



CWaPE

Commission
Wallonne
pour l'Energie

Developments in the green certificates market

2013 DEDICATED ANNUAL REPORT

Prepared pursuant to article 29 of the decree of the Walloon
Government of 30 November 2006 relating to the promotion of
electricity generated from renewable sources of energy or cogeneration



TABLE OF CONTENTS

1. OBJECT	—5
2. GREEN ELECTRICITY SUPPORT MECHANISM APPLICABLE IN 2013	—6
2.1 Development objectives for green electricity in Wallonia	—7
2.2. How the green certificate mechanism works	—9
2.2.1. Definition of green electricity generation (Decree, Art. 2)	—10
2.2.2. Principles for granting green certificates (Decree, Art. 38)	—10
2.3. Conditions and procedures for granting green certificates	—11
2.3.1. Granting calculation and electricity metering code	—11
2.3.2. Certification of the electricity generation site (CGO)	—12
2.3.3. Preliminary application for certification (PAC)	—12
2.4. Higher generation costs and level of support for green producers	—13
2.4.1. Reference rate of return	—14
2.4.2. “q” factors applied to legacy installations	—14
2.4.3. Review of “k” factors applied after 10 years	—15
2.4.4. Review of multiplier coefficients for the solar power sector	—16
2.4.5. Level of support	—17
2.5. The green certificate market	—18
2.5.1. Supply: granting of green certificates to green producers - (AGW-PEV, Art. 13)	—18
2.5.2. Structure of the market	—19
2.5.3. Demand: return quota for suppliers	—20
2.5.4. Purchase guarantee mechanisms for green certificates	—23
2.6. Passing along of cost of PSO to end-customers	—25
2.6.1. Passing along of cost of green certificate quotas	—25
2.6.2. Passing along of cost of regional GC purchase obligation by LTSO (Elia)	—26
2.6.3. Passing along of cost of federal GC purchase obligation by TSO (Elia)	—27
3. DEVELOPMENTS IN GREEN ELECTRICITY GENERATION FACILITIES IN 2013	—28
3.1. Developments in sites generating more than 10 kW	—28
3.2. Developments in sites generating up to 10 kW	—29
3.2.1. Photovoltaic solar power installations up to 10 kW	—29
3.2.2. Other sectors up to 10 kW	—31
3.3. Generation facilities (as at 31/12/2013)	—32
3.4. Green electricity generation	—33
3.4.1. Electricity generation audit	—33
3.4.2. Developments in production by sector over the period 2012-2013	—34
3.4.3. Focus on the biomass sector	—36
3.5. Green electricity generation in relation to electricity supply in Wallonia	—41
3.6. Level of support by sector	—41

TABLE OF CONTENTS - CONTINUED

4. GREEN CERTIFICATE MARKET	–45
4.1. Granting of green certificates	–45
4.1.1. Developments over the period 2003-2013	–45
4.1.2. Developments in 2013	–46
4.2. Sale of green certificates	–49
4.2.1. Green certificate transactions	–49
4.2.2. Sales options for green certificates	–50
4.2.3. Developments in prices	–53
4.3. Cancellation of green certificates	–58
4.4. Developments in green certificates in circulation (supply)	–59
5. APPLICATION OF GREEN CERTIFICATE QUOTAS	–61
5.1. Nominal green certificate quota in Wallonia	–61
5.2. Green certificate quota reductions	–62
5.3. Effective quotas applicable to suppliers and DSO	–65
5.4. Cancellation of Walloon green certificates for the Brussels-Capital Region quota	–67
6. OUTLOOK FOR THE PERIOD 2014-2024	–68
6.1. Revision of the green certificate mechanism in 2014	–68
6.2. Developments in the granting of green certificates	–68
6.3. Developments in the cancellation of green certificates	–70
6.4. Developments in the supply-demand balance	–71
7. CONCLUSIONS	–73
ANNEX 1: List of green electricity generation sites 2013 by sector	–75
List of green electricity generation sites at the end of 2013 (Net developable electric power >10 kW) – Photovoltaic sector	–75
List of green electricity generation sites at the end of 2013 (Net developable electric power >10 kW) – Hydropower sector	–88
List of green electricity generation sites at the end of 2013 (Net developable electric power >10 kW) – Wind power sector	–91
List of green electricity generation sites at the end of 2013 (Net developable electric power >10 kW) – Biomass sector	–94
List of green electricity generation sites at the end of 2013 (Net developable electric power >10 kW) – Fossil cogeneration sector	–97
ANNEX 2: Development in electricity generation over the period 2003-2013	–100
ANNEX 3: Operating sites that received a GC quota reduction in 2013	–101

1. OBJECT

Article 29 of the order of 30 November 2006 relating to the promotion of electricity generated from renewable sources of energy or cogeneration (AGW-PEV)¹ states the following:

"Art. 29. By 30 April, the CWaPE shall establish a dedicated annual report covering developments in the market for guarantee of origin labels and the market for green certificates. This report shall mention, inter alia, the number of green certificates granted by technology and energy source over the course of the year under consideration, the green certificates transmitted to the CWaPE in accordance with article 25, the average price of a green certificate as well as the administrative fines imposed on system operators and suppliers for failing to fulfil quotas.

The report shall also mention the number of guarantee of origin labels granted by technology and by energy source over the course of the year under consideration, the guarantee of origin labels transmitted to the CWaPE, the average price of guarantee of origin labels, as well as the number of guarantee of origin labels exported to and imported from other regions or countries.

This report shall be sent to the Walloon government."

The first part of the report contains a reminder of the development objectives for green electricity in Wallonia as well as a detailed description of the green certificates (GC) mechanism. The main legislative changes that occurred during 2013 are presented as well.

The second part of the report provides an assessment of 2013. This assessment comprises three components:

- Statistics relating to the generation of green electricity in Wallonia: changes in certified generation sites, in their generation volume, in the level of support granted and finally in the contribution of these green electricity generation facilities to the overall electricity supply in Wallonia.
- Statistics relating to the green certificate market: developments in the granting of green certificates, developments in the prices for GC as purchased by intermediaries, suppliers and DSO and paid to producers according to the type of installation, number and volume of transactions, sales at the regional or federal guaranteed price of EUR 65/GC or EUR 150/MWh respectively, and finally the trend in the end-of-year supply of GC.
- Application of quotas to suppliers and DSO taking account of the reductions to be applied to electricity-intensive end customers (branch agreements), cancellation of GC by suppliers for the purpose of fulfilling their quota obligations in Wallonia (or in the Brussels-Capital Region) and, where applicable, fines imposed by the CWaPE on suppliers for non-compliance with their quota obligations.

The final part of the report deals with the prospects for development of the green certificate market over the period 2014-2024 and, in particular, the prospects for reducing the imbalance between supply and demand.

Data relating to the guarantee of origin labels (GOL) market is included in another report, not yet published, concerning an assessment of each supplier's fuel mix in terms of its entire electricity supplies and in terms of each product sold by the supplier (AGW-PEV, Art. 27).

¹ This order was amended by the orders 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. GREEN ELECTRICITY SUPPORT MECHANISM APPLICABLE IN 2013

Pursuant to European Directives 2009/28/EC (previously 2001/77/EC) and 2004/8/EC, a mechanism to support the generation of electricity from renewable sources of energy and high-quality cogeneration has been in place in Wallonia since 1 January 2003.

As in Flanders and Brussels, Wallonia has opted for a green certificate mechanism, which is managed by the CWaPE.

With regard to the development of electricity generated from renewable energy sources (RES-E), the mechanism established in Wallonia initially proved to be particularly effective insofar as the indicative target of 8% by 2010 had already been achieved by 2008.

Green certificates are granted by the CWaPE on a quarterly basis to every producer of green-certified electricity in proportion to the net quantity of electricity generated and according to, on the one hand, the estimated extra cost associated with generation in the sector and, on the other hand, the measured environmental performance (amount of CO₂ saved) of the installation in comparison to benchmark standard electricity generation. Since 2010, for installations of 10 kW or less, a portion of the green certificates has been granted in advance for an estimated amount corresponding to 5 years of generation, with a limit of 40 GC per generating site. This advance granting of certificates must then be repaid by the producer based on readings of electricity generated transmitted on a quarterly basis to the CWaPE within a maximum period of 5 years. It should be noted that, in July 2013, advance granting was terminated for new photovoltaic solar power installations.

The green certificates granted may be sold by producers during their period of validity (set at 5 years) to suppliers or system operators to enable them to fulfil their quota obligations. If they are unable to find a buyer, producers may also invoke, subject to certain conditions, Elia's obligation to purchase at the guaranteed minimum price of EUR 65/GC.

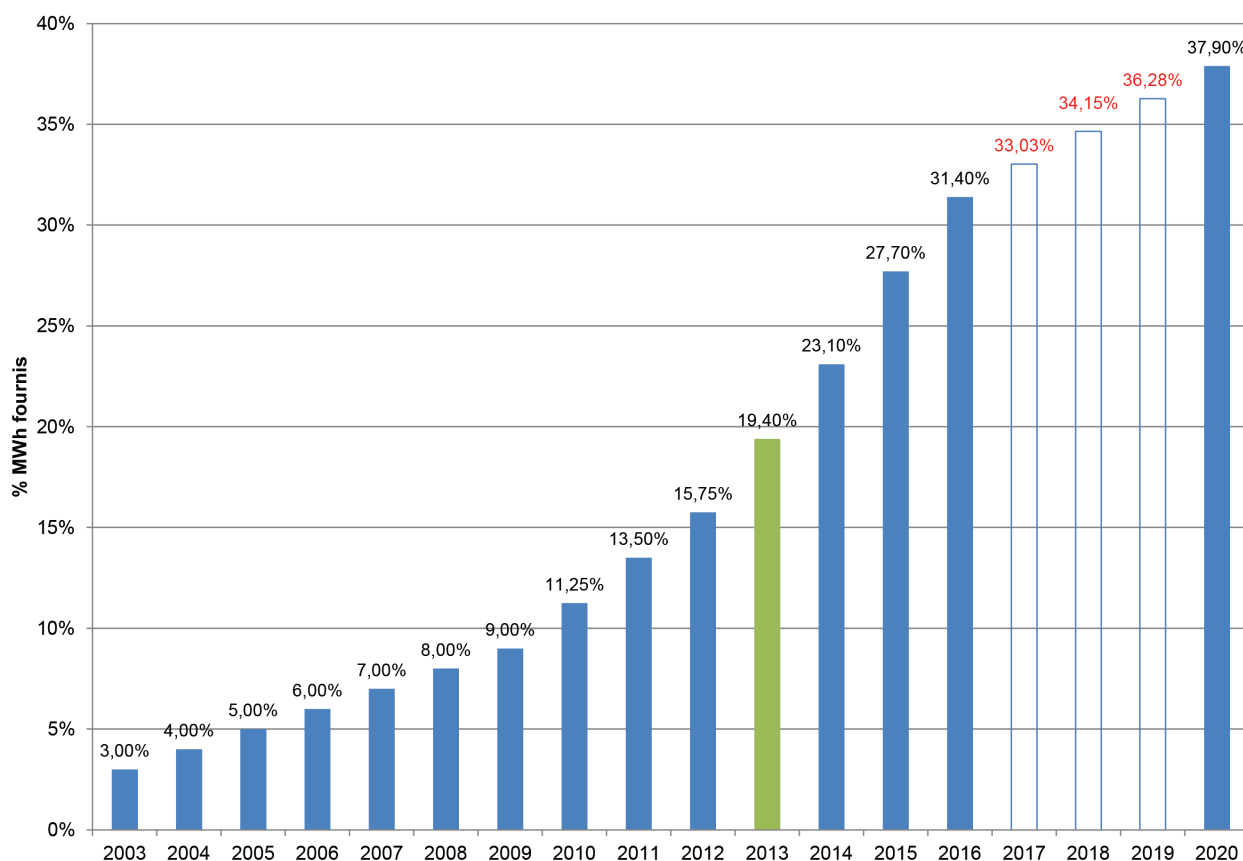
Funding for this support mechanism is therefore assured via a public service obligation (PSO) on the part of electricity suppliers and system operators. Like all PSO, this obligation is passed along to the end-consumer. Nevertheless, energy-intensive users benefit from partial exemptions, subject to entering into agreements with the Region (branch agreements) with a view to improving their energy efficiency over the short, medium and long term.

For each year, the Walloon government sets the quota of green certificates to which suppliers and system operators are subject. They then return GC on a quarterly basis to the CWaPE under penalty of a fine, currently set by the Walloon government at EUR 100/missing GC.



In 2013, the quota was fixed at 19.40% of the electricity supplied in Wallonia. The quotas for the period 2013-2016 as well as the quota for 2020 were established by the Walloon government on 1 March 2012 and were revised upwards on 3 April 2014 for 2015 and 2016 (27.70% and 31.40% respectively). The figure below illustrates the change in quotas over the period 2003-2020. In this figure, the values shown for the period 2017-2019 are provided for information purposes only.

Figure 1 - Changes in nominal quotas for green certificates over the period 2003-2020



2.1 Development objectives for green electricity in Wallonia

European Directive 2009/28/EC assigns Belgium a binding target of generating 13% of its final energy consumption by means of renewable energy sources by 2020.

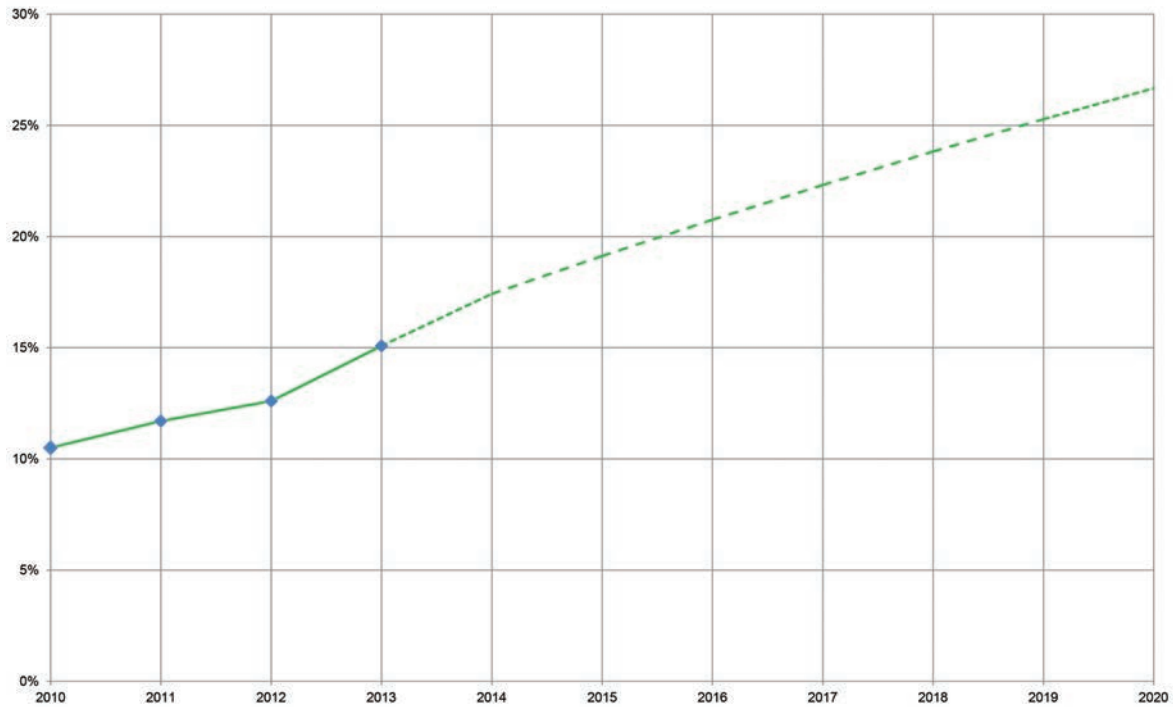
Within the framework of this new directive, Belgium anticipates that it will generate 20.9%² of its final energy consumption by means of renewable energy sources in 2020, amounting to approximately 23 TWh.

For Wallonia, the objective is to generate 8 TWh³ of electricity by means of renewable energy sources, amounting to just over 25% of estimated final electricity consumption in 2020. Wallonia has also set itself a target of generating 3 TWh of electricity from high-quality cogeneration by 2020.

² Belgium: National Renewable Energy Action Plan, November 2010, p. 95, http://economie.fgov.be/en/binaries/NREAP-BE-v25-FR_tcm327-112992.pdf
³ Decree of 27 March 2014 amending the Decree of 12 April 2001 on the organisation of the regional electricity market.

The figure below illustrates the changes seen and expected in the generation of electricity by means of renewable energy sources (RES-E) over the period 2010-2020.

*Figure 2 - Share of the generation of RES-E in final electricity consumption in Wallonia
(Sources: SPW – Walloon energy audit 2012 / CWaPE 2013 / Objective for Wallonia 2014-2020)*



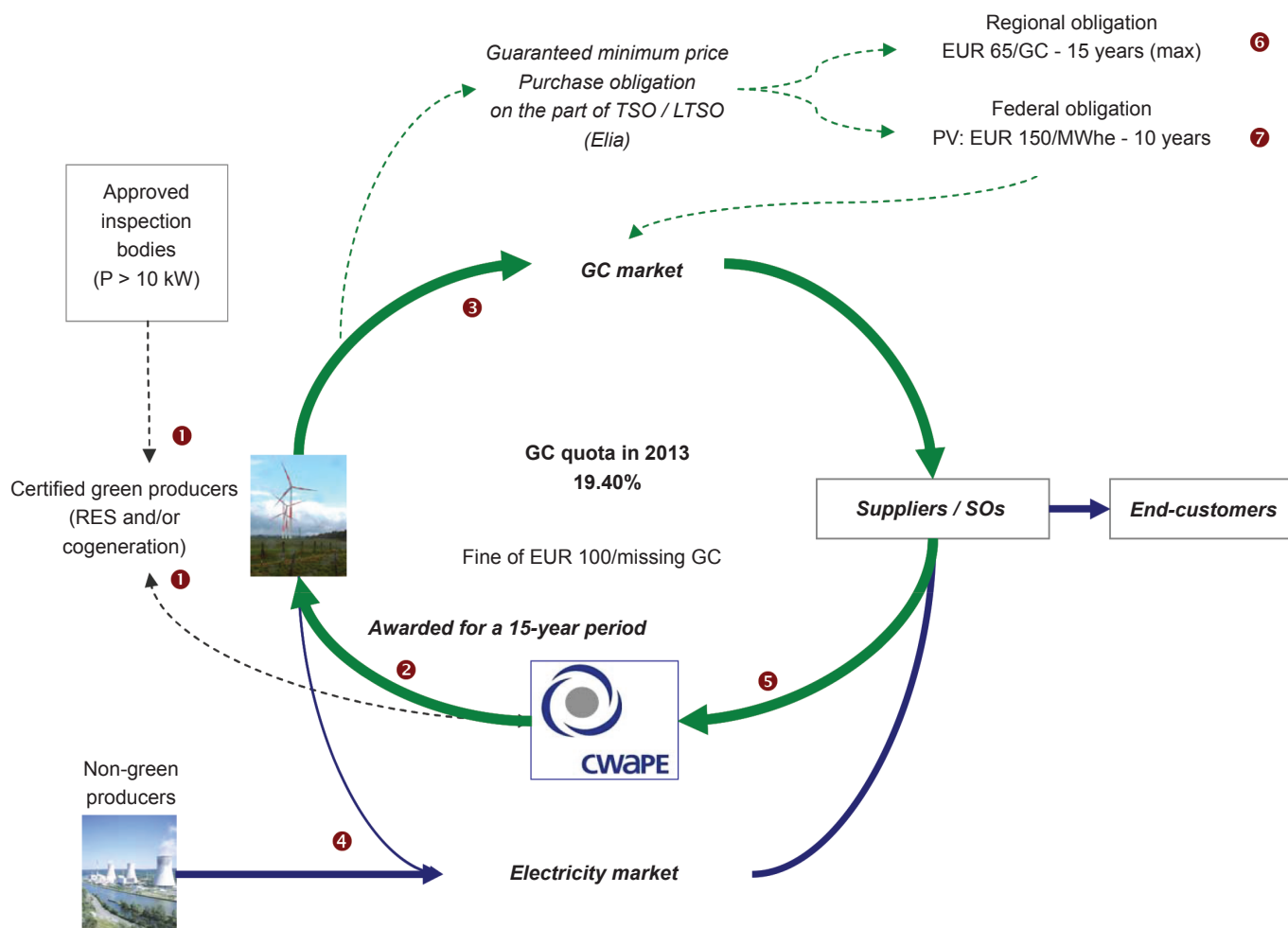
These regional objectives were considered by the CWaPE to be realistic and resulted in 2012 in the setting of quotas for green certificates over the period 2013-2020, with an upward revision in April 2014 for 2015 and 2016.

Nevertheless, the CWaPE believes that achieving these objectives by 2020 remains dependent on a clarification as well as a rapid stabilisation of the legal framework relating to the promotion and development of green electricity in the broad sense, something which was only partially achieved in 2013. This severely curbed the funding of new projects, mainly in wind and biomass, but also in the photovoltaic sector. However, the revision of the green certificate mechanism adopted in April 2014 should make it possible to meet this expectation.

2.2. How the green certificate mechanism works

The diagram below outlines the current green certificate (GC) support mechanism.

Figure 3: Operating principle



Every site generating green electricity must submit a preliminary application for certification (PAC) for green certificates (GC) to the CWaPE. A certificate of guarantee of origin (CGO) drawn up by an approved inspection body must be enclosed with the application⁴ to certify that the installation is compliant. Once the application has been accepted, the site is registered in the CWaPE database (1) and will be entitled to be granted GC for a period of 15 years (or 10 years).

Every quarter, the producer sends meter readings to the CWaPE. On this basis, the CWaPE grants GC for the generation site (2). Once in possession of the GC, the producer may negotiate their sale with any buyer active in the GC market (3), independently of the sale of the physical electricity generated (4). These GC are valid for a period of 5 years.

Every quarter, the volumes of electricity in Wallonia reported by the suppliers and, in part, measured by the system operators, are sent to the CWaPE. Based on this information, the suppliers and system operators are required to return⁵ to the CWaPE a quota of GC proportional to the quantity of electricity supplied over the quarter⁶. A fine of EUR 100 per missing GC is applied (5).

⁴ Excluding installations with a net developable capacity of ≤ 10 kWe which benefit from a simplified procedure (AGW-PEV, Art. 6 and Art. 7(2)), where the CGO is prepared directly by the CWaPE. These sites also benefit from a mechanism for the advance granting of green certificates corresponding to the first 5 years of operation, with the quantity limited to 40 GC (AGW-PEV, Art. 13(2)).

⁵ As a result of this operation, the green certificates are cancelled and rendered unusable in the database.

⁶ A quota reduction is provided for end-customers consuming more than 1.25 GWh per quarter and per operating site that have signed an agreement with the Walloon Region with a view to improving their energy efficiency (AGW-PEV, Art. 25(5)).

As an alternative solution to the sale of GC, a system obliging the purchase of GC by the Local Transmission System Operator (LTSO), Elia, at a minimum guaranteed price of EUR 65 has been provided for in the Decree (6). These GC are then cancelled and they may no longer be resold. Provisions for a guaranteed price have also been made by the Federal Government⁷. These GC purchased by the Transmission System Operator (TSO), which is also Elia, may still be resold on the GC market (7).

2.2.1. Definition of green electricity generation (Decree, Art. 2)

Renewable energy sources: any source of energy, other than fossil fuels and fissile material, the consumption of which does not limit its future use, in particular hydropower, wind energy, solar energy, geothermal energy and biomass (Decree, Art. 2, 4°).

Biomass⁸: renewable material (in solid, liquid or gaseous form) obtained from the biodegradable fraction of products, waste and residue from agriculture (including plant and animal substances), forestry and related industries, as well as from the biodegradable fraction of industrial and domestic waste (Decree, Art. 2, 4°bis).

Cogeneration: the simultaneous generation, in a single process, of thermal and electrical and/or mechanical energy (Decree, Art. 2, 2°bis).

High-quality cogeneration and trigeneration: combined generation of heat (or cold) and electricity, designed in accordance with the customer's heating or cooling requirements, which saves energy compared to the separate generation of the same quantities of heat, electricity and, where applicable, cold, in modern reference installations, the annual operating efficiency of which is defined and published on an annual basis by the CWaPE (Decree, Art. 2, 3°).

Green electricity: electricity generated by means of renewable energy sources or high-quality cogeneration, the generation sector of which produces minimum savings in carbon dioxide of 10% compared to the carbon dioxide emissions, defined and published on an annual basis by the CWaPE, from standard generation in modern reference installations (Decree, Art. 2, 5°).

2.2.2. Principles for granting green certificates (Decree, Art. 38)

A green certificate is a transferable instrument granted by the CWaPE to producers of green electricity for a quantity of net kWh generated corresponding to 1 MWh divided by the carbon dioxide savings rate (Decree, Art. 38(2) and (7)). By way of derogation, the government may, after the CWaPE has issued an opinion, apply a multiplier coefficient, where applicable scaled downwards over time, to the number of green certificates granted for electricity generated by means of photovoltaic solar panels, in accordance with the procedures it lays down (Decree, Art. 38(6)).

The carbon dioxide savings rate is determined by dividing the amount of carbon dioxide saved by the sector in question by the carbon dioxide emissions from standard electricity generation, the emissions of which are defined and published on an annual basis by the CWaPE (Decree, Art. 38(2)). **Carbon dioxide emissions** are those generated by the entire green electricity generation cycle encompassing the production and transportation of the fuel, the emissions during any combustion and, where appropriate, waste processing. In a hybrid installation, all the installation's emissions are taken into account. The different **carbon dioxide emission coefficients** of each sector in question are approved by the CWaPE (Decree, Art. 38(4)).

⁷ The Royal Decree of 16 July 2002 was amended on 18 January 2013 and henceforth limits this federal guarantee for the purchase of green certificates to the hydropower sector and to photovoltaic solar installations commissioned prior to 1 August 2012.

⁸ The order of 3 October 2013 amending the AGW-PEV introduces the concept of sustainable biomass. The sustainability criteria established by Directive 2009/28/EC however only apply to bioliquids used in generation units with a capacity exceeding 500 kW.

Capacity ceilings and thresholds: The carbon dioxide savings rate is limited to 1 for electricity generated by an installation with a capacity exceeding 5 MW. Below this threshold, a ceiling of 2 is applied (Decree, Art. 38(2))⁹. As regards hydroelectric generation installations, high-quality cogeneration installations or installations generating electricity from biomass, green certificates are granted for the electricity generated by these installations up to an electrical capacity of 20 MW (Decree, Art. 38(8)).

Reducing coefficients: after the CWaPE issues an opinion, the government may reduce the number of green certificates granted based on the age of the installation generating the green electricity, its rate of return and the generation sector to which it belongs (Decree, Art. 38(5)).

2.3. Conditions and procedures for granting green certificates

2.3.1. Granting calculation and electricity metering code

The number of green certificates granted is proportional to the net electricity generated by the installation (E_{enp} , expressed in MWh_e):

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

with k: the granting rate, expressed in [GC/MWh]

The net electricity generated is the gross electricity generated minus the electricity required by the operational components, i.e. energy-consuming equipment (primary, electricity, heating, cooling) required for the electricity generation cycle, including fuel production and, where applicable, waste processing (AGW-PEV Art. 2 10°).

Green certificates are granted both for the electricity consumed by the producer and for the electricity injected into the network or transmitted via direct lines (AGW-PEV, Art. 15(2)). Any exporting of the green electricity generated therefore has no impact on the granting of green certificates. The net electricity generated (E_{enp}) taken into consideration is measured prior to any transformation during injection into the network (AGW-PEV, Art. 15(3)).

The granting rate (k) depends on the following elements:

- measured environmental performance of the installation (CO₂ savings rate);
- decentralised nature (power thresholds, limit on CO₂ savings rates); since 1 January 2008, for biomass sectors the granting of green certificates has been limited to the first tranche of 20 MW, as for the hydroelectric and high-quality cogeneration sectors (Decree, Art. 38(8))¹⁰;
- rate of return of the sector ("k" reducing factor after 10 years and "q" reducing factor for legacy installations; multiplier coefficients for photovoltaic installations).

A metering code¹¹, established by the Minister pursuant to Article 9 of the AGW-PEV, sets out the principles and methods applicable in terms of measuring the volume of energy taken into account for calculating the number of green certificates to grant to sites generating green electricity (AGW-PEV Art. 15(3)).

For further information on calculating the granting rate, a **software program** available on the CWaPE website offers a more detailed compilation of the calculation methods to be used for most green electricity generation sectors.

⁹ Nevertheless, when an installation using mainly biomass, except wood, obtained from industrial activities developed on the site of the generation installation, implements a particularly innovative process and is in line with a sustainable development approach, the government may, after the CWaPE issues an opinion on the particularly innovative nature of the process used, decide to limit to 2 the carbon dioxide savings rate for all the output of the installation resulting from the sum of the capacity developed on the same generation site, subject to a limit below 20 MW (Decree, Art. 38(3)).

¹⁰ For the biomass sector, this provision is only aimed at generation sites for which the CGO was granted after 26/10/2007 (Decree of 4 October 2007 – Art. 20).

¹¹ See the Ministerial Order of 12 March 2007 determining the procedures and the metering code applicable to energy volume measurements published in the Belgian Official Gazette of 20 April 2007 – Appendix "procedures and metering code for electricity generated from renewable energy sources and/or cogeneration".

2.3.2. Certification of the electricity generation site (CGO)

Green certificates (and guarantee of origin labels) are granted for the electricity generated by a generation site provided that an approved inspection body¹² has verified that the volume of electricity generated by this site can be clearly identified and measured, in particular to certify the sources of energy (their renewable nature) and the efficiency of the conversion (the output from cogeneration). In practical terms, an approved body issues a certificate of conformity for an installation, called a certificate of guarantee of origin (CGO), to an electricity generating installation with energy metering that complies with the Metering Code. Installations with a capacity less than or equal to 10 kW benefit from a derogation¹³ which removes the requirement for the involvement of an approved body. For these installations, the Certificate of Guarantee of Origin is issued free of charge by the CWaPE.

