3. The electricity market

3.1. Regulation

3.1.1. Power generation

3.1.1.1. Electricity generation permits

• The regulatory framework

Following the entry into force of the Law of 8 January 2012 amending the Electricity Law, the Royal Decree of 11 October 2000 on the granting of individual permits covering the establishment of electricity generation facilities is still to be reviewed. In the intervening period, the Directorate General of Energy is investigating new applications and the CREG is issuing opinions on the basis of the Royal Decree of 11 October 2000 in force.

• Applications submitted to the CREG

In 2015, the CREG issued four opinions, all positive, authorizing electricity production.

The CREG's opinions dealt with applications for permits for:

- the establishment by Wind aan de Stroom in 2013 of a wind farm with fourteen turbines and total capacity of 42 MWe in the municipality of Beveren (Kallo)[12]. The generation permit was granted to SA Wind aan de Stroom in 2013 by Ministerial Decree of 3 August 2015 (Moniteur belge, 11 August 2015).
- the establishment by EDF Luminus of a wind farm with thirteen turbines and total capacity of 41.6 MWe in the municipalities of Villers-le-Bouillet, Wanze and Verlaine[13];
- the establishment by Bee Power Ghent of a biomass power generation plant with total capacity of 215 MWe in the municipality of Ghent[14];
- the establishment by Dils-Energie of a combined cycle gas-steam turbine (GST) power generation plant with a capacity of 920 MWe in the municipality of Dilsen-Stokkem (Rotem)[15].

Electrabel was also granted an individual permit, by the Ministerial Decree of 28 April 2015, for the establishment of a power generation facility (wind farm), with a capacity of 38.04 MWe, in the municipalities of Neufchâteau and Léglise (Moniteur belge, 18 May 2015). The CREG delivered a positive opinion in 2014.

In 2015 there was no notification of change of shareholding control of holders of a generation licence.

• Exemptions

The establishment of new Belgian production facilities of net developable capacity less than or equal to 25 MWe is exempt from the individual prior authorization provided by the Royal Decree of 11 October 2000, cited above, but is subject to an obligation of prior notification to the CREG and to the federal Energy Minister or his delegate. In 2015, the CREG received thirty-seven such notifications.

3.1.1.2. North Sea energy generation

A. Domain concessions for offshore wind energy

• The regulatory framework

In accordance with the Royal Decree of 20 December 2000 concerning the conditions and procedure for granting domain concessions for the construction and operation of power generation facilities from water, currents or wind in marine areas over which Belgium may exercise jurisdiction under the international law of the sea, domain concession applications for the construction and operation of power generation facilities from water, currents or wind in marine areas over which Belgium may exercise jurisdiction are addressed to the delegate of the Minister for Energy. The latter will forward the request to the relevant authorities and to the CREG, which assess the technical dossier of the application and issue an opinion. Following consultation with the Transmission System Operator, it then transmits its suggestion to grant or refuse a domain concession to the Minister.

• Applications submitted to the CREG

On 28 May 2015, the CREG issued an opinion[16] to the Directorate General of Energy on Norther's application relating to changes to the domain concession assigned to it. Norther's application focused on two aspects, namely postponement of the constitution of the decommissioning provision and optimization of the domain concession, in particular involving an extension of the scope. The CREG does not object to the first issue. Regarding the second, the CREG believes that the proper procedure was not followed.[17]

12 Opinion (E)150618-CDC-1426 on the granting of individual permits for the construction of a power generation facility (wind farm) in Beveren by Wind aan de Stroom in 2013.
13 Opinion (A)150717-CDC-1438 on the granting of an individual permit for the establishment of a power plant (wind farm) at Villers-le-Bouillet, Wanze and Verlaine by EDF Luminus.
14 Opinion (A)151022-CDC-1452 on the granting of an individual permit for the construction of a power generation facility (biomass) in Ghent by Bee Power Ghent.
15 Opinion (A)151120-CDC-1475 on the granting of an individual permit for the construction of a power generation facility (GST) in Dilsen-Stokkem by Dils-Energie.
16 Opinion (A)150528-CDC-1421 on the applications for change to the domain concession for the construction and operation of wind power generation plants in marine areas, granted to Norther by the Ministerial Decree of 5 October 2009.
17 The domain concession granted to Norther on 5 October 2009 was amended by the Ministerial Decree of 18 September 2015 (Moniteur belge, 9 November 2015).

On 29 October 2015, the CREG gave an opinion[18] to the Directorate General of Energy on SA Rentel's application relating to the domain concession assigned to it by the temporary company Rentel. Rentel's application focused on two aspects, namely postponement of the constitution of the decommissioning provision and a change in the amount of the decommissioning provision to be constituted. The CREG does not object to the first issue. Regarding the second, the CREG believed that the reduction in the decommissioning provision proposed by Rentel was not acceptable. The CREG accepted, however, the alternative proposed by the Directorate General of Energy, provided that it was not linked to a specific number of wind turbines. The Ministerial Decree of 4 June 2009 on granting Rentel a domain concession for the construction and operation of wind power generation facilities in marine areas (Zuidwest-Schaar between Thorntonbank and Lodewijkbank) was amended by Ministerial Decree of 24 December 2015 (Moniteur belge, 14 January 2016).[19]

B. Hydroelectric power storage

• The regulatory framework

The Royal Decree of 8 May 2014 on the conditions and procedure for granting domain concessions for the construction and operation of hydro power storage facilities in marine areas over which Belgium may exercise jurisdiction in accordance with the international law of the sea (Moniteur belge, 6 June 2014) assigns the CREG with the task of providing an opinion on the assessment of the technical dossier complied in relation to the domain concession application. This opinion may propose that technical conditions be imposed. The CREG was also assigned the task of giving an opinion on any application for sale, total or partial transfer, sharing and leasing of the domain concession but also in the event of expiry or withdrawal as a result of forfeiture or waiver.

• Applications submitted to the CREG

On 2 February 2015, the CREG issued an opinion[20] to the Directorate General of Energy concerning the application submitted by the temporary trading company iLAND for the granting of a domain concession for the construction of a hydroelectric power storage facility (energy atoll) on Wenduinebank in the North Sea. Under its powers, the CREG concluded that the technical and economic qualities of the proposed project were problematic. Based on the assumptions that the applicant put forward in the application, the CREG formulated questions about the technical and economic feasibility of the project.

C. Green certificates

• The regulatory framework

The implementing rules of the partial sale to Nobelwind of the domain concession granted to Belwind by the Ministerial Decree of 5 June 2007 for the construction and operation of wind power generation facilities in marine areas (Bligh Bank) and change to that domain concession were set by the Ministerial Decree of 11 September 2015 (Moniteur belge, 23 September 2015).

• Applications submitted to the CREG

In September 2015, the CREG received an application from Belwind for the granting of green certificates for the Alstom demonstration turbine (Haliade 150-6 MW). In December 2015, the CREG issued a positive final decision[21] in this case.

In October 2015, the CREG approved[22] the agreement on the partial sale by Belwind to Nobelwind of the rights and obligations under the contract between Elia and Belwind for the purchase of green certificates.

• Change in installed capacity in generated offshore wind and green energy

The total installed capacity of offshore wind increased by 6 MW in 2015 to 713.1 MW. This increase resulted from the commissioning by Belwind in August 2015 of the Haliade 150-6 MW test turbine (e.g. Alstom now General Electric).

Table 1 provides an overview of the rated power of offshore wind farms whose financial closure was before the end of 2015.

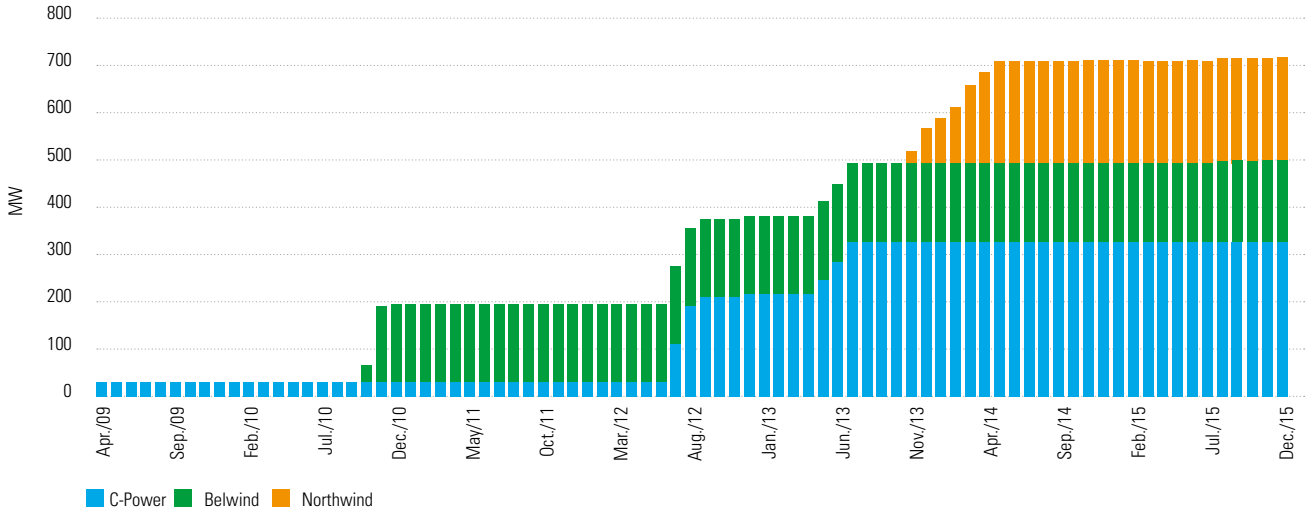
18 Opinion (A)151029-CDC-1471 on the application for amendment to the domain concession for the construction and operation of wind power generation plants in marine areas, granted to Rentel (formerly the temporary trading company also called Rentel) by the Ministerial Decree of 4 June 2009.
19 Earlier in the year, the above-mentioned Ministerial Decree of 4 June 2009 had already been changed (Moniteur belge, 26 May 2015). The CREG had given an opinion on this case on 11 July, 2013.
20 Opinion (A)150202-CDC-1400 on the application for a domain concession for the construction and operation of hydroelectric power storage facilities in marine areas over which Belgium may exercise jurisdiction in accordance with the international law of the sea, submitted by the temporary trading company iLAND.
21 Final decision (B)151210-CDC-1478 concerning Belwind's application for the granting of green certificates for the energy produced at the L01 wind farm.
22 Final decision (B)151015-CDC-1464 on the application for approval of the agreement on the partial sale by Belwind to Nobelwind of the rights and obligations under the contract dated 23 June 2008, between Elia and Belwind, for the purchase of green certificates.

Table 1: Rated output of offshore wind farms, existing and under construction in 2015 (Source: CREG)

Wind farm name	Capacity start 2015	Capacity end 2015
BELWIND	165.0 MW	171.0 MW
C-POWER	326.1 MW	326.1 MW
NORTHWIND	216.0 MW	216.0 MW
Total	**707.1 MW**	**713.1 MW**

The change in installed capacity of offshore wind turbines since April 2009 is illustrated in figure 1.

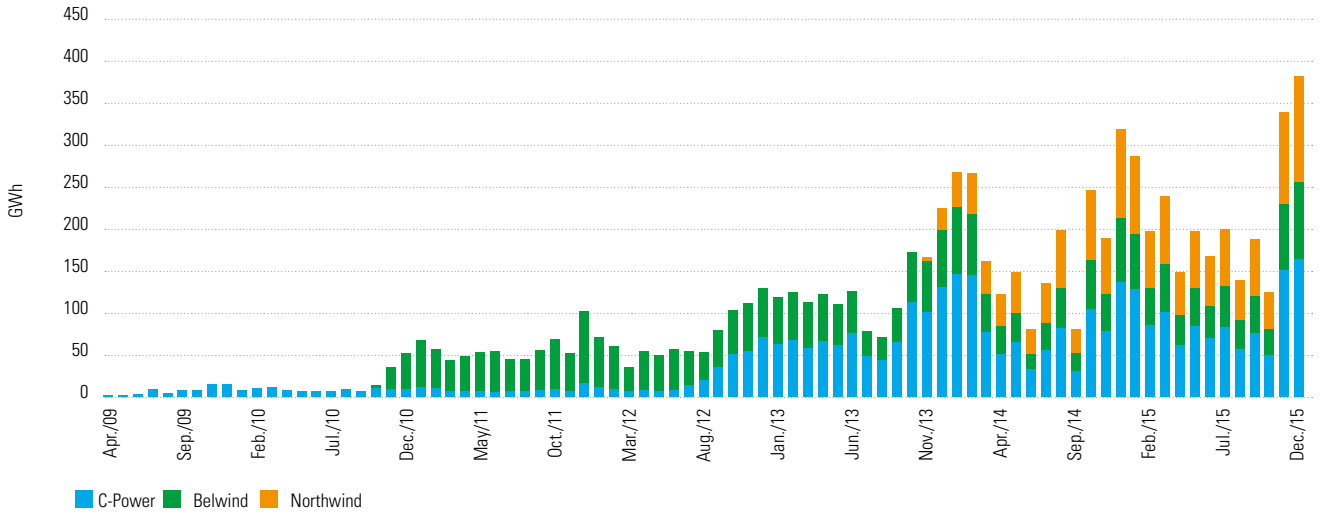
Figure 1: Change in offshore wind power installed capacity between April 2009 and December 2015 (source: CREG)



In 2015, all offshore wind farms together injected 2.533 GWh into the transmission network. Net electricity production (prior to transformation) from all certified offshore wind farms reached 2.612 GWh in 2015, an increase of almost 18% on net production in 2014 (2,221 GWh). Net monthly production per domain concession holder is illustrated in figure 2. The average load factor in 2015 (production divided by installed capacity) varies from the minimum of 24% in October to the maximum of 72% in December. The load factor also varies significantly between wind farms (39% for C-Power and 42% for Belwind, not including the Haliade turbine, and 46% for Northwind).

The CREG grants the green certificate per net MWh produced. In 2015, the CREG granted three operational offshore wind farms green certificates to the amount of 272,807,071 euros.

Figure 2: Net production of offshore green electricity per wind farm on a monthly basis in 2015 (source: CREG)



D. Guarantees of origin

The CREG manages a database of guarantees of origin, which became fully operational in 2015. This is an electronic platform which is used to grant and exchange guarantees of origin. The guarantees granted by the CREG cover renewable power generated within the Belgian marine area. Given that no supplier or consumer is active in the Belgian offshore area, guarantees of federal origin cannot be used "locally" to provide information to consumers, but must be used elsewhere.

The producers of offshore wind power registered as account holders and requested the guarantees of origin to which they were entitled under the regulations. In the first phase, the guarantees granted were used in Belgium, following coordination between the CREG and the regional regulators on recognition of federal guarantees of origin. In a later phase, the CREG became a member of the "Association of Issuing Bodies" (AIB). This organisation manages a hub linking the databases of affiliated members which is used for simple, standardized and reliable transfer of certificates. To this end, the CREG established a domain protocol in which the AIB requirements (the "EECS Rules") were implemented in accordance with national regulations. The CREG's membership was approved at the AIB's general meeting of 19 May 2015, with the special concession under which offshore wind power generation would be taken into account from March 2015 for exchanges through the hub.

E. Study of the shareholding of the domain concession holders.

In January 2015, the CREG carried out a study[23] on the ownership of domain concessions for the construction and operation of offshore wind farms in the North Sea.

This study, updated for the second consecutive year, provides an overview of the main groups of companies operating in this sector. Four of them are active in four wind farms. Compared to the previous years, two changes in shareholding are of note - the consolidation of the Ackermans Van Haaren Group and the resumption of operations in Electrawinds wind power by the Publifin Group. Note that in the eight planned facilities, three are currently fully or partially operational.

F The Belgian Offshore Grid and the so-called "sea socket"

The study of the construction of a central connection station at sea and the connection of offshore wind farms still to be built continued in 2015. As mentioned in the Agreement of 11 October 2014, Elia and the offshore wind farms must build a profitable sea socket. The route towards a common modular offshore infrastructure is being explored. Representatives of Elia and the offshore wind farms met under the auspices of the CREG to address the connection problem. They sought a solution that would satisfy both Elia (construction of a central offshore hub) and the farms (timely implementation of their offshore wind farm). The Modular Offshore Grid, a concept of modular connection enabling the farms, or Elia in part, to build the wind energy transmission infrastructure in phases and modules, has been developed within this framework. The award and execution are at the initiative of the wind farms involved, but always following the

23 Study (F)150122-CDC-1368 on the shareholding of the domain concession holders for the construction and operation of wind farms in the North Sea.

concept of a mutually agreed modular offshore grid. Once the Modular Offshore Grid is completed, the assets can be transferred to Elia. In 2015, the CREG examined the various design options and their costs in a note entitled "Modular offshore grid - Connecting the Rentel, Seastar, Mermaid and Northwester II wind farms", which was forwarded to the Minister for Energy.

3.1.1.3. Call for tenders for the establishment of new power generation facilities

Readers are referred to section 3.4.5.2. of this report.

3.1.2. Electricity supply

3.1.2.1. Supplying customers connected to the transmission network

The following table shows the market share of Electrabel and other suppliers regarding net electricity supply[24] to major industrial customers connected to the federal transmission system (voltage above 70 kV).

Compared to 2014, the total volume of energy offtake in 2015 by final customers of the transmission system decreased by 6.9% (945 GWh), the third lowest level of the period studied, after 2009 and 2012

According to an initial estimate, Electrabel's market share stood at 50.6% in 2015, its lowest level for 9 years, down 24.8% on 2014. The number of Electrabel access points in 2015 was lower than for other suppliers.

Federal permits for electricity supply to customers connected directly to the transmission system are granted by the Minister for Energy at the proposal of the CREG for a period of five years.

In 2015, the CREG received five applications for electricity supply licences, from Energie der Nederlanden, Energie I&V België, E.ON Belgium, Essent Belgium and Enovos Luxembourg, one of which resulted in a favourable response (proposal to grant licence) by the CREG[25]. The last two were still being processed as of 31 December 2015.

During 2015, the Minister for Energy granted an individual power supply licence to E.ON Belgium[26].

3.1.2.2. Price caps

- **For unprotected customers whose supply contract has been terminated**

The maximum prices applicable by the distribution system operators to unprotected customers whose supply contract has been terminated (also termed "dropped customers") are calculated every six months by the distribution system operators and verified by the CREG. They are established as

Table 2: Energy offtake by customers connected to the federal transmission system, 2007 to 2015 (sources: Elia, CREG)

Suppliers		Electrabel		Other suppliers		**Total**
Access points at	1/01/2015	44		44		**84***
	31/12/2015	43		45		**84***
Energy offtake (GWh)	2007	12,469	(87.7%)	1,743	(12.3%)	**14,211**
	2008	11,470	(84.0%)	2,183	(16.0%)	**13,654**
	2009	10,807	(87.6%)	1,526	(12.4%)	**12,333**
	2010	12,163	(88.7%)	1,551	(11.3%)	**13,714**
	2011	11,693	(90.2%)	1,265	(9.8%)	**12,958**
	2012	8,247	(67.0%)	4,069	(33.0%)	**12,316**
	2013	7,484	(57.6%)	5,519	(42.4%)	**13,004**
	2014	8,598	(62.6%)	5,130	(37.4%)	**13,728**
	2015	6,465	(50.6%)	6,318	(49.4%)	**12,783**

(*) Since four access points were supplied at the same time during 2015 by two suppliers, the total number of access points is generally lower by four units than the total number of access points of all suppliers.

24 These figures do not take account of the energy supplied directly by local production or customers located in the Grand Duchy of Luxembourg.
25 Proposal (E)150122-CDC-1392 on renewal of the power supply licence of E.ON Belgium.
26 Ministerial Decree of 26 February 2015 (Moniteur belge, 5 March 2015).

follows: price of energy + transmission + distribution + margin. The CREG is responsible for monitoring the terms of the margin calculation.

As in 2014, in particular to ensure that consumers have clear information to check and understand their bills better, in 2015 CREG posted the energy tariffs, network tariffs and surcharges applicable to the dropped customers of the distribution system operators on its website.

• For protected household customers on low incomes or in precarious situations

Under current legislation, the CREG calculated and published the social tariffs applicable from 1 February 2015 to 31 July 2015 (Moniteur belge, 19 March 2015) and from 1 August 2015 to 31 January 2016 (Moniteur belge, 30 July 2015) for the supply of electricity to protected household customers on low incomes or in precarious situations.

