CWaPE
Commission
Wallonne
pour l'Energie

The evolution of the green certificate market

SPECIFIC ANNUAL REPORT 2011

Established pursuant to Article 29 of the Decree
of the Walloon Government of 30 November 2006
on the promotion of electricity generated from renewable energy sources or cogeneration

Specific Annual Report for 2011 by the CWaPE
on the evolution of the green certificate market (GCs)

Contents

1. Subject

The Arrêté of 30 November 2006 concerning the promotion of electricity generated from renewable energy sources or from cogeneration (AGW-PEV)[1] states:

'Article 29. By 30 April, the CWaPE shall issue a specific annual report concerning the evolution of the market for certificates of origin and the green certificate market. This report shall in particular mention the number of green certificates issued for each technology and energy source during the year in question, the green certificates supplied to CWaPE as per Article 25, the average price of a green certificate and the fines imposed on system operators and suppliers for non-compliance with quotas.

The report shall also mention the number of certificates of origin issued for each technology and energy source during the year in question, the certificates of origin supplied to CWaPE, the average price of a certificate of origin, and the number of certificates of origin exported to and imported from other regions or countries.

This report shall be supplied to the Walloon Government.'

The first part of the report gives a detailed description of the green certificate (GC) mechanism as well as the main legislative changes which occurred in the course of 2011.

The second part of the report reviews the situation for the year 2011. This review has two sections:

- One section on statistics about green electricity generation in Wallonia: changes in certified generation sites, their output, the equivalent number of green certificates (GCs) to be issued by the CWaPE and finally, the role fulfilled by these green electricity generation facilities in overall electricity supply in Wallonia.
- One section on statistics about the market for green certificates: prices and volumes of transactions, quotas applied to suppliers and quota reductions applied to heavy-consumption end-users of electricity, balance between supply and demand in the marketplace, redemption of GCs by suppliers with a view to fulfilling their quota obligation in Wallonia (or the Brussels-Capital Region) and, where appropriate, fines imposed by the CWaPE on suppliers for failing to fulfil their quota obligation.

Data about the market for certificates of origin (COs) is incorporated into another report, due for publication, which deals with the evaluation of the fuel mix of each supplier in terms of all its electricity supplies, and in terms of each product sold by the supplier (AGW-PEV, Art. 27).

The third part of the report is devoted to outlooks for the green certificate market for the period 2012–2020.

[1] This Arrêté was amended by the Arrêtés of 25 January 2007, 20 December 2007, 8 January 2009, 14 January 2010, 4 February 2010, 15 July 2010, 23 December 2010, 24 November 2011 and 1 March 2012.

2. Development of green electricity in Wallonia

2.1. Support mechanism for the production of green electricity

Pursuant to European directives 2009/28/EC (formerly 2001/77/EC) and 2004/8/EC, a support mechanism for the production of electricity from renewable energy sources and high-quality cogeneration has been in place in the Walloon Region since 1 January 2003.

As in Flanders and Brussels, Wallonia has opted for a support mechanism based on a public service obligation (PSO) imposed on electricity suppliers and grid operators. This PSO is implemented by means of a green certificates (GC) mechanism to be managed by the CWaPE.

The Walloon Government sets the quota of GCs applicable each year. Electricity suppliers and grid operators return these GCs to the CWaPE quarterly, under penalty of a fine, currently €100/missing GC.

In 2011, the quota was set at 13.50% of the electricity supplied in the Walloon Region. In 2011, only the quota for the year 2012 was known and it was only on 1 March 2012 that the quotas for the period 2013–2016 were eventually adopted by the Walloon Government, together with the quota for the year 2020. The figure below illustrates the changing quotas over the period 2003–2020. In this figure, the values for the period 2017–2019 are given as an indication only.

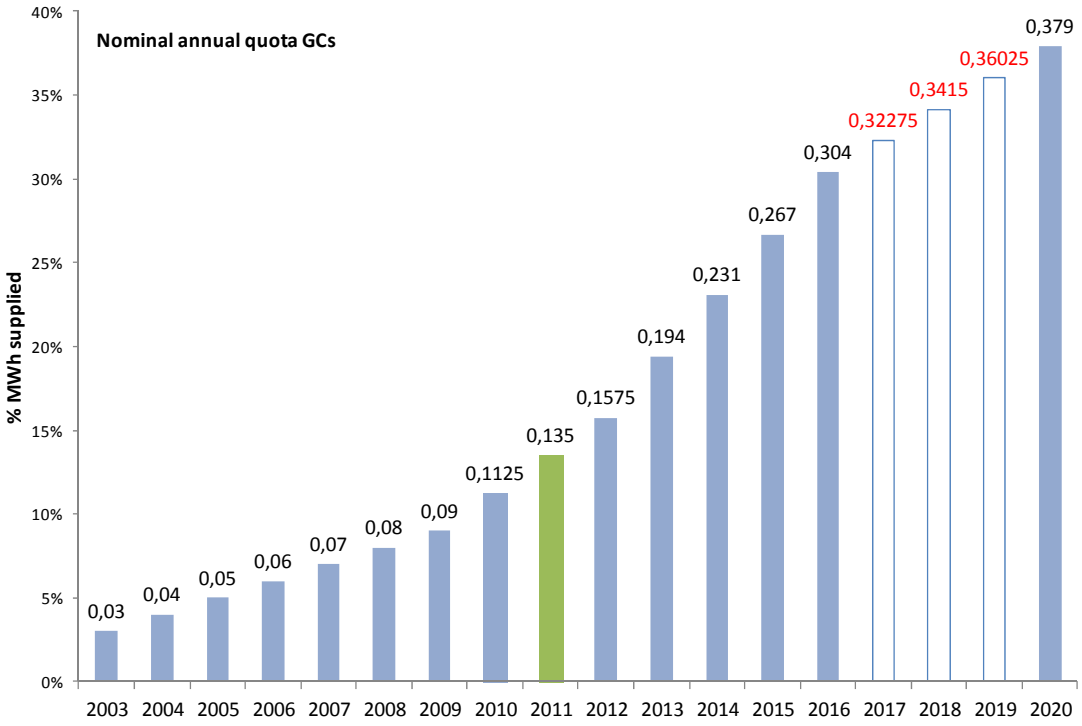

Figure 1: Evolution of nominal quota of GCs over the period 2003–2020

These green certificates are issued quarterly by the CWaPE to each producer of green electricity, in proportion to the net quantity of electricity generated, and as a function of the estimated excess cost of production of renewables on the one hand, and the environmental performance (rate of CO_2 reduction) measured for the plant in comparison with reference conventional generation methods. Since 2010, for plants with a capacity less than or equal to 10 kW, a proportion of the green certificates are issued in advance for an estimated amount deemed equal to 5 years of production, an amount capped at 40 GCs per production site.

2.2. Development targets for green electricity by 2020

The mechanism introduced in the Walloon Region to develop electricity generated from renewable energy sources (E-RES) has proven particularly effective, since today, it can already be guaranteed that the guideline target set by the Walloon Region of 8% by 2010 was reached in 2008.

European Directive 2009/28/EC assigns a binding target to Belgium, by 2020, of a 13% share of energy from renewable energy sources in final energy consumption.

Under this new directive, Belgium plans to achieve a 20.9% share of electricity produced from renewable energy sources in final consumption of electricity in 2020, a production of about 23 TWh.

In Wallonia, the Government's stated objective is to achieve production of 8 TWh of electricity from renewable energy sources, or just over 25% of estimated final electricity consumption for 2020. In parallel with this goal, Wallonia has also set itself a 2020 target of 3 TWh of electricity produced by high-quality cogeneration.

These regional objectives are considered by CWaPE as potentially feasible and in 2012, this resulted in significantly increased quotas of green certificates being set for the period 2013–2020. In this context, the CWaPE issued several opinions in 2011 with a view to improving the workings of the green certificates system. The figure below illustrates the expected evolution of the production of electricity from renewable energy sources (E-RES) in the period 2010–2020.

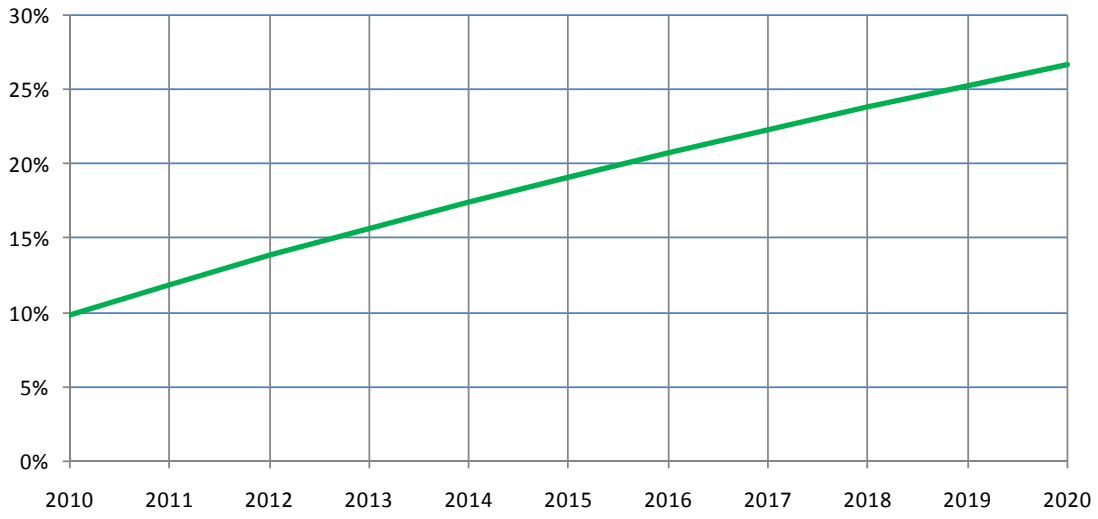

Figure 2: E-RES share in final electricity consumption in Wallonia
(Projection over the period 2010–2020)

2.3. Principle of operation of the support mechanism

The diagram below shows the prevailing support mechanism for green certificates (GCs).

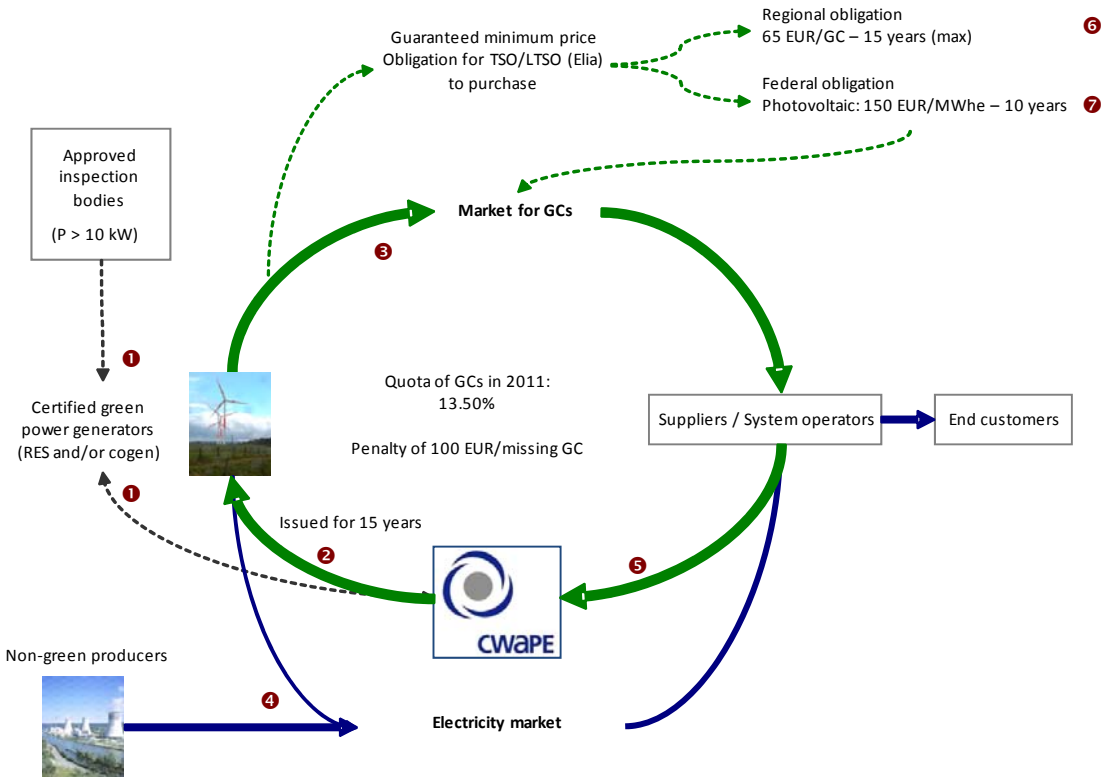

Figure 3: Operating principle

Any producer wishing to register a green electricity generation site must submit a (PAI) prior application for the issuing of green certificates (GCs) to the CWaPE. A certificate of origin (CO) drawn up by an approved inspection body must be enclosed with the application[2] in order to certify the conformity of the application. Once the application has been accepted, the generation site is registered in the CWaPE (❶) database and may be issued with GCs for a period of 15 years.

Every quarter, the producer sends metering statements to the CWaPE. Based on this information, the CWaPE issues the GCs for the generation site (❷). Once in possession of the GCs, the producer can trade them with any buyer operating on the GC market (❸), irrespective of the sale of the physical electricity generated (❹). These green certificates are valid for 5 years.

Every quarter, returns of electricity supplies in Wallonia declared by suppliers and partly measured by the grid operators are sent to the CWaPE. Based on this information, the suppliers and grid operators are bound to return[3] to the CWaPE a quota of GCs proportional to the quantity of electricity supplied during the quarter[4]. A fine of €100 per missing certificate is levied (❺).

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2 Except for installations with a developable net output capacity of ≤ 10 kWe, which are subject to a simplified procedure (AGW-PEV, Article 6 and Article 7, §2.) where the CO is drawn up directly by the CWaPE. These sites also benefit from an advance issuance mechanism of green certificates corresponding to the first 5 years of operation, a quantity subject to a ceiling of 40 GCs (AGW-PEV, Art. 13, §2).

3 In this operation, the green certificates are redeemed and made unusable in the database.

4 A quota reduction is provided for end customers who consume more than 1.25 GWh per quarter and per operating site, who have signed an agreement with the Walloon Region with a view to improving energy efficiency (AGW-PEV, Art. 25, §5).

As an alternative solution to the sale of green certificates, a system of green certificate purchase obligations incumbent on the local transmission system operator (LTSO), Elia, at a guaranteed minimum price of €65 was foreseen in the Décret (❻). These GCs are then redeemed and cannot be resold on the GC market.

A guaranteed price was also provided for by the Federal Government. By way of example, for photovoltaic systems, the guaranteed price was €150/MWhe. These GCs purchased by the transmission system operator (TSO), i.e. Elia, can be sold on the market for GCs (❼).

2.3.1. Definition of green electricity generation (Décret, Article 2)

Renewable energy sources: any energy source other than fossil fuels and nuclear fission, the consumption of which does not limit its future use, in particular hydroelectric energy, wind energy, solar energy, geothermal energy and biomass (Décret, Art.2, 4°). ***Biomass:*** renewable material (in solid, liquid or gaseous form) derived from the biodegradable fraction of products, waste and residues from agriculture (including substances of plant and animal origin), forestry and related industries, as well as the biodegradable fraction of industrial and household waste (Décret, Art.2, 4(2)).

Cogeneration: simultaneous generation, in a single process, of thermal and electrical and/or mechanical energy (Décret, Article 2, 2(2)). ***High-quality cogeneration and trigeneration***: combined generation of heat (or cold) and power, designed according to the customer's heat or cold requirements, which saves energy compared with the separate generation of the same quantities of heat and power (and if applicable of cold) in modern reference facilities, the annual operating yield of which is defined and published annually by the CWaPE (Décret, art.2, 3°).

Green power: power generated from renewable or high-quality cogeneration sources, the generation system for which generates a *minimum saving of 10% on carbon dioxide* emissions compared with the emissions defined and published annually by the CWaPE for traditional generation in modern reference facilities (Décret, art. 2, 5°).

2.3.2. Principles for issuing of green certificates (Decree, Article. 38)

A green certificate is a transferable certificate issued by the CWaPE to producers of green power for a number of net kWh generated which is equal to 1 MWhe divided by the carbon dioxide saving rate (Décret, art. 38, §2 and §7). By derogation, the Government may, based on an opinion issued by the CWaPE, apply a *multiplier coefficient*, which may be a sliding scale reduction over time, to the number of green certificates issued for the electricity generated by photovoltaic solar panels, according to arrangements that it shall decide (Décret, Article 38, §6).

The carbon dioxide saving rate is calculated by dividing the carbon dioxide saving achieved by the system under consideration by the carbon dioxide emissions of the traditional reference electric system, the emissions of which are defined and published annually by the CWaPE (Décret, Art. 38, §2). ***Carbon dioxide emissions*** are those generated by the green power generation as a whole and include fuel production and transport, emissions during combustion if applicable, and waste processing if applicable. All emissions from the facility are taken into account in the case of hybrid facilities. The various **carbon dioxide emission coefficients** for each green power generation system under consideration are approved by the CWaPE (Décret, Art. 38, §4).

Output ceilings and thresholds: The carbon dioxide saving rate is limited to 1 for the output generated per facility above a power output capacity above 5 MW. Below this threshold, a ceiling of 2 is applied (Décret, Article 38, §2)[5]. As regards hydroelectric generation, high quality cogeneration or generation of electricity from biomass, green certificates are allocated to the electricity produced by these facilities up to an electric output capacity of 20 MW (Décret, Article 38, §8).

Reduction coefficients: based on an opinion from the CWaPE, the Government may reduce the number of green certificates to reflect the age of the green power generation facility, its viability and the generation system (Décret, Article 38, §5).

2.4. Conditions and procedure for the issuance of green certificates

2.4.1. Green power metering procedures and code

The number of green certificates issued is proportional to the **net electricity produced** by the facility (E_{enp}, expressed in MWh_e):

$$\text{Number of GC} = k \times E_{enp}$$

where k = rate of issuance, expressed in [GC/MWh]

The net electricity generated is the gross electricity generated minus the electricity required by the functional elements, i.e. equipment that consumes energy (primary, electricity, heat, cold) necessary for the electricity generation cycle, encompassing fuel production and, if applicable, waste processing (AGW-PEV Art. 2 10°).

Green certificates are granted both for electricity consumed by a producer and for electricity fed into the grid or transmitted via direct power lines (AGW-PEV, Article 15 §2). Any exportation of green power generated has no impact on the issuance of green certificates. The net electricity produced (E_{enp}) taken into consideration is measured prior to transformation and dispatch to the grid (AGW-PEV, Art. 15, §3).

The rate of issuance (k) depends on:

- The measured *environmental performance* of the facility (CO_2 saving rate).
- The decentralised nature (output capacity thresholds, ceilings on CO_2saving rate).

  Since 1 January 2008, for biomass generation, the issuing of green certificates has been limited to the first tranche of 20 MW, as is the case for hydroelectric power generation or high-quality cogeneration (Décret. 38 §8)[6].

- The *viability of the generation system* (reduction factors 'k' after 10 years and 'q' for historic facilities; multiplier coefficients for photovoltaic).

  Since 1 January 2008, the following measures have come into force:

[5] For biomass generation, where a facility is recovering energy mainly from biomass except wood, derived from industrial activities taking place on the site of the generation facility, uses a particularly innovative process and is compatible with the principles of sustainable development, the Government may decide, after the CWaPE has given its opinion on the particularly innovative character of the process used, to limit the rate of carbon dioxide saving to 2 for the entire output of the generation facility, resulting from the total of the power generated on the same production site, within a limit of less than 20 MW (Décret, Article 38, §3).

[6] For biomass generation, this provision only covers generation sites where a certificate of origin was issued after 26/10/2007 (Décret of 4 October 2007 – Article 20).

The number of green certificates issued to facilities put into service before 1 May 2001, referred to as 'historic', is reduced by the application of a coefficient 'q' determined per electricity generation system by the Government, based on an opinion from the CWaPE (AGW-PEV, Article 15(2) and annex).

The period for which green certificates are issued rose from 10 to 15 years, although a reduction coefficient ('k' factor) is applied for the last 5 years[7]. This factor is determined by the Minister, for each green power production system, based on a proposal from the CWaPE and adapted every three years (AGW-PEV, Article 15).

The table below shows the values in effect from 1 October 2011.

ID	Generation systems	Coefficient k
0.	Power ≤ 10 kW	
	Photovoltaic <= 10 kWe to 30 November 2011	100
	Photovoltaic <= 10 kWe from 1 December 2011	0
	Other generation systems <= 10 kWe	100
1.	Photovoltaic > 10 kWe	100
2.1	Hydroelectric (run-of-river) <= 500 kWe	100
2.2	Hydroelectric (run-of-river) <= 1 MWe	65
2.3	Hydroelectric (run-of-river) > 1 MWe	25
3.	Hydroelectric (storage)	25
4.	Wind	100
5.	Biogas waste burial	25
6.	Biogas household waste sorting centre and similar	25
7.	Biogas sewage treatment plant (WWTP)	25
8.	Biogas agricultural products/residues/waste (AGRI)	100
9.1	Biogas agri-food industry products/residues/waste (MIXED) <= 1 MWe	85
9.2	Biogas MIXED> 1 MWe	55
10.	Liquid biofuels 1 (used or waste products/residues)	25
11.1-2	Liquid biofuels 2 (unrefined products/residues) <= 1 MWe	100
11.3	Liquid biofuels 2 (unrefined products/residues) <= 5 MWe	75
11.4-5	Liquid biofuels 2 (unrefined products/residues) > 5 MWe	75
12.	Liquid biofuels 3 (refined products/residues)	75
13.1	Solid biofuels 1 (waste) <= 1 MWe	100
13.2	Solid biofuels 1 (waste) <= 5 MWe	25
13.3	Solid biofuels 1 (waste) <= 20 MWe	25
13.4	Solid biofuels 1 (waste) > 20 MWe	25
14.	Solid biofuels 2 (industrial residues)	100
15.	Solid biofuels 3 (pellets and energy crops)	100
16.1	Fossil cogeneration (natural gas, gasoil, recovery of gas and heat) <= 1 MWe	100
16.2-3-4-5	Fossil cogeneration (natural gas, gasoil, recovery of gas and heat) > 1 MWe	25

Table1: Factor 'k' applied after 10 years

It is important to note that it was due to the revision of this factor 'k' in September 2011 that the period for issuance of green certificates changed de facto from 15 years to 10 years for solar photovoltaic installations under 10 kW. This value is effective for new installations from 1 December 2011.

[7] The values prevailing for the period 2008–2010 are given in the Ministerial Arrêté of 21 March 2008. The period of application of these values was extended to 30 September 2011. The Ministerial Order of 29 September 2011 lays down the application values from 1 October 2011.

For photovoltaic solar generation, the level of support is increased by applying a multiplier coefficient instead of a coefficient based on the level of CO_2 savings (Décret, Article. 38 §6). The multiplier coefficients applicable depending on the power of the facility are shown in Article 15(4) of AGW-PEV. These coefficients are reviewed by the Government every two years based on a report by the CWaPE. A first revision was made in late 2011 and entered into force on 1 December 2011.

A metering code[8] drawn up by the Minister pursuant to Article 9 of the AGW-PEV, which lays down the principles and methods applicable to the metering of the quantities of energy taken into account for the calculation of the number of green certificates to be issued to green power generation facilities (AGW-PEV Art. 15 §3).