Among other things this document mentions the energy sources used, the generation technology and the net generating capacity of the installation. It sets out, among other things, the metering algorithms, i.e. the mathematical equations used to calculate the different volumes of energy. These primarily include: the metering algorithm for net electricity generated (E_{enp}) - electricity consumed for own use (E_{ac}) - electricity supplied locally (E_{eloc}) - electricity injected into the network (E_{einj}); the metering algorithm for net heat recovered (E_{qnv}); the metering algorithm for net cooling energy recovered (E_{fnv}); the metering algorithm for input energy (E_e).

In addition to random and targeted inspections organised by the CWaPE (AGW-PEV, Art. 8) and inspections following modifications, each installation must be inspected by an approved body (AGW-PEV, Art. 7) at a frequency based on its net developable electrical capacity: for installations above 20 kW, an annual inspection is required; for installations between 10 and 20 kW, an inspection is required every 5 years.

2.3.3. Preliminary application for certification (PAC)

A producer wishing to obtain green certificates (and/or guarantee of origin labels) must submit a preliminary application to the CWaPE accompanied by a copy of the certificate of guarantee of origin (AGW-PEV Art. 10). The CWaPE verifies that the application is complete and complies with the legislation and provides notification of its decision. Notification of acceptance by the CWaPE guarantees the right to obtain green certificates for a period of 15 years (AGW-PEV Art. 15(1)). However, it should be noted that generating sites consisting of one or more generating units which have undergone significant modification within the meaning of article 15ter of the AGW-PEV may be granted green certificates for a further period of 15 years. The same applies for any new generating unit on an already-certified site.

Since 1 January 2008, photovoltaic (PV) solar power installations of 10 kW or less benefit from a simplified procedure¹⁴, both for the processing of requests to the Distribution System Operator (DSO) to connect the installation and for applying compensation as regards the volume of electricity drawn from and injected into the network, and for the processing of the preliminary application for certification to the CWaPE.

Since 1 October 2010, a new simplified procedure has come into force, known as the "one-stop-shop" procedure, where all these requests are submitted and processed directly by the DSO. After a duly completed form is received, the DSO first deals with the request to commission the installation (including applying compensation), and then inputs the dossier in the CWaPE database. The DSO has a period of 45 calendar days to process these requests, including the inputting of the dossiers in the CWaPE database.

At the end of 2011, the one-stop-shop procedure was modified, following consultation, to take account of the new methods for granting green certificates for installations commissioned from 1 December 2011 onwards.

¹² A list of the approved inspection bodies can be consulted on the CWaPE website: www.CWaPE.be

¹³ AGW-PEV, Art. 7(2)

¹⁴ AGW-PEV, Art. 6bis

At the same time, certain modifications were also made based on experience from the previous year. These modifications include, for example, authorisation for immediate commissioning once the installation is confirmed as compliant by an approved inspection body. This provision ensures that a producer is no longer penalised in the case of a delay in the processing of the application by the DSO. However, this provision is accompanied by an obligation on the part of the producer to submit its application to the DSO within a period of 45 days from the date of confirmation that the installation is compliant. In the case of failure to meet this deadline, a second inspection is required by the DSO, with the period of generation between the two inspections not conferring entitlement to receive green certificates.

This so-called “fit and inform” procedure was already in force in Flanders and now applies in Wallonia, thereby enabling the regulations and practice on the ground to be reconciled without compromising the legitimate requirements of the DSO relating to safety on the electricity distribution networks. The methods for applying compensation have also been the focus of particular attention so as to ensure that all dossiers are handled in the same manner throughout Wallonia.

2.4. Higher generation costs and level of support for green producers

In order to ensure the development of green electricity generation in Wallonia, green certificates must offer a level of support that offsets the higher generation costs of these sectors compared to traditional generation sectors. These higher generation costs must in particular take account of the return on the capital invested.

For each green electricity generation sector, the higher generation costs are periodically evaluated based on the reference technical-economic characteristics used and published by the CWaPE.

Based on this analysis, the levels of support for each sector can be adjusted by the Minister for Energy (“k” reducing factor after 10 years) or by the Walloon government (multiplier coefficients for photovoltaic solar power).

2.4.1. Reference rate of return

For each green electricity generation sector, the expected rate of return on the capital invested is communicated to investors via the establishment of a reference rate of return¹⁵ by the Minister for Energy based on a proposal from the CWaPE¹⁶. These rates of return take account of the different risk factors (technological, market prices for fuels, heat recovery, etc.).

ID.	Generation sectors	With cogen.	Without cogen.
1.	Photovoltaic	-	7%
2.	Run-of-the-river hydropower	-	8%
3.	Pumped storage hydropower	-	8%
4.	Wind	-	8%
5.	Biogas - EL	9%	8%
6.	Biogas - domestic and similar waste sorting centre (SORTING)	9%	8%
7.	Biogas - wastewater treatment plant (WWTP)	9%	8%
8.	Biogas - agricultural products/residue/waste (AGRI)	12%	11%
9.	Biogas - agricultural and agri-food industry products/residue/waste (MIXED)	12%	11%
10.	Liquid biofuels 1 (used products/residue or waste)	9%	8%
11.	Liquid biofuels 2 (non-refined products/residue)	12%	11%
12.	Liquid biofuels 3 (refined products/residue)	12%	11%
13.	Solid biofuels 1 (waste)	9%	8%
14.	Solid biofuels 2 (industrial residue)	12%	11%
15.	Solid biofuels 3 (pellets and energy crops)	12%	11%
16.	Fossil cogeneration (natural gas, fuel oil, recovered gas and heat)	11%	-

2.4.2. "q" factors applied to legacy installations

Since 1 January 2008, the number of green certificates allocated to installations commissioned before 1 May 2001, referred to as "legacy" installations, has been reduced through the application of a "q" coefficient determined for each electricity generation sector by the government further to an opinion issued by the CWaPE (AGW-PEV, Art. 15bis and annex).

It should be noted that the installations in question that have undergone significant modification (Article 15ter of the AGW-PEV) start a new granting period of 10 or 15 years and therefore no longer have the "q" factor applied.

¹⁵ See Ministerial Order of 21 March 2008 setting the reference rate of return used to determine the "k" factor.

¹⁶ CD-7118-CWaPE-175" - Supplementary opinion concerning the Walloon government's draft order implementing various measures to promote green electricity generated from new sources of renewable energy or cogeneration - Reference rate of return for the purpose of determining the "k" reducing coefficient.

2.4.3. Review of "k" factors applied after 10 years

Since 1 January 2008, the granting period for green certificates has increased from 10 years to 15 years subject, however, to the application of a reducing coefficient ("k" factor) for the last five years¹⁷. This factor is determined by the Minister, for each green electricity generation sector, on a proposal from the CWaPE and is adjusted every three years (AGW-PEV, Art. 15). The table below lists the values in force since 1 October 2011.

ID.	Sectors	k coefficient
0.	Capacities ≤ 10 kW	
	Photovoltaic ≤ 10 kWe until 30 November 2011	100
	Photovoltaic ≤ 10 kWe from 1 December 2011	0
	Other sectors ≤ 10 kWe	100
1.	Photovoltaic > 10 kWe until 7 November 2013	100
	Photovoltaic > 10 kWe from 8 November 2013	0
2.1	Run-of-the-river hydropower ≤ 500 kWe	100
2.2	Run-of-the-river hydropower ≤ 1 MWe	65
2.3	Run-of-the-river hydropower > 1 MWe	25
3.	Pumped storage hydropower	25
4.	Wind	100
5.	Biogas - EL	25
6.	Biogas - domestic and similar waste sorting centre	25
7.	Biogas - wastewater treatment plant (WWTP)	25
8.	Biogas - agricultural products/residue/waste (AGRI)	100
9.1	Biogas - agricultural and agri-food industry products/residue/waste (MIXED) ≤ 1 MWe	85
9.2	Biogas - MIXED > 1 MWe	55
10.	Liquid biofuels 1 (used products/residue or waste)	25
11.1-2	Liquid biofuels 2 (non-refined products/residue) ≤ 1 MWe	100
11.3	Liquid biofuels 2 (non-refined products/residue) ≤ 5 MWe	75
11.4-5	Liquid biofuels 2 (non-refined products/residue) > 5 MWe	75
12.	Liquid biofuels 3 (refined products/residue)	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 residue)	100
15.	Solid biofuels 3 (pellets and energy crops)	100
16.1	Fossil cogeneration (natural gas, fuel oil, recovered gas and heat) ≤ 1 MWe	100
16.2-3-4-5	Fossil cogeneration (natural gas, fuel oil, recovered gas and heat) > 1 MWe	25

¹⁷ The values in force for the period 2003-2010 are listed in the Ministerial Order of 21 March 2008. The period of application for these values was extended until 30 September 2011. The Ministerial Order of 29 September 2011 sets the values applicable from 1 October 2011.

It is important to note that pursuant to the revision of this "k" factor in September 2011 the length of time for which green certificates are granted dropped from a de facto 15 years to 10 years for photovoltaic solar power installations with a capacity under 10 kW. This revision applies for installations ordered¹⁸ from 1 December 2011.

The Ministerial Order of 23 July 2013, amending the Ministerial Order of 29 September 2011 determining the "k" reducing factor as from 1 October 2011, resets to zero the "k" factor for photovoltaic installations with a capacity above 10 kW. In accordance with the Walloon Government Order of 3 October 2013, the cut-off date determining the "k" factor for large photovoltaic installations is that of the date of the compliance inspection carried out by the RGIE (General Regulations on Electrical Installations) approved inspection body. This "k" factor of zero applies to photovoltaic installations with a capacity above 10 kW for which the RGIE date is after 7 November 2013.

It should be noted that the installations in question that have undergone significant modification (Article 15ter of the AGW-PEV) start a new granting period of 10 or 15 years and therefore no longer have the "k" factor applied.

2.4.4. Review of multiplier coefficients for the solar power sector

For the photovoltaic solar power sector, the level of support is augmented by the application of a multiplier coefficient in place of a coefficient based on the CO₂ savings rate (Decree, Art. 38(6)). The multiplier coefficients applicable according to the capacity of the installation are listed in Article 15quater of the AGW-PEV. These coefficients may be revised by the government based on a report from the CWaPE.

In November 2009, the CWaPE indicated in its opinion concerning advance granting (CD-9k24-CWaPE-263) that the support scheme planned for 2010 for SOLWATT installations was still too generous, offering rates of return of 16% instead of the set 7%: "While a decrease in the rate of return can be seen in 2010 compared to 2009, with the withdrawal of the incentive being only partially offset by the reduction in the cost of installations, the rate of return nevertheless remains significantly higher than the 7% reference rate of return set for the photovoltaic sector in the Walloon Region. These findings confirm the analysis published by the CWaPE at the end of 2007 before the implementation of the SOLWATT plan highlighting, in particular, the risk of overcompensating for the higher generation costs associated with photovoltaic solar power installations with a capacity equal to or lower than 10 kW".

In this opinion, the price considered for installations was EUR 5,500/kWc (excl. VAT). At the end of 2011, the prices were EUR 3,000/kWc (excl. VAT). With an unchanged support scheme (tax reduction included), this drop of almost 50% in two years in the cost of installations led to enormous rates of return of up to 25%, thereby attracting many individuals and SMEs as well as numerous third-party investors into this segment.

In November 2011, the Walloon government decided on a gradual reduction of the support scheme for SOLWATT installations between 1 December 2011 and 31 March 2013. As for the "k" factor (see above), the implementation rules nevertheless provided for the possibility of benefiting from the previous scheme subject to the installation being ordered before 1 December 2011 and it being completed within a period of 6 months (period extended for days of inclement weather following an interpretative memo adopted in May 2012).

¹⁸ Article 15 of the AGW-PEV provides, by way of derogation, that the k factor that applies is that in effect on the date on which an advance of at least 20% of the total investment is paid, or the date on which a green loan, as referred to in Article 2 of the Law on economic recovery of 27 March 2009, corresponding to all or part of the investment, has been contracted, or the date of the awarding of the public procurement contract for contracting authorities subject to the Law of 24 December 1993 on public procurement contracts and certain contracts for works, supplies and services. This derogation applies on condition that the installation's approval as compliant by the RGIE approved inspection body takes place within 6 months of the date of the decision to invest. Otherwise, it is the date on which the installation is approved as compliant by the RGIE approved inspection body that will be taken into account (inspection date).

The table below lists the 3 granting schemes for green certificates available for installations commissioned in 2013 according to the date of the order and the date of commissioning (RGIE inspection).

*Table 3 - Schemes for granting green certificates for installations commissioned in 2013 (*excluding inclement weather days)*

SOLWATT schemes	S3	S4	S5
Ordering deadline	31/08/2012	31/03/2013	28/02/2014
RGIE inspection deadline (excluding inclement weather days)	28/02/2013	30/09/2013	31/08/2014
Granting period	10 years	10 years	10 years
Granting rate	Granting rate scaled downwards over time	Granting rate scaled downwards over time	Granting rate per tranche of capacity
Number of GC over granting period (for one MWh generated annually)	60	50	12.5 - 15

For installations dating from after 31 March 2013, the applicable granting scheme was 1 GC/MWh for 10 years. However, in view of the slowdown in the market observed since the change of scheme on 31 March 2013, pending the new QUALIWATT scheme that came into effect on 1 March 2014 the Walloon government adopted an interim scheme in July 2013 applying to installations dating from after 31 March 2013. This interim scheme provided for the application of a granting rate of 1.5 GC/MWh for 10 years for the first tranche of 5 kWc capacity.

2.4.5. Level of support

In addition to the value derived from the electricity generated, the income that a green producer can expect to earn from the sale of its green certificates will depend, on the one hand, on the effective granting rate for green certificates (GC/MWh) and, on the other, on the selling price of its green certificates (EUR/GC):

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

The following table gives, by way of example, the theoretical maximum (GC price = EUR 100, value of the fine) that a green producer can expect during the first ten years (before application of reducing factors and excluding cases of "legacy" installations), as well as the minimum income guaranteed (if the producer satisfies the criteria) by the regional (GC price = EUR 65) or federal mechanism.

Table 4 - Level of support for different generation sectors (P>10 kW)

Sectors (and total installed capacity)	Nominal granting rate (GC/MWh)	Guaranteed minimum level of support (EUR/MWh)	Theoretical maximum level of support (EUR/MWh)
Fossil 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
Hydropower (≤ 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 - 250 kWc)	1.2 to 6	160 to 390	170 to 600
Photovoltaic (> 250 kWc)	1 to 4.1	65 to 265	150 to 408

2.5. The green certificate market

2.5.1. Supply: granting of green certificates to green producers - (AGW-PEV, Art. 13)

Every quarter, each producer sends its meter readings to the CWaPE. Based on these readings and metering algorithms (see 2.3.2 - Certification of the electricity generation site), the CWaPE calculates the granting rate (GC/MWh) and grants a number of green certificates in proportion to the number of MWh generated in each certified electricity generation installation. In accordance with the provisions provided for by the AGW-OSP of 30 March 2006, it is when submitting its reading that the producer must notify the CWaPE of its decision to sell the green certificates to be granted on the market or to activate the guarantee of EUR 65/GC. This choice is irrevocable.

By way of derogation, for applications submitted from 1 December 2009, generation sites with a capacity less than or equal to 10 kW benefit from an advance granting¹⁹ of green certificates provided that the installation in question has not received the incentive provided for by the Ministerial Order of 20 December 2007 on the rules and procedures for granting incentives aimed at encouraging the rational use of energy and that the producer has formally waived this incentive. The green certificates are granted in advance at the time of notification by the CWaPE of the decision to approve the application, up to the estimated number of green certificates to be received for a period of generation of 5 years and subject to a maximum of 40 green certificates. The producers are still required to submit their metering readings each quarter in order to, firstly, repay the number of GC granted in advance and, secondly, benefit from the granting of GC over the rest of the 15-year period.

Green certificates are valid for a period of 5 years and the CWaPE issues green certificates in electronic form. Each producer has access to the CWaPE extranet service through which it can check the status of its account in which the granted green certificates are held. Following each granting of GC, the CWaPE provides green producers with a detailed breakdown of the GC granted as well as the status of their account.

Producers with a photovoltaic solar power installation can also submit their quarterly readings online through their access to the CWaPE extranet service. Except during periods of maintenance, this service can be accessed 24/7. For each reading submitted, the CWaPE performs an automated plausibility check on the quantity of electricity generated. In the CWaPE extranet, the message "calculation error" or "check" is displayed for a meter reading when the alert threshold is exceeded. After a systematic check of the dossier, a CWaPE operator either releases the GC granted, requests an explanation from the producer or the DSO, or dispatches an approved inspection body to conduct an on-site inspection. In general, the answers received make it possible to remove the block. Less frequently, the CWaPE grants GC based on average production (granting of what is unquestionably due).

In the case of a third-party investment (and other similar arrangements), the CWaPE has made available to players an agreement template containing the minimum provisions required to make an assignment of the right to obtain green certificates enforceable with respect to the CWaPE. The producer, referred to as the assignor, transfers to the assignee the right to obtain green certificates granted by the CWaPE for the green electricity generated by its photovoltaic installation. The transfer is made in exchange for the assignee's services. Based on the assignment agreement template prepared by the CWaPE, the assignor gives the assignee authority to manage the entire administrative and technical dossier with respect to the CWaPE or the DSO for the duration of the assignment, including management of the green certificates account and the periodic submission of meter readings. The assignees must first register with the CWaPE, and a list of these registered assignees is published on the CWaPE website.

¹⁹ By way of reminder, following the adoption of the AGW-PEV of 27 June 2013, installations for which the reference date for determining the procedures used for granting green certificates is after 18 July 2013 will not benefit from advance granting.

2.5.2. Structure of the market

Database (AGW-PEV, Art. 21)

The authenticity of green certificates is guaranteed by their registration in a centralised database managed by the CWaPE. This register of green certificates issued includes in particular information relating to the generation site, the producer, the date of issue of the green certificates, their holder and the operations logged (granting, transaction, cancellation for the quota, expiration). Each player in the green certificate market (producer, assignee, intermediaries or brokers, suppliers and system operators) has an account opened in its name, linked, where applicable, to its generation sites. Each player has secure access to its account (extranet service at www.e-CWaPE.be) enabling it to carry out all basic operations (consultation of accounts, inputting readings, sale or purchase transactions, cancellation for the quota).

Transactions

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

Market players trade green certificates without any CWaPE involvement. Once an agreement has been reached, the seller provides notification of the transfer of ownership of the green certificates via the extranet or by completing the form provided for this purpose.

The CWaPE provides players with an account statement giving the details of the transactions carried out as well as the status of their accounts.

Intermediaries

Any private individual or legal entity that registers with the CWaPE may carry out transactions relating to green certificates. In this way, for example, end customers may choose to directly purchase the green certificates associated with their consumption and then transfer them to their electricity suppliers and, in doing so, negotiate an electricity price exclusive of green certificates.

BELPEX, the Belgian power exchange, has set up a green certificates exchange (BELPEX GCE) which began operating in 2009. The advantage of this exchange is that it guarantees anonymity between professional buyers and sellers at the time of the transaction and provides a green certificate spot price. However, given the current imbalance in the green certificate market, BELPEX decided to suspend trading sessions in 2012.

A number of intermediaries are active in the green certificate market. Some of them specialise in the purchase of green certificates from private individuals, while others only target industrial producers. Brokering in green certificates is also permitted subject to compliance with a specific procedure and the opening of securities accounts reserved for brokerage activities.

The CWaPE publishes a list of potential buyers of green certificates on its website (intermediaries, suppliers, system operators and industrial customers). This list specifies, among other things, which buyers specialise in the purchase of green certificates from private individuals (SOLWATT installations).

2.5.3. Demand: return quota for suppliers

Obligation

Each supplier is required to return, on a quarterly basis²⁰ to the CWaPE, a number of green certificates corresponding to the number of MWh supplied to its end-customers located in Wallonia, multiplied by the quota in force. For system operators, the quota applies to their own electricity consumption and, where applicable, to the electricity delivered to the end customers they supply. For holders of a limited licence for the purpose of supplying themselves, the quota applies based on the electricity consumed that was carried by the transmission system, the local transmission system or a distribution system (AGW-PEV, Art. 25(2)).

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

1. submission of quarterly supply readings to the CWaPE;
2. calculation by the CWaPE of the number of green certificates to be returned based on the quota and any reductions;
3. cancellation of the green certificates intended for the "return quota";
4. calculation by the CWaPE of the amount of fines to be applied in the event that an insufficient number of green certificates has been cancelled.

The quota to be achieved by the suppliers and system operators is set by the AGW-PEV, Art. 25(3), taking account, however, of the upward revision for 2015 and 2016 introduced by the AGW of 3 April 2014:

- ...
- **19.40% between 1 January 2013 and 31 December 2013**
- 23.10% between 1 January 2014 and 31 December 2014
- 27.70% between 1 January 2015 and 31 December 2015
- 31.40% between 1 January 2016 and 31 December 2016
- 37.90% between 1 January 2020 and 31 December 2020

In accordance with the AGW-PEV, Art. 25(4), depending on developments in the green electricity market the Walloon government may review the above-mentioned quotas in the framework of a three-year evaluation process, and for the first time in 2014. On this basis, the government sets new annual quotas so as to always cover a total period of 8 years. Newly set quotas are determined so as to aim for a target of 20% of final energy consumption from renewable energy production in 2020 and, for the period beyond 2020, an overall renewable energy generation target to be determined by the government for the first time no later than 31 December 2014 based on a prior opinion from the CWaPE provided no later than 31 December 2013.

For the period from 1 January 2017 to 31 December 2019, annual quotas will be set no later than in 2014 based on an evaluation carried out beforehand by the CWaPE. This evaluation will look at the adequacy of the annual quotas set for the years 2012 to 2016 as regards the objective of 20% of final energy consumption from renewable sources, including a contribution of 8,000 GWh of renewable electricity generated in Wallonia, taking account of the trends in renewable energy sectors as well as the European and Belgian context in terms of targets for renewable energy and high-quality cogeneration, changes in the socio-economic context and energy prices for all categories of consumers, including domestic customers.

These are "nominal" quotas which do not take account of reduction possibilities for suppliers supplying operating sites that satisfy the conditions for the granting of a reduction in the green certificate quota (see next section). When the reductions granted are taken into account, we refer to "effective" quotas.

The green certificates taken into account in the quotas are currently limited to green certificates granted in Wallonia²¹.

²⁰ Before the end of the second month following the quarter just ended (i.e. 31 May, 31 August, 30 November and 28 February).

²¹ Decree. Art. 39: "The conditions and procedures according to which similar certificates granted to producers of electricity generated in the other regions of Belgium, in the areas referred to in Article 6 of the law, or abroad, may be taken into account in the quota mentioned in paragraph 1 are determined by the government further to an opinion issued by the CWaPE".

Furthermore, the Brussels-Capital Region recognises green certificates granted to any certified installation generating green electricity in the Walloon Region within 10 years following the industrial commissioning of such installation²².

Reduction (AGW-PEV, Art. 25(5))

Since 1 January 2004, suppliers supplying an end-customer for which consumption for the quarter under consideration is greater than 5 GWh for an operating site and which has signed an agreement with the Walloon Region aimed at improving its energy efficiency in the short, medium and long term (e.g. branch agreements, etc.) may benefit from a reduction in the number of green certificates to be submitted to the CWaPE.

On 1 January 2008, the eligibility threshold for operating sites changed from a minimum quarterly consumption of 5 GWh to 1.25 GWh. The number of potentially eligible sites is therefore higher.

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

- For the tranche of quarterly electricity consumption between 0 and 5 GWh inclusive, application of the quota for the year preceding the current year increased by half of the increase in 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, the application of a fixed annual quota of 2% has been maintained.

Where the end-customer is supplied by several suppliers for a single operating site, the reduction in the number of green certificates is divided up in proportion to the volumes supplied by each supplier.

Any reductions in costs resulting from the provisions in this paragraph must be directly passed on by the suppliers to each end-customer that is the source of such reduction.

The procedure to be followed to be able to benefit from this quota reduction, as well as the calculation methods, are the subject of guidelines available on the CWaPE website²³.

The decree of 27 March 2014 amending the decree of 12 April 2001 (applicable from July 2014) sets out a new scheme for the reduction of the number of green certificates to be submitted to the CWaPE such that the total volume of green certificates benefiting from this reduction corresponds to a maximum of 23% of the nominal quota. These reductions will be allocated up to a maximum of 22.5% of the annual quota for the current year to professional customers (large enterprises and electro-intensive SMEs) that have signed, directly or through a federation, an agreement with the Walloon Region aimed at improving their energy efficiency in the short, medium and long term, as well as to residential end-customers (for social welfare reasons) up to a maximum of 0.5% of the annual quota for the current year.

The table below provides a summary of the quota with the reduction applicable for 2013 for the different tranches of quarterly consumption.

Table 5 - Quotas with reduction for 2013

Year	2013
Nominal quota	19.4%
Quota applicable for the tranche from 0 to 5 GWh	13.2%
Quota applicable for the tranche from 5 to 25 GWh	9.7%
Quota applicable for the tranche > 25 GWh	2.0%

²² Order of the Brussels Minister for Energy of 3 May 2005 recognising Walloon green certificates so that they may be taken into account for compliance with the obligation imposed on suppliers in the Brussels-Capital Region by Article 28(2) of the electricity ordinance.

²³ CD-10e4-CWaPE, Guidelines relating to the general procedure for the granting of a quarterly reduction in the quota for an operating site; CD-10b18-CWaPE, Guidelines relating to the methods for calculating quota reductions for the period 2010-2012.

Example of the calculation of the reduction for quotas in 2013:

So an end-customer fulfilling the conditions for benefitting from the reduction in quota consuming 35 GWh for each quarter of 2013.

Without a reduction, a quota of 19.40% x 35,000 MWh applies for each quarter, i.e. 6,790.00 GC to be submitted every quarter by the supplier for this customer.

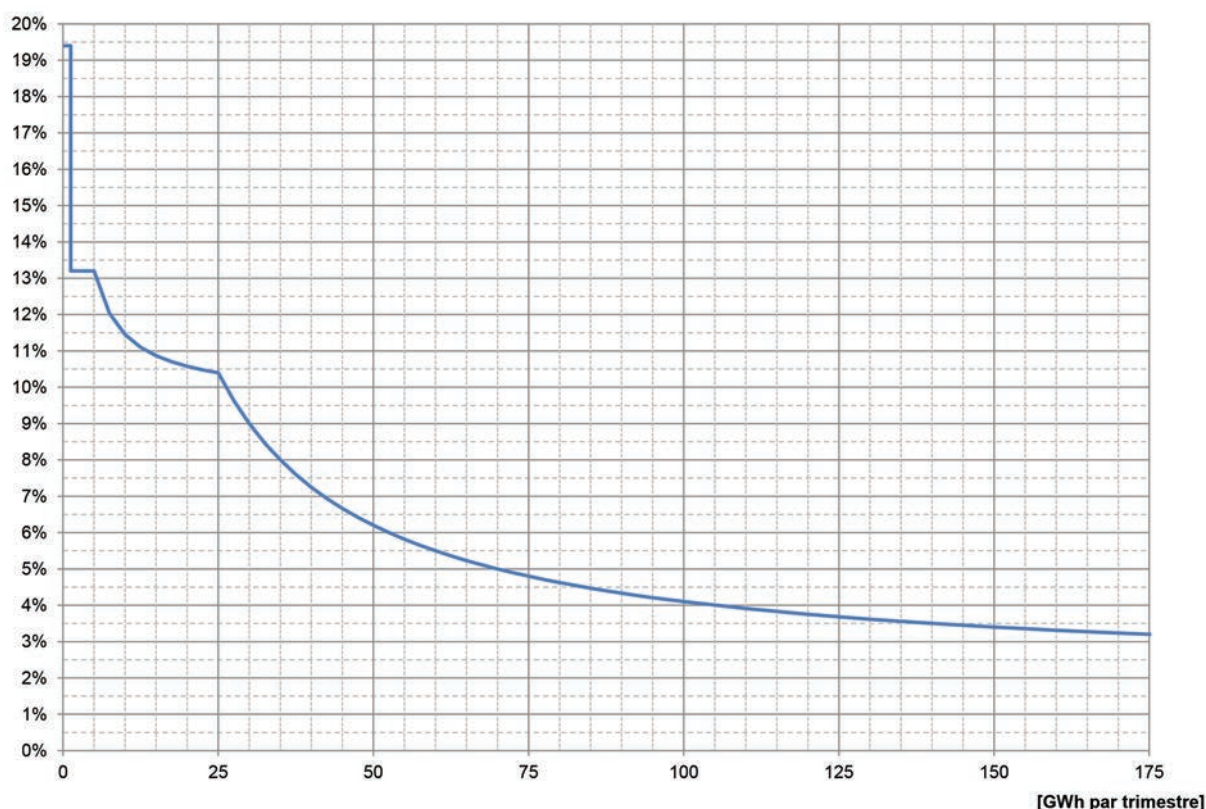
With a reduction for the tranche between 0 and 5 GWh, the supplier of this customer will have to submit a quota corresponding to the quota for the previous year for this tranche, increased by half of the increase in the annual quota. This gives a quota of 13.200% x 5,000 MWh, which is 660.00 GC per quarter.

For the second tranche, between 5 GWh and 25 GWh, the supplier will have to fulfil a quota reduced by half. This gives a quota of 9.700% x (25,000-5,000) MWh, which is 1940 GC per quarter.

For the third tranche, above 25 GWh, the supplier will have to submit a quota reduced to 2.000%, i.e. 2.000% x (35,000-25,000) MWh, which is 200 GC per quarter.

The supplier will, in total, have to submit 2,800.00 GC over the quarter, which corresponds to an effective quota of 8.00% instead of the nominal quota of 19.40%. The reduction granted in this way to the supplier for the benefit of its customer will therefore be 3,990.00 GC, which is a reduction of 59%.

The figure below illustrates the quota applicable for 2013 with the different reduction levels relating to each tranche of quarterly consumption.



Penalty regime (AGW-PEV, Art. 30)

In the event of non-compliance with the target quotas, the supplier or system operator is required to pay an administrative fine for the quarter in question. The fine is set by the Walloon government and is currently EUR 100 per missing certificate. The amount of this fine has remained unchanged since the second half of 2003 (EUR 75 for the first half of 2003).

