WALLOON COMMISSION ON ENERGY (CWaPE)

SPECIAL ANNUAL REPORT FOR 2006

CD-7i04-CWaPE

The evolution of the market for green certificates

Drawn up pursuant to article 29 of the Walloon Government order of 30 November 2006 on the promotion of green electricity.

13 September 2007

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Special annual report by the CWaPE
on the evolution of the market for green certificates (GCs)

1 Purpose

Article 29 of the order of 30 November 2006 on the promotion of green electricity contains the following provisions:

"Article 29. For 30 April, the CWaPE draws up a special annual report concerning the evolution of the market in labels guaranteeing origin and the market for green certificates. This report specifies in particular the number of green certificates issued for each technology and energy source during the year in question, the green certificates sent to the CWaPE in accordance with article 25, the average price of a green certificate and also the fines imposed on network operators and on suppliers for failure to meet quotas.

The report also specifies the number of labels guaranteeing origin issued for each technology and energy source during the year in question, the labels guaranteeing origin sent to the CWaPE, the average price of the labels guaranteeing origin, as well as the quantity of labels guaranteeing origin exported to and imported from other regions or countries.

This report is sent to the Walloon Government."

Article 25 of the same order contains the following provisions:

"Article 25. § 1. Before the end of the second month following the end of a quarter, the suppliers and network operators are obliged to send the CWaPE a number of green certificates corresponding to the quota imposed on them under the terms of this article. To that end, they send the CWaPE the number and the characteristics of the green certificates which they want included in their quota and the total supplies made in the Walloon Region during the quarter in question. (…)

….

§3. The quota is:

- *(…)*
- *5% between 1 January 2005 and 31 December 2005;*
- *6% between 1 January 2006 and 31 December 2006;*
- *7% between 1 January 2007 and 31 December 2007;*
- *8% between 1 January 2008 and 31 December 2008;*
- *9% between 1 January 2009 and 31 December 2009;*
- *10% between 1 January 2010 and 31 December 2010;*
- *11% between 1 January 2011 and 31 December 2011;*
- *12% between 1 January 2012 and 31 December 2012.*

During 2009, the Minister whose portfolio includes Energy will be responsible for reporting to the Government on the state of the market for green certificates and on the need, if any, to increase the quotas specified above from 1 January 2010. The Minister will request an opinion from the CWaPE beforehand.

During 2010, at the suggestion of the CWaPE, the Government will set the new quotas applicable from 1 January 2013 while taking into account, in particular, the development of the green certificates market in the Walloon Region. The objective will be to create the conditions for a viable market for all green certificates issued in the Walloon Region."

2 The mechanism for green certificates

2.1 Legal framework and objectives

Within the framework of European Directive 96/92/EC[1] concerning the common rules for the internal market in electricity, the Walloon Region, within its area of competence concerning electricity distribution (networks with a voltage less than or equal to 70 kV), issued a Decree on 12 April 2001 concerning the organisation of the regional electricity market, referred to hereafter as the Decree. This Decree addresses the following issues, among others:

- the progressive opening of the market for consumers and the introduction of a principle of competition between producers/suppliers;
- the determination of the rules of operation of the market controlled by a regulatory body, the Walloon Commission on Energy (*Commission wallonne pour l'Énergie - CWaPE*);
- the determination of public service obligations on the part of market operators, including a system of green certificates promoting any efficient technology for the production of energy from renewable sources or cogeneration.

On 30 November 2006, the Walloon Government issued an order concerning the promotion of green electricity and revoking the order of 4 July 2002 and all subsequent orders amending it. This new order, henceforth called the AGW-PEV, sets out the system of green certificates applicable in Wallonia.

The mechanism for supporting the production of green electricity established in the Walloon Region also falls within the framework of the following two European Directives:

- Directive 2001/77/EC of 27 September 2001 concerning the promotion of electricity produced from renewable energy sources in the internal electricity market.
- Directive 2004/8/EC of 11 February 2004 concerning the promotion of cogeneration based on a useful heat demand in the internal energy market.

These directives make the promotion of green electricity a European Community priority due to its contribution to:

- the security and diversification of energy supplies;
- environmental protection (particularly the reduction of greenhouse gas emissions) and sustainable development;
- increasing the competition in the internal energy market;
- economic cohesion (regional and local development) and social cohesion (creation of local jobs).

For these reasons, and in order to achieve the objectives set nationally, these directives make explicit provisions for Member States to establish support mechanisms, which include quota systems (green certificates).

On 16 July 2002, the federal Government also passed the Royal Decree concerning the establishment of mechanisms aiming to promote electricity produced from renewable energy sources. This sets up a system of minimum prices for the purchase of green certificates by transmission system operators (TSOs).

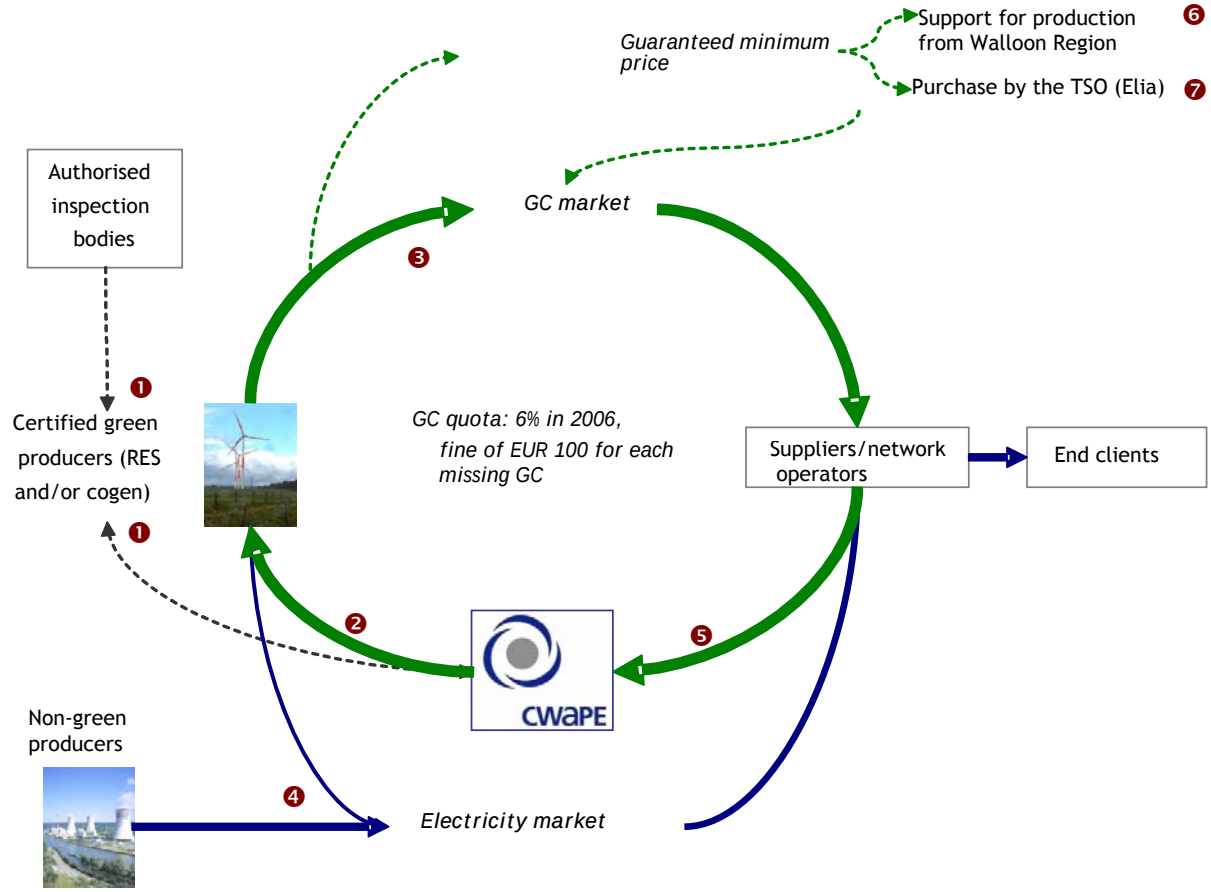
On 16 March 2006, the Walloon Government decided on a set of measures intended to ensure equilibrium on the Walloon market for green certificates and which will require amendment of the legislation currently in force.

This set of measures is currently the subject of a draft Decree amending the Decree of 12 April 2001 concerning the organisation of the regional electricity market.

[1] Subsequently revoked by new European Directive 2003/54/EC concerning the internal electricity market

2.2 The principle of the system for green certificates

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) produced by an authorised inspection body must be included with the application[2] 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 (❶).

Each quarter, the producer sends readings from the energy meters to the CWaPE. The CWaPE then issues GCs (❷) 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 (❸). This is done independently of the sale of the physical electricity produced (❹).

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[3] the CWaPE a quota of GCs proportional to the amount of electricity supplied during the quarter[4]. A fine of EUR 100 for each missing GC is levied (❺).

As an alternative solution to the sale of green certificates obtained for production of electricity from renewable energy, the Decree[5] makes provisions for a system of aiding production (guaranteed minimum price) (❻).

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[6]. The green certificates bought by the TSO are then resold on the GC market (❼).

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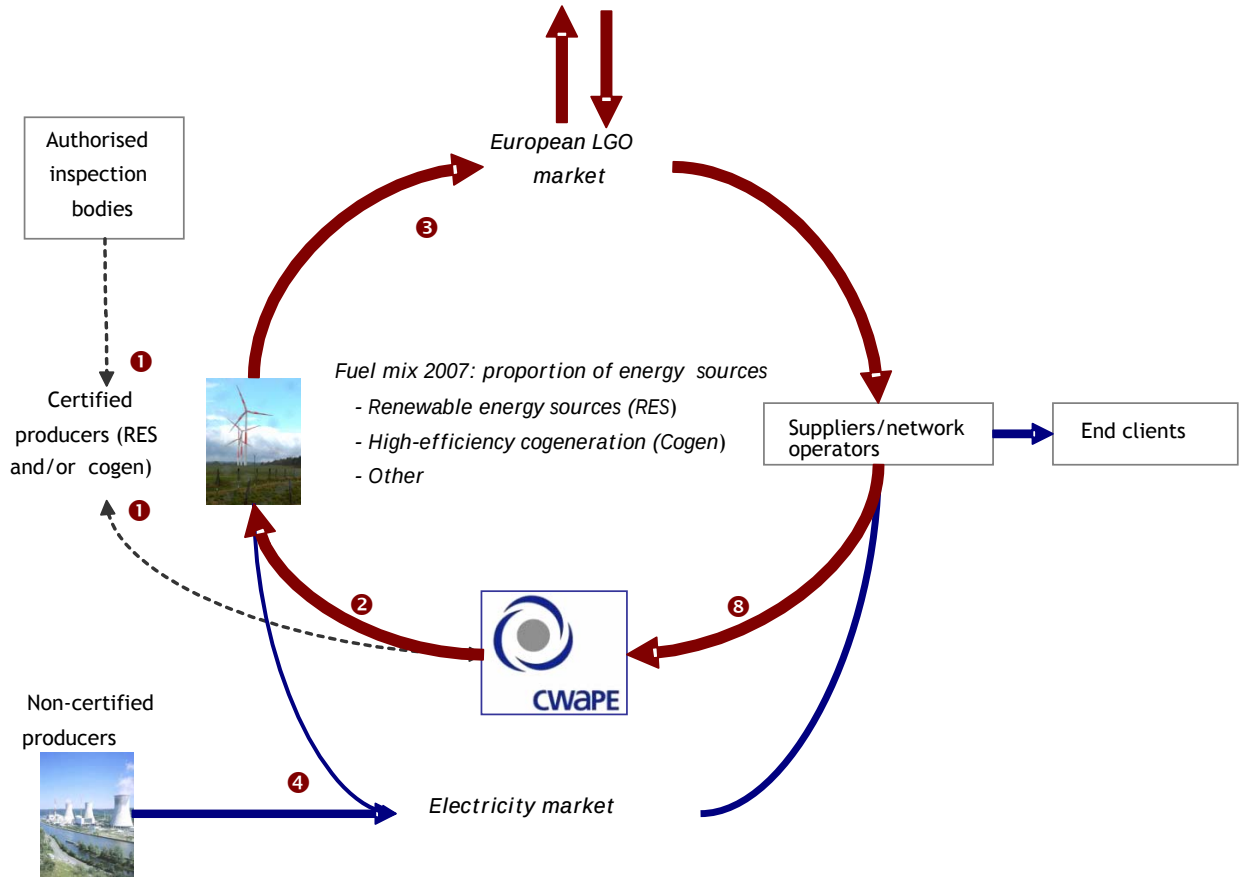
2 Except for installations with a net potential capacity of less than 10 kWe, to which a simplified procedure applies (AGW-PEV, article 6 and article 7, §2.)

3 The green certificates are redeemed by means of this operation: they are made unusable in the database.

4 There is nevertheless provision for a reduction in quota, which benefits consumers using more than 5 GWh per quarter and per operating site (AGW-PEV, article 25, §4)

5 The green certificates are redeemed by means of this operation: they are made unusable in the database.

The diagram below shows the mechanism for marking electricity produced from renewable energy sources and by high-efficiency cogeneration, the labels guaranteeing origin (LGO).



The issue of LGOs by the CWaPE follows a procedure identical to that for the issue of GCs (❶ ❷).

