



BELGIUM

RENEWABLE ENERGY POLICY REVIEW

In Belgium, 77% of the consumed primary energy comes from fossil fuels (petroleum, natural gas and coal), 21% from nuclear. The main renewable energy sources (RES) are hydropower and biomass, nevertheless the hydropower potential is relatively limited. Wind power is being fast developing: as from October 2008 Thorntonbank off-shore wind park is active – 30 Km off Belgian coast. By 2010 it will produce 300 MW of electricity. Belgium green certificate system aims at giving enough incentives for a further development of renewable energy. Trading is taking place. However, there is little liquidity on the market as a major part of this trading is done through long-term contracts.

KEY FIGURES

- The **share of RES in total primary energy consumption** was of 2.67 % in 2007.¹
- The **share of RES in the gross final energy consumption** was 3.65 % in 2007.²
- The **share of RES in the gross electricity production** was 3.9% in 2006.³
- The **share of biofuels** in the transport sector in 2007 was 1.12%⁴.
- Belgium energy dependence on imports amounts to 77.9% in 2006⁵.

Technology Specific Figures

¹ EurObserver Barometer

² EurObserver Barometer

³ Bilan Energétique de la Région Wallonne 2007

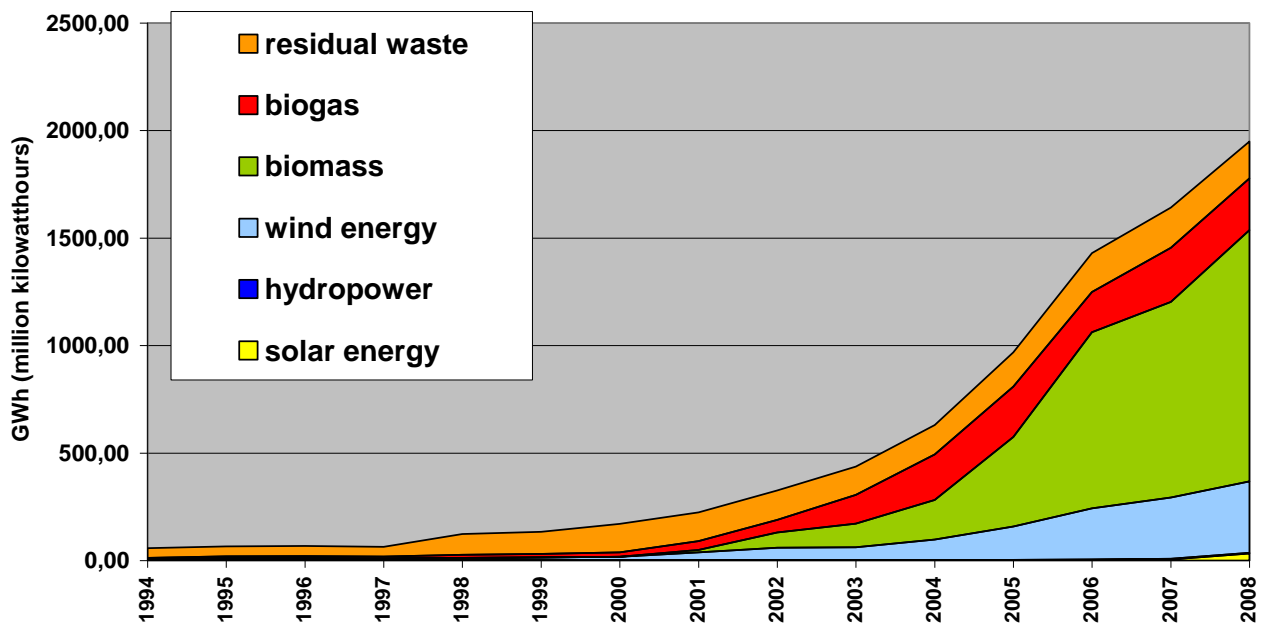
⁴ Euroobserver Barometer

⁵ Energy.eu

- For the Walloon region, present biomass resources are estimated at about 700 000 toe. The current utilisation reaches 300 000 toe, principally by incineration of waste, utilisation of by-products in wood industries and space heating with wood logs in domestic stoves. In 2007, the total RES primary energy – without biomass - in the region amounted to 679.5GWh (25% more than in 2006). 57% of this amount was represented by hydro. This renewable energy source substantially decreased from the 89.7% of year 2000 due to the development of wind energy – passed from 0.3% in 2000 to 30.8%. Biomass – including biofuels - was responsible for 9,412GWh production of primary energy, namely almost the double as produced in 2000.