For further information on the calculation of issuance rates, ***software*** available on the CWaPE website gives more detail about the calculation methods to be applied to the majority of green power generation systems.

2.4.2. Certification of a green power generation facility (CO)

Green certificates (and certificates of origin) are issued for the generation of power by a generation facility only if an approved inspection body[9] has verified that the quantities of electricity generated from this site can be clearly identified and measures, in particular to certify the energy sources (renewable in nature) and the efficiency of the conversion (the viability of cogeneration). In concrete terms, an approved body issues a certificate of conformity for the facility, known as a *certificate of origin (CO)* to the electricity generation facility, whose energy metering complies with the *metering code*. Facilities with a capacity less than or equal to 10 kW are exempted[10] which obviates the need for the involvement of the approved body. For these facilities, the Certificate of Origin is issued free of charge by the CWaPE.

This document mentions, in particular, the energy sources used, the generation technology and the net developable output capacity of the facility. The certificate of origin supplies the *metering algorithms*, i.e. the mathematical operations enabling the various quantities of energy to be calculated. The main algorithms are: the metering algorithm for the net power generated (Eenp) – self-consumption (Eac) – supplied locally (Eeloc) – fed into the grid (Eeinj); the metering algorithm for the net heat recovered (Eqnv); the metering algorithm for the net cooling energy recovered (Efnv); the metering algorithm for entering energies (Ee).

Besides the spot checks and targeted checks arranged by the CWaPE (AGW-PEV, Art. 8) and the checks following modifications, each facility has to be checked by an approved body (AGW-PEV, Art. 7) at intervals depending on the net developable output capacity: for facilities of over 20 kW, an annual inspection is required; for facilities between 10 kW and 20 kW, an inspection is required every five years.

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8 See the Ministerial Arrêté of 12 March 2007, which describes the procedures and code applicable to the metering of the quantities of energy published in the Belgian Official Journal on 20 April 2007 – Annex: 'Procedures and metering code for electricity generated from renewable energy sources and/or cogeneration'.

9 The list of approved inspection bodies may be consulted on the CWaPE website: www.cwape.be.

10 AGW-PEV, Article 7 §2.

2.4.3. Prior application for issuance (PAI)

To obtain green certificates (and/or certificates of origin), a producer must first submit a *prior application for issue* to the CWaPE, enclosing a copy of the certificate of origin (AGW-PEV Art. 10). The CWaPE checks that the application is complete and complies with the legislation, and makes its decision known. Starting from the date of notification of acceptance by the CWaPE, the right to obtain green certificates is guaranteed for a period of 15 years (AGW-PEV Art. 15 §1). However, it should be borne in mind that production sites consisting of one or more generation facilities which have been significantly altered as defined by Article 15ter of AGW-PEV may be issued green certificates for a new 15-year period.

Since 1 January 2008, solar photovoltaic (PV) power less than or equal to 10 kW is covered by a simplified procedure[11] for, on the one hand, processing applications to the grid operator for connecting the installation and implementation of the compensation between the amount of electricity taken and injected into the network and, on the other hand, the processing of the prior application for issuance to the CWaPE.

Since 1 October 2010, a new simplified procedure came into effect, which is known as the 'single window' procedure, where all these applications are submitted to and dealt with directly by the grid operator.

At the end of 2011, the single window procedure was adapted, after consultation, to reflect new arrangements for issuance of green certificates for facilities put into service from 1 December 2011.

On this occasion, some adaptations were also made on the basis of the experience of the past year. These adaptations include the authorisation of putting the installation into service on receipt of the acceptance certificate for the installation from the approved inspection body. This arrangement means the producer is no longer penalised for delay in the processing of the application by the grid operator. This provision, however, comes with an obligation for the producer to submit its application to the grid operator within 45 days of conformity acceptance of its installation.

This procedure known as '*fit and inform*' was already in force in Flanders and now applies in Wallonia which allows regulations and practice in the field to be reconciled, without compromising the legitimate requirements of the grid operator in terms of safety on the electricity grid. The arrangements for application of the compensation have also been subject to particular attention to ensure identical treatment throughout the territory of Wallonia.

[11] AGW-PEV, Article 6(2).

2.5. Excess cost of production and level of support for the green electricity generator

To ensure the development of green electricity generation in Wallonia, the green certificate support mechanism must enable compensation of excess production costs of these systems compared with conventional ways of producing electricity.

For each green electricity generation system, the excess production costs are evaluated at intervals by the CWaPE on the basis of technical and economic reference characteristics published by the CWaPE[12] and reference rates of return[13] determined by the Minister in charge of Energy on a proposal from the CWaPE[14].

ID.	Generation systems	With cogen	Without cogen
1.	Photovoltaic	-	7%
2.	Hydraulic (run-of-river)	-	8%
3.	Hydroelectric (storage)	-	8%
4.	Wind	-	8%
5.	Biogas - waste burial 9 %	9%	8%
6.	Biogas household waste sorting centre and similar (SORT)	9%	8%
7.	Biogas sewage treatment plant (WWTP)	9%	8%
8.	Biogas agricultural products/residues/waste (AGRI)	12%	11%
9.	Biogas agri-food products/residues/waste (MIXED)	12%	11%
10.	Liquid biofuels 1 (used or waste products/residues)	9%	8%
11.	Liquid biofuels 2 (unrefined products/residues)	12%	11%
12.	Liquid biofuels 3 (unrefined products/residues)	12%	11%
13.	Solid biofuels 1 (waste)	9%	8%
14.	Solid biofuels 2 (industrial residues)	12%	11%
15.	Solid biofuels 3 (waste)	12%	11%
16.	Fossil cogeneration (natural gas, gasoil, recovery of gas and heat) > 1)	11%	-

Table2: Reference rate of return

On this basis, the support levels per production system are adjusted every three years by adapting the reduction coefficients applicable after 10 years of issuance, as well as the multiplier coefficients for photovoltaic solar generation. The latest values published are those applicable for the period 2008–2010[15].

The income that a green generator may hope to earn from its green certificates will depend, on the one hand, from the actual issuance rate of green certificates (GC/MWh) and, on the other hand, the selling price of its green certificates (EUR/GC):

$$\text{Income} = k \times \text{price GC} \quad \text{(EUR/MWh)}$$

[12] See CD-11i29-CWaPE-353 – Proposal for revision of factors 'k' to be applied ten years after obtaining the first green certificate for each green electricity generation system.

[13] See the Ministerial Arrêté of 21 March 2008 setting out the reference rates of return used to determine the factor 'k'.

[14] CD-7l18-CWaPE-175'' – Supplementary opinion concerning the draft Arrêté of the Walloon Government on various measures for the promotion of green electricity from new renewable energy sources or cogeneration – Reference rates of return for the determination of the reduction factor 'k'.

[15] See the Ministerial Arrêté of 21 March 2008 setting the reduction factor 'k' for the period 2008–2010.

The following table gives guidance about the theoretical maximum (price GC × EUR 100, value of the fine) which a green producer may expect during the first ten years (before application of the reduction factors), as well as the guaranteed minimum income (if the producer meets the conditions) through the regional mechanism (price GC = €65) or federal mechanism is also shown.

Systems (and total power output of the facility)	Rate of issuance (GC/MWh)	Guaranteed minimum level of support (EUR/MWh)	Theoretical maximum level of support (EUR/MWh)
Fossil fuel cogeneration (≤ 20 MW)	0.1 to 0.4	6.5 to 25	10 to 40
Biomass (≤ 20 MW)	0.1 to 1	6.5 to 65	10 to 100
Hydroelectric (≤ 20 MW)	1	65	100
Wind	1	65	100
Biomass cogeneration (≤ 5 MW)	0.1 to 2	6.5 to 130	10 to 200
Photovoltaic (≤ 10 kW)	6 to 7[16]	390 to 455	600 to 700
Photovoltaic (10–250 kWp)	1.2 to 6	160 to 390	170 to 600
Photovoltaic (> 250 kWp)	1 to 1.2	150 to 160	150 to 170

Table 3: Level of support for various generation systems

Following the revision of the issuance rate for solar PV under 10 kW decided in late 2011, support levels for this sector are due to fall but are still higher than in Flanders or those proposed at the federal level as shown in the figure below.

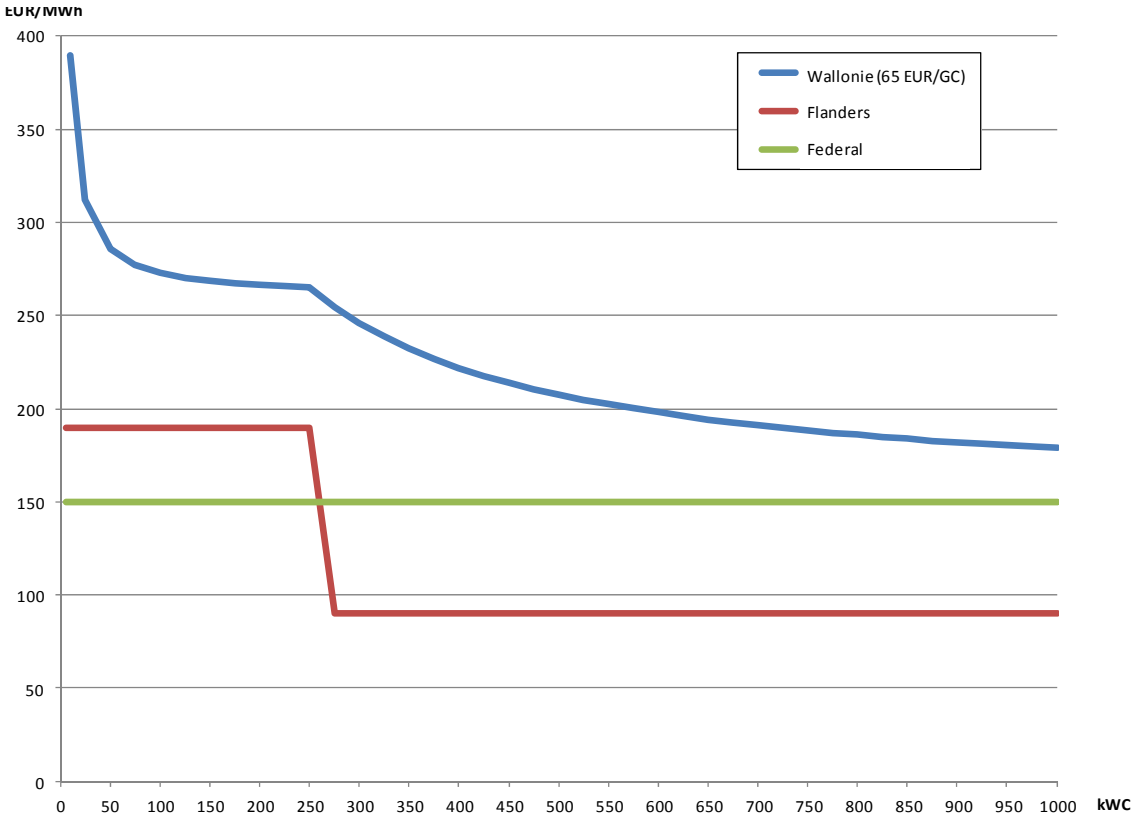


Figure 4: Fall in support for solar PV less than 10 kW

[16] Issuance rate applicable before the revision that came into force from 1 December 2011.

2.6. The market for green certificates

2.6.1. The supply side: issuance of green certificates to green producers – (AGW-PEV, Article. 13)

Each green producer supplies its metering statements to the CWaPE on a quarterly basis. On the basis of these statements and of the metering algorithms (see 2.4.2 – Certification of a green power generation facility), the CWaPE calculates the issuance rate (GC/MWh) and issues a number of green certificates proportional to the number of MWh generated in each certified electricity generation facility. These green certificates are valid for 5 years. The CWaPE issues green certificates in electronic form. After each issuance, the CWaPE provides green producers with an account statement giving details of issuance and the situation of their account.

By derogation, for applications submitted from 1 December 2009 onwards, generation sites with an output less than or equal to 10 kW benefit from advance issue of green certificates, provided that the facility in question is not in receipt of the grant under the Ministerial Arrêté of 20 December 2007 about the arrangements and the procedure for payment of grants to encourage rational energy use, and that the producer has formally waived receipt of such grants. Green certificates are issued in advance, at the time of notification by the CWaPE of the decision to accept the application, up to the estimated number of green certificates to be received for a five-year production period, and subject to a ceiling of 40 green certificates. Producers remain bound to introduce their metering statements quarterly so that in the first instance, they can reimburse the amount of the GCs issued in advance, and thereafter, benefit from the issuance of GCs for the balance of the 15-year period.

2.6.2. Organisation

2.6.2.1. The database (AGW-PEV, Article 21)

The authenticity of green certificates is guaranteed by their registration in a centralised database managed by the CWaPE. This contains an inventory of green certificates issued, their certificate of origin, their date of issuance, their holder and the operations recorded (issuance, transactions, redemption from quota, expiry of validity).

2.6.2.2. Transactions

The CWaPE must be notified of all transactions involving green certificates so that they can be authenticated and recorded in the green certificate register.

The market players trade green certificates independently of the CWaPE. Once the agreement has been reached, the seller reports the transfer of ownership of green certificates through the extranet or by filling out the form provided for that purpose.

The CWaPE offers players a statement of account containing details of transactions and the status of their account.

2.6.2.3. Intermediaries

Any individual or body which registers with the CWaPE database may perform green certificate transactions. It is therefore possible that ultimately some end customers will decide to purchase the green certificates relating to their consumption directly and sell them to their electricity providers in return for electricity prices, excluding green certificates.

BELPEX, the Belgian electricity exchange, established a green certificate exchange (BELPEX GCE) which started trading in 2009. The advantage of this system is that it guarantees the confidentiality of transactions with respect to buyers and sellers at the time of the transaction and provides a spot price for green certificates. Given the current imbalance in the market for green certificates, BELPEX however, decided to suspend the organisation of trading sessions in 2012. The situation will be reassessed in light of changing market conditions.

Several intermediaries are also active in the green certificates market. Some specialise in the purchase of green certificates from individuals, others only buy from industrial producers.

The CWaPE publishes the list of potential buyers of green certificates on its website (intermediaries, suppliers, grid operators and industrial customers).

2.6.3. The demand side: the quota return for suppliers

2.6.3.1. The obligation

Each supplier is bound to send the CWaPE every quarter[17] a number of green certificates consistent with the number of MWh supplied to its end customers located in the Walloon Region multiplied by the current quota. In the case of system operators, the quota is applicable to the power supplied by them to end customers and to their own power consumption. For holders of a limited licence to provide their own supply, the quota is applicable on the basis of the electricity consumed which has transited via the transmission network, the local transmission network or a distribution network (AGW-PEV, Article 25, §2).

The 'quota return' procedure for suppliers includes four stages:

1. Quarterly supply statements sent to the CWaPE.
2. Number of green certificates to be supplied calculated by the CWaPE on the basis of the quota, with reductions if applicable.
3. 'Quota return' green certificates are redeemed in the database.
4. Calculation by the CWaPE of the fines to be levied if there is a shortfall in the number of green certificates redeemed.

The quota to be achieved by suppliers and system operators is as follows (AGW-PEV, Article 25, §3):

- …
- 13.50% between 01/01/2011 and 31/12/2011.
- 15.75% between 01/01/2012 and 31/12/2012.
- 19.4% between 1 January 2013 and 31 December 2013.
- 23.1% between 1 January 2014 and 31 December 2014.
- 26.7% between 1 January 2015 and 31 December 2015.
- 30.4% between 1 January 2016 and 31 December 2016.
- 37.9% between 1 January 2020 and 31 December 2020.

[17] Before the end of the second month after the end of the quarter under consideration (i.e. by 30 May, 31 August, 30 November and 28 February).

For the period 1 January 2017 to 31 December 2019, annual quotas will be set no later than 2014 on the basis of an evaluation carried out beforehand by the CWaPE. This evaluation will assess the match between annual quotas set for the years 2012 to 2016 with the objective of reaching 20% of renewable energy in final energy consumption, including a contribution of 8,000 GWh of renewable electricity produced in Wallonia, given the evolution of the development of renewable energy generation systems and the Belgian and European context regarding renewable energy targets and high-quality cogeneration, the changing socio-economic context and energy prices for all categories of consumers including residential customers.

These are 'nominal' quotas, which do not take account of possible reductions for suppliers who supply premises meeting the conditions for the issuance of the green certificate quota reduction (see next point). When the reductions granted are taken into account, this is referred to as 'effective' quotas.

Depending on the evolution of the green electricity market, the Walloon Government may review the above-mentioned quotas through a process of triennial evaluation, held for the first time in 2014 (AGW-PEV, art. 25, §4). On this basis, the Government will set new annual quotas so as to constantly cover a total period of 8 years. The newly-established quotas will be determined so as to move in 2020 to a target of 20% renewable energy in final energy consumption, and for the period beyond 2020, an overall target of producing renewable energy to be determined by the Government for the first time no later than 31 December 2014 based on a preliminary CWaPE opinion sent no later than 31 December 2013.

The green certificates included in the quotas are currently limited to green certificates issued in the Walloon Region[18].

Moreover, the Brussels-Capital Region recognises green certificates issued to any green power generation facility certified in the Walloon Region within 10 years of that facility being taken into industrial use[19].

2.6.3.2. The reduction (AGW-PEV, Article 25, §5)

Since 1 January 2004, suppliers providing green power to an end customer whose consumption in the quarter under consideration is greater than 5 GWh for one site, and who have signed an agreement with the Walloon Region to improve its energy efficiency in the short, medium and long term, (e.g. sector agreements, etc.) may benefit from a reduction in the number of green certificates to be submitted to the CWaPE.

From 1 January 2008, the eligibility threshold for sites changed from minimum quarterly consumption of 5 GWh to 1.25 GWh. Therefore, the number of sites potentially eligible is higher.

[18] Décret. Article. 40: 'The conditions and arrangements under which similar certificates issued to generators of electricity produced in the other regions of Belgium, in the areas covered by Article 6 of the law, or abroad, may be included in the quota mentioned in paragraph 1, shall be determined by the Government, based on advice from the CWaPE.'

[19] Arrêté by the Brussels Minister in charge of Energy of 3 May 2005 on recognition of Walloon green certificates to allow them to be counted towards compliance with the obligation imposed on suppliers in the Brussels Capital Region by Article 28, §2 of the electricity order.

The reduction applicable has also increased based on the following formulae:

- For the tranche of quarterly electricity consumption between 0 and 5 GWh inclusive, application of the quota of the year preceding the current year increased by half the growth of the annual quota.
- For the tranche of quarterly electricity consumption between 5 and 25 GWh inclusive; application of 50% of the annual quota.
- For the tranche of quarterly electricity consumption above 25 GWh; application of a fixed annual quota of 2% was maintained.

When the end customer is supplied by several suppliers at the same site, the reduction in the number of green certificates is distributed pro rata between the suppliers according to the volumes supplied by each.

Cost reductions subsequent to the provisions of this paragraph are passed on directly by the suppliers to each of the end customers by which they have been generated.

The procedure to be followed to be able to benefit from this quota reduction and the calculation arrangements are the subject of guidelines available on the CWaPE website[20].

No later than 1 January 2013, the AGW-PEV provides that the Walloon Government shall decide a new plan to reduce the number of green certificates to be returned to the CWaPE so that the total volume of green certificates benefiting from this reduction corresponds to a maximum of 23% of the nominal quota. These reductions are intended to benefit business customers (large companies and electricity-intensive SMEs) that have signed, directly or through a federation, an agreement with the Walloon Region to improve their energy efficiency in the short, medium and long term, as well as residential end customers. In the absence of a decision by the Government in this regard, the current regime shall remain in force.

The table below summarises the quotas with reduction that apply for 2010, 2011 and 2012 for the various tranches of quarterly consumption.

YEARS	2010	2011	2012
Nominal quota	11.250%	13.500%	15.750%
Quota applicable for the tranche from 0–5 GWh	9.125%	10.250%	11.375%
Quota applicable for the tranche from 5–25 GWh	5.625%	6.750%	7.875%
Quota applicable for the tranche > 25 GWh	2.000%	2.000%	2.000%

Table4: Quotas with reduction for 2010–2012

[20] CD-10e4-CWaPE, Guidelines to the general procedure for granting a quarterly quota reduction for a place of business; CD-10b18-CWaPE, Guidelines on the method of calculation of quota reductions for the period 2010–2012.

2.6.3.3. Example concerning the 2011 quotas

Take an end customer which meets the requirements for the quota reduction and consumes 35 GWh each quarter during 2011.

Without reduction, a quota of 13.50% × 35,000 MWh applies for each quarter, i.e. 4,725 GCs to be submitted by the supplier for that customer.

With reduction, for the tranche between 0 and 5 GWh, the supplier of this customer will have to submit a quota corresponding to the quota for the previous year for this tranche, plus half the growth in the annual quota. This gives a quota of 10.250% × 5,000 MWh, which is 512.5 GCs per quarter.

For the second tranche, between 5 GWh and 25 GWh, the supplier must meet a quota reduced by half. This gives a quota of 6.750% × (25,000–5,000) MWh, which makes 1,350 GCs per quarter.

For the third tranche, above 25 GWh, the supplier will have to return a quota which is cut to 2%, i.e. 2% × (35,000–25,000) MWh = 200 GCs per quarter.

In total, the supplier will have to return 2062.5 GCs, which corresponds to an effective quota of 7.61% instead of the nominal quota of 13.50%. The reduction granted in this way to the supplier on behalf of its customer will therefore be 26,663 GCs, a reduction of approximately 56%.

2.6.3.4. The sanction scheme (AGW-PEV, Article 30)

In the event of non-compliance with the quotas mentioned, the supplier or the transmission system operator is bound to pay an administrative fine for the quarter under consideration. The fine is set by the Walloon Government and is currently set at €100 per missing certificate. The amount of this fine has remained unchanged since the second quarter of 2003 (€75 for the first quarter of 2003).

2.6.4. The guaranteed purchase price mechanism for green certificates

Regional obligation for LTSO (Elia) to buy green certificates

Since 1 January 2008, the aid to generation mechanism has been replaced by a mechanism which obliges Elia, the local transmission system operator (LTSO) to purchase green certificates (Décret Article 40). The AGW-PSO of 30 March 2006 determines the procedures and arrangements for the submission of the application and the implementation of this purchase obligation (Articles 24(3) to (6)).

The price of a green certificate for which the LTSO has a purchase obligation is €65/GC. The term of the purchase obligation starts running in the month following the commissioning of the facility and is a maximum of 180 months.

To benefit from this purchase guarantee, the green producer is bound to submit an application to the administration. The period of validity of purchase obligations is determined by the CWaPE based on a methodology that it publishes (see. CD-5d05-CWaPE – Communication on the methodology for examining applications for aid to generation). The cumulative amount of the purchase price of the green certificates must enable the excess generation cost compared with the market price to be compensated during the depreciation period of the facility in question, including rewarding the capital invested at a reference rate of return set out in Article 15 of AGW-PEV[21].

By derogation, facilities with low output capacity (≤ 10 kW) will not have to submit an application and will benefit from an automatic purchase guarantee for a period of 180 months.

The decision to opt for the guaranteed price or for the sale of the green certificates on the green certificate market is made by the green power generator each time that it submits its quarterly metering statements.

Regarding the advance issuance, the decision to opt for the guaranteed price or for the sale of green certificates on the market can be taken by the producer of green electricity for the duration of validity of these green certificates (5 years).

Green certificates purchased by Elia are directly redeemed in the database. Through this mechanism, excess supply is reduced, which contributes to stabilising the price of green certificates on the Walloon market.