Once in possession of the LGOs, the producer can negotiate to sell them to any buyer active on the LGO market (❸). This is done independently of the sale of green certificates or the physical electricity produced (❹).

In Europe, electricity suppliers are obliged to inform end clients about their energy sources (fuel mix❽). The LGOs are used for this purpose.

[6] After this operation, the green certificates are then resold on the market.

2.3 Basic concepts concerning the issue of green certificates

2.3.1 Definition of green electricity production (Decree, article 2)

Sources of renewable energy: any source of energy, other than fossil fuels and nuclear fission, the consumption of which does not restrict its future use, in particular water power, wind energy, solar energy, geothermal energy, biogas, organic products and waste from agriculture and forestry and the organic and biodegradable portion of refuse (Decree, article 2, 4°).

Good-quality cogeneration and trigeneration: combined production of heat (or cold) and electricity, designed according to the heat or cold requirements of the client, who saves energy in comparison with the separate production of the same quantities of heat and electricity, and where applicable cold, in modern benchmark facilities the annual operating efficiency of which is specified and published annually by the CWaPE (Decree, article 2, 3°).

Green electricity: electricity produced from renewable energy sources or from good-quality cogeneration the production channel of which produces a minimum carbon dioxide savings of 10% in comparison with the carbon dioxide emissions specified and published annually by the CWaPE for conventional production in modern benchmark facilities. The electricity produced by hydroelectric facilities or by good-quality cogeneration is limited to an output of less than 20 MWe (Decree, article 2, 5°).

2.3.2 Principles for the issue of green certificates (Decree, article 38)

A green certificate is a transferable instrument issued by the CWaPE to producers of green electricity for production of a given amount of electricity corresponding to one MWhe divided by the rate of carbon dioxide savings (Decree, article 38, §2, sub-paragraph 1 and §3). For each production site, the right to obtain green certificates is limited to ten years (AGW-PEV, article 15). However, the Government has indicated its intention to extend this right in certain cases.

The rate of carbon dioxide savings for the production channel concerned is determined by dividing the carbon dioxide saved by the amount of carbon dioxide emitted by the benchmark conventional electricity production channel (gas-steam turbine - GST - AGW-PEV, article 17) for which the emissions are specified and published annually by the CWaPE. This rate of carbon dioxide savings is limited to 1 for that part of electricity production which exceeds 5 MW. Below this threshold, it is limited to 2 (Decree, article 38, §2, sub-paragraph 2).

The carbon dioxide emissions are those produced by the entire green electricity production cycle encompassing the preparation and/or the production of the fuel, the emissions during any combustion and, where applicable, the processing of waste. In a hybrid facility, all the emissions from the facility are taken into consideration (Decree, article 38, §2, sub-paragraph 3).

The carbon dioxide emission coefficients for each green electricity production channel concerned have been approved by the CWaPE (Decree, article 38, §23, sub-paragraph 4).

2.4 Conditions and procedure for the issue of green certificates

2.4.1 Electricity metering procedures and code

Green certificates are issued both for the electricity consumed by the producer and for the electricity fed into the supply network or distributed by direct lines (AGW-PEV, article 15 §1). Any export of electricity has no impact on the issue.

Green certificates are calculated on the basis of the net electricity produced (Eenp) measured before any transformation to the network. The net electricity produced is the electricity produced minus the electricity required by the production unit's operating equipment or the equipment used to prepare the sources of renewable energy needed for electricity production (AGW-PEV, article 15 §3).

A metering code[7] produced by the minister in accordance with article 9 of the AGW-PEV, sets out the applicable principles and methods regarding measurement of the amounts of energy which are taken into consideration when calculating the number of green certificates to be issued to green electricity production facilities.

2.4.2 Certification of the electricity production site

Green certificates and labels guaranteeing origin are issued for the production of electricity from a production site provided that an authorised inspection body[8] has verified that the amounts of electricity produced from this site can be clearly identified and measured, in particular in order to certify the sources of energy (the renewable nature) and the transformation efficiency (the efficiency of the cogeneration). In practice, an authorised body issues a certificate of compliance for the facility known as a *guarantee of origin certificate* (AGW-PEV, article 7) to the electricity production facility the energy metering of which is compliant with the Metering Code.

In particular, this document mentions the sources of energy used, the production technology, and the net potential capacity of the facility. It establishes, in particular, the *metering algorithms*, i.e. the mathematical calculations which enable these various amounts of energy to be calculated. The basic algorithms are those for: net electricity produced (Eenp) - electricity auto-consumed (Eac) - electricity supplied locally (Eeloc) - electricity fed into the network (Eeinj); the algorithm for metering the net heat recovered (Eqnv); the algorithm for metering the net cooling energy recovered (Efnv); the algorithm for metering incoming energy (Ee).

In addition to the random, targeted checks organised by the CWaPE (AGW-PEV, article 8) and the inspections made after modifications, each facility must be inspected by an authorised body (AGW-PEV, article 7) at a frequency which depends on the net potential electrical capacity (Pend): (Pend > 20 kW: annually; Pend > 10 kW and < 20 kW: every 5 years. For Pend < 10 kW, these facilities have a simplified inspection procedure[9] which does not require intervention by the authorised body.

2.4.3 The preliminary request for issue

Producers wishing to obtain a green certificate or label guaranteeing origin send a *preliminary request for issue* to the CWaPE, including a copy of the certificate of guarantee of origin. The CWaPE verifies that the application is complete and complies with legislation, and sends notification of its decision. The right to obtain green certificates is guaranteed for a period of 10 years from the date of notification of acceptance by the CWaPE.

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7 See the ministerial order of 12 March 2007 determining the metering procedures and code applicable for the measurement of amounts of energy published in the *Belgian Official Gazette* dated 20 April 2007– Appendix "*Procédures et code de comptage de l'électricité produite à partir de sources d'énergie renouvelables et/ou de cogénération*" - "Metering procedures and code for electricity produced from renewable energy sources and/or by cogeneration".

8 The list of authorised inspection bodies may be consulted via the CWaPE website: www.cwape.be.

9 AGW-PEV, article 7, §2

2.4.4 Method of calculation for green certificates

The number of Green Certificates (GCs) issued is equal to the CO_2 savings rate (τ) multiplied by the net electricity produced by the facility (E_{enp}, expressed in MWh_e):

$$\text{Number of GCs} = \tau \times E_{enp} \qquad (1)$$

The number of green certificates issued is therefore proportional to the net electricity produced. It also depends on the overall performance of the facility in terms of carbon dioxide (CO_2) savings.

In order to determine the CO_2 savings rate (τ), the CWaPE annually specifies and publishes[10] (see table below) the annual operating efficiency[11] and CO_2 emissions for the modern benchmark facilities for the separate production of electricity (E_{ref}), heat (Q_{ref}) and cold ($Q_{f,ref}$) with which the facilities for the production of green electricity will be compared.

Benchmark for the standard electricity production channel:			**BENCHMARK**
GST generating station using natural gas	efficiency emission coefficient	η_e = 55% 251 $kgCO_2/MWh_p$	**E_{ref} = 251/0.55 = 456 $kgCO_2/MWh_é$**
Heating benchmark **Natural gas boiler**	**natural gas distribution zone** efficiency emission coefficient	 η_q = 90% 251 $kgCO_2/MWh_p$	**$Q_{ref\ GN}$ = 251/0.90 = 279 $kgCO_2/MWh_q$**
Heating benchmark **Fuel oil boiler**	**outside natural gas distribution zone** efficiency emission coefficient	 η_q = 90% 306 $kgCO_2/MWh_p$	**$Q_{ref\ HGN}$ = 306/0.90 = 340 $kgCO_2/MWh_q$**
Refrigeration benchmark **Compressor**	**Cooling set-point** performance coefficient emission coefficient	**< 0°C** COP_{ref} = 2 456 $kgCO_2/MWh_e$	**$Q_{f,\ ref} = E_{ref} / COP_{ref}$ = 228 kgCO2/MWh_f**
Refrigeration benchmark **Compressor**	**Cooling set-point** performance coefficient emission coefficient	**≥ 0°C** COP_{ref} = 4 456 $kgCO_2/MWh_e$	**$Q_{f,\ ref} = E_{ref} / COP_{ref}$ = 114 kgCO2/MWh_f**

Table 2.1: Annual operating efficiency and carbon dioxide emissions for benchmark production channels

The CO_2 emissions from modern benchmark facilities for production of cold are calculated using the assumption that the compressor is supplied with electrical power by the conventional electricity production channel.

Where:

MWh_p: Megawatt-hours of primary energy
MWh_e: Net megawatt-hours of electricity produced
MWh_q: Net megawatt-hours of recovered heating energy
MWh_f: Net megawatt-hours of recovered cooling energy

[10] Annual operating efficiency and carbon dioxide emissions from conventional electricity production channel as well as those relating to modern benchmark facilities for production of heat and cold (CWaPE Board of Directors' meeting of 18 October 2005 –Belgian Official Gazette of 22/11/2005)

[11] For a given green electricity production site, the energy efficiency of the modern benchmark facilities is maintained at the values which applied when the first green certificates relating to the site concerned were issued.

In the absence of the green electricity production facility, the net electrical energy produced (E_{enp}) would have had to be produced by the benchmark electricity production channel. The green electricity production facility consequently prevents the emission of a quantity of CO_2 corresponding to $E_{enp} \times E_{ref}$.

In the absence of the green electricity production facility, the net recovered heat (E_{qnv}) would have had to be produced by the benchmark heat production channel. The green electricity production facility consequently prevents the emission of a quantity of CO_2 corresponding to $E_{qnv} \times Q_{ref}$.

In the absence of the green electricity production facility, the net recovered cooling energy (E_{fnv}) would have had to be produced by the benchmark channel for the production of cold. The green electricity production facility consequently prevents the emission of a quantity of CO_2 corresponding to $E_{fnv} \times Q_{f,\,ref}$.

On the other hand, in certain cases, a green electricity production facility itself emits a certain amount of CO_2, depending on the fossil fuels and renewable fuels used ($C_{channel}$)[12] in proportion to the incoming energy (E_e). In these cases, the facility emits an amount of CO_2 corresponding to $E_e \times C_{channel}$.

The savings in CO_2 G made possible by the green electricity production facility will therefore correspond to the difference between the sum of the CO_2 emissions prevented minus the amount of CO_2 emitted, namely:

$$CO_2\_Savings = CO_2 \text{ emissions prevented} - CO_2 \text{ emitted} \qquad (2)$$

where

$$CO_2 \text{ prevented} = E_{enp} \times E_{ref} + E_{qnv} \times Q_{ref} + E_{fnv} \times Q_{f,ref}$$
$$CO_2 \text{ emitted} = E_e \times C_{channel}$$

With the rate of CO_2 savings (τ) being conventionally understood to be the relationship between the savings in carbon dioxide made by the green electricity production facility divided by the carbon dioxide emissions from the benchmark conventional electricity production channel producing the same amount of electricity (E_{enp}), this gives:

$$\tau = \frac{CO2\_Savings}{E_{enp} \times E_{ref}} \qquad (3)$$

In other words, it can be said that a green certificate is issued to the green electricity production facility each time that the latter has prevented the emission of an amount of CO_2 corresponding to that emitted by the benchmark conventional electricity production channel for the production of 1 MWh_e (E_{ref}). This value of E_{ref} is 456 kg CO_2/MWh_e[13].

The next paragraph shows the number of green certificates to be issued for a few simple standard examples. The calculation shown is valid provided that the rate of CO_2 savings calculated is greater than 10% and the output of the facility is less than 5 MW. Further information may be obtained from a brochure and software, available from the CWaPE website, which set out in greater detail the methods of calculation to be applied to the majority of green electricity production channels.

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[12] The methodology and the list of conventionally agreed CO_2 emission coefficients already approved by the CWaPE are set out in "*Les coefficients d'émission de CO_2 des filières de production d'électricité verte*", (The CO2 emission coefficients of green electricity production channels) communication CD-4f01-CWaPE from the CWaPE dated 1 June 2004.

[13] Belgian Official Gazette of 22 November 2005

2.4.5 A few standard examples

Case 1: Wind, hydroelectric or photovoltaic power generation

The facility does not emit any CO_2. The production of one MWh_e by such a facility saves the amount of CO_2 which the benchmark electricity production facility would have emitted in order to produce the same electricity. This amount is called the "CO_2 saving" and is equal to 456 kg of CO_2.

In addition, the amount of CO_2 emitted by the benchmark electricity production facility (E_{ref}) is also equal to 456 kg of CO_2.

The CO_2 savings rate(τ) is calculated as the quotient of the CO_2 savings and the amount of CO_2 emitted by the benchmark electricity production facility. In this example, it is therefore equal to 1, which means that the producer will receive 1 green certificate for each net MWh_e produced.

Case 2: Electricity generating station using biomass without the use of heat

In order to grow, plants absorb CO_2 from the atmosphere. This CO_2 returns to the atmosphere after the plants have died, helping to maintain balance in the carbon cycle. The combustion of biomass today releases CO_2 which was captured in the past; the balance is therefore zero. A facility for the production of electricity from biomass therefore only emits CO_2 if fossil energy has been used in the transport and preparation of the fuel.

We will use, in this example, an arbitrary value for the CO_2 emitted of 50 kg CO_2 per net MWh_e produced. However, this facility allows a partial saving to be made of the 456 kg of CO_2/ MWh_e (E_{ref}) which the benchmark electricity production facility would have emitted in producing the same amount of electricity. This "CO_2 savings" is 406 (=456-50) kg CO_2 per net MWh_e produced.