The maximum social tariff (excl. VAT and other taxes) for the supply of electricity from 1 February 2015 to 31 July 2015, was 13.537 c€/kWh (0.13537 €/kWh) for the simple tariff, 13.927 c€/kWh (0.13927 €/kWh) for the two-part tariff (peak hours), 10.979 c€/kWh (0.10979 €/kWh) for the two-part tariff (off-peak hours) and 6.309 c€/kWh (0.06309 €/kWh) for the night only tariff. These tariffs do not include the following elements: federal contribution, connection fee (Wallonia). Other taxes on network tariffs are included.

The maximum social tariff (excl. VAT and other taxes) for the supply of electricity from 1 August 2015 to 31 January 2016, was 14.118 c€/kWh (0.14118 €/ kWh) for the simple tariff, 15.681 c€/kWh (0.15681 €/kWh) for the two-part tariff (peak hours), 10.752 c€/kWh (0.10752 €/kWh) for the two-part tariff (off-peak hours) and 7.042 c€/kWh (0.07042 €/kWh) for the night only tariff. These tariffs do not include the following elements: federal contribution, connection fee (Wallonia). Other taxes on network tariffs are included.

The CREG also evaluated the amount necessary for the supply of the protected customers' electricity fund which is the basis of calculation of the protected customer component of the federal contribution (see section 5.10.2.E hereof). To this end, and as part of protected customer reimbursements, the CREG publishes twice a year the 'reference energy' components for electricity and natural gas for the attention of suppliers and distribution system operators.

3.1.2.3. Trends in and fundamentals of electricity prices

In 2015 the CREG continued with the monthly publication of a dashboard, launched in September 2012, to inform all stakeholders of the important developments in the factors influencing the electricity price.

In the wholesale market, the CREG mainly follows changes in a number of key parameters in the formation of the price of electricity and natural gas in the Belgian and neighbouring stock markets (Germany, France, Netherlands).

For the retail market, the CREG shows trends of the all-in price of electricity and natural gas by region in Belgium:

- DC electricity household customers (3,500 kWh/year, single-rate meter)
- T2 gas household customers (23,260 kWh/year)
- social customers
- dropped customers
- SMEs

The CREG also compares the average all-in price of electricity and natural gas for Dc electricity, household T2 gas customers and SMEs in Belgium and neighbouring countries (Germany, France, the Netherlands and the United Kingdom).

The following are some trends observed in 2015:

Electricity:

- In early 2015, a new contribution to the energy fund was introduced in Flanders: this is a monthly surcharge per electricity offtake point;
- during 2015, the network activities of distribution system operators were subject to corporation tax in Belgium (Brussels: March 2015; Wallonia: June 2015; Flanders: August 2015);
- in March 2015, a new electricity-related surcharge was introduced in Belgium for the strategic reserve;
- since September 2015, VAT on all the components of the energy bill of Belgian residential customers' electricity has risen from 6% to 21%;
- in neighbouring countries, no new surcharge was introduced in 2015; existing network tariffs and surcharges, however, were adapted, as is the case every year.

Natural gas:

- in the course of 2015, the network activities of distribution system operators were subject to corporation tax (Brussels: March 2015; Wallonia: June 2015; Flanders: August 2015);
- in neighbouring countries, no new surcharge was introduced in 2015; existing network tariffs and surcharges, however, were adapted, as is the case every year.

3.1.3. Transmission and distribution

3.1.3.1. Unbundling and certification of the transmission system operator

In line with its ongoing remit to monitor the compliance of transmission system operators with unbundling requirements, in 2015 the CREG oversaw the successive appointments of two new members of the management boards of Elia System Operator and Elia Asset - first an interim Chairperson and then a new Chairperson and CEO of the two management boards (see also section 3.1.3.2 below).

Under this same authority, the CREG also sent several letters to Elia System Operator regarding its new subsidiary Nemo Link Ltd. It also submitted a number of questions in order to ensure constant compliance with the requirements of the ownership unbundling model. These questions were submitted following a communication sent to the CREG by Elia on the signing, on 27 February 2015, of a joint venture agreement between Elia System Operator and the British transmission system manager, National Grid, for construction of the first electrical interconnection between Belgium and Great Britain (see also section 3.4.4 hereof). The two system operators therefore set up a new company (under English law), Nemo Link Ltd, a joint venture between Elia System Operator and National Grid Interconnector Holdings Ltd.

In letters dated 21 May and 25 June 2015, among other things the CREG asked Elia to forward documents and information about Nemo Link, for which a working meeting was held with Elia. Because this interconnection involves cross-border infrastructure, contacts were made and a consultation undertaken between the CREG and OFGEM, the UK regulator. There will also be conversations and structural consultation with Ofgem in 2016 on this case.

Finally, pursuant to Article 23 (1)(31) of the Electricity Law, the CREG has set up an "unbundling monitoring" initiative, i.e. systematic annual monitoring of ongoing compliance with unbundling requirements by transmission system operators (see also section 4.1.2.1 hereof on the same unbundling monitoring for natural gas transmission system operators).

In early 2015, the CREG requested and received information about this (including information on changes made since the initial certification of Elia System Operator, in 2012, as the transmission system operator, which may have an influence on the case) from the transmission system operator. The CREG decided, in the meantime, for reasons of efficiency, to include the annual "unbundling monitoring" in the National Report of Belgium that the CREG must submit each year to the European Commission and to ACER. This national report must report, among other matters, on progress relating to the unbundling and independence of transmission system operators carried out during the previous calendar year, in both legislative and practical terms.

3.1.3.2. Corporate governance

The CREG considered the 2014 business report of the Corporate Governance Committee of Elia System Operator and Elia Asset (monitoring the application of Articles 9 and 9b of the Electricity Law and evaluation of its effectiveness in relation to the objectives of independence and impartiality of the transmission system operator).

The CREG also considered the report of the Compliance Officer on adherence to the compliance programme by the staff of Elia System Operator and Elia Asset in 2014. This compliance programme seeks to ensure that there is no discriminatory treatment of system users and/or categories of system users. The CREG insisted in particular on the publication of the Compliance Officer's reports, in accordance with the law, and on making information on public consultations easily accessible on the Elia website.

In January 2015, the CREG monitored the appointment of Mr François Cornelis as a new member and interim Chairman of the Management Boards of Elia System Operator and Elia Asset, first as part of its remit to monitor continued compliance by the system operator with the unbundling requirements and, secondly, as part of its general remit to monitor compliance by the transmission system operator with its obligations under the Electricity Law and its implementing regulations. Later in the year, in July 2015, the CREG monitored the appointment of Mr Chris Peters as new member and Chairman of the two Management Boards, replacing Mr Cornelis, as part of its above-mentioned monitoring and supervisory remit.

The CREG did not give an opinion in 2015 certifying the independence of independent directors of the Boards of Directors of Elia System Operator and Elia Asset. The term of office of one independent director of the above companies reached its maximum duration (12 years) in 2015. No new appointments of independent directors were brought to the attention of the CREG.

3.1.3.3. Closed industrial networks

On the proposal of the Directorate General of Energy, and after receiving the opinion given by the CREG and the system operator, the Minister for Energy may confer the title of closed industrial network operator, for the part operated at rated voltage exceeding 70kV, to a natural or legal person owning a network or having right of use thereof and who has requested that title. Under the same procedure, the Minister may recognize the network as a closed industrial network

provided that the regions involved have an opportunity to issue an opinion within sixty days.

The CREG gave four opinions on this matter in August 2015[27].

3.1.3.4. Technical Operation

A. Connection and access

On 15 October 2015, the CREG approved[28] Elia's request for amendment to the terms and conditions of the access manager contracts in order to bring them into line, firstly with the rules of European harmonized auctions and, secondly, with the strategic reserve operating rules approved by CREG on 12 March, 2015. Furthermore, Elia proposed a limited number of changes under the heading "Miscellaneous" (see also section 3.4.5.1 hereof).

On 3 December 2015, the CREG approved[29] Elia's request for amendment to the terms and conditions of access contracts. The main objective of the amendments proposed by Elia were: (i) to bring the contract into line with the new tariff methodology for the electricity transmission system and electricity networks with a transmission function, as set by the CREG on 18 December 2014; (ii) to clarify the procedures for appointing the access holder and the access manager(s). Furthermore, Elia proposed a limited number of changes under the heading "Miscellaneous".

The proposed changes, in both cases, were subject to public consultation by Elia.

B. Ancillary and balancing services

• Reserve capacity

Elia must evaluate and determine the primary, secondary and tertiary reserve capacity that contributes to ensuring the security, reliability and efficacy of the transmission system in the control area. It must send its assessment methodology and its result to the CREG for approval.

On 12 February 2015, the CREG decided[30] to approve the amendments proposed by Elia to the method of evaluation and determination of the primary, secondary and tertiary reserve capacity for 2015. The amendments proposed by Elia were of two types: firstly, those relating to clarification of the primary reserve volume to be procured in 2015 and, secondly, those relating to the primary reserve product selection rules. Following its analysis, the CREG believes that these amendments are in the interests of the network user as they provide for better technical and economic efficiency of the primary control of resources, while continuing to adhere to the ENTSO-E rules. The decision of the CREG follows public consultation with market players.

On 17 July 2015, the CREG decided[31] to approve the method of evaluation and determination of the primary, secondary and tertiary reserve capacity for 2016, proposed by Elia. However, the CREG qualifies its decision with considerations relating, among other matters, to information made available to the market by Elia on prior knowledge of the availability and pricing of the inter-TSO reserve, on the participation of the demand for different types of reserves and on the desired development of the method for evaluation of the powers of the secondary and tertiary reserves. The decision of the CREG follows its own public consultation with market players.

• Price bids and volumes for ancillary services

The procurement of these services under reasonable volume and price conditions has been difficult since the beginning of regulation, as there is only one buyer in Belgium (Elia) and a very limited number of sellers. Pursuant to Article 12(5) of the Electricity Law, it has become necessary to promulgate royal decrees imposing price and volume conditions on several occasions (see in particular the 2012 Annual Report, page 46).

Encouraged to do so by the CREG in particular, Elia has made significant efforts in recent years to develop the ancillary services market, especially for reserve capacity, in such a way as to reduce their price, including by enabling more market stakeholders to participate in auction procedures.

Accordingly, following the 2014 success of the partial shift in the time horizon of the primary and secondary control capacity tenders (FCR and aFRR in European terminology), on 15 May 2014, the CREG approved Elia's proposal to acquire 100% of the volume of primary and secondary control capacities via monthly tenders from 1 January 2015.

The other major development in the ancillary services market that the CREG approved[32], and which entered into force on 1 January 2016, was the contracting of part of the tertiary

27 Opinion (A)150827-CDC-1447 on the application submitted by BASF Antwerp for recognition of an industrial closed network and appointment of its manager for the part operated at a rated voltage above 70 kV; Opinion (A)150827-CDC-1448 on on application submitted by BP Chembel for recognition of an industrial closed network and appointment of its manager for the part operated at a rated voltage above 70 kV; Opinion (A)150827-CDC-1449 on application submitted by Solvic for recognition of an industrial closed network and appointment of its manager for the part operated at a rated voltage above 70 kV; Opinion (A)150827-CDC-1450 on application submitted by Total Petrochemicals Feluy for recognition of an industrial closed network and appointment of its manager for the part operated at a rated voltage above 70 kV.

28 Decision (B)151015-CDC-1463 on amendments to the terms and conditions of access managers' contracts, proposed by the network operator.

29 Decision (B)151203-CDC-1488 on amendments to the terms and conditions of access managers' contracts, proposed by Elia System Operator.

30 Decision (B)150212-CDC-1402 on the request for approval of the proposed amendments to the method for evaluation and determination of the primary, secondary and tertiary reserve capacity for 2015.

31 Decision (B)150717-CDC-1423 on the request for approval of the method of evaluation and determination of the primary, secondary and tertiary reserve capacity for 2016.

32 Decision (B)150717-CDC-1424 on the proposal of Elia System Operator on adaptation of the operating rules of the market in relation to offsetting quarter hourly imbalances.

control volumes (mFRR in European terminology) through monthly auctions. These monthly auctions only relate to "R3 Production" products and "R3 Dynamic Profiles" for a volume limited to 70 MW.

Note the removal of the maximum limit of tertiary control provided by the profile adjustment services, via the R3 Dynamic Profile, enabling end customers and aggregators[33] to provide tertiary reserve capacity from resources connected to either the Elia transmission network or to the distribution systems, including consumption curtailing resources.

Furthermore, in order to maintain increases in the costs of ancillary services at a reasonable level, the Electricity Law of 29 April 1999 requires Elia to submit a report annually to the CREG on proposed prices for the supply of ancillary services. The CREG then states and explains the manifestly reasonable or unreasonable nature of the proposed prices.

In 2015, the CREG received Elia reports for tertiary control services, control of voltage and reactive power as well as for the "black start". In its own reports[34], the CREG established that the prices of certain selected offers, for each of these services, were manifestly unreasonable. Accordingly, the Minister for Energy produced draft royal decrees to impose price and volume conditions on the producers involved. The CREG issued opinions[35] on these projects.

Based on assumptions about the availability and use to be made of ancillary services in 2016, the cost difference between selections of offers made by Elia and the final selections, adapted following the above-mentioned royal decrees, reached an amount of about six million euros.

The primary and secondary control services are subject to monthly reports produced by Elia. The CREG noted a significant decrease in the cost of these services in 2015 due to the purchase of 100% of the volume via monthly tenders.

• Balancing

The TSO is responsible for monitoring, maintaining and, if needs be, re-establishing the balance between supply anddemand for electrical power in the control area, among stother things further to any individual imbalances caused by the various access-responsible parties. Elia is required to submit a proposal for the operating rules of the market for offsetting 15-minute imbalances to the CREG for approval.

On 27 May 2015, Elia submitted a proposal for amendment to the market's operating rules regarding the offsetting of 15-minute imbalances. The proposal is structured around three priorities: the introduction of rules concerning the primary reserve, the introduction of short-term tenders for reservation of part of the tertiary reserve volume and the definition of new restrictions applied to tertiary reserve bids. The CREG, following market consultation, approved Elia's proposal by decision of 17 July 2015[36]. The new rules are fully applicable from 1 January 2016.

• Volumes activated and concentration of bids

In 2015, activations to offset imbalances in the control area fell by 0.2% compared with 2013, totalling 1,012 GWh[37]. The proportion of secondary reserves in these activations reached 57.3% in 2015, compared with 52.7% in 2014 and 54.8% in 2013. This increase is mainly due to the decrease in offsetting of imbalances as part of the IGCC, which decreased by 19.7%% (255 GWh) for 2015 compared with 2014 (317 GWh). In 2015, there were 250 MWh of downward activation of reserves located abroad by the transmission system operators, while these activations were zero in 2014 (Source: Elia data).

The HHI index relating to bids of secondary and tertiary reserves on the generating plants amounted to 4.299 in 2015 compared to 4.251 in 2014 and 3.266 in 2013. Activations relating to these resources account for 99.8% of the total power activated in 2015 to offset imbalances in the control area, whereas they accounted for 99.9% in 2014 compared with 99.6% in 2013. The increase in the HHI rate, though small, is explained by the increase in the relative participation of EDF Luminus on the market for production reserves, almost unchanged apart from Electrabel.

• Price of offsetting individual imbalances

The imbalance tariff is based on a single-price system thattakes account of the direction of the imbalance of the access-responsible party and the direction of the imbalance in the control area.

Table 3 provides an overview of the trend in the average tariff (unweighted) for positive imbalances (injection > offtake) and for negative imbalances (injection < offtake) of the access responsible parties for the period 2007-2015.

32 Decision (B)150717-CDC-1424 on the proposal of Elia System Operator on adaptation of the operating rules of the market in relation to offsetting quarter hourly imbalances.

33 Market stakeholders that pool (aggregate) different access points (injection and/or offtake) in order to benefit from the cumulative effect necessary for their involvement in certain markets, in particular the energy (commodity), reserve capacity and flexibility markets.

34 Report (RA)150717-CDC-1440 on the manifestly unreasonable or reasonable nature of the prices offered to Elia System Operator for the supply of the black-start service for the period 2016-2020; Report (RA)151015-CDC-1466 on the manifestly unreasonable or reasonable nature of the prices offered to Elia System Operator for the supply of the voltage control system in 2016; Report (RA)151120-CDC-1477 on the manifestly unreasonable or reasonable nature of the prices offered to Elia System Operator for the supply of tertiary reserve capacity for operating year 2016.

35 Opinion (A)151203-CDC-1490 on a draft royal decree imposing price and supply conditions for procurement during the 22-month period of the black-start service by a producer; Opinion (A)151217-CDC 1497 on a draft royal decree imposing a public service obligation on a producer covering the volume and price of the voltage and reactive capacity control service from 1 January 2016 to 31 December 2016; Opinion (A)151217-CDC-1498 on a draft royal decree imposing a public service obligation on a producer covering the volume and price of the voltage and reactive capacity control service from 1 January 2016 to 31 December 2016; Opinion (A)151217-CDC-1499 on a draft royal decree imposing a public service obligation on a producer covering the volume and price of the voltage and reactive capacity control service from 1 January 2016 to 31 December 2016; Opinion (A)151217-CDC-1500 on a draft royal decree imposing a public service obligation on a producer covering the volume and price of the tertiary reserve service from 1 January 2016 to 31 December 2016.

36 Decision (B)150717-CDC-1424 on the proposal of Elia System Operator on adapting the operating rules of the market in relation to offsetting quarter hourly imbalances.

37 By synthesizing the activations in the opposite direction of the secondary reserves within the same quarter hour, consistent with data from previous years

Figure 3 can be used to compare these average prices with the trend in average prices on the Belpex day-ahead market over the same period. A switch may be observed from dual pricing up to 2011 to single pricing from 2012, with a slight difference between the negative imbalance price and that of the positive imbalance, devised as an incentive to discourage gaming. In 2012 and 2013 these two prices were very similar and were, on average, higher than the average price of the Belpex DAM, but the difference from the Belpex DAM price shrank between 2012 and 2013. In 2014, these two prices are on either side of the Belpex DAM price. In 2015, average imbalance tariffs increased, while they decreased in 2013 and 2014 compared to the previous year. Both are also below the average price of the Belpex DAM, although close.

C. Rules on grid security and reliability and standards for quality of service and supply

Over the course of 2015, the CREG took various initiatives concerning the security and reliability of the electricity grid. The CREG in particular discussed with Elia possible improvements to the black-start contracts when renewed at the end of 2015, and set out a course of action for their subsequent development.

D. Time taken by the transmission system operator to carry out connections and repairs

On the federal transmission system, the AIT (Average Interruption Time) was 4 minutes 58 seconds (3 minutes 12 seconds in 2014) and the AID (Average Interruption Duration) was 27 minutes 55 seconds (59 minutes 25 seconds in 2014).

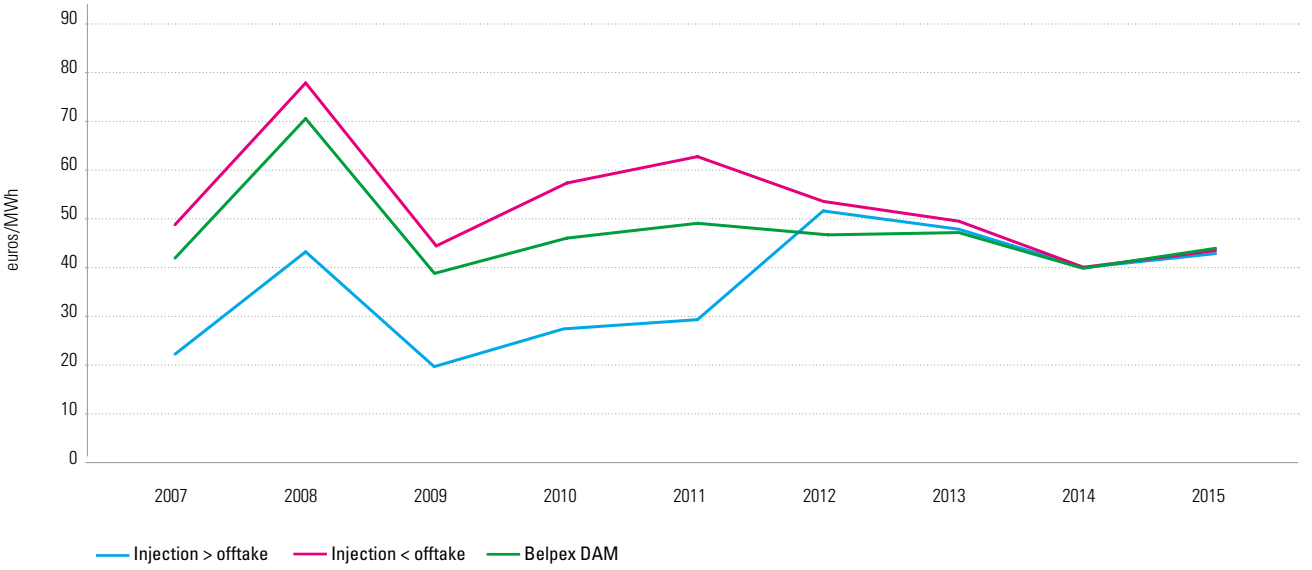
There were 61 incidents on the transmission system in 2015 (66 in 2014). As the network is configured as a grid or mesh, such incidents do not usually result in customer supply interruptions. In 41% of cases, automatic reconnection is attempted. These attempts were successful in 90% of cases on the 380 kV and 220 kV systems, and in 87% of cases on the 150 kV network.

