Progress report:
Energy produced from renewable sources in Belgium 2017-2018

Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009

Photo: Nobelwind

Prepared by the CONCERE-ENOVER State-Region Consultation Group for energy, and comprising the following authorities:

Federal authority

Federal Public Service Economy, SMEs, Self-Employed and Energy - Directorate-General for Energy

Regional authorities

Flemish Region
Vlaams Energieagentschap [Flemish Energy Agency]

Walloon Region
SPW Territoire, Logement, Patrimoine, Énergie [WPS Territory, Housing, Heritage, Energy], *Département de l'Energie et du Bâtiment durable* [Department of Energy and Sustainable Building]

Brussels-Capital Region
Bruxelles Environnement/Leefmilieu Brussel [Brussels Environment] [1]

On the cover, the Nobelwind project in the North Sea. Achieved in December 2017, it is now the fourth biggest offshore wind farm in Belgium, located 45 km off the coast from Oostende. The 165 MW capacity of the park is equivalent to the energy consumption of around 186.000 households.

[1] Formerly the Brussels Institute of Environmental Management

Glossary

AATL: Commission for the Regulation of Energy in the Brussels-Capital Region
BNSWEP: Belgian North Sea Wind Energy Platform
BRUGEL: Commission for the Regulation of Energy in the Brussels-Capital Region
CBE: College of Mayor and Aldermen
COBAT: Brussels Town and Country Planning Code.
COBRACE: Brussels Code for Air, Climate and Energy
National concession: is an administrative contract by which the granting Authority allows a user to temporarily and exclusively occupy a piece of land in the public domain for a specific purpose, over the long term but precariously as grant can be revoked and tenancy is subject to the payment of a fee.
COP: Performance coefficient
CREG: Commission for Electricity and Gas Regulation
CWAPE: Walloon Energy Commission
CWATUPE: Walloon Code for Land Management, Town Planning, Heritage and Energy
DSO: Distribution System Operators
Elia: the operator of the Belgian high voltage transmission system
EPE: Prospective Electricity Study
FEDESCO: public energy services company (ESCO) created in March 2005 as a public limited company
IBGE: Brussels Institute of Environmental Management
IBGE: is the administration for environment and energy in the Brussels-Capital Region
M.B. *Moniteur Belge/Belgisch Staatsblad* [Belgian Official Gazette] (official journal of publications)
BCR: Brussels-Capital Region
RECAST EPB: The new European Directive on the Energy Performance of Buildings
RGIE: General Regulations on Electrical Installations
RW: Walloon Region
RES: Renewable Energy Sources
Sibelga: The operator of the electricity and natural gas distribution networks for the 19 communes in the Brussels-Capital Region
FPS: Federal Public Service
WPS: Wallonia Public Service
TRDE: Technisch Reglement Distributie Elektriciteit [Technical Regulation on Electricity Distribution]
TSO: Transmission System Operators
MUMM: Management Unit of the Mathematical Model (of the North Sea)
VG: Vlaams gewest [Flemish Region]
Vlarea: Vlaams Reglement inzake Afvalvoorkoming en beheer [Flemish regulation on waste prevention and management]
VLIF: Vlaams Landbouwinvesteringsfonds [Flemish Agricultural Investment Fund]
VREG: Vlaamse Reguleringsinstantie voor de Elektriciteits- en Gasmarkt [Flemish gas and electricity regulatory authority]

Table of contents

QUESTION 1: SECTOR BASED AND OVERALL SHARES AND ACTUAL CONSUMPTION OF SUSTAINABLE ENERGY IN THE LAST 2 YEARS (N-1; N-2 E.G. 2010 AND 2009) (ARTICLE 22(1)(A) OF DIRECTIVE 2009/28/EC).

Indicate the actual shares and actual consumption of sustainable energy for the last 2 years in the tables provided.

Table 1: Sector based (electricity, heating and cooling, and transmission) and global shares of energy produced from sustainable sources.