The CO_2 saving rate (τ) is calculated as the quotient of the CO_2 saving and the amount of CO_2 emitted by the benchmark electricity production facility E_{ref}. It is 0.89 (= 406/456) in our example, which means that the producer will receive 0.89 GC for each net MWh_e produced.

Case 3: Cogeneration unit using natural gas

A cogeneration unit, particularly one using fossil energy, emits CO_2. However, it saves the CO_2 which a benchmark electricity generating station and a benchmark boiler would have emitted in producing an equivalent amount of electricity and heat respectively. A good-quality cogeneration unit, by combining the two types of production (electricity and heat), manages to emit less CO_2 than the benchmark facilities taken separately.

As an example, we take a cogeneration unit using natural gas which, in order to produce 1 MWh of electricity, consumes 3 MWh of natural gas but recovers 1.5 MWh of heat.

The production of one MWh of electricity by this cogeneration unit prevents the emission of the 456 kg of CO_2 which the benchmark electricity generating station would have emitted to produce that electricity. It also prevents the emission of the 418.5 kg of CO_2 (= 1.5 MWh of heat x 279 kg CO_2 /MWh of heat for the benchmark) which the benchmark boiler would have emitted in producing the heat.

On the other hand, the cogeneration unit consumed 3 MWh of natural gas and therefore emitted 753 kg of CO_2 (= 3 MWh of natural gas x 251 kg CO_2 /MWh for the gas).

The CO_2 savings is calculated by subtracting the amount of CO_2 emitted by the electricity production facility from the amounts of CO_2 emissions prevented at the benchmark facilities. In this example, it is (456 kg CO_2 + 418.5 kg CO_2 - 753 kg CO_2)/MWh = 121.5 kg CO_2.

The rate of CO_2 savings (τ) is calculated as the quotient of the CO_2 saving and the amount of CO_2 emitted by the benchmark electricity generating facility E_{ref}. It is 0.266 (= 121.5/456) in our example, which means that the producer will receive 0.266 GC for each net MWh_e produced.

2.5 Impact of green certificates for green producers

The maximum revenue which a green producer can expect from a green certificate system is directly related to the amount of the fine:

$$\textbf{Max. revenue} = \tau \times \textbf{fine} \quad \text{(EUR/MWh)}$$

The following table gives, for information purposes, the theoretical maximum revenue (excluding taxes) which a green producer may expect, depending on the production channel concerned.

The actual revenue could even be greater if the tax aspects are taken into consideration. In fact, the purchase of green certificates, unlike the fines, is tax-deductible for those suppliers subject to corporation tax.

Channels	CO_2 savings rate (for information)	Max. theoretical revenue excl. taxes (EUR/MWh)
Photovoltaic	1	EUR 100 (EUR 150 with Elia)
Hydraulic	1	EUR 100
Wind	1	EUR 100
Biomass	0.7 to 1	EUR 70 to 100
Biomass cogeneration	1 to 2	EUR 100 to 200
Fossil cogeneration	0.1 to 0.4	EUR 10 to 40

Table 2.2: Maximum theoretical revenue for a green producer

2.6 The market for green certificates

2.6.1 The offer: issue of green certificates to green producers - (AGW-PEV, article 13)

Each producer sends its metering information quarterly to the CWaPE. On the basis of this information and the metering algorithms (cf. 2.4.2 - Certification of the electricity production site), the CWaPE issues a number of green certificates which is proportional to the number of MWh produced in each certified electricity production facility and to the CO_2 saving rate calculated by the CWaPE for the period concerned. The green certificates issued are valid for a period of 5 years. The CWaPE issues the green certificates quarterly in dematerialised form. After each issue, the CWaPE sends the green producers an account statement setting out the details of the issue and the status of their account.

2.6.2 Organisation

The database (AGW-PEV, article 21)

The authenticity of the green certificates is guaranteed by registration in a centralised database managed by the CWaPE. This contains the register of green certificates issued, their certificate guaranteeing origin, date of issue, holder and the operations recorded (issue, transaction, redemption for quota, expiry).

Transactions

The CWaPE must be notified of any transaction relating to a green certificate so that the transaction can be authenticated and recorded in the green certificates register.

The market players trade in green certificates without intervention by the CWaPE. Once an agreement has been made, the seller gives notice of the transfer of ownership of the green certificates by completing the form provided for that purpose and by following the procedure established by the CWaPE[14].

After every operation, the CWaPE sends the players a statement of account setting out the details of the transactions performed and the status of their account.

Intermediaries

Any physical or legal person who registers with the CWaPE may participate in green certificate transactions. Thus, it is possible that the end clients eventually decide to buy the green certificates related to their consumption directly so that they can then transfer them to their electricity suppliers and thus negotiate an electricity price which excludes the factors related to green certificates.

Furthermore, EDORA, the federation of producers of electricity from renewable energy sources, wishes to set up a green certificates trading exchange which would begin operations in 2008. A trading exchange would have the advantage of guaranteeing the anonymity of buyers and sellers at the time of a transaction and of providing a spot price for green certificates.

[14] See brochure "*Certificats verts: modalités pratiques*" ("Green certificates: practical procedures")

2.6.3 The requirement: the quota return for suppliers

Obligation

On a quarterly basis[15], each supplier must send the CWaPE a number of green certificates which corresponds to the number of MWh supplied to its end clients located in the Walloon Region multiplied by the current quota. For network operators, the quota applies to their own electricity consumption and, where applicable, to the electricity supplied to the end clients which they supply (AGW-PEV, article 25, §2).

There are four stages to the "quota return" procedure for suppliers:

- despatch of the quarterly supply information to the CWaPE;
- calculation by the CWaPE of the number of green certificates to be sent on the basis of the quota and any reductions;
- redemption[16] of the green certificates intended for the "quota return";
- calculation by the CWaPE of the amount of the fines payable, in the event that an insufficient number of green certificates are redeemed.

The quota to be met by suppliers and network operators has been set out as follows (AGW-PEV, article 25, §3):

- 6% in 2006
- 7% in 2007
- 8% in 2008
- 9% in 2009
- 10% in 2010
- 11% in 2011
- 12% in 2012

These rates have been established on the basis of the potential evolution of the production of green electricity. Depending on the evolution of the green electricity market, the Walloon Government may review the quotas given above (AGW-PEV, article 25 §3).

The green certificates taken into account in the quotas are restricted to green certificates issued on Belgian territory[17]. However, green certificates issued by other regions within Belgium or by the federal authorities (government licences in the North Sea) cannot be taken into account unless Walloon green certificates are recognised within the quotas of these other regions or within the federal quota (AGW-PEV, article 26). Only the Brussels-Capital Region has applied this provision and accepts green certificates issued to any certified facility in Wallonia within 10 years of that facility being brought fully online[18].

The penalty system (AGW-PEV, article 30)

In the event that the target quotas are not met, the supplier or the network operator is obliged to pay an administrative fine for the quarter concerned. The fine currently stands at EUR 100 per missing certificate. The Decree makes provision for the Walloon Government to set the amount of this fine at between EUR 75 and EUR 125 per missing certificate[19].

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[15] Before the end of the second month following the end of the quarter (i.e. 30 April, 31 July, 31 October and 28-29 February)

[16] Redemption: from the Latin *redimere*, "to buy back": (a legal term) action by which something is bought back [according to the *Nouveau Petit Robert* dictionary, 2002 edition]. This term is more accurate and more accurately replaces the expression "deletion from the CWaPE database". Use of this term is increasingly becoming the norm at international level.

[17] Green certificates issued for electricity produced outside Belgium may be included in the quota provided that there is a bilateral agreement between the parties and mutual acceptance.

[18] Ministerial order of 3 May 2005 concerning acceptance of Walloon green certificates for the purposes of allowing them to be taken into account for fulfilment of the obligation placed on suppliers in the Brussels-Capital Region by article 28, §2 of the electricity regulations

[19] Decree, article 53, §2

Reduction (AGW-PEV, article 25, §5)

In 2004, the quota initially imposed by law was "adjusted". The Government decided to reduce the impact of the cost of the green certificates on industrial end clients which are heavy users of electricity in order to respond to the economic difficulties which the latter encountered in a context of fierce international competition. From 1 January 2004, suppliers providing electricity to an end client for which consumption in the quarter concerned is greater than 5 GWh for a single operating site and which has signed an agreement with the Walloon Region aimed at improving its energy efficiency in the short, medium and long term (e.g. a sector agreement), can benefit from a reduction in the number of green certificates to be sent to the CWaPE.
The reduction granted for each operating site is as follows:

- 1/4 of the quota, for the portion of the quarterly electricity consumption from 5 to 25 GWh inclusive;
- Z, for the portion of quarterly electricity consumption over 25 GWh, where Z = quota - 2. This amounts to a fixed quota of 2% for this tranche, regardless of the quota imposed on the suppliers.

Where several suppliers provide electricity to one end client at a single operating site, the reduction in the number of green certificates is distributed pro rata to the amounts of electricity provided by each supplier.

The reductions in costs resulting from the provisions of this paragraph must be passed on directly by the suppliers to each end customer which is the justification for these reductions.

Example for the 2006 quotas

Take an end client which fulfils the conditions for benefiting from the reduction in quota by consuming 35 GWh in one quarter. Without the reduction, the supplier to this client would have had to submit 2100 GCs.

For the tranche from 0 to 5 GWh, the supplier to this client must meet the quota in full, namely, for 2006, 6% of 5,000 MWh, which means 300 GCs. For the second portion, from 5 GWh to 25 GWh, the supplier must meet a quota which is reduced by a quarter, namely (6% x ¾) x (25,000-5,000) MWh = 900 GCs. For the third portion, above 25 GWh, the supplier must fulfil a quota reduced by 2%, namely 2% x (35,000-25,000) MWh = 200 GCs. The supplier must submit a total of 1,400 GCs.

The reduction thus granted to the supplier for the benefit of the client will therefore be 700 GCs.

2.6.4 Support for production from the Walloon Region

On 6 November 2003, the Walloon Government passed an order concerning support for the generation of green electricity. The ministerial order of 24 May 2004 determines the procedures and methods for making an application and granting support for production. A producer of green electricity generated from renewable energy sources the facility of which was brought into service after 30 June 2003, and who has signed an agreement with the minister, may send the minister, on a quarterly basis, all or some of the green certificates it has been issued. This agreement specifies the period during which the support for production is guaranteed, up to a maximum of 120 months, beginning in the month following the month in which the facility was brought into service.

The support for production accumulated during the period concerned allows compensation to be made for the increased cost of production relative to the market price[20] during the amortisation period for the facility concerned and includes the return on the capital invested. The support for production granted by the minister in exchange for the green certificates will be EUR 65/GC[21].

The decision to opt for the mechanism of supported production or for the sale of the green certificates on the green certificates market is made by the producer of green electricity who has signed an agreement each time that they submit their quarterly metering information. The green certificates held by the Walloon Region are the subject of a request to the CWaPE for cancellation so that these certificates can be deleted from the database. Via this mechanism, the excess supply is reduced, which stabilises the price.

2.6.5 The federal system of minimum repurchase prices

Under the terms of the royal decree of 16 July 2002 concerning the establishment of mechanisms aimed at promoting electricity produced from renewable energy sources (RES), the transmission system operator (TSO) Elia, as part of its public service remit, is obliged to buy green certificates from producers of green electricity who ask it to do so, at a minimum fixed price, according to the production technology used:

Production technology	**Price per MWhe-RES**
Offshore wind energy	EUR 107 / 90[22]
Onshore wind energy	EUR 50
Hydraulic energy	EUR 50
Solar energy	EUR 150
Other renewable energy sources (including biomass)	EUR 20

This purchase obligation begins when the production facility is brought into service and lasts for a period of ten years. In practice, in the Walloon Region only photovoltaic facilities are affected by this system since, in this case, the value for repurchase of the green certificate by the TSO (EUR 150/GC) is greater than the fine of EUR 100 for each missing green certificate.

The TSO (Elia) must offer these green certificates on the market in order to recover the costs of fulfilling this obligation. The net balance, resulting from the difference between the purchase price paid by the TSO for the green certificate and its sale price on the market, is financed by a surcharge on the charges for connection to and use of the distribution network.

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[20] This market price is determined by the CWaPE. The methodology used by the CWaPE is specified in communication CD-5d05-CWaPE of 7 April 2005.

[21] Depending on the technology, the agreement may provide for a larger amount which nevertheless cannot exceed the amount of the fine.

[22] For each government licence, EUR 107/GC for the first 216 MW and EUR 90/GC for the remainder

3 Report for 2006

3.1 Production facilities

3.1.1 Certification of production sites

Three inspection bodies, accredited by Belac in accordance with the NBN EN ISO/IEC 17020 standard and authorised by the Minister for energy, issue certificates guaranteeing origin to the green electricity production sites. These bodies are: AIB-Vinçotte, Bureau Technique Verbrugghen, SGS Bureau Nivelles.