The cost of this public service obligation on the Local Transmission System Operator (Elia) is passed to the end customer via a surcharge applied to the regional tariff for using the local transmission system. The approval and monitoring of this regional surcharge (amount and mode of charging to the various categories of consumers) are carried out by the federal regulator (CREG) as part of the approval of tariffs for the use of grids (regulated tariffs). For the period from 2015 onward, this jurisdiction should be transferred to the CWaPE no later than in 2015.

[21] See ministerial Arrêté of 21 March 2008 setting out the reference rates of return used to determine the factor 'k'.

Federal obligation for LTSO (Elia) to buy green certificates

Pursuant to the Royal Decree of 16 July 2002 on the setting up of mechanisms to promote electricity generated from renewable energy sources (RES), the transmission system operator (TSO), Elia, is obliged to purchase green certificates issued to a green power producer from the latter at a minimum set price which depends on the generation technology (see table below). This purchase obligation takes effect when the generation facility is commissioned, for a period of ten years.

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

Table5: Purchase price of GCs guaranteed at federal level

In the Walloon Region, only green certificates issued to photovoltaic facilities in the tranche of output capacity which does not have a multiplier coefficient (> 10 or 250 kWp as the case may be) are concerned in practice because in this case (rate of issue 1 GC/MWh) the repurchase price for green certificates by the transmission system operator (€150/GC) is higher than the €100 fine per missing certificate.

The TSO (Elia) offers these certificates on the market in order to recoup the cost of this obligation. The net balance, which comes from the difference between the purchase price of the green certificates by the system operator and the selling price on the market, is financed by a surcharge on the tariffs for connection to and use of the grid. The approval and monitoring of this regional surcharge (amount and mode of charging to the various categories of consumers) are carried out by the federal regulator (CREG) as part of the approval of tariffs for the use of grids (regulated tariffs).

2.7. Passing on the cost of the PSO to the end customer

For an end customer that does not benefit from a quota reduction, the maximum cost of the public service obligation (PSO) relative to the quota of green certificates is given by the following formula:

$$\text{Cost of PSO}_{max} = \text{nominal quota} \times \text{fine} \quad \text{(EUR/MWh)}$$

The figure below gives the value of this maximum cost calculated on the basis of quotas set for the period 2003–2012.

[22] Per licence, €107/GC for the first 216 MW and €90/GC for the remaining balance.

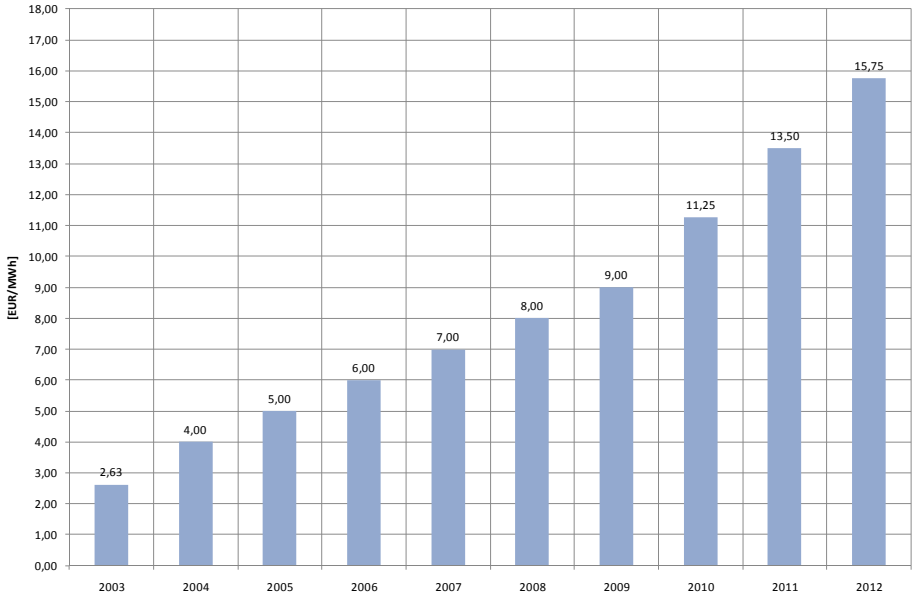


Figure 5: Maximum cost to be paid by an end customer that does not benefit from a quota reduction (EUR/MWh excluding VAT)

In practice, the cost of the PSO relative to the GC quota is passed on to the end customer in the price level of the 'energy' component billed by the supplier, as well as through network utilisation tariffs, as regards the part of the PSO payable by the grid operators.

In terms of the grid operators, passing on this 'green PSO' is audited by the federal regulator (CREG) as part of the approval of the network utilisation tariffs (regulated tariffs).

At supplier level, the incorporation of the cost of this 'green PSO' into the price of the 'energy component' billed to the end customer is not regulated. The supplier and its customer are, in principle, free to negotiate this.

However, out of a concern for transparency, the legislator has made two provisions on this subject:

- For all customers, the AGW-PSO of 30 March 2006 requires providers to include in the contract and the invoice the amount specifically identified as the cost of GCs being passed on. Under no circumstances may this cost be included in items relating to taxes and surcharges.

- For an end customer who does benefit from a quota reduction, the resulting cost reductions must be passed on directly by suppliers to each end customer who generates them.

Auditing of compliance with these rules by suppliers is one of the missions of the CWaPE. The regular reports by the CWaPE concerning the analysis of electricity prices in Wallonia show the amounts invoiced by suppliers for GCs to various categories of end customers.

3. Situation review 2011

3.1. Generation facilities

3.1.1. Certification of the production sites of more than 10 kW

In 2011, nearly 100 new[23] production facilities with a capacity greater than 10 kW, totalling 173 MW, were certified for the issuance of green certificates and/or certificate of origins.

New sites > 10 kW	Number of sites	Power (kWe)
Solar PV	68	6,446
Hydroelectric	1	1,106
Wind	10	92,439
Biomass	2	32,069
Biomass cogeneration	2	910
Fossil fuel cogeneration	14	40,080
Total	**97**	**173,050**

Table 6: New production sites > 10 kW installed in 2011

The number of installations compared with 2010 more than doubled (43 new sites in 2010).

This change is mainly due to the ever-growing number of solar photovoltaic installations (68 installations in 2011 compared with only twenty in 2010) but with relatively low power output (95 kWp on average).

In addition to the upward trend of solar photovoltaic installations, we note:

- The continued growth of cogeneration using gas engines (11 new units in 2011 with a total of 7.5 MW) compared to 2010 (7 units with a total of 6 MW).
- The installation of three industrial cogeneration units (steam or gas turbines) with a total installed capacity of nearly 30 MW.
- A number of wind farms installed in 2011 (10 new wind farms with a total of 92.5 MW) comparable with 2010.
- The almost total absence of new biomass type units (1 new installation of 115 kW) or biomass type cogeneration (2 new facilities with a total of 900 kW).

Among the new facilities certified, we also note the household refuse processing plant UVELIA (30 MW), which will not benefit from green certificates (GCs) but will receive certificates of origin (COs) to guarantee the renewable proportion of electricity generated by this facility on the electricity market.

The certification of these green electricity generation sites was carried out by three inspection bodies accredited by BELAC[24] according to the NBN EN ISO / IEC 17020 standard and approved by the Minister of Energy. These bodies are: AIB-Vinçotte Belgium (AVB), Bureau Technical Verbrugghen (BTV), and SGS Statutory Services Belgium (SGS-SSB). A fourth body, Electro-Test, was accredited by BELAC in 2011 and at the end of 2011 CWaPE issued a favourable opinion on the request for approval submitted by this body (CD-11l21-CWaPE-361).

[23] The year of commissioning does not necessarily correspond to the year of certification (for example, that is the case of historic facilities).

[24] Belgian Accreditation Organization: http://economie.fgov.be/belac.jsp

Besides the initial certification stage, approved bodies carry out regular inspections of all certified sites. At any time, CWaPE may also carry out inspections or require an inspection to be carried out by an inspection body, and examine whether the information in the certificate of origin corresponds to the real situation.

Amendments to the certificate of origin are also drawn up if the facility, metering equipment or any other information specified on the certificate of origin changes. Where biomass inputs are used (local or imported), the certification also covers demonstration of the renewable character of these inputs and their traceability throughout the production cycle.

In this way, a number of sites that already existed in 2010 underwent substantial modifications in 2011. Among the major changes in the production facilities that existed in 2010, we can mention in particular:

- The replacement of two hydroelectric turbines at the complex on the river Ourthe with a power increase from 0.75 to 1.2 MW.
- The installation of a combined cycle (biogas engine + steam turbine) at the waste burial site at Mont-Saint-Guibert to increase the power of the site by 1.6 MW.
- The doubling of the power of the biomethanisation plant in Lenges (2.2 MW).
- The increase in the power of the fossil fuel cogeneration plant at Biesbrouck, which was raised from 2 to 5 MW.
- The addition of photovoltaic solar panels at the Delabie production site taking the power output to 775 kWp, making it the most powerful certified photovoltaic facility in Wallonia at the end of 2011.

3.1.2. Certification of production sites of less than 10 kW

For generation facilities with a net developable output capacity of less than or equal to 10 kW, the CWaPE issues a certificate of origin (CO) directly, in accordance with a simplified procedure published on its site.

In addition, since 1 October 2010, applications for solar photovoltaic installations connected to the grid have been submitted directly to the grid operator through ‘single window’ the procedure which combines on a single form the application for the issuance of green certificates destined for the CWaPE and the request for commissioning intended for the grid operator (GO).

Solar photovoltaic installations of less than 10 kW

The year 2011 was characterised by a significant increase in the number of facilities, particularly following the announcement of the revised issuance schemes for green certificates from 1 December 2011. The figure below illustrates the change in the number of applications submitted since 2008.

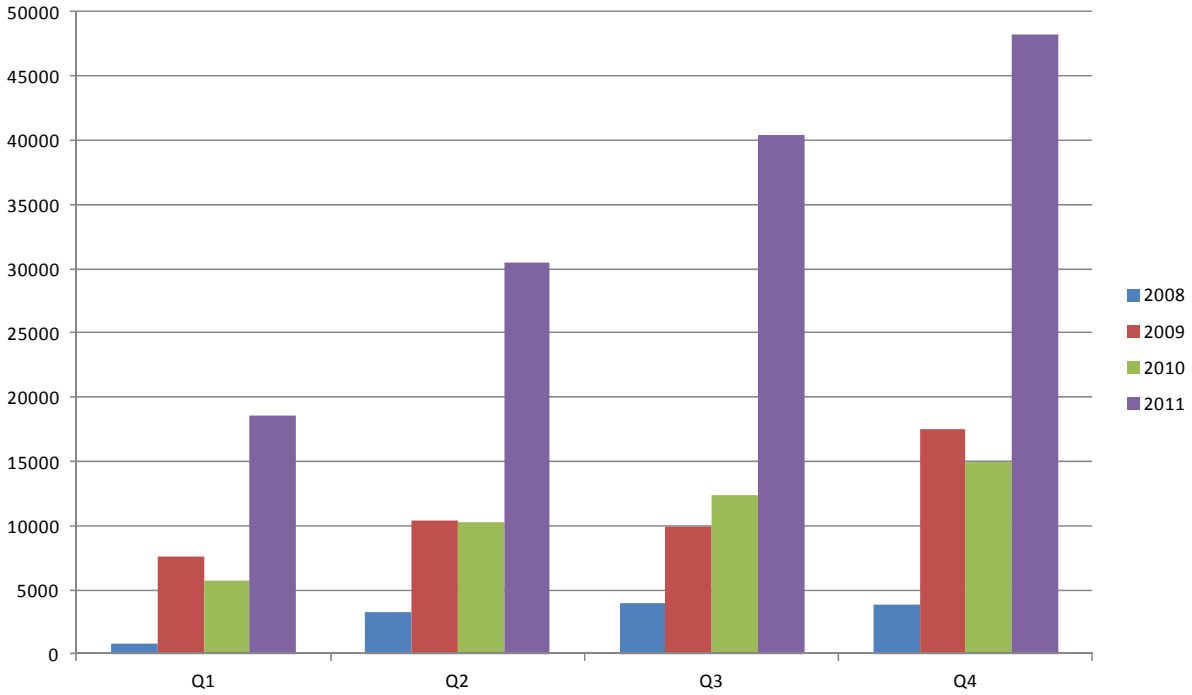


Figure 6: Number of solar PV installations commissioned by quarter over the period 2008–2011 (P ≤ 10 kW)

Thus, slightly over 25,000 new facilities were commissioned in 2011 (135 MWp), nearly 16,000 more installations than in 2010. The average installed power output is 5.5 kWp, a value that has been steadily increasing since 2008 mainly due to the sharp fall in the cost of installations.

Other facilities under 10 kW

There were only twenty new installations of this type in 2011.

Of these facilities, we note basically the advent of domestic micro-cogeneration units with a power output of 1 kW, which bring with them a regional investment grant. Based on production records transmitted, the CWaPE notes, however, that the actual performance of these facilities is significantly lower than expected which resulted in measured CO_2 savings rates of less than 10% and therefore no issuance of green certificates for these facilities.

It should be noted that for low power output complex facilities (CHP and biomass), as these are not presently subject to prior control by a 'green certificates' approved body, the CWaPE commissioned an inspection assignment from an accredited certification body to validate the statements of the producer and gather the necessary technical data for drawing up the certificate of origin. In addition, as part of this assignment, random or targeted checks are also carried out on solar photovoltaic, hydroelectric and wind facilities.

3.1.3. Green power generation sites (on 31/12/2011)

On 31 December 2011, slightly over 48,800 green power generation sites fulfilled the conditions for the issuance of green certificates, representing a total output capacity of approximately 1,375 MW.

Production sites	Number of sites	Output capacity (kW)
Solar PV	48.540	247.359
Hydroelectric	85	111.333
Wind	71	523.767
Biomass	9	125.319
Biomass cogeneration	47	158.996
Fossil cogeneration	71	206.513
Total	**48.823**	**1.373.288**

Table 7: Green power generation sites at the end of 2011

Among these sites, there were 331 production sites with a power output greater than 10 kW, making a total nearly 1,135 MW higher. A list of these production sites is given in Annex 1.

Production sites > 10 kW	Number of sites	Output capacity (kW)
Solar PV > 10kW	111	8.591
Hydroelectric	56	111.129
Wind	55	523.648
Biomass	9	125.319
Biomass cogeneration	42	158.956
Fossil cogeneration	58	206.454
Total	**331**	**1.134.097**

Table 8: Green power generation sites of more than 10 kW at the end of 2011

At the end of 2011, there were nearly 48,500 sites with low power output (≤ 10 kW) with a total of nearly 240 MW (84 MW in 2010).

Production sites ≤ 10 kW	Number of sites	Output capacity (kW)
Solar PV	48.429	238.768
Hydroelectric	29	204
Wind	16	119
Biomass	0	0
Biomass cogeneration	5	40
Fossil cogeneration	13	59
Total	**48.492**	**239.191**

Table 9: 'Low output capacity' (≤ 10kW) green power generation facilities at the end of 2011

At the end of 2011, solar photovoltaic power installed capacity in Wallonia was close to 240 MWp and nearly 50,000 producers or promoters were identified in the CWaPE database, as were approximately 1,500 installers.

3.1.4. Green electricity production and green certificates

The table and figures below illustrate the change in green electricity production from 2010 to 2011 as well as the change in the number of green certificates 'produced' corresponding to that electricity generated. The change over the period 2003–2011 is shown in Annex 2.

Generation systems	2010			2011			2011-2010	
	Production		Issuance rate	Production		Issuance rate	Increase	
	(MWh)	(GCs)	(GC/MWh)	(MWh)	(GCs)	(GC/MWh)	(MWh)	(GCs)
Photovoltaic	54.594	370.914	6,794	140.663	938.066	6,669	158%	153%
Hydroelectric	295.535	163.237	0,552	187.780	101.201	0,539	-36%	-38%
Wind	697.777	697.775	1,000	1.029.512	1.029.347	1,000	48%	48%
Biomass	620.999	495.492	0,798	658.283	410.356	0,623	6%	-17%
Biomass cogeneration	943.826	1.051.197	1,114	965.520	1.166.602	1,208	2%	11%
Fossil cogeneration	878.133	101.623	0,116	1.004.634	124.911	0,124	14%	23%
Total	**3.490.864**	**2.880.237**	**0,825**	**3.986.391**	**3.770.484**	**0,946**	**14%**	**31%**

Table 10: Change in production of green electricity between 2010 and 2011

Green electricity production

A 15% increase can be observed in green electricity production compared to 2010. With 40% of the production of green electricity, the biomass and biomass cogeneration generation systems topped the list, followed by wind power (26%), fossil fuel cogeneration (25%). Hydroelectricity and solar photovoltaic only provided 5% and 4% respectively of total production in 2011.

The largest increases were observed for the solar photovoltaic generation system (+150%), followed by wind power (+50%). The biomass and biomass cogeneration generation systems recorded a slight increase (+4%), while the production of the hydroelectric generation system fell by nearly 35%, mainly due to weather conditions in 2011.

The figures below show the development of electricity production for the solar photovoltaic generation system in the year 2011 and the breakdown thereof between the various grid operators.

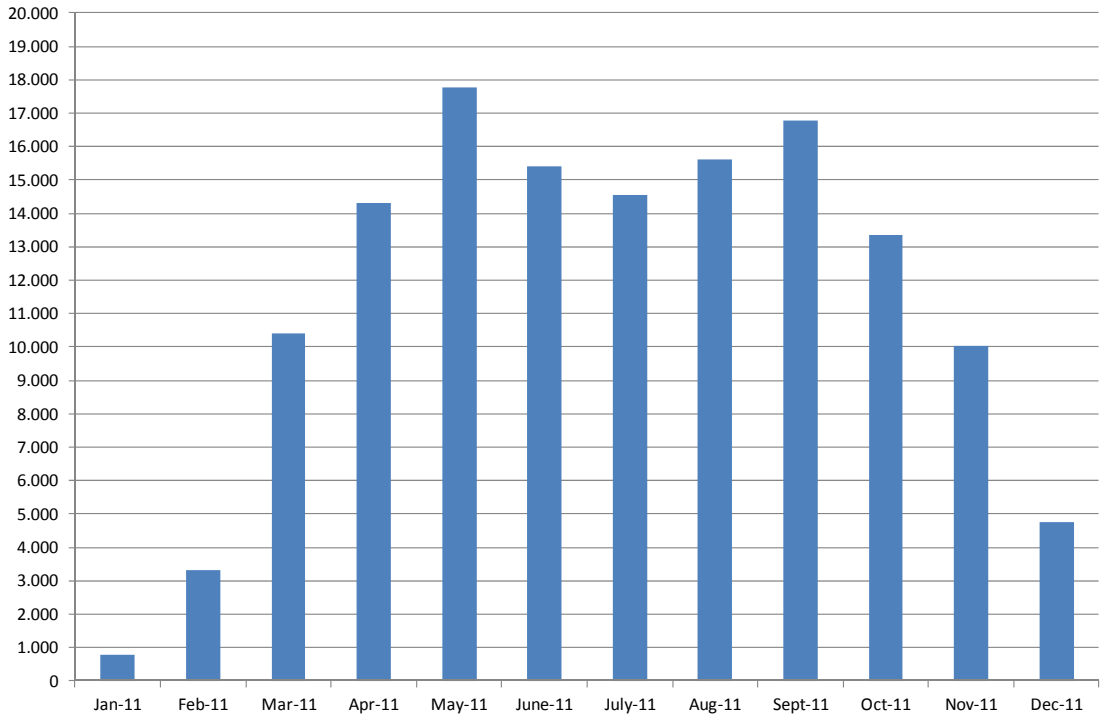


Figure 7: Change in solar PV electricity generation in 2011 (MWh)

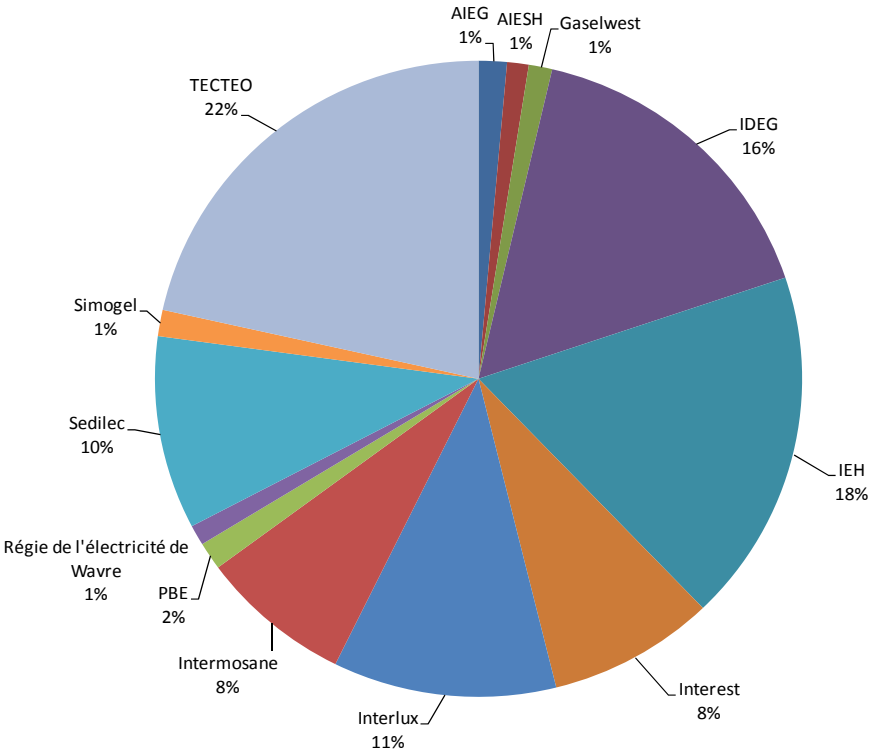


Figure 8: Breakdown per grid operator of solar PV electricity generation in 2011

Production of green certificates

In terms of green certificates, it is important to note that the number of green certificates 'produced', based on the quantity of electricity generated in 2011, may differ significantly from the number of green certificates actually issued and available on the market in 2011[25]. This discrepancy has become even more pronounced since the CWaPE has been issuing green certificates in advance for small power plants. For the solar photovoltaic generation system, this advance issuance is expected to cover an average of two years of production.

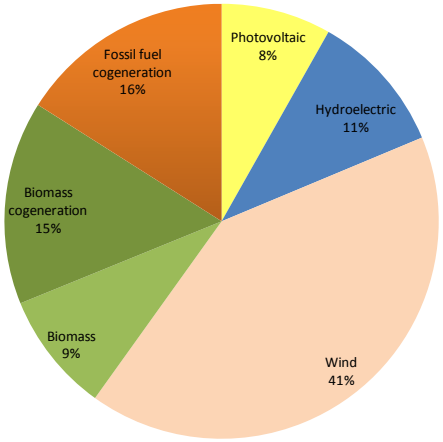
There was a 31% increase in the production of green certificates compared with the year 2010. With 42% of green certificates 'produced', the biomass and biomass cogeneration generation systems topped the list, followed by wind power (27%), solar photovoltaic (25%), with hydroelectricity and fossil fuel cogeneration each accounting for only 3% of the total production of green certificates in 2011.

The largest increases were observed for solar photovoltaic (+150%), followed by wind power (+50%). The biomass and biomass cogeneration sectors stagnated with a small increase (+2%), while the production of the hydroelectric generation system fell by nearly 40%, mainly due to weather conditions in 2011.