	2017	2018
RES - H&C (%)	8.04%	8.19%
RES - E (%)	17.27%	18.90%
RES - T (%)	6.58%	6.65%
Total RES share (%)	9.06%	9.42%
Of which through cooperation mechanisms	0.00%	0.00%
Surplus for cooperation mechanisms	0.00%	0.00%

[1] Share of sustainable energy sources in the heating and cooling sector: final gross energy consumption produced from sustainable sources for heating and cooling [according to the definition in Article 5(1)(b), and (4), of Directive 2009/28/EC] divided by final gross energy consumption for heating and cooling. The methodology applied is the same one applied in Table 3 of the national sustainable energy action plans.
[2] Share of sustainable energy sources in electricity production: final gross consumption of electricity produced from sustainable energy sources [according to the definition in Article 5(1)(a), and (3), of Directive 2009/28/EC] divided by final gross total electricity consumption. The methodology applied is the same one applied in Table 3 of the national sustainable energy action plans.
[3] Share of sustainable energy sources in transport: final energy share from sustainable sources consumed in the transport sector [according to the definition in Article 5(1)(c), and (5), of Directive 2009/28/EC] divided by consumption in the transport sector of 1) petrol, 2) diesel, 3) bio fuels used in road and rail transport and 4) electricity in land transport (see line 3 of Table 1). The methodology applied is the same one applied in Table 3 of the national sustainable energy action plans.
[4] Share of sustainable energy in final gross energy consumption. The methodology applied is the same one applied in Table 3 of the national sustainable energy action plans.
[5] In percentage points of the total RES share.
[6] In percentage points of the total RES share.

Table 1a: Table for calculating the contribution of sustainable energy sources in each sector to final energy consumption (ktoe)

	2017	2018
(A) Gross final consumption of renewable energy for heating and cooling	1,496.3	1,530.1
(B) Gross final consumption of electricity from renewable energy sources	1,320.5	1,443.5
(C) Gross final consumption of energy from renewable sources in transport	505.5	497.9

(D) Total gross consumption of renewable energy sources (A) + (B) + (C)	3,211.4	3,471.5
(E) Transfer of renewable energy sources to other Member States	0.00	0.00
(F) Transfer of renewable energy sources from other Member States and third countries	0.00	0.00
(G) Consumption of renewable energy sources adjusted for targets (D) - (E) + (F)	3,211.4	3,471.5

[1] Pursuant to article 5(1) of Directive 2009/28/EC, the gas, electricity and hydrogen coming from sustainable energy sources can only be taken into consideration once. Double counting is not allowed.

Table 1b: Total actual contribution (installed capacity, gross electricity production) of each technology based on sustainable energy sources in Belgium with a view to achieving the fixed 2020 targets and the indicative intermediary trajectory for the shares of energy produced from sustainable energy in the electricity sector

			2017		2018	
			MW	GWh	MW	GWh
Hydro:			1,416.9	304.8	1,417.5	311.3
		non pumped	106.9	304.8	107.5	311.3
		pumped (pure)	1,310.0	1,127.3	1,310.00	1,105.3
		mixed (total)	0.0	0.0	0.0	0.0
Geothermal			0.0	0.0	0.0	0.0
Solar:			3,616.2	3,307.3	3,986.5	3,901.8
	of which	photovoltaic	3,616.2	3,307.3	3,986.5	3,901.8
	of which	solar thermal	0.0	0.0	0.0	0.0
Tide, wave, ocean			0.0	0.0	0.0	0.0
Wind:			2,796.5	6,438.8	3,260.7	7,594.1
	of which	onshore	1,919.3	3,643.3	2,074.8	4,053.6
	of which	offshore	877.2	2,870.4	1,185.9	3,411.1
Biomass:			787.0	4,790.3	761.7	4,503.3
	of which	solid biomass	559.2	3,816.4	526.3	3,484.3
	of which	biogas	182.5	938.3	190.2	944.8
	of which	bioliquids	45.3	35.6	45.2	74.2
TOTAL			8,616.6	14,841.2	9,426.4	16,310.5
of which in CHP*				2,227.3		2,255.2

[1] Standardised in accordance with Directive 2009/28/EC and the Eurostat methodology.
[2] In accordance with the new Eurostat methodology.
[3] Only taking into account that which complies with the sustainability criteria, see Article 5(1), last paragraph of Directive 2009/28/EC.