In four cases, a connection to the federal transmission-network was unavailable for more than 24 hours. The unavailability times for these connections were between 42 and 1,178 hours.

Table 3: Average unweighted imbalance tariff during the period 2007-2015 (Source: Elia data)

euros/MWh	2007	2008	2009	2010	2011	2012	2013	2014	**2015**
Injection > offtake	22.09	43.24	19.86	27.76	29.22	51.84	47.91	40.33	43.48
Injection < offtake	48.64	77.92	44.25	57.24	62.70	54.05	49.36	41.07	44.18

Figure 3: Average unweighted imbalance tariff and Belpex DAM price during the period 2007-2015 (Sources: Elia and Belpex data)



E Backup measures

The reader is referred to section 3.4.5. hereof, which addresses in particular the load shedding and strategic reserve plan which are among the measures that may be implemented as part of the safeguarding plan.

3.1.3.5. Network tariffs

A. The transmission system

a) Tariff methodology

As detailed in its Annual Report of 2014, the CREG adopted on 18 December 2014 its tariff methodology for the electricity transmission network and electricity networks having a transmission function[38], for application during the regulatory period 2016-2019.

This tariff methodology contains the rules that the operator of the transmission system, Elia System Operator (hereinafter: Elia) must adhere to, for the preparation, drafting and introduction of its tariff proposal for the regulatory period 2016-2019 and which CREG used to approve the tariffs derived therefrom (see b) below Tariff trends).

On 26 November 2015, the CREG approved Annex 4[39] to the tariff methodology for 2016-2019. The Annex addresses the incentive for significant and specific investments in the electricity transmission system that the CREG may allocate to Elia for a specific ad hoc period.

A draft of Annex 4 had already been put out for public consultation from 24 August to 14 September.

b) Tariff trends

• 2012-2015

Concerning the rates applicable in 2015, as detailed in its 2014 Annual Report, on 18 December 2014, the CREG approved, first, from 1 January 2015, Elia's tariffs for public service obligations and a set of surcharges applied by Elia and, secondly, Elia's proposal for the transition to two new services as of 1 January 2015 (the new service supply involves, respectively, connection and access to the local transmission system for a distribution network with an operating voltage of 36 kV).

By a decision of 29 January 2015[40], the CREG approved a proposal put forward by Elia for the introduction of a tariff for the "strategic reserve" public service obligation. The tariff was 0.6110 euro/MWh offtake net, and came into force on 1 February 2015.

By decision of 17 July 2015[41], the CREG approved the tariff proposal submitted to it by Elia for the application, from 1 September 2015, of the second tariff term for the public service obligation for the financing of measures to support renewable energy in Wallonia.

By decision of 24 September 2015[42], the CREG extended its approval of the tariff adjustment proposal for the maintenance and restoration of the individual balance of the access managers of 7 October 2014 for November and December 2015 (see CREG 2014 Annual Report, section 3.1.3.4.A.b).

Finally, on 17 December 2015, further to Decree No. 2015/258 of the Brussels Court of Appeal of 25 March 2015, the CREG took the decision[43] to amend the Dutch version of Decision No 658E/26 of 16 May 2013.

38 The concept of networks with a transmission function relates firstly to the transmission system, and secondly to distribution systems of local or regional transmission with a voltage level between 30kV and 70kV used primarily to route energy to non-residential customers and other networks established in Belgium, and the interaction between power generation facilities and electrical networks that have a transmission function.
39 Decree (Z)151126-CDC-1109/9 setting Annex 4 to the tariff methodology for the electricity transmission system and power systems having a transmission function.
40 Decision (B)150129-CDC-658E/32 on the proposal of Elia System Operator of 25 November 2014 on the adaptation from 1 January 2015 of the tariffs for public service obligations and taxes and surcharges - strategic reserve.
41 Decision (B)150717-CDC-658E/35 on the request for approval of the tariff proposal submitted by Elia System Operator for the application from 1 September 2015 of the second tariff term for the public service obligation for the financing of measures to support renewable energy in Wallonia.
42 Decision (B)150924-CDC-1461 on the proposal to adapt the procedures for application of the tariff for the maintenance and restoration of the individual balance of the access managers.
43 Decision (B)151217-CDC-658E/37 on amendment to the Dutch version of decision (B)130516-CDC-658E/26 on the rectified tariff proposal of Elia System Operator of 2 April 2013 for the regulatory period 2012-2015.

• 2016-2019

On 25 June 2015, CREG and Elia entered into an agreement on the terms of the incentive regulation applicable to Elia for the period 2016-2019[44].

On 30 June 2015, Elia submitted its tariff proposal for the regulatory period 2016-2019 to the CREG.

On 9 October CREG issued its draft decision[45], concluding that Elia's tariff proposal needed to be adapted on several points in order to be approved by the CREG. In the interests of transparency, and to enable the most effective possible application of the new tariffs in January 2016, on 30 October 2015 the CREG published the elements of the new tariff structure which were not rejected in its draft decision of 9 October 2015.

On 3 December 2015, the CREG approved[46] Elia's tariff proposal for the regulatory period 2016-2019. In accordance with the CREG tariff methodology, Elia's new tariff structure presents a number of changes compared to previous regulatory periods. The following are among the changes: lower number of customer groups (from four down to three), the removal of power subscription tariffs, the introduction of tariffs for monthly and annual peak offtakes, the generalization of the tariff for power made available and, finally, the new market integration tariff.

These changes make it impossible to compare the tariff burden between regulatory periods based on historical customer profiles type. The CREG therefore established new customer profiles to be able to compare the change in their respective tariff burdens over the period 2013-2019,

The trend in the tariff burden (not including connection, PSO tariffs and surcharges) for users of the transmission system is illustrated in the table below.

44 The full text of the agreement is available on the CREG website.
45 Draft decision (B)151009-CDC-658E/36 on application for approval of the tariff proposal submitted by Elia System Operator for the regulatory period 2016-2019.
46 Decision (B)151203-CDC-658E/36 on application for approval of the tariff proposal submitted by Elia System Operator for the regulatory period 2016-2019.

Table 4: Trends in the tariff burden (not including connection, PSO tariffs and surcharges and VAT) for users of the transmission system during the period 2013-2019 (Source: CREG)

Cost of network use and ancillary services standard customers (EUR/MWh)	Tariffs 2013 (1)	Tariff 2014-2015 (2)	Tariff 2016 (3)	Tariff 2017 (4)	Tariff 2018 (5)	Tariff 2019 (6)	Average tariff 2016-2019 (7)	2016-2019 vs 2014-2015 (8) = (7)/(2)%
By CREG decision of	658E/26 16/05/2013	658E/26 16/05/2013	658E/36 3/12/2015	658E/36 3/12/2015	658E/36 3/12/2015	658E/36 3/12/2015		
STANDARD CUSTOMER ON 150-220-380 KV NETWORK (45 MVA; 30 MW/YEAR; 35 MW/MONTH; 155 GWH)								
NETWORK USE	n.a.	n.a.	3.5643	3.4807	3.5120	3.6228	3.5450	
CAPACITY RESERVES AND BLACK START	n.a.	n.a.	0.9165	1.1189	1.3710	1.5626	1.2423	
MARKET INTEGRATION	n.a.	n.a.	0.3492	0.3604	0.3870	0.3946	0.3728	
TOTAL	4,8400	5,4200	4.8300	4.9600	5.2700	5.5800	5.1600	95%
STANDARD CUSTOMER ON 70-36-30 KV NETWORK (12 MVA; 6 MW/YEAR; 7 MW/MONTH; 32 GWH)								
NETWORK USE	n.a.	n.a.	6.6343	6.5607	6.5420	6.7028	6.6100	
CAPACITY RESERVES AND BLACK START	n.a.	n.a.	0.9165	1.1189	1.3710	1.5626	1.2423	
MARKET INTEGRATION	n.a.	n.a.	0.3492	0.3604	0.3870	0.3946	0.3728	
TOTAL	7,9000	9,0050	7.9000	8.0400	8.3000	8.6600	8.2250	91%
STANDARD CUSTOMER TRANSFORMATION TO AVERAGE VOLTAGE (50 MVA; 20 MW/YEAR; 17 MW/MONTH; 90 GWH)								
NETWORK USE	n.a.	n.a.	10.1343	10.0707	9.9620	10.0828	10.0625	
CAPACITY RESERVES AND BLACK START	n.a.	n.a.	0.9165	1.1189	1.3710	1.5626	1.2423	
MARKET INTEGRATION	n.a.	n.a.	0.3492	0.3604	0.3870	0.3946	0.3728	
TOTAL	9.9900	11.4000	11.4000	11.5500	11.7200	12.0400	11.6775	102%
INJECTION TARIFF - CAPACITY RESERVES AND BLACK START	0.9111	0.9111	0.9644	0.9644	0.9644	0.9644	0.9644	106%

• Offshore surcharge

The CREG concluded, for the 2016 financial year, that firstly the estimated amount to be covered by the surcharge referred to in Chapter III of the Royal Decree of 16 July 2002 on the establishment of mechanisms for the promotion of electricity produced from renewable energy sources amounted to 265,428,568 euros and secondly, that the estimated volume of net energy extracted amounted to 69,372,690 MWh. On this basis the CREG proposes[47] to set the offshore surcharge to be used to offset the real net cost to Elia resulting from the green certificates purchase and sale obligation in 2016 at 3.8261 euros / MWh. This amount is a 5.5% reduction in the offshore surcharge compared to 2015.

C) Balances

In its draft decision of 7 May 2015[48], based on the annual tariff report for the financial year 2014 submitted to the CREG by Elia on 25 February 2015, the CREG asked Elia to amend its tariff report in order to obtain approval regarding the 2014 operating balances.

Considering the adapted tariff report, including the operating balances for the operating year 2014 submitted by Elia on 10 June 2015, the CREG decided[49]:

- to approve part of Elia's adapted tariff report of 10 June 2015 concerning (i) the Class 1 balance, which must be transferred to the 2016-2019 tariffs; and (ii) balances relating to tariffs for public service obligations and surcharges;
- to reclassify certain elements relating to the 2014 tariff result, the 2014 non-tariff result and the result of unregulated activities, although these items have no direct financial consequences for network users.

Accordingly, the tariff surplus in 2014, set for the 2014 operating year at 69,908,313.56 euros, is to be added to the sum of the operating balances for 2011, 2012 and 2013.

Thus Elia must apply a global tariff surplus of 142,539,081.54 euros in its tariff proposal for the regulatory period 2016-2019. The amount is deducted in full from the net costs that network tariffs must cover during this period.

The balance on the public service obligations and surcharge tariffs amounted to 63.431.543,36 euros. This sum is recorded as a receivable in Elia's balance sheet accounts.

B. Distribution networks

•Tariff trends

Unlike previous years, the 2015 Annual Report no longer includes the tariff methodology applicable to distribution tariffs or the comparison tables for distribution system operator tariffs. Following the sixth State reform, jurisdiction in electricity grid and natural gas tariffs has in fact been transferred to the regions (see our 2014 Annual Report, section 2.1).

Nonetheless, in a study of 30 April 2015 on electricity and natural gas price components (see also section 3.2.1.1 hereof), the CREG continued to analyse distribution rates.

Regarding electricity, the study concludes that for residential customers, the distribution network tariff between January 2007 and December 2014 increased by 145.73 euros (+99.96%) in Flanders, 48.31 euros (+32.42%) in Wallonia and 67.49 euros (+47.81%) in Brussels. This is partly due to the higher costs of public service obligations, energy costs to offset network losses and the introduction of multi-year tariffs.

For business customers, the distribution network tariff applied between January 2007 and December 2014 increased by 1,553.05 euros (+43.25%) in Flanders, 1573.33 euros (+37.48%) in Wallonia, while it decreased by 101.37 euros (-1.87%) in Brussels. This is partly due to the higher costs of public service obligations, energy costs to offset network losses and the introduction of multi-year tariffs.

Regarding natural gas, the study concludes that for residential customers, the distribution network tariff applied between January 2007 and December 2014 increased by 88.60 euros (+37.71%) in Flanders, 125.91 euros (+51.51%) in Wallonia and 60.52 euros (+23.34%) in Brussels. This is due to deficits of past years being carried forward, the increase in public service obligations and the introduction of multi-year tariffs. For business customers, the increase in the distribution network tariff applied between January 2007 and December 2014 (1668.68 euros in Flanders, +3205.69 euros in Wallonia and 3383.77 euros in Brussels) is less due to the costs of public service obligations being charged mainly to residential customers.

47 Proposal (C)151203-CDC-1493 on the calculation of the surcharge for offsetting the real net cost to the operator of the system resulting from the obligation to purchase and sell green certificates in 2016. The amount of the surcharge used to offset the real net cost to the network operator resulting from the green certificates purchase and sale obligation for 2016 was set at 3.8261 euros/MWh by the ministerial order of 22 December 2015 (Moniteur belge, 28 December 2015).

48 Draft decision (B)150507-CDC-658E/33 on the tariff report including the balances submitted by Elia System Operator for operations for financial year 2014.

49 Decision (B)150625-CDC-658E/2933 on the tariff report including the balances introduced by Elia System Operator for operating year 2014 as modified by the appropriate tariff report.

• Balances

In early 2011, 2012, 2013 and 2014, the CREG received reports from all the distribution system operators relating to the application of their tariffs in 2010, 2011, 2012 and 2013. The CREG had decided not to take any decision on the reported balances (see 2014 Annual Report, section 3.1.3.4.B.c).

In March 2014, INFRAX filed proceedings against the CREG and the VREG (third party notice). Infrax (acting for its distribution system operators InterEnerga, Infrax West, IVEG and PBE) wanted, through this procedure, to obtain the judge's clarity on the question of which regulator (federal or regional) must make a decision about the definition of the balances for the period 2010 to 2013 inclusive.

In a judgement of 30 June 2015, the Brussels Court of Appeal ruled that CREG was wrong to refuse to make a decision on regulatory balances and specified that the VREG is now the competent regulator to determine and apply balances. This decision also ordered the CREG to send all the information necessary for this purpose to the VREG, upon first request, which it did in July and August 2015. In anticipation of the transfer of jurisdiction over the setting of distribution network tariffs, the CREG had already sent some data.

3.1.4. Cross-border issues

3.1.4.1. Access to cross-border infrastructures

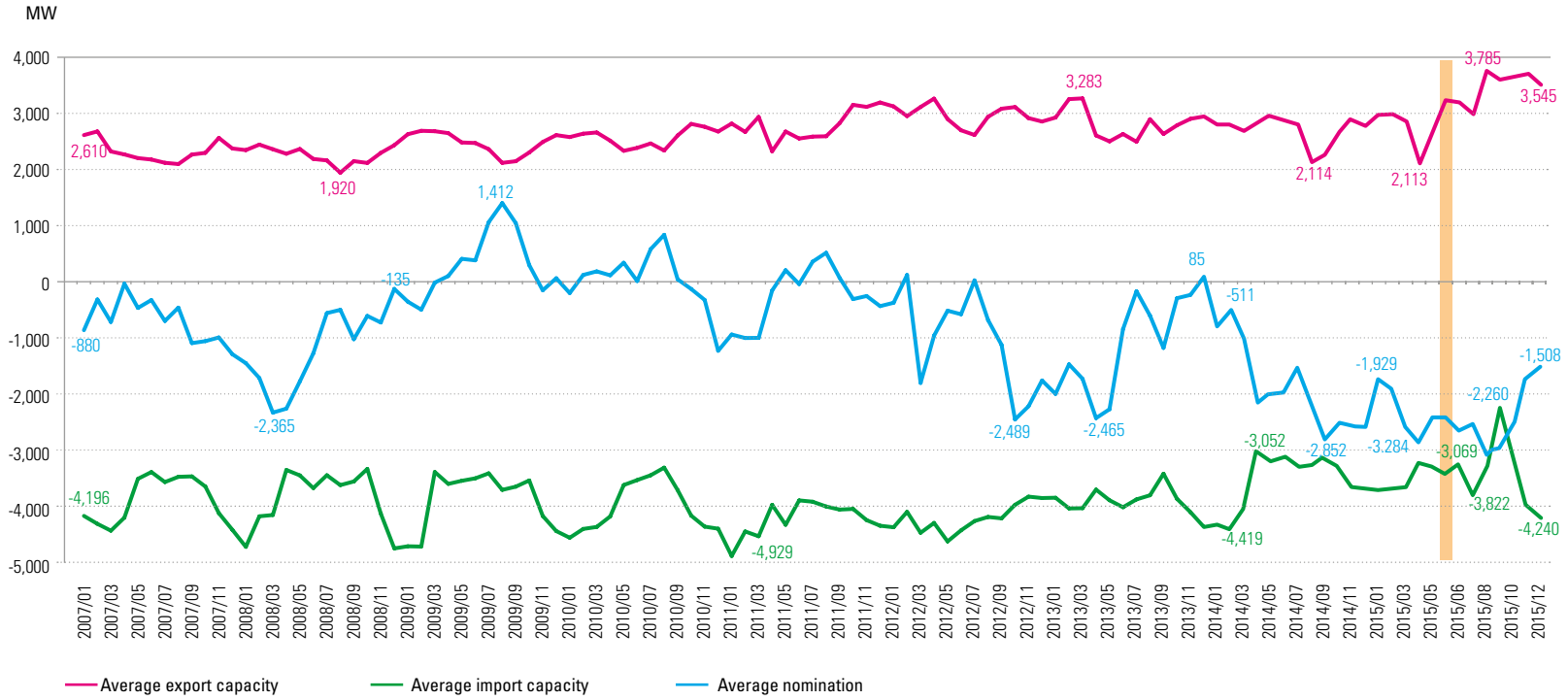
There was a further small increase in gross electricity imports in 2015, for the sixth consecutive year. Gross physical imports in fact totalled approximately 23.7 TWh in 2015, compared with 23.4 TWh in 2014 and gross physical exports totalled approximately 2.7 TWh in 2015, compared with 4.7 TWh in 2014, Gross physical exports rose again by about 12.2%, while they had already almost doubled between 2013 and 2014.

The following figure shows the trends in the import and export capacity (monthly average) made available to the day-ahead market, and their total net use. It is clear from this figure that 2015, like 2012 to 2014, saw abrupt changes in the use (nomination) of interconnection capacity. Apart from the special situation of the Belgian nuclear power plants since 2012, flow-based market coupling between the five countries of the CWE region was implemented on 20 May 2015, for delivery on 21 May 2015 (red vertical rectangle on graph). This replaced the Available Transmission Capacity (ATC) calculation mechanism. Flow-based market coupling is a method for the calculation and allocation of combined commercial transmission capacity. It enables the market to provide transmission capacity to the place where creation of social welfare is highest. Theoretically this means that more capacity can be allocated to the daily market, which may result in lower commercial transmission capacity within the intraday time frame.

Average maximum commercial use per month in 2015 was more than 2,000 MW in imports for eight months out of twelve. August 2015 was the peak for the reporting period. Analysis based on averages shows that imports for August 2015 (3.069 MW) were higher than those for September 2014 (2,852 MW). Net imports for 2015 were again higher than in 2014. This was mainly due to the unavailability of several nuclear power plants, including Tihange 2 and Doel 3, which were shut down from 25 March 2014 until they restarted, respectively, on 14 and 20 December 2015.

Overall, average import capacity has been decreasing since 2011. This decrease is related to elements that the transmission system operators of the CWE region, specifically Elia, take into account in their calculation of commercial import and export capacity. This development is the consequence not only of the absence of several nuclear plants and the corresponding reactive power, but also the volume and unpredictability of loop flows, forecasts of network status or technical failures of network elements. The seasonal nature of import capacity (more capacity in winter and less in summer) has appeared less marked since 2011. While 2014 again reflected this seasonal trend, 2015 followed a different trajectory. For the period under review, average imports of electricity experienced their lowest monthly level in September 2015, the month of the lowest production of electrical energy from nuclear sources.