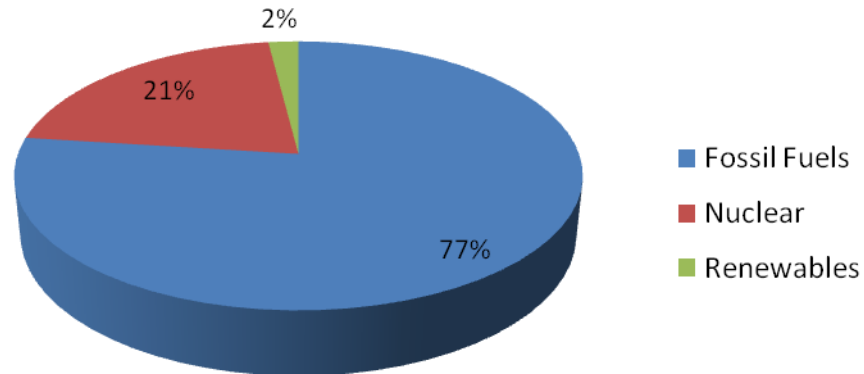
In 2008 in Flanders region the total RES electricity produced (i.e. 1949GWh) – representing 3.2% of total electricity production in the region - mainly came from biomass (60%), wind energy (17.2%), biogas (12%) and organic waste (9%). A small contribution was also given by solar energy (1.7%) and hydro (0.2%).

Renewable electricity production in Flanders in GWh (million kilowatthours)



In Flanders region, around 2473GWh of renewable heat was produced (around 96% from biomass, of which 65% produced as heat only and 35% in a cogeneration application). The remaining 4% was mainly produced by heat pumps, and for a small part by solar boilers.

Primary Energy Share in Belgium (2006)



RES POLICY

Targets differ between the three regions of the country (Flanders, Wallonia, and Brussels) and energy policies are implemented separately, leading to differing supporting conditions and separate regional markets for green certificates.

RES TARGETS

Mandatory targets set by the Directive on the Promotion of the use of energy from renewable sources

- 13% share of RES on the final consumption of energy in 2020⁶.
- At least 10% share of renewable energy in final consumption of energy in transport by 2020.

Indicative Target set by the RES- electricity European Directive from 2001⁷

- 6 % Share of RES on gross electricity consumption by 2010

Indicative Target set by the European Biofuels Directive from 2003⁸

⁶ The final goal will be divided between the regions and the federal government

⁷ Directive 2007/71/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market. Currently in force, sets targets up to 2010.

- Biofuels consumption of 5.75% of petrol and diesel use for transport in 2010.

National commitments

- The target for renewable electricity is 8% by 2010⁹ in the Walloon region, 6% by 2010 (and 13% by 2020) in Flanders¹⁰ and 2.5% by 2006 in Brussels. Wallonia and Flanders are on track to meet their targets. Wallonia is expected to overtake its target from 2009/2010.
- There is no national target/commitment for heating and cooling.

Technology Roadmap

- The Walloon Region aims at reaching a production of 4,100GWh¹¹ heat from wood and vegetal by-products by 2010.
- The Walloon region aims at reaching a production of electricity from wind of 370GWh (approximately 150 windmills) by 2010).
- Flanders region aims at a production capacity of electricity from wind of about 1,000GWh by 2010. A memorandum of the Flemish government has been published in May 2006 aiming to reach this objective through accelerating measures. PV sector is also growing: from the 553 kW installed in 2005, it passed to 2035 kW in 2006, to 15,658 kW in 2007 and 40,000 kW in 2008.

Progress towards the targets

- With an RES-E share of 2.98% in 2006 the national target of 6% is still far away. Wallonia and Flanders are on track to meet their targets set at national level. Wallonia is expected to overtake this target from 2009/2010.

⁸ Directive 2003/30/EC on the promotion of the use of biofuels or other renewable fuels for transport currently in force, sets targets up to 2010, with indicative targets by 2005.

⁹ According to the 2003 "Plan pour la Maîtrise Durable de l'Énergie"

¹⁰ As stated in the Action Plan for the period 2004-2009 set by the Flemish Government.