Table 1.b: Complementary info (GWh)

	2017	2018
Renewable Municipal Solid Waste	986.8	967.6
Renewable electricity accounted in transport	-470.0	-490.4
ADJUSTED TOTAL (equal to Table 1a item B)	15,358.0	16,787.7

Table 1c: Total actual contribution (final energy consumption) of each technology based on sustainable energy sources in [name of the Member State] with a view to achieving the fixed targets for 2020 and the indicative intermediary trajectory for the shares of energy produced from sustainable energy sources in the heating and cooling sector (ktoe)

		2017	2018
Geothermal		1.2	1.3
Solar		25.4	27.6
Biomass		1,385.8	1,404.8
of which	solid biomass	1,276.5	1,292.7
of which	biogas	103.2	106.9
of which	bioliquids	6.1	5.2
Heat pumps		51.6	61.9
of which	aerothermal	30.9	38.9
of which	geothermal	16.5	18.4
of which	hydrothermal	2.9	2.9
TOTAL		1,463.9	1,495.5
of which DH		0.0	0.0
of which biomass in households		582.6	580.0

[1] Only consider substances meeting the sustainability criteria (see Article 5(1) last paragraph of Directive 2009/28/EC).
[2] District heating and/or cooling from total consumption of renewable heating and cooling (RES-DH).
[3] From total consumption of renewable heating and cooling.

Tabel 1.c: complementary info (GWh)

	2017	2018
Renewable Municipal Solid Waste	32.4	34.6
ADJUSTED TOTAL (equal to Table 1a item B)	1,496.3	1,530.1

Table 1d: Total actual contribution of each technology based on sustainable energy sources in Belgium with a view to achieving the fixed targets for 2020 and the indicative intermediary trajectory for the energy shares produced from sustainable energy sources in the transport sector (ktoe)

No multiplicator

			2017	2018
Biogasoline			86.65	93.63
	of which	Article 21(2)	1.10	4.99
Biodiesel			378.44	362.13
	of which	Article 21(2)	11.32	18.89
Hydrogen of renewable origin			0.00	0.00
Renewable electricity			40.42	42.17
	of which	road transport	1.12	1.47
	of which	rail transport	39.06	40.40
	of which	all other transport	0.24	0.29
Other renewables			0.00	0.00
	of which	Article 21(2)	0.00	0.00
TOTAL			505.51	497.93

With multiplicators

			2017	2018
Biogasoline			86.65	93.63
	of which	Article 21(2)	1.10	4.99
Biodiesel			378.44	362.13
	of which	Article 21(2)	11.32	18.89
Hydrogen of renewable origin			0.00	0.00
Renewable electricity			40.42	42.17
	of which	road transport	1.12	1.47
	of which	rail transport	39.06	40.40
	of which	all other transport	0.24	0.29
Other renewables			0.00	0.00
	of which	Article 21(2)	0.00	0.00
TOTAL			580.99	588.30

[1] Bio fuels appearing in Article 21(2) of Directive 2009/28/EC.
[2] Share in the total quantity of bioethanol/bio-ETBE.
[3] Bio fuels appearing in Article 21(2) of Directive 2009/28/EC.
[4] Share in the total quantity of biodiesel.
[5] Bio fuels appearing in article 21(2) of Directive 2009/28/EC.

QUESTION 2: MEASURES TAKEN DURING THE LAST 2 YEARS AND/OR PROVIDED AT NATIONAL LEVEL WITH A VIEW TO PROMOTING THE GROWTH OF ENERGY FROM SUSTAINABLE SOURCES, BY TAKING THE INDICATIVE TRAJECTORY INTO ACCOUNT TO ACHIEVE THE NATIONAL TARGETS IN TERMS OF RES AS SET OUT IN YOUR NATIONAL SUSTAINABLE ENERGY ACTION PLAN (ARTICLE 22(1)(A) OF DIRECTIVE 2009/28/EC).

Table 2: General overview of the policies and measures

**** Type of measure:***

FIN = financial measure

REG = regulatory measure

NC = non-fixed measure

***** Expected results:***

BC = change in behaviour

KTOE = energy produced or consumed

MW = installed capacity (in MW)