Figure 4: Availability and use of interconnection capacity from 2007 to 2015 (Source: CREG)



The table below shows that average export capacity in 2015 increased by 516 MW compared with 2014. By contrast, average import capacity contracted for the fourth consecutive year. Average nomination (use) remained negative in 2015, continuing the trend from 2011 (which indicates commercial imports), compared to positive nominations in 2009 and 2010 (which indicates commercial exports). In 2015, the Belgian control area was therefore a net importer of energy, to a greater extent than all the years in the period under review.

Table 5: Average export and import capacity and average nomination per year (MW) (Sources: Elia data, CREG calculations)

Year	Average export capacity	Average import capacity	Net average export nomination
2007	2,317	-3,908	-711
2008	2,242	-3,882	-1,212
2009	2,460	-3,877	316
2010	2,558	-4,023	23
2011	2,791	-4,250	-253
2012	2,971	-4,245	-1,050
2013	2,821	-3,933	-1,109
2014	2,697	-3,562	-1,910
2015	3,213	-3,492	-2,379
Average	**2,674**	**-3,908**	**-921**

The following table shows the evolution of annual revenues from import and export capacities purchased by market actors in explicit auctions, valid for the following year or the following month. The table shows that in 2015, market actors were able to procure annual and monthly capacity for 35.5 million euros more than the previous year. Total auctions increased from 15.3 in 2011 to 102.1 million euros in 2015.

In 2015, market actors therefore expected, even more so than in previous years, significant price differentials with the Netherlands and France.

Table 6: Annual revenues from capacities offered for auction (in millions of euros) (Sources: Elia data, CREG calculations)

Year	Annual auctions	Monthly auctions	Total
2007	38.9	16.0	54.9
2008	27.1	11.6	38.7
2009	30.9	12.3	43.2
2010	25.5	8.1	33.6
2011	10.1	5.2	15.3
2012	15.6	8.5	24.1
2013	36.7	20.7	57.4
2014	42.6	24.1	66.6
2015	65.1	37.1	102.1

Despite the establishment of market coupling in November 2010 between the five countries of the CWE region (Luxembourg, Belgium, Netherlands, France and Germany), price discrepancies between day-ahead exchanges can still be observed. These discrepancies indicate saturation of the commercial interconnection capacity between two markets. The price gap is a reflection of the severity of the observed congestion. In flow-based market coupling, commercial congestion in the CWE market is caused by congestion on major CWE network elements, the so-called critical branches. Congestion limits Belgium's J-1 import and export opportunities. The daily market congestion rents depend on the price differential and additional flows on critical branches, generated by flow-based market coupling.

Changes in J-1 commercial congestion rents for the Belgian market from 1 January 2007 to 20 May 2015 are illustrated in figure 5. The figure shows the total revenues of the daily market by border. In practice, this amount is shared by the holders of long-term rights and transmission system operators on both sides of the border.

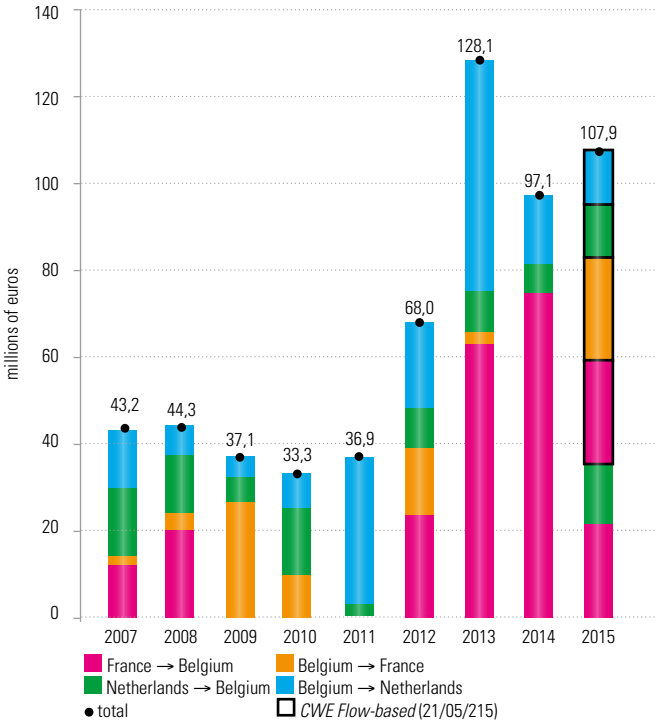
2015 is no longer comparable with previous years because of the implementation of flow-based market coupling between the five CWE region countries, which took place on 21 May 2015. Until that date, congestion rents could be compared by border. Since 21 May 2015, congestion rents have been determined by transmission system operators.

On 20 May 2015, congestion rents by border totalled 35.6 million euros, compared to 33.3 million euros for the same period in the previous year. While rents have increased on the borders from France (21.6 million euros) and the Netherlands (14.0 million euros) to Belgium, the rent increases in the reverse direction have been insignificant. Congestion rents were generated mainly by imports from France (60.7%) and the Netherlands (39.2%).
Between 1 June and 31 December 2015 (data from 21 to 31 May 2015 are not available), congestion rents were estimated at 72.3 million euros.

In total, congestion rents were 107.9 million euros for 2015, an increase of 11.1% compared to congestion rents for 2014. Under a flow-based model, congestion rents are supposed to be lower than under the the ATC system that was in place before 21 May 2015. However, conditions in 2015 were different to 2014 in terms of the need for exchanges between CWE countries, loop flows and network availability. This partly explains why congestion rents did not decrease in 2015 compared to 2014.

The current allocation of congestion rents in the CWE region was accepted by the region's regulators provided that they were regularly monitored. The allocation method may be reviewed at the request of the CWE regulators. Moreover, all European transmission system operators will introduce an allocation method under Regulation (EU) 2015/1222 of the Commission of 24 July 2015, establishing guidelines for capacity allocation and congestion management.

Figure 5: Daily congestion rents from market coupling (sources: Elia data, CREG calculations)



3.1.4.2. Analysis of the TSO's investment plan as regards consistency with the network development plan across the European Union

Readers are referred to section 3.4.2 hereof.

3.1.4.3. The allocation of capacity between Belgium and the Netherlands

On 9 October 2015, the CREG approved[50] the proposal submitted by the transmission system operator, Elia, on the capacity allocation method between the yearly, monthly and daily time-frames over the connection between Belgium and the Netherlands. In its decision, the CREG also asked Elia to harmonize and optimize these rules in the future, in collaboration with other transmission system operators in the Central Western European region (CWE). The decision was subject to prior consultation organized by the CREG. The documents relating to the consultation can be found on the CREG website.

3.1.4.4. The allocation of long-term capacity

On 9 October 2015, the CREG approved[51] the proposal submitted by the transmission system operator, Elia, concerning, firstly, the method for the allocation of available annual and monthly capacities to access managers, for energy exchanges with other supply zones and, secondly, the rules for capacity allocation via shadow auctions.

The decision sets out the European rules for harmonized auctions of long-term rights (rules for allocation of annual and monthly transmission capacity) and the rules for allocation of capacity via shadow auctions of daily capacity when implicit market coupling fails. These rules will be applied to auctions of annual and monthly transmission capacities in 2016. The main change involves the introduction of Financial Transmission Rights (FTR) instead of Physical Transmission Rights (PTR). The CREG expects that the FTR will offer the same level of firmness as the current PTR.

The CREG has, by contrast, only approved Annex 1 of the new harmonized auction rules for one year. The CREG asked Elia to submit a new proposed text for Annex 1 which addressed the introduction of transmission financial rights, in a year or where applicable earlier when the provisions of the Forward Capacity Allocation Guideline require resubmission. The decision was subject to prior consultation organized by the CREG. The documents relating to the consultation can be found on the CREG website.

3.2. Competition

3.2.1. Monitoring wholesale and retail prices

3.2.1.1. CREG studies in 2015

• SMEs and the self-employed in the energy market

At the end of 2014, the CREG organised a workshop entitled "Energy prices for SMEs and the self-employed: Have you got some time?". As part of this initiative, the CREG drafted a study[52] in March 2015 showing the savings that can be made by SMEs and the self-employed. Based on an energy bill, it takes only 15 minutes to make a proper comparison of prices and thus achieve substantial savings.

• Cost structure of nuclear plants

At the request of the Minister for Energy, the CREG carried out[53] a study in March 2015 on the updated cost structure and economic evaluation of nuclear power generation based on 2014 data. The purpose of the study was to provide the minister with the most comprehensive evaluation possible of the profits available from nuclear activities based on information provided by all stakeholders.

• Price components

The study on the price components of electricity and natural gas[54], carried out in April 2015, examined the trends in final customer electricity and natural gas prices over the period 2007-2014. The study highlights important information on the trends in specific components of natural gas and electricity prices.

50 Final Decision (B)151009-CDC-1436 on the method for allocation of capacity between different time horizons on the link between Belgium and the Netherlands.
51 Final decision (B)151009-CDC-1446 on the proposal submitted by Elia System Operator on the method for allocation to access managers of annual and monthly available capacities for energy exchanges with other supply zones and the rules for allocation of capacity through shadow auctions.
52 Study (F)150305-CDC-1408 on the SMEs and the self-employed in the energy market.
53 Study (F) 150312-CDC-1407, in relation to an update to the cost structure of electricity generation by nuclear plants in Belgium, of the economic evaluation of nuclear power generation as well as an estimate of the profits from these activities.
54 Study (F) 150430-CDC-1419 on electricity and natural gas price components.

For electricity, the average price to the end residential customer increased by 20.78% between January 2007 and December 2014. The invoiced price increased by 38.02 euros/MWh in Flanders, by 32.59 euros/MWh in Wallonia and by 15.05 euros/MWh in Brussels. The increase is explained by the development of the distribution network tariff, the renewable energy and cogeneration contribution and public offtakes.

The final average electricity price to business customers rose by 3.31%. The end user billed price decreased by 11.79 euros/MWh in Brussels and 0.07 euros/MWh in Flanders. In Wallonia, the billed price rose by 19.52 euros/MWh. These changes are explained by the development of the distribution network tariff, the renewable energy and cogeneration contribution and public offtakes.

For natural gas, the average price to the residential end customer increased by 27.90%. The end customer price increased by 12.43 euros/MWh in Flanders, by 16.52 euros/MWh in Wallonia and by 11.43 euros/MWh in Brussels. These increases are explained by the development of the energy price, the distribution network tariff and public offtakes.

The average final gas price to the business customer rose by 20.90%. The invoiced price increased by 5.99 euros/MWh in Flanders, by 7.23 euros/MWh in Wallonia and by 7.06 euros/MWh in Brussels. These increases are explained by the development of the energy price, the distribution network tariff and offtakes.

Figure 6: Average change in electricity price components by region for a Dc customer[55] (01/2007-12/2014) (source: CREG)

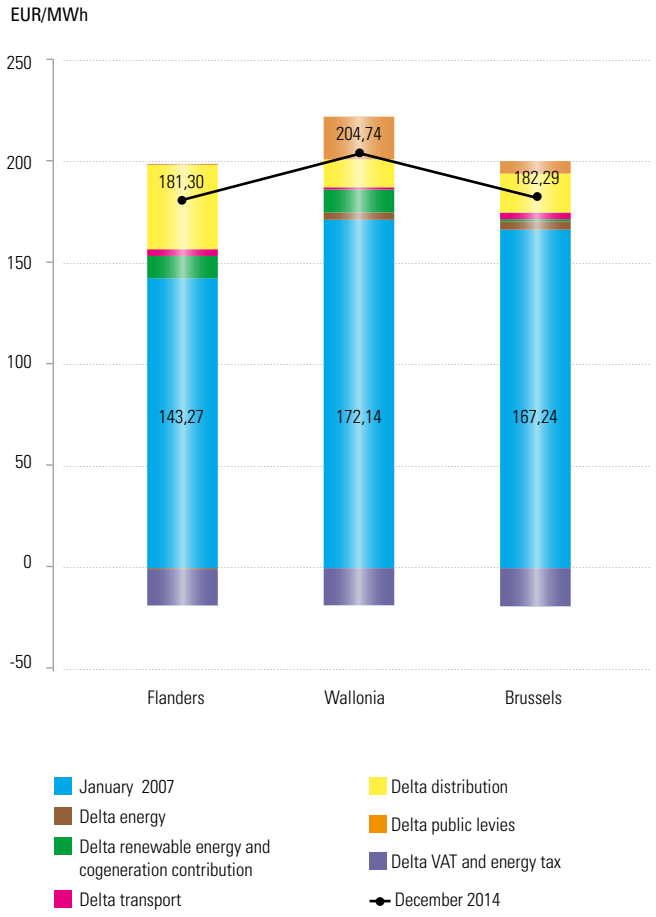
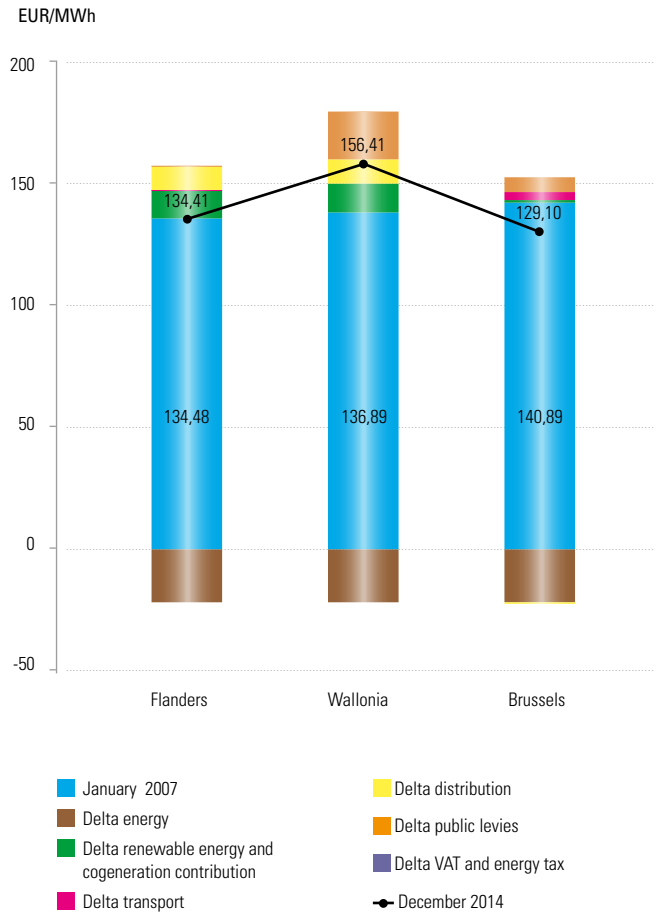


Figure 7: Average change in electricity price components by region for an Ic1 customer[56] (01/2007-12/2014) (source: CREG)



55 Dc is a residential customer consuming 3,500 kWh per year. The power connection is between 4 and 9 kW and is supplied at low voltage. The customer's consumption is distributed between 1,600 kWh per day and 1,900 kWh per night. The calculations are based on a four-person household (500 free kWh in Flanders).

56 Ic is a business customer with maximum annual power of 111 kVA supplied at low voltage (0.23 to 0.4 kV). The customer's consumption is distributed between 135.000 kWh per day and 25.000 kWh per night
Ic1: the study also presents the main changes in price components for customers with a consumption profile identical to Ic customers but connected via a medium voltage supply (MV) (26-1kV network). This customer type is referenced Ic1.

Figure 8: Average change in natural gas price components by region for a T2 customer[57] (01/200712/2014) (source: CREG)

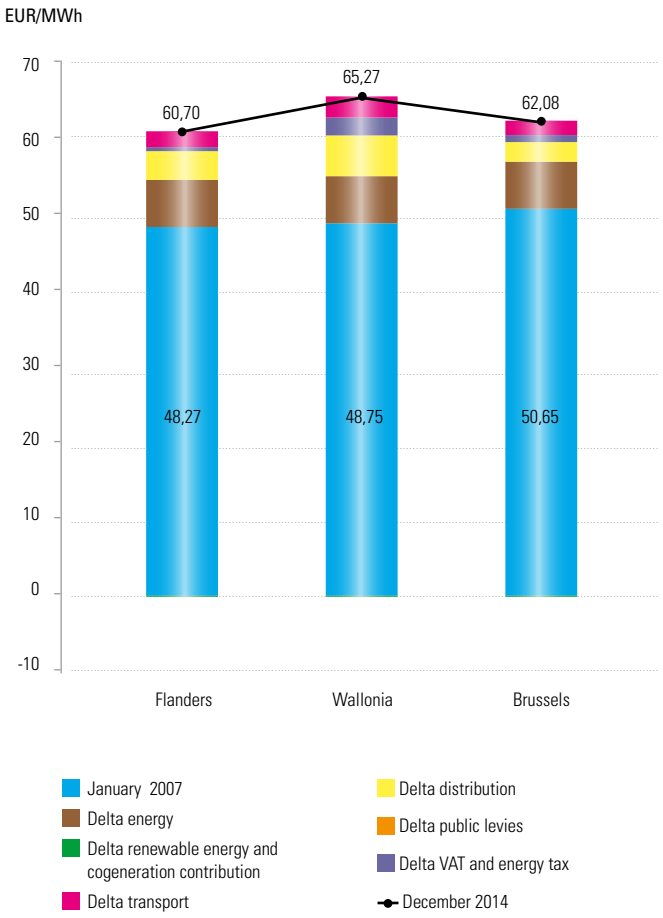
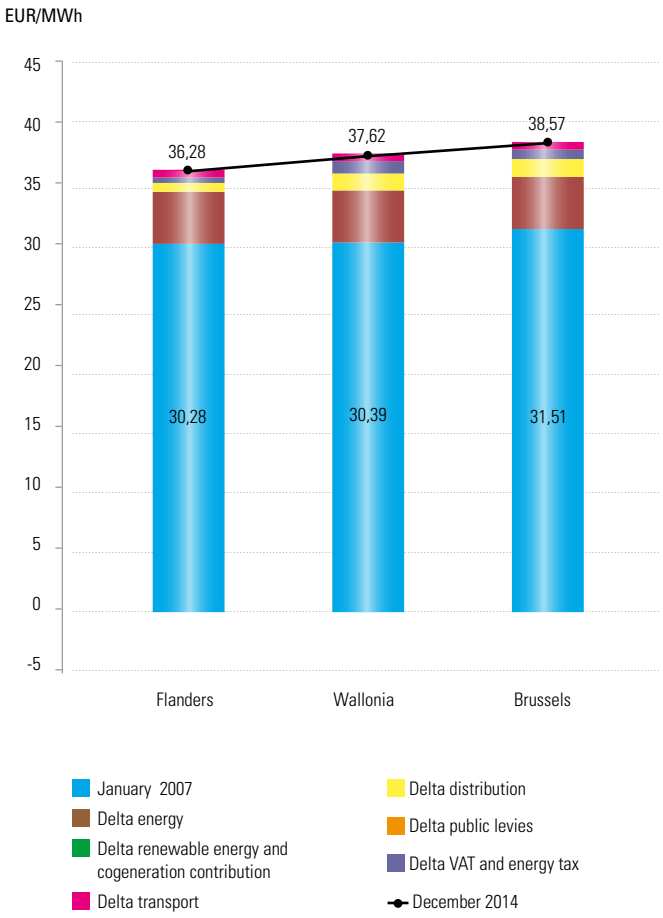


Figure 9: Average change in natural gas price components by region for a T4 customer[58] (01/200712/2014) (source: CREG)



- **Functioning of and price trends on the wholesale electricity markets in 2014**

As it has done every year since 2007, the CREG examined[59] the functioning of and price trends on the Belgian wholesale electricity market in the past year. The objective of the study is to report certain important aspects of the Belgian electricity market, including generation, consumption, exchange of electricity on power exchanges, interconnections with abroad and balancing.