¹¹ According to the 2003« Plan pour la Maîtrise Durable de l'Énergie"

MAIN POLICY INSTRUMENTS

Support to RES Electricity

3 sets of measures are key to the Belgian approach to RES-e:

Quota obligations

Quotas have been set (obligation for all electricity suppliers to supply a specific proportion of RES-e) and guaranteed minimum prices or 'fall back prices' have been foreseen. In all three regions, a separate market for green certificates has been created. In order to guarantee the authenticity of certificates, the certificates are registered in a data bank managed by the respective regulative authorities in charge (for instance Art. 13 arrêté royal du 16. juillet 2002, Art. 21 arrêté du gouvernement wallon du 30 novembre 2006 , *besluit van de Vlaamse Regering van 5 maart 2004.*)

In the Walloon Region, the price of the green certificates depends on the quotas which are going to appear quickly too low to sell the green certificates at a competitive price. The Walloon region should increase its quotas at the time of the future regional government.

| Resource | Penalty level [€cents/ kWh] | Quota in % (in year) | Comments |
|------------------------|--|--|---|
| All RES-E technologies | <p>WALLONIA and BRUSSELS: 100 euro for each missing GC</p> <p>FLANDERS : 125 € for each missing GC</p> | <p>WALLONIA : 3% 2003 - increase of 1 % a year till 2012</p> <p>BRUSSELS : 2 % in 2004 2,25 % in 2005 2,5 % in 2006, 2007 and 2008 increase of 0,25 % after 2008</p> <p>FLANDERS : 3.75% in 2007 4.90% in 2008 5.25% in 2009 6% in 2010</p> | <p>WALLONIA : electricity suppliers must pay to Wallonia's energy authority for each GC missing at the end of each accounting period</p> <p>BRUSSEL : electricity suppliers must pay to Brussels' energy authority for each GC missing at the end of each accounting period</p> <p>FLANDERS : electricity suppliers must pay to Flanders energy authority for each GC missing at the end of each accounting period</p> |

Green certificates Price

In the Flanders Region, around 1 million of certificates were traded for the quota period 1 April 2007 – 31 march 2008, with an average price of 109 euro/MWh. The price is very stable since 2004. The price of quota certificates with or without guarantee of origin does not indicate a significant value for the guarantees of origin.

CWaPE (Commission Wallonne pour l'Energie), energy regulator in the Walloon region of Belgium, has recently published the green certificates market prices and volumes for the fourth quarter of 2007 - covering the months from October to December. The volume of green certificates traded was 154,087. The third quarter of 2007 ended with the highest volume traded since 2004, reaching 227,009. The average price for the fourth quarter was 88.16 Euro/MWh. The price of certificates traded in the previous quarter, from July to September, was 91.46 Euro/MWh

| Resource | Support level [€cents/ kWh] | Duration [years that an investor is entitled to support] | Comments |
|--------------|---|--|--|
| biomass | <p>WALLONIA: Market price: 90 €/GC Maximum price: price of penalty = 100 €/GC Minimum price : 65 €/GC during a period calculated on the profitability of the investment (maximum 15 years) OR 20€/MWh in any case</p> <p>BRUSSELS : Market price : ??? (no transaction yet) Maximum price : price of penalty = 100 €/GC Minimum price : 20€/MWh</p> <p>FLANDERS Market price : 108 €/GC Maximum price : price of penalty = 125 €/GC Minimum price : 80 €/GC during a 10-year period</p> | <p>WALLONIA : 15 years</p> <p>BRUSSELS : 10 years</p> <p>FLANDERS: Unlimited for market price, 10 years for minimum price</p> | <p>WALLONIA : 1 GC = 456 kg CO2 avoided - maximum 2 GC / MWh BUT reduction of the amount of green certificates during the last 5 years calculated on the profitability of the investment in order to insure a 12% VAT 65 €/GC = regional minimum price on basis of a convention with the grid operator</p> <p>BRUSSELS : 1 GC = 217 kg CO2 avoided - maximum 2 GC/MWh for installations > 1 MWe (no maximum under) - 5 GC/MWh for biomethanisation</p> <p>FLANDERS : 1 GC = 1 MWh renewable electricity</p> <p>ALL THREE : 20 €/MWh = TSO undertake to buy any green certificate for biomass electricity at this price</p> |
| Wind onshore | <p>WALLONIA: Market price : 90 €/GC Maximum price : price of penalty = 100 €/GC Minimum price : 65 €/GC during a period calculated on the profitability of the investment (maximum 15 years - usually 10 years) OR 50 €/MWh</p> <p>BRUSSEL : No market price : ??? (no transaction yet) Maximum price : price of penalty = 100 €/GC Minimum price : 50€/MWh</p> <p>FLANDERS Market price : 108 €/GC Maximum price : price of penalty = 125 €/GC Minimum price : 80 €/GC during a 10-year period</p> | <p>WALLONIA : 15 years</p> <p>BRUSSEL : 10 years</p> <p>FLANDERS Unlimited for market price, 10 years for minimum price</p> | <p>WALLONIA : 1 GC / MWh BUT reduction of the amount of green certificates during the last 5 years calculated on the profitability of the investment in order to insure a 12% VAT 65 €/GC = regional minimum price on basis of a convention with the grid operator - 50 €/MWh = TSO undertake to buy any green certificate for onshore wind electricity at this price</p> <p>BRUSSEL : 1 GC / MWh</p> <p>FLANDERS : 1 GC = 1 MWh renewable electricity</p> <p>ALL THREE : 50 €/MWh = TSO undertake to buy any green certificate for wind electricity at this price</p> |