****** Group(s) and/or activity(ies) targeted:***

INV = investors

INST = installer or producers

ADM = administration

USRS = end users, public

MIX = Stakeholders

Name and reference of the measure	Type of measure*	Expected result **	Target group and/or activity***	Existing or under development	Start and end date of the measure
Federal Authority					
Mandatory blending of sustainable biofuels	REG	KTOE	INST	Existing	2009-2013 2013-2016 2017-
Tax advantages for electric vehicles and charging stations	FIN	BC	USRS	Existing	2011-2013
Draw up national policy framework for Directive 2014/94 on the deployment of alternative fuels infrastructure	REG	MW	INV	Under development	
Overhaul of offshore wind energy support mechanism	FIN	KTOE	INV	Existing	2014-
Flemish Region					
1. Renewable energy plan 2020 (update of renewable energy sub-targets)	REG	MW	Miscellaneous	Existing	2014-
2. Solar plan	FIN/REG/NB	MW/KTOE/BC	Miscellaneous	Existing	2016-
3. Solar map	NB	MW/BC	Miscellaneous	Existing	2017-
4. Recommendations for high-quality group purchases for solar panels	NB	MW/BC	Miscellaneous	Existing	2018-
5. Develop policy framework to support participation in collective projects	NB	MW/BC	Miscellaneous	Existing	2018
6. Example function Public authorities	NB	MW	ADM	Existing	2016-
7. Develop regulatory framework for batteries	FIN	KTOE	INV	Existing	2017
8. Solar guide	NB	MW/GW	INV	Existing	2018
9. Business model participation by employees for PV	NB	MW/BC	INV	Existing	2018-
10. Citizens' challenges "Solar panels everywhere"	NB	MW	Miscellaneous	Existing	2018-
11. Wind Plan 2020	FIN/REG/NB	MW/KTOE/BC	Miscellaneous	Existing	2014
12. Survey support for wind energy	NB	BC	Miscellaneous	Existing	2011-
13. Joint ventures on wind	REG/NB	BC	Miscellaneous	Existing	2014
14. Analysis of the division of provincial objectives for wind energy	NB	BC	Miscellaneous	Existing	2017
15. Encouraging small and medium-sized wind turbines	FIN	MW	Miscellaneous	Existing	2018-
16. Green Heat Action Plan and Heat Plan 2020	FIN/REG/NB	MW/KTOE/BC	Miscellaneous	Existing	2016-

17. Green heat call	FIN	KTOE	INV	Existing	2013-
18. Joint venture between various services within the Flemish Government	REG/NB	BC	ADM	Existing	2017-
19. Objective of development of heat networks for 2020 and 2030	NB	KTOE/BC	INV/ADM	Existing	2018-
20. Regulatory framework for heat networks	REG	KTOE	INV/ADM	Existing	2017-
21. Projects for informing/unburdening local authorities	NB	BC	ADM	Existing	2017-
22. Guarantees of origin for green gas and green heat	REG	BC	INV	Existing	2019-
23. Green heat in renovation advice	NB	BC	Miscellaneous	Existing	2019-
24. More efficient support for micro-CHP	FIN	KTOE	INV	Existing	2017
25. Sustainability criteria for biomass	REG	KTOE	INV	Existing	2017
26. Heat pump boiler premium	FIN	MW/KTOE	INV	Existing	2019
27. Deep geothermal warranty systems	FIN	MW/KTOE	INV	Existing	2018-
28. Provide deep geothermal energy in EPB	REG	MW/KTOE	INV	Existing	2018-
29. Energy awareness and energy behaviour survey	NB	BC	Miscellaneous	Existing	2017-
30. Website and publications	NB	BC	Miscellaneous	Existing	2002 -
31. Inventory of renewable energy in Flanders	NB	BC	Miscellaneous	Existing	2012 -
Walloon Region - Waals Gewest					
Setting of post-2012 quotas (2012-2016)	FIN/REG	MW	INV	Existing	2012>
New system, or system of green certificate allocations with reservation	FIN/REG	MW	INV	Existing	July 2014
System of green certificate allocations with reservation	FIN/REG	MW	INV	Existing	2024
Support for biogas injection via the green certificate mechanism and introduction of a guaranteed price	FIN/REG	MW	INV/USRS	Under development	
Creation of a transversal biomass committee	REG		ADM	Existing	
Procedures for calculating and implementing financial compensation in the event of activation of flexibility	REG/FIN	MW			>2016

