certificate per MWh for wind, smallhydro, biomass or solar PV but 3.3 MWh for a natural gas cogenerator and 6.2 MWh for a fuel oil cogenerator. Green certificates are valid for five years. Those suppliers which fail to reach each quarter the annual quota will have to pay a fine per green certificate missing of 75 € by 30 June 2003 and 100 € thereafter. The amount of the fine indicates the theoretical ceiling price of the certificates. The money coming from the fines will go to a public Fund to promote renewables. However, green generators will be entitled to sell their certificates to the Energy authority at minimum price of 65 € per certificate over ten years, according to a proposal still under discussion. Federal authorities have implemented a parallel system of minimum prices although some of them are below the Wallonian floor price: 20€/MWh for biomass, 50€/MWh for wind onshore installations and smallhydro, 150€/MWh for solar energy and 90€/MWh wind offshore plants. 8 Only hydro plants under 20 MW of power are entitled to get green certificates.

In Flanders, the green certificate framework came into effect on January 1st 2002. The quota has been set at 0.8% in 2002 and at 1.2% in 2003. This percentage will grow to 6% in 2010. Green generators in Flanders get a green certificate per each MWh they produce from wind, small hydro, biomass or solar PV. Green certificates are valid during five years. Those suppliers which fail to reach the target have to pay a fine of 75 € per green certificate missing in 2002, 100 € in 2003 and 125 € thereafter. Federal authorities have implemented a system of minimum price: 20€/MWh for biomass, 50€/MWh for wind onshore installations and smallhydro, 150€/MWh for solar energy and 90€/MWh wind offshore plants.

Heating and cooling

The Walloon Region has established a programme called SOLTHERM to support the development of the solar collector market in Wallonia. The objective is to develop a sustainable solar water heating industry in the region over a ten-year timeframe. The target is for 200 000 m² of panels to be installed in the region by 2010. 75% of the capacity should be installed through building renovations and the remaining 25% from new construction.

The residential market is the first target, to be followed by the larger community-use projects. Individual grants currently start from € 1 500 (for up to 4 m² of panels) and can be supplemented by local institutions (the communes and provinces) as well as gas and electricity distribution companies. Grants offered to households are between € 1 875 and € 3 000. The Walloon Region provides additional support to

the municipalities active in using solar thermal energy. In 2003, most of the mixed “intercommunales” of gas and electricity distribution offered a € 1 250 grant to individuals and small and medium enterprises (SMEs). The Walloon Region also pays for solar auditing for communities (source IEA Renewable Energy Database Soltherm Wallonia).. Officially, this grant is restricted to systems with an electrical back-up. Several local authorities also subsidise solar domestic hot water systems. The Walloon Region is supporting an NGO called ERBE whose objective is to promote wood biomass utilisation for heat through information campaigns audits and feasibility studies for biomass heat projects.

In the Flemish region Intercommunals for the distribution of electricity provide subsidies for the installation of solar thermal systems, with a grant of 75 EURO/m² (with a minimum grant of 625 EURO and a maximum of 6250 EURO per installation). A subsidy is also given for the installation of heat-pumps (from 125 EURO/kVa for 1 kVa units, till 37.5 EURO/kVa for units over 100 kVa).

Various financial incentives have been introduced by the regions for the retrofitting of buildings (excluding R&D). The Walloon Region through the MEBAR programme allocates a maximum subsidy of BEF 55 000 € to low-income households to improve the energy efficiency of their dwellings.

For the new construction of building certain minimum values for the level of thermal insulation are in place. These are called k values, which determine how much heat is lost through a wall, so the lower the k max value permitted, the higher the level of energy efficiency required. There are also standards applied for ventilation.