The CREG's findings were as follows:

- The downward trend in the operating hours of gas power plants was reversed in 2014. Simultaneous shut-downs of several nuclear power plants, with a combined total capacity of up to 4,000 MW for several weeks, led to a significant increase in hours of operation of gas plants in Belgium by year-end. Imports from abroad also increased significantly;
- In 2014, the peak capacity requirement did not decrease, despite an increase in wind generation. It is striking that this increase causes a decrease in the degree of use of peak capacity. This phenomenon undermines the profitability of peak production plants, but rewards the evolution of demand response;
- The downward trend in peak consumption, as measured by Elia, continued in 2014. Compared to 2007, peak consumption declined by 1,300 MW. The decrease in average consumption also continued. In this study, the CREG did not conduct a thorough analysis of the potential reasons for this trend, but believes that the possibility of lower, or at least stagnant, electricity consumption in Belgium, should be taken into account in the assessment of future consumption;

57 T2 is a residential customer using natural gas for cooking and heating. This is equivalent to consumption of 23,260 kWh/year at an estimated connection capacity of 2.5 m3/h.
58 T4 is a small industrial customer (1,000 to 10,000 MWh/year) with annual use of 200 days/year. This is equivalent to consumption of 2,300,000 kWh/year at an estimated connection capacity of 100 m3/h.
59 Study (F)150604-CDC-1411 on the functioning of and price trends on the Belgian wholesale electricity market - monitoring report 2014. On 22 January 2015, the CREG had already issued a first briefing note ((Z)150122-CDC-1398) providing an overview of key developments in prices and consumption in the Belgian wholesale electricity and gas markets in 2014. This note anticipated the more detailed studies conducted annually by the CREG and referred to in this report.

- Electricity consumption is sensitive to ambient temperature: if the equivalent temperature increases by one degree, the increase in consumption is estimated at 110 MW. The temperature sensitivity is almost exclusively observed on the distribution networks, where equivalent temperature accounts for 72% of variation in electricity demand;
- Despite the unavailability of nuclear capacity and 800 MW of gas-fired plants (included in the strategic reserves and not, therefore, to be placed on the market), the daily market remained relatively resilient; relative price sensitivity was similar to 2013. On average, prices increased by about 3 euros/MWh for additional demand of 500 MW, and decreased by about 2 euros/MWh to additional supply of 500 MW. It is essential to plan as much commercial interconnection capacity as possible for the proper operation of the Belgian wholesale market;
- Following the shut-down of the Doel 2 and Tihange 3 nuclear plants at the end of March, and especially following the unavailability of Doel 4, there was a marked increase in prices on forward markets. This peaked in late September before recovering its previous level before the winter. The market is demonstrably highly sensitive to changing market conditions and sends price signals to market participants, who can react to them;
- Belgian imports increased sharply due to the unavailability of nuclear generation capacity. In 2014, 17 TWh net were imported, 10 TWh through the daily market. In the CWE region, France and, especially, Germany, are net exporters via the daily market, with volumes of 5 and 20 TWh, respectively. The Netherlands, like Belgium, is an importer, with a total of 15 TWh, although both countries have excess production capacity. Electricity exchange is thus based on economic grounds;
- The continuous upward trend in price discrepancies and congestion rents in the daily market was reversed in 2014: the average price differential with Germany contracted to 8 euros / MWh (as opposed to 10 euros/MWh in 2013) and congestion rents at the Belgian borders decreased from 128 to 97 million euros. However, in the forward market (Cal+1), the average price discrepancy with Germany increased by 4.5 euros/MWh in 2013 to almost 12 euros/MWh. The difference between spot and forward market prices was therefore significant in 2014;
- The transmission system operator must have sufficient reserves to maintain the balance of the network. For the second consecutive year, the volume of these reserves decreased. This is explained by more efficient use of interconnection capacity. Accordingly, an imbalance in Belgium can be offset by an imbalance in the opposite direction in another country. Balance managers also seem be controlling their balance better, with the result that the TSO needs to intervene less. Beyond this aspect, the volatility of imbalance prices has declined. These findings show that the economic value of flexibility surprisingly declined in 2014. The question is whether this trend will continue in the coming years.

• Profitability of electricity storage in Belgium

In April 2015 the CREG conducted a study[60] on the profitability of electricity storage in Belgium. The study is part of the CREG strategic plan and in the context, on that date, of different decisions and governmental agreements.

The study starts with an inventory of the various currently available electricity storage technologies. It then identifies the current costs in Belgium to be borne by operators of power storage units. Finally, it makes suggestions and recommendations in order to encourage, if deemed appropriate by the relevant governments, the maintenance and development of power storage capacity in Belgium.

• European comparison of prices for large industrial customers

In April 2015, PwC conducted a study on behalf of the CREG entitled "A European comparison of electricity and gas prices for large industrial consumers", analysing the electricity and natural gas prices charged to four types of Belgian industrial consumers (three for electricity and one for natural gas) and their counterparts in four neighbouring countries (Germany, Netherlands, France and United Kingdom). The study focused in particular on the different capping, degressivity and reduction mechanisms observed in taxes and network tariffs in the countries studied. The relevant foreign regulators were consulted.

Given the differences in taxes between the various countries and regional differences sometimes observed within the same country (in Belgium and Germany, for example), the study illustrates major differences between the categories of consumers and adds detail to the previous findings of other bodies.

• Supply of major industrial customers in Belgium

In September 2015, the CREG conducted a study[61] on electricity supply to major industrial customers in Belgium in 2014 with the aim of improving the transparency of the supply of electricity to major industrial customers.

An analysis of supply contracts for industrial customers (cf. billed annual consumption over 10 GWh) shows that this relates mainly to short-term contracts (1 or 2 years). In 2014, energy prices (commodity component) were found to be between 12 and 87 euros/MWh with the median between 52 and 65 euros/MWh.

60 Study (F)150423-CDC-1412 on the profitability of electricity storage in Belgium.
61 Study (F)150910-CDC-1453 on the supply of major industrial customers in Belgium in 2014.

In addition to the analysis of supply contracts, the study examined the offtaking behaviour of the 122 major industrial customers connected to the Elia network. The annual electricity offtake from the Elia network by these customers rose to 18.34 TWh in 2014. This increase is especially evident in the top five industrial customers in terms of electricity offtake volume.

This study is based, in particular, on three previous studies (January and September 2015) on energy price-setting mechanisms in force in 2013 and 2014 in the electricity supply contracts of the large industrial customers EDF Luminus[62] and Electrabel63. The CREG compiled a detailed inventory of the mechanisms for setting the different energy price components based on which major Belgian industrial customers were billed. These studies aimed to identify the main factors that influenced - and will still influence in the future - the energy prices charged to major Belgian industrial customers.

• Shareholding of the suppliers

In September 2015, the CREG conducted a study[64] on the shareholding and boards of directors of the main suppliers of electricity and natural gas that hold a federal and/or regional supply licence in Belgium.

Based on data collected on 31 December 2013, there are few, or no, links between the shareholders and the boards of directors of the groups owning these supply companies. Information on certain suppliers not subject to the annual requirement to file balance sheets and income statements with the National Bank of Belgium, is either much too difficult to obtain or is even inaccessible in some cases - this could prevent end users being able to choose their supplier knowingly.

• Suppliers' product portfolios

In a study carried out in December 2015[65], the CREG provides an overview of the composition of the product portfolios of the different suppliers operating in the Belgian electricity and natural gas market for households, SMEs and the self-employed. The market shares and product prices give an idea of the actual composition of the energy market. In addition, the potential for savings is clear. The study shows that the Belgian energy consumer is active but rarely changes product for a better market offer, still less for the best market. It is possible that the customer does not have enough knowledge of the offer on the market or that non-price factors determine the choice. The CREG advises customers not only to continue to compare offers, but especially to remain informed, preferably on price comparison websites carrying the CREG label.

3.2.1.2. Safety net

The main objective of the safety net mechanism is to bring the energy prices offered by suppliers to both residential and business customers closer to the average of our neighbouring countries (Germany, France, the Netherlands).

The safety net mechanism is in operation, in principle, until 31 December 2017. The Belgian King may, however, decide at any time to end the mechanism if it appears to result in significantly disruptive effects on the market; the CREG and the National Bank of Belgium are tasked with continuous monitoring of the mechanism to this end.

As part of the continuous monitoring, in May 2015 the CREG drafted a report[66] on possible disruptive effects on the market due to the safety net mechanism. The CREG analysis focuses on market concentration, entry and exit barriers, transparency, product offers and price changes. The CREG found no disruptive effect on the market due to the safety net mechanism in 2014. In fact, the mechanism contributes to improvements in the accuracy, clarity and transparency of the information available to market actors. Much more relevant information is available to suppliers and customers. Since the beginning of the safety net mechanism (January 2013), market concentration has decreased and Belgium has recorded one of the highest percentages of supplier change in Europe.

In September 2015, the CREG also drafted an evaluation report[67] on the mechanism. The report focuses on current transparency and competition conditions and on consumer protection within the Belgian energy market. Since its implementation on 1 January 2013, the safety net mechanism has made a clear contribution to increasing the transparency of the energy market. Suppliers, for example, are required to apply price formulas and indexing parameters that have a direct link with the electricity and gas wholesale markets.

The possible early termination of the safety net mechanism may result directly in reduced transparency, for example by the re-introduction of parameters specific to suppliers.

62 Study (F) 150122-CDC-1396 on energy price setting mechanisms in effect in 2013 in the electricity supply contracts of the large industrial customer EDF Luminus; Study (F) 150910-CDC-1441 on energy price setting mechanisms in effect in 2014 in the electricity supply contracts of the large industrial customer EDF Luminus.
63 Study (F)150910-CDC-1439 on energy price setting mechanisms in force in 2014 in the electricity supply contracts of he major industrial customers of Electrabel.
64 Study (F) 150903-CDC-1431 relating to the shareholding of the main suppliers of electricity and gas holding federal and / or regional supply licences.
65 Study (F) 151217-CDC-1496 on the composition of product portfolios by supplier and potential savings for households, SMEs and the self-employed in the Belgian electricity and natural gas market.
66 Report (Z)150507-CDC-1416 on the monitoring of disruptive effects on the market as part of the safety net mechanism introduced by Article 20bis, §§1 to 5 of the Electricity Law and Article 15/10bis, §§1 to 5 of the Gas Law.
67 Report (RA)150924-CDC-1458 on the safety net mechanism introduced by article 20bis, §§1 to 5 of the Electricity Law and article 15/10bis, §§1 to 5 of the Gas Law.

In terms of consumer protection, there have been developments in the supply of products by suppliers that require future monitoring. Some suppliers offer a variety of products under the same name, but with different characteristics. Others no longer offer certain products, but still retain a significant number of customers on this product, while removing important price information from the market.

The CREG is therefore convinced that it can contribute significantly in terms of protection and provision of information to the consumer on the basis of the information available through the safety net mechanism.

Monitoring and control of the energy market - in this case more specifically the retail market - remains a future requirement.

Finally, also as part of its legal tasks related to monitoring the safety net mechanism, the CREG annually undertakes an analysis of the parameters used by energy suppliers to calculate their prices. The 2014 analysis shows[68] that all the parameters used show a clear link with the energy stock exchanges and that they indicate the elements on which they base their calculations. Market players can thus access clear and transparent information. The report focuses on composition and trends in indexing parameters, as required by the law. The price formulas themselves, as communicated by the suppliers, also include a subscription cost, possible multiplication factors and mark-ups.

• Databases of energy prices

Since 2012, the CREG has established, for each supplier operating in Belgium, for any variable type of contract and for any new standard contract, by consultation with them, a database to record the methodology for calculation of variable energy prices, including indexation formulas and the parameters that they use. To this end, and in order to keep the database up to date, the CREG makes use of publicly available data (suppliers' websites) and the data that suppliers are obliged to submit to the CREG every month.

In addition to the variable components, the database also includes all the products that have a fixed energy component.

All the elements included in the price formula of the energy component (subscription, indexation parameters and related coefficients, renewable energy and combined heat and power contributions) are included separately in the database. The energy component of the annual energy bill is then calculated for certain standard customers[69] using relevant annual consumption levels.

The results are compared by sampling with those from the suppliers' calculation modules and the existing price comparison modules.

The CREG also continuously compares the energy component for the supply of electricity and natural gas to household and SME end customers with the average energy component of neighbouring countries.

In the context of its general monitoring missions and in particular, as part of the safety net mechanism, in 2012 the CREG also established a permanent database of energy prices in the neighbouring countries (Germany, France, the Netherlands) and in the United Kingdom.

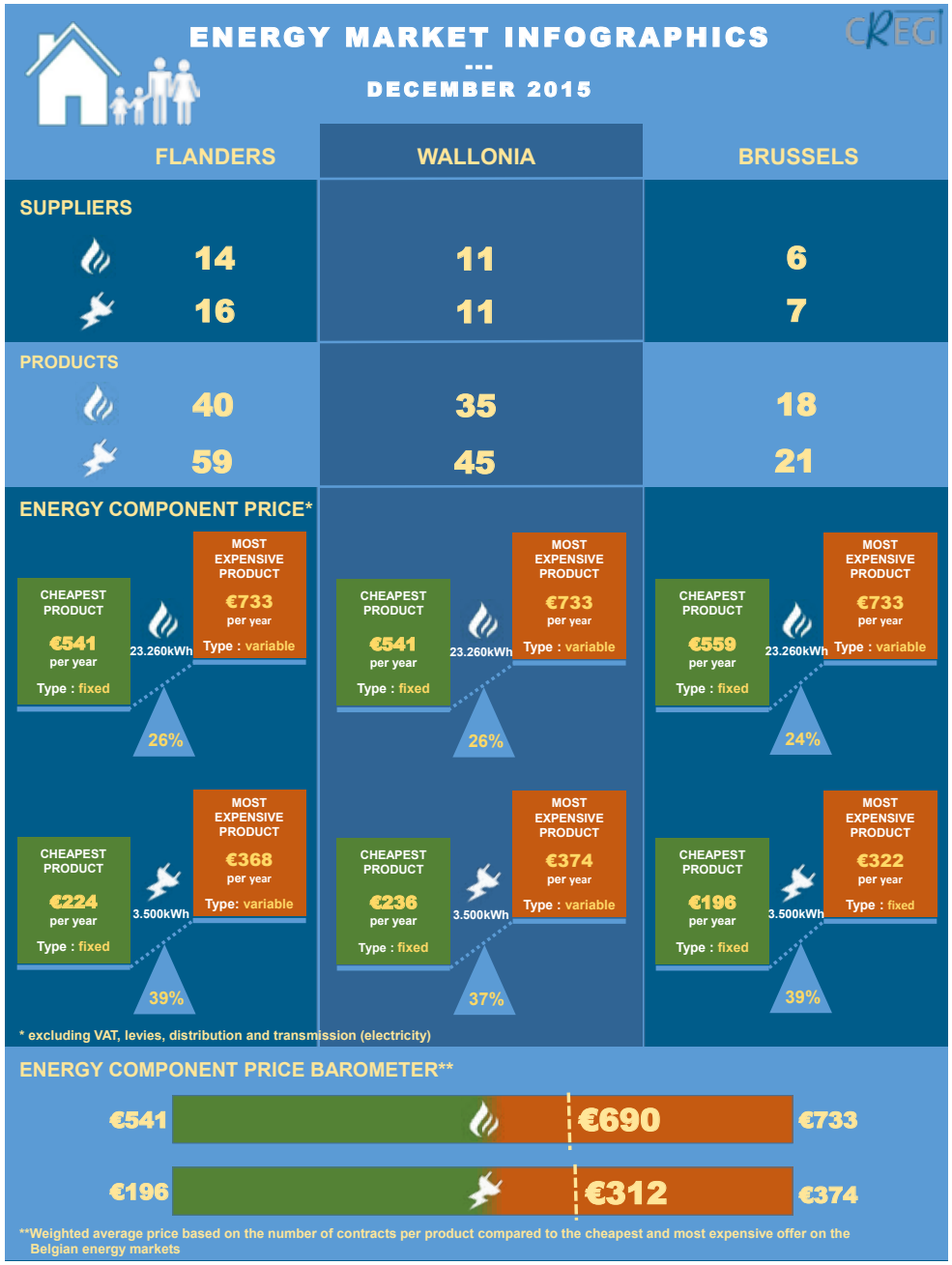
In addition to the energy component, the CREG therefore monitored the all-in prices (total bill) in Belgium and in neighbouring countries on a monthly basis since 2012.

The results obtained by the CREG are, furthermore, checked by country by comparing them with the results obtained using the price simulators of neighbouring countries.

The main findings and trends for 2015 are illustrated and commented on by the CREG in its monthly publications entitled "Overview and trends of electricity and natural gas prices offered to household customers" and "Overview and trends of electricity and natural gas prices for SMEs and the self-employed". The monthly overview of prices by provider and product has been available for SMEs and the self-employed since January 2015. SMEs and the self-employed can now have a clear idea of the position of their contract over the past six months, both for electricity and natural gas.

In an effort to improve both the content and clarity of communication, since November 2015 the CREG has used infographics that provide a clear overview of the number of active suppliers and their product offer, as well as potential savings. The first infographic relates to the residential sector, and the second to businesses (SMEs and the self-employed).

68 Report (Z)150326-CDC-1413 on gas and electricity supplier indexing parameter trends.
69 Residential electricity: 3,500 kWh/year, simple meter and SME electricity: 50,000 kWh/year, simple meter; household natural gas: 23,260 kWh/year and SME natural gas: 100.000 kWh/year


ENERGY MARKET INFOGRAPHICS

DECEMBER 2015
CREG
FLANDERS
WALLONIA
BRUSSELS
SUPPLIERS
14
16
11
11
6
7
PRODUCTS
40
59
35
45
18
21
ENERGY COMPONENT PRICE*
CHEAPEST PRODUCT
€541
per year
Type : fixed
23.260kWh
MOST EXPENSIVE PRODUCT
€733
per year
Type : variable
26%
CHEAPEST PRODUCT
€541
per year
Type : fixed
23.260kWh
MOST EXPENSIVE PRODUCT
€733
per year
Type : variable
26%
CHEAPEST PRODUCT
€559
per year
Type : fixed
23.260kWh
MOST EXPENSIVE PRODUCT
€733
per year
Type : variable
24%
CHEAPEST PRODUCT
€224
per year
Type : fixed
3.500kWh
MOST EXPENSIVE PRODUCT
€368
per year
Type: variable
39%
CHEAPEST PRODUCT
€236
per year
Type : fixed
3.500kWh
MOST EXPENSIVE PRODUCT
€374
per year
Type : variable
37%
CHEAPEST PRODUCT
€196
per year
Type : fixed
3.500kWh
MOST EXPENSIVE PRODUCT
€322
per year
Type : fixed
39%
* excluding VAT, levies, distribution and transmission (electricity)
ENERGY COMPONENT PRICE BAROMETER**
€541
€690
€733
€196
€312
€374
**Weighted average price based on the number of contracts per product compared to the cheapest and most expensive offer on the Belgian energy markets

ENERGY MARKET INFOGRAPHICS

DECEMBER 2015
CREG
FLANDERS
WALLONIA
BRUSSELS
SUPPLIERS
14
16
11
11
8
9
PRODUCTS
35
56
30
42
26
37
ENERGY COMPONENT PRICE*
CHEAPEST PRODUCT
€2.188
per year
Type : fixed
100MWh
MOST EXPENSIVE PRODUCT
€2.927
per year
Type : fixed
25%
CHEAPEST PRODUCT
€2.188
per year
Type : fixed
100MWh
MOST EXPENSIVE PRODUCT
€2.927
per year
Type : fixed
25%
CHEAPEST PRODUCT
€2.229
per year
Type : fixed
100MWh
MOST EXPENSIVE PRODUCT
€2.927
per year
Type : fixed
24%
CHEAPEST PRODUCT
€3.001
per year
Type : fixed
50MWh
MOST EXPENSIVE PRODUCT
€4.615
per year
Type : variable
35%
CHEAPEST PRODUCT
€3.087
per year
Type : fixed
50MWh
MOST EXPENSIVE PRODUCT
€4.700
per year
Type : variable
34%
CHEAPEST PRODUCT
€2.319
per year
Type : fixed
50MWh
MOST EXPENSIVE PRODUCT
€4.195
per year
Type : fixed
45%
* excluding VAT, levies, distribution and transmission (electricity)
ENERGY COMPONENT PRICE BAROMETER**
€2.188
€2.870
€2.927
€2.319
€3.907
€4.700
**Weighted average price based on the number of contracts per product compared to the cheapest and most expensive offer on the Belgian energy markets

Analysis of the energy component of prices and the continuous price comparison between Belgium and neighbouring countries shows, as illustrated in the figures below, that implementation of the safety net mechanism has brought about convergence between Belgian energy prices and those in neighbouring countries. Monitoring nonetheless remains necessary.