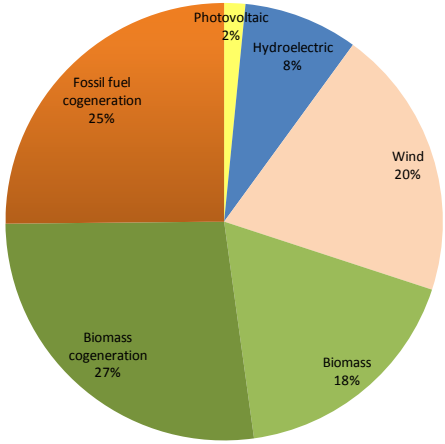
[25] During the year, there is a time lag between the generation of green power and the issuance of the relevant green certificates (see chapter on the market for green certificates). Green certificates are not issued continuously during the year, but on the basis of quarterly statements supplied by the producer. This means that the generation periods covered by these statements do not necessarily coincide with the calendar quarters. Moreover, in the case of new sites, certificates may be issued for different periods due to the certification and notification procedure. Amendments may also be made to certificates issued over a period of one year.

2010

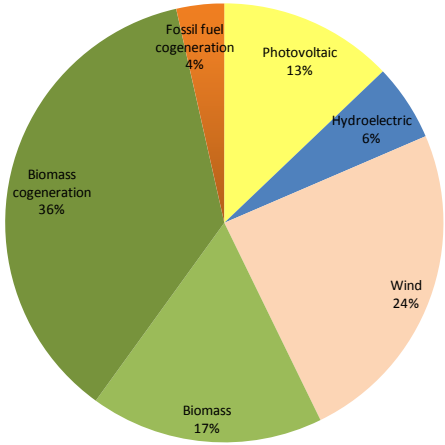
Installed output capacity: 1,047 MWe



3,491 GWh generated

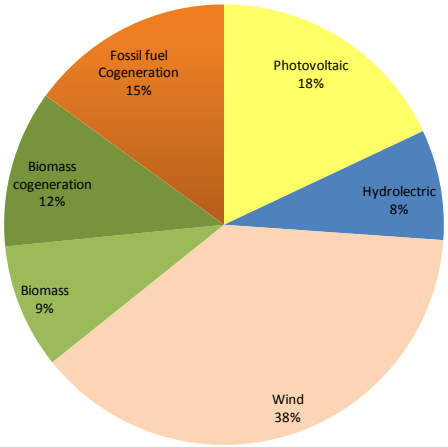


2,880,237 GCs 'produced'

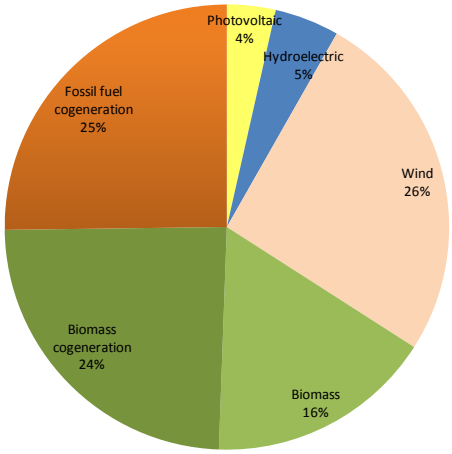


2011

Installed output capacity: 1,373 MWe



3,986 GWh generated



3,770,484 GCs 'produced'

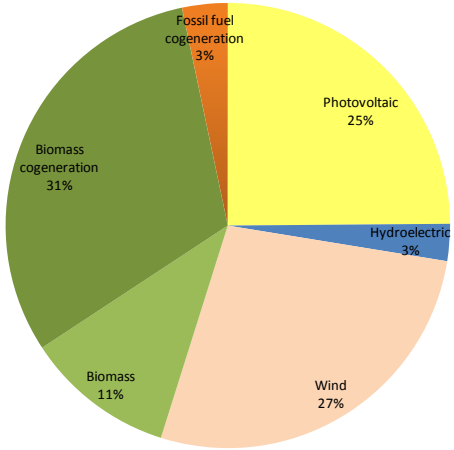


Figure 9: Generation facilities for green power in 2010 and 2011

3.1.5. Average level of support per generation system

The table below gives the values for the average level of support in 2011 broken down by generation system.

Generation systems	Average issuance rate (GC/MWh)	Average producer price (EUR/GC)	Average level of support (EUR/MWh)
Solar photovoltaic	6,669	78,90	526,17
Hydro-electric	0,539	82,95	44,70
Wind	1,000	82,54	82,53
Biomass	0,623	84,46	52,65
Biomass cogeneration	1,208	83,70	101,14
Fossil cogeneration	0,124	80,59	10,02
Average green systems	**0,946**	**82,18**	**77,73**

Table 11: **Average level of support per generation system in 2011**

This table illustrates the capacity of the Walloon support mechanism to modulate the level of support for green electricity both in terms of CO_2 savings made and in terms of the excess production costs of each generation system.

This average support can be compared directly with a *feed-in premium* system; however, comparison with a *feed-in tariff* system requires the addition of the selling price of electricity to the values below. A comparison of these different levels of support between Member States is available for the year 2009 on the site of the CEER (Council of European Energy Regulators)[26]. An update of this comparison is due in 2012, based on values for the 2011.

We see that overall, the effective average issuance rate for green electricity production facilities as a whole increased from 0.825 [GC/MWh] in 2010 to 0.946 [GC/MWh] in 2011. This increase is mainly attributable to the significant increase in the contribution of solar photovoltaic in the production of green certificates.

With an average market price of €82.18/GC in 2011, down 3.2% compared with 2010 (€84.90/GC), the average level of support was €77.73/MWh representing an increase of 11% compared with 2010 (€70.05/MWh).

[26] See 'CEER Report on Renewable Energy Support in Europe', C10-SDE-19-04a, 4 May 2011, www.energy-regulators.eu

3.1.6. Share of green power in electricity supply in the Walloon Region

In 2011, electricity generation in facilities certified as green represented approximately 17.5% of electricity supplies in the Walloon Region (22,915,218 MWh) compared with about 15% in 2010.

This increase in market share of green electricity of 17% is higher than that observed in the generation of green electricity (15%) due to the drop in electricity supply by almost 2.5% between 2010 and 2011.

Green electricity	MWh produced	% supplies in Walloon Region
Photovoltaic	140,663	0.61%
Hydroelectric	187,780	0.82%
Wind	1,029,512	4.49%
Biomass	658,283	2.87%
Biomass cogeneration	965,520	4.21%
Fossil fuel cogeneration	1,004,634	4.38%
Total	3,986,391	17.40%

Table 12: Share of the supplies in the Walloon Region of net electricity generated in 2011 by facilities certified as green

Based on the figure below, we observe that over the period 2003–2011, the share of electricity generated from renewable energy sources rose from 2.5% to 12.3%. For high-quality cogeneration (fossil fuel and renewables), its share rose from 4.5% to 8.6%.

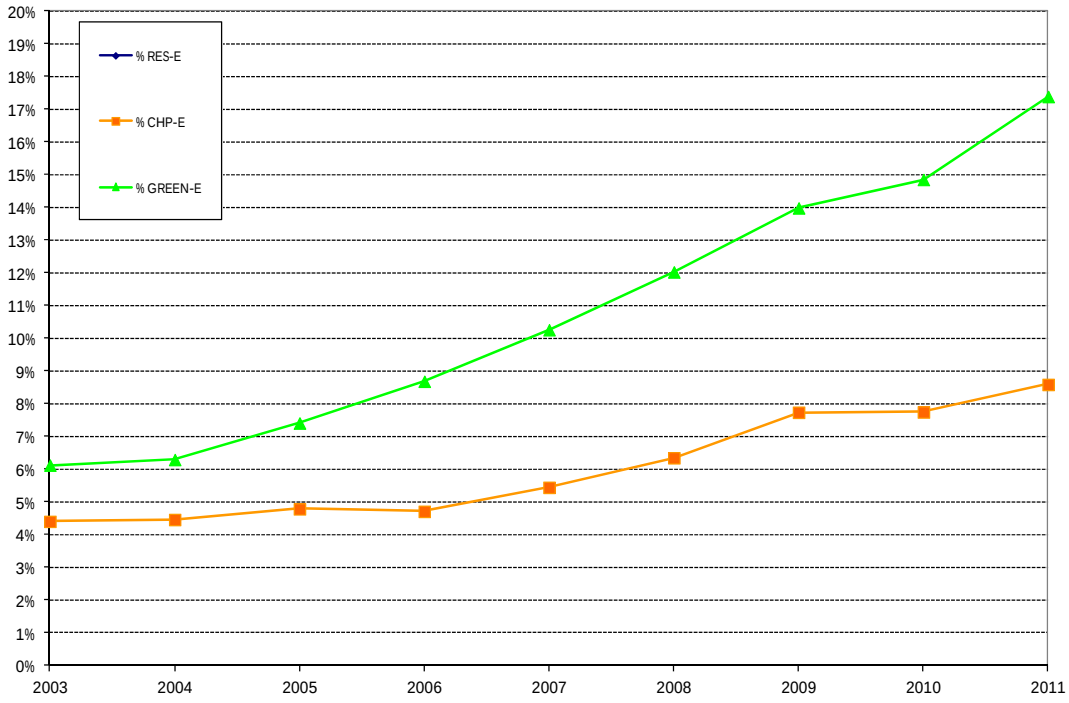


Figure 10: Change in share of green electricity in power supplies in Wallonia (period 2003–2011)

3.2. Market for green certificates

The green certificates market in 2011 was marked by two major elements. On the one hand, a lack of visibility of the future changes in quotas beyond the year 2012, in the absence of a political decision on the matter. On the other hand, a major surplus of green certificates due to the ever-increasing penetration of solar installations of less than 10 kW (about 1.5 million green certificates issued to this sector in 2011[27]).

The number of green certificates to be returned by suppliers to meet their quota obligation was 2.4 million GCs, an increase of 400,000 compared with 2010. This increase in demand for green certificates is much lower than that observed on the supply side, which grew by more than 1,250,000 GCs in one year. At the end of 2011, the surplus on the market was around 3 million green certificates.

This imbalance has resulted in a gradual drop in prices observed in the market for green certificates.

3.2.1. Green certificate transactions

The year 2011 was characterised by a significant increase in the number of transactions, mainly due to the increase in the number of small producers either for the sale of green certificates issued in advance, or issued on the basis of statements introduced via the CWaPE extranet service.

Years	Transactions	Volume of GCs	Unit price (EUR/GC)			Value
	Number	Number	Average	Min	Max	(EUR)
2003	21	164.943	84,38	75,00	97,00	13.917.890
2004	142	326.733	91,74	85,00	95,00	29.974.485
2005	183	413.720	92,10	80,00	95,00	38.103.612
2006	213	483.697	91,58	80,00	96,00	44.296.971
2007	234	648.592	89,95	75,00	95,00	58.340.850
2008	227	919.828	88,39	75,00	99,00	81.303.597
2009	414	1.292.007	87,88	75,00	95,00	113.541.575
2010	4.797	1.819.822	84,90	75,00	95,00	154.502.888
2011	16.499	2.200.392	82,07	55,12	100,00	180.597.017

Table13: Change in transactions over the period 2003–2011

There are approximately 16,500 transactions with a total of approximately €180 million, for a total volume of 2.2 million GCs which represents only 50% of the green certificates issued during the year. The remainder represents green certificates as yet unsold (especially due to the excess supply of green certificates on the market), to those issued to production sites belonging to suppliers and used (directly) for their respective quotas or those put aside for future use.

[27] Including advance issuance.

3.2.2. Change in prices

The table below shows the values of transactions in 2011 (values also published on the CWaPE website). This is a producer price of green electricity[28] containing all types of sales transaction for green certificates either on the spot market or on the basis of forward contracts.

Years	Transactions	Volume of GCs	Unit price (EUR/GC)		
	Number	Number	Average	Min	Max
2011 Q1	2.336	519.362	83,62	55,13	100,00
2011 Q2	3.972	545.983	82,48	55,12	100,00
2011 Q3	5.295	576.057	81,84	55,12	100,00
2011 Q4	4.896	558.990	80,58	55,12	100,00

Table14: Average quarterly prices of green certificate transactions

The average unit price in 2011 was €82.07, down 3.3% compared to the average price in 2010. The minimum and maximum values observed in 2011 are €55 and €100 respectively.

It should be borne in mind that the price drop is less pronounced in terms of the average price published by the CWaPE, insofar as this price shows all transactions to buy green certificates from producers. This price therefore covers both futures contracts concluded in the past (unaffected by the current imbalance), new forward contracts (potentially impacted by the current imbalance) and sales on the 'spot' market.

Price falls on the spot market (BELPEX GCE exchange) are more pronounced, as shown in the figure below.

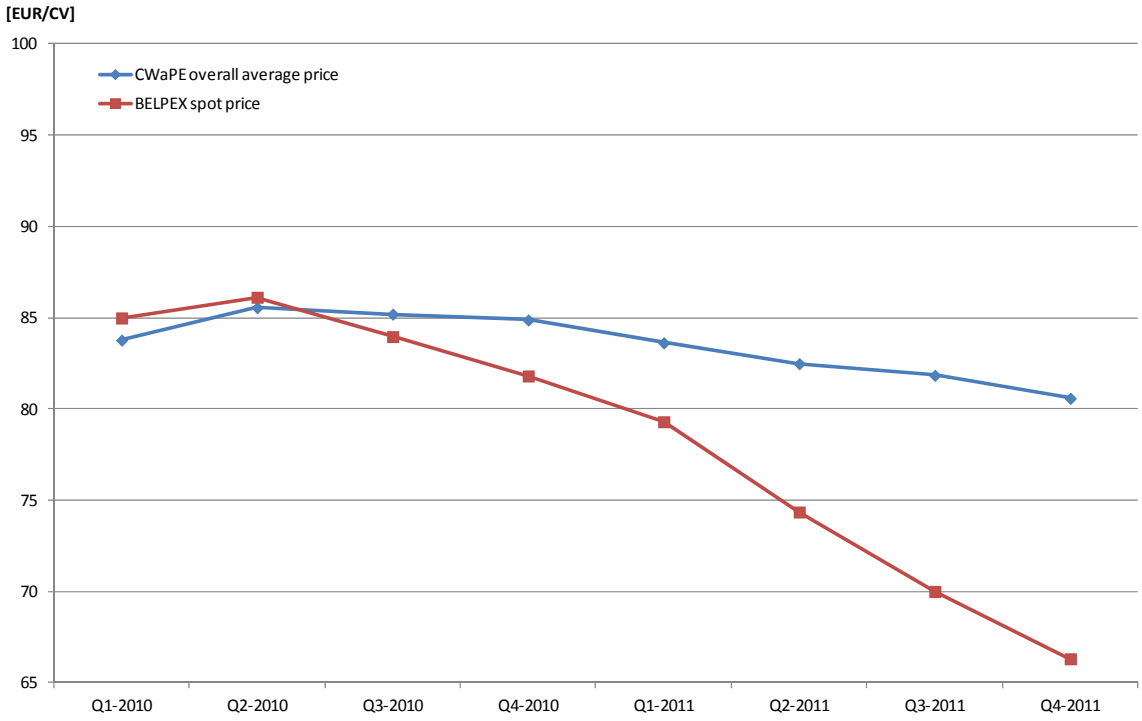


Figure 11: Price drop on the green certificates market over the period 2010–2011

[28] Sales by a non-producer (resale by an intermediary), internal sales within a single group (a company and its subsidiaries) as well as sales from sharing of historic production sites (CPTE) and redemptions (i.e. use of GCs for the quota) are not accounted for, in order to obtain a representative producer price.

Note the sharp drop at the end of the first half of 2011 in the 'spot' price on the green certificate exchange operated by BELPEX[29] which even reached the guaranteed price level of €65/GC in the fourth quarter of 2011. The number of green certificates sold through the exchange also remains extremely low, barely more than 2,000 GCs, as compared to 2.2 million GCs sold over the whole year 2011.

Due to the major imbalance in the market for green certificates, the market is 'long' and participants appear, a priori, to have an adequate stock of green certificates for the full year 2012, so BELPEX decided to suspend the organisation of trading in 2012. The situation will be reassessed in light of changing market conditions.

3.2.3. Variability of prices depending on generation systems

The table below illustrates the variability in the price of the green certificate as observed in 2011 per generation system and within the same generation system.

Generation systems	Min. price.	Average price*	Max. price.	Volume of GCs	Number of transactions*
Solar PV	€ 55,12	€ 78,90	€ 100,00	672.232	15.989
Hydroelectric	€ 65,00	€ 82,95	€ 93,00	75.194	91
Wind	€ 72,00	€ 82,54	€ 90,00	725.292	137
Biomass	€ 80,50	€ 84,46	€ 90,00	116.210	19
Biomass cogeneration	€ 69,30	€ 83,70	€ 100,00	1.099.392	123
Fossil cogeneration	€ 72,50	€ 80,59	€ 91,70	31.024	29
Total *	**€ 55,12**	**€ 82,18**	**€ 100,00**	**2.719.344**	**16.388**

* Some transactions involve several systems.

Table 15: Variability of average prices per generation system and within the same system

It can be observed that while the solar photovoltaic generation system represented 98% of transactions in 2011, these transactions represented 25% of the green certificates sold.

[29] See www.belpex.be : Green Certificates Exchange (GCE)

3.2.4. Solar PV generation system of less than 10 kW

As shown in the figure below, the annual average values hide some variability in the price of green certificates contained in the range €55–100.

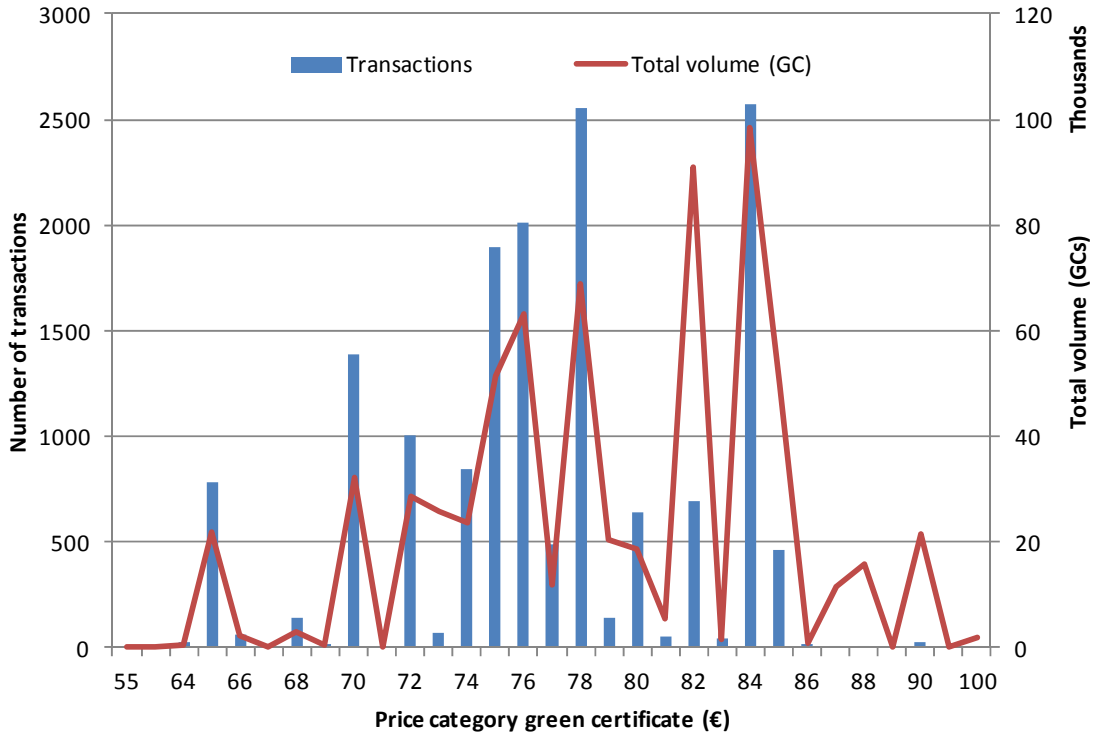


Figure 12: Variability of the purchase price of GCs on the market in 2011

We note that the actual minimum price was €65/GC and concerns 3% of green certificates sold. The volume of GCs sold at a price less than €65/GC was negligible (about 700 CVs). The actual maximum price observed stood at €85/GC.

Whereas in 2010, the mode[30] of transactions at €85/GC dominated the market (corresponding to the price offered by the free brokerage service set up by the Walloon Region and outsourced to the association '*Les Compagnons d'Éole'*), in 2011 coexistence of several modes could be observed. The main modes are €84 (15%), €82 (14%), €78 (10%), €76 (9%), €75 (8%) and €85 (7%).

These modes correspond to the prices charged by the major intermediaries and suppliers buying green certificates from individuals following the cessation of the brokerage mission of 'Les Compagnons d'Éole'. In total during 2011, 53% of the green certificates sold by small producers were sold to intermediaries, the remaining balance being sold directly to a supplier (or grid operator) or more confidentially to Elia.

[30] In the statistical sense, mode designates the most common value of any variable within a population; graphically, it corresponds to a peak.

3.2.5. Price guaranteed at regional or federal level

In the event of an imbalance on the market for green certificates, pending structural measures, producers may, under certain conditions, benefit from the guaranteed pricing mechanism, which compels Elia to purchase green certificates at a price of €65/GC. These green certificates are then directly redeemed by the CWaPE and therefore cannot be resold on the market by Elia, which reduces the surplus on the market for green certificates.

For solar installations of less than 10 kW, this mechanism can be activated simply and directly, at the time when the production records are encoded online. A procedure was also introduced by the CWaPE in early July 2011 to allow the sale of green certificates issued in advance. Despite these measures, the number of small producers choosing to sell to Elia remained extremely low in 2011 as offers to purchase green certificates from individuals at a price above €65/GC remained available even at the end of 2011, whether from intermediaries or suppliers.

The table below shows the number of GCs that received the guaranteed price of 65 EUR.

Years	Number of GCs	EUR
2009	236	15.340
2010	1.476	95.940
2011	3.727	242.255
2012 (SEM 1)	118.391	7.695.415
TOTAL	**123.830**	**8.048.950**

Table16: Purchase of GCs by ELIA at the regional guaranteed price of €65/GC

It can be observed that due to the surplus of green certificates on the market, the sale at €65/GC to Elia is likely to increase significantly in 2012, whether for small producers who do not have contracts or for larger producers whose contracts expire in 2012. Thus, at the end of the first half of 2012, nearly €8 M had been paid by Elia. The opinion issued in May 2012 by the CWaPE (CD-12e07-CWaPE-380) indicates that the amount paid Elia could quickly climb to €200 M per year.

Regarding the federal guaranteed price, which varies according to the generation system from €20/MWh to €150/MWh, it was only triggered for two solar photovoltaic facilities, covering a total of just 12 GCs.

3.3. Application of quotas of green certificates

3.3.1. Nominal quota of green certificates

The number of green certificates to be returned to CWaPE as per the obligation imposed on suppliers and system operators by Article 25 of the AGW of 30 November 2006 on the promotion of green power was calculated on one hand on the basis of a 'nominal' quota, and on the other hand on the basis of the quota reductions for supplies to heavy-use end customers.

Electricity supplies reported and taken into account for the year 2011 are 22,913,428 MWh[31], a decrease of 2.5% compared with 2010. This reduction in supply, combined with an increase in the nominal quota of almost 20%, results in an increase of over 17% in absolute value (3,093,313 GCs in 2011 compared with 2,649,192 GCs in 2010) of the number of GCs to be returned excluding quota reduction.