The Flemish government has issued an energy policy document for the period 2000 to 2004 which stated the objective of reducing energy consumption in the residential sector in 2004 to the 1998 level. It is considering the introduction of an energy performance standard following the Dutch experience for new buildings (dwellings and office buildings) and efficient control and motivation activities to enforce the existing legislation concerning insulation of buildings. For industry and the service sector, the objective is to increase energy efficiency by 2004 compared to 1998. This objective calls for a wide range of measures, such as the creation of benchmarking covenants with energy-intensive industries, a new Decree creating a global framework for funding energy efficiency projects and the development of a coherent communication strategy to promote energy efficiency.

The Walloon Region checks the application of the legislation at the stage of the building permit but also at the beginning of the construction site. Nevertheless, the inspections are insufficient and better ways to carry out controls are being studied.

Transport

There are no specific incentives for the application of renewable energy in the transport sector in Belgium.

The production of fuels from renewable energy sources is still in the research and development phase and funding is channelled through R&D subventions.

Research and Development

By the Walloon Region:

Subsidies for R&D and demonstration RES projects for industry (50%), SME (80%) and research centres (100%).

- Repayable advances (50% to 80%) for applied research or development (including demonstration) projects.
- Subsidy covering 50 to 100% for the preparation and submitting of R&D and demonstration projects introduced to the European Commission.
- Financial support of ISSeP (Scientific Public Service Institute) : R&D and demonstration activities in the field of biomass and waste valorisation.

By the Flemish Region:

Subsidies for demonstration projects and prototypes covering 35% of the investment.

- Subsidies for R&D and demonstration RES projects for the industry (50%), SME (80%) and research centres (100%).
- Grant to the energy department of VITO, the Flemish Institute for Technological Research.

			TIME	1980	1985	1990	1995	1999
COUNTRY	PRODUCT	FLOW						

Belgium	Million US\$ (2002 prices and exchange rates)	4.1 Solar Heating & Cooling	5,900	2,882	..	0.665	0.450
		4.2 Solar Photo- Electric	2,475	5,131	..	0.911	0.050
		4.3 Solar Thermal-Electric	0.553	0.042	..	0.002	0.000
		Total Solar	8,930	8,054	..	1,578	0.500
		5. Wind	0.236	2,862	..	0.141	0.050
		6. Ocean	0.000	0.000	..	0.000	0.000
		7. Biomass	0.776	4,861	..	1,941	0.050
		8. Geothermal	2,468	0.000	..	0.011	0.000
		9.1 Large Hydro (>10 MW)	0.000	0.000	..	0.000	0.000
		9.2 Small Hydro (<10 MW)	0.000	0.000	..	0.081	0.397
		Total Hydro	0.000	0.000	..	0.081	0.397
		TOTAL RENEWABLE ENERGY	12,408	15,777	..	3,753	0.996
		TOTAL OTHER TECH./RESEARCH	3,610	5,285	..	1,845	0.565
		TOTAL ENERGY R&D	175,352	126,420	..	46,207	49,727

(Source IEA 2003: National Budget RD&D in OECD Countries – Belgium 1980-2002, OECD, IEA)

Climate Change

In 1994 the Federal Government, together with the Regional governments, reconfirmed the 1991 national objective of -5% target of CO₂ emissions by 2000 on 1990 levels. In line with this, it approved the National Belgian Programme to reduce CO₂ emissions. This national CO₂ programme comprises:

- the inventory of CO₂ emissions since 1992;
 - the state of affairs of the actions that have been taken since 1990;
 - a prognosis of CO₂ emissions in the year 2000;
- 14 series of measures to attain the intended -5% objective

The responsibility for its implementation rests both with the federal and the regional administrations. Moreover, within each of those administrations different departments will have to contribute their mite: environment, energy, transport and mobility, research policy. In some cases the initiative does not even lie with the various Belgian governments, but with the European Commission.

The 14 sets of policy measures contained in the CO₂ programme are summarised below, for each of the target groups:

- [household sector](#)
 - [transport](#)
 - [energy generation and industry](#)

Apart from the national CO₂ programme of the Federal Government and the Regions together, the policy plans of the Regions also include separate measures to reduce the emission of CO₂. Examples are the Flemish 'Environmental Policy Plan 1997-2001', the 'Flemish CO₂/RUE policy plan'¹, and the 'Plan d'Environnement pour le Développement Durable en Région wallonne' (Environmental Plan for Sustainable Development in the Walloon Region).