In 2006, the following 22 facilities were certified (32 MW)[23]:

- four photovoltaic facilities (Bélenger, Defalque, Spinoit and Godin) with a total capacity of 12 kW;
- five wind energy sites (Tienne du Grand Sart also known as the *Eolienne des enfants* at Mesnil-Église, Perwez-3, Seilles, Marbais and Couvin) with a total capacity of 23,281 kW;
- three hydroelectric generating stations (inclined plane at Ronquières, Grosses Battes at Chênée and Moulin Kuborn at Martelange) with a total capacity of 3240 kW;
- one facility producing electricity from biogas (Abribert-Beniest at Mont-Saint-Guibert with a capacity of 85 kWe);
- seven facilities for biomass cogeneration (Cap Forme at Rumes, Business Hotel at Charleroi, Renogen at Amblève, Ferme de l'Hosté at Wavre, Pré de Préat at Surice, Mydibel at Mouscron and Le Saupont at Bertrix) with a total capacity of 4640 kW;
- one cogeneration facility operating with natural gas (Techspace-Aéro at Milmort) with a capacity of 1155 kW.

In addition to the initial certification, the three authorised bodies carry out periodic inspections of all certified sites. Where modifications have been made to the measuring instruments, or to any other item mentioned in the certificate guaranteeing origin, amendments are also made to the certificate guaranteeing origin. Where biomass inputs (local or imported) are used, certification also requires the renewable nature of these inputs and their traceability to be demonstrated. Thus, a certain number of sites in existence in 2005 underwent modifications resulting in an additional capacity of 3080 kW.

3.1.2 Green electricity production sites

At the end of 2006, 126 green electricity production sites met the conditions for the issue of green certificates with a total capacity of approximately 482 MW (see appendix 1). The number of green producers corresponding to these sites totals 83.

Situation at the end of 2006	Number of sites	Capacity (kW)
Photovoltaic	8	18
Hydraulic	49	107,032
Wind	16	75,279
Biomass	10	96,060
Biomass cogeneration	21	51,660
Fossil cogeneration	22	152,371
Total	126	482,421

Table 3.1: Green electricity production sites in 2006

No site has had its facilities permanently shut down.

[23] The year of entry into service does not necessarily match the year of certification (this is the case, for example, with pre-existing facilities.)

3.1.3 Production of green electricity and green certificates

The number of green certificates issued for green electricity produced in 2006 was 1,158,200 against 835,719 in 2005, i.e. an increase of almost 40% (18% for 2005-2004)[24].

The tables and illustrations below show the evolution of the breakdown of certified electricity by production channel, smoothed by allocation pro rata to the days of the year where a statement covers 2 years, and of the corresponding green certificates issued. The breakdown of certificates issued by channel and by quarter is also set out in detail in appendix 2.

The graph below gives a picture of the cumulative issues of green certificates (smoothing the issues over the production period).

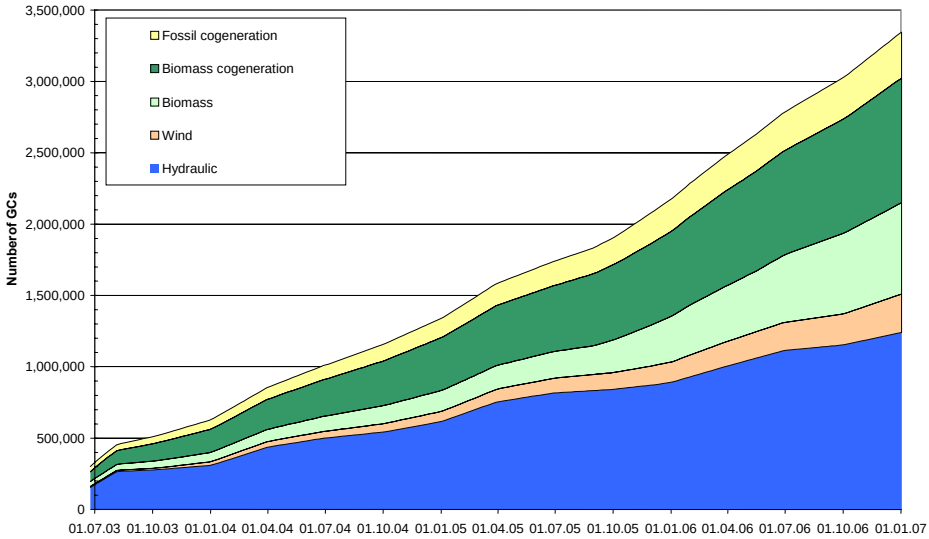


Figure 3.1-1: Cumulative production of green certificates

GCs issued	**2003** *(consolidated)*	**2004** *(consolidated)*	**2005** *(consolidated)*	**2006** *(provisional)*
Photovoltaic	0	1	2	7
Hydraulic	308,050	305,778	276,212	348,294
Wind	25,244	46,163	70,872	126,168
Biomass	65,167	81,501	173,086	319,262
Biomass cogeneration	162,295	207,785	224,226	268,447
Fossil cogeneration	65,906	69,123	91,320	96,021
Total	**626,662**	**710,351**	**835,719**	**1,158,200**

Table 3.2-1: Issue of green certificates during the period 2003-2006

[24] During the year, there is a lag between the production of green electricity and the issue of the corresponding green certificates (see section 3.2 concerning the market for green certificates). In fact, the issue of green certificates does not take place continuously but on the basis of statements which have to be sent once each quarter. Consequently, the production periods covered by these statements do not necessarily coincide with the calendar quarters. In addition, for new sites, the issues may relate to different periods due to the procedure for certification and notification. Also, certain issue corrections may be carried out.

Year	2005 (consolidated)				2006 (provisional)				
	Capacity (MW)	Production (MWh)	Production (green MWh)	Number of GCs issued	Capacity (MW)	Production (MWh)	Production (green MWh)	Number of GCs issued	Increase in GCs issued
Photovoltaic	0.006	2	2	2	0.018	7	7	7	-
Hydraulic	104	276,212	276,212	276,212	107	348,294	348,294	348,294	+ 26%
Wind	49	70,872	70,872	70,872	75	126,168	126,168	126,168	+ 78%
Biomass	96	264,329	264,329	173,086	96	505,283	505,277	319,262	+ 84%
Biomass cogeneration	47	244,941	199,449	224,226	52	262,273	238,604	268,447	+ 20%
Fossil cogeneration	151	925,702	314,318	91,320	152	826,443	310,253	96,021	+ 5%
Total	**447**	**1,782,059**	**1,125,184**	**835,719**	**482**	**2,068,468**	**1,528,604**	**1,158,200**	+ 39%

Table 3.2-2: Production of green electricity in 2005 and 2006[25]

The average rate of CO_2 savings (τ) of the green electricity production facilities in 2006 was 0.78 GC per green MWh (i.e. 0.57 GC per MWh of electricity produced), which is greater than the rate of 0.75 (0.48 respectively) noted in 2005.

The sites in existence at the time the system of green certificates came into force, i.e. on 12 April 2001, accounted for 60% in 2006 against 77% in 2005.

3.1.4 Situation in 2006 with regard to forecasts made in 2005

In 2005, the forecasts predicted a green certificate issue of almost 1,194,000 units as against approximately 1,128,449 actually issued. The overall difference is quite small, but encompasses developments which strongly differ from one production channel to another.

As regards the hydraulic production channel, the increase is largely explained by the more favourable weather conditions in 2006 than in 2005. As a result, almost 70,000 more GCs were issued in 2006 than in 2005.

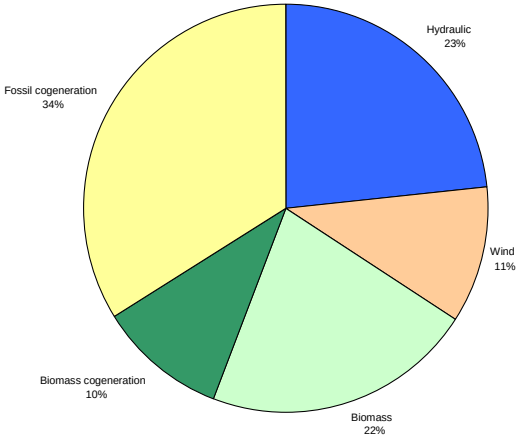
As regards the wind energy production channel, the better-than-forecast results were likewise due to the more favourable weather conditions in 2006. As a result, electricity production by the facilities existing in 2005 was about 15% greater than in 2005.

As regards the biomass production channel, although the production of ELECTRABEL's AWIRS4 unit increased significantly in 2006 in comparison with 2005 (+160%), this unit continued to operate at less than full capacity, which should be achieved in 2007.

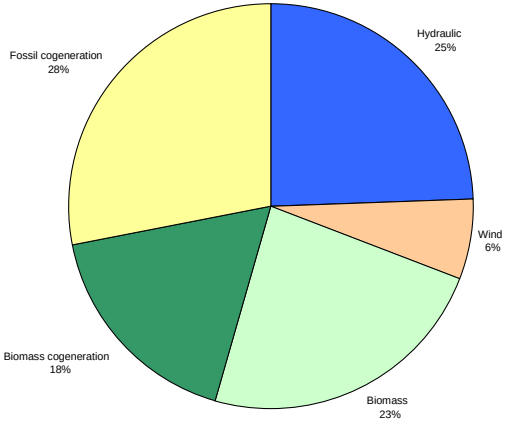
As regards the biomass cogeneration production channel, the poorer results are explained by the delays concerning the new ELECTRAWINDS, ERDA and RENOGEN generating stations, which finally came into service at the beginning of 2007.

[25] In view of the definition of green electricity given in the decree, for the cogeneration units (fossil and biomass) and also the hydraulic units with a periodic net potential capacity (Pendp) greater than 20 MWe, the "green MWh" correspond to the net electricity produced multiplied by the ratio (20/Pendp).

Installed capacity: 447 MWe



1125 green GWh produced



Number of GCs issued: 835,719

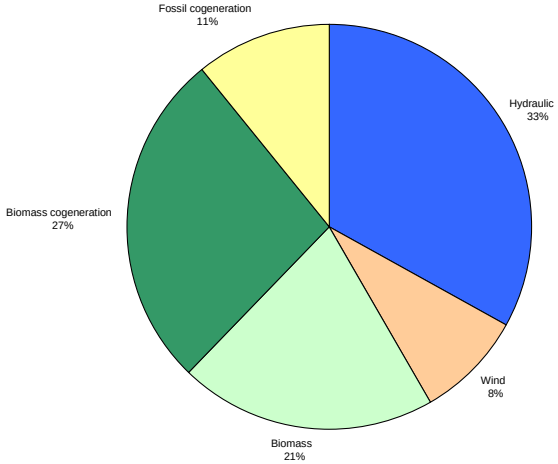
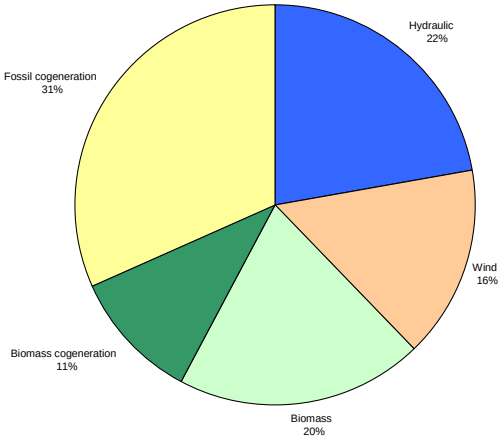
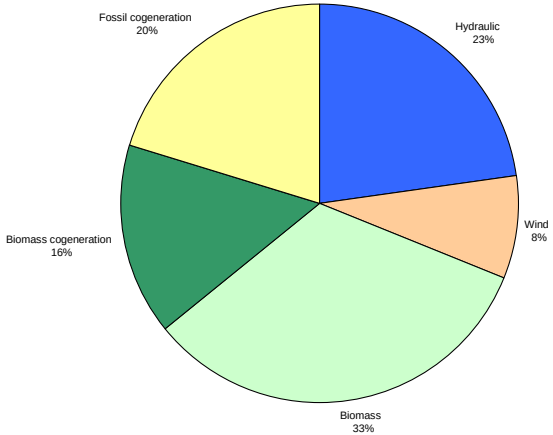


Figure 3.2: Green electricity production facilities in 2005

Installed capacity: 482 MWe



1529 green GWh produced



Number of GCs issued: 1,158,200

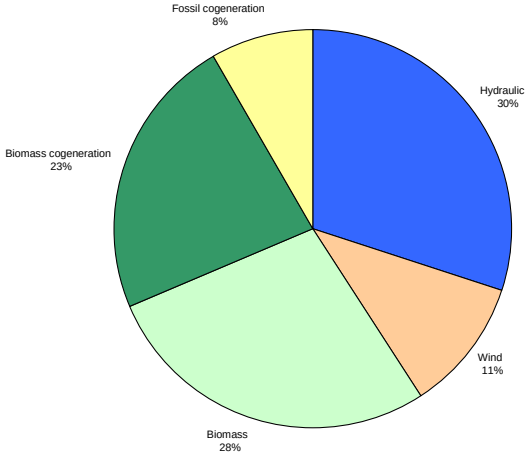


Figure 3.3: Green electricity production facilities in 2006

3.1.5 The proportion of green electricity in the Walloon Region electricity supply

In 2006, green electricity production represented 6.2% of the Walloon Region's electricity supply (24,604,426 MWh) against 4.8% in 2005.