In 2011, 136 sites of heavy end-users of electricity benefited from a quota reduction (compared with 134 sites in 2010). The total consumption of these sites represents about 40% of electricity supplies in Wallonia.

Reductions in GCs represent 22% overall of the nominal quota of green certificates (compared with 21% in 2010). These quota reductions granted amounted to slightly more than 690,000 green certificates in total, or an increase of nearly 25% compared with the previous year (555,000 in 2010).

The average quota with reduction in 2011 for the 136 sites which benefited from a quota reduction was 5.75% (compared with 5.07% in 2010). In the Annex, you will find a breakdown of sites per business sector ('sector agreements'), as well as their consumption and GC reductions respectively.

[31] This is the value declared by suppliers as of 28 February 2012, including corrections for the year 2010. Corrections made after that date have not been taken into account in calculating the 2011 quotas, but will be carried forward into the 2012 quota calculations.

The figure below shows the effective quotas (after application of the GC reduction) broken down by business sector.

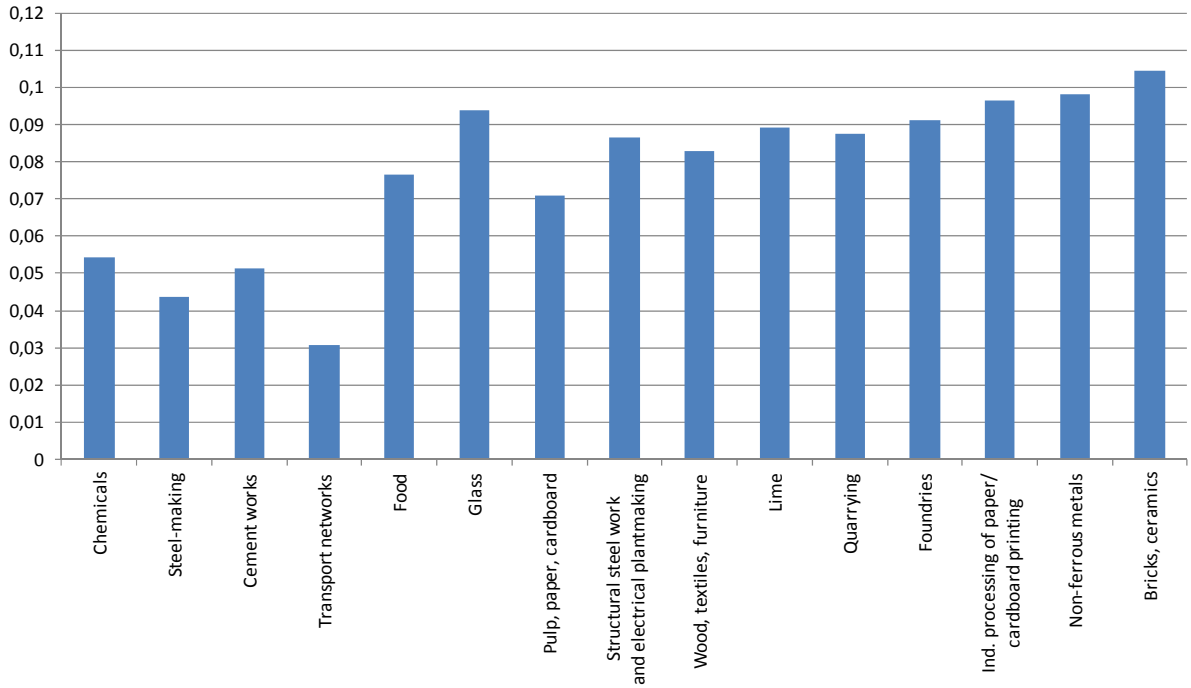


Figure 13 : Reduction in effective GC quota per business sector

The figure below shows the breakdown of the reduction of GC quotas between suppliers. The detailed values per supplier are also shown in the annex.

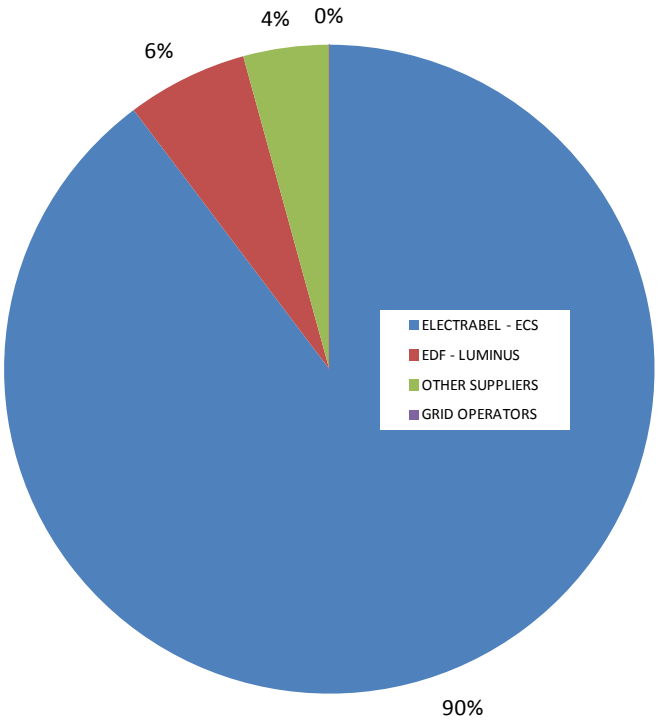


Figure 14: Breakdown of quota reductions per supplier

For end customers that do benefit from a quota reduction, the resulting cost reductions must be passed on directly by suppliers to each end customer who generates them.

The table below gives an estimate of the savings obtained by suppliers and passed on to their end-user customers, based on the average price of the GC on the market in 2011 (€82.07).

SECTORS	Number of sites	Supplies (MWh)	Reduction (EUR)
Chemicals	31	2.660.880	17.626.712
Steel-making	15	2.533.084	18.954.950
Cement works	6	806.524	5.544.009
Transport networks	2	570.030	4.874.767
Food	10	549.883	2.643.073
Glass	26	476.979	1.614.338
Pulp, paper, cardboard	4	315.554	1.660.521
Structural steel work and electrical plantmaking	9	285.513	1.132.983
Wood, textiles, furniture	4	183.316	786.298
Lime	6	176.047	661.323
Quarrying	8	148.308	577.007
Foundries	4	80.700	290.132
Ind. processing of paper/cardboard Printing	5	73.466	232.944
Non-ferrous metals	2	42.518	128.778
Bricks, ceramics	4	35.651	89.870
TOTAL	136	8.938.455	56.817.705

Table17: Cost avoided, corresponding to the GC quota reduction – breakdown per sector

3.3.2. Effective quota of green certificates

In view of the reductions granted, the 'nominal' quota of 13.50% for the year 2011 was brought down to an effective quota (ratio between the number of green certificates to be submitted and the number of MWh supplied) of 10.47% (8.91% in 2010), which corresponds to a number of 2,385,054 GCs to be submitted by suppliers and grid operators, or an ultimate increase of 15% in the effective demand for green certificates on the market compared with 2010 (2,093,709 GCs in 2010).

3.3.3. Quota returns of green certificates and fines in the Walloon Region

The number of suppliers and grid operators who in 2011 were bound to send quarterly statements of their supplies to the CWaPE, together with the number of green certificates corresponding to the effective quota calculated for their end-user customers is as follows:

- 13 suppliers with a general supply licence.
- 7 suppliers with a limited supply licence.
- 13 grid operators.

The number of green certificates returned to the CWaPE under the public service obligation incumbent on suppliers and grid operators was 2,385,052 GCs for the entire year 2011, or virtually the total number of GCs that needed to be returned. A fine of €200 (2 GCs) was, however, applied to a provider who did not submit all the green certificates that it was due to submit to the CWaPE to meet its quarterly quota obligation at the appropriate time.

The figures below give a breakdown per supplier and grid operator of the electricity supplies and the GCs to be returned. The difference between the two graphics is explained by a different effective total for each supplier according to the quota reductions that can be applied to their customers.

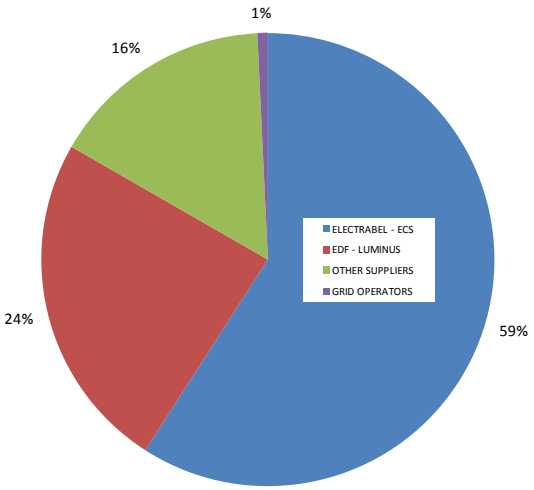


Figure 15: Breakdown of supplies

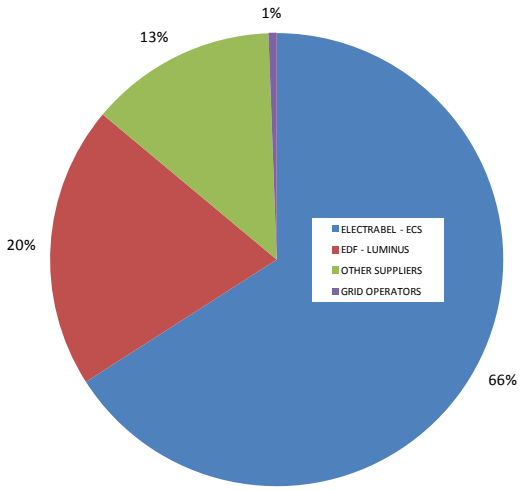


Figure 16: Breakdown of GCs to be returned

The table below contains the details on an annual basis[32], per supplier and per grid operator, of electricity supplies, GC reductions granted, GCs to be returned and redeemed in 2011.

[32] The total sales shown in this table correspond to the amounts declared on 28/02/2012. Corrections made after that date have not been taken into account in calculating the 2011 quotas, but will be carried forward into the 2012 quota calculations.

2011	Type of license / Grid operator	Supplies submitted for the year (MWh)	GC quota excl. reduction	GC reduction	GCs to be returned	Actual quota	GCs redeemed	Missing GCs	Admin. fine (in euros).
Suppliers									
ANODE	General licence	463	63	0	63	13,61%	63	0	0
EDF_LUMINUS	General licence	4.608.329	622.398	41.539	580.859	12,60%	580.859	0	0
ELECTRABEL	General licence	7.983.678	1.077.796	613.058	464.738	5,82%	464.738	0	0
ELECTRABEL CUSTOMER SOLUTIONS	General licence	7.126.916	962.134	6.485	955.649	13,41%	955.649	0	0
ENDESA	General licence	5.887	795	0	795	13,51%	795	0	0
ENECO_BELGIE	General licence	163.550	22.080	2.604	19.476	11,91%	19.476	0	0
ENOVOS_Luxembourg	General licence	13	1	0	1	7,79%	1	0	0
EON_Belgium	General licence	706.964	95.440	17.831	77.609	10,98%	77.609	0	0
ESSENT	General licence	677.609	91.477	7.273	84.204	12,43%	84.204	0	0
LAMPIRIS	General licence	765.671	103.366	0	103.366	13,50%	103.366	0	0
NUON	General licence	691.195	93.311	1.790	91.521	13,24%	91.521	0	0
OCTAplus_ENERGIE	General licence	5.318	718	0	718	13,50%	718	0	0
RWE_ENERGY_BELGIUM	General licence	2.223	300	0	300	13,49%	300	0	0
BELPOWER_International	Limited Licence	29.998	4.050	0	4.050	13,50%	4.050	0	0
ELEXYS	Limited Licence	909	122	0	122	13,42%	122	0	0
ENERGIE_2030_AGENCE	Limited licence	2.081	281	0	281	13,51%	281	0	0
RECYBOIS	Limited Licence	1.902	257	0	257	13,51%	257	0	0
RENOGEN	Limited Licence	0	0	0	0	-	0	0	0
SEVA	Limited Licence	7.693	1.039	0	1.039	13,51%	1.039	0	0
VERDESIS	Limited Licence	42	6	0	6	14,34%	4	2	200
Sub-total		**22.780.440**	**3.075.635**	**690.581**	**2.385.054**	**10,47%**	**2.385.052**	**2**	**200**
Distribution system operators (DSOs)									
AIEG	Grid operator only	1.680	227	0	227	13,51%	227	0	0
AIESH	Grid operator only	826	112	0	112	13,56%	112	0	0
PBE	Grid operator only	615	83	0	83	13,50%	83	0	0
REGIE WAVRE	Grid operator only	235	32	0	32	13,60%	32	0	0
TECTEO	Grid operator only	40.643	5.475	0	5.475	13,47%	5.475	0	0
IDEG	Grid operator mixed (ORES)	16.508	2.229	0	2.229	13,50%	2.229	0	0
IEH	Grid operator mixed (ORES)	39.004	5.266	0	5.266	13,50%	5.266	0	0
INTEREST	Grid operator mixed (ORES)	1.668	225	0	225	13,49%	225	0	0
INTERLUX	Grid operator mixed (ORES)	8.478	1.145	0	1.145	13,50%	1.145	0	0
INTERMOSANE	Grid operator mixed (ORES)	14.401	1.944	0	1.944	13,50%	1.944	0	0
SEDILEC	Grid operator mixed (ORES)	6.603	892	0	892	13,51%	892	0	0
SIMOGEL	Grid operator mixed (ORES)	279	0	0	0	0,00%	0	0	0
GASELWEST	Grid operator mixed (EANDIS)	2.046	276	0	276	13,49%	276	0	0
Sub-total		**132.987**	**17.906**	**0**	**17.906**	**13,46%**	**17.906**	**0**	**0**
GRAND TOTAL		**22.913.428**	**3.093.541**	**690.581**	**2.402.960**	**10,49%**	**2.402.958**	**2**	**200**

Table18: Quota returns of green certificates

3.4. Redemption of Walloon green certificates for the quota in the Brussels-Capital Region

The quota of green certificates in the Brussels-Capital Region (BCR) is applied not on a quarterly basis as in Wallonia but once a year (31 March).

Initially, only Brussels green certificates are eligible for the quota. In a second phase, if the number of green certificates available on the Brussels market is insufficient to allow suppliers to meet their quota obligations, the Brussels regulator BRUGEL may authorise these providers to deliver Walloon green certificates to meet their quota of green certificates in the Brussels-Capital Region (BCR). Only Walloon green certificates issued for installations less than 10 years old are eligible for the Brussels quota.

In this case, a multiplier coefficient corresponding to the amount of fines is applied. The ratio of fines during 2007 was 100/100.

For 2011, slightly more than 105,000 Walloon GCs were submitted by suppliers in order to meet their quota of green certificates in the Brussels-Capital Region, compared with about 107,000 Walloon GCs in 2010.

Years	Walloon GCs redeemed
2003	0
2004	0
2005	60.818
2006	74.277
2007	113.135
2008	117.810
2009	113.907
2010	107.344
2011	105.020
TOTAL	**692.311**

Table19: Number of Walloon GCs redeemed in the Brussels quota

3.5. Supply and demand on the green certificate market in 2011

After each quarterly quota, the CWaPE evaluates and publishes the level of stock of green certificates on the market. A portion of this stock has however already been purchased by a supplier or grid operator subject to the quota obligation. Only a portion of this stock is still on the books of producers of green electricity.

The CWaPE see that this stock has increased rapidly since mid-2011. In its last specific report published in August 2011, the CWaPE estimated the stock at the end of 2011 as just under 2.5 million CVs. On 15 February 2012, after application of the quota of the 3rd quarter of 2011, the stock was about 3,225,000 GCs. After application of the quota of the 4th quarter of 2011 at the end of April 2012, there were 4.25 million GCs, which is higher than the amount estimated by the CWaPE for the end of 2012 in its last specific report (estimated at 3.75 million CVs). The table below gives the breakdown of this stock between different players (SOLWATT producers, other producers, intermediaries, suppliers and grid operators).

Stock of green certificates to 30 April 2012		
Producers	1.120.000	26%
- SOLWATT	881.000	21%
- OTHERS	239.000	6%
Intermediaries	737.000	17%
Suppliers & grid operator	2.391.000	56%
TOTAL	**4.248.000**	**100%**

Table 20: Breakdown of the stock of green certificates

Besides the effects of the economic crisis on the pattern of electricity consumption, it is essentially the growing and greater-than-forecast installation of solar photovoltaic facilities less than or equal to 10 kW that is the cause of this, with rates of issuance of green certificates remaining very high in the early years.

The mechanism for advance issuance of green certificates, planned to replace the SOLWATT grants, and in place since June 2010, is accentuating the current imbalance. The number of green certificates issued in advance corresponds to the number of green certificates expected for the facility in the first five years of operation, with a ceiling of 40 GCs. In practice, the vast majority of solar photovoltaic installations receive advance issuance of 40 GCs, which corresponds to the average production of two years.

For the year 2011, more than 765,000 GCs (185,000 GCs in 2010) were issued in advance to over 19,000 production sites.

In addition to the advance issuance, more than 50,000 statements were encoded by producers via their access to the CWaPE extranet service (20,000 statements in 2010). Based on these statements, 700,000 GCs were issued.

Overall, the green certificates issued in 2011 for solar PV installations of less than 10 kW represented over 50% of green certificates to be returned by suppliers in 2011 to meet their quota obligations.

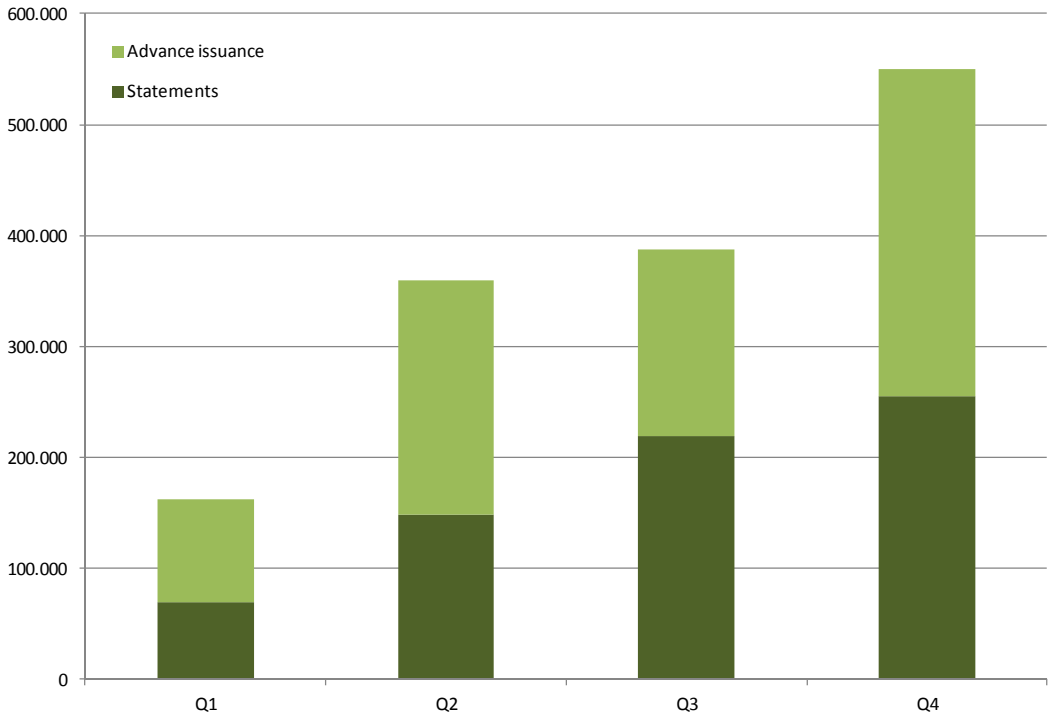


Figure 17: Green certificates granted in 2011 to SOLWATT facilities (advance issuance and issuance based on statements)

In August 2011, the CWaPE concluded its latest specific report on the development of the market of green certificates with the following analysis: *'The outlook for the years 2011 and 2012, however, indicates a significant increase in the surplus of green certificates on the market. Thus, the CWaPE estimates that the stock of green certificates could be more than 2 million at the end of 2011. This outlook underlines the need to review the multiplier coefficient applied to the photovoltaic generation system and, above all, to set quotas of green certificates quickly for the period 2013–2020. It is only if they can be reassured about future demand for GCs that suppliers will accept to store them temporarily and financially support new green electricity projects.'*

Pending a decision on the subject, producers which could not sell their green certificates on the market were invited to trigger the guarantee mechanism for a purchase by Elia at a price of €65/GC. Since green certificates purchased by ELIA can not be subsequently resold on the market,[33] the activation of this mechanism is intended, besides offering a financial guarantee to producers, also to help reduce the excess supply on the market for green certificates.

Given the imbalance observed, the CWaPE took the initiative in July 2011 of setting up, in collaboration with Elia, a procedure to facilitate the sale of green certificates issued in advance to solar photovoltaic installations with power output of less than or equal to 10 kW.

In a second step, additional initiatives have also been taken in collaboration with the administration (SPW-DGO4) to facilitate, in 2012, the processing of applications for guaranteed purchases by Elia for facilities with power output of more than 10 kW, which have no contract to sell their green certificates. These measures will take effect mainly in the second half of 2012.

Since then, additional measures have been taken by the Walloon Government, namely:
- The revision in November 2011 of the support system applied to solar photovoltaic facilities ordered after 1 December 2011.
- Quotas were set in March 2012 for the period 2012–2016 and for the year 2020.

The analysis by the CWaPE (see opinion CD-12e07-CWaPE-380) indicates that these measures are insufficient to allow restoration of equilibrium conditions in the market for green certificates throughout the period 2012–2020.

[33] Green certificates purchased by Elia are redeemed as well as those provided by suppliers and grid operators to meet their quota obligation.

3.6. Change in the green certificates market over the period 2012–2020

The evolution of the equilibrium on the green certificate market was the subject of a CWaPE opinion issued in May 2012 (CD-12e07-CWaPE-380). The tables and figures below show the main data and projections by the CWaPE within this opinion.

Year	Stock available (0) GC/year	SOLWATT (1a) GC/year	OTHERS (1b) GC/year	Issuance (2) = (1a) (1b) GC/year	Supply (3) = (1) + (2) GC/year	Demand (4) GC/year	Year-end stock (5) GC/year
2011	1.250.000	1.327.707	2.950.000	4.277.707	5.527.707	2.401.179	3.126.527
2012	3.126.527	2.295.707	3.304.000	5.599.707	8.726.234	2.829.390	5.896.845
2013	5.896.845	3.072.207	3.700.480	6.772.687	12.669.532	3.566.569	9.102.962
2014	9.102.962	3.124.207	4.144.538	7.268.745	16.371.707	4.288.370	12.083.337
2015	12.083.337	2.994.207	4.641.882	7.636.089	19.719.426	5.005.226	14.714.201
2016	14.714.201	2.929.207	5.198.908	8.128.115	22.842.315	5.754.652	17.087.664
2017	17.087.664	2.799.207	5.822.777	8.621.984	25.709.647	6.169.438	19.540.209
2018	19.540.209	2.695.207	6.521.510	9.216.717	28.756.926	6.591.813	22.165.113
2019	22.165.113	2.669.207	7.304.091	9.973.298	32.138.412	7.021.885	25.116.526
2020	25.116.526	2.435.207	8.180.582	10.615.789	35.732.316	7.459.769	28.272.547
TOTAL		26.342.069	51.768.768	78.110.837		51.088.291	-

Table 21: Outlook for the stock of green certificates

This evolution towards a major imbalance in the market for green certificates is largely a result of the explosive growth of the solar photovoltaic generation system over the period 2008–2012, where growth was inevitable given the excessively high levels of support provided to this generation system. It is important to point out that these projections include the assumption that as from October 2013, new solar installations (of less than 10 kW) no longer have green certificates to sell on the market.