Figure 10: Monthly trends in the price of electricity in 2015 for a standard household customer = 3,500 kWh/year (energy component) (source: CREG)

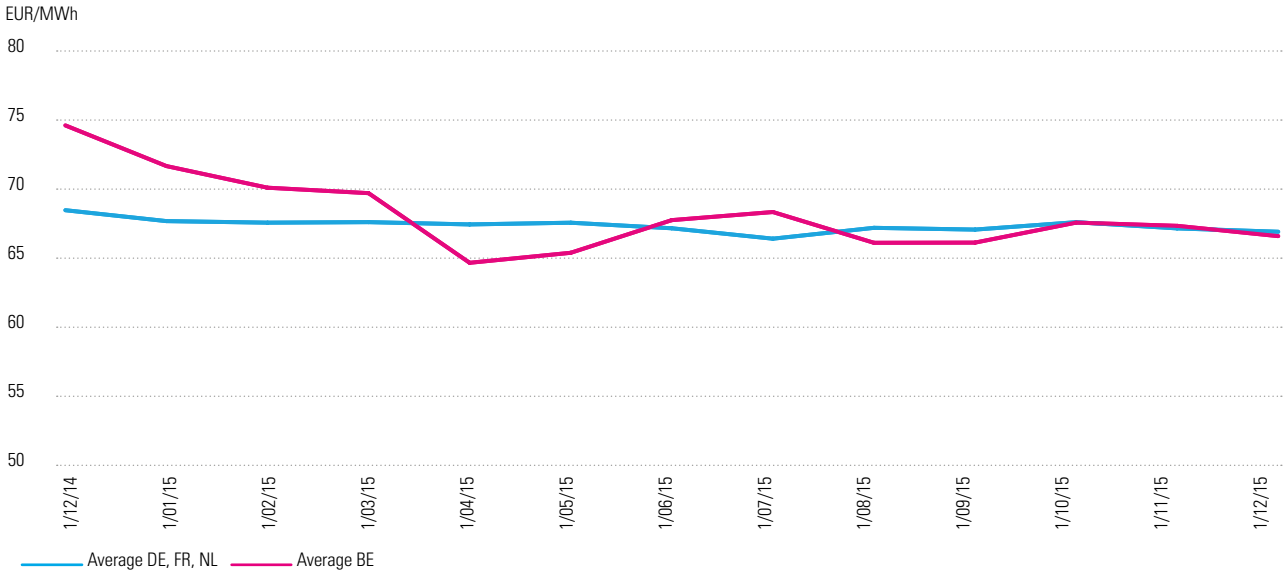


Figure 11: Monthly trends in the price of natural gas in 2015 for a standard household customer = 23,260 kWh/year (energy component) (Source: CREG)

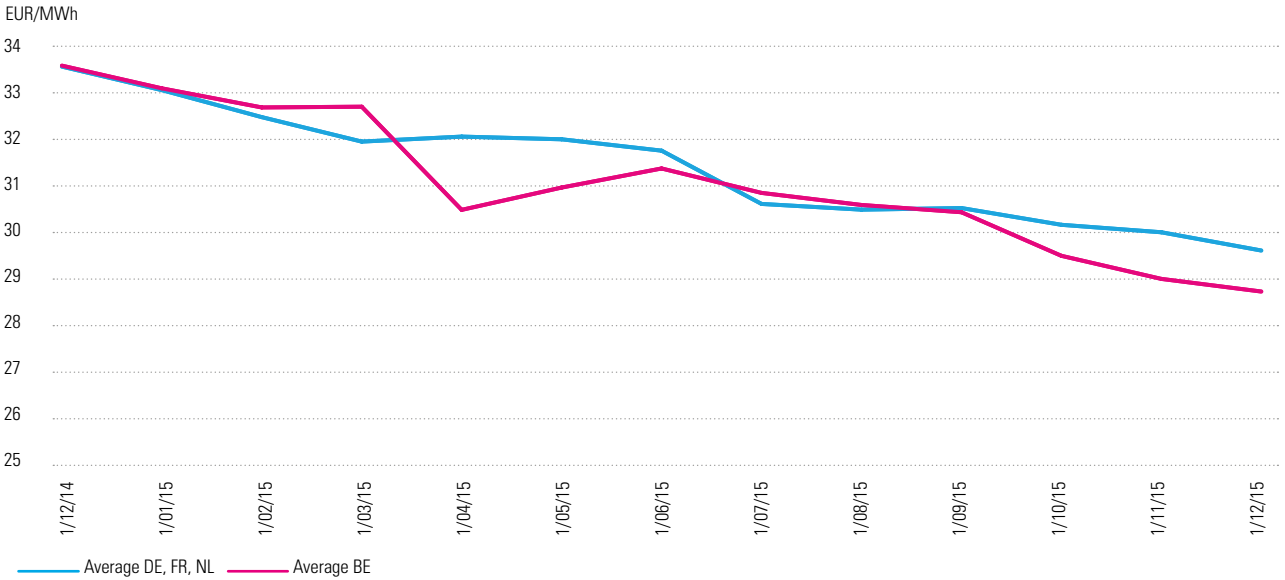


Figure 12: Monthly trends in the price of electricity in 2015 for SMEs and the self-employed (standard customer = 50,000 kWh/year (energy component) (Source: CREG)

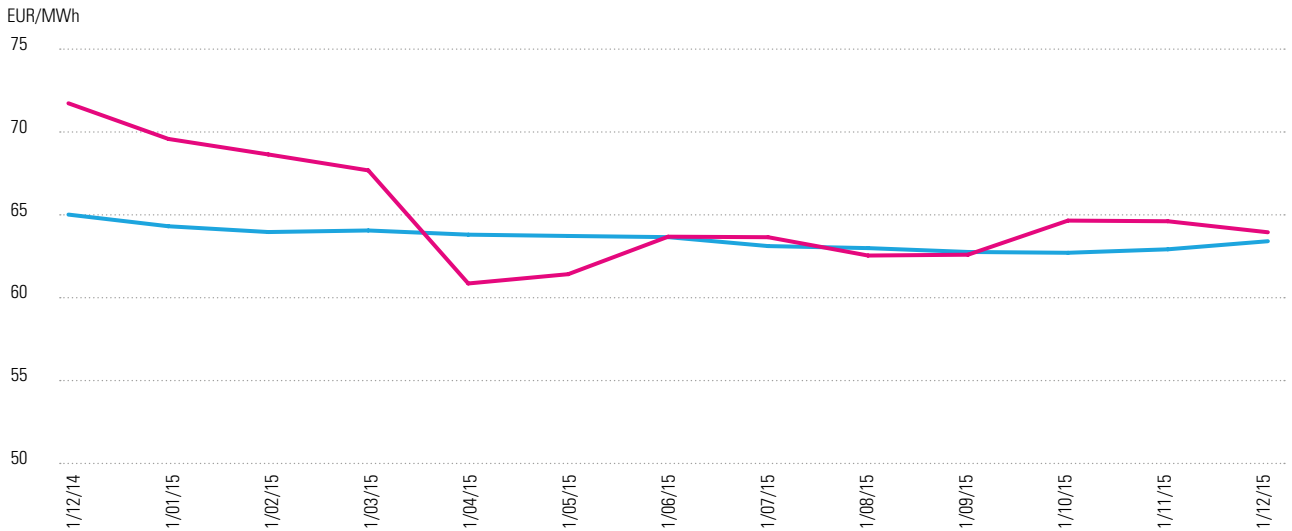
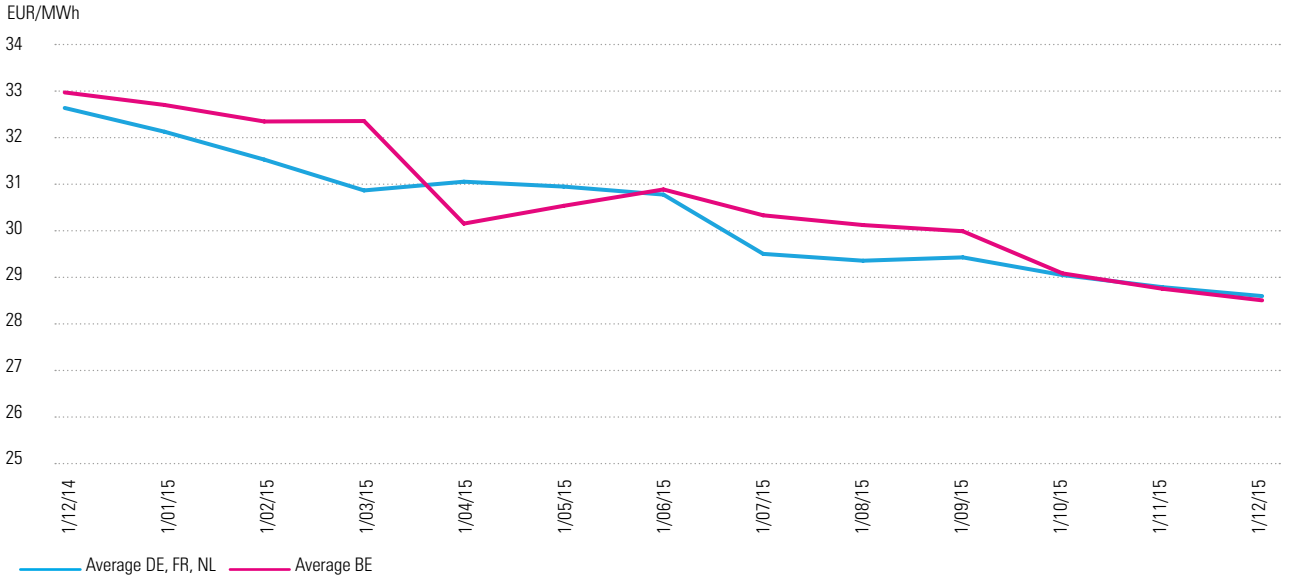


Figure 13: Monthly trends in the price of natural gas in 2015 for SMEs and the self-employed (standard customer = 100,000 kWh/year (energy component) (Source: CREG)



• Scrutiny of price indexation criteria

The CREG takes a decision per quarter per supplier, whereby it determines whether the indexation formula for the energy component was correctly applied in variable-price contracts for the energy offered to household end customers and SMEs. Furthermore, the CREG determines whether the aforementioned indexation formula complies with the full list of criteria permitted by the aforementioned Royal Decree of 21 December 2012.

As of 31 December 2015, suppliers were using thirteen different indexation parameters. The thirteen indexation parameters were used in the standard variable-price contracts of fourteen suppliers, all of which notified the CREG of standard variable-price energy contracts via the safety net mechanism. The CREG's analysis found that the aforementioned indexation parameters and the resulting indexation formulas were stated in the tariff schedules in accordance with the full list of permitted criteria.

The CREG analysed the developments in the indexation parameters and examined data accuracy. The values as calculated by the CREG matched the values used by suppliers on their tariff cards.

Lastly, the CREG used these values in the relevant price formulas and compared them with the prices stated on the tariff schedules. The CREG found, for all suppliers, that the prices stated on their tariff schedules for the energy component accurately reflected application of the price formulas with the relevant indexation parameters.

Suppliers had therefore correctly applied their standard contract indexation formulas to the variable energy component.

3.2.2. Monitoring market transparency and openness

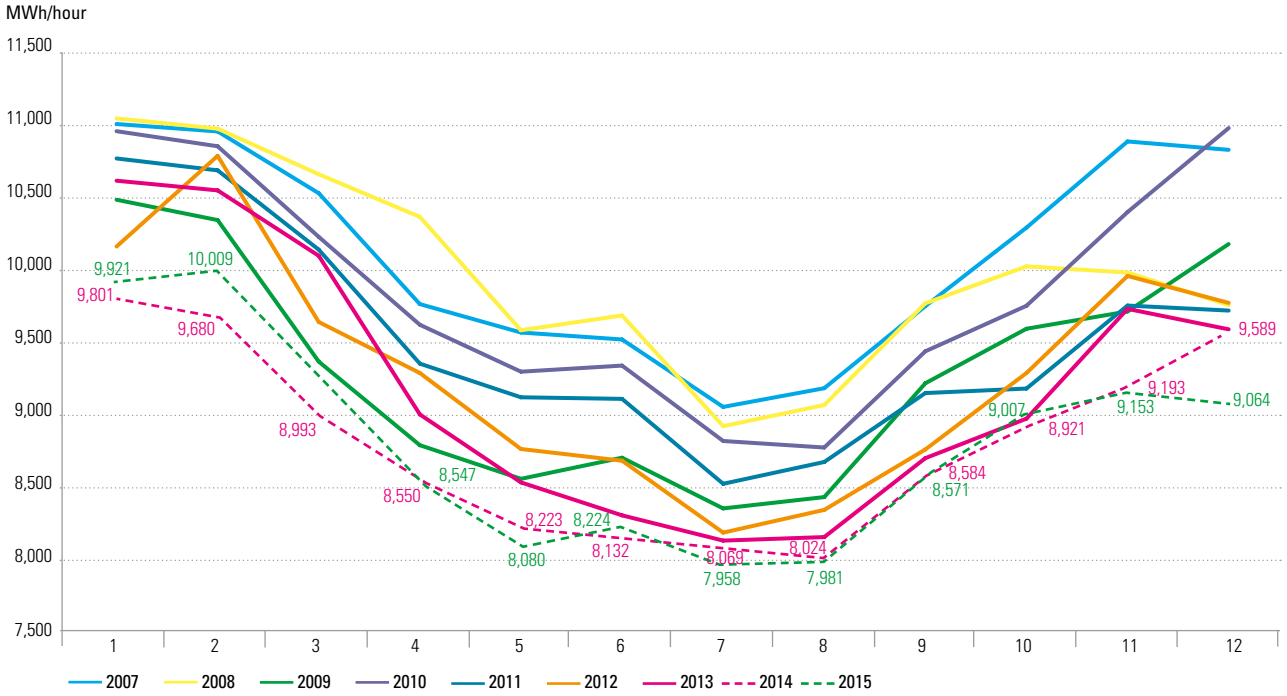
3.2.2.1. Electrical power demand

According to the data submitted to the CREG, the load[70] of Elia's network[71], excluding power used by pumping power plants, in other words net consumption plus grid losses, was estimated at 77184 GWh in 2015, compared with 77.161 GWh in 2014, i.e. almost identical to the year before; the last two years of the period under review were the lowest level of the last nine years. The peak 15-minute load in 2015 was estimated at 12,634 MW, compared with 12,736 MW in 2013 (Source: Elia for 2015: provisional data, February 2016).

Figure 14 shows the average monthly load on the Elia network for the years 2007 to 2015. After a steep reduction in the load from October 2008 following the economic crisis, which also continued into 2009, levels recovered in early 2010. The recovery did not last, however, as the decline in load recommenced the following year to reach its lowest average levels in 2014 and 2015. Compared to 2007, the decrease in the average load was 12.9% in 2015. These figures have not been weighted for meteorological factors.

Local power generation by sites connected to the Elia network is not fully taken into account in these figures. Synergrid has estimated local generation at 9.5 TWh in 2015 (8.2 TWh in 2014), i.e. a 15.9% rise compared with 2014.

Figure 14: Average monthly load on the Elia network from 2007 to 2015. (Sources: Elia data, CREG calculations)



3.2.2.2. Wholesale generation market share

The table below provides an estimate, in both absolute value (in GW) and in relative value of the Belgian market shares in electricity generation capacity at the end of each year.
The table shows that Electrabel still has a substantial market share (63.5%) of total generation, although this market share has declined in previous years. The second player in order of size is EDF Luminus, which has a market share of 12.0% in terms of generation capacity. The third player in terms of size in Belgium is the company E.ON, which has 8.7% of generation capacity. The fourth and fifth players are T-Power

70 The Elia network load is based on the injections of electrical power into Elia's grid. It includes the net generation from (local) plants injecting a voltage of at least 30 kV and the net balance of imports and exports. Power generating facilities connected to distribution systems at a voltage under 30 kV are only included if their net injection into the Elia grid is measured. The power needed to pump water into storage tanks in pumping stations connected to the Elia network is subtracted. Injections by decentralised power generating plants connected to distribution systems at a voltage under 30 kV are not included in the Elia grid load.
71 The Elia network includes grids at a voltage of at least 30 kV in Belgium as well as the Sotel/Twinerg system in the south of the Grand Duchy of Luxembourg.

and Enel, each of which has a CCGT with a capacity of just over 400 MW. A gas-steam turbine of this size represents just under 3% of generation capacity in Belgium.

The HHI, a widely used concentration index, fell slightly again in 2015. It still remains very high at 4,420. By way of comparison, a market is considered to be highly concentrated if the HHI is equal to or higher than 2,000.

Table 8 provides the same estimate, but in terms of the power actually generated. In total, the facilities connected to the Elia grid generated 54.6 TWh in 2015, which represents a continual fall since 2010 (-36.8%).

All major producers saw their market share down to the benefit of smaller producers. For Electrabel, the continuing unavailability of several nuclear power plants is the main reason. EDF Luminus was also affected by the unavailability of these nuclear power plants.

Although it is still very strong, the dominant position of Electrabel is continuing its decline from 2007. In 2015 it reached its lowest level, at 64.8% of the market share.

Table 7: Wholesale market shares in electricity generation capacity (Sources: Elia data, CREG calculations)

(GW)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2007	2008	2009	2010	2011	2012	2013	2014	2015
Electrabel	13.1	13.6	12.0	11.5	11.2	10.9	9.9	9.4	9.3	85%	85%	74%	70%	68%	67%	66%	66%	65%
EDF-Luminus*	1.9	2.0	2.3	2.4	2.4	2.3	2.2	1.8	1.7	12%	13%	14%	14%	14%	14%	15%	13%	12%
E.ON	0.0	0.0	1.4	1.4	1.4	1.4	1.0	1.0	1.3	0%	0%	8%	8%	8%	8%	7%	7%	9%
T-Power	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0%	0%	0%	3%	3%	3%	3%	3%	3%
Enel	0.0	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.4	0%	0%	0%	0%	2%	2%	3%	3%	3%
Others (< 2%)	0.4	0.4	0.5	0.7	0.7	0.9	1.1	1.3	1.3	3%	3%	3%	4%	4%	6%	7%	9%	9%
Total	**15.3**	**16.0**	**16.1**	**16.3**	**16.4**	**16.3**	**15.0**	**14.3**	**12.0**	100%	100%	100%	100%	100%	100%	100%	100%	100%
									HHI	**7,440**	**7,350**	**5,820**	**5,220**	**4,900**	**4,740**	**4,660**	**4,540**	**4,420**

* The shares of SPE and EDF Luminus have been combined since 2010, given the takeover of SPE by EDF.

Table 8: Wholesale market shares in power generated (Sources: Elia data, CREG calculations)

(TWh)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2007	2008	2009	2010	2011	2012	2013	2014	2015
Electrabel	71.2	65.8	69.4	62.4	58.0	49.8	48.9	39.8	35.4	86%	85%	81%	72%	72%	70%	69%	67%	65%
EDF-Luminus*	9.3	9.4	12.2	12.2	9.3	8.5	8.8	7.8	6.9	11%	12%	14%	14%	12%	12%	13%	13%	13%
Eneltrade	0.0	0.0	0.0	0.0	0.1	1.3	1.4	0.7	1.2	0%	0%	0%	0%	0%	2%	2%	1%	2%
E.ON	0.0	0.0	1.3	8.8	8.5	7.8	6.9	6.3	4.7	0%	0%	2%	10%	11%	11%	10%	11%	9%
Others (<2%)	2.1	2.2	2.6	3.0	4.3	4.1	4.4	5.0	6.5	3%	3%	3%	3%	5%	6%	6%	8%	12%
Total	**82.6**	**77.4**	**85.5**	**86.5**	**80.1**	**71.5**	**70.3**	**59.6**	**54.6**	100%	100%	100%	100%	100%	100%	100%	100%	100%
									HHI	**7,570**	**7,370**	**6,800**	**5,520**	**5,490**	**5,120**	**5,090**	**4,720**	**4,470**

* The shares of SPE and EDF Luminus have been combined since 2010, given the takeover of SPE by EDF.

3.2.2.3. Energy exchange

- CWE market coupling

Despite the gradual coupling of markets, price convergence in the CWE (Centre-West Europe) region has clearly not materialised, particularly over the past four years. Several factors could explain this observation, such as the shut-down of several Belgian nuclear power plants over recent years (see section 3.2.2.2 hereof).