| | | | |
|----------|--|--|---|
| Hydro | <p>WALLONIA : Market price : 90 €/GC Maximum price : price of penalty = 100 €/GC Minimum price : 65 €/GC during a period calculated on the profitability of the investment (maximum 15 years) OR 50 €/MWh</p> <p>BRUSSEL : No hydro Minimum price : 50€/MWh</p> <p>FLANDERS Market price : 108 €/GC Maximum price : price of penalty = 125 €/GC Minimum price : 95 €/GC during a 10-year period</p> | <p>WALLONIA : 15 years</p> <p>FLANDERS Unlimited for market price, 10 years for minimum price</p> | <p>WALLONIA : 1 GC / MWh BUT reduction of the amount of green certificates during the last 5 years calculated on the profitability of the investment in order to insure a 12% VAT 65 €/GC = regional minimum price on basis of a convention with the grid operator - 50 €/MWh = TSO undertake to buy any green certificate for onshore wind electricity at this price</p> <p>BRUSSEL : 1 GC /MWh FLANDERS : 1 GC = 1MWh renewable electricity</p> <p>ALL THREE : 50 €/MWh = TSO undertake to buy any green certificate for hydro electricity at this price</p> |
| offshore | <p>No market price (no market), only a minimum price of 107 €/MWh during 10 years for the first 256 MW installed - 90 €/MWh during 20 years for the rest of the installation and for all the power during the last 10 years</p> | <p>20 years</p> | <p>1 GC = 1 MWh Federal minimum price on basis of a convention with the TSO</p> |
| solar | <p>WALLONIA : Market price : 90 €/GC Maximum price : price of penalty = 100 €/GC Minimum price : 65 €/GC during 15 years OR 150 €/MWh</p> <p>BRUSSELS : No market price: (no transaction yet) Maximum price : price of penalty = 100 €/GC Minimum price : 150€/MWh</p> <p>FLANDERS Market price : 108 €/GC Maximum price : price of penalty = 125 €/GC Minimum price : 450 €/GC during a 20-year period</p> | <p>WALLONIA : 15 years</p> <p>BRUSSELS : 10 years</p> <p>FLANDERS Unlimited for market price, 20 years for minimum price</p> | <p>WALLONIA : 7 GC /MWh from 0 to 5kWp - 5 GC/MWh >5kWp till 7 kWp - 1 GC/kW > 7 kWp 65 €/GC = regional minimum price on basis of a convention with the grid operator -</p> <p>BRUSSELS : 7,28 GC/MWh from 0 to 20 m² - 5,46 GC/MWh > 20 m² till 60 m² - 3,64 GC/MWh > 60 m²</p> <p>FLANDERS : 1 GC = 1MWh renewable electricity</p> <p>ALL THREE: 150 €/MWh = TSO undertake to buy any green certificate for PV electricity at this price. Above the revenues of green certificates, the electricity can be consumed by the producer or sold to an electricity supplier¹²</p> |

Source: EDORA and energiesparen

Investment support schemes for RES-e

Investment subsidies for all RES-e technologies and additional support for solar PV.