2.5.4. Purchase guarantee mechanisms for green certificates***Regional obligation to purchase green certificates on the part of the LTSO (Elia)***

Since 1 January 2008, the generation support mechanism has been replaced by a purchase obligation mechanism incumbent upon the Local Transmission System Operator (LTSO), Elia (Decree, Art. 40). The AGW-OSP of 30 March 2006 sets out the procedures and terms for submitting a request and for applying this purchase obligation (Article 24ter to sexties).

The price at which the LTSO is obliged to purchase green certificates is EUR 65/GC. The purchase obligation takes effect the month following the commissioning of the installation and lasts a maximum of 180 months.

In order to benefit from this purchase guarantee, the green producer is required to submit an application to the authorities. The period of validity of the purchase obligation is determined by the CWaPE based on a published methodology (see CD-5d05-CWaPE - Communication on the methodology for examining applications for generation support). The cumulative amount of the green certificate purchase price must make it possible to offset the higher cost of electricity generation compared to the market price during the write-off period for the installation in question, including as regards interest on the capital invested at the reference rate of return referred to in Article 15 de l'AGW-PEV²⁴.

By way of derogation, low-capacity installations (≤ 10 kW) are not required to submit an application and 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 green certificates on the green certificate market is made by the green electricity producer each time that it submits its quarterly meter readings to the CWaPE.

As regards advance granting, the decision to opt for the guaranteed price or for the sale of green certificates on the market can be made by the green electricity producer throughout the period of validity of the green certificates (5 years).

Green certificates purchased by Elia are immediately cancelled in the database. This mechanism enables excess supply to be reduced, which helps to stabilise the price of green certificates in the Walloon market.

²⁴ See Ministerial Order of 21 March 2008 setting the reference rate of return used to determine the "k" factor.

Federal obligation to purchase green certificates on the part of the TSO (Elia)

Pursuant to the Royal Decree of 16 July 2002 on the establishment of mechanisms to promote electricity generated from renewable energy sources (RES), the transmission system operator (TSO), Elia, in the context of its public service mission, has an obligation to purchase, from any green electricity producer who so requests, the green certificates granted at a minimum price set depending on the generation technology. This purchase obligation comes into effect on the commissioning of the generation installation and lasts for a period of 10 years.

The Royal Decree of 16 July 2002 was amended on 21 December 2012 and henceforth limits this federal green certificates purchase guarantee to the hydropower sector and to photovoltaic solar power installations commissioned before 1 August 2012 (see table below).

Table 6 - Guaranteed federal purchase prices for GC according to the Royal Decree of 16/07/2002

Generation technology	Price per MWh-RES
Offshore wind energy	EUR 107/EUR 90 *
Onshore wind energy	EUR 50
Hydropower	EUR 50
Solar energy	EUR 150
Other renewable energy sources (including biomass)	EUR 20

Table 7 - Guaranteed federal purchase prices for GC according to the amending Royal Decree of 21/12/2012

Generation technology	Price per MWh-RES
Offshore wind energy	EUR 107/EUR 90 *
Hydropower	EUR 20
Solar energy (units commissioned before 01/08/2012)	EUR 150

In Wallonia, this system, in practice, therefore only concerns green certificates granted to photovoltaic units commissioned before 01/08/2012 (as evidenced by the date of commissioning on the certificate of guarantee of origin) for the tranche of capacity not benefitting from a multiplier coefficient (> 10 or 250 kWc, as applicable). That is because in this case (granting rate of 1 GC/MWh) the value of these green certificates as purchased by the TSO is EUR 150/GC, which is higher than the EUR 100 fine per missing green certificate (as well as the regional guarantee of EUR 65/GC).

* Through public domain concession, EUR 107/GC for the first 216 MW and EUR 90/GC for the remainder.

2.6. Passing along of cost of PSO to end-customers

2.6.1. Passing along of cost of green certificate quotas

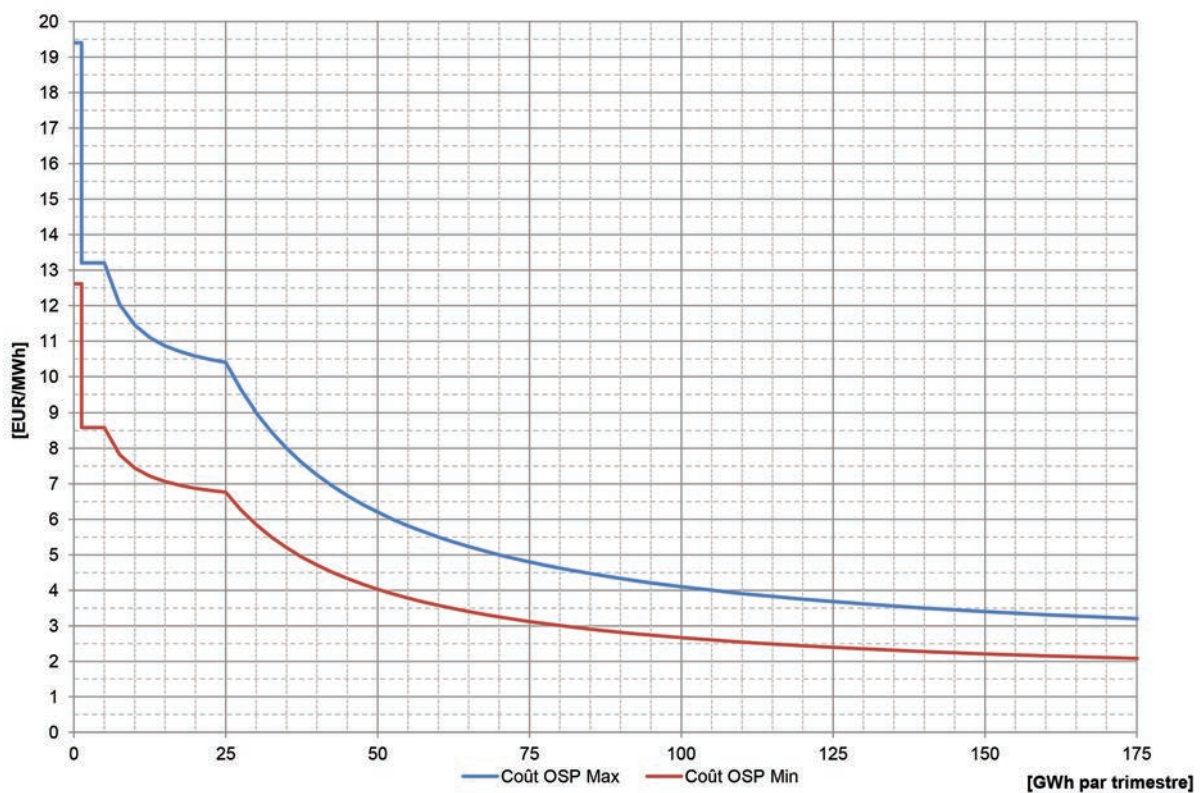
For the end-customer, the theoretical cost of the public service obligation (PSO) relating to the green certificate quota can vary between a maximum amount capped at the cost of the fine and a minimum amount equal to the guaranteed price:

$$PSO\ cost_{max} = quota \times fine \quad (EUR/MWh)$$

$$PSO\ cost_{min} = quota \times guaranteed\ price \quad (EUR/MWh)$$

The figure below shows the value range of this cost for 2013 depending on the tranche of quarterly consumption.

Figure 4 - Cost to an end-customer (EUR/MWh excl. VAT)



In practice, the cost of the PSO relating to the GC quota is passed along to the end-customer, partly through the price of the "energy" component billed by the supplier and partly through the system usage tariffs for the portion of the PSO borne by the DSO.

As regards system operators, the passing along of the cost of this "green PSO" is monitored by the federal regulator (CREG - Commission for Electricity and Gas Regulation) in the context of the approval of system usage tariffs (regulated tariffs).

As regards suppliers, the integration of the cost of this "green PSO" in the price of the "energy" component billed to the end-customer is not regulated. In principle, it is freely negotiated by the supplier and its customer. Nevertheless, in the interest of transparency, the legislator has implemented three provisions in this area:

- For all customers, the AGW-OSP of 30 March 2006 requires suppliers to indicate in the contract and on bills the amount, specifically identified, corresponding to the passing along of the costs of GC. This cost may not under any circumstances be included in the items relating to taxes and surcharges. Article 7(1)(9) of this same order is supplemented by the AGW-OSP of 3 April 2014, which henceforth requires suppliers to mention in their electricity bills the cost relating to green certificates based on the average price of the GC for the previous four quarters as published by the CWaPE.
- For residential customers and SMEs, Article 20quater of the law of 29 April 1999 provides in its first paragraph that "for residential customers and SMEs, the maximum amount a supplier may pass along to the end-customer is the actual cost associated with the regional obligations relating to green certificates and cogeneration certificates, while only taking into account the market price of the certificates and a flat-rate transaction cost".
- For end-customers benefitting from a quota reduction, the resulting cost reduction must be passed along directly by the suppliers to each end-customer that is the source of such reduction.

The CWaPE is responsible for ensuring supplier compliance with these provisions. The CWaPE's periodic reports concerning the analysis of electricity prices in Wallonia include the amounts billed by suppliers for GC to different categories of end-customers.

2.6.2. Passing along of cost of regional GC purchase obligation by LTSO (Elia)

The amounts paid to producers by Elia are recovered by the latter by means of a regional surcharge applied to the electricity drawn by category 2, 3 and 4 users of the local transmission system in Wallonia (approximately 75% of the supply in Wallonia). Users of the system connected directly to the transmission system (380 kV, 220 kV or 150 kV) do not therefore contribute to this regional surcharge.

Approval and monitoring of this regional surcharge (amount and method of passing along to the different categories of consumers) is carried out by the federal regulator (CREG) in the framework of the approval of system usage tariffs (regulated tariffs).

For 2012, the regional surcharge was initially set at EUR 1.1899/MWh (excl. VAT). Since this amount was based on an repurchase assumption of only 300,000 GC in 2012, on two occasions during the year Elia submitted a request to the CREG for the revision of the amount of this surcharge. These requests were accepted by the CREG. As such, the regional surcharge increased to EUR 5.9445/MWh (excl. VAT) from 1 October 2012 and then to EUR 13.8159/MWh (excl. VAT) from 1 January 2013.

The decrees of 11 December 2013 and 27 March 2014 introduce amendments to Article 42bis of the same decree. For the period 2013-2022, a partial exemption is granted to end-customers connected at a voltage level lower than or equal to 70 kV. The exemption is as follows:

- 85% (i.e. payment of 15% of the surcharge) for end-customers with a branch agreement irrespective of their level of consumption.
- 50% for end-customers without a branch agreement connected at a voltage level higher than low voltage and the activity of which falls under the NACE code "crop and animal production".
- 50% for end-customers without a branch agreement connected at a voltage level higher than low voltage, the annual consumption of which is more than 1 GWh and the activity of which falls under the primary NACE codes "manufacturing companies", "education", "hospitals" or "medical-social".



2.6.3. Passing along of cost of federal GC purchase obligation by TSO (Elia)

The TSO (Elia) offers these green certificates on the market in order to recover the costs of fulfilling this obligation. The net balance, resulting from the difference between the purchase price of the green certificate by the TSO and the selling price on the market, is funded by a surcharge applied to the transmission system usage tariffs. Approval and monitoring of this surcharge (amount and method of passing along to the different categories of consumers) is carried out by the federal regulator (CREG) in the framework of the approval of system usage tariffs (regulated tariffs).

3. DEVELOPMENTS IN GREEN ELECTRICITY GENERATION FACILITIES IN 2013

3.1. Developments in sites generating more than 10 kW

At the end of 2013, the CWaPE registered additional installed capacity of just over 100 MW (compared to only 50 MW in 2012). In addition to increases in capacity for existing sites (6 MW) or the restarting of installations idled in 2012 (17 MW²⁵), there were 289 new generation sites (77 MW). These were mainly photovoltaic solar power installations (264 new generation sites totalling 28 MW). For the other sectors, there were 25 new installations (49 MW):

- 5 wind farms (36.5 MW);
- 11 cogeneration units using gas engines (5 MW);
- 2 agricultural biomethanisation units (1.5 MW); 2 units for the recovery of biogas produced in wastewater treatment plants (WWTP) (0.6 MW); 1 wood-fired cogeneration installation (5 MW); 1 small-scale cogeneration unit using rapeseed (15 kW);
- 3 low-capacity hydroelectric units totalling 170 kW.

It is also important to note the definitive decommissioning of the biogas recovery installation of the A.I.V.E. WWTP in Marche that was operated by Verdesis. One hydroelectric installation saw a reduction in its capacity in order to switch to the category of installations under 10 kW.

In total, at the end of 2013 there were 727 installations above 10 kW that had been certified and registered in the CWaPE database (440 installations at the end of 2012). These installations were subject to quarterly monitoring both with regard to certification of the generation site (modifications, breakdowns, renewable nature and CO₂ emissions from biomass inputs, cogeneration audit for solar power installations, etc.) and with regard to the granting of green certificates (GC) and guarantee of origin labels (GOL). A list of these generation sites can be found in Annex 1.

Table 8 - Green electricity generation sites above 10 kW at the end of 2013²⁶

Generation sites > 10 kW	Number of sites	Capacity (kW)
PV solar	473	47,765
Hydropower	58	110,826
Wind	63	601,099
Biomass	57	268,277
Fossil cogeneration	76	211,872
Total	727	1,239,839

As in 2012, certification of these green electricity generation sites was carried out by four inspection bodies, accredited by BELAC²⁷ in accordance with standard NBN EN ISO/IEC 17020 and approved by the Minister for Energy. These bodies are: AIB-Vinçotte Belgium (AVB), Bureau Technique Verbruggen (BTV), Electro-Test and SGS Statutory Services Belgium (SGS-SSB). In addition to the initial certification stage, the approved bodies conduct periodic inspections of all certified sites. The CWaPE may also at any time carry out an inspection or request that an approved inspection body carry out an inspection and examine whether the elements included in the certificate of guarantee of origin reflect the actual situation.

²⁵ This additional capacity corresponds to the partial restarting, depending on ad-hoc opportunities encountered in the electricity market, of the Electrawinds installation in Mouscron, which was idled in March 2012 for reasons of profitability.

²⁶ For the biomass sector, the UVÉLIA incinerator located in Herstal (30 MW) included in the 2012 statistics is no longer included in the 2013 statistics because it is only certified for granting guarantee of origin labels (GOL) and not green certificates (GC).

²⁷ Belgian accreditation body: <http://economie.fgov.be/belac.jsp>

Amendments to the certificate of guarantee of origin are also made in the case of a modification to an installation, measurement instruments or any other element included in the certificate of guarantee of origin. Where biomass inputs are used (local and imported), certification also involves demonstrating the renewable nature of such inputs and their traceability throughout the entire production cycle.

Due to the workload, the average time taken by the CWaPE to process new "complex" generation sites (excluding the photovoltaic solar power sector) continues to be in the region of six months.

3.2. Developments in sites generating up to 10 kW

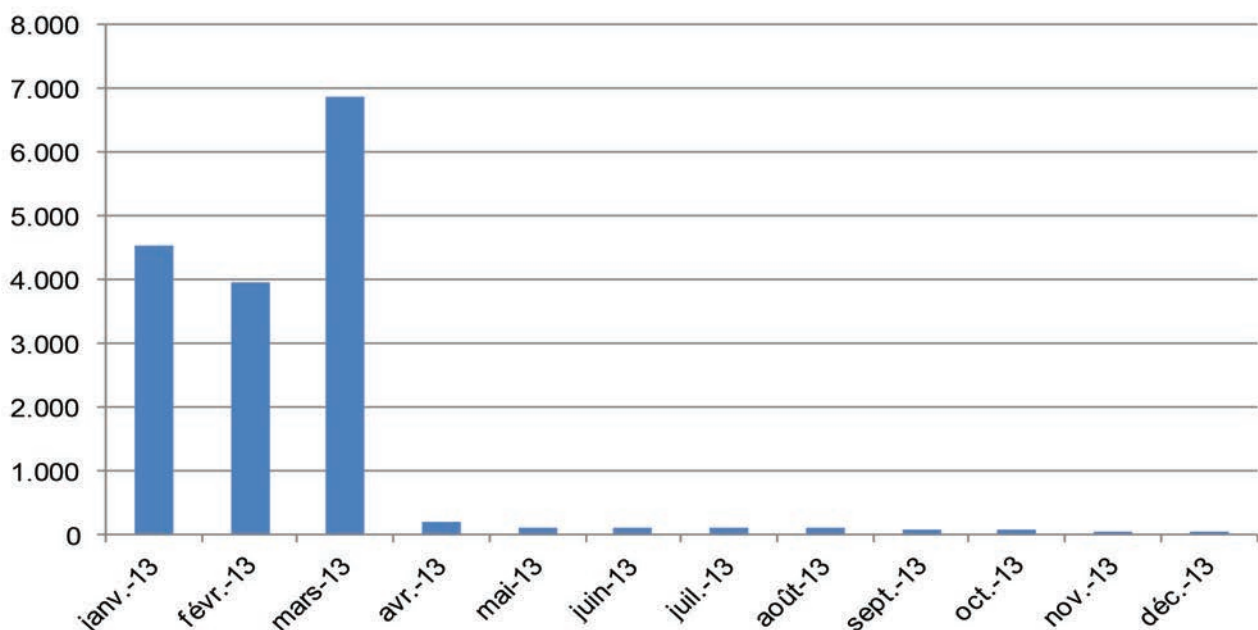
3.2.1. Photovoltaic solar power installations up to 10 kW

In November 2011, the Walloon Government decided on a gradual revision of the support scheme for SOLWATT installations between 1 December 2011 and 31 March 2013. The implementing rules provided for allocating the green certificate granting scheme based on the order date of the installation, subject to its completion within a period of 6 months (excluding inclement weather days).

The figure below shows developments in orders over 2013. It can be seen that approximately 15,000 orders were placed in the first quarter of 2013 and that these orders almost completely stopped after 31 March 2013, the date on which the green certificate granting scheme with application of a multiplier coefficient ended (granting rate of over 1 GC/MWh).

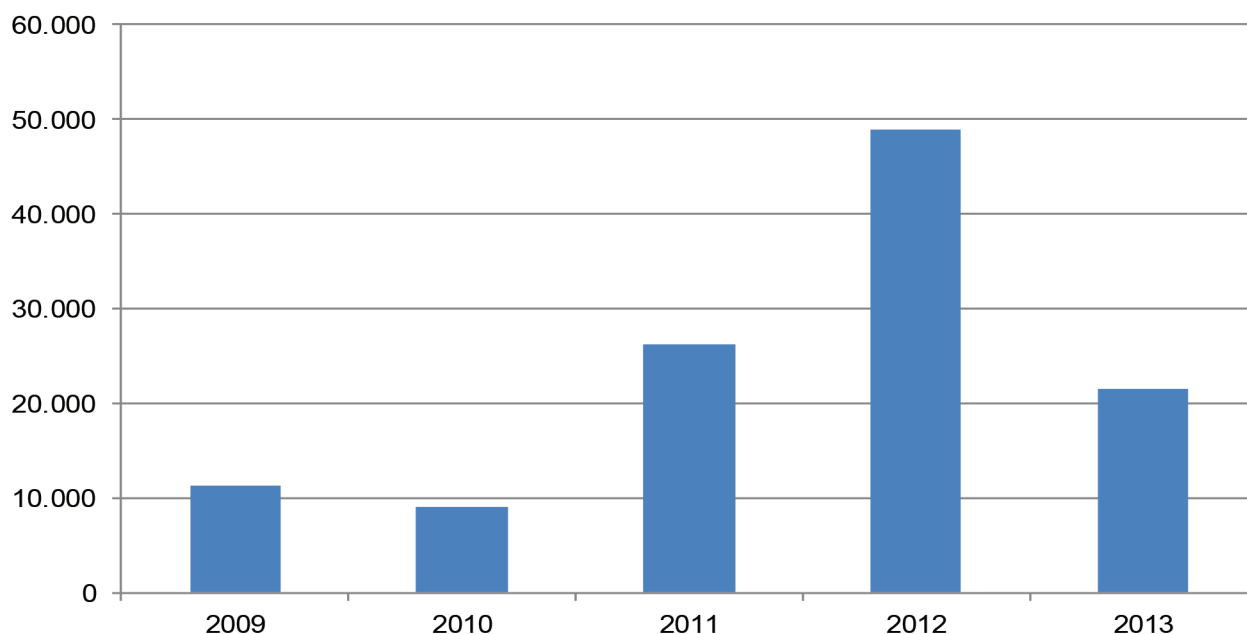
Noteworthy for 2013 in this context of a slowdown in the photovoltaic market is that several companies active as assignees (transfer of green certificates in the context of a third-party investor arrangement) went into bankruptcy, leading to many situations of conflict in particular as regards the management of green certificates, with no specific provisions having been provided for these companies in the legislation relating to the green certificate mechanism. At the end of 2013 there were still 12,000 installations registered in the CWaPE database in the name of an assignee, which is 10% of all installations. At the end of 2013, there were 16 assignees or equivalent with over 100 installations. These 16 assignees represented over 90% of the installations for which a transfer of green certificates had been notified to the CWaPE.

Figure 5 - Changes in orders in 2013



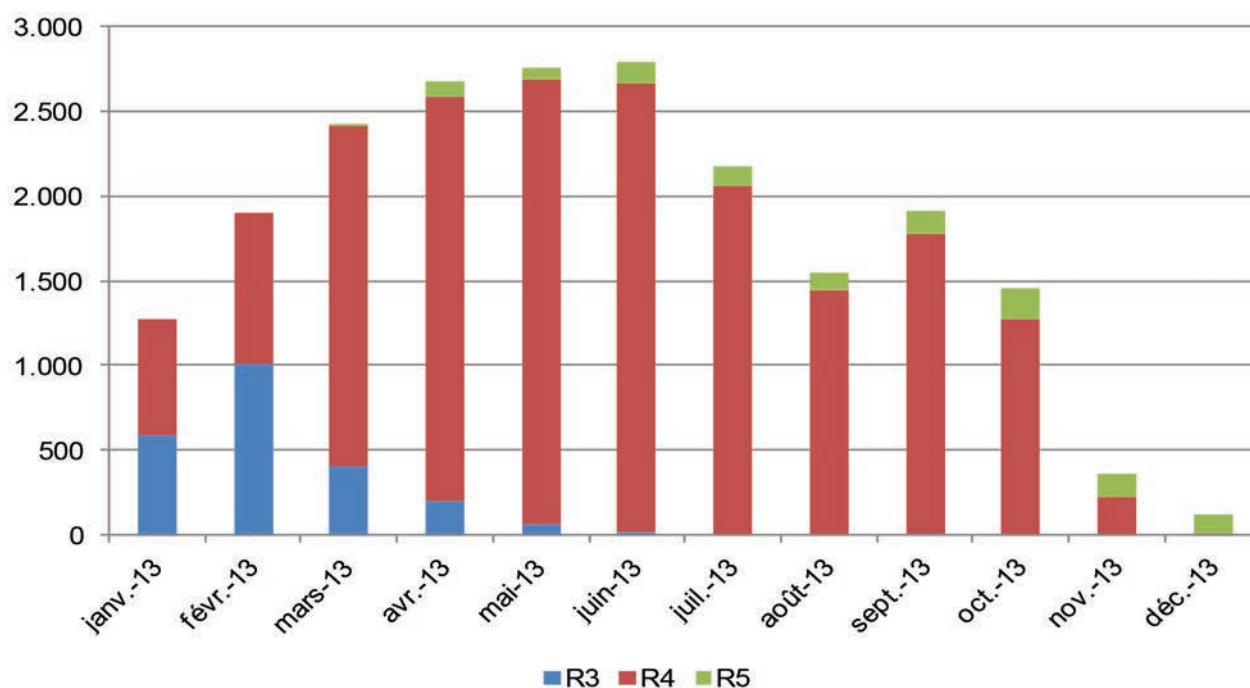
In total, almost 21,400 installations were commissioned in 2013, compared to 48,000 in 2012. At the end of 2013, installed capacity in Wallonia was 685 MWc (540 MWc at the end of 2012) and over 120,000 installations were registered in the CWaPE database. It should be noted that the average capacity of installations increased from 4 kWc in 2008 to almost 6 kWc in 2013.

Figure 6 - Number of solar power installations ≤ 10 kW commissioned over the period 2009-2013



The figure below shows the monthly change in the number of installations commissioned in 2013, broken down by the three support schemes available in 2013 (see Table 3 in Chapter 2).

Figure 7 - Solar power installations ≤ 10 kW commissioned in 2013
Breakdown by GC granting scheme



■ R3 ■ R4 ■ R5

Most of the installations commissioned in 2013 were still eligible for the granting schemes decided upon in 2011 (S3 and S4) and barely 1000 installations were subject to the interim scheme (S5) in effect since 1 April 2013.

3.2.2. Other sectors up to 10 kW

Just over 50 new installations of this type were registered in 2013, which is less than in 2012 (90 new installations).

Among new installations, domestic micro-cogeneration units with a capacity of 1 kW continued to rise in number, but at a slower pace than last year. These units were still eligible for a regional investment subsidy. Based on the production readings submitted, the CWaPE notes the poor performance of these installations in actual practice. As a result, these installations were only granted green certificates in a limited number of cases where minimum CO₂ savings of 10% had been achieved. The best installations receive one green certificate per year at most. The requirements imposed on producers to have their site recognised as a green electricity generation installation (installation of meters, on-site inspection by an inspection body, preparation of a certificate of guarantee of origin, sending of the readings to the CWaPE each quarter, etc.) therefore appear excessively complex given the benefit that can be obtained. At the end of 2013 there were 111 micro-cogeneration installations of 1 kW as well as approximately 20 micro-cogeneration installations of 5 kW.

At the end of 2013 there was a total of 205 non-photovoltaic solar power installations below 10 kW, amounting to barely 760 kW of installed capacity (575 kW installed capacity at the end of 2012).

*Table 9 - Green electricity generation sites ≤ 10kW at the end of 2013
(excluding photovoltaic solar power sector)*

Generation sites ≤ 10 kW	Number of sites	Capacity (kW)
Hydropower	40	274
Wind	21	164
Biomass	10	80
Fossil cogeneration	134	242
Total	205	760

It should be noted that the CWaPE has tasked an approved inspection body with carrying out an audit with a view to verifying producer statements and collecting, on a systematic basis, all the technical data required for the preparation of certificates of guarantee of origin for complex low-power installations (cogeneration and biomass), given that such installations are not currently subject to any prior inspection by a "green certificates" approved body. Furthermore, as part of this audit mission, random or targeted inspections of photovoltaic solar, hydropower and wind installations are also carried out.

3.3. Generation facilities (as at 31/12/2013)

As at 31 December 2013, almost 121,000 green electricity generation sites fulfilled the conditions for granting green certificates and accounted for a total capacity of over 1926 MW.

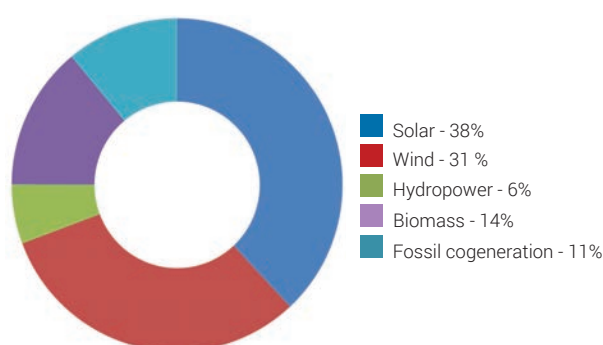
The table below breaks down these generation sites by type of technology and by sector. It distinguishes between sectors not using fuels (PV solar, wind, hydropower) for which generation costs are essentially determined by the investment cost (CAPEX-driven technologies) on the one hand, and the sectors using fuels (biomass and cogeneration) for which generation costs are essentially determined by operating and maintenance expenses (OPEX-driven technologies), on the other.

Table 10 - Green electricity generation sites at the end of 2013

Generation sites	Number of sites	Capacity (kW)
CAPEX-driven technologies	120,710	1,445,639
PV solar	120,528	733,276
Wind	84	601,263
Hydropower	98	111,100
OPEX-driven technologies	277	480.471
Biomass	67	268,357
Fossil cogeneration	210	212,114
Total	120,987	1,926,110

In terms of installed capacity, as shown in the diagram below, it is noteworthy that 75% of the certified electrical power at the end of 2013 corresponded to the sectors referred to as "CAPEX-driven technologies" and 25% to the sectors referred to as "OPEX-driven technologies". It should be noted that the solar power sector alone represented over a third of total installed capacity at the end of 2013.

Figure 8 - Breakdown by sector of certified electric power at the end of 2013 (MW)



3.4. Green electricity generation

3.4.1. Electricity generation audit²⁸

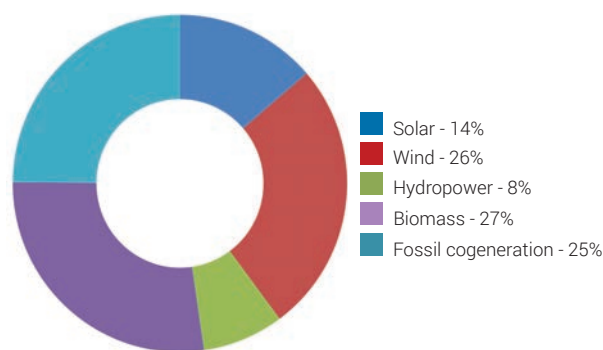
As at 31 December 2013, the 121,000 certified generation sites had generated over 4.6 TWh of green electricity. As shown in the table below, it is in the wind and biomass sectors that production was highest. They alone accounted for over half of production in 2013.

Table 11 - Production of green electricity generation sites at the end of 2013

Generation sites	Number of sites	Output (MWh)
CAPEX-driven technologies	120,710	2,204,406
PV solar	120,528	633,098
Wind	84	1,207,786
Hydropower	98	363,522
OPEX-driven technologies	277	2,416,206
Biomass	67	1,266,181
Fossil cogeneration	210	1,150,025
Total	120,987	4,620,612

In terms of production, as shown in the diagram below, it can be seen that 52% of green electricity generation was from sectors referred to as "OPEX-driven technologies" and 48% from sectors referred to as "CAPEX-driven technologies". While the solar power sector represented over 38% of total installed capacity at the end of 2013, it only corresponded to approximately 14% of production in that year. Developments in electricity generation by sector over the period 2003-2013 can be found in Annex 2.