Examining the totals table above presenting the outlook for the stock of green certificates, it appears that the stock at the end of year 2020 is practically equivalent to the issuance of green certificates for the Solwatt generation system, and that the other issuance (approx. 52 M GCs) over the same period corresponds to the demand (return quota: approx. 51 M CVs).

The figure below shows that without the Solwatt photovoltaic generation system, the imbalance between supply and demand would be very limited.

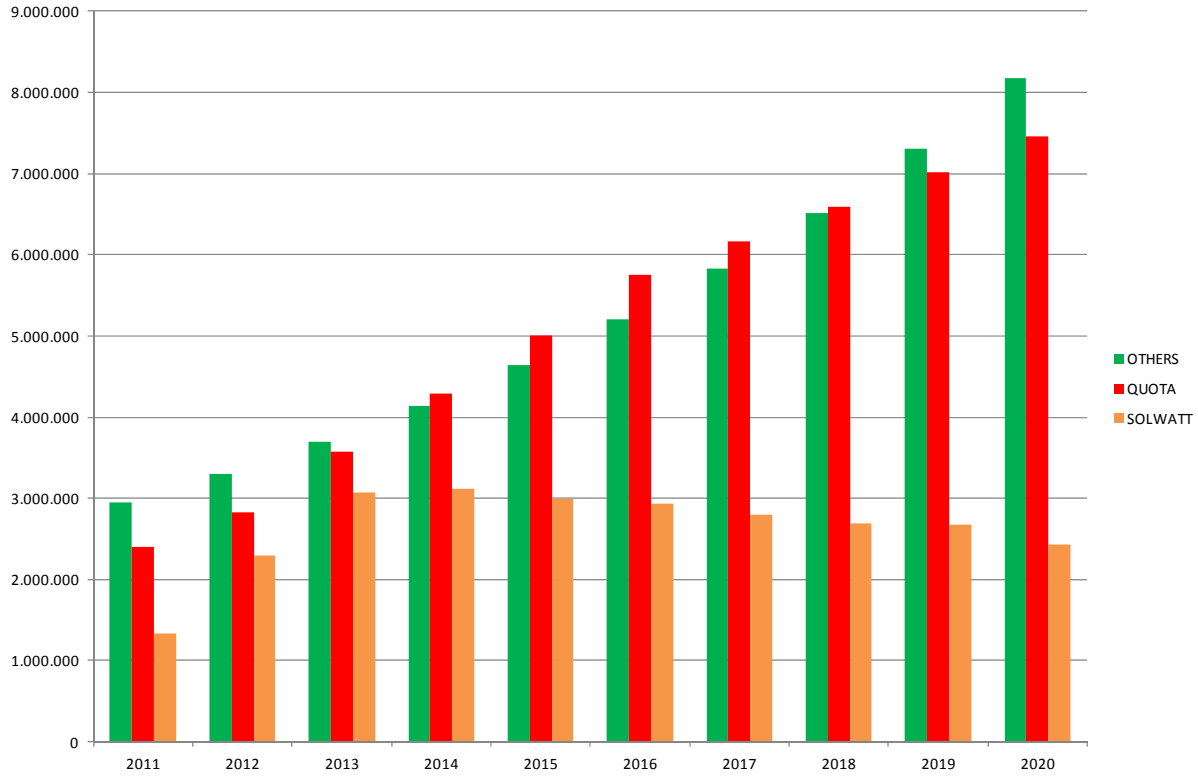


Figure 18: Impact of the solar photovoltaic generation system on the imbalance between supply and demand on the green certificate market

In the scenario where the majority of green certificates issued for solar photovoltaic installations under 10 kW put into service until the end of September 2013 are sold to Elia at €65/GC, this represents a cost that could reach €200 M a year over the period 2012–2020 to be borne by Elia, a cost that will inevitably be passed on in the consumers' electricity bills through a regional surcharge applied to the costs of using the grid.

4. Conclusions

As in 2010 and despite the relative uncertainties on the one hand about the setting of quotas for the period 2013–2020 and on the other hand, the revision of levels of support for the various generation systems, green electricity production facilities continue to expand at a steady pace.

With a total installed capacity of 1,375 MW at the end of 2011, green electricity production has increased by more than 15% compared with 2010, i.e. nearly 17.5% of the electricity supply in Wallonia. Wind energy remained the main driver of that growth in 2011, followed by the 'fossil fuel cogeneration' generation system.

In terms of green certificates, it is the solar photovoltaic segment which displays the fastest growth, followed by wind power. The biomass and biomass cogeneration sectors still lead the field, with a market share of around 40%, followed by wind (27%) and photovoltaic, which now holds a market share of nearly 25%. This is due to the multiplier coefficient applied to this generation system.

This has resulted in an 11% increase in the average level of support for green electricity which, for the year 2011, amounts to €78/green MWh generated compared with €70/green MWh in 2010.

As in previous years, the number of green certificates available on the market far exceeds the number of green certificates to be returned by suppliers, so suppliers returned the required number of green certificates, except for one case where a fine of €200 (2 GCs) was applied.

In its opinion issued in May 2012, the CWaPE forecast a growing imbalance in the market for green certificates for the period 2012–2020 if no corrective action is taken urgently.

While awaiting corrective action, the CWaPE predicts a significant increase in the sale of green certificates at €65/GC to Elia, whether by small producers who do not have contracts or by larger producers whose contracts expire in 2012.

In its opinion issued in May 2012, the CWaPE considers that the mechanism of green certificates is not adapted to the specific audience of private individuals, and recommends opting for another mechanism, which would be much less expensive and more stable, while allowing stable development of small photovoltaic facilities.

The imbalance in the market for green certificates corresponds precisely to the number of green certificates issued within the Solwatt generation system.

One must therefore conclude that while the green certificates mechanism actually enabled the expansion of the solar photovoltaic generation system within a few years, other mechanisms must now be put in place for this generation system, otherwise it will endanger the green certificates mechanism that remains relevant for the development of other green electricity generation systems.

Based on these considerations, the removal of market access for green certificates for all solar photovoltaic installations with a capacity less than or equal to 10 kW is now needed urgently.

* *
*

ANNEX 1: List of green power production sites at the end of 2011 (Pend > 10 kW) – Biomass generation systems

Generation system	Name of owner	Production site (with file number)	Pqnv (kW)	Pend (kW)
Biomass	AGRIBERT - BENIEST	140_FERME DE LA GRANGE DE LA DÎME (MONT-SAINT-GUIBERT)	0	245
	ELECTRABEL	97_BIOMASSE AWIRS 4	0	80.000
	IDEA HENNUYERE	68_BIOMASSE STATION D'ÉPURATION DE WASMUEL	0	429
	INTRADEL	82_BIOMASSE C.E.T. D'HALLEMBAYE	0	2.048
		8 046_BIOMASSE UVÉLIA (Herstal)	0	30.320
	SHANKS	2_BIOMASSE C.E.T. DE MONT-ST-GUIBERT / CETEM	0	10.657
	SITA WALLONIE	1_BIOMASSE C.E.T. D'ENGIS-PAVIOMONT	0	1.780
		84_BIOMASSE C.E.T. DE MONTZEN	0	176
	VERDESIS	90_BIOMASSE A.I.V.E. (MARCHE)	0	26
	Net developable electricity output (kW)			125.681
	Number of sites			9
Biomass cogeneration	ADMINISTRATION COMMUNALE DE GEDINNE	142_BIOMASSE COMMUNE DE GEDINNE	337	306
	ADMINISTRATION COMMUNALE D'OTTIGNIES - LOUVAIN-LA-NEUVE	188_BIOMASSE CENTRE CULTUREL D'OTTIGNIES	156	90
	AIGREMONT	109_BIOMASSE AIGREMONT (FLÉMALLE)	1.318	1.090
	AIVE	63_BIOMASSE C.E.T. DE TENNEVILLE	1.692	1.660
		186_BIOMASSE C.E.T. DE HABAY	693	444
	ARBORETUM	183_BIOMASSE L'ARBORETUM (PÉRUWELZ)	41	25
	BEP - ENVIRONNEMENT	115_BIOMASSE C.E.T. DE HAPPE CHAPOIS	210	260
	BIOENERGIE EGH	263_BIOMASSE BIOENERGIE EGH (NIDRUM)	218	173
	BIOWANZE	1 151_BIOMASSE BIOWANZE	77.700	18.750
	BURGO ARDENNES	43_BIOMASSE BURGO ARDENNE (VIRTON)	103.381	55.000
	BURNIAUX Marcel	123_FERME PRÉ DE PRÉAT (SURICE)	56	85
	C.E.T.B.	7 923_C.E.T. LE BEAUMONT	258	477
	CAP FORME	128_BIOMASSE CAP FORME (LA GLANERIE)	26	12
	CAROLIMMO	134_BIOMASSE BUSINESS HOTEL (CHARLEROI)	26	12
	CITÉ DE L'ESPOIR	8 002_COGEN BIOMASSE CITÉ DE L'ESPOIR	104	59
	ELECTRABEL	10_BIOMASSE LUTOSA (LEUZE)	2.703	2.190
	ELECTRAWINDS BIOMASSE MOUSCRON	153_BIOMASSE ELECTRAWINDS MOUSCRON	4.701	17.240
	ERDA	152_BIOMASSE ERDA (BERTRIX)	19.000	6.300
	ERPC	8 057_BIOMASSE ERPC	142	115
	ETA LE SAUPONT	126_BIOMASSE LE SAUPONT (BERTRIX)	1.525	178
	FRIEBARA	23_HOF HECK (NIDRUM)	226	153
	IBV and Cie	1 152_BIOMASSE IBV (VIELSALM)	27.400	17.769
	JOLUWA	7 957_BIOMASSE JOLUWA	110	88
	KESSLER FRÈRES	38_BIOMASSE FERME DE FAASCHT (ATTERT)	980	757
	LENGES	24_BIOMASSE HOF LENGES (RECHT)	2.871	2.200
	L'ORÉAL LIBRAMONT	5 712_BIOMASSE BIOENERGIE L'ORÉAL	1.543	3.102
	MONSOTEL	204_BIOMASSE HOTEL MERCURE (NIMY)	44	25
	MOULIN G SCHYNS	2 181_BIOMASSE MOULIN SCHYNS (BATTICE)	2.000	1.027
	MYDIBEL	135_BIOMASSE MYDIBEL (MOUSCRON)	1.660	1.382
	NEW VERLAC	155_BIOMASSE VERLAC (ALLEUR)	88	50
	RECYBOIS	112_BIOMASSE RECYBOIS (LATOUR)	3.000	2.600
	RENOGEN	138_BIOMASSE RENOGEN KAISERBARACKE BIOFUEL	3.607	2.949
		149_BIOMASSE RENOGEN KAISERBARACKE BOIS	16.000	9.700
	SEVA	111_BIOMASSE SEVA (MOUSCRON)	1.040	2.000
	SODECOM QUÉVY	205_BIOMASSE SODECOM (QUÉVY)	1.200	2.328
	SPAQUE	64_BIOMASSE C.E.T. D'ANTON (BONNEVILLE)	442	293
		105_BIOMASSE C.E.T. DES ISNES	105	49
	SUCRERIE COUPLET	8 017_BIOMASSE SUCRERIE COUPLET	400	433
	TWENTY SEVEN	196_BIOMASSE TWENTY SEVEN (WATERLOO)	41	25
	VALORBOIS	148_BIOMASSE VALORBOIS (THIMISTER-CLERMONT)	6.400	3.865
	VEOLIA ENVIRONMENTAL SERVICES	20_BIOMASSE C.E.T. DE COUR-AU-BOIS	1.000	3.041
	VILLE DE TOURNAI	2 824_BIOMASSE GAZENBOIS (TOURNAI)	600	292
	Net developable electricity output (kW)			158.594
	Number of sites			42

ANNEX 1: List of green power production sites at the end of 2011 (Pend > 10 kW – Fossil fuel cogeneration system

Generation system	Name of owner	Production site (with file number)	Pqnv (kW)	Pend (kW)
Fossil cogeneration	AW EUROPE	8 097_COGEN AW EUROPE	114	70
	BAXTER	8 063_COGEN BAXTER LESSINES	8.410	5.336
	BELGIAN QUALITY FISH	161_COGEN BQF (DOTTIGNIES)	655	375
	BENEO-Orafti	113_COGEN RAFFINERIE NOTRE-DAME (OREYE)	70.000	9.500
	BIESBROUCK	150_COGEN BIESBROUCK (PECQ)	6.539	4.942
	BRIQUETERIES DE PLOEGSTEERT	8 036_COGEN BRIQUETERIE DE PLOESTEERT DIVISION BARRY	510	301
		1 973_COGEN BRIQUETERIES DE PLOEGSTEERT	1.187	889
	C.H.A.A.P	7 916_COGEN L'ORÉE DU BOIS	32	15
	C.H.R DE LA CITADELLE DE LIÈGE	7 976_COGEN C.H.R DE LA CITADELLE DE LIÈGE	1.651	1.532
	CENTRE HOSPITALIER PSYCHIATRIQUE DE LIÈGE	185_COGEN CHP PETIT BOURGOGNE (SCLESSIN)	207	137
	CENTRE PUBLIC D'ACTION SOCIALE DE MONS	8 145_COGEN RESIDENCE DU BOIS D'HAVRE	216	138
	CHU AMBROISE PARÉ	170_COGEN CHU AMBROISE PARÉ	954	680
	CLINIQUE DE L'IPAL	208_COGEN PÈRÎ DES CLINIQUES DE L'IPAL (SCLESSIN)	201	119
	CLINIQUE PSYCHIATRIQUE DES FRÈRES ALEXIENS	103_COGEN CLINIQUE PSY DES FRÈRES ALEXIENS (HENRI-CHAPELLE)	380	251
	CPAS DE NAMUR	164_COGEN CPAS DE NAMUR	200	118
	DECOCK YOUNGPLANTS	8 021_COGEN PELARGONIUM DECOCK	1.909	1.448
	DEPAIRON	3 381_COGEN DEPAIRON	186	122
	DOW CORNING EUROPE	3 042_COGEN DOW CORNING SENEFFE	1.319	909
	ELECTRABEL	4_COGEN CHR DE NAMUR	1.046	813
		39_COGEN SOLVAY (JEMEPPE)	116.000	94.447
	ENEAS	45_COGEN MOTEL DE NIVELLES	109	65
	FEDESCO	8 018_COGEN PRISON D'HUY	79	52
		359_COGEN FERRERO ARDENNES (ARLON)	4.848	4.204
	FIRME DERWA	7 780_COGEN DERWA	772	510
	FUNDP	1 174_COGEN FUNDP CHAUFFERIE DE CHIMIE	372	234
	GALACTIC	8 005_COGEN GALACTIC	2.110	1.981
	GLAXOSMITHKLINE BIOLOGICALS	3 522_COGEN GSK WAVRE 1	1.315	1.183
		3 523_COGEN GSK GEMBLOUX	216	139
		8 035_COGEN GSK WAVRE 2	1.507	1.174
	GOBEL	371_COGEN AU JARDIN DU COEUR (FLÉRON)	32	18
	IDEMPAPERS	7992_COGEN IDEMPAPERS VIRGINAL	55.000	8.950
	INTERAGRI DUMOULIN	4 823_COGEN DUMOULIN	1.315	1.113
	IPALLE	89_COGEN STATION D'ÉPURATION DE MOUSCRON	644	403
	ISERA & SCALDIS SUGAR	98_COGEN SUCRERIE DE FONTENOY	31.077	9.806
	KRAFT FOODS NAMUR	1 722_COGEN KRAFT FOODS NAMUR	808	610
	LE POLE IMAGE MEDIACITE	254_COGEN LE PÔLE-BÂTIMENT S (LIÈGE)	121	79
		7 909_COGEN LE PÔLE-BÂTIMENT T (LIÈGE)	163	123
	LES NUTONS	8 044_COGEN LES NUTONS	731	625
	MALTERIE DU CHATEAU	2 179_COGEN MALTERIE DU CHATEAU (BELOEIL)	630	330
	PROGEST	7 904_COGEN CHANTEBRISE	77	48
	PROVITAL INDUSTRIE	96_COGEN PROVITAL INDUSTRIE (WARCOING)	1.249	984
	RAFFINERIE TIRLEMONTOISE	37_COGEN RAFFINERIE DE WANZE	60.000	12.475
		108_COGEN RÂPERIE DE LONGCHAMPS	15.502	6.888
	RÉGIE COMMUNALE AUTONOME DE LA LOUVIÈRE	422_COGEN CENTRE AQUATIQUE DE LA LOUVIÈRE	458	300
	SOCIÉTÉ D'EXPLOITATION DES THERMES DE SPA	7 907_COGEN THERMES DE SPA	582	390
	SOWAER	2 374_COGEN AÉROPORT DE CHARLEROI	114	70
	SPA MONOPOLE	1 178_COGEN SPA MONOPOLE	2.441	1.947
	SPW	1 659_COGEN CA MET (NAMUR)	481	329
	STUV	8 048_COGEN STUV BOIS-DE-VILLERS	220	140
	TAPIS RENT	8 056_COGEN TAPIS RENT	62	30
	TECHSPACE AERO	141_COGEN TECHSPACE-AERO (MILMORT)	1.370	1.155
	TOTAL PETROCHEMICALS FELUY	8074_COGEN TPF	38.330	15.590
	UNIVERSITÉ CATHOLIQUE DE LOUVAIN	8 012_COGEN UCL LLN	4.112	3.768
	UNIVERSITÉ DE LIÈGE	6 500_COGEN BÂTIMENT DE RADIOCHIMIE	202	134
		6 499_COGEN ULG BÂTIMENT D'ÉDUCATION PHYSIQUE	202	134
	WARCOING INDUSTRIE	41_COGEN SUCRERIE DE WARCOING - SITE 1 VW	1.249	981
		118_COGEN SUCRERIE DE WARCOING 2 - SITE NIRO	1.050	803
		119_COGEN SUCRERIE DE WARCOING - SITE 3 TURBO	40.710	6.547
	Net developable electricity output (kW)			206.454
	Number of sites			58

ANNEX 1: List of green power production sites at the end of 2011 (Pend > 10 kW – Wind generation system

Generation system	Name of owner	Production site (with file number)	Pqnv (kW)	Pend (kW)
Wind	A + ENERGIES	117_ÉOLIENNE BRONROMME	0	328
	ALLONS EN VENT	132_PARC ÉOLIEN TIENNE DU GRAND SART	0	794
	ASPIRAVI	250_PARC ÉOLIEN D'AMEL	0	9.897
		5 713_PARC ÉOLIEN VAUBAS (VAUX-SUR-SURE)	0	5.923
	CAPE DOCTOR	7 901_PARC ÉOLIEN DE WARISOULX	0	9.842
	ELECTRABEL	70_PARC ÉOLIEN DE BÜTGENBACH	0	7.993
		7 984_PARC ÉOLIEN QUÉVY 2	0	5.909
		8 122_PARC ÉOLIEN DE LEUZE EN HAINAUT	0	14.255
		7 905_PARC ÉOLIEN DE DOUR	0	9.553
		7 906_PARC ÉOLIEN DE BULLINGEN	0	11.919
	ELECTRASTAR	144_PARC ÉOLIEN DE MARBAIS	0	21.747
	ELECTRAWINDS BASTOGNE	3 786_PARC ÉOLIEN BASTOGNE 1	0	5.923
	ÉLECTRICITÉ DU BOIS DU PRINCE	233_PARC ÉOLIEN DE FOSSES-LA-VILLE	0	21.745
	ELSA	8 144_PARC ÉOLIEN DE LEUZE EUROPE 9	0	2.036
		8 123_PARC ÉOLIEN DE LEUZE EUROPE 10	0	2.036
	ENAIRGIE DU HAINAUT	160_PARC ÉOLIEN DE DOUR-QUIÉVRAIN	0	14.124
	ENERCITY	3 118_PARC ÉOLIEN DE VERLAINE / VILLERS-LE-BOUILLET	0	1.990
	Energie 2030	104_ÉOLIENNE DE ST-VITH	0	593
	ENERGIE 2030 AGENCE	180_ÉOLIENNE DE CHEVETOGNE	0	800
	GREEN WIND	3 028_PARC ÉOLIEN DE CERFONTAINE	0	21.834
		3 027_PARC ÉOLIEN DE CHIMAY	0	9.948
		2 825_PARC ÉOLIEN DE FROIDCHAPELLE	0	24.855
	GREENELEC EUROPE	146_PARC ÉOLIEN DE COUVIN	0	1.977
	HÉGOA WIND	7 963_PARC ÉOLIEN DE PERWEZ III (AISCHE EN REFAIL)	0	4.947
	KVNRG	7 929_PARC ÉOLIEN QUÉVY 1	0	10.465
	KYOTO TECHNOLOGIES	8 013_PARC ÉOLIEN DE CINEY 2	0	10.052
	LES MOULINS DU HAUT PAYS	7 954_PARC ÉOLIEN MOULIN DU HAUT PAYS - EXTENSION DOUR-QUIEVRAIN	0	4.533
	LES VENTS DE L'ORNOI	86_PARC ÉOLIEN DE GEMBLOUX-SOMBREFFE	0	8.982
	LES VENTS DE PERWEZ	107_PARC ÉOLIEN DE PERWEZ 2	0	7.396
	MICHAUX Jean-Pierre	91_PARC ÉOLIEN DU CHAMP DE RANCE	0	18
	MOBILAE	7 930_PARC ÉOLIEN WAIMES-CHAIVREMONT	0	9.105
	NUON Wind Belgium	130_PARC ÉOLIEN DE PERWEZ 3	0	4.495
	PBE	69_PARC ÉOLIEN DE PERWEZ 1	0	597
	PELZ	8 173_PARC ÉOLIEN DE LEUZE EUROPE 8	0	2.036
	RENEWABLE POWER COMPANY	50_PARC ÉOLIEN DE SAINTE-ODE	0	7.484
		7 987_PARC ÉOLIEN DE BOURCY	0	17.433
		7 911_PARC ÉOLIEN DE SAINTE-ODE 2	0	14.944
	Sky Sweeper	2 412_PARC ÉOLIEN DE PONT-À-CELLES (NIVELLES)	0	15.753
	SPE POWER COMPANY	100_PARC ÉOLIEN DE VILLERS-LE-BOUILLET	0	12.000
		121_PARC ÉOLIEN DE WALCOURT	0	9.000
		163_PARC ÉOLIEN DE DINANT & YVOIR	0	11.447
		3 094_PARC ÉOLIEN DE FERNELMONT	0	6.831
		3 093_PARC ÉOLIEN SPE DE VERLAINE/VILLERS LE BOUILLET	0	7.959
		7 056_PARC ÉOLIEN DE FOSSES-LA-VILLE 2	0	7.919
		7 055_PARC ÉOLIEN DE BERLOZ	0	5.955
		8 009_PARC ÉOLIEN DE CINEY 1	0	10.052
	TABNRG	7 928_PARC ÉOLIEN TOURNAI ANTOING	0	15.915
	TIVANO	8 150_PARC ÉOLIEN DE GOUVY	0	11.307
	VANHEEDE WINDPOWER	7 962_ÉOLIEN VANHEEDE WINDPOWER	0	2.000
	VENTS D'HOUYET	94_ÉOLIENNE AUX TCHERETTES	0	1.390
	WALDICO	147_ÉOLIENNE WALDICO GHISLENGHIEN	0	1.969
	WINDFARM BIÈVRE	7 999_PARC ÉOLIEN BIÈVRE	0	14.000
	WINDFARM SANKT VITH	8 054_PARC ÉOLIEN DE SAINT-VITH	0	9.714
	WINDVISION WINDFARM ESTINNES	798_PARC ÉOLIEN D'ESTINNES	0	65.089
	WINDVISION WINDFARM FLOREFFE	7 946_PARC ÉOLIEN WINDVISION WINDFARM FLOREFFE	0	6.839
	Net developable electricity output (kW)			523.648
	Number of sites			55