Boiler premiums & heat network	FIN/REG	MW	USRS	Existing	2013
SOLTHERM premium	FIN/REG	MW	INV/USRS	Existing	2013
Biomass boiler premium	FIN/REG	BC/MW	INV/USRS	Existing	2011-2012
Wind: production target for 2020	NC	MW	INV	Existing	2012>
Wind: Map of potential	REG	MW	ADM/INV	Existing	2017
Biometh platform	REG	BC	INV	Existing	2011
Biometh/biogas study	NC	BC	ADM	Existing	2011
Biomass sustainability criterion	REG	BC	ADM/INV	Existing	2011>
PV less than or equal to 10 kW: QUALIWATT	FIN/REG	KTOE	INV	Existing	2014>2018
Pax Eolionica	REG			Exist	2018
Brussels-Capital Region					
1. Sustainable building facilitator - Single point of contact for professional project owners	NC	BC/MW	INV/USRS/INST	EX	2011>
2. HomeGrade - Support for individuals	NC	BC/MW	INV/USRS/INST	EP/EX	2011>
3. "Energy" premiums for the installation of solar thermal panels and heat pumps	R/FIN	BC/MW	INV/ADM	EX	2011>
4. Support mechanism for PV, cogeneration and incineration of organic waste (green certificates - GC) - review for cogeneration. Support based on certification of facilities. Adaptation of legislation concerning cogeneration in 2017.	R/FIN	BC/MW	INV/ADM	EX	2011>
5. Certification of installers	R	BC	INST	EP/EX	2011>
6. Be Exemplary: call for projects rewarding sustainable property projects. EE and RES criteria are taken into account in the call.	NC	BC/MW	ARCH/INV	EX	2012>
7. SolarClick - installation of PV on municipal and regional public buildings	FIN/NC	MW/KTOE	ADM	EX	2018>2020
8. Solar mapping	NC	MW	ADM/USRS	EX	2018>
9. Brugeo - exploitation of geothermal potential (including heat pumps)	NC	MW	ARCH/INV	EX	2016>2020
10. Promotion of photovoltaic in shared roof buildings	NC	MW	USRS	EX	2017>2020
11. EPB 2015 (new or similar) - Imposition of a level of EPB encouraging the installation of RES	REG	KTOE/MW	MIX	EX	2015>
12. Inclusion of photovoltaic and thermal panels in the Brussels green loan	FIN	MW	USRS	EX	2018>
13. Introduction of derogations for the implementation of innovative projects and, in particular, relating	NC	MW/BC	MIX	EP	2018>

to the problem of connecting decentralised production.					
14. Local production of more than 3 GWh of renewable energy at the STIB (PV and cogeneration)	REG	MW/KTOE	STIB	EP	2016-2020
15. Carrying out a feasibility study for a biomethanisation unit	NC	MW/KTOE	GVT	EX	2018
16. Support to associations promoting RES (e.g. APERe)	NC	MW	MIX	EP	2011>
17. Training for professionals (PV and PAC in 2017 and 2018)	NC	BC/MW	INST	EP	2013>

Federal government

Mandatory blending of sustainable biofuels

In 2009, the federal government imposed a blending percentage of 4% vol. on sustainable biofuel in fossil fuels provided for consumption.

In 2013, this policy was continued with the help of a new law. Registered oil companies providing diesel and/or petrol for consumption must mix at least a nominal volume of sustainable biofuels into fossil motor fuels corresponding to a percentage equal to the maximum percentage laid down in the applicable standard minus 1 unit. In concrete terms, this amounts to 4% vol. for petrol and 6% vol. for diesel on an annual basis. Administrative fines are provided if these percentages are not achieved.

On 1 January 2017, the federal government increased the mandatory blending percentage (on an annual basis) for petrol to 8.5% vol. The Royal Decree (dated 21 July 2016), which provides the legal basis for this obligation, thus opens the door for E10 petrol. E10 petrol now has a share of around 80% of the total volume of petrol.

During the calendar years 2017, 2018 and 2019, these blending percentages were not changed any further.

Offshore grid development

Through the Law of 12 May 2019, the Belgian legislator decided to introduce a competitive tender procedure for the allocation of domain concessions for the construction and operation of electricity production installations in the sea areas under the jurisdiction of Belgium, among other things within parcels in the new zone intended for this purpose in the MRP 2020-2026, which will officially be designated as the "Princess Elisabeth Windmill Zone" (with a part in the Natura 2000 area); see also the communication on the website of FPS Economy).

This legal framework is intended to enable the federal government to achieve the proposed 4 GW of offshore wind energy in the Interfederal Energy Pact and in the light of the EU targets by 2030 at the latest. Moreover, by using the competitive bidding process combined with the marketing of larger parcels and the preparation of studies under administrative coordination, the results of which are made available to potential tenderers, the aim is to reduce significantly the cost of support for the development of future offshore electricity production.