¹² EPIA

| Resource | Support level [%/total investment] | Comments |
|---|--|--|
| All RES-E technologies | <p>WALLONIA : 40 % of eligible investment (see the rules of the Community guidelines on state aid for environmental protection OJEC, 2001/C27/03, 3.2.2001)</p> <p>BRUSSELS : investment state aid for energy economy : 20 % of total investment + specific aid concerning RE for the need of the building : 40% of total investment (maximum 200.000 €/building and per year + European rule "de minimis")</p> <p>FLANDERS 40% of eligible investment for small and medium enterprises, 20% for large enterprises. Eligible investments vary strongly by technology.</p> | <p>WALLONIA : e.g. 13 % on average for wind energy till around 37 % for P.V. (indicative figures)</p> |
| Additional investment support for solar | <p>WALLONIA : for private person: 20% of total investment with a maximum of 3500 € / PV system For companies: maximum 50% of investments for SMEs, 20% for larger companies¹³ For Public buildings and non commercial entities: 30% of investment for public and non commercial entities¹⁴</p> <p>BRUSSELS : 3€/Wp with a maximum of 50% of the investment for private households Maximum 50% (max €200.000) for companies</p> <p>FLANDERS: 20% / 10% of additional costs for SME / larger companies, max €1,5 Mio until resources are used up, currently 25 Mio¹⁵ €</p> | |

Fiscal Incentives

PV benefits from Tax Credits for both private and companies: the former have a tax reduction of 40% of investment, max 3440 €/ residence (2008), whereas the latter have a 13.5 % of installation cost deductible from profit tax .

RES-e technologies benefit from a tax deduction

| Resource | Support level [% deduction from taxable profits] | Comments |
|------------------------|--|---|
| All RES-E technologies | For companies: tax deduction of 13,5 % for all investment on equipment in order to reduce energy consumption | Companies : for all RES and CHP installation |
| All RES-E technologies | For private persons: tax reduction of 40% with a maximum of 3,600 euro for investments in photovoltaic. For one investment however, you can get the maximum support during 4 years. | Additional primes by the different regions are cumulative |

¹³ EPIA

¹⁴ EPIA

¹⁵ EPIA

Others

| Resource | Technology | Support level [Unit or %] |
|------------------|------------|--|
| All technologies | | 35% investment support for innovative renewable energy projects, with a maximum of 250.000 euro/project |
| Wind | onshore | WALLONIA : 50% of the study for pre-feasibility (wind measurement) with a maximum of 5.000 € / site |
| Biomass | digestion | WALLONIA : 50 % of the study for pre-feasibility with a maximum of 2500 € |

Support for RES Heating and Cooling

Renewables for heating and cooling are mainly supported by investment subsidies and fiscal incentives in Belgium.

Investment Subsidies

| Resource | Technology | Support level [%/total investment] | |
|--------------------------|--------------------------------|---|---|
| All RES-HC technologies | | <p>WALLONIA :</p> <p>40 % of eligible investment (see the rules of the Community guidelines on state aid for environmental protection OJEC, 2001/C27/03, 3.2.2001)</p> <p>BRUSSEL :</p> <p>investment state aid for energy economy : 20 % of total investment + specific aid concerning RE for the need of the building : 40% of total investment (maximum 200.000 €/building and per year + european rule "de minimis")</p> <p>FLANDERS</p> <p>40% of eligible investment for small and medium enterprises, 20% for large enterprises. Eligible investments vary strongly by technology</p> | |
| Micro-CHP and heat pumps | | Flanders : 20% investment support for public buildings and non-profit | |
| Biomass | Combustion small scale furnace | <p>WALLONIA :</p> <p>from 250 € to 3500 € depending on the power of the boiler, the system for loading (manual or automatic), the nature of biomass used (wood or crops) and the nature of the investor (private or public)</p> | maximum 50 % of total investment - maximum investment of 25.000 € |

| | | | |
|------------|-----------|--|---|
| Geothermal | Heat pump | WALLONIA : 75 % of the invoice BRUSSEL : 50% of the invoice FLANDERS : 210 euro/kW additional for companies and for households | WALLONIA : maximum 1500 € for the heating of a new building and 750 € for water heating of any building BRUSSEL : maximum 5000 € for the heating of a building and 2500 € for water heating FLANDERS : maximum 1680 euro |
| Solar | Thermal | WALLONIA : 1.500 € for all installation from 2 m ² to 4 m ² + 100 € / m ² for additional surface BRUSSEL : 50% of the invoice FLANDERS : 300 euro additional on subsidy for lower energy level | WALLONIA : maximum 6.000 € + possibility to be combined with other incentive if total amount of the aid is maximum 75% of total investment BRUSSEL : maximum 6000 € for the heating of a building and 300 € for water heating |