Figure 9 - Breakdown by sector of green electricity production of certified sites at the end of 2013 (MWh)



²⁸ Generation values are based on declarations from producers verified by an approved body and by the CWaPE, except for the production of solar power installations. For declarations at the beginning of the year not starting on 1 January or at the end of the year not ending on 31 December, the declared production has been allocated pro-rata temporis. This allocation begins with the initial reading for sites that are starting up. Values for sites for which generation data is not yet available have been extrapolated in the same manner, except in the case of a shutdown or an incident. For solar power, production is estimated based on the installed capacity multiplied by the average monthly sunshine duration starting on the month of the installation's initial reading.

3.4.2. Developments in production by sector over the period 2012-2013

Green electricity production²⁹ grew by 4% compared to 2012 and exceeded 4.6 TWh. The growth rate in 2013 was nevertheless lower than that observed the previous year (12%). Renewable electricity production³⁰ now stands at 3.3 TWh, an increase of 4%. It will be necessary to more than double this to achieve the target of 8 TWh of renewable electricity by 2020.

The table below compares installed capacity (MW) and the production of green electricity (MWh) and renewable electricity (MWh-RES) by sector from 2012 to 2013.

Table 12 - Developments in green electricity generation between 2012³¹ and 2013

Sectors	2012			2013			2013-2012		
	Capacity	Output		Capacity	Output		Variation		
	MW	MWh	MWh-RES	MW	MWh	MWh-RES	MW	MWh	MWh-RES
Solar	557	416,174	416,174	733	633,098	633,098	+32%	+52%	+52%
Solwatt solar	537	399,536	399,536	686	598,613	598,613	+28%	+50%	+50%
Solar > 10 KW	20	16,639	16,639	48	34,484	34,484	+142%	+107%	+107%
Hydropower	111	363,474	363,474	111	363,522	363,522	0%	0%	0%
Wind	562	1,194,850	1,194,850	601	1,207,786	1,207,786	+7%	+1%	+1%
Biomass	258	1,337,834	1,237,512	268	1,266,181	1,135,225	+4%	-5%	-8%
Biogas - EL	21	74,374	74,019	21	71,855	71,494	+0%	-3%	-3%
Biogas - WWTP	4	15,070	12,554	5	12,682	9,625	0%	-16%	-23%
Biogas - agricultural	10	49,514	49,346	11	59,205	59,076	+14%	+20%	+20%
Bioliquid	4	550	540	4	519	481	+1%	-6%	-11%
Solid - wood pellets	81	438,075	429,722	81	373,131	365,030	0%	-15%	-15%
Solid - wood other	98	570,266	541,061	107	573,515	509,391	+9%	+1%	-6%
Solid - other	39	189,985	130,269	39	175,273	120,128	0%	-8%	-8%
Fossil cogeneration	206	1,135,467	2,874	212	1,150,025	3,502	+3%	+1%	+22%
Gas co-generation	189	1,101,731	0	194	1,120,068	0	+3%	+2%	-
Biogas - co-combustion	17	33,736	2,874	18	29,957	3,502	+2%	-11%	+22%
Total	1,694	4,447,798	3,214,885	1,926	4,620,612	3,343,132	+14%	+4%	+4%

CAPEX-driven technologies

Green electricity production by sectors not using fuels (PV solar power, hydropower, wind) increased by approximately 12% between 2012 and 2013.

These sectors are subject to uncontrollable weather factors and they all present annual and seasonal variability.

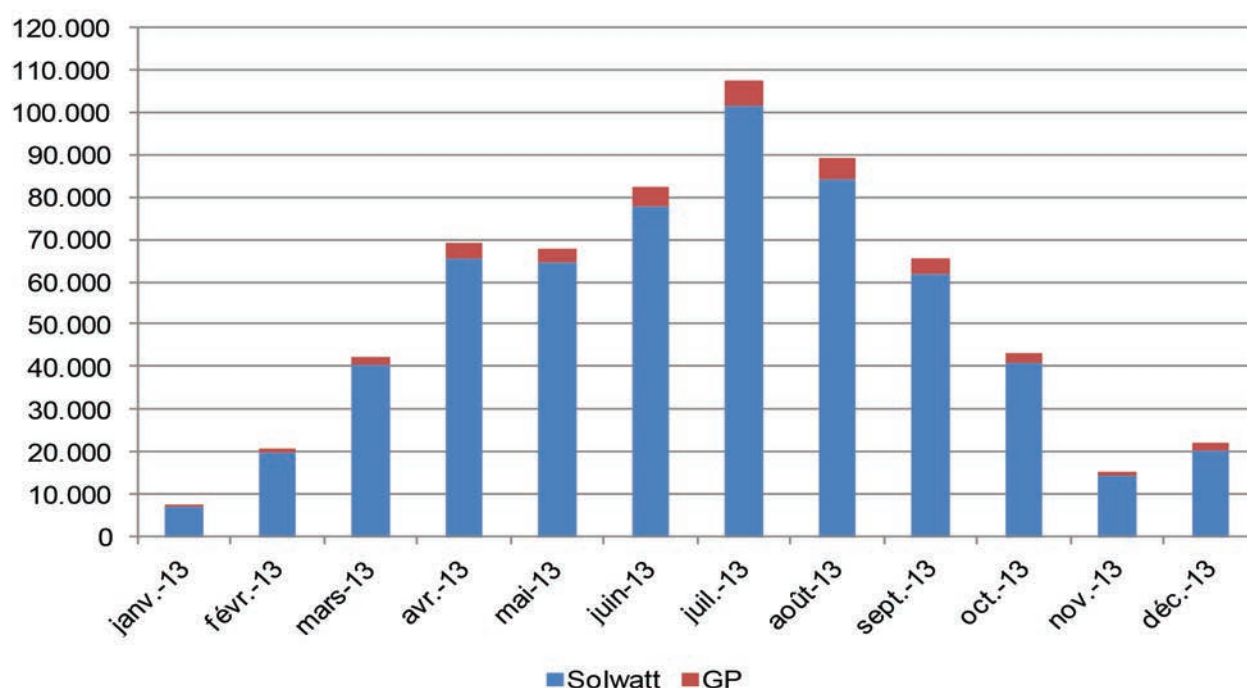
²⁹ In accordance with the decree of 12 April 2001, green electricity comprises renewable electricity AND electricity from high-quality cogeneration; it confers an entitlement to green certificates (see Chapter 2).

³⁰ In accordance with the decree of 12 April 2001, renewable electricity only comprises electricity from renewable energy sources; under certain circumstances, it could be that it does not confer an entitlement to green certificates (e.g. for an installation that has already been receiving them for 15 years) (see Chapter 2).

³¹ The figures for 2012 were revised to take account of changes made pursuant to production corrections and dossiers which were submitted late or were incomplete.

For illustrative purposes, the figure below provides an estimate of monthly electricity production during the course of 2013 for photovoltaic solar power installations. This estimate was established based on monthly developments in installed capacity as well as on the reference monthly production figures selected by the CWaPE (kWh/kWc/month) in order to take account of the weather conditions observed during the month.

Figure 10 - Estimated monthly solar electricity production in 2013 (MWh)



Concerning annual variability, the table below provides the average usage times observed by sector in 2013 for existing installations as at 31 December 2012.

Table 13 - Average usage time observed by sector in 2013³²

Sectors	Usage time (hours/year)	Reference
Solar	963	900-950
Wind	2,075	2,200
Hydropower	3,275	3,000

Growth in the sectors referred to as "CAPEX-driven technologies" was mainly attributable to the strongest growth observed for the photovoltaic sector (52%), with SOLWATT production increasing by 50% and solar above 10 kW by 107%.

This growth was the result, on the one hand, of the increase in the number of generation sites in 2012 and 2013 in this sector and, on the other hand, of good weather conditions comparable to those in 2012.

It can be seen that the average usage time observed for the solar power sector was higher than the reference values of 900 hours/year for installations ≤ 10 kW and 950 hours/year for installations above 10 kW.

32

Reference source: Proposal CD-14b11-CWaPE-861 on a "Methodology for calculating new green certificate granting rates"; Communication CD-14b26-CWaPE on the "Methodology for calculating the QUALIWATT incentive"; Walloon energy audit 2012, SPW, January 2014

The hydropower sector did not see a significant increase in capacity and maintained production levels similar to that for the previous year owing to favourable weather conditions.

As regards the wind power sector, despite an increase in capacity of approximately 39 MW electricity production only increased slightly (+1%) due to relatively poor wind conditions in 2013. This is reflected by an average usage time calculated for 2013 that is lower than the reference value.

OPEX-driven technologies

More than half of the green electricity in Wallonia comes from installations that use fossil fuels and/or biomass. However, this green electricity production fell by approximately 2% between 2012 and 2013.

These sectors are to a certain extent affected by weather-related factors, but they are mainly impacted by prevailing economic conditions. On average, usage time observed is higher than for other sectors and is close to 4,900 hours/year for biomass and over 5,500 hours/year for fossil cogeneration.

While production in the fossil cogeneration sector saw a slight increase compared to the previous year (+1%), production in the biomass sector fell (-5%), in particular due to lower output from the Awirs power plant (wood pellets) and the idling, for much of the year, of the Electrawinds installation in Mouscron. These falls in production and the idled installations were primarily attributable to a deterioration in economic conditions (rise in the price of biofuels, fall in electricity prices and drop in the price of green certificates). In the biomass sector it is also worth noting the growth in generation using agricultural biogas (+20%) following commissionings in 2012, even if, with its 59 GWh, it is still below the production of the biogas - EL sector (71 GWh), which is slowly being eroded by the depletion of its resources

Given the significant heterogeneity of the biomass sector, a specific section is devoted to it below.

3.4.3. Focus on the biomass sector

Classification of biomass types

Biomass covers a wide range of resources that are categorised as follows:

- Solid biomass: primarily wood (in various forms: chips, bark, sawdust, pellets, etc.), but also includes household waste³³, animal fats and agricultural residue.
- Liquid biomass or bioliquid: primarily (non-refined) vegetable oils such as rapeseed oil.
- Gaseous biomass or biogas: resulting from a microbial conversion of solid or liquid biomass into methane.

Products or raw materials may fall into these biomass categories, but they can also include residue or waste in the sense that the material cannot readily be used for a purpose considered noble for technical reasons (e.g. wood covered with lead paint or water from the washing of beets), commercial reasons (e.g. spoiled vegetables) or legal reasons (e.g. tinned food with a passed expiry date). Because this designation is, by its nature, dependent on the point of view of the owner, it does not facilitate the categorisation of biomass. Furthermore, the continuous and generalised rise in the price of biomass over the past 10 years shows to anyone who might still doubt it that "waste no longer exists": all biomass, even the least noble, is now a resource.

33 Waste-to-energy units (incinerators) in Wallonia do not reach the threshold of 10% of CO₂ emissions avoided and do not therefore receive green certificates, as a result of which their production is not included in these figures.

Classification of installations

The share of renewable energy used varies considerably from one installation to another. The table below shows the proportion of renewable primary energy observed in installations by category of biomass used in 2013.

Table 14 - Proportion of renewable primary energy by biomass category in 2013

Biomass	Percentage of renewable energy
Solid - mixed wood	88.80%
Solid - wood pellets	97.80%
Solid - other	68.50%
Biogas - EL	99.50%
Biogas - gas co-combustion	11.70%
Biogas - agricultural	99.80%
Biogas - WWTP	75.90%
Bioliquid	92.50%
Total	87.90%

Pursuant to an agreement, sites using over 50% renewable energy (biomass) are placed by the CWaPE in the "biomass sector" category. On average, these sites use 90% renewable energy and 10% fossil energy. The latter is used essentially for technical reasons during the start-up phases of installation.

Sites that use less than 50% renewable energy (biomass) are placed by the CWaPE in the "fossil cogeneration sector" category. On average, these sites use 12% renewable energy and primarily operate in co-combustion mode (natural gas and biogas).

Overall, for all installations using biomass, primary energy of fossil origin used (essentially natural gas) accounts for just over 12%.

Figures for 2013

The table below takes stock by biomass category. Biomass consumption for electricity generation purposes in Wallonia amounted to 6.2 TWh in 2013. Through cogeneration, 30% of the energy from sites using biomass is recovered in thermal applications (2.2 TWh) and 17% is converted into electricity (1.3 TWh).

Table 15 - Energy generated by biomass category in 2013 (GWh)

Biomass (GWh)	Primary energy	Primary energy (biomass)	Thermal energy recovered	Net electricity	Electricity (renewable)
Solid - mixed wood	4,649.5	3,962.8	1,369.3	573.5	509.4
Solid - wood pellets	1,122.9	1,098.4	6.6	373.1	365.0
Solid - other	993.9	663.0	624.7	175.3	120.1
Biogas - EL	248.1	246.9	7.6	71.9	71.5
Biogas - gas co-combustion	192.1	22.7	150.3	30.0	3.5
Biogas - agricultural	184.9	184.4	41.4	59.2	59.1
Biogas - WWTP	37.3	29.3	13.5	12.7	9.6
Bioliquid	1.7	1.6	1.0	0.5	0.5
Total	7,430.3	6,209.1	2,214.3	1,296.1	1,138.7

The figures below show a breakdown between the different categories of biomass according to the perspective (primary energy, electrical energy and thermal energy).

Figure 11
Biomass primary energy in 2013

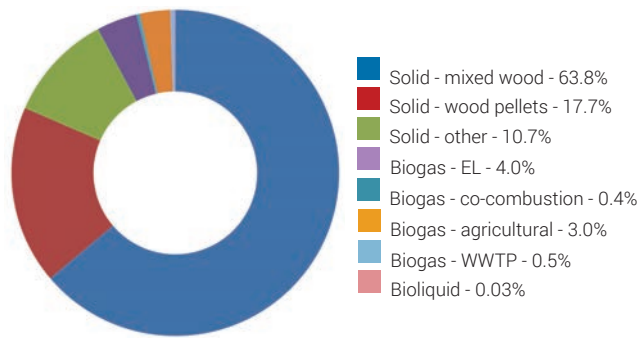


Figure 12
Thermal energy recovered in 2013

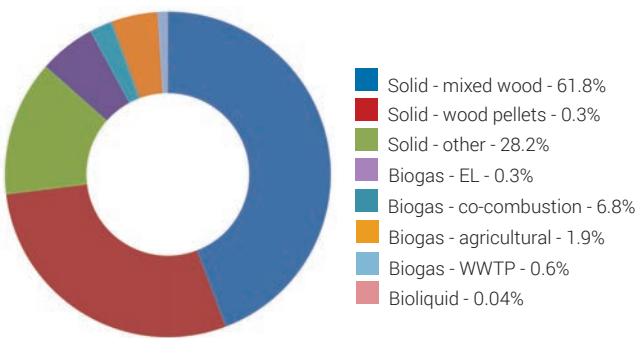


Figure 13
Net electricity generated in 2013

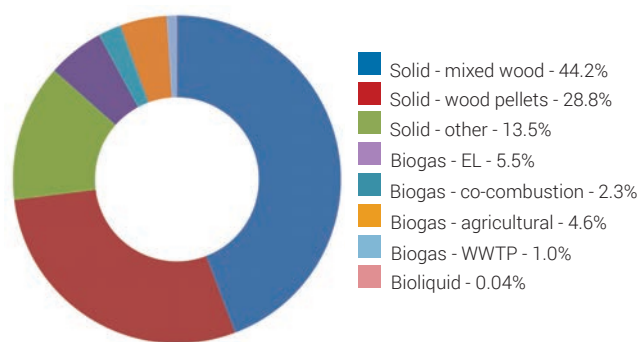
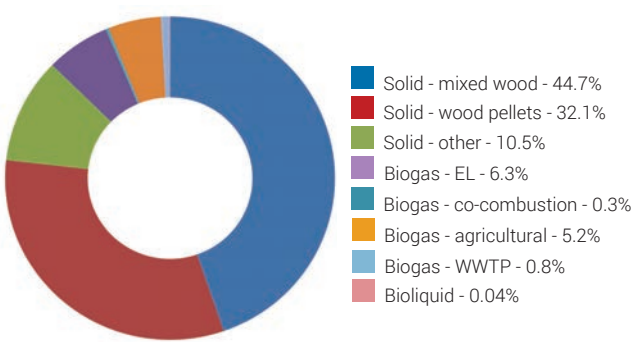


Figure 14
Renewable electricity generated in 2013

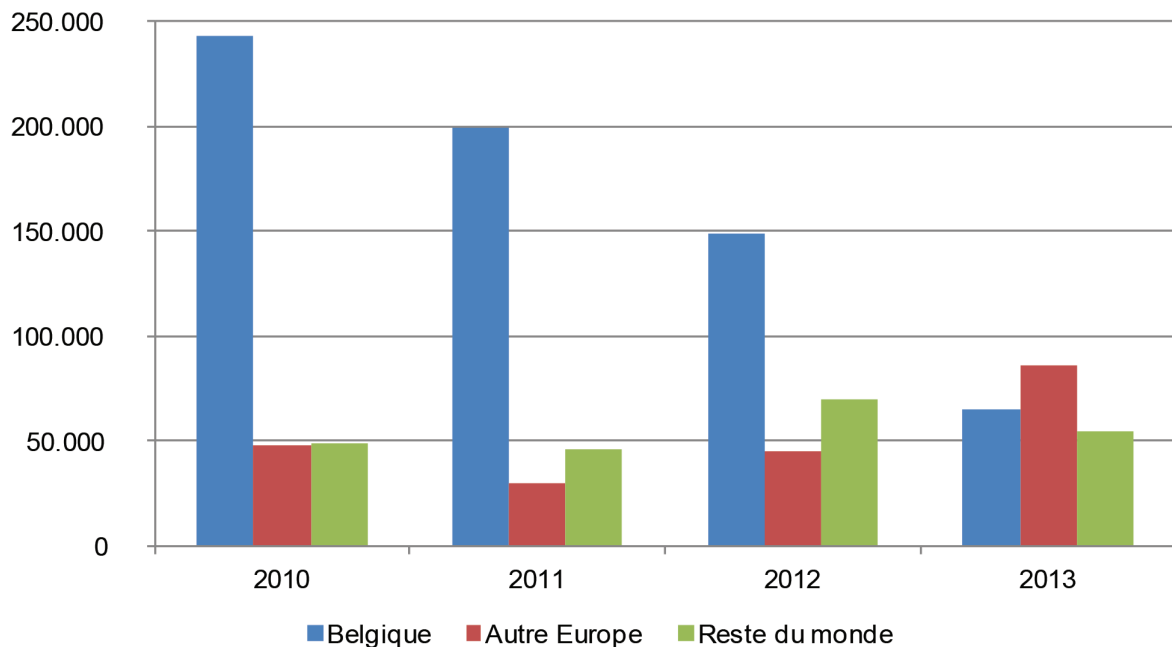


Solid biomass

In Wallonia, over 85% of biomass-based electricity generation, i.e. 1.1 TWh, comes from solid biomass. Apart from a few installations primarily using animal fats from abattoirs or low-grade fats, and one installation using bran, solid biomass consists of 88% wood. Solid biomass is not subject to the sustainability criteria of Directive 2009/28/EC. The entitlement to receive green certificates is, however, dependent on the verification by the CWaPE of the renewable nature of the resource (this renewable nature being defined by the decree of 12 April 2001 as "any source of energy (...) the consumption of which does not limit its future use"). However, the orders and decisions that result from it limit the verification to the CO₂ emissions avoided. Nevertheless, for practical reasons and when it is available, operators prefer to use certified wood (FSC, PEFC including SFI), the certification of which attests to sustainable forest management; it is then a matter of adding the CO₂ emissions resulting from fuel production, packaging and transport, which is no small task.

In 2013, the use of wood pellets for electricity generation in Wallonia continued to decrease, falling by a quarter compared to the previous year. Since 2008, pellets from Wallonia have no longer conferred an entitlement to subsidies in Flanders; having been replaced there by US pellets, their share in supplies to power plants in Wallonia had as a result skyrocketed. In the last 4 years, Walloon pellets have decreased from almost three-quarters of supplies to wood pellet power plants to less than one-third. For the future, operators have made known their desire to source supplies exclusively from abroad (which was already the case in early 2014 prior to the seasonal idling of the Awirs power plant). Remaining amounts came almost entirely from the USA, Canada and the rest of Europe. The means of transporting these pellets (in short: train + Panamax ship + barge) present specific emission rates (kg of CO₂ emitted per tonne of pellets) that are low enough for the most efficient suppliers on the other side of the Atlantic to have lower CO₂ emissions than the least efficient European producers: the emissions relating to processing into pellets remain the major CO₂ emission factor.

*Figure 15 - Annual change in source of supplies for the 80 MW Awirs power plant
(tonnes of wood pellets per year)*



Excluding pellets, wood biomass generated 573 GWh of electricity in Wallonia. This wood accounts for 3.96 TWh of primary energy, which is the equivalent of approximately 1,086,000 tonnes of wood³⁴ in the form of residue from the processing of wood or wood from, for example, waste recycling facilities intended for energy recovery in cogeneration. The remaining solid biomass comprises animal fats and bran³⁵. These cogeneration units, which are Integrated into industry, use these fuels in their processes while generating renewable electricity, as attested to by the overall electricity and heat conversion efficiency shown in the table below.

Table 16 - Electricity and heat efficiency of biomass in 2013

Biomass	Electrical efficiency	Electricity + heat efficiency
Solid - mixed wood	12.30%	41.80%
Solid - wood pellets	33.20%	33.80%
Solid - other	17.60%	80.50%
Biogas - EL	29.00%	32.00%
Biogas - gas co-combustion	15.60%	93.90%
Biogas - agricultural	32.00%	54.40%
Biogas - WWTP	34.00%	70.20%
Bioliquid	29.90%	85.20%
Total	17.40%	47.20%

Biogas

Almost 60% of biogas comes from engineered landfills (EL)³⁶ while the rest comes from wastewater treatment plants (WWTP) and agricultural biomethanisation. With the exception of one installation in Libramont designed to use maize despite its location in the Ardennes, all Walloon biomethanisation installations primarily use waste from the agri-food industry and to a lesser extent materials from agriculture, such as maize.

For wastewater treatment plants with anaerobic digestion, such as at a number of sugar production sites, biogas is added. In this case, overall production is listed as biogas in co-combustion.

Liquid biomass

The liquid biomass sector is marginal because it mainly consists of very small-scale installations using rapeseed oil produced locally. This biomass meets the sustainability criteria established by the order of the Walloon government of 30 November 2006 (see Chapter 2).

³⁴ With a conversion factor of 1 tonne of wood = 3,650 kWh.

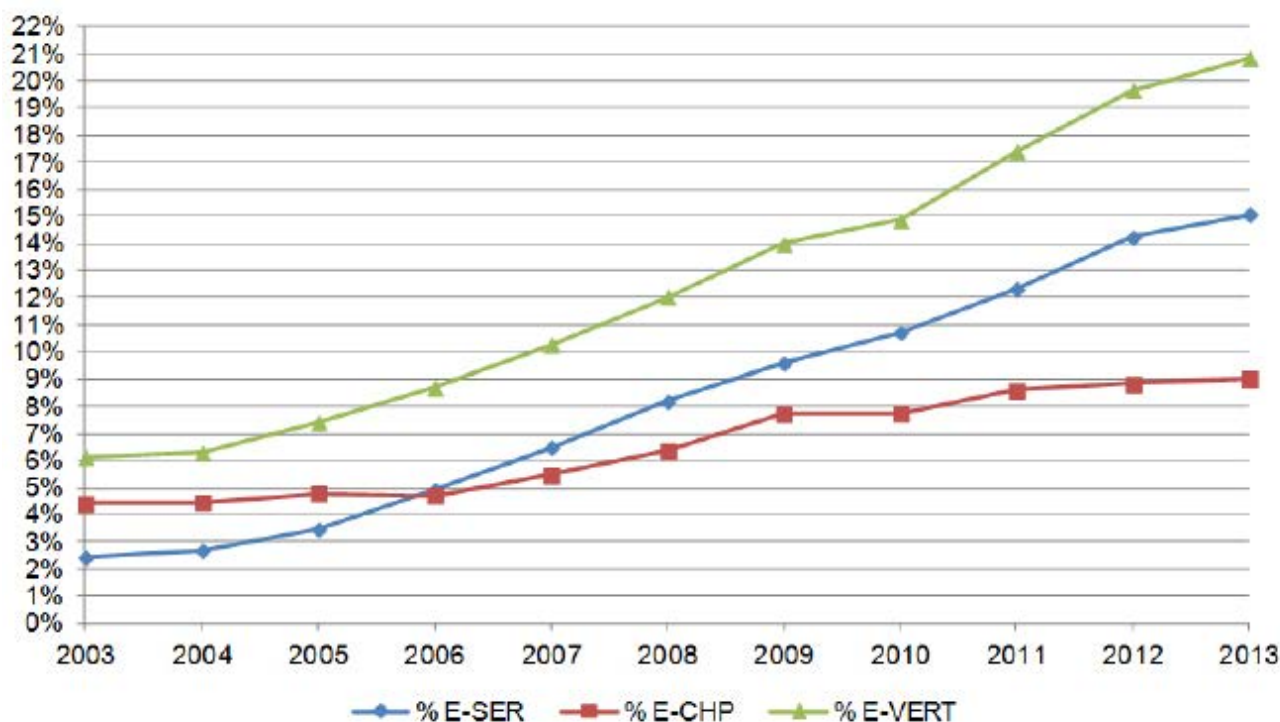
³⁵ The Biowanze methanol plant primarily uses cereal residue (bran) and natural gas in cogeneration; other fuels of all kinds (wood, fuel oil, etc.) are occasionally used in a very limited manner. In this report, this production has been placed in the "solid - other" category.

³⁶ The Tenneville engineered landfill (EL) also has a biomethanisation unit. The biogas produced on-site from household waste comes from both the landfill and biomethanisation, without it being possible to distinguish between them. For the purposes of this report, it has been placed in the "Biogas - EL" category.

3.5. Green electricity generation in relation to electricity supply in Wallonia

Based on the figure below, it can be seen that, compared to the quantity of electricity supplied in Wallonia (in decline over the period 2008-2013), the electricity output of green certified installations continued to increase in relative terms and reached almost 21% in 2013. It can also be seen that electricity generated from renewable energy sources (RES-E) over the period 2003-2013 increased from 2.5% to 15% of supply. With regard to high-quality cogeneration (CHP-E), it increased from 4.5% to 9%.

Figure 16 - Developments in share of green electricity generation in electricity supply in Wallonia



3.6. Level of support by sector

It can be seen that, overall, the effective average granting rate for all green electricity generation facilities increased from 1337 GC/MWh in 2012 to 1578 GC/MWh in 2013. This rise can be exclusively attributed to the significant increase in the contribution of the photovoltaic solar power sector to the production of green certificates, a logical result of the application of the multiplier coefficients scheme, the effects of which were still being felt in 2013 and will still be felt in the future.

With an average purchase price in 2013 of EUR 66.43/GC for SOLWATT producers and EUR 77.92/GC for other producers (see Chapter 4), the average level of support is estimated at EUR 112.29/MWh, which is an increase of approximately 13% compared to 2012 (EUR 99.08/MWh).

The table below provides the values for the average level of support by sector in 2013.

*Table 17 - Average level of support by sector in 2013
(Market price of GC in italics - see Chapter 4)*

Sectors	Average granting rate GC/MWh	Average price to the producer EUR/GC	Average level of support EUR/MWh
Solar	6.928	66.70	462.11
Solwatt solar	7.154	66.43	475.23
Solar > 10 kW	3.008	77.92	234.36
Hydropower	0.304	77.92	23.71
Wind	0.999	77.92	77.81
Biomass	1.152	77.92	89.77
Biogas - EL	1.043	77.92	81.31
Biogas - WWTP	1.286	77.92	100.19
Biogas - agricultural	1.364	77.92	106.31
Bioliquid	1.580	77.92	123.12
Solid - wood pellets	0.770	77.92	60.00
Solid - wood other	1.150	77.92	89.62
Solid - other	1.933	77.92	150.63
Fossil cogeneration	0.112	77.92	8.71
Gas co-generation	0.093	77.92	7.23
Biogas - co-combustion	0.822	77.92	64.06
Average	1.578	71.17	112.29

This table illustrates in particular the ability of the Walloon mechanism to adjust the level of support for green electricity based both on the CO₂ savings rate achieved and the additional generation costs for each sector. This average support can therefore be directly compared with a feed-in premium system; a comparison with a feed-in tariff system, however, requires the addition of the selling price of the electricity to the values set out above.

Levels of support are highest for the solar power sector, followed by the biomass, wind power, hydropower and finally the natural gas fossil cogeneration sectors.

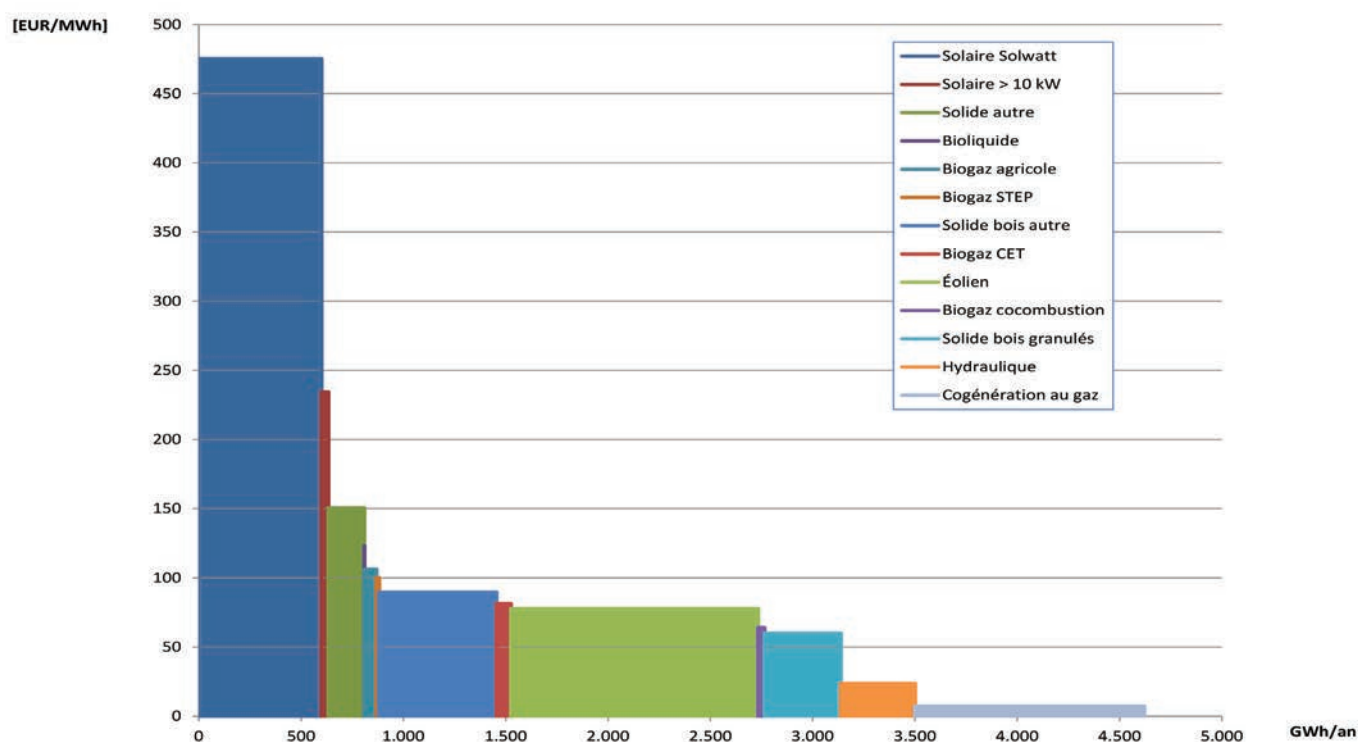
It can be seen that the average level of support granted to solar power installations above 10 kW is approximately 50% of the support granted to installations of up to 10 kW.