Year WR supply	2005 23,341,061 MWh (green MWh)	 %	2006 24,604,426 MWh (green MWh)	 %
Photovoltaic	2	0.0	7	0,0
Hydraulic	276,212	1.2	348,294	1.4
Wind	70,872	0.3	126,168	0.5
Biomass	264,329	1.1	505,277	2.1
Biomass cogeneration	199,449	0.9	238,604	1,0
Fossil cogeneration	314,318	1.3	310,253	1.3
Total	**1,125,184**	**4.8**	**1,528,604**	**6.2**

Table 3.3: The proportion of green electricity in the WR electricity supply

If the 20 MW limit for cogeneration (fossil fuel and biomass) and hydraulic facilities is not taken into consideration, the proportion of electricity produced in the Walloon Region by certified facilities using renewable energy sources and good-quality cogeneration amounts to 8.4% of electricity supplies in 2006 against 7.6% in 2005. This corresponds to a production of electricity from renewable sources (RES) of 4.8% against 3.5% in 2005 as defined by Directive 2001/77/EC.

Year WR supply	2005 23,341,061 MWh (MWh)	 %	2006 24,604,426 MWh (MWh)	 %
Photovoltaic	2	0.0	7	0.0
Hydraulic	276,212	1.2	348,294	1.4
Wind	70,872	0.3	126,168	0.5
Biomass	264,329	1.1	505,283	2.1
Biomass cogeneration	244,941	1.0	262,273	1.1
Fossil cogeneration	925,702	4.0	826,443	3.4
Total net electricity	**1,782,059**	**7.6**	**2,068,468**	**8.4**
Total RES	**806,474**	**3.5**	**1,191,922**	**4.8**

Table 3.4: Net proportion of electricity produced in certified facilities in the WR supply

The breakdown of production by channel and by quarter is set out in detail in appendix 2.

3.2 The green certificates market

3.2.1 Green certificate transactions

During 2006, there were 483,697 GCs traded[26]. The average unit price for that year was EUR 91.58.

	Transactions	Volume of GCs	Unit price		
	Number	Number	Average	Min	Max
2005 Q1	42	81,830	EUR 91.81	EUR 86	EUR 95
2005 Q2	49	120,608	EUR 92.00	EUR 86	EUR 94
2005 Q3	46	91,942	EUR 92.29	EUR 88	EUR 95
2005 Q4	50	119,340	EUR 92.26	EUR 80	EUR 94
2006 Q1	**56**	**132,297**	**EUR 92.09**	**EUR 80**	**EUR 94**
2006 Q2	**56**	**124,526**	**EUR 91.92**	**EUR 80**	**EUR 96**
2006 Q3	**54**	**103,468**	**EUR 91.29**	**EUR 80**	**EUR 95**
2006 Q4	**51**	**123,407**	**EUR 90.95**	**EUR 80**	**EUR 95**
2007 Q1	49	110,991	EUR 90.80	EUR 80	EUR 95
2007 Q2	50	133,993	EUR 88.87	EUR 80	EUR 95

	Number of GCs	Average unit price
2003	164,943	EUR 84.38
2004	326,733	EUR 91.74
2005	413,720	EUR 92.10
2006	483,697	EUR 91.58

Table 3.5: Average price of green certificates traded

These trading prices published on the CWaPE website concern about 56% of the green certificates issued since the system began. The remainder corresponds to the green certificates issued to production sites belonging to suppliers and used for their own quota or reserved for future use.

3.2.2 Quotas (nominal and actual) for green certificates

The number of green certificates to be redeemed under the terms of the obligation placed on suppliers and network operators by article 25 of the AGW of 30 November 2006 concerning the promotion of green electricity has been established on the basis, on the one hand, of a "nominal" quota of 6% and, on the other, on reductions in quotas for supplies to end clients who are heavy users of electricity.

The electricity supplies declared and taken into consideration for 2006 amounted to 24,604,426 MWh[27], i.e. an increase of more than 5% relative to 2005. The nominal quota of 6% therefore corresponds to 1,476,266 green certificates, reflecting an increase of more than 25%.

[26] Redemptions – the use of GCs for the quota – are not deemed to be transactions.

[27] This is the value declared by suppliers on 28 February. Adjustments after that date are not taken into account for the calculation of the 2006 quotas but are carried forward for the calculation of the 2007 quotas.

In 2006, 73 operating sites of end clients who are heavy users of electricity benefited from a reduction in quotas. The total consumption of these sites represents approximately 38% of the electricity supply in the Walloon Region.

The quota reductions granted amounted to 234,511 green certificates or 16% of the nominal quota of green certificates. The actual average quota in 2006 for the 73 operating sites benefiting from the quota reduction was therefore 3.49%.

The saving made in this way by the suppliers to the benefit of their end clients may be evaluated as follows:

Saving made (in EUR)	2005	2006
On the basis of the amount of the fine (EUR 100 /CV)	16,141,900	23,451,100
On the basis of the average market price of GCs (EUR 92.10 in 2005; EUR 91.58 in 2006)	14,866,690	21,476,426

The "nominal" quota of 6% for 2006 has thus been turned into an actual quota (relationship between the number of green certificates to be sent and the number of MWh supplied) of 5.05%, taking into account the reductions granted. This corresponds to 1,241,755 GCs to be actually returned by the suppliers and network operators.

The graph below shows the evolution of the quotas since the beginning of the green certificates system.

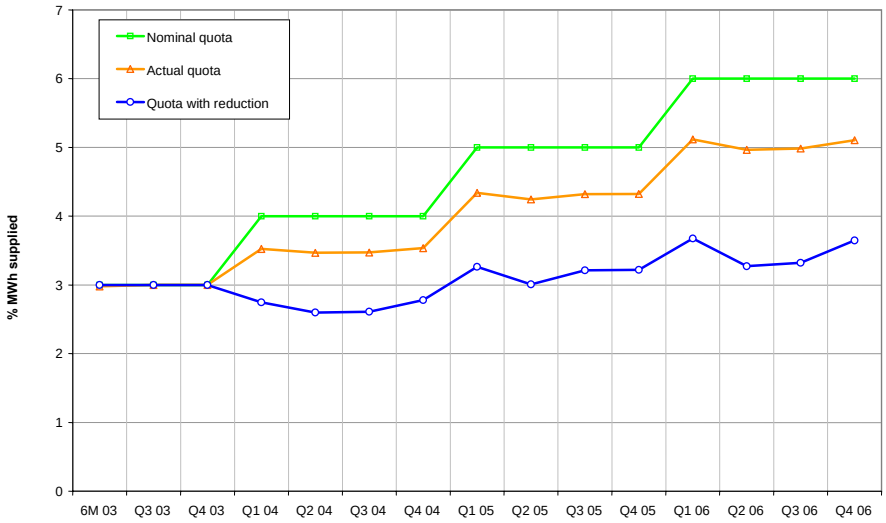


Figure 3.4: Evolution of quotas over the period 2003-2006

The nominal quota corresponds to the quota applying to suppliers for which the clients do not benefit from any reduction in green certificates.

The quota with reduction corresponds to the average quota applying to suppliers supplying the operating sites of end clients which are heavy users of electricity and benefit from the reduction.

The actual quota corresponds to the actual market demand for green certificates.

3.2.3 Supply and demand on the green certificates market

The graph below gives a picture of the GC market at the time of the quota returns. Thus, the first column shows the number of green certificates issued between two quota return dates.

The "available GCs" correspond to the number of green certificates present on the market at the time of the quota return. This number is the sum of the green certificates issued during the period and the stock of unused GCs from the previous period, minus the green certificates used for the Brussels Region quota return.

The "GCs to be returned" correspond to the number of green certificates which must be returned by the suppliers and network operators. This amount corresponds to 6% of the total electricity supplies (5% in 2005), minus the reductions granted for end clients who are heavy users of electricity.

Finally, the "returned GCs" corresponds to the actual number of certificates returned for the quota. The difference between the "available GCs" and the "returned GCs" corresponds to the stock of green certificates available on the quota return date. The difference between the "GCs to be returned" and the "returned GCs" corresponds to the fines.

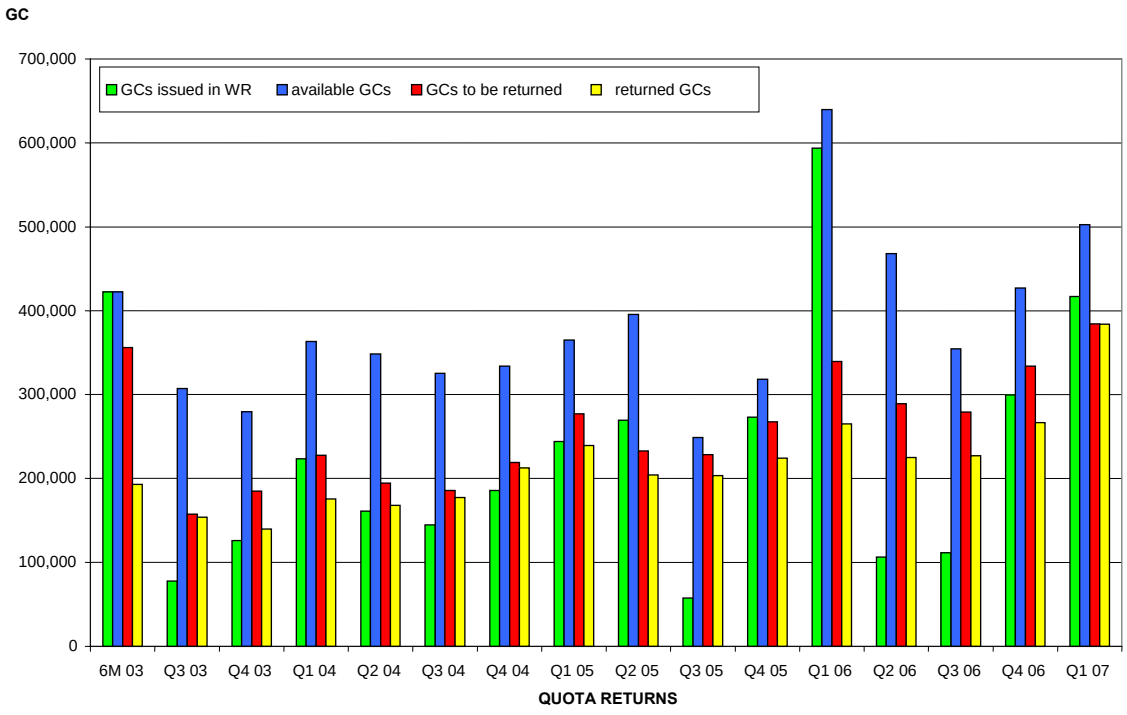


Figure 3.5: Evolution of supply and demand on the green certificates market

It can be seen that the number of green certificates available at the time of each quota return was sufficient despite the fact that, overall in 2006, the number of green certificates to be returned continued to be greater than the number of green certificates issued (see figure 3.6). This is because the TSOs did not completely fulfil their obligation and paid the corresponding fine (cf. point 3.2.5).

The graph below gives annual figures for the green certificates market in 2003, 2004, 2005 and 2006

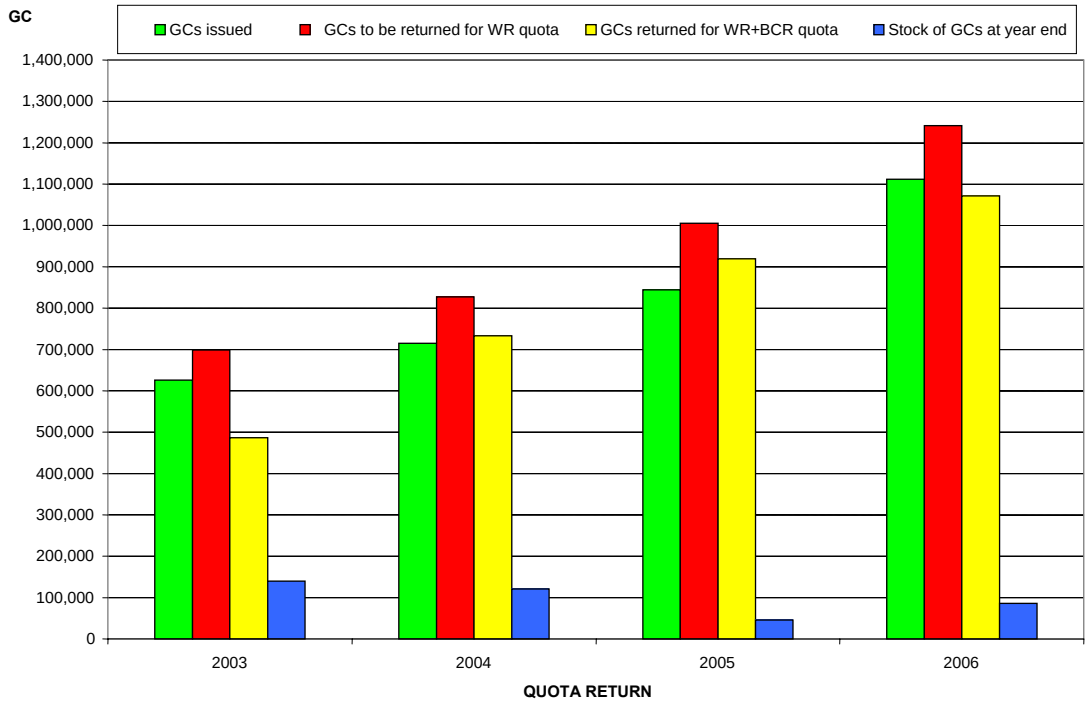


Figure 3.6: Annual figures for the green certificates market

As forecast, we see that the number of green certificates issued in 2006 continued to be lower than the number of green certificates to be returned for the quotas (about 90%).

The shortfall between the number of certificates issued and the quota requirements can be attributed firstly to the delays in starting production at certain facilities in the biomass cogeneration production channel and secondly to the increase of almost 5% in electricity supplies in the Walloon Region by comparison with 2005.