Prior to the competitive tender procedure, the competent ministers are responsible for carrying out all the necessary studies with regard to the location of the intended production installations and making the results of these (if necessary after certification) available to candidate tenderers. In addition, the network operator is responsible for studies related to the expansion of the offshore transmission network and for the construction and operation of this network (including the transformation platforms).

According to the explanatory memorandum to the aforementioned Law of 12 May 2019, the cost of the above-mentioned preliminary studies and their certification will be financed from the general resources of the Belgian State. With a view to effective and centralised follow-up of the tendering process, with clear

information and communication to potential investors, and also in view of the specialised scientific knowledge associated with the preliminary studies, a public call for tenders was launched by the Directorate-General for Energy at the end of October 2019 to appoint an external coordinator to carry out an initial needs analysis regarding the preliminary studies and assist the government in identifying the required studies and tendering, following up and interpreting these preliminary studies (including the development of a publicly accessible database and the creation of a parcel description). In this regard, a public tender will also be organised in the near future to appoint a certification body that will guarantee the creditworthiness of the preliminary studies and their results in the light of the applicable international norms and standards.

To allow the preliminary studies to start as quickly as possible (e.g. by mid-2020), in the first instance the parcels must be identified (location, size and number). To this end, it seems advisable for the network operator to draw up a proposal on the location of the parcels based on the most optimal offshore grid design, which can then be tested against the result of a number of initial preliminary studies directed by the government that relate to the parcels themselves. Elia started a preliminary study (conceptual grid design) in 2019 for the connection of the planned additional capacity (design of max. 2.1 GW). Elia wishes to have the federal government approve the final offshore grid design by 20 March 2021. Consideration is currently being given to one parcel in the Natura 2000 area and one parcel outside the Natura 2000 area, each of which with about 875 to 1,000 MW (combined 1.75 to 2 GW). With 1.75 GW, the target of 4 GW according to the energy pact is achieved (2.26 GW in 2020 + 1.75 GW post 2020 = 4.01 GW).

As regards onshore grid reinforcement (Ventilus and Boucle du Hainaut), it is crucial to ensure political support at all administrative levels (federal, regional and local authorities) with regard to permits. In principle, the timing of 2026 to 2028 in the Federal Development Plan (FDP) of the network operator can be accelerated to 2025, following the commitment of the Flemish Government to permits in March 2019. After all, on the proposal of the Flemish Minister for the Environment, Nature and Agriculture, in March 2019 the Flemish Government to approve the process memorandum entitled "Ventilus Regional Spatial Implementation Plan", in which the final establishment of the GRUP (regional spatial execution plan) is proposed by the spring of 2021 and the issue of the physical environment permit could probably be expected by the end of 2022. If Ventilus is ready in 2025, a significant part (e.g. one parcel) can be connected to the network. Boucle du Hainaut is also required for the entire 2 GW, which is more likely to be 2027. Based on a realistic timeline in which the first wind farm would still be operational as from 2025 and to always be able to offer certainty at the launch of a tender (including to potential investors) that the required onshore grid reinforcement was licensed, consideration could be given to opting for a phased organisation and launch of two separate tenders spread over time (aiming for 2025 or 2027), to get the full 2 GW operational.

By the cooperation agreement of 27 February 2014, concluded between the federal state and the three regions, a permit coordinating and facilitating committee (VCFC) was established, among other things, to simplify and speed up the licensing procedures of national and European interest according to the objectives of Regulation 347/2013, to achieve better coordination and information exchange between the licensing authorities and to streamline procedures at federal and regional level. Because the "Boucle du Hainaut" onshore grid reinforcement concerns the territory of both the Flemish and Walloon Regions, a consultation on this dossier was started within the VCFC.

On 27 June 2019, a kick-off meeting was held for the MOG II, Ventilus and Boucle de Hainaut cross-regional projects, with representatives of FPS Economy - AD Energie, Le Service publique de Wallonie - Energie, Le département Aménagement du territoire et de l'urbanisme, Flemish Government - Department of the Environment and Elia.

Here it was agreed that a high-level follow-up will take place within this working group, with a great deal of attention to EIAs and the coordination of the RUP (spatial execution plan) and the "plan secteur" (area plan). Flemish and Walloon representatives recognise the added value of exchanging elements with regard to EIAs. A subsequent consultation will be aligned with the ongoing procedures.