ANNEX 1: List of green power production sites at the end of 2011 (Pend > 10 kW – Hydroelectric generation system

Generation system	Name of owner	Production site (with file number)	Pqnv (kW)	Pend (kW)
Hydro-electric	AFA Denis	52_HYDRO DES FORGES	0	66
	C.E. Bruno MARAITE	61_HYDRO MARAITE (LIGNEUVILLE)	0	217
	C.E. LA FENDERIE	71_HYDRO LA FENDERIE (TROOZ)	0	276
	CARMEUSE	435_HYDRO NEUVILLE (MOHA)	0	90
	CARRIÈRE DE VINALMONT	58_HYDRO DE RABORIVE (AYWAILLE)	0	60
	CENTRALES GAMBY	59_HYDRO CHAPUIS (BELLEVAUX)	0	100
		60_HYDRO D'OLNE	0	256
	DONY	48_HYDRO DU VAL DE POIX	0	94
	EDF Luminus	12_HYDRO DE FLORIFFOUX	0	843
		13_HYDRO DES GRANDS-MALADES (JAMBES)	0	4.887
		14_HYDRO D'ANDENNE	0	8.986
		15_HYDRO D'AMPSIN-NEUVILLE	0	9.910
		16_HYDRO D'IVOZ-RAMET	0	9.742
		17_HYDRO DE MONSIN	0	17.765
		18_HYDRO DE LIXHE	0	22.979
	ELECTRABEL	28_HYDRO DE LORCÉ	0	80
		29_HYDRO DE HEID-DE-GOREUX (AYWAILLE)	0	7.344
		30_HYDRO D'ORVAL	0	47
		31_HYDRO DE COO DÉRIVATION	0	385
		32_HYDRO DE STAVELOT	0	106
		33_HYDRO DE CIERREUX (GOUVY)	0	100
		34_HYDRO DE LA VIERRE (CHINY)	0	1.976
		35_HYDRO DE BÜTGENBACH	0	2.106
		36_HYDRO DE BÉVERCÉ	0	9.902
		77_MOULIN DE BARDONWEZ (RENDEUX)	0	32
	ÉNERGIE BERCHIWÉ	122_MOULIN DE BERCHIWÉ	0	22
	ÉNERGIE FLEUVES	207_HYDRO BARRAGE DE HUN	0	2.038
	ENHYDRO	65_HYDRO DE PONT-À-SMUID (SAINT-HUBERT)	0	174
		66_HYDRO DE SAINTE-ADELINE (SAINT-HUBERT)	0	116
	F.Y.M CONSULT	73_MOULIN FISENNE (PEPINSTER)	0	95
	HYDRO B	8 073_HYDRO DE MARCINELLE	0	656
	HYDROLEC DENIS	51_HYDRO DE DOLHAIN (BILSTAIN)	0	140
		53_MOULIN PIRARD (NESSONVAUX)	0	49
	HYDROVAL	47_HYDRO ZOUDE (SAINT-HUBERT)	0	178
	IKONOMAKOS Xavier	564_HYDRO BARSE (MARCHIN)	0	45
	JEANTY Nadine	76_MOULIN DE VILLERS-LA-LOUE	0	15
	LA TRAPPERIE	2 501_HYDRO DE LA TRAPPERIE (HABAY-LA-VIEILLE)	0	37
	MERYTHERM	57_HYDRO DE MÉRY (TILFF)	0	205
	MOULINS HICK	158_MOULIN HICK (VAL-DIEU)	0	18
	MUYLE HYDROÉLECTRICITÉ	87_HYDRO DE MORNIMONT	0	698
	PHY	74_HYDRO PIRONT (LIGNEUVILLE)	0	62
		75_MOULIN MAYERES (MALMEDY)	0	104
	PROTIN Josette	56_MOULIN D'EN BAS (SAINT-HUBERT)	0	15
	REFAT ELECTRIC	67_HYDRO DE REFAT (STAVELOT)	0	245
	S.A.P.I.E.F	72_HYDRO DE FRAIPONT	0	75
	SCIERIE MAHY	83_MOULIN DE LA SCIERIE MAHY (CHANLY)	0	25
	SPW	78_HYDRO DE L'EAU D'HEURE	0	951
		79_HYDRO DU PLAN INCLINÉ DE RONQUIÈRES	0	2.690
		6 677_HYDRO BARRAGE DE LA GILEPPE	0	581
	SWDE	54_HYDRO COMPLEXE DE L'OURTHE (NISRAMONT)	0	1.208
	SWDE	55_HYDRO COMPLEXE DE LA VESDRE (EUPEN)	0	1.519
	TECTEO	116_HYDRO DES GROSSES BATTES	0	460
	VERTWATT	202_HYDRO SAINT-ROCH (COUVIN)	0	92
	WAL D'OR	1 375_HYDRO WALD'OR (MARCHIN)	0	75
	WILLOT Jean-Luc	99_MOULIN JEHOULET (MOHA)	0	22
	ZEYEN Dietmar	62_MOULIN DE WEWELER (BURG-REULAND)	0	169
	Net developable electricity output (kW)			111.129
	Number of sites			56

ANNEX 1: List of green power production sites at the end of 2011 (Pend > 10 kW – Solar PV generation system

Generation system	Name of owner	Production site (with file number)	Pqnv (kW)	Pend (kW)
Solar	A.C.M.	7 951_PHOTOVOLTAIQUE ACM	0	221
	ABBIUSI	7 993_PHOTOVOLTAIQUE ABBIUSI	0	29
	ACCUBEL	8 027_PHOTOVOLTAIQUE ACCUBEL	0	21
	ADAMS Peter	7 931_PHOTOVOLTAIQUE ADM	0	46
	ADMINISTRATION COMMUNALE D'ATTERT	193_PHOTOVOLTAIQUE ÉCOLE COMMUNALE D'ATTERT	0	18
	ADMINISTRATION COMMUNALE DE PERWEZ	7 965_PHOTOVOLTAIQUE HALL DES SPORTS (PERWEZ)	0	29
	ALAN & CO	172_PHOTOVOLTAIQUE ALAN & CO	0	45
	ANAPHARMA	7 998_PHOTOVOLTAÏQUE ANAPHARMA	0	24
	ANDRÉ Nicolas	8 007_PHOTOVOLTAIQUE ANDRÉ Nicolas	0	44
	ARPAL MANAGMENT	8 011_PHOTOVOLTAIQUE ARPAL MANAGMENT	0	90
	ATELIERS BODART ET VANGE	8 087_PHOTOVOLTAÏQUE ATELIERS BODART ET VANGE	0	78
	AU PAIN CINACIEN	8 003_PHOTOVOLTAIQUE AU PAIN CINACIEN	0	44
	BALTEAU	1 156_PHOTOVOLTAIQUE Balteau sa	0	28
	BAM MAT	3 728_PHOTOVOLTAIQUE BAM MAT	0	46
	BARBIER Étienne	8 065_PHOTOVOLTAIQUE BARBIER	0	32
	BEM'S	8 114_PHOTOVOLTAIQUE BEM'S	0	40
	Bières de Chimay	2 046_PHOTOVOLTAIQUE Bières de Chimay	0	41
	BRIDGESTONE AIRCRAFT TIRE	7 926_PHOTOVOLTAIQUE BRIDGESTONE AIRCRAFT TIRE	0	32
	CAPAUL	8 168_PHOTOVOLTAIQUE CAPAUL	0	90
	CELEM	8 193_PHOTOVOLTAIQUE CELEM	0	48
	CEZAR MEUBLES	7 968_PHOTOVOLTAIQUE CEZAR MEUBLES	0	83
	CHAPELLERIE HERMAN	8 039_PHOTOVOLTAIQUE CHAPELLERIE HERMAN	0	21
	CHAUDRO 2000	7 942_PHOTOVOLTAIQUE CHAUDRO 2000	0	51
	CHOCOLATERIE BELVAS	8 163_PHOTOVOLTAIQUE CHOCOLATERIE BELVAS	0	69
	CODIBEL	8 099_PHOTOVOLTAIQUE CODIBEL	0	121
	DELABIE	7 166_PHOTOVOLTAIQUE DELABIE	0	700
	DELISNACK	8 040_PHOTOVOLTAIQUE DELISNACK	0	67
	DERCO	8 076_PHOTOVOLTAIQUE DERCO	0	20
	DIEDERICKX J-F	8 037_PHOTOVOLTAIQUE DIEDERICKX	0	20
	DOLCE LA HULPE	8 185_PHOTOVOLTAIQUE DOLCE LA HULPE	0	238
	DOMAINE PROVINCIAL DE CHEVETOGNE	6 369_PHOTOVOLTAIQUE DOMAINE PROVINCIAL DE CHEVETOGNE	0	60
	ELOY PREFAB	8 157_PHOTOVOLTAIQUE ELOY PREFAB	0	233
	EMICHAFLO	8 164_PHOTOVOLTAIQUE E.C.F	0	60
	ENDECO	7 996_PHOTOVOLTAIQUE ENDECO	0	38
	ETS DENIS	7 975_PHOTOVOLTAIQUE DENIS Jean-Luc	0	118
	ETS LAURENT Christian	7 924_PHOTOVOLTAIQUE ETS LAURENT Christian	0	12
	ETS MARCEL COLLIGNON	8 064_PHOTOVOLTAIQUE ETS MARCEL COLLIGNON	0	49
	FIB Belgium	3 639_PHOTOVOLTAIQUE FIB BELGIUM	0	99
	FUGEL FRAIS	7 997_PHOTOVOLTAIQUE FUGEL FRAIS	0	21
	GHL Groupe	8 081_PHOTOVOLTAIQUE GHL Groupe	0	113
	GLAXOSMITHKLINE BIOLOGICALS	3 261_PHOTOVOLTAIQUE GSK WAVRE WN02	0	101
		3 418_PHOTOVOLTAIQUE GSK WAVRE W18	0	43
	GOFFETTE	8 041_PHOTOVOLTAIQUE GOFFETTE	0	60
	GREENWATCH	8 079_PHOTOVOLTAIQUE GGM	0	110
	H&M	8 066_PHOTOVOLTAIQUE H&M GHLIN	0	250
	HAVET Jacques	7 970_PHOTOVOLTAIQUE TERRASSEMENTS HAVET	0	26
	HERBAGRI	7 978_PHOTOVOLTAIQUE HERBAGRI 1	0	60
	HUSTIN Philippe	8 068_PHOTOVOLTAIQUE HUSTIN FRUITS ET LEGUMES	0	142
	IDELUX	5 109_PHOTOVOLTAIQUE GALAXIA	0	152
	IDEMASPORT	8 050_PHOTOVOLTAIQUE IDEMASPORT	0	29
	IGRETEC	8 015_PHOTOVOLTAIQUE Bâtiment TELECOM 2	0	20
		8 014_PHOTOVOLTAIQUE Bâtiment TELECOM 1	0	20
	ILLUDESIGN	8 043_PHOTOVOLTAIQUE ILLUDESIGN	0	76
	IMMO MPR	8 121_PHOTOVOLTAIQUE MPR	0	75
	IMPERBEL	7 994_PHOTOVOLTAIQUE IMPERBEL PERWEZ	0	33
	INFORMATIQUE COMMUNICATIONS SERVICES	7 986_PHOTOVOLTAIQUE I.C.S	0	21
	INTERCOMMUNALE DES EAUX DU CENTRE DU BRABANT WALLON	8 132_PHOTOVOLTAIQUE IECBW	0	221
	ISSOL	8 219_PHOTOVOLTAIQUE MECAMOLD	0	68
		8 321_PHOTOVOLTAIQUE BTN	0	188
	IWAN SIMONIS	7 936_PHOTOVOLTAIQUE IWAN SIMONIS	0	105
	JOHN MARTIN	7 952_PHOTOVOLTAIQUE JOHN MARTIN	0	55
	JOST LOGISTICS	8 101_PHOTOVOLTAIQUE JOST LOGISTICS	0	145
	KEVERS	8 139_PHOTOVOLTAIQUE KEVERS MATERIAUX	0	17
	KOCKARTZ AG	2 279_PHOTOVOLTAIQUE BACKEREI-KONDITOREI-KOCKARTZ	0	21
	LA PETITE FOURNÉE	8 189_PHOTOVOLTAIQUE LA PETITE FOURNÉE	0	23
	LANGE JM & Fils	8 004_PHOTOVOLTAIQUE LANGE JM & FILS	0	42
	LANGER Bruno	5 936_PHOTOVOLTAIQUE LANGER Bruno	0	25
	LE MIDI	8 143_PHOTOVOLTAIQUE LE MIDI	0	111
	LECLERC Georges	8 001_PHOTOVOLTAIQUE LECLERC Georges	0	41
	LES VÉRANDAS 4 SAISONS	5 592_PHOTOVOLTAIQUE LES VÉRANDAS 4 SAISONS	0	114

ANNEX 1: List of green power production sites at the end of 2011 (Pend > 10 kW) (Solar PV generation system: end)

Generation system	Name of owner	Production site (with file number)	Pqnv (kW)	Pend (kW)
Solar	MAISON BUTERA	8 169_PHOTOVOLTAIQUE MAISON BUTERA	0	82
	MAISON DES SYNDICATS	7 949_PHOTOVOLTAIQUE FGTB LIÈGE-HUY-WAREMME	0	18
	MAISON DESPRIET	8 024_PHOTOVOLTAIQUE MAISON DESPRIET	0	81
	MAISON LARUELLE	8 130_PHOTOVOLTAIQUE MAISON LARUELLE HALL2	0	68
		8 131_PHOTOVOLTAIQUE MAISON LARUELLE HALL1	0	64
	MC TECHNICS	8 089_PHOTOVOLTAIQUE MC TECHNICS	0	36
	MEENS André	7 989_PHOTOVOLTAIQUE MEENS André	0	39
	MENUISERIE KEPPENNE	5 108_PHOTOVOLTAIQUE MENUISERIE KEPPENNE	0	18
	ML CONCEPT	7 903_PHOTOVOLTAÏQUE ML CONCEPT	0	34
	MONNAIE-BAYS	5 107_PHOTOVOLTAIQUE MONNAIE-BAYS	0	228
	NEW VERLAC	3 608_PHOTOVOLTAIQUE VERLAC	0	14
	NISSAN MOTOR MANUFACTURING	4 111_PHOTOVOLTAIQUE NISSAN NTCEB	0	53
	NOVALUX PRODUCTS	8 088_PHOTOVOLTAÏQUE NOVALUX PRODUCTS	0	20
	PFIZER ANIMAL HEALTH	8 058_PHOTOVOLTAIQUE PFIZER ANIMAL HEALTH	0	181
	PHELECT	7 913_PHOTOVOLTAIQUE PHELECT	0	45
	PHOENIX METALWORKX	8 072_PHOTOVOLTAIQUE PHOENIX METALWORX	0	33
	POUCETTRI	7 953_PHOTOVOLTAIQUE POUCETTRI	0	40
	RECUPLAST	8 026_PHOTOVOLTAIQUE RECUPLAST	0	99
	RENÉ SCHWANEN ET FILS	7 959_PHOTOVOLTAIQUE SCHWANEN	0	41
	SANIDEL	7 971_PHOTOVOLTAIQUE SANIDEL TOITURE	0	54
	SCAR	7 958_PHOTOVOLTAIQUE SCAR HERVE	0	48
	SCHAAP	7 921_PHOTOVOLTAIQUE SCHAAP	0	34
	SCHMETZ	8 221_PHOTOVOLTAIQUE SCHMETZ	0	53
	SCHREIBER	8 070_PHOTOVOLTAIQUE SCHREIBER	0	94
	SEALTECH	5 710_PHOTOVOLTAIQUE SEALTECH	0	50
	SNCB HOLDING	8 029_PHOTOVOLTAIQUE GARE DE CHARLEROI SUD	0	55
	SONIMAT	8 188_PHOTOVOLTAIQUE BIGMAT GEMBLOUX	0	117
	SPRIMOGLASS	6 308_PHOTOVOLTAIQUE SPRIMOGLASS	0	128
	STATION INTERZONING	8 083_PHOTOVOLTAIQUE STATION INTERZONING	0	34
	STOCKAGE INDUSTRIEL	8 067_PHOTOVOLTAIQUE STOCKAGE INDUSTRIEL	0	232
	THE CLAY AND PAINT FACTORY	8 156_PHOTOVOLTAIQUE THE CLAY AND PAINT FACTORY	0	85
	TISS ET TEINT	8 125_PHOTOVOLTAIQUE TISS ET TEINT	0	105
	TRICOBEL	8 062_PHOTOLTAIQUE TRICOBEL	0	90
	VAESSEN POULEAU Benoît	8 038_PHOTOVOLTAIQUE FERME VAESSEN Benoît	0	46
	VAN COLEN	8 220_PHOTOVOLTAIQUE VAN COLEN	0	204
	VEEP TWO	8 071_PHOTOVOLTAIQUE VEEP TWO	0	25
	VERMEIRE TRANSMISSIONS	7 910_PHOTOVOLTAIQUE VERMEIRE TRANSMISSIONS	0	68
	VILLE DE MONS	7 950_PHOTOVOLTAIQUE ATELIER PIERART	0	12
	WAREMME FRUIT	8 102_PHOTOVOLTAIQUE OLEYE	0	135
	WILBOW	8 187_PHOTOVOLTAIQUE WILBOW	0	17
	WONITROL	8 061_PHOTOVOLTAIQUE WONITROL MONS	0	82
	Net developable electricity output (kW)			8.591
	Number of sites			111

ANNEX 2: Issuance of green certificates at the end of 2011 – Breakdown by generation system and per year

		2003***	2004	2005	2006	2007	2008	2009	2010	2011
Photovoltaic	GCs produced	**0**	**1**	**2**	**9**	**25**	**10.138**	**152.004**	**370.914**	**938.066**
	RES electricity generated (MWh)	**0**	**1**	**2**	**9**	**25**	**1.519**	**22.233**	**54.594**	**140.663**
	Net electricity generated (MWh)	**0**	**1**	**2**	**9**	**25**	**1.519**	**22.233**	**54.594**	**140.663**
Hydroelectric	GCs produced	**310.988**	**305.024**	**277.690**	**350.276**	**377.909**	**190.851**	**167.623**	**163.237**	**101.201**
	RES electricity generated (MWh)	**310.988**	**305.024**	**277.690**	**350.276**	**377.909**	**365.843**	**317.582**	**295.535**	**187.780**
	Net electricity generated (MWh)	**310.988**	**305.024**	**277.690**	**350.276**	**377.909**	**365.843**	**317.582**	**295.535**	**187.780**
Wind	GCs produced	**25.244**	**46.132**	**70.927**	**126.149**	**204.840**	**296.432**	**496.410**	**697.775**	**1.029.347**
	RES electricity generated (MWh)	**25.244**	**46.132**	**70.927**	**126.149**	**204.840**	**296.902**	**496.561**	**697.777**	**1.029.512**
	Net electricity generated (MWh)	**25.244**	**46.132**	**70.927**	**126.149**	**204.840**	**296.902**	**496.561**	**697.777**	**1.029.512**
Biomass	GCs produced	**65.167**	**81.501**	**172.681**	**315.894**	**379.548**	**477.891**	**385.731**	**495.492**	**410.356**
	RES electricity generated (MWh)	**65.233**	**81.724**	**243.658**	**476.650**	**562.933**	**691.036**	**545.109**	**612.051**	**582.750**
	Net electricity generated (MWh)	**65.373**	**81.893**	**263.903**	**501.821**	**576.441**	**702.682**	**559.207**	**620.999**	**658.283**
Biomass cogeneration	GCs produced	**162.520**	**200.356**	**217.504**	**277.075**	**497.315**	**658.669**	**851.714**	**1.051.197**	**1.166.602**
	RES electricity generated (MWh)	**165.590**	**200.541**	**215.337**	**257.079**	**414.110**	**611.668**	**758.130**	**854.591**	**882.492**
	COGEN electricity generated (MWh)	**183.203**	**221.582**	**233.845**	**275.964**	**434.025**	**632.348**	**814.675**	**943.826**	**965.520**
	Net electricity generated (MWh)	**183.203**	**221.582**	**233.845**	**275.964**	**434.025**	**632.348**	**814.675**	**943.826**	**965.520**
Fossil cogeneration	GCs produced	**65.963**	**76.271**	**95.365**	**103.766**	**101.721**	**112.256**	**114.781**	**101.623**	**124.911**
	RES electricity generated (MWh)	**0**	**578**	**562**	**1.076**	**1.564**	**1.585**	**2.920**	**1.409**	**822**
	COGEN electricity generated (MWh)	**847.912**	**834.275**	**885.077**	**884.854**	**878.115**	**896.877**	**916.388**	**878.133**	**1.004.634**
	Net electricity generated (MWh)	**847.912**	**834.275**	**885.077**	**884.854**	**878.115**	**896.877**	**916.388**	**878.133**	**1.004.634**
Total green electricity	GCs produced	**629.882**	**709.286**	**834.169**	**1.173.169**	**1.561.359**	**1.746.237**	**2.168.264**	**2.880.237**	**3.770.484**
	RES electricity generated (MWh)	**567.055**	**634.001**	**808.178**	**1.211.240**	**1.561.382**	**1.968.555**	**2.142.535**	**2.515.957**	**2.824.018**
	COGEN electricity generated (MWh)	**1.031.115**	**1.055.857**	**1.118.922**	**1.160.818**	**1.312.140**	**1.529.225**	**1.731.063**	**1.821.959**	**1.970.154**
	Net electricity generated (MWh)	**1.432.720**	**1.488.907**	**1.731.445**	**2.139.073**	**2.471.356**	**2.896.171**	**3.126.646**	**3.490.864**	**3.986.391**
	Tonnes of CO2 avoided	**287.226**	**323.434**	**380.381**	**534.965**	**711.980**	**796.284**	**988.728**	**1.313.388**	**1.719.340**
Share of supply	Electricity supplies in WR	**23.368.935**	**23.628.470**	**23.341.061**	**24.606.202**	**24.070.385**	**24.062.992**	**22.347.398**	**23.492.682**	**22.915.218**
	% RES electricity*	**2,43%**	**2,68%**	**3,46%**	**4,92%**	**6,49%**	**8,18%**	**9,59%**	**10,71%**	**12,32%**
	% COGEN electricity **	**4,41%**	**4,47%**	**4,79%**	**4,72%**	**5,45%**	**6,36%**	**7,75%**	**7,76%**	**8,60%**
	% Net electricity generated	**6,13%**	**6,30%**	**7,42%**	**8,69%**	**10,27%**	**12,04%**	**13,99%**	**14,86%**	**17,40%**

*** RES electricity is electricity generated from renewable energy sources in the European sense (Directive 2009/28/EC)**

**** COGEN electricity is electricity produced from high-quality cogeneration facilities;**

This Walloon concept is close to but different from the concept of cogeneration in the European sense (Directive 2004/8/CE)