For the biomass sector, installations that use solid fuels other than wood benefit from the highest level of support. The lowest level of support is for co-combustion installations and wood pellets. A lower level of support for the hydropower sector compared to wind power can be explained by the application of a reducing coefficient for legacy installations (see Chapter 2).

The level of support for the natural gas cogeneration sector can be explained by a CO₂ savings rate that is lower than for biomass installations, as well as by the limitation of support to the first tranche of 20 MW of installed capacity.

The figure below shows the cost of the different sectors in terms of the electricity generated in 2013. In this figure, the surface area of each rectangle corresponds to the cost of the sector. It is noteworthy that approximately 80% of the green electricity generated in 2013 benefited from a level of support of under EUR 100/MWh.

Figure 17 - Level of support vs green electricity generated - 2013



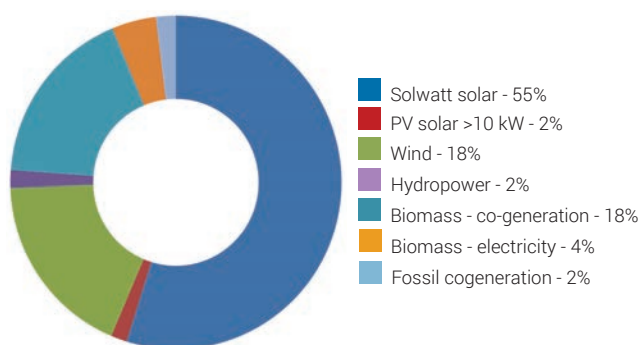
The table below shows the overall levels of support allocated by sector obtained by multiplying, for each sector, the average level of support by the quantity of electricity generated. In total, support for green electricity generation is estimated at almost EUR 520 M for 2013.

Table 18 – Breakdown of cost of mechanism by sector - 2013

Sectors	EUR M
Solwatt solar	284.479
Wind	93.974
Solid - wood other	51.398
Solid - other	26.402
Solid - wood pellets	22.389
Hydropower	8.620
Gas co-generation	8.093
Solar > 10 kW	8.082
Biogas - agricultural	6.294
Biogas - EL	5.842
Biogas - co-combustion	1.919
Biogas - WWTP	1.271
Bioliquid	0.064
Total	518.827

The figure below shows the contribution of each sector in the total cost of the green certificate mechanism. Unsurprisingly, it can be seen that the solar power sector accounts for over half of the total cost. It is also noteworthy that the "OPEX-driven technology" sectors (fossil cogeneration and biomass) represent barely 25% of the total cost of the mechanism while they account for over half of the electricity generated.

Figure 18 - Breakdown of cost of mechanism by sector - 2013



4. GREEN CERTIFICATE MARKET

4.1. Granting of green certificates

4.1.1. Developments over the period 2003-2013

Until 2009, issuances³⁷ of green certificates mainly concerned installations with a capacity above 10 kW. With the introduction of the advance granting mechanism for photovoltaic solar power installations with a capacity less than or equal to 10 kW (in place since June 2010) and the sharp rise in the number installations of this type, the SOLWATT sector has accounted for an increasingly significant share in the total number of green certificates issued in the Walloon Region.

While the SOLWATT sector only accounted for approximately 20% of total green certificate issuances in 2010, it reached over 49% in 2013. These issuances are comprised of advance granting on the one hand and of readings submitted by producers on the other.

The number of green certificates granted in advance reached its highest level in 2012, with approximately 2,000,000 GC granted. This number fell to approximately 1,275,000 GC in 2013 and should be limited to approximately 30,000 GC in 2014 as result in particular of the following:

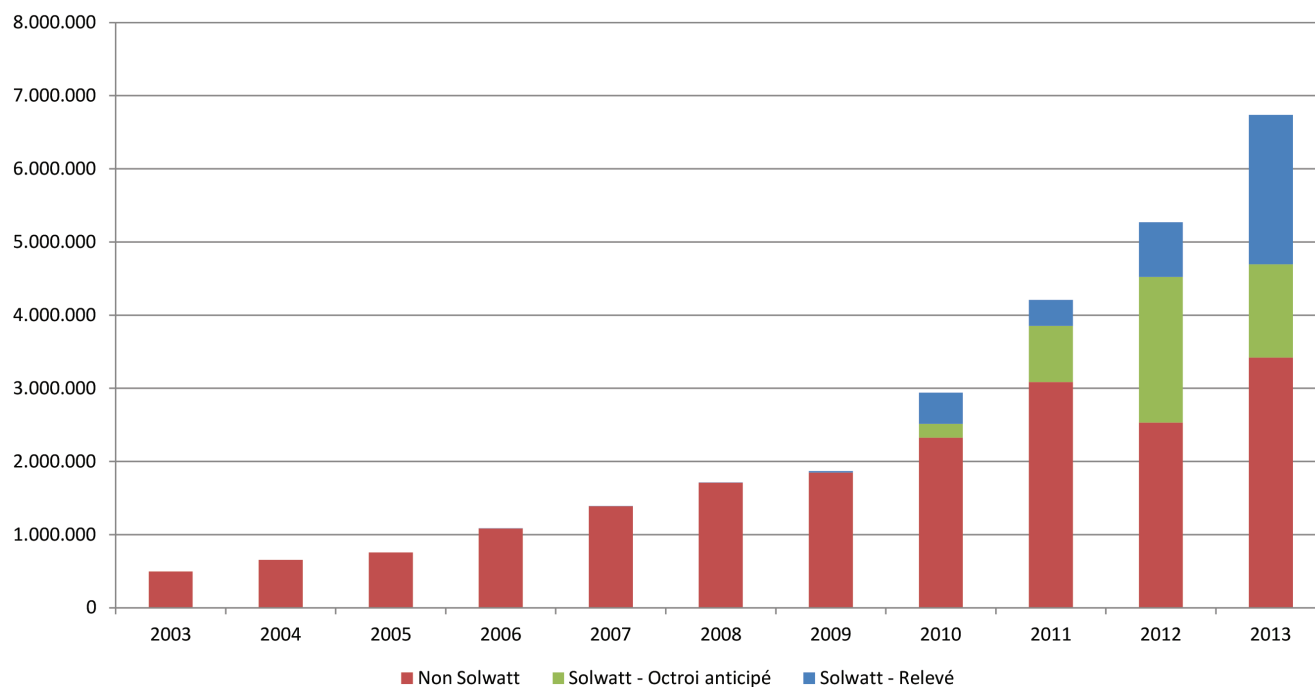
- End of the support scheme granted to SOLWATT installations with the application of a multiplier coefficient (granting rate of over 1 GC/MWh) for installations for which the order date is after 31 March 2013 (provided that the approval of the installation as compliant by the RGIE-approved inspection body takes place within 6 months of the date of the decision to invest, increased by the number of inclement weather days recognised as eligible for compensation by the Fonds de Sécurité d'Existence (Economic Security Fund).
- Fall in the number of installations.
- Adoption of the order of the Walloon Government of 27 June 2013 limiting eligibility for advance granting to installations for which the reference date for determining the procedures used for granting green certificates is before 19 July 2013.

As regards issuances relating to the readings submitted by SOLWATT producers, they accounted for approximately 750,000 GC in 2012 and approximately 2,045,000 GC in 2013. It should be noted that issuances relating to the readings submitted by producers for 2010, 2011 and 2012 were estimated³⁸ based on the average timeframe for the reimbursement of the GC granted in advance, taking into account the installed capacity and the average amount of sunshine recorded.

³⁷ The term "issuance" means the number of green certificates granted and then deposited in the producers' accounts which then become available for sale on the market.

³⁸ Until mid-2012, the statistics available to the CWaPE did not make it possible to distinguish, for generation sites having benefited from advance granting, between the green certificates used, on the one hand, to reimburse the GC granted in advance and, on the other, the GC granted no longer used to reimburse the GC granted in advance and therefore available for sale on the market ("issuances"). An IT update made it possible to make this distinction and therefore avoid any need to make estimations for subsequent years.

Figure 19 - Developments in number of green certificates issued over the period 2003-2013



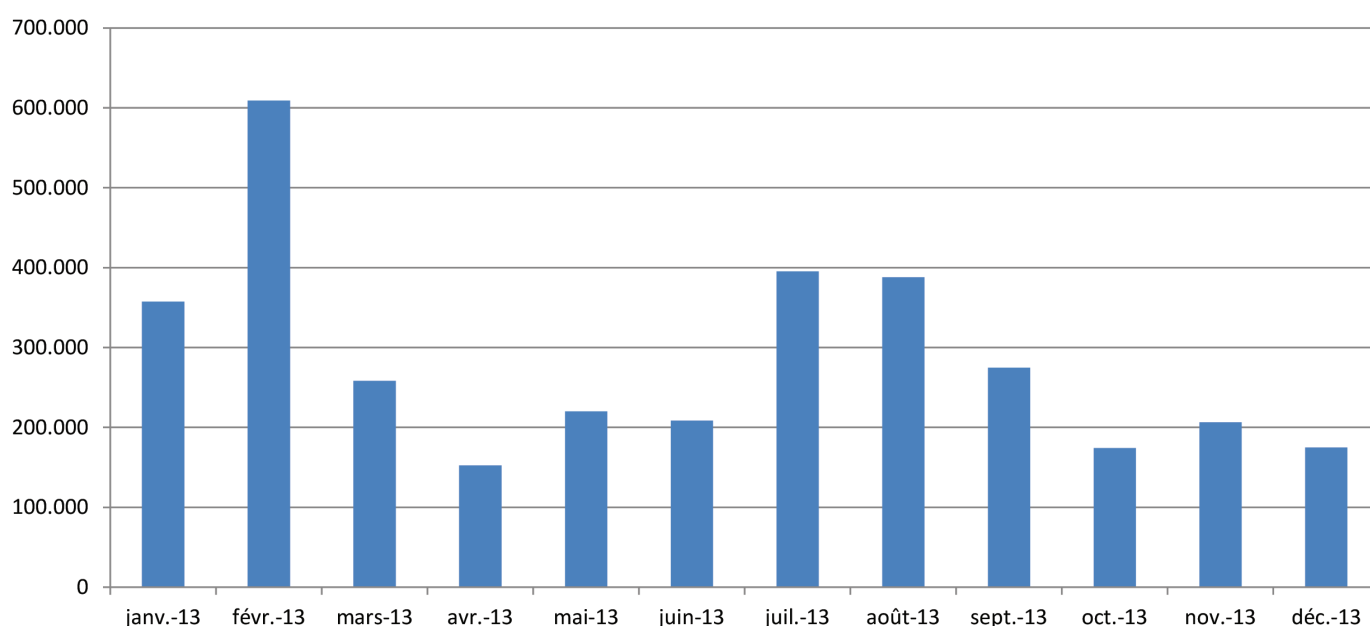
In total, for the period 2003-2013, over 27,100,000 GC were granted, including over 19,300,000 GC for installations above 10 kW (71% of GC granted) and no less than 7,800,000 GC for SOLWATT installations (29% of GC granted). In 2013, almost 6,740,000 GC were granted. Approximately 51% of green certificates issued were from "Non-SOLWATT" installations, some 19% were granted in advance and 30% were green certificates issued subsequent to readings submitted by SOLWATT producers.

4.1.2. Developments in 2013

Sites generating more than 10 kW

Given the significant increase in the number of generation sites, an average of almost 500 production readings were submitted to the CWaPE on a quarterly basis in 2013. In total, 3,420,000 GC were granted on the basis of these quarterly readings in 2013.

The average processing time continued to be 2 to 3 months depending on the complexity of the installation and the checks required by the legislation (record of inputs, calculation of effective CO₂ savings rate, reasonable recovery of heat, etc.).

Figure 20 - Green certificates granted to installations generating more than 10 kW in 2013

With a view to reducing this processing time, all photovoltaic solar power installations were, in 2013, gradually able to benefit from the IT developments implemented during the year giving producers access to the system for the online inputting of readings, as had been the case for several years for the 120,000 SOLWATT installations. Following a running-in period in 2013, the online inputting system became fully operational in 2014 by in particular making possible the online activation of sales of green certificates to Elia at the guaranteed price of EUR 65/GC while integrating the specific constraints relating to the limited period of this purchase guarantee. This period is calculated by the CWaPE on a case-by-case basis in the context of requests for the EUR 65 green certificate purchase guarantee.

Sites generating less than 10 kW

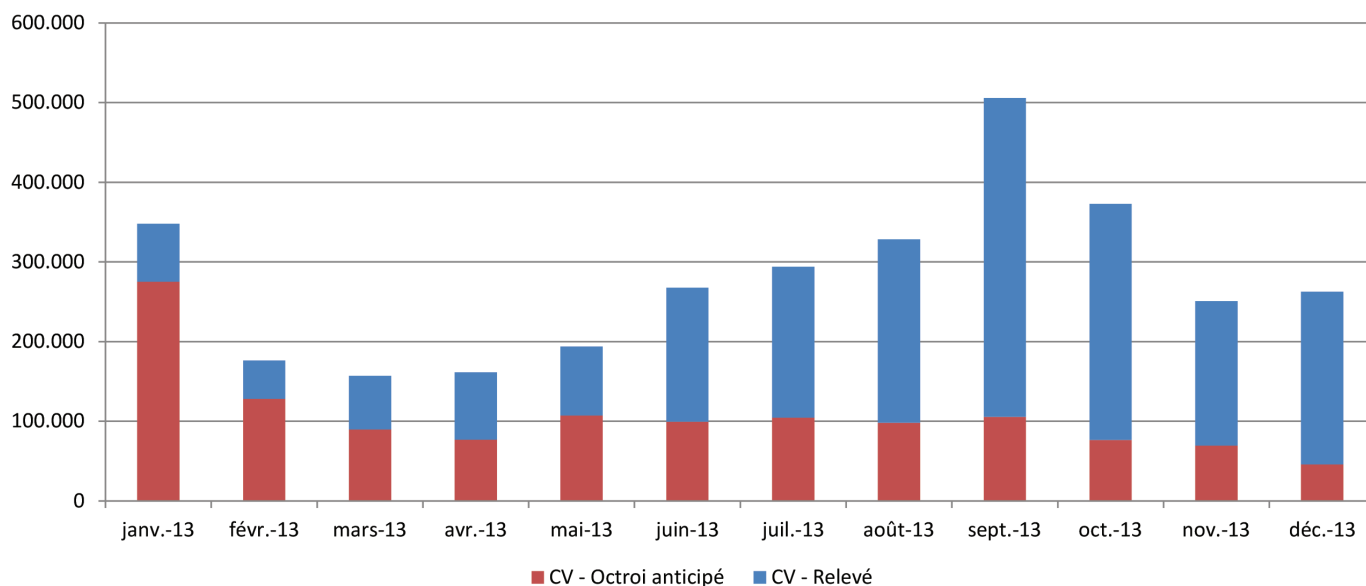
Photovoltaic solar power installations

The mechanism for the advance granting of green certificates, intended to replace the SOLWATT incentives scheme, has been in place since June 2010. The number of green certificates granted in advance corresponds to the number of green certificates expected for an installation during its first 5 years of operation. This amount is capped at 40 GC. In practice, the vast majority of photovoltaic solar power installations commissioned in 2013 benefited from the advance granting of 40 GC. It should be noted that, in July 2013, advance granting was terminated for new photovoltaic solar power installations. This measure affected only approximately 500 of the 21,000 installations commissioned in 2013.

SOLWATT producers submitted over 230,000 readings in 2013. Based on these readings, following the deduction of the green certificates set aside and used to first reimburse the advance granting, approximately 2,045,000 GC were granted and deposited in these producers' accounts.

In addition, approximately 1,275,000 GC were granted in advance to almost 32,000 generation sites.

Figure 21 - Green certificates granted to SOLWATT installations in 2013



In 2013, approximately 3,320,000 GC were granted to SOLWATT installations, 38% of which in advance and 62% of which based on readings submitted by producers. This is compared to 2012, when approximately 2,750,000 GC had been granted, 73% of which in advance and 23% of which based on readings submitted by producers.

The CWaPE extranet service made available to SOLWATT producers enables the online inputting of production readings. Producers have to input their readings each quarter, and this service is accessible 24/7, except during maintenance periods. The number of readings inputted was on average 700 per day, with peaks of up to 2,000 per day.

The rate of activity, i.e. the ratio between the number of SOLWATT producers who submitted a production reading for year n and those who did not, was 93% for 2013. The highest rate of inactivity is observed for installations commissioned in 2013 (approximately 3,500 installations).

For each reading submitted, the CWaPE performs an automated plausibility check on the quantity of electricity generated. In the CWaPE extranet, the message "check" is displayed for a meter reading when the alert threshold is exceeded. After a systematic check of the dossier, a CWaPE operator either releases the GC granted, requests an explanation from the producer or the DSO, or dispatches an approved inspection body to conduct an on-site inspection. In general, the information obtained in this manner makes it possible to remove the block. Less frequently, the CWaPE grants GC based on average production (granting of what is unquestionably due).

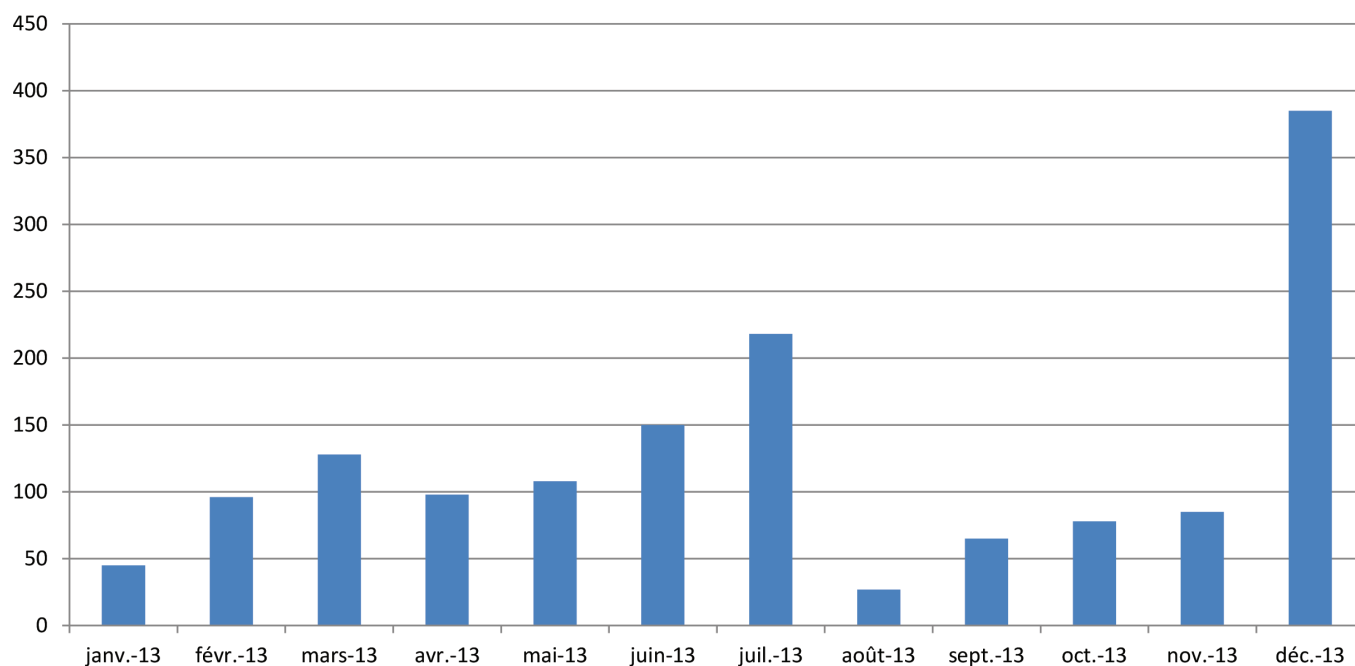
Other sectors

At the end of 2013, there were approximately 200 non-photovoltaic solar power installations of less than 10 kW, amounting to barely 760 kW of installed capacity.

Among new installations, it can be seen that domestic micro-cogeneration units with a capacity of 1 kW continued to rise in number (over 130 installations in 2013), these units being eligible for a regional investment subsidy. Based on the production readings submitted, the CWaPE confirms its observations from previous years as regards the poor performances of these installations in practice. As a result, these installations were only granted green certificates in a limited number of cases where minimum CO₂ savings of 10% had been achieved.

In 2013, fewer than 1500 GC were granted to non-photovoltaic solar power installations of less than 10 kW. It can be seen that this number of GC is negligible compared to the total number of GC granted to SOLWATT installations and installations generating more than 10 kW.



Figure 22 - Green certificates granted to non-photovoltaic solar power installations generating less than 10 kW in 2013

4.2. Sale of green certificates

4.2.1. Green certificate transactions

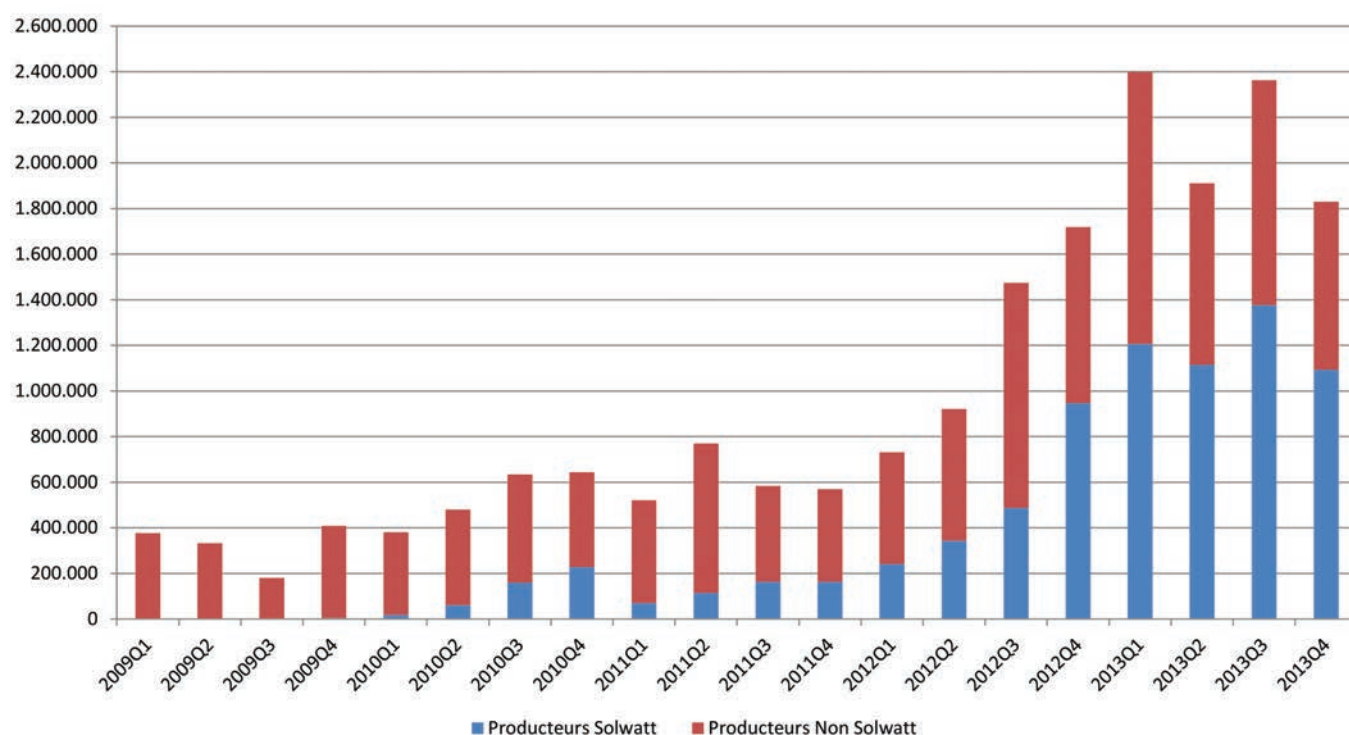
Characteristic of 2013 was a significant increase in the number of transactions, mainly attributable to the increase in the number of small-scale producers, whether for the sale of green certificates granted in advance or green certificates granted based on readings submitted via the CWaPE extranet service. In the space of one year, the number of transactions almost tripled and the volume of GC sold increased by over 75%.

Table 19 - Developments in transactions over the period 2009-2013

Years	Solwatt		Non-Solwatt		Overall market	
	Transactions	GC volume	Transactions	GC volume	Transactions	GC volume
	Number	Number	Number	Number	Number	Number
2009	364	9,770	329	1,287,921	693	1,297,691
2010	20,697	468,909	475	1,670,449	21,172	2,139,358
2011	16,666	512,225	569	1,931,292	17,235	2,443,517
2012	63,154	2,020,503	1,167	2,824,108	64,321	4,844,611
2013	188,881	4,792,070	1,357	3,709,894	190,238	8,501,964

There were over 190,000 transactions totalling approximately EUR 607 M (excl. VAT) involving a total volume of over 8,500,000 GC, which represents approximately 126% of the green certificates issued over the year. As such, approximately 1,760,000 of these GC sold in 2013 were issued in previous years.

Figure 23 - Quarterly developments in number of GC sold over the period 2009-2013



Based on the figure above, it can be seen that the share of GC sold originating from the SOLWATT sector accounted for an increasing share of the GC sold over the period 2009-2013. As a matter of fact, this sector accounted for over 56% of the GC sold in 2013 and from the fourth quarter of 2012 the number of GC from the SOLWATT sector accounted for over half of the GC sold.

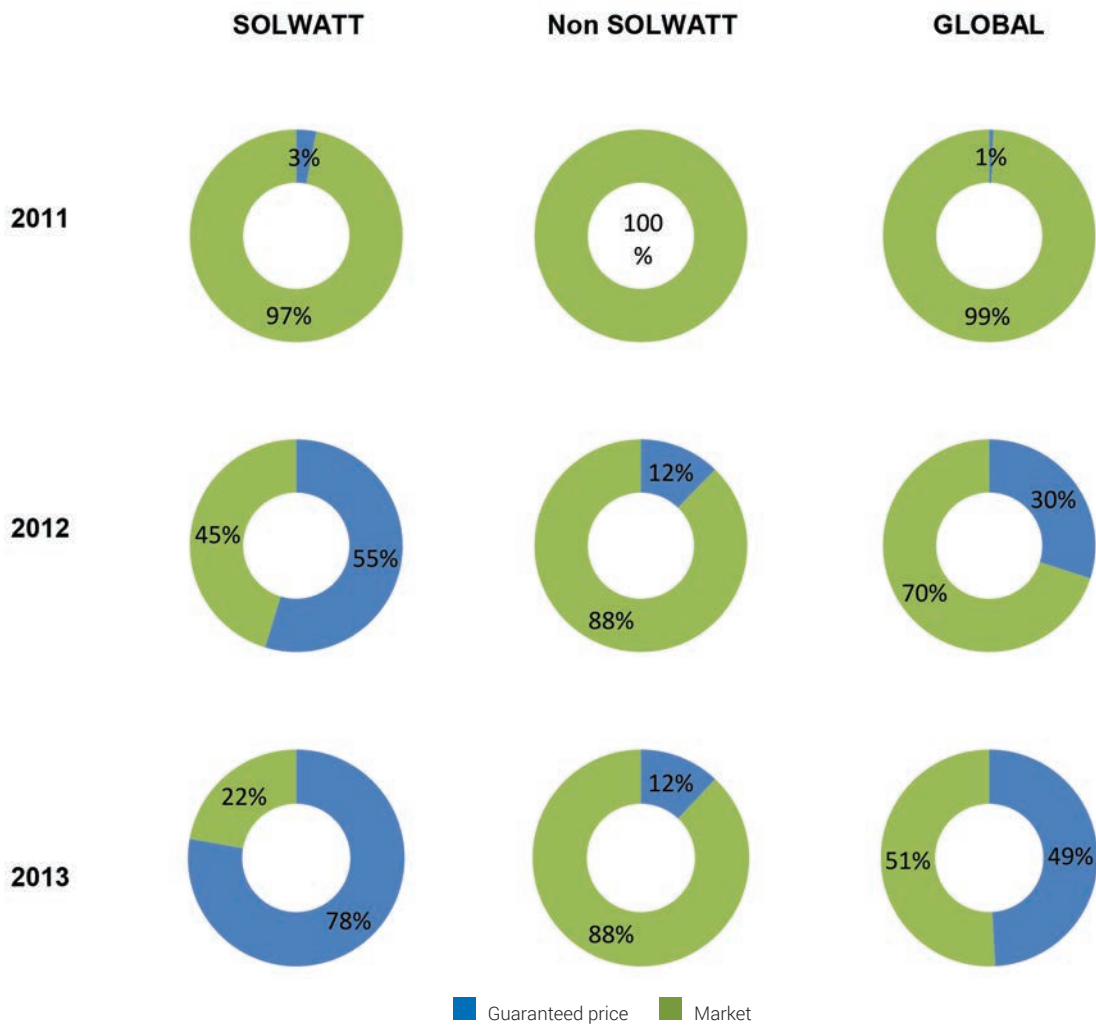
4.2.2. Sales options for green certificates

Producers have the option of selling their certificates either on the market or at the guaranteed price. The choice of the guaranteed price is made at the time of the submission of the readings and is automatically available to installations with a capacity less than or equal to 10 kW. As regards advance granting, the decision to opt for the guaranteed price or for the sale of green certificates on the market can be made by the green electricity producer throughout the period of validity of the green certificates, i.e. 5 years.