Flemish Region

Renewable energy plan 2020 (update of renewable energy sub-targets)

In 2014, the Flemish Government set sub-targets for green heat and for the various technologies of green electricity. These sub-targets were updated to take into account the latest developments of planned projects and growth forecasts. The new sub-targets were approved by the Flemish Government on 6 October 2017. The achievement of the sub-targets is being monitored by, among others, the Solar Plan, the Wind Plan and the Heat Plan and evaluated annually.

Solar plan

The solar plan is an action plan of the Flemish Government to increase the share of solar energy in Flanders. The plan contains 14 different actions aimed at government, citizens and businesses. A few of the measures that were implemented are summarised in the following paragraphs.

Solar map

The solar map, which was launched on 20 March 2017 at www.energiesparen.be/zonnekaart, refines the theoretical potential previously calculated by VITO. For example, for each of the more than 2.5 million roofs, the average solar radiation and potential yield of solar panels and solar boilers is determined. The calculation takes into account the orientation and gradient of each roof (part) as well as the shadow of surrounding buildings or trees. The main purpose of the solar map is to make potential investors aware of the potential of their individual roof surface area. For the solar map, the FEA worked together with Informatie Vlaanderen (AIV) and VITO (the Flemish Institute for Technological Research) to create the data set for each individual roof. The data sets were processed with an external partner into a user-friendly online tool. In 2017, the solar map received more than 500,000 unique visitors.

Recommendations for high-quality group purchases for solar panels

Private PV installations are sufficiently profitable without support. Group purchases tighten prices further. However, if group purchases are based purely on the best price, this can mean that small-scale local installation companies can escape market prices and pose risks in terms of quality. The recommendations for high-quality group purchases pay sufficient attention to the many aspects that (before, during and after installation) contribute to a successful project. These recommendations were developed after consultation with various initiators and can be included in specifications of group purchases.

Develop policy framework to support participation in collective projects

There is as yet no framework for remote balancing in Flanders. The Flemish Government is examining the feasibility of remote balancing in Flanders and the possible need for an accompanying regulatory framework. In the case of remote balancing, solar panels are placed on someone else's property and the energy produced is balanced on the investor's electricity bill. This can be on the roof of a company or a church, the premises of an association, a sports hall, school, etc. The research into remote balancing will primarily relate to the energy component of the electricity bill. In addition, the Flemish Government is looking at the policy options for making remote balancing financially attractive to investors.

A number of research projects have been set up for this purpose. A specific research project on the possibilities for participation was carried out in Ghent: Buurzame Stroom. This report examined the financial and regulatory thresholds for the start-up of an ecological and social energy project in a selected district of Ghent. Various European projects are currently running in the Buurzame Stroom area, led by Energent. The Sint-Amandsberg-Dampoort testing ground project will demonstrate a few possible approaches and make clear recommendations on how solar energy can be produced and used in a city in the best and fairest way possible.

Community-Based Virtual Power Plant

cVPP stands for community-based Virtual Power Plant. This is a model in which energy is produced decentrally by citizens. These are connected to each other virtually, creating a large energy-producing entity. The project in the Dampoort district is an INTERREG North-West Europe project led by Eindhoven University of Technology. Eight Belgian, Dutch and Irish partners are taking part in the project, which runs until 19 September 2020.

It aims to examine the extent to which 30 homes can be combined with individual batteries and solar panel installations. If each of these batteries and converters works together (via a central energy management system), it is possible to support the low-voltage network (which is useful for Enids), play a role in the supply and demand markets and consume as much local energy as possible. In addition, there is an experiment on CHP in the Groot Begijnhof.

WiseGRID

The Dampoort district is also a test location for the European test project WiseGRID, which aims to turn the district into an intelligent energy district. This is a district where the production of electricity is attuned as much as possible to consumption. It is part of a European consortium with Spanish and Portuguese partners. Residents of the Sustainable Electricity zone can be given a smart meter for this. This meter gives them an insight into their electricity consumption and production. The aim of experimentation is to examine how to control behaviour so that electricity is consumed at times when the price is low. Carthago, a Ghent car sharing system, is also participating. They are investigating whether it is possible to charge their electric car fleet only when the electricity price is low.