***** 2003 statistics include the few productions certified in 2002.**

ANNEX 3: Quota reductions in 2011 – Breakdown per sector

SECTORS	Number of sites	Supplies (MWh)	GCS - nominal quota	GCS - reduction	GCS - to be returned	Actual quota (%)
Chemicals	31	2.660.880	359.219	214.777	144.442	5,43%
Steel-making	15	2.533.084	341.966	230.961	111.006	4,38%
Cement works	6	806.524	108.881	67.552	41.329	5,12%
Transport networks	2	570.030	76.954	59.398	17.556	3,08%
Food	10	549.883	74.234	32.205	42.029	7,64%
Glass	26	476.979	64.392	19.670	44.722	9,38%
Pulp, paper, cardboard	4	315.554	42.600	20.233	22.367	7,09%
Structural steel work and electrical plantmaking	9	285.513	38.544	13.805	24.739	8,66%
Wood, textiles, furniture	4	183.316	24.748	9.581	15.167	8,27%
Lime	6	176.047	23.766	8.058	15.708	8,92%
Quarrying	8	148.308	20.022	7.031	12.991	8,76%
Foundries	4	80.700	10.895	3.535	7.359	9,12%
Ind. processing of paper/cardboard Printing	5	73.466	9.918	2.838	7.080	9,64%
Non-ferrous metals	2	42.518	5.740	1.569	4.171	9,81%
Bricks, ceramics	4	35.651	4.813	1.095	3.718	10,43%
TOTAL	**136**	**8.938.455**	**1.206.691**	**692.308**	**514.384**	**5,75%**

ANNEX 4: Sites with GC quota reduction in 2011

Establishment no. CWaPE	END-USER (Name, company name)	OPERATING PREMISES (name, address)	FEDERATION	SECTOR
1	Air Liquide Industries Belgium S.A	AIR LIQUIDE MARCHIENNE Rue de la Réunion,127, B-6030 MARCHIENNE-AU-PONT	ESSENSCIA	CHEMICALS
2	Air Liquide Industries Belgium S.A	AIR LIQUIDE BAUDOUR Route de Wallonie, B-7331 BAUDOUR	ESSENSCIA	CHEMICALS
3	Akzonobel Chemicals S.A	AKZO GHLIN Parc Industriel de Ghlin,Zone A B-7011 GHLIN	ESSENSCIA	CHEMICALS
4	Ampacet SPRL	AMPACET Rue d'Ampacet 1 B-6780 MESSANCY	ESSENSCIA	CHEMICALS
6	Caterpillar Belgium S.A	CATERPILLAR Avenue des Etats-Unis 1 B-6041 GOSSELIES	AGORIA	Structural steel work and electrical plantmaking
7	CBR S.A	CBR ANTOING Rue du Coucou 8, B-7640 ANTOING	Febelcem	Cement works
8	CBR S.A	CBR HARMIGNIES Rue Blancart 1 B-7022 HARMIGNIES	Febelcem	Cement works
9	CBR S.A	CBR LIXHE Rue des Trois Fermes B-4600 LIXHE	Febelcem	Cement works
10	CCB S.A	CCB G-RX Grand- Route, 260 B-7530 GAURAIN-RAMECROIX	Febelcem	Cement works
11	Carsid S.A	CARSID MARCINELLE Rue de Marchienne, 42 B-6001 MARCINELLE	GSV	Steel-making
12	Arcelor Mittal Industeel Belgium S.A	INDUSTEEL Rue de Chatelet,266, B-6033 MARCHIENNE-AU-PONT	GSV	Steel-making
13	Arcelor Mittal Stainless Belgium S.A	ARCELOR MITTAL CHATELET (Carlam) Rue des Ateliers, 14 B-6200 CHATELET	GSV	Steel-making
14	Arcelor Mittal Liège Upstream S.A	CHAUD-SERAING Rue Boverie,5,B-4100 SERAING	GSV	Steel-making
15	Arcelor Mittal Belgium S.A	FROID-FLEMALLE-RAMET Chaussée de Ramioul, 50 B-4400 FLEMALLE	GSV	Steel-making
16	Arcelor Mittal Belgium S.A	FROID-TILLEUR-JEMEPPE B-4101 JEMEPPE SUR MEUSE	GSV	Steel-making
17	Segal S.A	SEGAL Chaussée de Ramioul, 50 B-4400 FLEMALLE	GSV	Steel-making
18	Air Liquide Industries Belgium S.A	AIR LIQUIDE LIEGE Rue de la Vieille Espérance, 86 B-4100 SERAING	ESSENSCIA	CHEMICALS
19	Arcelor Mittal Liège Upstream S.A	CS-CHAUD-CHERTAL Pont de Wandre B-4683 VIVEGNIS	GSV	Steel-making
20	Arcelor Mittal Belgium S.A	Tôlerie Delhoye Mathieu (TDM) Chaussée des Forges,5, B-4570 MARCHIN	GSV	Steel-making
21	Laminoirs du Ruau S.A	LAMINOIRS DU RUAU Rue de Trazegnies 147-BP 46 B-6031 MONCEAU-SUR-SAMBRE	GSV	Steel-making
22	Dow Corning S.A	DOW CORNING Parc Industriel Zone C B-7180 SENEFFE	ESSENSCIA	CHEMICALS
23	Duferco Clabecq S.A	DUFERCO CLABECQ Rue de Clabecq 101 B-1460 ITTRE	GSV	Steel-making
24	Duferco La Louvière S.A	DUFERCO LA LOUVIERE rue des Rivaux 2 B- 7100 LA LOUVIERE	GSV	Steel-making
25	ENGINEERING STEEL BELGIUM SPRL	ELWOOD STEEL Rue de l'environnement 8 B-4100 SERAING	GSV	Steel-making
26	Exxonmobile Chemicals Films Europe S.A	EXXON MOBILE Zoning Industriel de Labour B-6760 VIRTON	ESSENSCIA	CHEMICALS
27	Ferrero Ardennes S.A	FERRERO Rue Pietro Ferreo 5 B-6700 ARLON	Fevia	Food
28	AGC Flat Glass Europe S.A	GLAVERBEL MOUSTIER S SAMBRE Rue de la Glacerie 167 B-5190 JEMEPPE-SUR-SAMBRE	FIV	Glass
29	Holcim S.A	HOLCIM HACCOURT Rue de l'écluse 40 B-4684 HACCOURT	Febelcem	Cement works
30	Holcim S.A	HOLCIM OBOURG Rue des Fabriques 2 B-7034 OBOURG	Febelcem	Cement works
31	Infrabel S.A	INFRABEL Wallonie	TRANSPORT	Transport networks
32	Ineos Feluy SPRL	INEOS FELUY Parc Industriel de Feluy Nord B-7171 FELUY	ESSENSCIA	CHEMICALS
33	Kabelwerk Eupen A.G.	KABELWERK EUPEN Malmedystrasse 9 B- 4700 EUPEN	AGORIA	Structural steel work and electrical plantmaking
34	Kraft Foods Production S.A	KRAFT FOODS Nouvelle route de Suarlée 6 B-5020 SUARLEE	Fevia	Food
35	Carrières et fours à chaux Dumont Wauthier S.A	DUMONT-WAUTHIER B-4470 SAINT-GEORGES-SUR-MEUSE	Lhoist	Lime
36	Dolomies de Marche-les-Dames S.A	DOLOMIES MLD Rue Haigneux 1 B-5300 NAMECHE	Lhoist	Lime
37	Lhoist Industrie S.A	LHOIST MARCHE Usine de On B-6900 MARCHE-EN-FAMENNE	Lhoist	Lime
38	Magotteaux S.A	MAGOTTEAUX Rue Près Tour 55 B-4051 CHAUDFONTAINE	AGORIA	Foundries
39	MD Verre S.A	MANUFACTURE VERRE Route de Baudour 2 B-7011 GHLIN	FIV	Glass
40	Gerresheimer Momignies S.A	GERRESHEIMER MOMIGNIES Rue Mandenne 19-20 B - 6590 MOMIGNIES	FIV	Glass
41	Prayon Ruppel S.A	PRAYON Rue Joseph Wauters 144 B-4480 ENGIS	ESSENSCIA	CHEMICALS
42	Saint-Gobain Glass Benelux S.A	SAINT GOBAIN GLASS Rue des Glaces Nationales 169 B-5060 AUVELAIS	FIV	Glass
43	Saint-Gobain Sekurit S.A	SAINT GOBAIN SEKURIT Rue des Glaces Nationales 169 B-5060 AUVELAIS	FIV	Glass
44	SCA Hygiène Products S.A	SCA Rue de la Papeterie 2 B-4801 STEMBERT	COBELPA	Paper
45	Sol Spa S.A	SOL SPA Zonning B de Feluy, B-7180 SENEFFE	ESSENSCIA	CHEMICALS
46	Solvic S.A.	SOLVIC Rue de Solvay 39 B- 5190 JEMEPPE-SUR-SAMBRE	ESSENSCIA	CHEMICALS
47	Solvay Chimie S.A	SOLVAY CHIMIE Rue de Solvay 39 B- 5190 JEMEPPE-SUR-SAMBRE	ESSENSCIA	CHEMICALS
49	Société Thy-Marcinelle S.A	THY-MARCINELLE Boîte Postale 1502 B-6000 CHARLEROI	GSV	Steel-making

ANNEX 4: Sites with GC quota reduction in 2011 (continued)

Establishment no. CWaPE	END-USER (Name, company name)	OPERATING PREMISES (name, address)	FEDERATION	SECTOR
50	Total Petrochemicals Feluy S.A	TOTAL FELUY Zone Industrielle-Zone C B-7181FELUY	ESSENSCIA	CHEMICALS
51	Total Petrochemicals Ecaussines S.A	TOTAL ECAUSSINES Zone Industrielle-Zone C B-7181FELUY	ESSENSCIA	CHEMICALS
52	Total Petrochemicals Antwerpen S.A	TOTAL ANTWERPEN Zone Industrielle-Zone C B-7181FELUY	ESSENSCIA	CHEMICALS
54	UCB division pharmaceutique S.A	UCB Chemin du Forest B-1420 BRAINE-L'ALLEUD	ESSENSCIA	CHEMICALS
55	Pinguin Lutosa foods S.A	LUTOSA Zoning Industriel de Vieux Pont 5 B-7900 LEUZE EN HAINAUT	Fevia	Food
56	NGK Europe (anciennement NGK Ceramics Europe) S.A.	NGK Rue des Azalées 1, B-7331 BAUDOUR (Saint-Ghislain)	FBB-Fedicer	Bricks - ceramics
57	Yara Tertre S.A (anciennement Kemira Growhow SA)	YARA (KEMIRA) Rue de la Carbo, 10 B-7333 TERTRE	ESSENSCIA	CHEMICALS
58	Erachem Comilog SA	ERACHEM Rue du Bois 7334 SAINT GHISLAIN	ESSENSCIA	CHEMICALS
59	Imerys Minéraux Belgique SA	IMERYS Rue du canal 2 B-4600 LIXHE	FORTEA - FEDIEX	Quarrying
60	Arjo Wiggins S.A	ARJO VIRGINAL Rue d'Asquempont , 2, B-1460 ITTRE	COBELPA	Paper
61	Arjo Wiggins S.A	ARJO NIVELLES Rue des Déportés, 12 B-1400 Nivelles	COBELPA	Paper
62	Knauf Insulation S.A	KNAUF Rue de Maestricht, 95 B-4600 VISE	FIV	Glass
63	3B Fibreglass SPRL	3B Fibreglass Route de Maestricht B-4651 BATTICE	FIV	Glass
64	Burgo Ardennes S.A	BURGO Rue de la Papeterie B- 6760 VIRTON	COBELPA	Paper
65	GSK Biologicals S.A	GSK WAVRE rue Fleming 1 B-1300 WAVRE	ESSENSCIA	CHEMICALS
66	Sonaca S.A	SONACA route nationale,5 B-6041 GOSSELIES	AGORIA	Structural steel work and electrical plantmaking
67	GSK Biologicals S.A	GSK RIXENSART rue de l'Institut 89 B-1330 RIXENSART	ESSENSCIA	CHEMICALS
68	Techspace Aero S.A	TECHSPACE route de Liers 121 B-4041 MILMORT	AGORIA	Structural steel work and electrical plantmaking
71	Inbev S.A	INBEV avenue J. Prevert 23 B-4020 JUPILLE	Fevia	Food
72	Hydro Aluminium Raeren S.A	HYDRO ALUMINIUM RAEREN Waldstrasse 91, B-4730 RAEREN	AGORIA	Non-ferrous metals
73	Beldem S.A	BELDEM Rue Bourrie, B-5300 ANDENNE	Fevia	Food
74	Carmeuse S.A	CARMEUSE AISEMONT Rue de Boudjesse 1, Aisémont B-5070 FOSSES-LA-VILLE	Carmeuse	Lime
75	Carmeuse S.A	CARMEUSE MOHA Rue Val Notre Dame 300, B-4520 MOHA	Carmeuse	Lime
76	MOLKEREI - LAITERIE DE WALHORN S.A.	MOLKEREI Molkereiweg, 14 B-4711 WALHORN	Fevia	Food
77	CORMAN S.A	CORMAN Rue de la Gileppe 4, B-7834 GOE	Fevia	Food
78	Baxter SA	BAXTER Bld René Branquart 80 B-7860 LESSINES	AGORIA	Structural steel work and electrical plantmaking
79	Berry Yarns SA	BERRY YARNS Route des Ecluses, 52 B-7780 COMINES	Fedustria	Wood, textiles, furniture
80	Sioen Fibers SA	SIOEN FIBERS Zone Industrielle du Blanc Ballot Boulevard Metropole, 9 B-7700 MOUSCRON	Fedustria	Wood, textiles, furniture
81	Beaulieu Technical Textiles SA (anc. Ideal Fibers & Fabriccs Komen SA)	BEAULIEU-T-T Boulevard Industriel, 3 B-7780 COMINES	Fedustria	Wood, textiles, furniture
82	Spanolux SA	SPANOLUX Zone Industrielle de Burtonville, 10 B-6690 VIELSALM	Fedustria	Wood, textiles, furniture
84	Firme Derwa SA	DERWA Avenue de Jupille, 4 B-4020 LIEGE	Fevia	Food
85	Savimetal AG	SAVIMETAL Prümer Strasse, 44 B-4780 SAINT VITH	AGORIA	Foundries
86	Solarec SA	SOLAREC Route de Saint-Hubert, 75 B-6800 RECOGNE	Fevia	Food
88	Européenne de Lyophilisation SA	EDEL Rue de Wallonie 16, B-4460 GRACE-HOLLOGNE	Fevia	Food
89	Dumoulin SA	DUMOULIN INTERAGRI Rue Bourrie, 18 B-5300 SEILLES	Fevia	Food
90	NMC SA	NMC RAEREN Gert - Noël - Strasse B-4731 EYNATTEN	ESSENSCIA	CHEMICALS
91	Molnlycke Health Care SA	MOLNLYCKE HEALTH CARE Chaussée Romaine 176 B-4300 WAREMME	FETRA-FEBELGRA	Industrial processing Paper/cardboard Printing
92	Ahlstrom Malmedy SA	AHLSTROM MALMEDY Avenue du Pont de Warche 1, B-4960 MALMEDY	COBELPA	Paper
93	Gabriel Technologie SA	GABRIEL TECHNOLOGIE Rue des Roseaux 1, B-7331 SAINT-GHISLAIN	ESSENSCIA	CHEMICALS
94	Mactac Europe S.A	MACTACBld J.Kennedy 1 - B-7060 SOIGNIES	FETRA-FEBELGRA	Ind. processing Paper/cardboard Printing
95	Umicore Zinc Chemicals S.A	UMICORERue de Chênée 53 B- 4031 ANGLEUR	AGORIA	Non-ferrous metals
96	Treofan Benelux S.A	TREOFANRue Renory, 497 B-4031 ANGLEUR	ESSENSCIA	CHEMICALS
97	Nexans Benelux S.A.	NEXANS MARCINELLE Rue Vital Françoisse, 218 B-6001 MARCINELLE	AGORIA	Structural steel work and electrical plantmaking
98	Nexans Benelux S.A.	NEXANS DOUR Rue Benoît, 1 B-7370 ELOUGES	AGORIA	Structural steel work and electrical plantmaking
99	MC BRIDE SA	MC BRIDE Rue du Moulin Masure, 4 B-7730 ESTAIMPUIS	ESSENSCIA	CHEMICALS
100	Helio Charleroi S.A	HELIOZONING INDUSTRIEL, Avenue de Spirou, 23 B-6220 FLEURUS	FETRA-FEBELGRA	ind. processing Paper/cardboard Printing

ANNEX 4: Sites with GC quota reduction in 2011 (end)

Establishment no. CWaPE	END-USER (Name, company name)	OPERATING PREMISES (name, address)	FEDERATION	SECTOR
101	Magolux S.A	MAGOLUX Rue de la Hart, 1 B-6780 MESSANCY	AGORIA	Foundries
102	Mydibel S.A	MYDIBELRue du Piro Lannoy, 30 B-7700 MOUSCRON	Fevia	Food
103	Cosucra Groupe Warcoing S.A	COSUCRA WARCOING Rue de la Sucrerie, 1 B-7740 WARCOING	Fevia	Food
104	Dicogel S.A	DICOGELParc Industriel Rue de la Bassée, 3 B-7700 MOUSCRON	Fevia	Food
105	Hesbayefrost S.A	HESBAYEFROST Rue Emile Lejeune, 20 B-4250 GEER	Fevia	Food
106	Imperbel S.A	IMPERBEL Chaussée de Wavre, 13 B-1360 PERWEZ	ESSENSCIA	CHEMICALS
107	Chemviron Carbon S.A.	CHEMVIRON CARBON Parc Industriel de Feluy Zone C B-7181 FELUY	ESSENSCIA	CHEMICALS
108	Beneo-Oraftil S.A	ORAFTI Rue Louis Maréchal, 1 B-4360 OREYE	Fevia	Food
109	TEC Charleroi	TEC CHARLEROI Place des Tranways 9/1 B- 6000 Charleroi	TRANSPORT	Transport networks
110	Sagrex QUENAST	GRALEX QUENAST Rue de Rebecq B-1430 QUENAST	FORTEA - FEDIEX	Quarrying
111	Briqueterie de Ploegsteert S.A	PLOEGSTEERT BARRY Chaussée de Bruxelles, 33 B-7534 BARRY	FBB-Fedicer	Bricks - ceramics
113	Gramybel S.A	GRAMYBEL Bld de l'Eurozone, 80 B-7700 MOUSCRON	Fevia	Food
115	Wienerberger Mouscron S.A	WIENERBERGER MOUSCRON RUE DE LA ROYENNE 55 B - 7700 MOUSCRON	FBB-Fedicer	Bricks - ceramics
116	Raffinerie Tirlemontoise S.A	RAFFINERIE WANZERUE DE MEUSE 9 B - 4520 WANZE	Fevia	Food
117	Detry Freres S.A	DETRY AUBEL RUE DE MERCKHOF 110 B - 4880 AUBEL	Fevia	Food
118	Materne-confilux S.A	MATERNE FLOREFFE ALLEE DES CERISIERS 1 B-5150 FLOREFFE	Fevia	Food
120	Coca Cola entreprises Belgique S.A	COCA COLA CHAUDFONTAINE RUE DU CRISTAL 7 B - 4050 CHAUDFONTAINE	Fevia	Food
121	Sagrex Beez S.A	GRALEX BEEZ RUE DES GRANDS MALADES B - 5000 BEEZ	FORTEA - FEDIEX	Quarrying
122	Wienerberger Peruwelz SA	BRIQUETERIE PERUWELZ Rue de l'Europe,11 B - 7600 PERUWELZ	FBB-Fedicer	Bricks - ceramics
123	Carrières du Hainaut SA	CARRIERE HAINAUT Rue de Cognebeau,245 B - 7060 SOIGNIES	FORTEA - FEDIEX	Quarrying
125	AGC flat glass Europe SA	GLAVERBEL ROUX Rue de Gosselies, 60 B-6044 ROUX	FIV	Glass
128	Cargill chocolate products S.A	CARGILL CHOCOLATE Dréve de Gustave Fache,13 B - 7700 LUINGNE	Fevia	Food
130	Gralex S.A	GRALEX DEUX ACREN Rue des sergents B - 7864 DEUX ACREN	FORTEA - FEDIEX	Quarrying
131	Rosier S.A	ROSIER Rue du Berceau, 1 B - 7911 MOUSTIER	ESSENSCIA	CHEMICALS
132	RKW Ace S.A	RKW ACE Rue de Renory,499 B - 4031 ANGLEUR	ESSENSCIA	CHEMICALS
133	Tensachem S.A	TENSACHEM Rue de Renory,28 4102 OUGREE	ESSENSCIA	CHEMICALS
134	Fonderies marichal ketin S.A	FONDERIES MARICHAL KETIN Verte Voie, 39 4000 LIEGE	AGORIA	Foundries
135	Huileries Savonneries Vandeputte S.A	HUILERIES SAVONNERIES VANDEPUTTE Boulevard Industriel 120 B-7700 MOUSCRON	ESSENSCIA	CHEMICALS
136	CARMEUSE S.A	CARMEUSE SEILLES Rue du château 13A B-5300 SEILLES	Carmeuse	Lime
137	CARMEUSE S.A	CARMEUSE ENGIS Chaussée de Ramioul 1 B-4480 ENGIS	FORTEA - FEDIEX	Quarrying
138	SILOX S.A	SILOX Rue joseph Wauters 144 B-4480 ENGIS	ESSENSCIA	CHEMICALS
139	Carrières Lemay	CARRIERES LEMAY Vieux Chemin de Mons 12 B-7536 VAUX	FORTEA - FEDIEX	Quarrying
140	Les Nutons S.A	LES NUTONS Chemin Saint Antoine,85 B-6900 MARCHE EN FAMENNE	Fevia	Food
141	VAMOS & CIE S.A	VAMOS Chaussée de Wave,259a B-450 WANZE	Fevia	Food
142	VPRINT S.A	VPRINT Boulevard industriel,95 B-7700 MOUSCRON	FETRA-FEBELGRA	ind. processing Paper/cardboard Graphiques
143	CARRIERES ANTOING S.A	CARRIERES ANTOING Rue du coucou,8 B-7640 ANTOING	FORTEA - FEDIEX	Quarrying
144	FN HERSTAL S.A	FN HERSTAL Voie de Liège,33 4040 HERSTAL	AGORIA	Constructions métalliques et électriques
147	DUROBOR S.A	DUROBOR Rue Mademoiselle Hanicq, 39 B-7060 SOIGNIES	FIV	Glass
148	REMY ROTO S.A	REMY ROTO Rue de Rochefort, 211 B-5570 BEAURAING	FETRA-FEBELGRA	ind. Transform. Papier/cartons, ind. Graphiques
149	VALEO VISION Belgique	VALEO VISION Rue du parc industrile 31 B - 7822 MESLIN L'EVEQUE	AGORIA	Constructions métalliques et électriques
150	AGC AUTOMOTIVE BELGIUM	AGC AUTOMOTIVE BELGIUM Avenue du Marquis B - 6220 FLEURUS	FIV	Glass
151	DUFERCO BELGIUM S.A	DUFERCO BELGIUM Rue des Rivaux 2 7100 LA LOUVIERE	GSV	Steel-making
152	LOVENFOSSE S.A	LOVENFOSSE Rue Merckhof 110 B - 4880 AUBEL	Fevia	Food

CWaPE
Commission Wallonne pour l'Energie

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Direction de la Promotion des énergies renouvelables

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