By way of reminder, for installations generating more than 10 kW, in order to benefit from the purchase guarantee provided by the local transmission system operator (LTSO), Elia, the green producer is required to submit an application to the authorities. The period of validity of the purchase obligation is determined by the CWaPE based on a methodology it publishes.

The figure below illustrates developments in the share of GC sold on the market or at the guaranteed price over the period 2011-2013. The SOLWATT sector stands out from the other sectors.

Figure 24 - Sale of green certificates – market vs guaranteed price

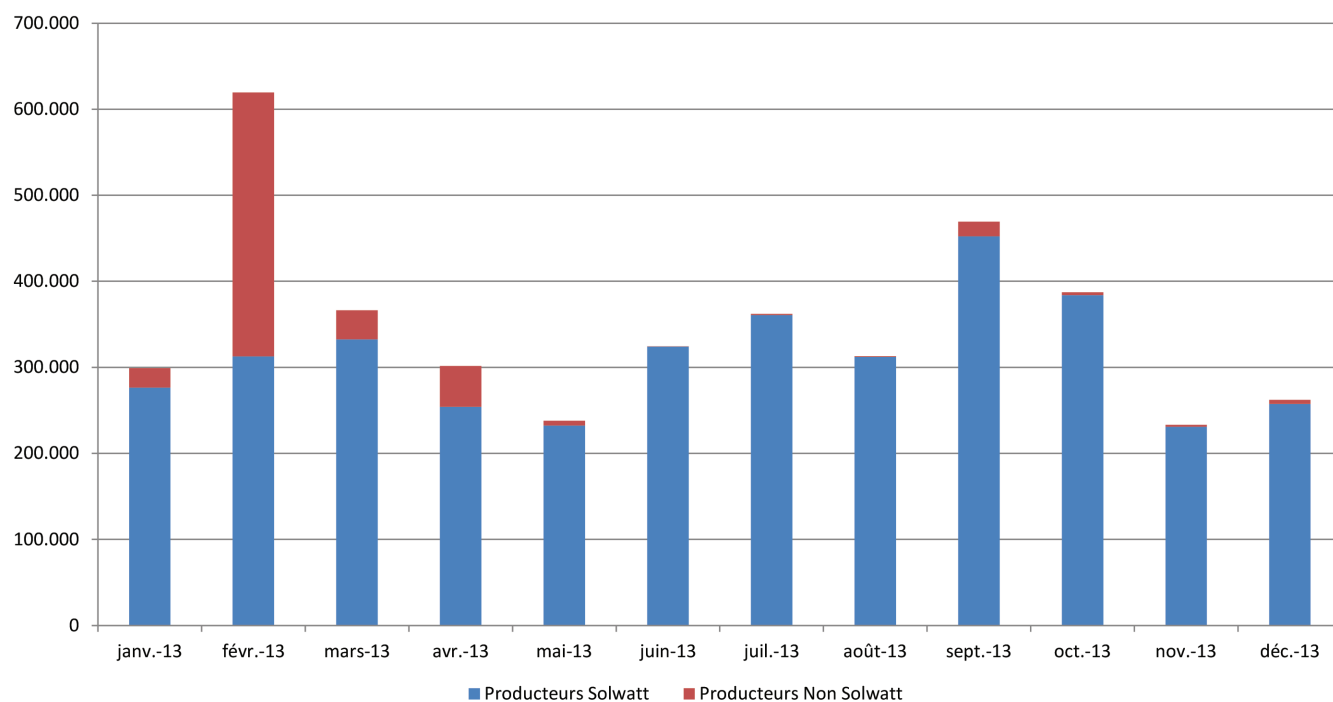


Greater recourse to the guaranteed price can be seen in the SOLWATT sector, accounting for approximately 3% of sales in 2011 and almost 78% in 2013. For non-SOLWATT sectors there were no sales at the guaranteed price in 2011, followed by approximately 12% of sales for 2012 and 2013. In the market as a whole ("Overall"), sales at the guaranteed price accounted for almost half of sales in 2013.

In total, over 4,175,000 GC were sold to Elia in 2013, of which approximately 3,730,000 GC granted to SOLWATT producers, so approximately 89% of the GC sold to Elia in 2013, with the remaining 445,000 GC coming from installations above 10 kW.

The figure below shows developments in the number of green certificates sold to Elia in 2013.

Figure 25 - Monthly developments in number of GC sold to Elia at guaranteed price of EUR 65/GC (excl. VAT)



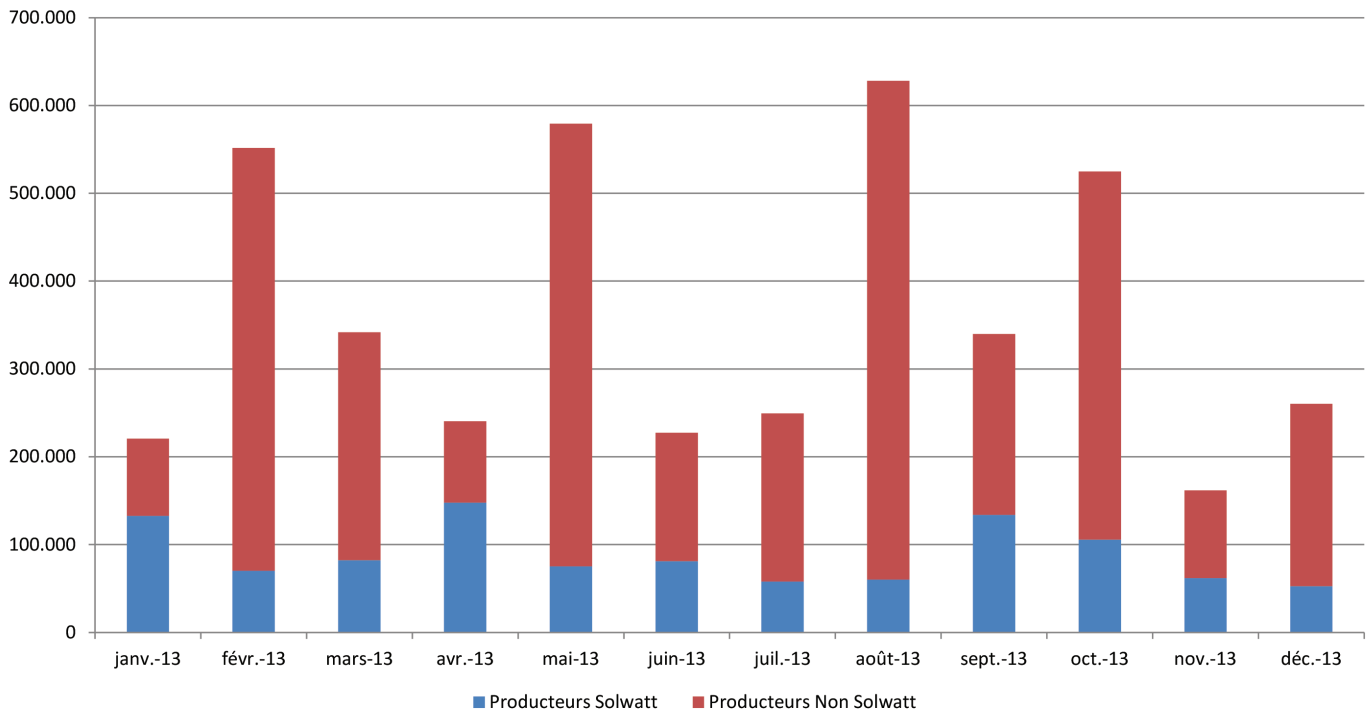
The huge surge in sales to Elia by producers is creating a significant additional workload for the CWaPE and Elia, which have had to quickly implement cooperation and monitoring procedures so as to ensure the proper execution of payments, in particular for SOLWATT producers.

Despite the high number of transactions (15,000 per month on average in 2013), all payments were carried out by Elia within the timeframes agreed with the CWaPE. For transactions registered prior to 7 October 2013, the payment deadline was a maximum of 60 calendar days. For transactions registered afterwards, pursuant to the order of the Walloon Government of 12 September 2013 the processing timeframes allowed for the proper execution of this mission have been set at 75 days for the CWaPE and 45 days for Elia.

It should be noted that fewer than 1400 GC were sold at the federal guaranteed price (EUR 150/MWhe-RES), 95% of which involved the GC granted to installations generating more than 10 kW. This federal guaranteed price was activated, on the one hand, by SOLWATT producers with an installation for which the installed peak capacity is over 10 kWc and which benefit from a granting rate of 1 GC/MWh for production relating to the tranche of capacity above 10 kWc and, on the other hand, by photovoltaic solar power installations above 10 kW for which the installed peak capacity is over 250 kWc and which therefore benefit from a granting rate of 1 GC/MWh for production relating to the tranche of capacity above 250 kWc.

The figure below illustrates developments in the number of green certificates sold on the market in 2013. It shows quarterly developments relating to the granting of GC for installations generating more than 10 kW ("Non-SOLWATT").



Figure 26 - Monthly developments in number of GC sold on the market

It can also be seen that sales on the market are dominated by GC from sectors other than the SOLWATT sector. In total, over 4,320,000 GC were sold on the market in 2013, approximately 3,260,000 of which came from installations generating more than 10 kW, i.e. approximately 75% of sales on the market, and approximately 1,060,000 from SOLWATT installations, i.e. approximately 25%.

In summary, of the total number of GC sold in 2013, 49% were sold at the guaranteed price to Elia and 51% were sold on the market. Of the total number of GC sold at the guaranteed price, 89% came from the SOLWATT sector. Moreover, of the total number of GC sold on the market, 75% came from installations generating more than 10 kW.

4.2.3. Developments in prices

Until May 2013, the CWaPE regularly published on its website the average quarterly price paid to producers per green certificate in Wallonia.

In light of developments in the market, since June 2013 the CWaPE has been publishing this price on a monthly basis while making a distinction between what is sold by SOLWATT producers and what is sold by the other green electricity producers. An average price for all the sectors is also published on the website ("Overall market").

Starting in July 2014 the CWaPE will publish these prices while making a further distinction between what is sold on the market and what is sold at the guaranteed price.

The surplus of green certificates on the market has resulted in a gradual drop in selling prices. These prices cover forward contracts concluded in the past (not affected by the current imbalance), new forward contracts (potentially affected by the current imbalance) and sales on the spot market. A sharper drop can therefore be seen in selling prices for SOLWATT producers, which do not for the most part have forward contracts and mostly sell at the minimum price guaranteed by Elia (EUR 65/GC excluding VAT).

For the other producers, the drop in prices is less significant given that a greater proportion of them are still covered by forward contracts pre-dating the emergence of the imbalance in the market. It can, however, be seen that at the end of 2013 this initial trend tended to reverse itself despite a continued slightly lower average price for SOLWATT installations.

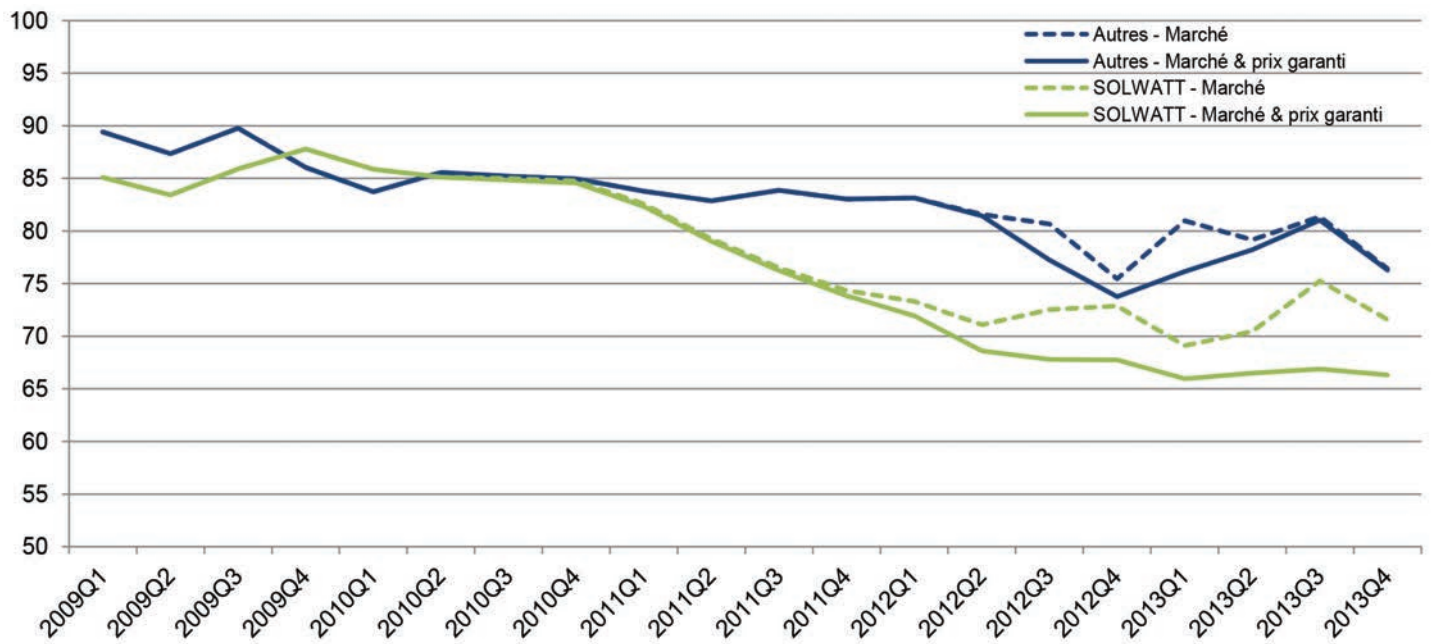
The table below indicates the values for transactions carried out in 2013. This is the price paid to green electricity producers for all types of green certificate sale transactions, whether on the spot market or on the basis of forward contracts. It shows the average price in the market on the one hand (all sales excluding those at the guaranteed price) and, on the other hand, the average price across all sales ("Market & guaranteed price").

Table 20 - Quarterly average prices for green certificate transactions in 2013

	Price to the producer											
	Solwatt				Non-Solwatt				Overall market			
	Transactions	GC volume	Average price		Transactions	GC volume	Average price		Transactions	GC volume	Average price	
	Number	Number	Market	Market & guaranteed price	Number	Number	Market	Market & guaranteed price	Number	Number	Market	Market & guaranteed price
			EUR/GC	EUR/GC			EUR/GC	EUR/GC			EUR/GC	EUR/GC
2013 Q1	38,582	1,206,922	69.10	65.97	368	1,192,044	80.97	76.14	38,950	2,398,966	77.93	71.03
2013 Q2	41,963	1,114,879	70.46	66.49	290	795,965	79.15	78.21	42,253	1,910,844	76.64	71.38
2013 Q3	55,612	1,377,314	75.25	66.88	330	984,941	81.35	81.04	55,942	2,362,255	80.08	72.78
2013 Q4	52,724	1,092,955	71.58	66.33	369	736,944	76.42	76.30	53,093	1,829,899	75.38	70.39

In 2013, the average unit price in the market (excluding guaranteed price) for all sectors was EUR 77.66, which is a drop of over EUR 10 compared to the average price in 2009. It should be noted that the drop in price was more significant for SOLWATT producers than for the other sectors. Over the period 2009-2013 this decrease was approximately 18% for SOLWATT producers, while only approximately 9% for the other sectors.

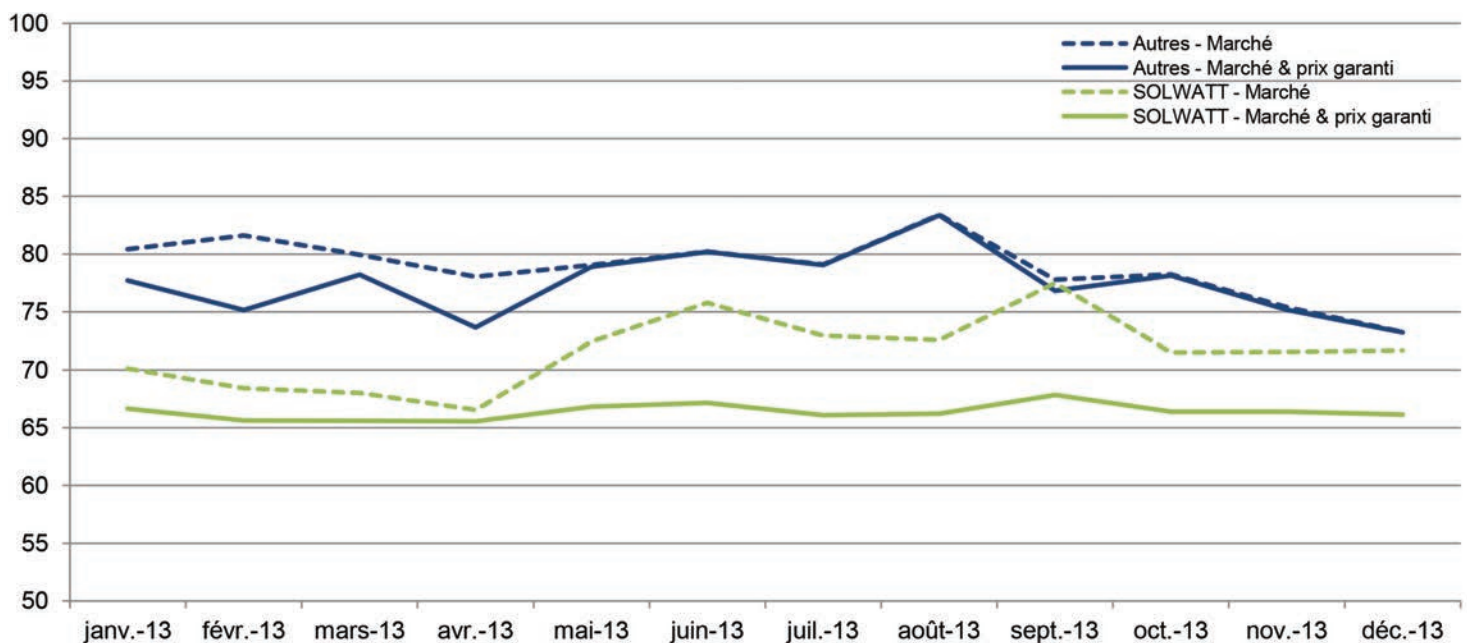
Figure 27 - Quarterly developments in average green certificate selling price over the period 2009-2013



As illustrated in the figure above, when one considers sales at the guaranteed price, the situation differs somewhat, essentially from the last quarter of 2011 for the SOLWATT sector and from the second quarter of 2012 for the other sectors.

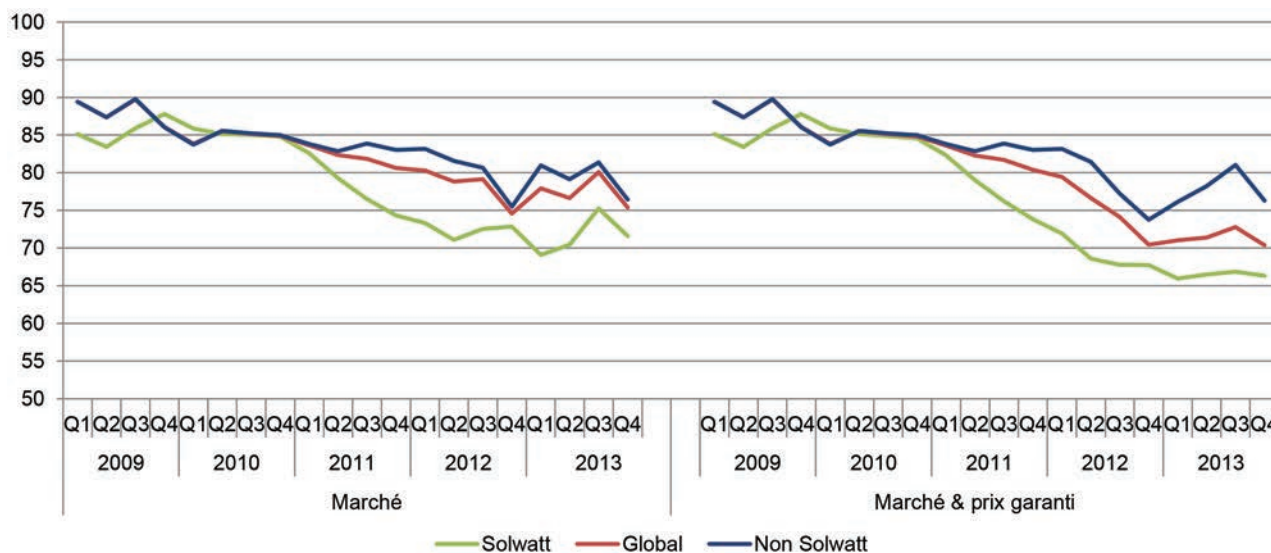
With regard to monthly developments in the average GC selling price during 2013, as illustrated in the figure below it can be seen that the price generally sits above the EUR 75/GC mark for the non-SOLWATT sectors and above the EUR 70/GC mark for the SOLWATT sector when GC are sold on the market.

Figure 28 - Monthly developments in average green certificate selling price in 2013



As regards the average GC selling price in the market, the "Overall" average price (all sectors taken together) fell from approximately EUR 86/GC in the fourth quarter of 2009 to approximately EUR 75/GC in the last quarter of 2013, which is a decrease of approximately EUR 11/GC in the space of 4 years. Looking at the "Overall" average price while taking into account sales at the guaranteed price, the decrease is approximately EUR 16/GC.

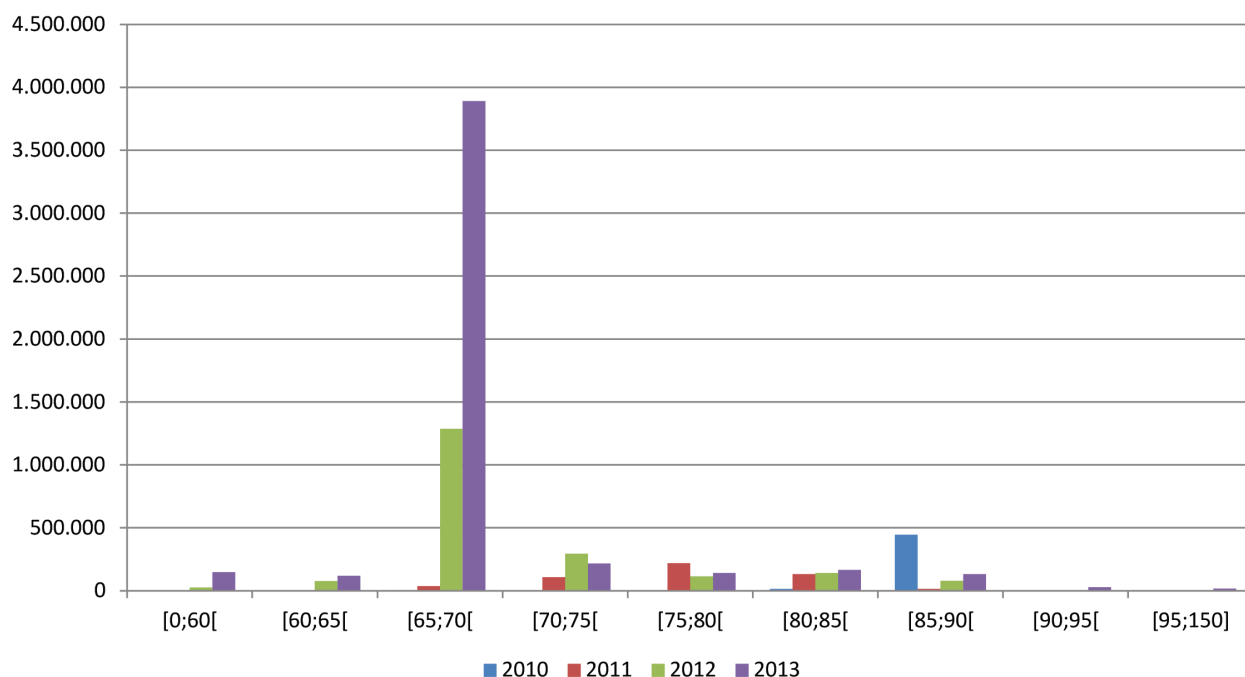
Figure 29 - Fall in average GC selling prices over the period 2009-2013



PV solar power sector generating less than 10 kW

As the figure below illustrates, the annual average values conceal a distinct variability in green certificate prices. In over 90% of cases, these were sold at a price of between EUR 65/GC and EUR 84/GC over the period 2010-2013.

Figure 30 - Variability in SOLWATT GC selling prices over the period 2010-2013



While in 2010 the mode³⁹ of transactions at EUR 85/GC dominated the market (corresponding to the price offered by the free brokering service set up by the Walloon Region and entrusted to the non-profit organisation "Les Compagnons d'Éole"), a slide towards lower price intervals can be seen in 2011 and 2012. This trend became more marked in 2013.

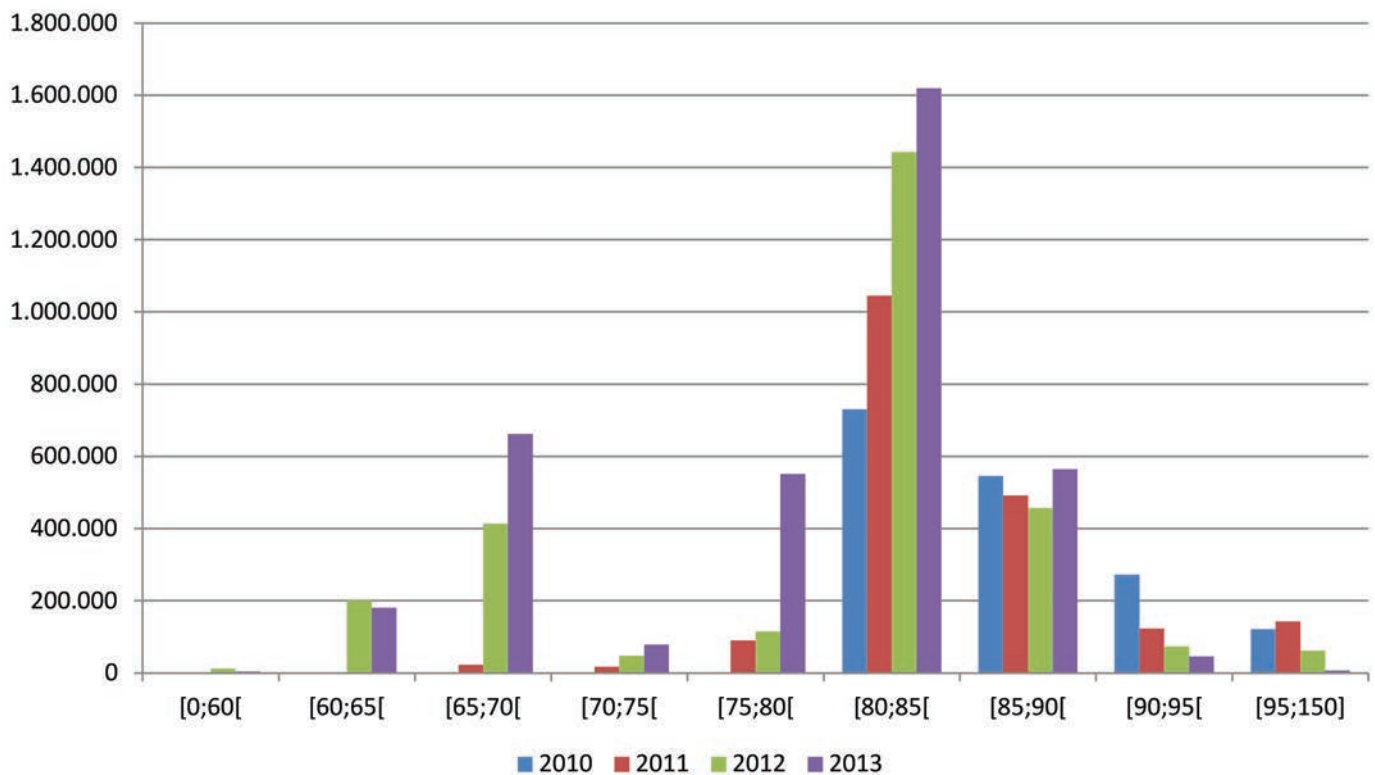
In fact, in 2013 over 80% of GC were sold at a price of EUR 65/GC, amounting to almost 3,820,000 GC, while approximately 5% were sold at a price below EUR 65/GC and, finally, just over 15% were sold at a price above EUR 65/GC.

In comparison, in 2012 over 59% of GC had been sold at a price of EUR 65/GC, amounting to almost 1,200,000 GC, while just over 5% had been sold at a price below EUR 65/GC and approximately 35% had been sold at a price above EUR 65/GC, but below EUR 90/GC.

Sectors generating more than 10 kW

A certain degree of variability in the price of green certificates was also observed in the other sectors. Nevertheless, in over 80% of cases these were sold at a price of between EUR 75/GC and EUR 94/GC over the period 2010-2013.

Figure 31 - Variability in "Non-SOLWATT" GC selling prices over the period 2010-2013



As for the SOLWATT sector, a slide towards lower price intervals can be observed. It should be noted, however, that since 2010 the majority of GC transactions have been carried out at a price of between EUR 80/GC and EUR 84/GC. In fact, in 2013 approximately 44% of GC were sold at a price within the [80;85[interval.

Finally, while the number of GC sold at a price below EUR 80/GC amounted to no more than 170 GC in 2010 (approximately 0.01%), this figure increased significantly to reach almost 130,000 GC in 2011 (about 6.7%), approximately 790,000 GC in 2012 (i.e. 27.9%), and almost 1,480,000 GC in 2013 (about 40%).

39 In the statistical sense, mode means the most represented value of any variable within a given population; graphically it corresponds to a peak.