In June 1996 the Interministerial Conference for the Environment (ICE) decided that by 1999 a new Belgian plan must be drawn up for the reduction of greenhouse gas emissions. The objective thereof must be not to let CO₂ emissions exceed the -5% level after 2000 either. For the year 2010 the ICE has decided that we must strive for a reduction of 10 to 20%, but on condition that the other industrialised countries make a comparable effort and introduce a number of common measures. (source http://www.environment.fgov.be/Root/tasks/atmosphere/klim/set_en.htm)

3. RE Highlights

Regional Best Practice

Eeklo – Sustainable Energy Project

Ecopower (a financing co-operative for renewable energy) implemented a sustainable energy project in the small Flemish city of Eeklo. In 2001 the first two of three planned wind turbines started production. These are the largest wind turbines in Belgium, increasing the total installed capacity by over 20%. Aslo as part of the project there is a small hydro station.

The final results were a high acceptance for Wind Energy within the community of Eeklo and increased awareness of sustainableenergy issues. The project also generated tourism and interest from other localities and also at EU level.

One of the aims of the Eeklo project was close community involvement and support for the project. This was mainly achieved by delivering direct benefits to the residents of Eeklo through selling them shares at 250 Euro each and with 6% dividends.

Success Factors:

Political: Market liberalization which facilitates the direct sale of electricity to private consumers.

Legal: There was also legal support in that transportation of green electricity over the distribution net in Flanders is free, a major facilitating factor for Ecopower when deciding to become a supplier.

Financial: The project received financial support from the Flemish regional authorities.

Information: It was also necessary to combat the preconceptions of the local governments who were skeptical about the installation of wind turbines. This was achieved by providing them with all the facts and the predicted benefits. The overwhelming community support and financial success of this project may help to strengthen political enthusiasm for future projects of this kind.

4. Websites

Title	Description	Website
Ministerie van de Vlaamse Gemeenschap Afdeling Natuurlijke Rijkdommen en Energie		www.energiesparen.be
Ministère de la Région Wallonne DGTRE - Division de l'Energie	Energy information in Wallonia	http://energie.wallonie.be
The Brussels Institute for the management of the environment (IBGE-BIM)	The administration of the environment in the Brussels capital region	http://www.ibgebim.be/
Monsieur José DARAS Vice-President du Gouvernement Wallon et Ministre des Transports, de la Mobilité et de l'Energie	Energy is the responsibility of the Walloon region Ministry of Transport, Mobility and Energy, under the direction of M. DARAS	http://daras.wallonie.be/

FPS Economy, SMEs, Self-employed and Energy Policy Division	Website contains useful information for both professionals from the energy sector and people in general.	www.mineco.fgov.be
ADEME	National Energy Agency responsible for the implementation of the French government policies in the sectors of RES/RUE/management.	www.ademe.fr
Commission de Régulation de l'Electricité et du Gaz	Information on the electricity and gas market for all actors in Belgium	www.creg.be
Control Committee of Gas and Electricity	Gives recommendations on the national energy policy	http://www.cceg.be/econtent.htm
Federal Council for Sustainable Development	an advisory body that advises the Belgian federal authorities about the federal policy on sustainable development.	http://www.belspo.be/frdocfd/en/frontpag.htm
APERe	A non profit making organization, promoting renewables in the framework of sustainable development. Backed by the DGTRE and the IBGE-BIM	http://users.skynet.be/apere/eng/index.html
Europa website	EU Commission website	http://europa.eu.int
European Commission –Directorate General for Transport and Energy		http://europa.eu.int/comm/energy/index_en.html
Managenergy	Information Services for Local and Regional Energy Actors	www.managenergy.net