3.2.4 Quota returns of green certificates in the Walloon Region

The number of green certificates sent to the CWaPE under the terms of the obligation imposed on suppliers and network operators rose to 983,852 GCs for the whole of 2006, against 871,447 for 2005. The 983,852 GCs sent to the CWaPE thus represent 79.23% of the number of GCs which had to be returned, which is a decrease relative to 2005 (86.66%).

The number of suppliers and network operators who have been obliged, every quarter, to send the CWaPE their supply figures and a number of green certificates corresponding to the nominal quota of 6% is as follows:

11 suppliers with a general supply licence

5 suppliers with a licence for green supply[28]

13 network operators

[28] The licence for green supply is granted to suppliers for which green electricity accounts for at least 50% of their supply.

3.2.5 Evolution of the amount of fines

The quarterly evolution of the amount of the fines imposed in 2006 is shown below.

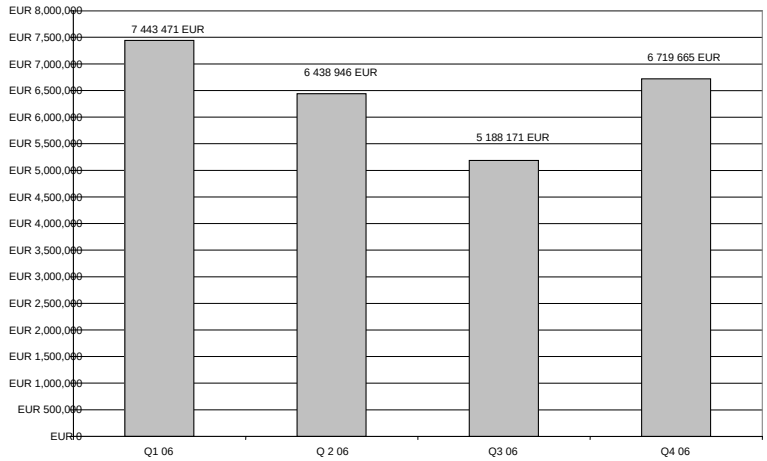


Figure 3.7: Quarterly evolution of the amount of fines imposed in 2006

The total number of missing green certificates in 2006 which led to fines being imposed represents 20.77% of the actual quota, against 13.35% in 2005. This amount is greater than the overall shortfall in green certificate for 2006 (6.5%).

As the number of green certificates which had to be returned for 2006 amounted to 1,241,755, the difference, so 257,903 certificates, led to the imposition of administrative fines totalling EUR 25,790,253 (against almost EUR 13.4 million in 2005).

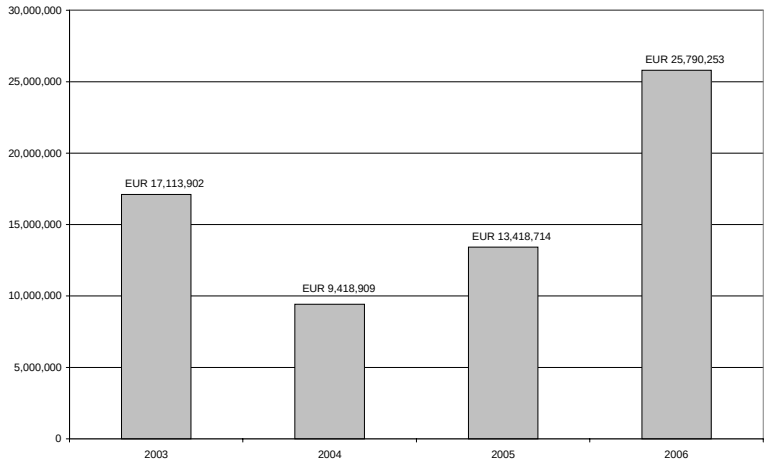


Figure 3.8: Fines imposed during the period 2003-2006

It is important to note that this almost exclusively concerns fines imposed on network operators. The fines paid by suppliers to eligible clients represent only 1% of the total fines imposed for 2006.

It may therefore be expected that from now on, the sum total of fines paid will drop sharply given the fiscal impact of these on producers' costs. This trend towards a reduction in fines can already be seen in the first quarter of 2007 (cf. figure 3.5).

Table 3.6: Quarterly quota returns of green certificates

	Total sales during the year (MWh)	GC quota excluding reduction	GC reduction	GC to be sent	GC sent	GC missing	Admin. fine (in EUR)
1st quarter 2006							
Suppliers	4,106,080	246,365	58,598	187,766	187,497	269	26,886
TSO	2,527,905	151,674		151,674	77,508	74,166	7,416,585
TOTAL	6,633,986	398,039	58,598	339,441	265,006	74,435	7,443,471
2nd quarter 2006							
Suppliers	4,067,577	244,055	60,431	183,624	182,864	759	75,944
TSO	1,762,422	105,745		105,745	42,115	63,630	6,363,002
TOTAL	5,829,999	349,800	60,431	289,369	224,980	64,389	6,438,946
3rd quarter 2006							
Suppliers	3,930,481	235,829	56,998	178,831	178,282	548	54,845
TSO	1,670,958	100,257		100,257	48,924	51,333	5,133,326
TOTAL	5,601,439	336,086	56,998	279,088	227,206	51,882	5,188,171
4th quarter 2006							
Suppliers	4,205,345	252,321	58,483	193,838	193,838	0	0
TSO	2,333,656	140,019		140,019	72,823	67,197	6,719,665
TOTAL	6,539,002	392,340	58,483	333,857	266,660	67,197	6,719,665
TOTAL 2006							
	Total sales during the year (MWh)	GC quota excluding reduction after corrections	GC reduction	GC to be sent	GC sent	GC missing	Admin. fine (in EUR)
Suppliers	16,309,484	978,569	234,511	744,058	742,482	1,577	157,675
TSO	8,294,942	497,697	0	497,697	241,371	256,326	25,632,578
TOTAL	24,604,426	1,476,266	234,511	1,241,755	983,852	257,903	25,790,253

The total sales set out in this table correspond to the amounts declared on 28/02/2007. The corrections made after this date are not taken into account in the calculation of the 2006 quotas but are carried forward for the calculation of the 2007 quotas.

3.2.6 Mutual recognition

The reciprocal acceptance of green certificates from Wallonia and Brussels is included in the Walloon Government order of 30 November 2006, article 26, §1.

Redemption of Brussels green certificates for the WR quota

Suppliers who hold Brussels green certificates may submit them to the CWaPE in order to fulfil their quota of green certificates in Wallonia.

In such a case, a multiplication factor is applied to take account of the differences in CO_2 savings rates between the two systems. This multiplication factor is currently to the disadvantage of transfers from Brussels to Wallonia.

For this reason, only a small number of green certificates were traded in this way.

Thus, to date only 9 Brussels green certificates, equivalent to 5 Walloon green certificates, have been sent to the CWaPE as part of a quota return for the Walloon Region.

Redemption of Walloon green certificates for the Brussels-Capital Region (BCR) quota

Suppliers holding Walloon green certificates may submit them to BRUGEL in order to fulfil their quota of green certificates in the Brussels-Capital Region (BCR).

In this case, a multiplication factor corresponding to the ratio of the amount of the fines is applied.

The ratio of the fines during 2006 was 100/75.

In 2006, 60,818 Walloon green certificates (corresponding to 81,090 Brussels GCs) were submitted in order to fulfil the 2004-2005[29] quota of the BCR.

[29] *See Ministerial order of 3 May 2005 concerning the acceptance of Walloon green certificates so that they can be taken into account for fulfilment of the obligation placed on suppliers in the Brussels-Capital Region by article 28, §2 of the electricity order.*

4 Forecasts

4.1 Evolution of green electricity facilities and production in 2007

Table 4.1 summarises, for each production channel, the new facilities which are due to be brought into service in 2007.

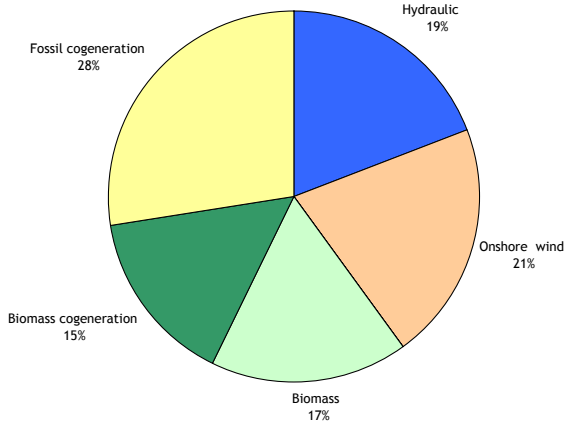
2007 projects	Number of sites	Capacity (kWe)	GCs expected in 2007	Increase in GCs compared with 2006
Photovoltaic	28	98	85	1234%
Hydraulic	5	55	165	0%
Wind	5	43,000	80,000	63%
Biomass	0	0	0	0%
Biomass cogeneration	11	32,995	135,000	50%
Fossil cogeneration	5	2,864	1,750	2%
TOTAL	54	79,012	217,000	19%

Table 4.1: new facilities in 2007

Among the major developments scheduled for 2007, the most noteworthy are the increase in production of just over 30 MW at the Les Awirs generating station and the biomass cogeneration facilities (Renogen, ERDA, Electrawinds, etc.) and the entry into service of new wind farms with a capacity of approximately 45 MW (Dour-Quiévrain, Mettet, Yvoir, etc.).

The forecasts for the green electricity production facilities at the end of 2007 given in the illustrations below are based on the new projects and the improvement in the performance of the existing facilities in 2006.

Installed capacity: 560 MWe



Number of GCs issued: 1,430,000

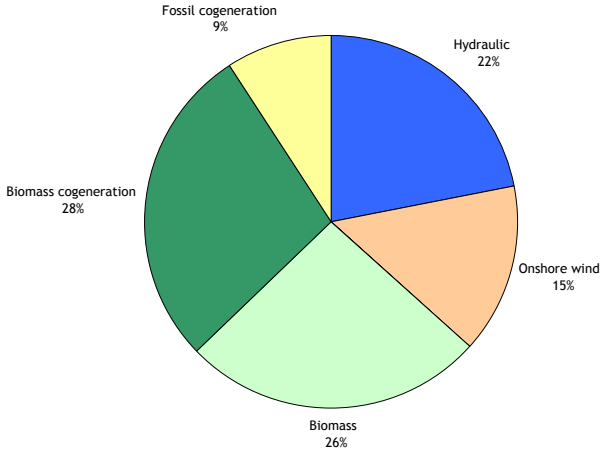


Figure 4.1: Forecasts for 2007

The pre-existing facilities will represent not more than 30% of the total issued in 2007, against 52% in 2006.

4.2 Evolution of the green certificates market in 2007

The evolution in the supply and demand in green certificates in 2007 can be projected on the basis of the previous development of green electricity production facilities while taking into account the 7% quota imposed in 2007, the reductions in quota requirements, and the assumption of a 1% increase in electricity supplies in 2007 (while including the 5% growth seen in 2006).

This projection also takes into account the use of green certificates for the quota return in the Brussels-Capital Region (+/-75,000 GCs in 2007 for 2006).

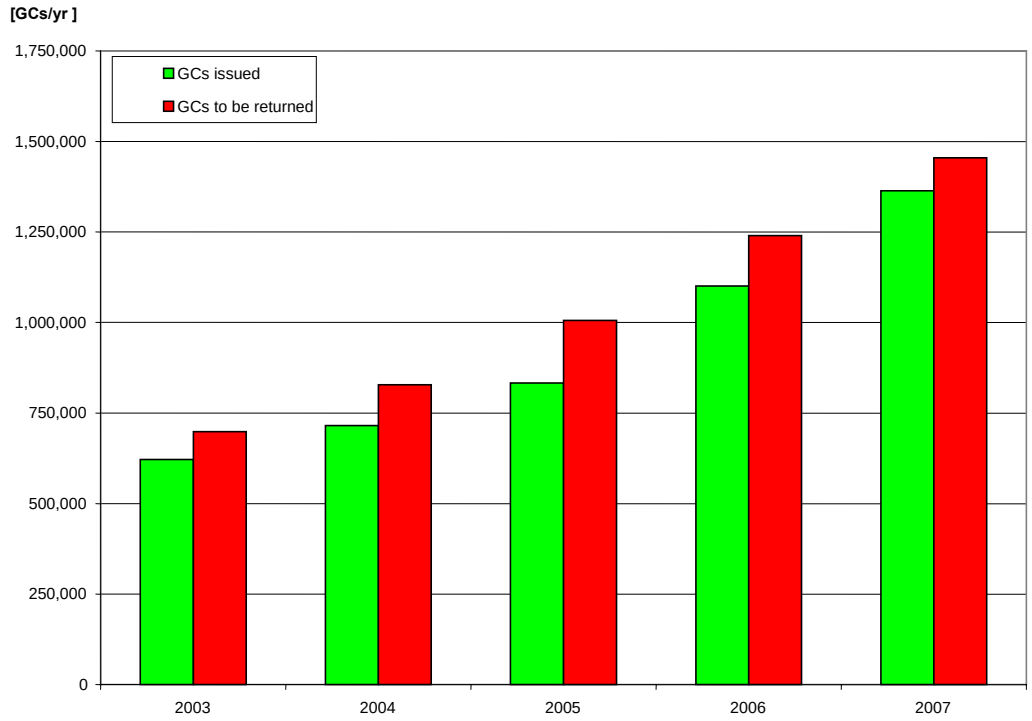


Figure 4.2: Evolution in supply and demand for the GC market

It can be seen that on the basis of these forecasts, despite significant growth of more than 20% in the issue of green certificates in 2007, this issue remains slightly lower than the quota requirements for suppliers (± 95%).