4.3. Cancellation of green certificates

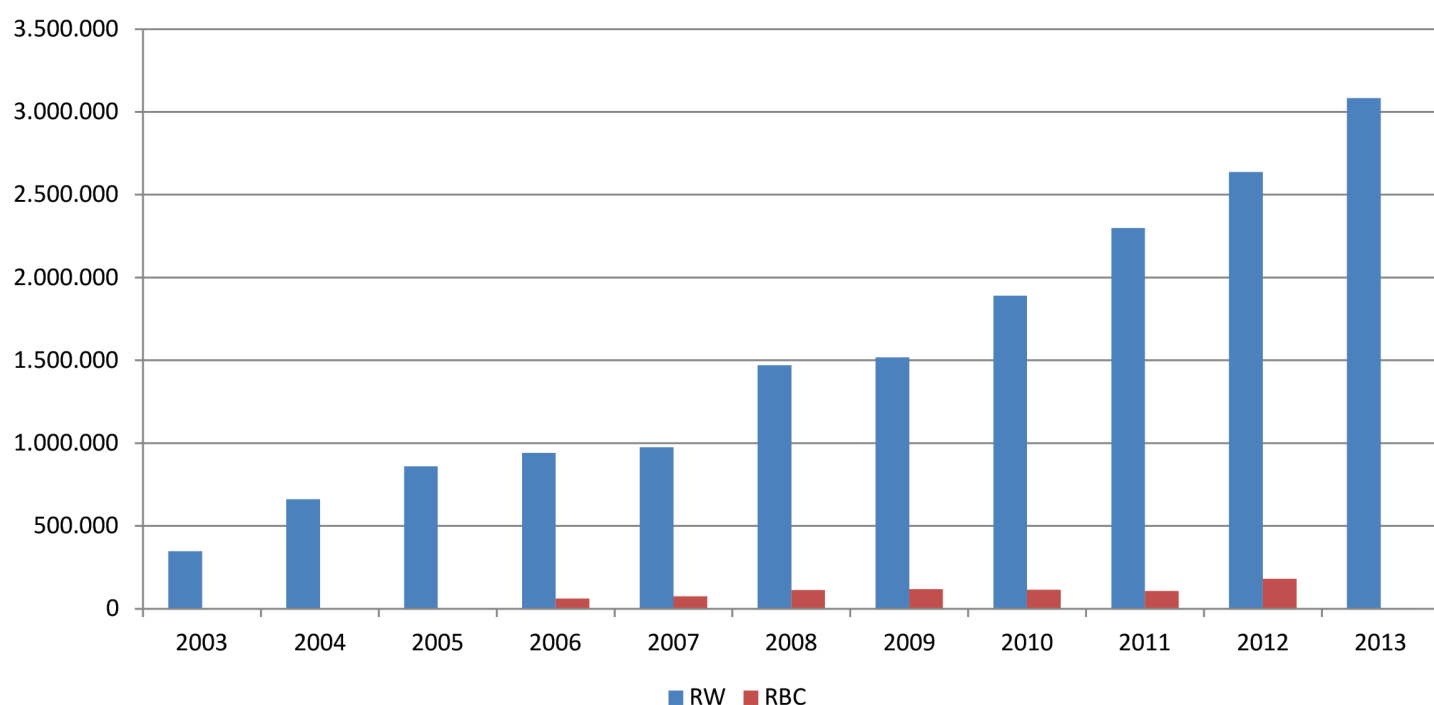
This section refers to the cancellation of green certificates by suppliers with a view to meeting their quota obligation in Wallonia or the Brussels-Capital Region.

Unlike the next chapter on the GC quotas applicable for 2013, this section is based only on the effective date of the logging by the supplier, in the CWaPE database, of the GC cancellation transaction specific to its quota.

As soon as the transaction is logged in the CWaPE database, the GC relating to that transaction are no longer available on the market.

The figure below shows developments in the cancellation of GC over the period 2003-2013 based on the cancellation transaction logging date.

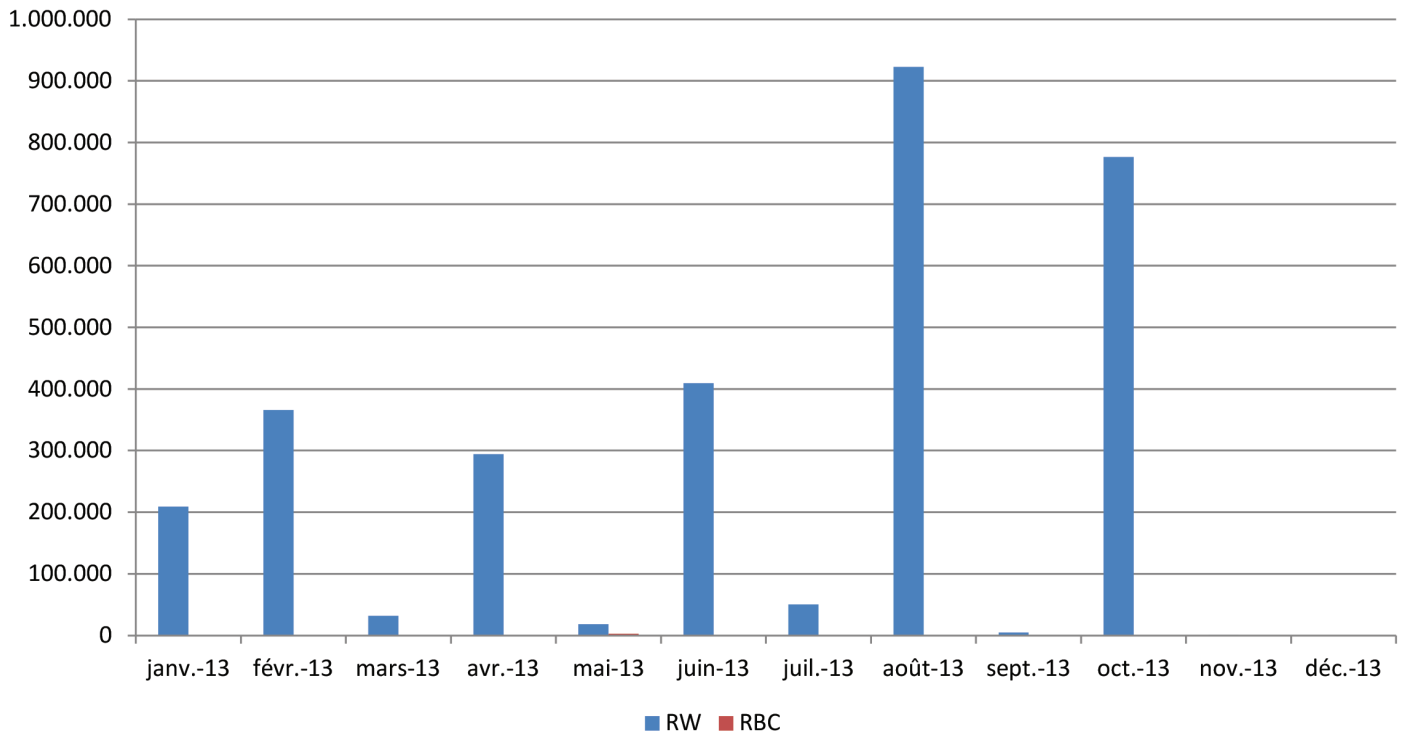
Figure 32 - Developments in cancellation of green certificates over the period 2003-2013



In 2013, over 3,085,000 GC were effectively cancelled and therefore withdrawn from the market. A portion of these GC relates to the 2012 quota, which was partially cancelled at the beginning of 2013. Finally, it should be noted that a portion of the GC relating to the 2013 quota will be cancelled at the beginning of 2014.

The figure below illustrates monthly developments in GC cancelled in 2013 based on the date of logging by the supplier in the CWaPE database.

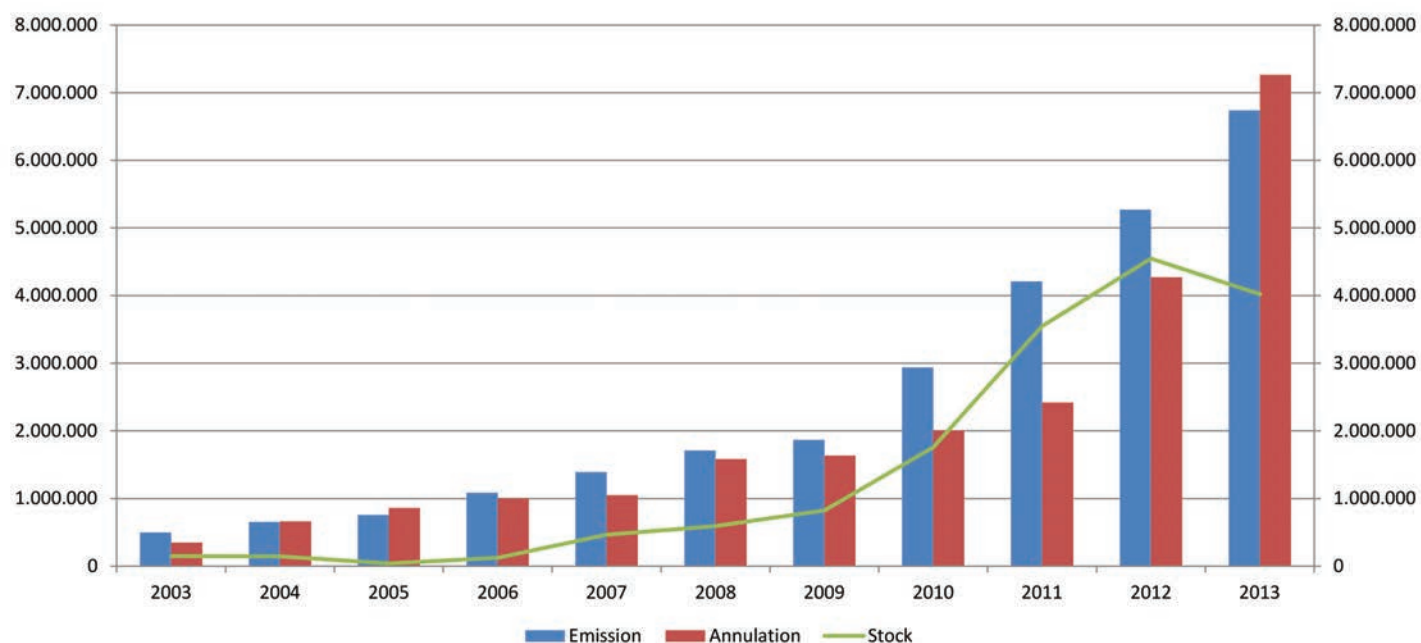
Figure 33 - Monthly developments in cancellation of green certificates in 2013



4.4. Developments in green certificates in circulation (supply)

The number of green certificates in circulation is represented by the difference between the number of green certificates issued and the number of green certificates cancelled. As such it represents the quantity of GC available on the market. These end up in the accounts of producers, intermediaries, suppliers and DSO.

As illustrated in the figure below, it can be seen that the total number of GC issued increased by a factor of 10 in the space of 10 years. For the first time since 2005, the supply of GC available on the market at the end of 2013 had decreased by approximately 11.56%. This can be explained by the increased recourse to selling to Elia at the guaranteed minimum price of EUR 65/GC.

Figure 34 - Developments in end-of-year supply of green certificates over the period 2003-2013

The end-of-year supply as such increased from over 3,500,000 GC at the end of 2011 to over 4,500,000 GC at the end of 2012, and finally dropped to reach almost 4,000,000 GC at the end of 2013.

5. APPLICATION OF GREEN CERTIFICATE QUOTAS

The number of green certificates to be returned by suppliers and system operators is established on a quarterly basis by the CWaPE based on the "nominal" quota applicable to electricity supplies as well as the quota reductions granted to electricity-intensive end-customers.

This chapter takes stock of the application of this public service obligation incumbent upon electricity suppliers and system operators for electricity supplies allocated between 1 January 2013 and 31 December 2013 and validated by the CWaPE based on declarations submitted up to 28 February 2014 (declaration for the fourth quarter of 2013). It should be noted that, given the statutory deadline in effect, green certificate cancellation transactions relating to the fourth quarter declaration can be logged in the CWaPE database until April or even May of the following year. For this reason the data presented in this chapter differs from the data relating to the cancellation transactions strictly observed in 2013, which is addressed in the previous chapter.

It should be recalled that until 2013 all the electricity consumption supplied by self-generation installations (green or conventional), as well as suppliers' own consumption, was fully exempted from a green certificate quota. From 2014, self-generated production by means of conventional installations, as well as suppliers' own consumption, will henceforth be subject to a green certificate quota.

5.1. Nominal green certificate quota in Wallonia

The nominal green certificate quota was 19.40% in 2013 (15.75% in 2012), which is an increase of over 23% compared to 2012 (with unchanged electricity supply).

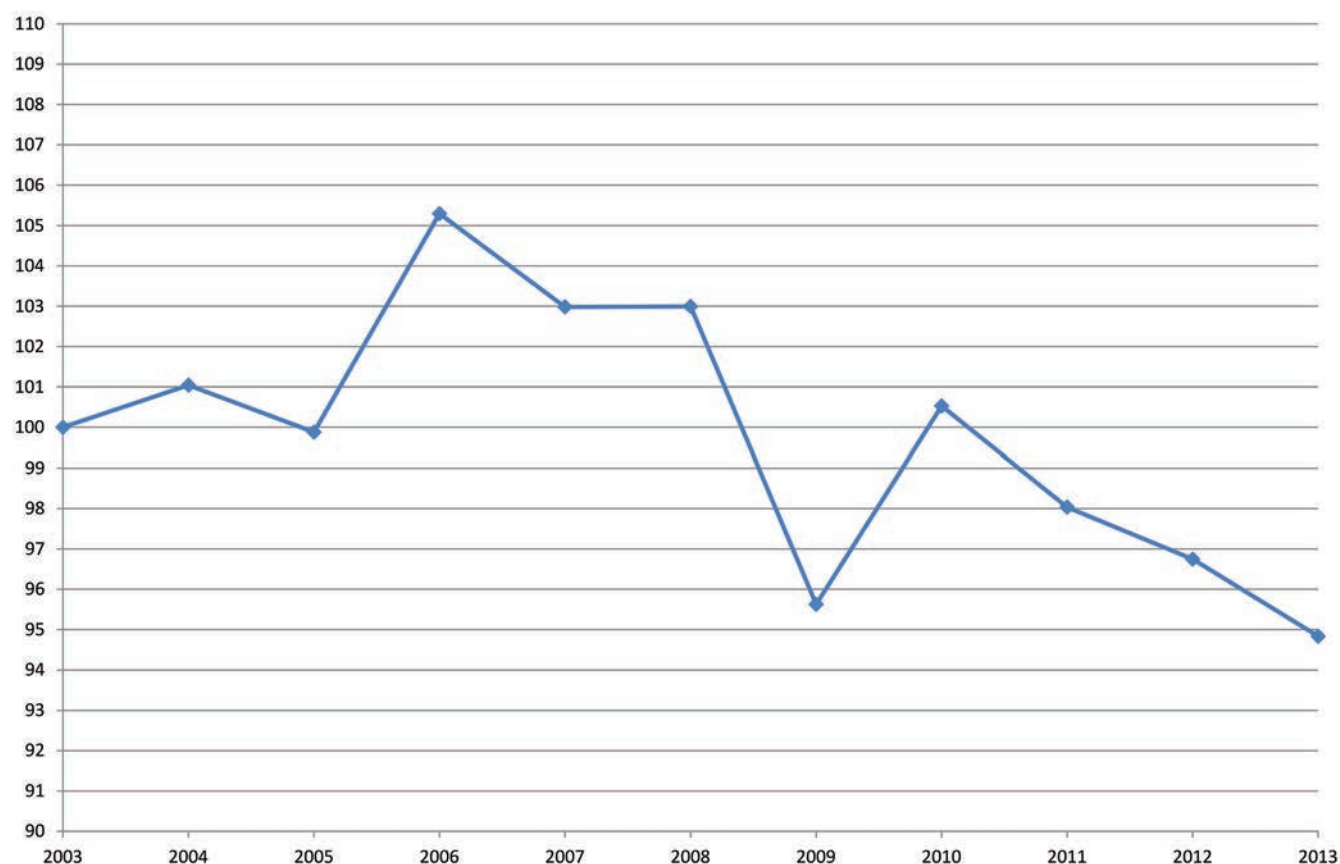
Electricity supplies declared and taken into consideration for 2013 were 22,162,214 MWh⁴⁰, which is a decrease of 1.98% compared to 2012.

The figure below shows the decrease observed in recent years for supplies subject to the green certificate quota in Wallonia. It is important to recall the significant drop in supply in 2009 (-7% compared to 2008), attributable to the effects of the economic downturn. Despite an upturn in 2010, the downward trend has continued in recent years. As such, the level of supplies subject to the green certificate quota in 2013 is over 5% below the 2003 level.

This decrease in the supply subject to the green certificate quota results in a smaller increase (+21%) in the number of GC to be returned. Therefore, demand (excluding quota reduction) increased from 3,560,229 GC in 2012 to 4,299,469 GC in 2013, which is an increase in the "nominal" quota of almost 740,000 GC.

⁴⁰ This is the value declared by suppliers as at 28 February 2014. Corrections after this date are not taken into account in the calculation for the 2013 quotas but are included in the calculation for the 2014 quotas.

Figure 35 - Developments in supply subject to GC quota over the period 2003-2013



5.2. Green certificate quota reductions

In 2013, out of 156 operating sites registered with the CWaPE, 128 operating sites of electricity-intensive end-customers received a quota reduction (compared to 138 operating sites in 2012). A breakdown of the operating sites by sector of activity ("branch agreements") can be found in Annex 3.

In order to receive this reduction, 3 conditions must be met:

1. Have consumption of at least 1.25 MWh per quarter (except if the operating site can prove that its consumption has been reduced following the putting into place of a high-quality cogeneration system).
2. Have signed a branch agreement.
3. Submit a certificate to the CWaPE each quarter, through the operating site's supplier, within the timeframe imposed.

These conditions are verified each quarter, and if one of them is not met no reduction is granted. In 2013, 6 of the 156 registered sites never reached the minimum consumption threshold during the course of the year, 10 withdrew from the branch agreement and others did not submit the required certificate. It is for these reasons that, in practice, only 128 electricity-intensive end-customer operating sites received a quota reduction. The 1st generation branch agreements came to an end on 31 December 2012. The signatories to these initial branch agreements could, however, on a voluntary basis, agree to the extension of these agreements until the end of 2013 with a view in particular to receiving green certificate quota reductions for that year⁴¹.

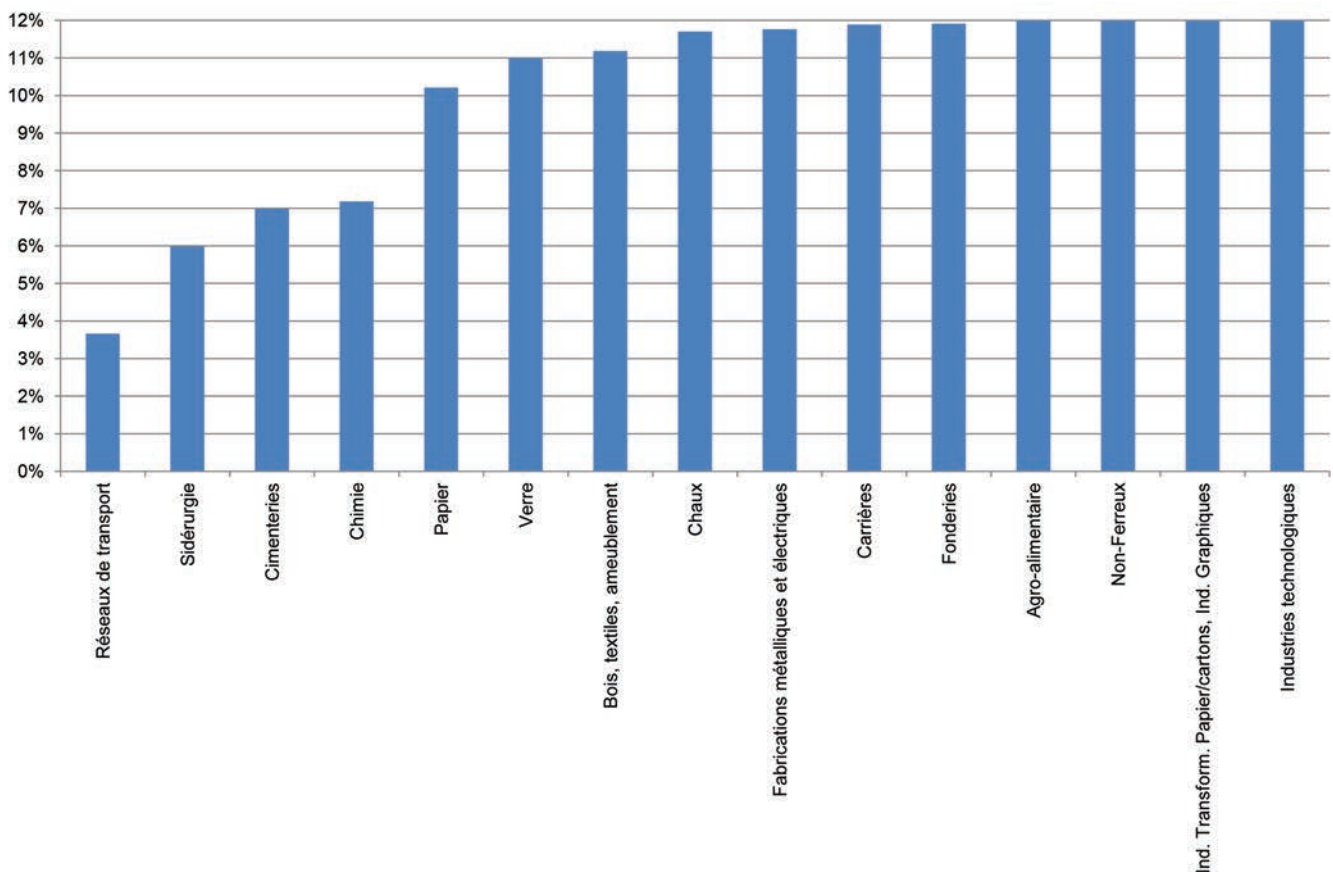
⁴¹ For the period 2014-2020, 2nd generation agreements were put into place during the course of 2013 and only the signatories to these new agreements will be able to receive the quota reductions planned as from 2014.

Based on the quarterly electricity consumption declared for each of the 128 operating sites, it is possible to note the application of the following reduced quotas:

- 50 sites saw their quarterly consumption limited to the first tranche of quarterly electricity consumption of 5 GWh. As a result, these sites were able to receive the quota of 13.2% applied to this tranche of consumption. The consumption of these sites accounted for 6% of the total consumption of the 128 operating sites receiving a quota reduction.
- 55 sites saw their quarterly consumption limited to the second tranche of quarterly electricity consumption of 25 GWh. As a result, these sites were able to receive the quota of 9.7% for the tranche of quarterly electricity consumption from 5 to 25 GWh. The consumption of these sites accounted for 28% of the total consumption of the 128 operating sites receiving a quota reduction.
- 23 sites saw their quarterly consumption exceed the threshold of 25 GWh, enabling them to receive the quota of 2% for the tranche of consumption above 25 GWh. The consumption of these sites accounted for 66% of the total consumption of the 128 operating sites receiving a quota reduction.

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

Figure 36 - GC reduction - effective quota by sector of activity in 2013



In total, in 2013 the average quota with reduction for the 128 operating sites benefiting from the quota reduction was 7.74% (compared to 6.61% in 2012), which is approximately 40% of the nominal quota of 19.4% applied to end-customers not receiving these quota reductions.

The GC reductions granted to each of these operating sites represent an overall reduction of 21% in the green certificate quota applicable in Wallonia in 2013 as compared to the nominal quota. These quota reductions granted amounted in total to just under 912,000 green certificates, which is an increase of almost 17% as compared to the previous year (780,000 in 2012).

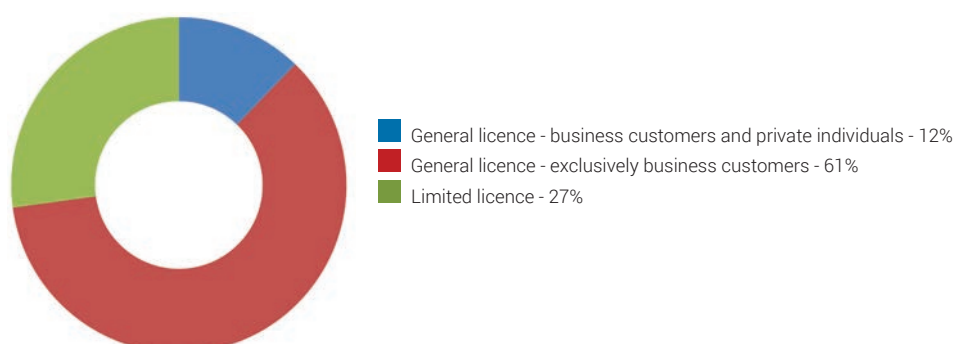
For end-customers benefitting from a quota reduction, the resulting cost reduction must be passed along directly by the suppliers to each end-customer that is the source of such reduction. The table below provides an estimate of the saving obtained in this manner by suppliers to the benefit of their end-customers based on the average GC market price in 2013 of EUR 77.66.

Table 21 - Avoided cost corresponding to GC quota reduction – breakdown by sector

SECTORS	No. of operating sites	Supplies (MWh)	GC - reduction	Reduction (EUR)
Chemistry	31	2,528,638	308,990	23,996,191
Steel industry	13	1,975,078	264,922	20,573,836
Transmission systems	2	575,047	90,502	7,028,370
Cement plants	6	726,813	90,167	7,002,361
Glass	10	475,567	39,981	3,104,918
Agri-food	24	415,131	28,984	2,250,868
Paper	4	236,188	21,705	1,685,649
Wood, textiles, furniture	4	188,938	15,527	1,205,825
Metal and electrical manufacturing	7	197,732	15,103	1,172,879
Lime	5	156,066	12,010	932,710
Quarries	8	133,967	10,064	781,599
Foundries	3	74,942	5,613	435,894
Processing industry Paper/cardboard, Printing industry	4	52,660	3,393	263,514
Bricks - ceramics	4	39,907	2,346	182,175
Non-ferrous metals	1	21,560	1,396	108,438
Technological industries	2	20,381	1,264	98,131
Total	128	7,818,615	911,967	70,823,358

The figure below shows a breakdown of GC quota reductions for 3 categories of suppliers in Wallonia established based on the type of licence (general or limited) and the type of clientele (private individuals or business customers).

Figure 37 - Breakdown of quota reductions between different categories of suppliers



5.3. Effective quotas applicable to suppliers and DSO

In view of the quota reductions granted individually and on a quarterly basis to end-customers eligible for them, the overall effective quota (ratio between the number of green certificates to be cancelled and the number of MWh supplied) applied for 2013 was 15.29% (12.30% in 2012), amounting to 3,387,502 GC to be returned by suppliers and system operators to the CWaPE for cancellation. This corresponds to an increase in demand of almost 22% compared to 2012 (cancellation of 2,781,591 GC in 2012), which is approximately an additional 605,000 GC compared to that year.

The figures below provide a breakdown of the supplies benefiting from quota reductions (supplies with exemption) and supplies to which the nominal quota was applied (supplies with no exemption). The total consumption of the 128 operating sites that received a quota reduction accounted for approximately 35% of the electricity supply subject to the green certificate quota in Wallonia in 2013. The effective quotas applied to these operating sites represented 18% of the total number of green certificates to be returned in 2013.

Figure 38 - Breakdown of supplies

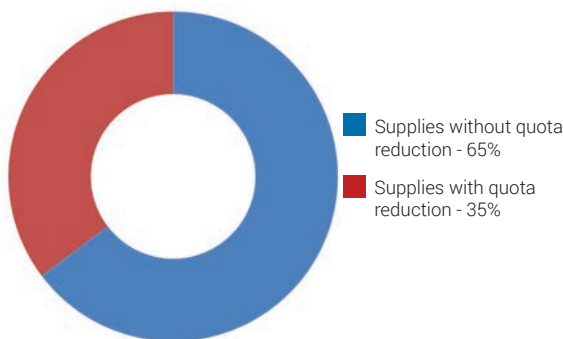
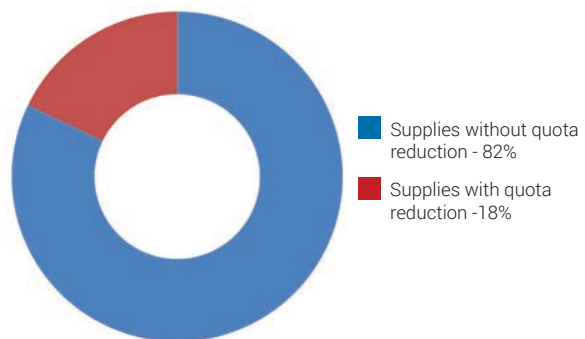


Figure 39 - Breakdown of GC to be returned



The number of suppliers and system operators that, in 2013, were required to submit their supplies to the CWaPE on a quarterly basis, as well as a number of green certificates corresponding to the effective quota calculated for their end-customers, is as follows:

- 18 suppliers with a general supply licence;
- 6 suppliers with a limited supply licence;
- 13 distribution system operators.

The number of green certificates returned to the CWaPE pursuant to the public service obligation incumbent upon suppliers and system operators amounted to 3,387,502 GC for the whole of 2013, which is the total number of GC that had to be returned. As such, no fines had to be applied.

The figures below provide a breakdown, by category of suppliers and distribution system operators (DSO), of electricity supplies and GC to be returned. The difference between the two figures can be explained by a different effective quota for each supplier based on the quota reductions that may be applied to its customers.