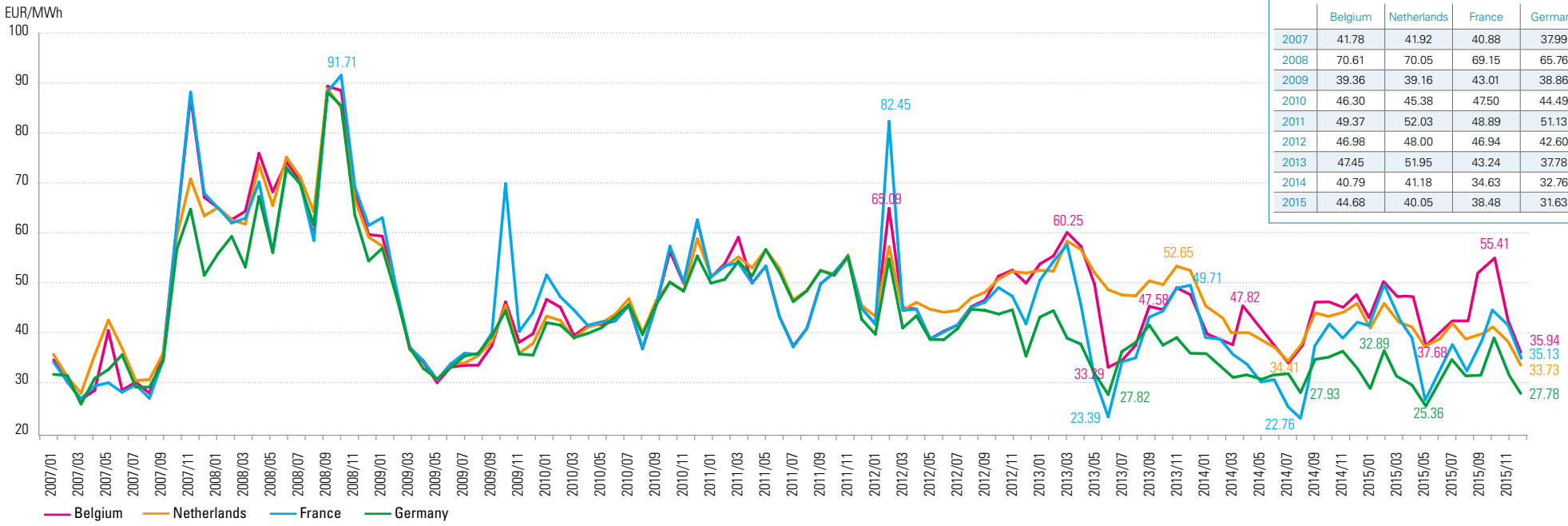
In general terms, the highest average prices over the period studied (2007-2015) were seen in the CWE region in 2008, a year not only of tariff inflation but also the first year of the financial and economic crisis. Then, average prices contracted simultaneously to reach their lowest level in August 2014 for France and in May 2015 for Germany. Belgium and the Netherlands have not yet reached their lowest level in 2009. From 2011 to 2014, the average annual price in the Netherlands was always higher than for Belgium, France and Germany. In 2015, the Belgian average day-ahead price was the highest of the four countries comprising the CWE region. The price differential between Belgium and Germany reached 41.3%. Since 2011, Germany has seen a sharp reduction in its average price, reaching a new low in 2015 for the period under review. Compared to 2014, average short-term wholesale market prices in 2015 decreased in Germany (-3.5%) and the Netherlands (-2.7%) but increased in France (11.1%) and Belgium (9.5%).

With the exception of February 2012, an extremely cold period, Belgian and French prices converged a great deal over two years from July 2010. However, from August 2012, tariff convergence lessened each month, particularly due to the closure of several Belgian nuclear power plants. This trend was accentuated and even accelerated in 2014. By contrast, in 2015 price convergence between the markets deteriorated on average between Belgium on the one hand, and the Netherlands and Germany on the other. By contrast, it improved slightly between Belgium and France.

Among the four countries, price convergence between Belgium and Germany is by far the weakest. This drop in price convergence is probably due in large part to the unavailability of an important part of Belgian nuclear capacity from August 2012.

The February 2012 price peak, resulting from the cold snap, was not observed to the same extent thereafter, despite the unavailability of several Belgian nuclear power plants. Thanks to coupling with foreign markets, Belgian short-term prices continued their general downward trend but to a much lesser extent.

Figure 15: Average monthly prices on Belpex, APX, EPEX FR and EPEX GE stock markets between 2007 and 2015 (sources: CREG, Elia, APX, Powernext EEX)



Average day-ahead prices in the CWE region (euro/MWh)

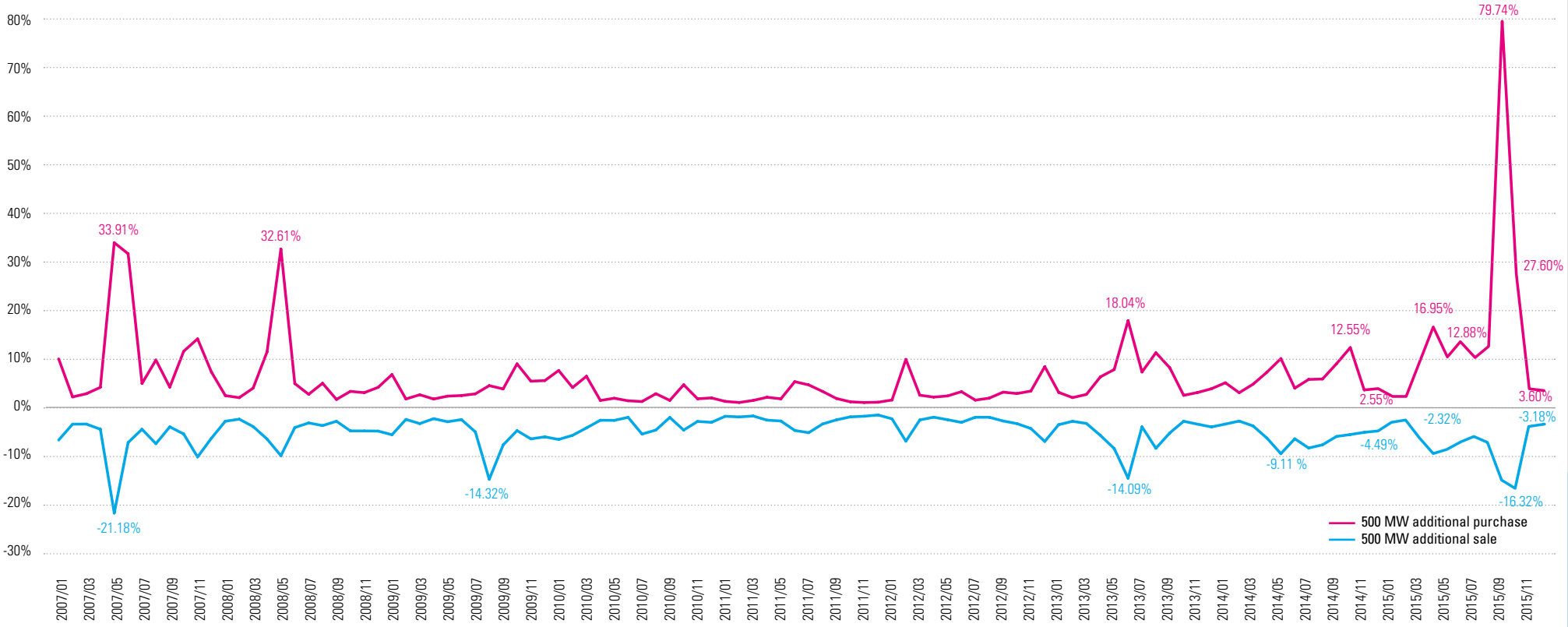
	Belgium	Netherlands	France	Germany
2007	41.78	41.92	40.88	37.99
2008	70.61	70.05	69.15	65.76
2009	39.36	39.16	43.01	38.86
2010	46.30	45.38	47.50	44.49
2011	49.37	52.03	48.89	51.13
2012	46.98	48.00	46.94	42.60
2013	47.45	51.95	43.24	37.78
2014	40.79	41.18	34.63	32.76
2015	44.68	40.05	38.48	31.63

The total volume traded on the Belpex DAM rose to 23.7 TWh in 2015, compared to 19.8 TWh in 2014, which confirmed the continual increase seen since 2009. The volume traded on Belpex accounts for 30.7% of the total offtake from the Elia grid. This sharp increase in trading volume occurred while the Belgian nuclear power plants experienced major recurring problems from 2012.

In late 2015, the Belpex DAM had fifty-four market players, twelve more than a year ago.

The sensitivity of the electricity price to additional purchase volumes (market depth) is an important factor. Figure 16 illustrates this sensitivity of the Belpex DAM price, i.e. the relative average monthly rise or fall in the price if an additional 500 MW were to be bought or sold. The greater the market sensitivity, the more easily the price can be manipulated. The high sensitivity of the price in 2007 and early 2008 contracted sharply until the end of 2012 (except in February), indicating that the market is becoming more robust in coping with additional supply and demand. From 2013, the trend reversed, reaching a climax in September 2015 for the period under review. 2015 ended as it began, with renewed strength. The volatility in September 2015 is explained by high prices (peak on 22 September, 2015 at 448.70 euros/MWh) in low volumes. To explain this particular situation in relation to the observed loop flows, the CREG organized a workshop[72] on 18 November 2015.

Figure 16: Average monthly market resilience of Belpex from 2007 until 2015 (Sources: Belpex, CREG)



72 See also Working Paper (Z)151113-CDC-1476 on the price spikes observed on the Belgian day-ahead spot exchange Belpex on 22 September 2015.

Since March 2008, Belpex has been organising an intra-day stock exchange on which market players can exchange energy on an intra-day basis. The table below shows that the volume traded increased year on year until 2014. The fact that the Belpex intraday exchange was implicitly coupled with the Dutch exchange in 2011 may have had a positive influence on the volumes traded. However, 2015 put an end to this steady progression. The traded volume stood at 642.9 GWh in 2015, i.e. lower than 2013.

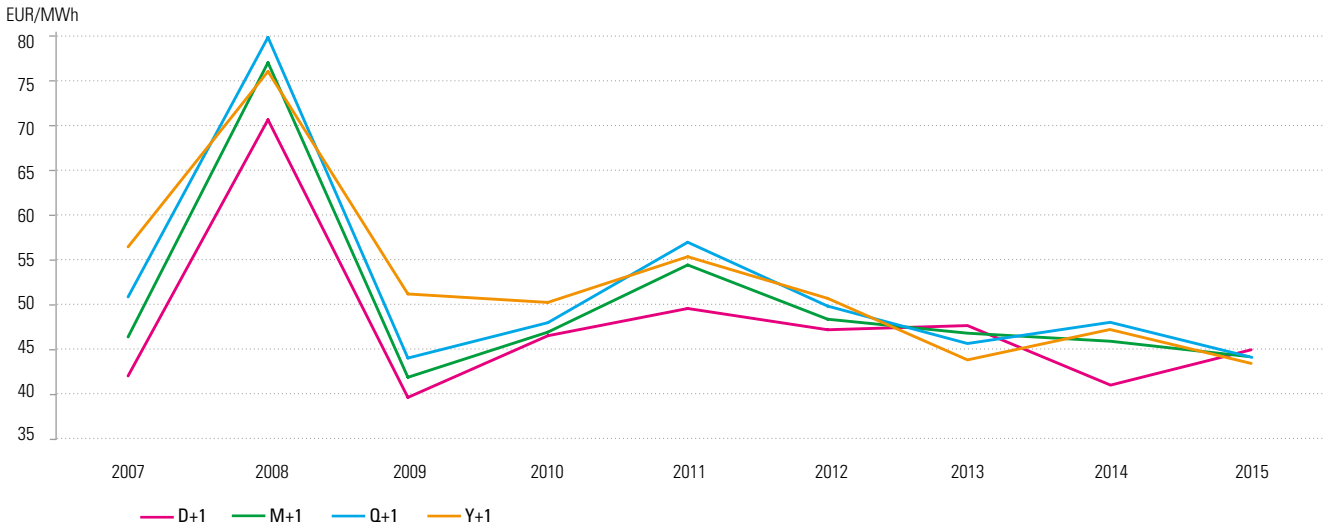
The table also shows that the 2015 average price on the intraday market increased to 44.7 euros/ MWh, i.e. comparable, but higher than 2009 and 2014. The intraday prices are higher than the day-ahead prices, mainly owing to the fact that there are more intraday transactions during peak hours, when prices are inevitably higher.

Table 9: Energy exchanged and average price on the intraday stock market (source: Belpex data)

Belpex Intraday	2008	2009	2010	2011	2012	2013	2014	2015
Market Price (euros/MWh)	84.5	41.8	49.9	55.6	51.7	52.4	42.5	44.7
Volume (GWh)	89.2	187.2	275.5	363.5	513.2	651.0	768.2	642.9

Figure 17 compares wholesale prices for short-term and long-term contracts The long-term contracts considered are contracts for the following month (M+1), the following quarter (Q+1) and the following year (Y+1). The figure gives the average transaction price per calendar year per product. While in 2014 the trend in long-term prices was different to that of short-term prices (D+1), 2015 shows, by contrast, high average price convergence, regardless of deadline. Over the reporting period, long-term prices (Y+1) are on average higher than short-term prices (D+1) for the same period of transaction, with the exception of 2013 and 2015. In 2015, one MWh of electricity to be supplied the following month was on average 1.6% cheaper than power to be supplied the following day. For supplies to be made the following quarter and the following year, the percentage was 1.4% and 3.0% respectively. Compared to 2014, average and M+1, Q+1 and Y+1 prices are falling and average D+1 prices are rising. For the four deadlines, the D+1 average prices were the highest in 2015. For the period 2007-2015 as a whole, one MWh for the following month, the following quarter and the following year was on average 5.4%, 9.0% and 10.6% more expensive than a day-ahead contract.

Figure 17: Comparison of wholesale prices for short-term and long-term contracts (Sources: Belpex data, EEX, APX, CREG calculations)



- **Study on the results of the auction of 17 May 2013 of cross-border capacity from Belgium to the Netherlands**

The CREG examined[73] the monthly auction of interconnection capacity from Belgian to the Netherlands, organized on 17 May 2013 at 11:30, following a remarkable change in the price margin between month-ahead futures traded in Belgium and those traded in the Netherlands the day before and the day following the auction: the price margin increased by 6.58 euros/MWh to 15.7 euros/MWh, i.e. an increase of 9.12 euros/MWh.

A survey was conducted to determine whether there had been a breach of Regulation No 1227/2011 of the European Parliament and of the Council of 25 October 2011 concerning the integrity and transparency of the wholesale energy market (REMIT). The CREG completed its investigation in 2015 and, in accordance with its legal powers, submitted the findings to the interested parties, including the ACER and the

73 Study (F) 150520-CDC-1418 on the results observed on 17 May 2013 during the auction of monthly electricity interconnection capacity from Belgium to the Netherlands.

ACM, the Dutch regulator. At the time, the CREG did not yet have enforcement powers under Article 13 of REMIT.

To maintain the confidence of all market players in the operation of the electricity and gas markets, the CREG encourages them to continue to report possible violations to REMIT

3.2.2.4. REMIT

The REMIT regulation (Regulation on wholesale energy market integrity and transparency) set out a series of instructions aimed at preventing and punishing market abuse in the wholesale energy sector. Since 28 December 2011, market stakeholders have had to comply with REMIT's basic rules, but the creation of coordinated monitoring structures (registering market stakeholders, data collection, monitoring, sanctions) did not become operational until 2015.

At European level, the European Commission adopted an implementing regulation on 17 December 2014, in order to determine the data to be reported accurately (including orders and transactions)[74]. The regulation, in force since 7 January 2015, stipulates that by 7 October 2015, market players engaging in transactions on organized market places must have registered with their national regulator and must declare their standard contracts while market players engaging in non-market place transactions must register and declare their contracts, usually non-standard, by 7 April 2016.

For its part, the ACER created a REMIT portal on which it published several lists (organized market places, standard contracts, Registered Reporting Mechanisms (RRMs) and insider information platforms) and manuals for the attention of market players, notably on data to be reported and the structure of the data for information sharing.

The CREG provided awareness raising for market players on these regulations by organizing two workshops. The first presented REMIT and the registration process. The second was more focused on large energy consumers covered by REMIT (see 5.7 hereof). The CREG supported the market players in their registration procedure on the CEREMP (Central European Registry for Energy Market Participants) platform, and responded to questions by market players on the declaration of contracts for the first phase from 7 October 2015.

The CREG also sought, in late 2015, a tool to assist the monitoring and management of REMIT cases. This will continue during 2016.

Also in 2015, the CREG tested the case management tool; it should be operational during the year 2016.

3.2.2.5. Charter of best practices for electricity and gas price comparison websites

In July 2013, the charter of best practices for electricity and gas price comparison websites was signed by various price comparison website service providers (see 2013 Annual Report, p. 44). The charter includes a number of requirements based on criteria that a quality price comparator must meet, as set out in the CEER "Guidelines of good practice on price comparison tools". Service providers may voluntarily sign the charter, thus undertaking to respect its requirements. Charter signatories failing to meet its provisions will be subject to the penalties stipulated in the law of 6 April 2010 on market practices and consumer protection.

In 2015, the CREG monitored compliance with the charter by the service provider signatories using sample checks. In this context, the CREG was faced with the rapid development of these websites. It posted on its website the names of the price comparison websites that had signed the charter and are complying with all of its requirements.

3.2.3. Supply price recommendations

In 2015 the CREG carried out and published a study on the composition of product portfolios by supplier and potential savings for households, SMEs and the self-employed in the Belgian electricity and natural gas market (see 3.2.1.1. hereof). This study shows that a large majority of residential consumers, SMEs and the self-employed could still make considerable savings, both by changing the product of their supplier and by changing supplier.

3.3. Consumer protection

The CREG continued to stress the consumer protection aspect of its work in 2015.

It addressed, on a voluntary basis, questions and complaints addressed to it and cooperated with the federal and regional energy mediation complaints services (see 5.6. hereof).

74 Commission Implementing Regulation (EU) No 1348/2014 of 17 December 2014 on data reporting implementing Article 8(2) and Article 8(6) of Regulation (EU) No 1227/2011 of the European Parliament and of the Council on wholesale energy market integrity and transparency (OJEU, 18 December 2014).

The CREG also continued to publish the "Overview of and trends in electricity and gas prices for household customers and SMEs", which emphasises the energy component and the comparison of Belgian all-in prices with those in neighbouring countries (the Netherlands, Germany and France) and the UK (see 3.2.1.2 hereof), and its "Monthly scoreboard for electricity and gas" (see section 3.1.2.3 hereof) on its website.

The CREG also publishes the monthly TTF101 and TTF103 listed gas prices and the quarterly indexing parameters of the variable products used by each supplier and controlled by the CREG.
In 2015 the CREG carried out and published a study on the composition of product portfolios by supplier and potential savings for households, SMEs and the self-employed (see 3.2.3. hereof).

In 2015, the CREG also conducted and published a study on electricity and natural gas price components (see section 3.2.3 hereof) that provides a clear picture of the evolution of the specific component parts of electricity and natural gas prices for residential and small industrial customers.

Finally, the specific needs of SMEs and the self-employed in the energy market (see also section 3.2.1.1 hereof) were discussed by the CREG in a study. The study shows that SMEs and the self-employed have significant savings potential through change of supplier or at the conclusion of a new contract with the same supplier.

All these publications are intended to provide the consumer with better information on the prices in force in the retail market as well as their evolution.

Lastly, readers are referred to 5.9.2 and 5.9.3, which provide details of the work carried out by the CREG within the ACER working groups of the CEER and European Commission dealing with aspects relating to consumer protection in the field of energy.

3.4. Security of supply

3.4.1. Monitoring the balance between supply and demand

• Demand[75]
The load on the Elia network was 77.18 TWh in 2015 compared with 77.16 TWh in 2014, almost a status quo between 2014 and 2015.

Table 10: Elia network load (power and peak capacity) for the period 2007-2015 (source: Elia, 2015: provisional data)

	Energy (GWh)	Peak capacity (MW)
2007	86,619	14,033
2008	87,760	13,431
2009	81,575	13,513
2010	86,501	13,845
2011	83,350	13,201
2012	81,717	13,369
2013	80,534	13,446
2014	77,161	12,736
2015	77,184	12,634

• Installed capacity and generated power
During the year 2015, the installed production capacity connected to the Elia grid in Belgium that is not part of the strategic reserve declined by 89 MW compared with 2014, from 14,591 MW to 14,502 MW. A number of small production units were effectively decommissioned and partially contracted in the strategic reserve for winter 2015-2016. The total production capacity which was part of the strategic reserve at the end of 2015 was 1,177 MW.