However, it should be noted that these results are highly dependent on the proper operation of the Awirs generating station, on weather conditions for the hydraulic and wind production channels, and on the evolution of electricity supplies in the Walloon Region.

4.3 Evolution in green electricity production facilities during the period 2007-2012

4.3.1. Assumptions

Based on the decision of the Walloon Government of 16 March 2006 and the order of 30 November 2006 setting the quotas for the period 2008-2012, the following assumptions have been taken into consideration in projecting the evolution of green electricity production facilities:

- Abolition of the limit of 1 on the rate of CO_2 savings for outputs exceeding 5 MW, for certain cogeneration sites which use biomass;
- Introduction of the restriction of the notion of green electricity to 20 MW for facilities using biomass;
- Application of a reduction coefficient from 2008 for pre-existing production units[30]. The overall reduction is estimated to be 246,000 GCs per year over the period 2008-2012.
- As regards the offshore wind production channel, given that there is currently no agreement as to the methods of acceptance/distribution among the regions of the green certificates which will be attributed to offshore wind farms by the CREG, it was felt more appropriate not to take this production channel into consideration so that analysis could be limited to the study of those production channels falling strictly within regional competences.
- Photovoltaic production channel: forecasts drawn up on the basis of the draft decree submitted to the parliament based on 5 GC/MWh for systems with a capacity of less than 5 kW
- Hydraulic production channel: forecasts have been drawn up on the basis of a year of average weather conditions (forecasts are likely to vary upwards or downwards by approximately 40,000 GCs per year).
- Onshore wind production channel: 100% probability if permission is given, 25% if the application for permission is being examined, 12.5% if the impact study is in progress, 0% in all other cases. The forecasts are also drawn up on the basis of a year of average weather conditions (these forecasts are likely to vary upwards or downwards by approximately 50,000 GCs in 2012).
- Biomass production channel: 100% probability if the project is under construction, minimal probability (0%, 25%, 50%) estimated according to CWaPE's knowledge of the dossier.
- Biomass cogeneration production channel: 100% probability for projects under construction or the subject of a published decision to build, 0% in all other cases.
- Fossil cogeneration production channel: 100% probability if the project is under construction, minimal probability (0%, 25%, 50%) estimated according to CWaPE's knowledge of the dossier.

The results presented below have been produced on the basis of the update of 30/06/2007 for projects identified by the CWaPE using a methodology identical to that set out in proposal CD-5f28-CWaPE-101 and while taking account of the application of a reduction factor for pre-existing facilities from 2008 [26] onwards.

[30] See AVIS CD-6j06-CWaPE-149

Evolution 2007-2012	Number of sites	Pend (kW)	GC/yr	MWh/yr
Solar PV	287	3,863	4,883	4,883
Hydraulic	27	6,805	4,023	4,023
Onshore wind	29	348,775	871,961	871,961
Biomass	1	350	131,925	237,149
Biomass cogeneration	62	96,986	1,180,614	721,801
Fossil cogeneration	35	45,314	98,509	446,600
Total	441	502,093	2,291,914	2,286,416

Table 4.2: Evolution during the period 2007-2012
(new facilities and improvement of existing facilities)

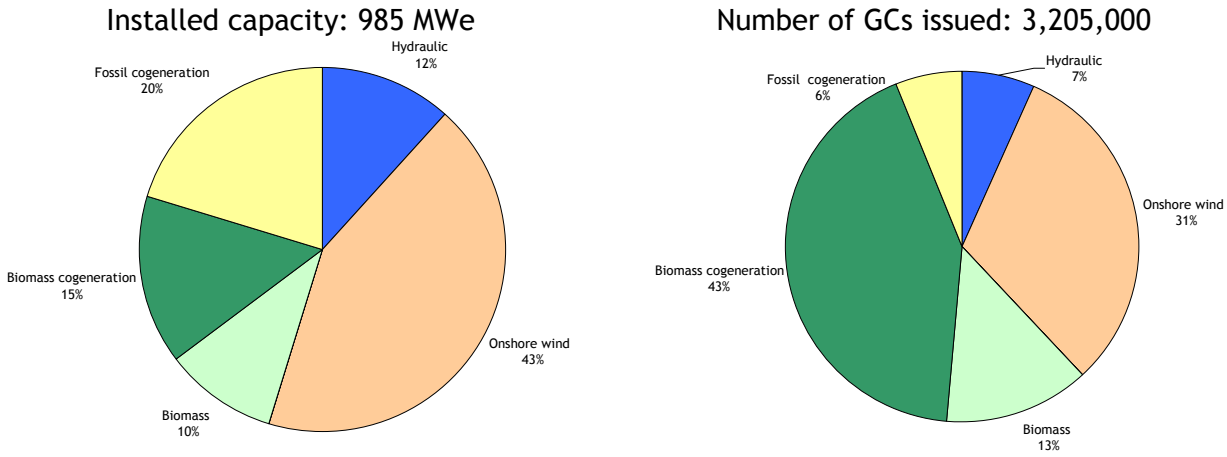
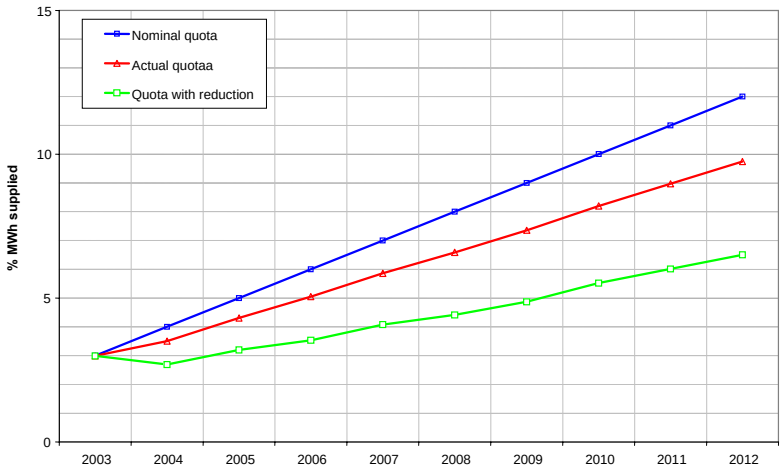


Figure 4.3: forecasts for 2012

4.3.2. Conditions of equilibrium on the green certificates market

Using a methodology identical to that presented in proposal CD-5f28-CWaPE-101 concerning the allowance made for quota reductions (current system assumed to be unchanged) and a growth of 1% in electricity supplies in the Walloon Region during the period 2007-2012 (while including the 5% growth seen in 2006), the evolution of the actual quota (and the quota applied to suppliers to the operating sites of end clients who are heavy users of electricity and benefit from the reduction) is inferred based on the nominal quota (see figure 4.5).



Actual quotas

2006 5.05%
2007 5.86%
2008 6.59%
2009 7.36%
2010 8.20%
2011 8.98%
2012 9.75%

Figure 4.5: Nominal quota and actual quota

The evolution of the conditions of equilibrium between supply and demand[31] is indicated below.

An excess supply of green certificates from 2010 is evident, leading at the end of 2012 to a stock of green certificates representing more than the actual quota for that year.

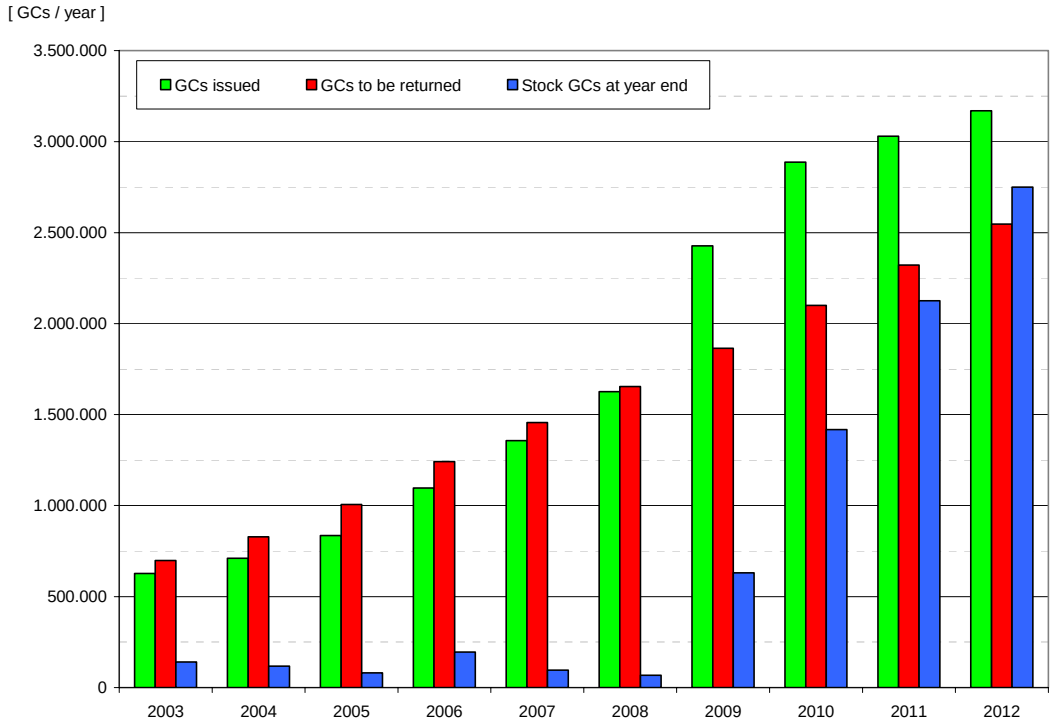


Figure 4.6: Equilibrium between supply and demand

The significant increase in the issue of green certificates from 2009 (approximately 800,000 GCs) is largely attributable to two factors: the putting into service of biomass cogeneration facilities of significant size such as BIOWANZE, ELECTRAWINDS, IBV, etc. (400,000 GCs), and the assumed continued growth (see above) in the development of wind farms (350,000 GCs).

This major growth continues to be situated between the minimum and maximum development scenarios identified by the CWaPE in 2005 [32] and in 2006[33], and confirms investors' confidence in the mechanism established in the Walloon Region.

However, the CWaPE wishes to point out that a minimal probability of implementation has been assigned to projects which are not currently being implemented or not currently decided upon. These projections therefore assume that projects which have not yet been identified or decided upon are very unlikely to be implemented during the period 2008-2012.

On the basis of these forecasts, it is therefore possible that the Walloon government may have to review the quotas upwards from 2009 in accordance with the provisions set out in article 25 of the Walloon Government order of 30 November 2006 concerning the promotion of green electricity.

The CWaPE will pay close attention to the evolution of the market.

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[31] In this projection, the mutual acceptance of WR and BCR, as practised since 2006, has been taken into account, including the increase of the amount of the fine in the Brussels-Capital Region (the conversion factor will be 1 in March 2008 for the year 2007, instead of 1.33 in March 2007 for the year 2006).