Figure 40 - Breakdown of supplies

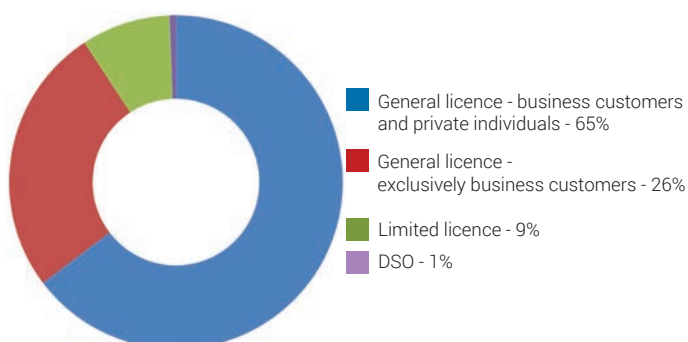


Figure 41 - Breakdown of GC to be returned

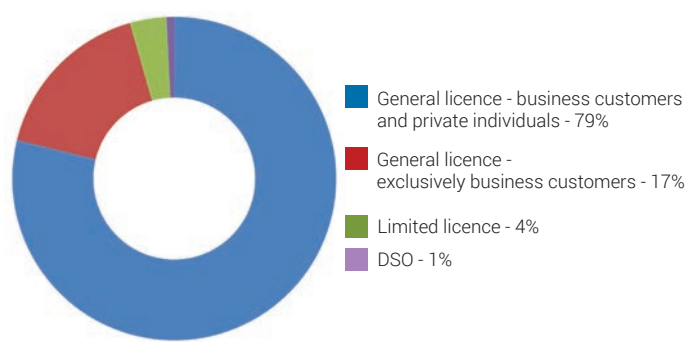


Table 22 - Returns for green certificate quotas in 2013

2013	Licence type/ DSO	Supplies submitted for the year (MWh)	Supplies submitted for the year (MWh)	GC quota excl. reduc- tion	GC reduc- tion	GC to be submitted	Effective quota	GC returned	Missing GC	Admin. fine (in EUR)
Suppliers										
AXPO FRANCE & BENELUX SA	General licence	376,780	376,780	73,095	36,263	36,832	9.78%	36,832	0	0
EDF LUMINUS SA	General licence	3,967,032	3,967,032	769,604	41,432	728,172	18.36%	728,172	0	0
ELECTRABEL SA	General licence	4,407,245	4,407,245	855,005	481,471	373,534	8.48%	373,534	0	0
ELECTRABEL CUSTOMER SOLUTIONS SA	General licence	6,124,044	6,124,044	1,188,065	8,275	1,179,789	19.26%	1,179,789	0	0
ENDESA ENERGIA SA	General licence	6,887	6,887	1,336	0	1,336	19.40%	1,336	0	0
ENECO BELGIE BV	General licence	806,573	806,573	156,475	42,945	113,530	14.08%	113,530	0	0
ENERGIE 2030 AGENCE SA	General licence	7,081	7,081	1,374	0	1,374	19.40%	1,374	0	0
ENERGIE DER NEDERLANDEN BV	General licence	9,833	9,833	1,908	580	1,328	13.51%	1,328	0	0
ENI SA	General licence	1,277,796	1,277,796	247,892	15,433	232,459	18.19%	232,459	0	0
ENOVOS LUXEMBOURG SA	General licence	31,584	31,584	6,127	1,030	5,097	16.14%	5,097	0	0
E.ON BELGIUM SA	General licence	871,709	871,709	169,111	32,403	136,708	15.68%	136,708	0	0
ESSENT BELGIUM SA	General licence	501,754	501,754	97,340	1,129	96,212	19.18%	96,212	0	0
LAMPIRIS SA	General licence	1,587,870	1,587,870	308,047	2,377	305,670	19.25%	305,670	0	0
OCTA+ ENERGIE SA	General licence	63,844	63,844	12,386	0	12,386	19.40%	12,386	0	0
SCHOLT ENERGY CONTROL NV	General licence	25,677	25,677	4,981	0	4,981	19.40%	4,981	0	0
BELGIAN ECO ENERGY SA	General licence	105	105	20	0	20	19.40%	20	0	0
WIND ENERGY POWER SA	General licence	22,662	22,662	4,396	0	4,396	19.40%	4,396	0	0
POWERHOUSE BV	General licence	23,972	23,972	4,651	994	3,656	15.25%	3,656	0	0
ARCELORMITTAL ENERGY SCA	Limited licence	1,190,147	1,190,147	230,889	156,175	74,714	6.28%	74,714	0	0
BELPOWER INTERNATIONAL SA	Limited licence	38,809	38,809	7,529	0	7,529	19.40%	7,529	0	0
ELEXYS SA	Limited licence	11,490	11,490	2,229	0	2,229	19.40%	2,229	0	0
RECYBOIS SA	Limited licence	2,024	2,024	393	0	393	19.40%	393	0	0
SEGE SA	Limited licence	670,453	670,453	130,068	91,459	38,609	5.76%	38,609	0	0
SEVA SA	Limited licence	4,590	4,590	890	0	890	19.40%	890	0	0
Sub-total		22,029,960	22,029,960	4,273,812	911,967	3,361,845	15.26%	3,361,845	0	0
Distribution system operators (DSO)										
AIEG	Pure DSO	1,728	1,728	335	0	335	19.40%	335	0	0
AIESH	Pure DSO	863	863	167	0	167	19.40%	167	0	0
PBE (INFRA)	Pure DSO	635	635	123	0	123	19.40%	123	0	0
REGIE DE WAVRE	Pure DSO	340	340	66	0	66	19.40%	66	0	0
TECTEO	Pure DSO	45,631	45,631	8,852	0	8,852	19.40%	8,852	0	0
IDEG (ORES)	Mixed DSO	14,079	14,079	2,731	0	2,731	19.40%	2,731	0	0
IEH (ORES)	Mixed DSO	38,176	38,176	7,406	0	7,406	19.40%	7,406	0	0
INTEREST (ORES)	Mixed DSO	2,007	2,007	389	0	389	19.40%	389	0	0
INTERLUX (ORES)	Mixed DSO	7,876	7,876	1,528	0	1,528	19.40%	1,528	0	0
INTERMOSANE (ORES)	Mixed DSO	9,604	9,604	1,863	0	1,863	19.40%	1,863	0	0
SEDILEC (ORES)	Mixed DSO	7,292	7,292	1,415	0	1,415	19.40%	1,415	0	0
SIMOGEL (ORES)	Mixed DSO	2,359	2,359	458	0	458	19.40%	458	0	0
GASELWEST (EANDIS)	Mixed DSO	1,665	1,665	323	0	323	19.40%	323	0	0
Sub-total		132,254	132,254	25,657	0	25,657	19.40%	25,657	0	0
OVERALL TOTAL		22,162,214	22,162,214	4,299,469	911,967	3,387,502	15.29%	3,387,502	0	0

The table opposite provides the details on an annual basis⁴², by supplier and by distribution system operator, of the electricity supplies, GC reductions granted, and GC to be returned and actually returned in 2013.

5.4. Cancellation of Walloon green certificates for the Brussels-Capital Region quota

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

Initially, only Brussels green certificates are eligible for the quota. Subsequently, if the number of green certificates available on the Brussels market is insufficient to enable suppliers to meet their quota obligations, the Brussels regulator, BRUGEL, may allow these suppliers to return Walloon green certificates for the purpose of meeting their green certificate quota 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 ratio of the fine amounts is applied. The fine ratio since 2007 has been 100/100.

In 2013, 23,526 Walloon GC were submitted in this way by suppliers for the purpose of meeting their green certificate quota in the Brussels-Capital Region, compared to 78,655 Walloon GC in 2012.

Table 23 - Number of Walloon GC cancelled for the Brussels quota

Years	Walloon GC cancelled
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
2012	78,655
2013	23,526
TOTAL	794,492

This recognition mechanism is valid for a period of 10 years, i.e. from 2005 to 2014. Unless the Brussels legislation is amended, it will therefore only be possible to still use Walloon green certificates for 2014 supplies (cancellation by 31 March 2015).

⁴² The total sales included in this table correspond to the amounts declared as at 28/02/2014. Corrections after this date were not taken into account in the calculations for the 2013 quotas but are included in the calculations for the 2014 quotas.

6. OUTLOOK FOR THE PERIOD 2014-2024

Below is a projection of developments in the balance in the green certificate market for the period 2014-2024 taking into account revisions to the green certificate mechanism adopted during the first half of 2014.

6.1. Revision of the green certificate mechanism in 2014

Following the revision of the mechanism adopted in April 2014, in order to be able to receive green certificates new installations⁴³ now first have to be the subject of a reservation request with the authorities. The authorities grant the reservation based on the serious and plausible nature of the request and in line with the annual allocations established for each sector.

Allocations have been established for 2014 to 2016 and are 284,000 GC, 477,000 GC and 543,000 GC, respectively. The ceiling set for a given year applies to the reservation requests submitted in that year, but it may as such cover installations that will be built later. The table below sets out the volumes established by sector for the 2014 to 2016 annual allocations.

Table 24 - Green certificate allocations by sector for new projects

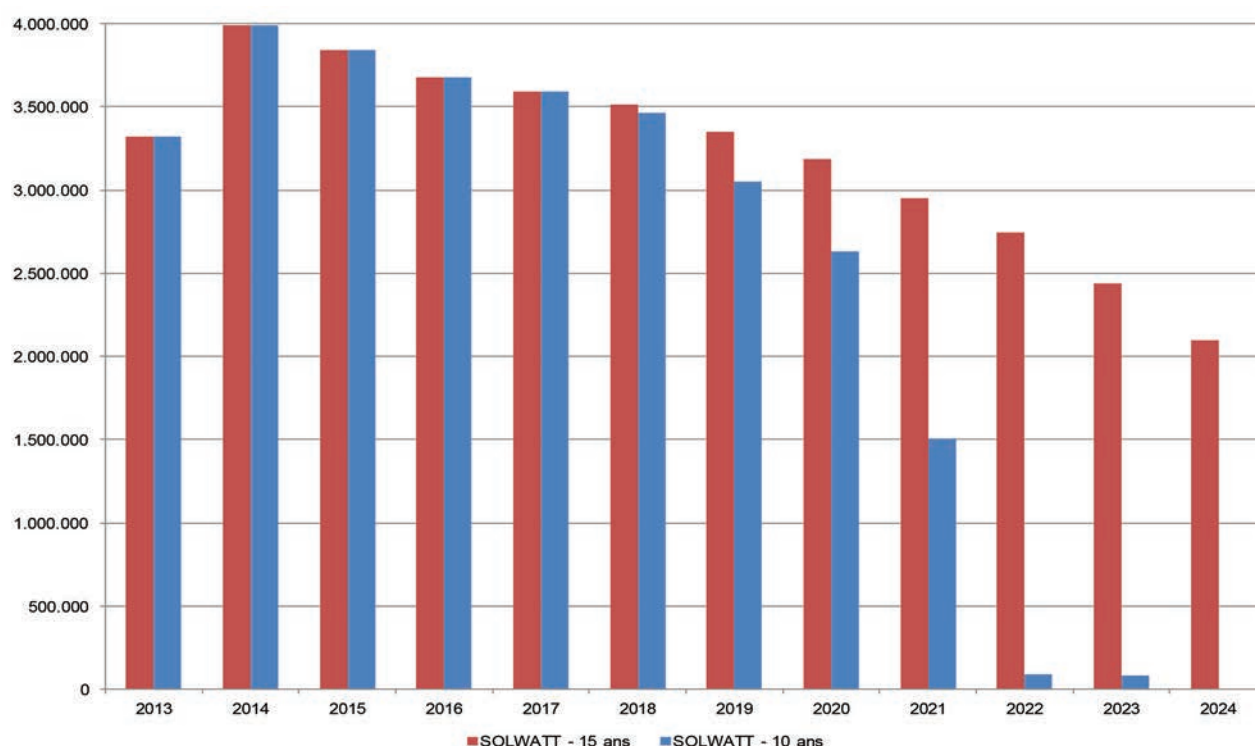
Sectors	2014	2015	2016	Total
PV solar > 10 kW	52,000	79,600	77,000	208,600
Hydropower	13,350	20,000	20,000	53,350
Wind	148,900	258,900	314,500	722,300
Biogas	25,250	43,700	53,000	121,950
Liquid and solid biomass	37,100	57,500	60,000	154,600
Fossil cogeneration	7,400	17,300	18,500	43,200
Total	284,000	477,000	543,000	1,304,000

6.2. Developments in the granting of green certificates

Following the adoption of the QUALIWATT plan, the number of photovoltaic solar power installations with a capacity below or equal to 10 kW receiving green certificates (SOLWATT installations) will remain limited to 121,000. Since the reduction of the granting period from 15 years to 10 years envisaged by the government was not adopted during the last parliamentary term, two possible scenarios have been identified: one sees the adoption of the measure while the other presumes the maintenance of the granting period for green certificates at 15 years.

The figure below illustrates developments in the granting of green certificates for SOLWATT installations based on these two scenarios. In both of these scenarios, the peak in the granting of green certificates is forecast for 2014. The granting of green certificates then decreases due to the effect of the granting schemes scaled downwards over time (see Chapter 2). It can be seen that the limitation of the granting of green certificates to a period of 10 years for all SOLWATT installations would lead to a reduction in the supply of green certificates of almost 9,450,000 GC over the period 2014-2024.

⁴³ Installations that have a definitive licence dated before 1 July 2014 are not covered by this reservation mechanism, along with installations that were commissioned prior to 1 July 2014, as evidenced by the RGIE inspection date.

Figure 42 - Granting of green certificates for SOLWATT installations

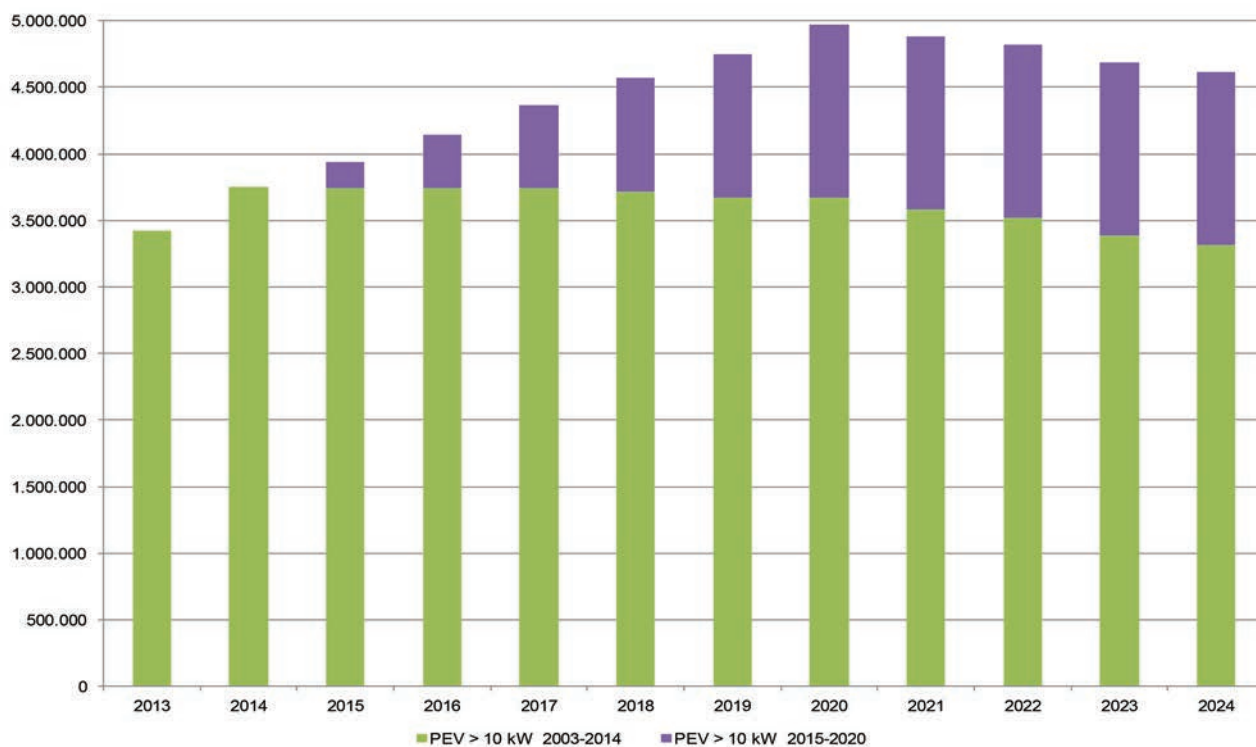
As regards developments in the granting of green certificates for existing installations above 10 kW or that are not covered by the reservation mechanism, the following assumptions have been adopted:

- For the solar power sector, installed capacity of 75 MW at the end of 2014.
- For wind power, additional 80 MW of installed capacity in 2014 and 2015.
- The majority of installations in the hydropower, biomass and fossil cogeneration sector, currently allocated a reducing coefficient (K or Q factors), are expected to be the subject of a significant change over the period 2015-2020 so as to no longer have this reducing coefficient applied to them.
- For the biomass sector, the AWIRS power plant is intended to operate 6 months out of the year (winter period) until 2020. The intention is that biomass cogeneration installations continue to be operated as in 2013.

As regards developments in the granting of green certificates for new installations generating more than 10 kW covered by the reservation mechanism, the CWaPE has considered the assumption of the full use of the allocations provided for the years 2014 to 2016 along with the gradual commissioning of installations over the period 2015-2020. As an initial assessment, these new installations should enable additional electricity generation from renewable energy sources of maximum 1 TWh by 2020. In the context of this exercise, no installations other than those provided for by these allocations are therefore intended to receive green certificates over the period 2014-2024. A target of 8 TWh by 2020 will therefore only be achieved through the implementation of additional support mechanisms (additional allocations and commensurate increase in quotas or other financing mechanisms).

The figure below illustrates developments in the granting of green certificates for existing and future installations generating more than 10 kW.

Figure 43 - Granting of green certificates for installations generating more than 10 kW



6.3. Developments in the cancellation of green certificates

In order to determine developments in the number of green certificates that will be cancelled annually to meet quotas, the following assumptions have been adopted:

1. Continuation of the supply of electricity at the level observed in 2013, i.e. 22.6 TWh, over the whole of the period 2014-2024. The trend observed over the period 2008-2013 is in this way intended to be counterbalanced by the measures taken in 2014 with a view to expanding the base of the consumptions affected by the application of a green certificate quota (suppliers' own consumption, conventional self-generation).
2. Maintenance of nominal quotas for the period 2014-2020 at the values amended on 3 April 2014. Maintenance of a nominal quota of 37.90% for the period 2020-2024.
3. Application of quota reductions for companies with a branch agreement and for protected regional customers amounting to 23% of the nominal quota over the period 2014-2024.

As regards the sale of green certificates to Elia at the guaranteed price of EUR 65, a maximum annual amount of 4,000,000 green certificates is being considered. This amount is comparable to that seen in 2013. A minimal volume of green certificates is intended to remain available in order to ensure sufficient liquidity in the market. This amount is set at 1,500,000 green certificates and corresponds to the volume of green certificates to be returned on a quarterly basis over the period 2014-2024.

6.4. Developments in the supply-demand balance

The tables below show the results obtained⁴⁴ for the two scenarios in question as regards the granting of green certificates to SOLWATT installations.

It is observed that on the basis of the assumptions adopted, a return to balance in the green certificate market is possible by 2020 in scenario 2, which envisages the reduction of the granting period to 10 years for all SOLWATT installations. In the case of scenario 1, balance is achieved from 2024.

Table 25 - Outlook for green certificate supply – scenario 1 (SOLWATT granting for 15 years)

Period	Supply at beginning of period (1)	SOLWATT 2008-2014 (2a) GC/year	GEC > 10 kW 2003-2014 (2b) GC/year	GEC > 10 kW 2015-2020 (2c) GC/year	Supply (3) = (1) + (2a) + (2b) + (2c) GC/year	Quota WR + BCR (4) GC/year	Guaranteed price Elia (5) GC/year	Supply at end of period (6) = (3) - (4) - (5) GC/year
2013	4,508,935	3,318,446	3,419,562	0	11,246,943	3,411,028	4,168,506	3,667,409
2014	3,667,409	3,992,931	3,750,000	0	11,410,340	4,016,993	4,000,000	3,393,348
2015	3,393,348	3,844,391	3,740,000	200,000	11,177,739	4,726,978	4,000,000	2,450,760
2016	2,450,760	3,679,022	3,740,000	400,000	10,269,782	5,358,380	3,411,403	1,500,000
2017	1,500,000	3,590,097	3,740,000	625,000	9,455,097	5,507,698	2,447,400	1,500,000
2018	1,500,000	3,513,653	3,720,000	850,000	9,583,653	5,827,665	2,255,989	1,500,000
2019	1,500,000	3,348,284	3,670,000	1,075,000	9,593,284	6,147,632	1,945,653	1,500,000
2020	1,500,000	3,184,827	3,670,000	1,300,000	9,654,827	6,467,599	1,687,228	1,500,000
2021	1,500,000	2,953,372	3,585,000	1,300,000	9,338,372	6,467,599	1,370,773	1,500,000
2022	1,500,000	2,743,014	3,520,000	1,300,000	9,063,014	6,467,599	1,095,416	1,500,000
2023	1,500,000	2,440,955	3,389,500	1,300,000	8,630,455	6,467,599	662,856	1,500,000
2024	1,500,000	2,095,602	3,318,500	1,300,000	8,214,102	6,467,599	246,503	1,500,000
2013-2024	4,508,935	38,704,595	43,262,562	9,650,000	96,126,092	67,334,366	27,291,726	1,500,000

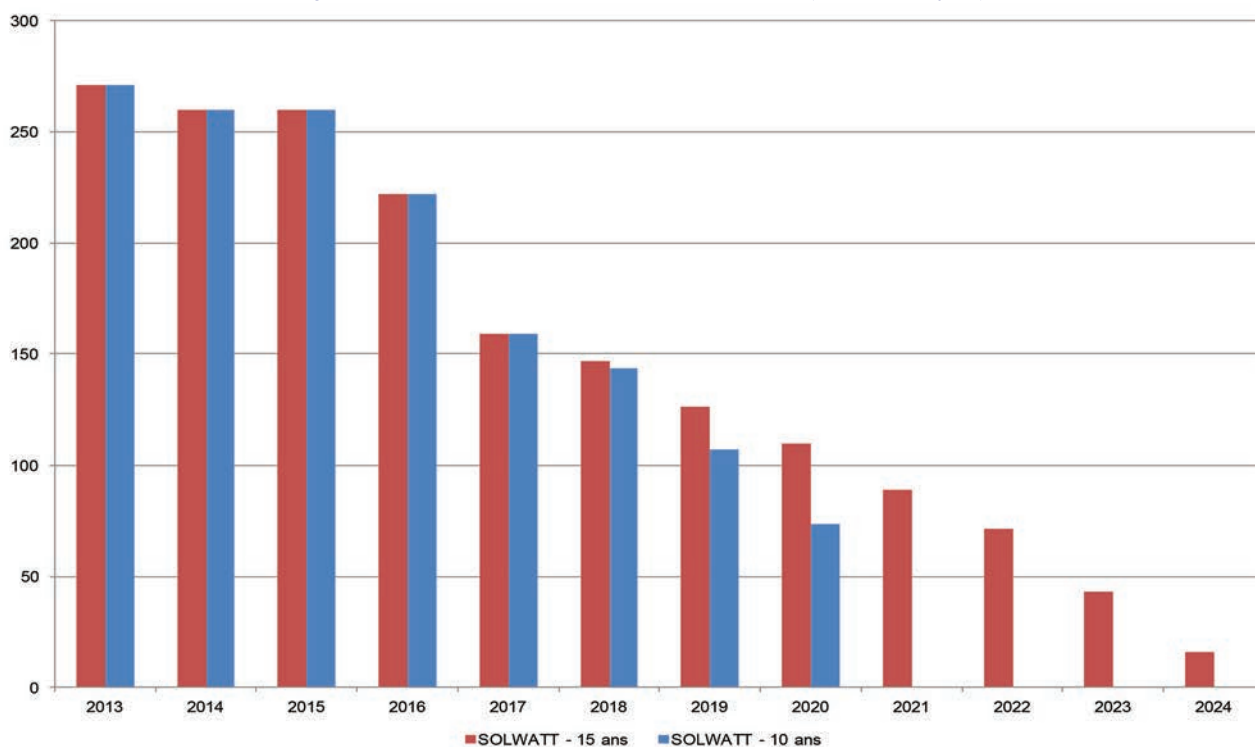
⁴⁴ In the context of this exercise, the end-of-year supply indicated corresponds to the values calculated following the application of the four quarterly quotas for the corresponding year. This supply therefore differs from that observed as at 31 December of each year (see Chapter 4).

Table 26 - Outlook for green certificate supply – scenario 2 (SOLWATT granting for 10 years)

Period	Supply at beginning of period (1)	SOLWATT 2008-2014 (2a) GC/year	GEC > 10 kW 2003-2014 (2b) GC/year	GEC > 10 kW 2015-2020 (2c) GC/year	Supply (3) = (1) + (2a) + (2b) + (2c) GC/year	Quota WR + BCR (4) GC/year	Guaranteed price Elia (5) GC/year	Supply at end of period (6) = (3) - (4) - (5) GC/year
2013	4,508,935	3,318,446	3,419,562	0	11,246,943	3,411,028	4,168,506	3,667,409
2014	3,667,409	3,992,931	3,750,000	0	11,410,340	4,016,993	4,000,000	3,393,348
2015	3,393,348	3,844,391	3,740,000	200,000	11,177,739	4,726,978	4,000,000	2,450,760
2016	2,450,760	3,679,022	3,740,000	400,000	10,269,782	5,358,380	3,411,403	1,500,000
2017	1,500,000	3,590,097	3,740,000	625,000	9,455,097	5,507,698	2,447,400	1,500,000
2018	1,500,000	3,461,933	3,720,000	850,000	9,531,933	5,827,665	2,204,268	1,500,000
2019	1,500,000	3,054,188	3,670,000	1,075,000	9,299,188	6,147,632	1,651,557	1,500,000
2020	1,500,000	2,629,814	3,670,000	1,300,000	9,099,814	6,467,599	1,132,215	1,500,000
2021	1,500,000	1,509,968	3,585,000	1,300,000	7,894,968	6,467,599	0	1,427,370
2022	1,427,370	93,706	3,520,000	1,300,000	6,341,076	6,467,599	0	0
2023	0	81,849	3,389,500	1,300,000	4,771,349	6,467,599	0	0
2024	0	0	3,318,500	1,300,000	4,618,500	6,467,599	0	0
2013-2024	4,508,935	29,256,346	43,262,562	9,650,000	86,677,843	67,334,366	23,015,348	0

The figure below illustrates expected developments in green certificate sales at the guaranteed price of EUR 65 over the period 2014-2024. For both scenarios, it is possible to note a drastic decrease in the amounts to be paid by Elia from 2017. Taking into account the assumptions adopted, due to the effect of the reservation mechanism adopted at the end of 2013 the passing on of these amounts in end-customer bills via the regional surcharge provided for this purpose can be capped and smoothed over the whole of the period 2014-2024 while applying the partial exemptions provided for certain categories of end-customers.

Figure 44 - Developments in annual GC sales to Elia (EUR million/year)



7. CONCLUSIONS

In a context of uncertainty relating to developments in the green certificate mechanism, the growth in green electricity generation facilities continued in 2013 at a moderate pace.

With a total installed capacity at the end of 2013 of 1926 MW, generation facilities increased by 14% compared to the situation at the end of 2012. The photovoltaic solar power sector remained the main driver of this growth in 2013, this time with a larger share reserved for installations generating more than 10 kW which were still able to benefit from a level of support over 15 years that is too high when compared to the higher generation costs recognised by the CWaPE for these installations.

Green electricity generation increased by 4% compared to 2012 and reached 4,620 GWh, including 3,343 GWh of renewable electricity which corresponds to 40% of the target of 8,000 GWh of renewable electricity by 2020 set for Wallonia. Over 50% of the green electricity generated in 2013 was provided in equal shares by the biomass and fossil cogeneration sectors (OPEX-driven technologies), the rate of return of which remains dependent not only on the support mechanism but also on market fluctuations (prices of the electricity generated and of the fuels used). Wind power accounted for 26% of the electricity generated, the photovoltaic solar power sector for 14% and the hydropower sector for 8% (CAPEX-driven technologies).

The average level of support for green electricity was EUR 112/MWh, which is an increase of 13% compared to 2012. This increase is attributable to the ever-increasing share of the photovoltaic solar power sector in 2013. Overall, 80% of the green electricity generated benefited from a level of support that remains below EUR 100/MWh. In total, the support granted to green electricity generation in 2013 is estimated at EUR 520 M, of which 56% for photovoltaic solar power, 22% for the biomass sectors, 18% for wind power and 2% for hydropower and fossil cogeneration.

In the green certificate market, almost 6,740,000 GC were granted. In terms of green certificate sales, the CWaPE recorded a volume of over 8,500,000 GC, with 56% of green certificates coming from SOLWATT installations. Some 51% of sales were carried out in the market, with the remainder being sold to Elia at the guaranteed price of EUR 65. In terms of prices, the overall average price (market and guaranteed price) stabilised at around EUR 71 over 2013. For SOLWATT producers, approximately 80% of green certificates were sold at a price of EUR 65, 5% at a price below EUR 65 and 15% at a price above EUR 65. For installations generating more than 10 kW, in 80% of cases the selling price was between EUR 75 and EUR 95.

As in previous years, since the number of green certificates available in the market far exceeded the number of green certificates to be returned by suppliers and system operators, these parties returned the required number of green certificates and no fines had to be levied. Quota reductions were applied for the supplies of 128 operating sites with a branch agreement, which represents a reduction in expenses for these companies estimated at EUR 70 M.

Based on its projections for the period 2014-2024, the CWaPE believes that a return to balance in the green certificate market can be achieved by 2020 if the granting period for green certificates is reduced to 10 years for all SOLWATT installations, or from 2024 in the absence of such a decision.

Over this period of restoring balance, the amount to be borne by Elia would decrease from just over EUR 250 M in 2014 and 2015 to EUR 225 M in 2016, and to just over EUR 150 M in 2017. It would then reach zero by 2020 or 2024 depending on the scenario.

For both scenarios, due to the effect of the reservation mechanism adopted at the end of 2013 the passing on of these amounts in end-customer bills via the regional surcharge provided for this purpose can be capped and smoothed over the whole of the period 2014-2024 while applying the partial exemptions provided for certain categories of end-customers. As regards the stated target of 8 TWh of renewable electricity by 2020, it can only be achieved through the implementation of additional support mechanisms (additional allocations and commensurate increase in quotas or other financing mechanisms).



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