75 The demand under consideration here is the Elia network load, calculated as the balance of net power generation injected into the Elia network, imports and exports, minus the energy pumped by pumping power plants. It is therefore the sum of net offtake plus network losses.

Table 11: Breakdown by plant type of installed capacity connected to the Elia network as at 31 December 2015 (source: Elia)

Power plant type	Installed capacity	
	MW	%
Nuclear plants	5,926	40.9
CCGT and gas turbines	3,867	26.7
Conventional power plants	785	5.4
Co-generation	815	5.6
Incinerators	230	1.6
Diesel engines	5	0.0
Turbojets	219	1.5
Hydro (excluding pumping powerplants)	86	0.6
Pumping power plants	1,308	9.0
Onshore wind turbines	163	1.1
Offshore wind turbines	713	4.9
Biomass	385	2.7
Total	14,502	100.0

Table 12: Breakdown by primary energy type of electricity produced in 2015 by plants located on sites connected to the Elia network

Primary energy	Power generated	
	GWh	%
Nuclear[1]	24,822	43.4
Natural gas[1]	18,097	31.6
Coal1	3,702	6.5
Fuel[1]	0,0	0.0
Other self-generated power used locally[3]	1,782	3.1
Hydro (including pumping power plants)[1]	1,295	2.3
Others[1]	7,501	13.1
Total[2]	57,200	100.0

[1] Source: Elia, provisional data
[2] Source: SYNERGRID, provisional data
[3] Source: CREG calculations (values not supplied by Elia)

3.4.2. Monitoring TSO investment plans

The Elia TSO has to draw up a plan for the development of the electricity transmission grid in conjunction with the Directorate General of Energy and the Federal Planning Bureau. The draft development plan has to be submitted to the CREG for an opinion.

The plan covers a period of ten years and has to be updated every four years. It includes a detailed estimate of transmission capacity needs. In addition, the development plan defines the investment programme to be implemented by the TSO and takes account of the need for adequate reserve capacity and projects of common interest defined by the institutions of the European Union with regard to trans-European grids.

In 2015, Elia established, in this context and in cooperation with the General Directorate of Energy and the Federal Planning Bureau, a plan for the development of the federal transmission network covering the years 2015 to 2025. The draft development plan was submitted for review to the CREG (among others), which made several recommendations[76].

On 18 November 2015, the Minister for Energy approved the final version of the transmission network federal development plan 2015-2025.

The CREG also continued to monitor the implementation of the planned investment in network infrastructure in 2015.

76 Opinion (A) 150203-CDC-1399 on the 2015-2025 draft development plan of Elia System Operator..

3.4.3. Operational security of the grid

A substantial proportion of the physical energy flows comes from cross-border transits of electricity crossing the Belgian grid. According to Elia, physical transmissions amounted to approximately 2.5 TWh in 2015, compared to 3.9 TWh in 2014, or a decrease of 36.7%.

The graph below illustrates the changes in the maximum physical load for the interconnectors with France and the Netherlands.

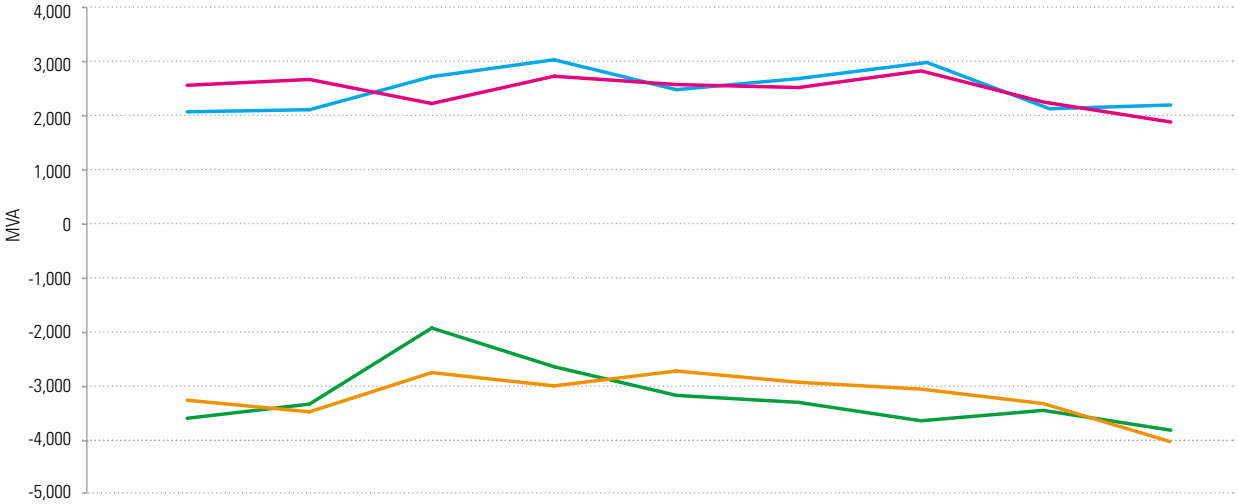
On both the French and Dutch borders, peak flow occurs when the direction is from the neighbouring country into Belgium.

Peak flow from France has once again increased over recent years, after dropping significantly in 2009, the year when phase-shifting transformers were fully operational on the Dutch border for the first time. Peak flows from France increased by 334 MVA compared to the previous year, reaching 3,795 MVA in 2015. This is the highest quarter-hourly peak for the reporting period. For 2015, 88 peak flows over connections with France were higher than the peak value recorded in 2014.

Peak flows with the Netherlands, for the first time for the reporting period, reached 4,005 MVA in 2015 and even exceeded peak flows with France. Thus the peak quarterly-hourly value for 2014(3,312 MVA), was exceeded 360 times in 2015.

To be able to cope with difficult situations, coordination with neighbouring TSOs once again appears to be even more essential. Coreso, the first regional technical coordination centre shared by several TSOs, created on 19 December 2008 by the Belgian and French TSOs (Elia and RTE), probably plays a major role here. National Grid (the British TSO) became a member of Coreso in mid-2009, while Terna (the Italian TSO) and 50 Hertz (TSO of northern and eastern Germany) have been members since late 2010.

Figure 18: Changes between 2007 and 2015 in the maximum physical load for the interconnections with France and the Netherlands (source: CREG, based on Elia data)



	2007	2008	2009	2010	2011	2012	2013	2014	2015
Max. load, BE → FR	2,055	2,095	2,714	3,030	2,470	2,678	2,963	2,154	2,199
Max. load, BE → NL	2,553	2,663	2,208	2,724	2,567	2,510	2,825	2,235	1,898
Max. load, FR → BE	-3,597	-3,333	-1,917	-2,637	-3,171	-3,301	-3,643	-3,461	-3,795
Max. load, NL → BE	-3,260	-3,477	-2,740	-2,989	-2,711	-2,922	-3,050	-3,312	-4,005

3.4.4. Investment in cross-border interconnections

Elia's short- and medium-term ambition is to strengthen existing interconnections with the Netherlands and France and to develop new interconnections with the United Kingdom, Germany and the Grand Duchy of Luxembourg.

- **Planned strengthening of the northern border (BRABO project)**

In late 2015, Elia commissioned the second Zandvliet phase shifter[77]. This provisional serial configuration comprising the first phase shifter has been performed at Zandvliet. This configuration does not specifically increase import capacity but will optimize it.

During 2016, the second Zandvliet phase shifter will be erected in a configuration in parallel with an upgrade of the second Doel - Zandvliet term from 150 to 380 kV. This goes along with the installation of a 380 / 150 kV transformer at Doel and adaptations of the 150 kV network around Doel. In the scenarios studied with a maximum output of 2,000 MW at Doel, interconnection capacity with the northern border from the Netherlands will increase by about 1,000 MW. Elia estimates that if Doel's production exceeds 2,000 MW, the additional northern border interconnection capacity of 1,000 MW will only be fully used after the completion of the second and third phases of the BRABO project.

The second and third phases provide for the installation of a new 380 kV high-voltage line between the existing high voltage substations at Zandvliet and Lillo and the Mercator high-voltage substation in the municipality of Kruibeke. The second phase, consisting of the Zandvliet-Lillo part and the Escaut spur at Liefkenshoek, is expected by 2020. Now that all the Doel nuclear units have returned to service and the total production of Doel is approximately 2,900 MW, the calendar of the third phase of the Brabo project should be updated to take account of changes in international energy flows and possibly be moved forward to 2020.

- **Planned strengthening of the southern border**

To respond to the current context of security of supply, "Ampacimon" modules were installed on existing links with France for the winter of 2014-2015. Installing these Ampacimon modules, which monitor the actual transmission capacity of lines via a thermal image of the conductors, enables Elia to make maximum use of these connections to their actual limits.

In the medium term, the links with France shall nonetheless require more structural reinforcements to continue to facilitate the operation of the market. The planned reinforcement involves replacing the conductors between Avelin / Mastaine (FR) and Avelgem (BE) and then up to Horta in Zomergem with so-called "high performance" conductors[78], in order to increase the south border capacity by about 1,000 MW.

- **Planned interconnection between Belgium and the United Kingdom (Nemo project)**

The Nemo project involves the construction of a 1,000 MW direct current submarine cable about 140 km long. The project will connect Richborough in the UK to the "Gezelle" substation, which is part of the Stevin project erected in Bruges.

The project is included in the European Commission's list of "Projects of Common Interest" (PCI)[79], confirming its general importance in the context of European energy policy and the need to strengthen the electrical infrastructure derived from it.

For Belgium, this means that energy can be exchanged directly with the UK, which should lead to greater security of supply in view of the diversification engendered by a new interconnection.

The final investment decision was taken in spring 2015 and the transformer station and cable connection contracts were allocated in mid-2015. Construction work will start in mid-2016, thus making it technically possible to deliver the new connection by the end of 2018 and launch commercial operation in 2019.

- **Planned interconnection between Belgium and Germany (ALEGrO project)**

In this project, named ALEGrO (Aachen Liège Electric Grid Overlay), a DC cable with a capacity of about 1,000 MW will be installed over a distance of about 100 km between the substations of Lixhe (Visé) in Belgium and Oberzier in Germany. The project is also included in the European Commission's list of PCI.

The new interconnection will contribute mainly, through the market diversification offered through direct energy exchange between Belgium and Germany, to an increase in security of supply and will also facilitate further market integration, which will result in price convergence within the CWE region. Moreover, ALEGrO can play an important role in the integration of an increasing number of renewable energy sources.

77 The fourth on the northern border: two at Zandvliet and two at the Van Eyck substation at Kinrooi.
78 High performance or HTLS (high-temperature low-sag) conductors expand less than conventional conductors when operating at higher temperatures. A higher power flow can therefore be conveyed in the conductors and connection capacity is thereby increased.
79 Commission Delegated Regulation (EU) No 1391/2013 of 14 October 2013 amending Regulation (EU) No 347/2013 of the European Parliament and of the Council on guidelines for trans-European energy infrastructure as regards the Union list of projects of common interest.

Elia and Amprion (the German network operator) plan to obtain, by the end of 2017, all the licences to begin the work, thus providing the technical possibility of building the new connection by the end of 2019, and starting commercial operations from 2020.

- Planned interconnection between Belgium and the Grand Duchy of Luxembourg

The transmission system of the Grand Duchy of Luxembourg is currently in two parts: the first (SOTEL) connected to the Belgian network (Elia) and the French network (RTE) and the second part (Creos) connected to the German network (Amprion). At present there is no direct connection between the two parts in normal network operation.

This structure must be adapted and extended for better integration of the Luxembourg transmission system with the European network. This integration will improve security of supply to the Grand Duchy of Luxembourg and increase the interconnection capacity between Germany, Luxembourg and Belgium in this region.

In 2015, Elia, Creos and Amprion collaborated on a project for the connection of their networks to increase security of supply in Luxembourg and carry out the first commercial coupling of the Belgian and German markets.

As part of this project, Creos will install a 400 MVA / 220 kV phase shifter at the Schifflange high voltage station (Luxembourg). Through better management of energy flows, this phase shifter will help to create a corridor for commercial exchanges between Belgium, Luxembourg and Germany. At the same time, the construction of two new 220 kV lines (the "LuxRing" project) on the Creos network will ensure better connection between the three countries. This project is also ongoing. The targeted interconnection capacity will rise initially to approximately 300 to 400 MW.

The first results of the study show, according to Elia, that a continued increase in interconnection capacity between Belgium and Luxembourg is only possible in the long term if an additional connection is made. The connection currently being studied consists of two 220 kV cables between the Aubange (BE) and Bascharage (LU) substations, equipped with optional phase-shifting transformers to control the total flow. Interconnection capacity could therefore increase to 700 MW.

Regarding the execution of a coupling between the Belgian hub and the German / Austrian / Luxembourg hub, Elia and Creos reported in January 2016 that the commercial commissioning of the BeDeLux interconnection will not take place in the first half of 2016 as originally planned. Elia and Creos also announced that they will provide market players with more information on the new schedule during 2016.

3.4.5. Measures to cover peak demand and to deal with shortfalls

3.4.5.1. Strategic reserve

A law, dated 26 March 2014, amended the Electricity Law by inserting a chapter on the strategic reserve. This law is explained in section 2.2 of the CREG 2014 Annual Report.

- Winter 2014-2015

The strategic reserve did not need to be activated during winter 2014-2015.

On 15 September 2015, the CREG published a study[80] on the strategic reserve and the operation of the market during winter 2014-2015. The study states that the Belgian control area was far from activation of strategic reserves during the winter of 2014-2015, which saw normal average temperatures and no cold snaps. The study also analyses in detail the two most critical days of last winter. Then security of supply was simulated in more extreme conditions. Finally, the study provides the outlook for next winter 2015-2016.

The CREG study shows that both the day ahead market and the real time system remained 1,000 MW below activation of the strategic reserve. A fortiori, Belgium comfortably avoided load-shedding generated by a supply security problem.

An analysis of the day with the highest price during the last winter (24 March 2014) shows that even outside the winter period, the market may experience a relative shortage, not following a cold snap but due to lower availability of generation capacity and interconnection capacity. Given this lower available capacity, rising prices enhance the economic value of production capacity and demand management, which may, in turn, positively affect security of supply.

A simulation shows that even under extreme conditions for winter 2014-2015, activation of the strategic reserve would, without doubt, have been unnecessary.

The CREG did not consider it any less necessary to create a strategic reserve to provide an indispensable supplement in the Energy Only Market to ensure security of supply in the event of a real cold snap. Moreover, the CREG believes that the current definition of the volume of the strategic reserve could be improved because at this stage its result is sometimes difficult to understand.

The available production capacity planned for next winter will be of the same order of magnitude as that of last winter.

80 Study (F)150910-CDC-1454 on the strategic reserve and the operation of the market during winter 2014-2015.

Compared to last year, the highest available capacity of the strategic reserve will enhance the resistance of the system to unplanned outages and any cold snaps.

Following this study, the CREG was heard by the Economy Committee of the House of Representatives[81] on 27 October 2015.

• Winter 2015-2016

Under the Law of 26 March 2014, a ministerial decree of 15 January 2015[82] instructed the electricity TSO, Elia, to set up from 1 November 2015 a strategic reserve for an additional volume of 2,750 MW, compared to the 750 MW already procured on the basis of the ministerial decree of 16 July 2014. In January 2015, the CREG gave its comments on the terms of the process for the constitution of strategic reserves proposed by Elia for the winter period 2015-2016[83].

In March 2015, the CREG rendered a decision[84] on the operating rules of the strategic reserve applicable from 1 November 2015. This was preceded by a consultation organized in February 2015 on Elia's proposal for the strategic reserve operating rules and on the CREG's draft decision on this proposal.

In June 2015, based on Elia's report containing the data on prices and volumes offered and a technical/economic selection of bids received in the call for tenders organized in March 2015 to set up the strategic reserve, the CREG gave an opinion[85] on the manifestly unreasonable or reasonable nature of the offered price.

The terms and conditions of the contracts of the access management parties were also adapted to ensure their compliance with the strategic reserve mechanism (see section 3.1.3.3.A.b hereof).

The "strategic reserve" public service obligation tariff, set by the CREG[86], which entered into force on 1 February 2015, amounted to 0.6110 euro/MWh of net offtake (see also section 3.1.3.5.A.b hereof).

3.4.5.2. Call for tenders for the establishment of new power generation facilities

A ministerial order of 27 March 2015 brought an end to the tender procedure for the establishment of new gas-fired open or combined-cycle power generation facilities in Belgium (cf. section 2.4 hereof)..

3.4.5.3. Shortage of electricity and load shedding plan

• CREG opinion on a draft royal decree amending the technical regulation and a draft ministerial decree modifying the load shedding plan

At the request of the Minister for Energy, the CREG issued an opinion[87] on 6 July 2015, firstly on a draft royal decree amending the technical regulations for operation of the electricity transmission system and access to it and, secondly, a draft ministerial decree modifying the load shedding plan of the electricity transmission system. The CREG made general comments and reviewed the text, article by article.

The Royal Decree of 6 October 2015 amending said technical regulation and ministerial decree of 13 November 2015 amending the load shedding plan of the electricity transmission system are detailed in section 2.3 hereof.

81 The report is available at http://www.lachambre.be/doc/CCRI/pdf/54/ic008.pdf.
82 Ministerial Decree of 15 January 2015 instructing the system operator to provide an additional strategic reserve from 1 November 2015 (Moniteur belge, 21 January 2015).
83 Note (Z)150115-CDC-1395 on proposed methods for the establishment of strategic reserves - winter 2015-2016.
84 Final decision (B)150312-CDC-1403 on the proposal of Elia System Operator on the operating rules of the strategic reserve from 1 November 2015.
85 Opinion (A) 150625-CDC-1433 on the manifestly unreasonable nature or not of the prices offered to Elia System Operator for the supply of the strategic reserve in response to the call for tenders of 17 March 2015.
86 Decision (B)150129-CDC-658E/32 on the proposal of Elia System Operator of 25 November 2014 on the adaptation from 1 January 2015 of the tariffs for public service obligations and taxes and surcharges - strategic reserve.
87. Opinion (A) 150706-CDC-1430 on a draft Royal Decree amending the Royal Decree of 19 December 2002 establishing technical regulations for operation of the electricity transmission system and access thereto, as well a draft ministerial decree amending the ministerial decree of 3 June 2005 establishing the electricity transmission system load shedding plan.

- **The measures to be taken in order to ensure an adequate volume of conventional production means to assure the security of Belgium's electricity supply.**

In June 2015, the CREG carried out a study[88] on the measures to be taken in order to ensure an adequate volume of conventional production means to assure the security of Belgium's electricity supply.

This study is part of a mission entrusted to the CREG by the Minister for Energy in fulfilment of decisions taken by the federal government. A public consultation was undertaken to obtain the views of market players.

The study defines the concept of adequacy, addresses evaluation of the need for short to medium term capacity and presents the possible means to obtain the desired level of security of supply under the current market model. It then considers the addition of a capacity payment mechanism by first examining the experiences of neighbouring countries and then suggesting avenues for possible implementation in Belgium.

Following the public consultation, meetings with various market players and an analysis of the operation of the Belgian market, the CREG reached the following conclusions:

- short and medium term evaluation of power generation capacity requirements and demand management needs to be improved. The regulations and methodology in force to date should, inter alia, provide for objectification and validation by the authorities with jurisdiction, including the CREG;
- the operation of the Energy Only Market needs to be improved, both in the short term and through structural reforms, including the strategic reserve (e.g. definition of the conditions under which a unit participating in the strategic reserve can return to the market);
- on the basis of the needs analysis, a capacity payment mechanism (CRM) could be set up in Belgium. It should be noted that, the establishment of certain CRMs abroad has often been complex and has needed several years at a cost, with efficiency that must sometimes be further demonstrated.

3.4.5.4. The Elia backup code

In accordance with the technical regulations, Elia notified the CREG, in a letter dated 2 December 2015, of a new version of the backup code incorporating legislative changes to the Royal Decree of 19 December 2002 establishing technical regulations for operation of the electricity transmission system and access to it; and to the Ministerial Order of 3 June 2005 establishing the load shedding plan of the electricity transmission system (see section 2.3 hereof).

The backup code lays down in particular the operational procedures for access managers, network users and other network operators in order to ensure the safety, reliability and efficiency of the network.

88 Study (F)150604-CDC-1422 on the measures to be taken in order to ensure an adequate volume of conventional production means to assure the security of Belgium's electricity supply.