[32] See AVIS CD-5f28-CWaPE-101

[33] See PROPOSITION CD-6a24-CWaPE-110

Contents

APPENDIX 1: List of green electricity production sites - end 2006

Production channel	Player	Production site	Pend (kW)
Photovoltaic	BELENGER Michel (private individual)	131_PHOTOVOLTAÏQUE BELENGER	2
	DAVENNE J-P. (private individual)	088_ PHOTOVOLTAÏQUE SOLWASTER	1
	DEFALQUE Jean (private individual)	136_ PHOTOVOLTAÏQUE DEFALQUE	4
	GODIN Jean (private individual)	143_ PHOTOVOLTAÏQUE GODIN	1
	GREINDL Bruno (private individual	114_ PHOTOVOLTAÏQUE C GREINDL	1
	HECQ-HANNECART (private individual)	125_ PHOTOVOLTAÏQUE HECK-HANNECART	3
	QUITTRE Laurent (private individual	095_ PHOTOVOLTAÏQUE ISSOL	1
	SPINOIT Paul (private individual)	139_ PHOTOVOLTAÏQUE SPINOIT	5
	Net potential electrical capacity (Pend) (kW) - Photovoltaic		18
	Number of sites		8
Hydraulic	CENTRALE ELECTRIQUE LA FENDERIE	071_CENTRALE HE LA FENDERIE	276
	CENTRALES GAMBY	059_CENTRALE HE CHAPUIS	100
		060_CENTRALE HE D'OLNE	256
	COMMUNE DE MARTELANGE	127_CHE MOULIN KUBORN	4
	DONY	048_MICRO CENTRALE HE DU VAL DE POIX	94
	ELECTRABEL	028_CENTRALE HE DE LORCE	51
		029_CENTRALE HE HEID DE GOREUX	7,344
		030_CENTRALE HE DE ORVAL	47
		031_CENTRALE HE DE COO DERIVATION	385
		032_CENTRALE HE DE STAVELOT	106
		033_CENTRALE HE DE CIERREUX	100
		034_CENTRALE HE DE LA VIERRE	1,976
		035_CENTRALE HE DE BUTGENBACH	2,106
		036_CENTRALE HE DE BEVERCE	9,902
		077_CENTRALE HE DE BARDONWEZ	32
	ÉNERGIE BERCHIWÉ	122_CENTRALE HE MOULIN DE BERCHIWE	22
	ENHYDRO	065_CENTRALE HE DE PONT-A-SMUID	174
		066_CENTRALE HE DE SAINTE-ADELINE	116
	HOTTOIS David (private individual)	120_CENTRALE HE MOULIN DE JAUCHE	7
	HYDROLEC DENIS	051_CENTRALE HE DE DOLHAIN	80
		052_CENTRALE HE DES FORGES	66
		053_CENTRALE HE DU MOULIN PIRARD	49
	HYDROVAL	047_CENTRALE HE ZOUDE	178
	JEANTY Nadine (private individual)	076_CENTRALE HE MOULIN DE VILLERS-LA-LOUE	15
	MARAITE Bruno (private individual)	061_CENTRALE HE MARAITE (LIGNEUVILLE)	217
	MERYTHERM	057_CENTRALE HE DE MERY	205
		058_CENTRALE HE DE RABORIVE	60
	MET - I.G. 45	078_CENTRALE HE DE L'EAU D'HEURE	951
		079_CHE DU PLAN INCLINÉ DE RONQUIÈRES	2,690
	MOULIN FISENNE	073_CENTRALE HE MOULIN FISENNE	95
	MUYLE HYDROELECTRICITE	087_CENTRALE HE DE MORNIMONT	659
	PIRONT Alphonse	074_CENTRALE HE PIRONT (LIGNEUVILLE)	62
		075_CENTRALE HE MOULIN MAYERES	119
	PROTIN Josette (private individual)	056_CENTRALE HE MOULIN D'EN BAS	15
	REFAT ELECTRIC	067_CENTRALE HE DE STAVELOT	245
	S.P.E.	012_CENTRALE HE DE FLORIFFOUX	843
		013_CENTRALE HE DES GRANDS MALADES	4,887
		014_CENTRALE HE D'ANDENNE	8,986
		015_CENTRALE HE D'AMPSIN NEUVILLE	9,910
		016_CENTRALE HE D'IVOZ RAMET	9,742
		017_CENTRALE HE DE MONSIN	17,765
		018_CENTRALE HE DE LIXHE	22,979
		116_CHE DES GROSSES BATTES	546
	SAPIEF	072_CENTRALE HE DE FRAIPONT	75
	SCIERIE MAHY	083_ CENTRALE HE MAHY	25
	SOCIETE WALLONNE DES EAUX	054_COMPLEXE DE L'OURTHE	758
		055_COMPLEXE DE LA VESDRE	1,519
	WILLOT Jean-Luc (private individual)	099_CENTRALE HE MOULIN DE JEHOULET	22
	ZEYEN (private individual)	062_CENTRALE HE MOULIN DE WEWELER	169
	Net potential electrical capacity (Pend) (kW) - Hydraulic		107,032
	Number of sites		49
Wind	ALLONS EN VENT	132_ÉOLIENNE TIENNE DU GRAND SART	794
	ELECTRABEL	070_PARC ÉOLIEN DE BÜTGENBACH	7,993
	ELECTRASTAR	144_ÉOLIENNES DE MARBAIS	15,816
	ÉNERGIE 2030	104_ÉOLIENNE D'EMMELSBERG	593
	GREENELEC EUROPE	146_ÉOLIENNE DE COUVIN	1,977
	INTERAGRI DUMOULIN	124_ÉOLIENNE DE SEILLES	199
	LES EOLIENNES DE PERWEZ	130_ÉOLIENNES DE PERWEZ 3	4,495
	LES VENTS DE L'ORNOI	086_ÉOLIENNES DE GEMBLOUX-SOMBREFFE	8,982
	LES VENTS DE PERWEZ	107_ÉOLIENNES DE PERWEZ 2	7,396
	LES VENTS D'HOUYET	094_ÉOLIENNE AUX TCHERETTES	607
	MICHAUX Jean-Pierre (private individual)	091_ÉOLIENNE DU CHAMP DE RANCE	18
	P.B.E.	069_ÉOLIENNE DE PERWEZ 1	597
	RENEWABLE POWER COMPANY	050_ÉOLIENNES DE SAINTE-ODE	7,484
	SPE POWER COMPANY	100_ÉOLIENNES DE VILLERS-LE-BOUILLET	9,000
		121_ÉOLIENNES DE WALCOURT	9,000
	VERLAC	117_BRONROMME	328
	Net potential electrical capacity (Pend) (kW) - Wind		75,279
	Number of sites		16

APPENDIX 1: List of green electricity production sites - end 2006 (continued)

Production channel	Player	Production site	Pend (kW)
Biomass	AGRIBERT - BENIEST	140_FERME DE LA GRANGE DE LA DIME	85
	ELECTRABEL	084_C.E.T. DE MONTZEN	176
		097_AWIRS 4	80,000
	IDEA HENNUYERE	068_STATION D'EPURATION DE WASMUEL	429
	INTRADEL	082_C.E.T. D'HALLEMBAYE	2,048
	ITRADEC	027_SITE DE HAVRE	1,623
	PAGE	002_CETEM	9,023
	SEVA	111_SEVA MOUSCRON	870
	SITA WALLONIE	001_CET D'ENGIS PAVIOMONT	1,780
	VERDESIS	090_ASSOCIATION INTERCOMMUNALE DE VALORISATION DE L'EAU	26
	Net potential electrical capacity (Pend) (kW) - Biomass		96,060
	Number of sites		10
Biomass cogeneration	AIGREMONT (Margarine factory)	109_AIGREMONT	755
	ATELIER PROTEGE LE SAUPONT	126_LE SAUPONT	178
	BEP - ENVIRONNEMENT	115_CET DE HAPPE CHAPOIS	260
	BURGO ARDENNES	043_BURGO ARDENNE (VIRTON)	29,801
	BURNIAUX Marcel	123_PRÉ DE PRÉAT	85
	CAP FORME	128_CAP FORME	12
	CAROLIMMO	134_COGEN DE BUSINESS HOTEL	12
	DEBRY Bernard	129_FERME DE L'HOSTÉ	22,2
	ELECTRABEL	010_LUTOSA	2190
		102_SECOBOIS	608
	HECK (private individual)	023_HOF HECK	110
	I.D.E.Lux	063_C.E.T. DE TENNEVILLE	693
	ISERA & SCALDIS SUGAR	098_SUCRERIE DE FONTENOY	5,580
	KESSLER FRERES	038_FERME DE FAASCHT	428
	LENGES	024_LENGES	612
	MYDIBEL	135_MYDIBEL-COGEN BIOGAZ	1,382
	RECYBOIS	112_RECYBOIS LATOUR	2,600
	RENOGEN	138_RENOGEN KAISERBARACKE_BIOFUEL	2,949
	SPAQUE	064_C.E.T. D'ANTON	293
		105_C.E.T. DES ISNES	49
	VEOLIA ENVIRONMENTAL SERVICES	020_C.E.T. DE COUR-AU-BOIS	3,041
	Net potential electrical capacity (Pend) (kW) - Biomass cogeneration		51,660
	Number of sites		21
Fossil cogeneration	CLINIQUE PSYCHIATRIQUE DES FRERES ALEXIENS	103_CLINIQUE DES FRERES ALEXIENS	251
	DETRY FRERES	042_AUBEL	798
	GREEN ENERGY DIRECT	045_MOTEL DE NIVELLES	65
	ELECTRABEL	004_CHR DE NAMUR	813
		005_IRE (Institut national des elmts radioactifs)	1,024
		006_LABO THISSEN	338
		007_MINERVE	765
		008_SWEDEPONIC WALLONIE	341
		009_VESALE	1,331
		025_CENTRALE DE BRESSOUX	2,732
		039_SOLVAY	94,392
	IPALLE	089_STATION D'EPURATION DE MOUSCRON	403
	PROVITAL INDUSTRIE	096_PROVITAL INDUSTRIE	984
	RAFFINERIE NOTRE DAME ORAFTI	113_RAFFINERIE NOTRE DAME ORAFTI	9,500
	RAFFINERIE TIRLEMONTOISE	037_RAFFINERIE TIRLEMONTOISE WANZE	12,475
		108_RAPERIE DE LONGCHAMPS	6,888
	S.P.E.	011_SUCRERIE DE WANZE	529
	SEDILEC	003_UCL	9,255
	TECHSPACE AERO	141_TECHSPACE-AERO-COGEN DE MILMORT	1,155
	WARCOING INDUSTRIE	041_SUCRERIE DE WARCOING (Site1)	981
		118_SUCRERIE DE WARCOING (Site2-NIRO)	803
		119_SUCRERIE DE WARCOING (Site3-TURBO)	6,547
	Net potential electrical capacity (Pend) (kW) - Fossil cogeneration		152,371
	Number of sites		22
TOTAL Net potential electrical capacity (Pend) (kW)			482,421
TOTAL Number of sites			126

		2003**** (consolidated)	2004 (consolidated	2005 (consolidated)	2006 (provisional)	2006 - 1st quarter	2006 - 2nd quarter	2006 - 3rd quarter	2006 - 4th quarter
Overall	GCs issued	626,662	710,351	835,719	1,158,200	314,709	289,488	237,969	316,033
	Tonnes of CO2 emissions prevented	285 758	323,920		528,139	143,507	132,007	108,514	144,111
	Green electricity produced (MWh)	782,578	865,321	1,125,184	1,528,604	397,198	392,631	333,866	404,908
	RES electricity produced (MWh)	563,976	635,014	806,474	1,191,922	315,883	307,675	257,792	310,571
	COGEN electricity produced (MWh)	1,030,608	1,056,441	1,170,643	1,088,716	266,049	264,599	248,833	309,235
	Net electricity produced (MWh)	1,429,274	1,490,276	1,782,059	2,068,468	526,388	527,853	451,225	563,002
	Electricity supplies in WR	23,368,935	23,628,470	23,341,061	24,604,426	6,633,986	5,829,999	5,601,439	6,539,002
	% green electricity	3.35%	3.66%	4.82%	6.21%	5.99%	6.73%	5.96%	6.19%
	% RES electricity*	2.41%	2.69%	3.46%	4.84%	4.76%	5.28%	4.60%	4.75%
	% COGEN electricity**	4.41%	4.47%	5.02%	4.42%	4.01%	4.54%	4.44%	4.73%
	% net electricity produced	6.12%	6.31%	7.63%	8.41%	7.93%	9.05%	8.06%	8.61%
Photovoltaic***	GCs issued	0	1	2	7	1	2	3	2
	Green electricity produced (MWh)	0	1	2	7	1	2	3	2
	RES electricity produced (MWh)	0	1	2	7	1	2	3	2
	Net electricity produced (MWh)	0	1	2	7	1	2	3	2
Hydraulic	GCs issued	308,050	305,778	276,212	348,294	114,713	109,977	37,852	85,752
	Green electricity produced (MWh)	308,050	305,778	276,212	348,294	114,713	109,977	37,852	85,752
	RES electricity produced (MWh)	308,050	305,778	276,212	348,294	114,713	109,977	37,852	85,752
	Net electricity produced (MWh)	308,050	305,778	276,212	348,294	114,713	109,977	37,852	85,752
Wind	GCs issued	25,244	46,163	70,872	126,168	30,513	23,669	20,246	51,740
	Green electricity produced (MWh)	25,244	46,163	70,872	126,168	30,513	23,669	20,246	51,740
	RES electricity produced (MWh)	25,244	46,163	70,872	126,168	30,513	23,669	20,246	51,740
	Net electricity produced (MWh)	25,244	46,163	70,872	126,168	30,513	23 669	20,246	51 740
Biomass	GCs issued	65,167	81,501	173,086	319,262	73,102	80,797	89,081	76,282
	Green electricity produced (MWh)	65,373	81,893	264,329	505,277	115,113	129,601	144,291	116,273
	RES electricity produced (MWh)	65,233	81,724	244,074	480,072	108,438	122,253	136,955	112,426
	Net electricity produced (MWh)	65,373	81,893	264,329	505,283	115,113	129,606	144,291	116,273
Biomass cogeneration	GCs issued	162,295	207,785	224,226	268,447	74,455	52,856	69,910	71,226
	Green electricity produced (MWh)	133,549	186,852	199,449	238,604	58,189	56,580	66,280	57,555
	RES electricity produced (MWh)	165,449	201,347	215,313	237,380	62,217	51,775	62,736	60,651
	Net electricity produced (MWh)	183,061	233,802	244,941	262,273	68,557	56,580	66,427	70,708
Fossil cogeneration	GCs issued	65,906	69,123	91,320	96,021	21,925	22,187	20,878	31,031
	Green electricity produced (MWh)	250,363	244,634	314,318	310,253	78,670	72,803	65,195	93,586
	RES electricity produced (MWh)	0	0	0	0	0	0	0	0
	Net electricity produced (MWh)	847,547	822,638	925,702	826,443	197,491	208,019	182,406	238,527

*** RES electricity corresponds to electricity produced from renewable energy sources according to the EC definition (Directive 2001/77/EC)**

**** COGEN electricity corresponds to electricity produced by good quality cogeneration. This differs slightly from the EC definition of high-efficiency cogeneration (Directive 2004/8/EC)**

***** Given the small number of certified installations and the low quarterly production levels, rounding rules may result in a discrepancy.**

****** The 2003 statistics include the limited number of certified production sites from 2002.**

APPENDIX 2: Issue of green certificates in 2006 - Breakdown by production channel and quarter