Fiscal Incentives

RES H&C technologies benefit from a tax deduction from taxable profits.

| Resource | Support level [% deduction from taxable profits] | Comments |
|-------------------------|---|---|
| All RES-HC technologies | Companies: Tax deduction of 13,5 % for all investment on equipment in order to reduce energy consumption | Companies : for all RES and CHP installation |
| All RES-HC technologies | For private persons: tax reduction of 40% with a maximum of 2770 € for investment in 2009 in heat pumps and biomass heating and 3.600 euro for investments in solar boilers. For one investment however, you can get the maximum support during 4 years.) | Additional primes by the different regions are cumulative |

Support for Biofuels

Quota Obligations

For the production of bio ethanol, a yearly quota of 250 million litres has been allocated on October 2006 and until 2013, to 3 companies. For the production of bio diesel, the Belgian Government decided to allocate production quotas with reduced excise duties to three Flemish and one Walloon companies. These four producers must be ready to deliver adequate bio diesel supply to the Belgian market from September 1st, 2007

| Resource | Quota in % (per year) |
|----------|-----------------------|
| Biofuels | 2% 2005 |

| |
|---------------|
| 5.75% in 2010 |
|---------------|

Tax exemption

The Act of 10 June 2006 concerning biofuels reduces the excise duties on diesel oil containing at least 3.37 % biodiesel and on gasoline containing at least 7 % ethanol of non-chemical nature. Furthermore, this Act allows the regional public transport companies to use a higher exempted percentage of biofuels. The Royal Decree of 10 March 2006) fixes the general conditions for the exemption of excise duties for pure rapeseed.

| Resource | Total support level (= tax exemption incl. reduction of VAT to be paid) [€cents/litre] | Maximum amount per year eligible (in case of tender system) | start year | End year | Duration [years of support entitled] |
|----------------|---|---|------------|----------------------------------|--------------------------------------|
| biodiesel | About 35c€/l (in fact tax on fossil diesel has been increased and biodiesel exempted, but only for blend lower than 5%) | 380 000 m3 | Nov. 2006 | 2013 | almost 7 |
| ethanol | About 62 c€/l (same principle as for biodiesel. Increased tax on gasoline and no tax on ethanol if blended at 7%) | 250 000 m3 | Oct, 2007 | 2013 | 6 |
| pure plant oil | about 35 c€/l (full tax exemption upon certain strict conditions) | | April 2006 | unlimited (until law is changed) | |

Call for Tenders

A federal call for tenders will be used to market:

- Biodiesel: 286.000 m3 from 1 November 2006 until 30 September 2007
- Biodiesel: 2.279.000 m3 from 1 October 2007 until 30 September 2013
- Ethanol: 1.485.000 m3 from 1 October 2007 until 30 September 2013

Sources:

European Commission Factsheets by Country

http://ec.europa.eu/energy/energy_policy/facts_en.htm

Member States Reports in the framework of the Directive 2001/77/EC on renewable electricity

http://ec.europa.eu/energy/res/legislation/electricity_member_states_en.htm

Member States Reports in the framework of the Directive 2003/30/EC on biofuels

http://ec.europa.eu/energy/res/legislation/biofuels_members_states_en.htm

EDORA

<http://www.edora.be/>

ODE Vlaanderen

<http://www.ode.be/>

Valbiom, Belgium

<http://www.valbiom.be/>

EurObserv'er Barometer

<http://www.energies-renouvelables.org/observ-er/sig/eufores/sig.asp>

Flemish Region Action Plan 2004-2009

<http://www2.vlaanderen.be/economie/energiesparen/milieuvriendelijke/ActieplanMVRE2008-2009.pdf>

Belgium – Renewable Energy Fact Sheet

http://www.energy.eu/renewables/factsheets/2008_res_sheet_belgium_en.pdf

Flemish Energy Agency

www.energiesparen.be

EPIA

EPIA - Overview of European PV support schemes - last update on 16/12/2008



In the framework of the EU co –funded project: RES 2020: Monitoring and Evaluation of the RES Directives implementation in EU27 and policy recommendations to 2020



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