Exemplary role of public authorities

On the suitable roofs of its buildings, which it owns and which form part of its property strategy, the Flemish Government fits solar panels or makes the roofs of these buildings available.

To encourage public authorities to make the roofs of their public buildings available so that third parties can install PV installations on them, model specifications were drawn up. The model specifications were launched on 2 May 2018. These model specifications are a tool for public authorities to make their roofs available to others. These model specifications allow local authorities to choose a participative model. This can strengthen the link between the local authority and the citizen and increase support for renewable energy, while the municipality does not have to bear the costs itself. Various campaigns were undertaken to publicise these model specifications through newsletters and information sessions.

Develop regulatory framework for batteries

To ensure that more PV can be connected to the network, batteries offer a solution to reduce the injection into the network and stimulate self-consumption. The regulatory framework for batteries must be developed for this purpose. Firstly, development began on a policy framework for the digital meter as a necessary condition for digitising the energy market and allowing for more flexibility. The roll-out of these meters starts in 2019 and prosumers are among the priority target groups for roll-out.

Since 2018, an annual subsidy of EUR 1.2 million has been provided for batteries and home batteries. In 2018, no subsidies were given for individual home batteries, but the subsidies went to trendsetter projects on battery storage. The aim of these projects was mainly to generate knowledge about the optimal use of batteries and their implementation in the distribution network and energy system. In this way, the subsidy system for batteries could also be further underpinned. Subsidies for individual home batteries can be applied for as of 1 August 2019.

Solar guide

Many families, organisations and entrepreneurs have invested in solar panels in recent years, but to achieve the objective of the Solar Plan, more investors are needed, especially for large projects.

Participation is one of the tools for implementing more large-scale solar projects. The solar guide will be a manual with specific tips for schools, care institutions, youth, sports and other associations, owners of apartments, shops, SMEs, etc. and supporters who want to implement a new solar project through cooperation. The solar guide will address common concerns, included a step-by-step plan and a few inspiring examples in Flanders and beyond the borders and provide an overview of the most commonly used options for participation (including financial participation) (energy cooperative, crowdfunding, etc.). The Solar Guide was launched in March 2018 (https://www.energiesparen.be/zonnegids).

Business model participation by employees for PV

Companies compare the return of an investment in a PV installation with that of an investment in their own core activities and this latter return is generally higher. The FEA has commissioned a study into a business model for renewable energy installations in companies with employee participation. The study was designed to provide an insight into the optimal way to set up a system to allow employees to participate in companies' renewable energy installations. The study was delivered on 28 March 2018 and incorporated into a brochure with the essential information and a step-by-step plan (https://www.energiesparen.be/sites/default/files/atoms/files/studierapport_zonopmijnwerk.pdf). In the meantime, a number of PV projects involving employees have already been implemented (including VOLVO etc.).

Citizens' Challenge "Solar Panels Everywhere"

Two civil challenges were launched in 2018 as part of the Stroomversnelling project. A first challenge, which was launched at the end of January and ran until mid-March, called on citizens to nominate roofs of non-residential buildings themselves, which they felt should be fitted with PV panels. The nominated roofs can be supported by other citizens. The aim of this challenge is, on the one hand, to make the available solar potential on large non-residential buildings more visible and, on the other, to exert soft social pressure from the bottom up on the owners or building managers of these buildings to consider investing in solar panels.

The post-project phase of the civic challenge is ongoing. The FEA, together with a few partner organisations (such as the VEB, Fluvius, Agion, Katholiek Onderwijs Vlaanderen, etc.), will facilitate the effective realisation of solar projects as much as possible, especially by using existing projects (e.g. via the VEB and the network operators). The most popular roofs per province were offered a free feasibility study by the FEA.

Wind Plan 2020

At the end of 2014, a process was started to speed up the siting of large-scale wind energy in Flanders (Fast Lane Wind Energy). This study examines what ambitions are possible in Flanders for onshore wind energy and what consequences are associated with this, both in a legal and a policy context.

The analysis of the existing situation and the policy implemented resulted in the realisation of the Wind Power 2020 concept paper (the Flemish Wind Plan) at the end of 2016. This process aims to establish a joint venture in the form of a wind pact whereby, in consultation, a general objective for additional wind turbines is distributed provincially in Flanders. In addition, a rolling action plan has been developed to eliminate as much as possible the detected bottlenecks to facilitation and realisation.

Survey support for wind energy

Each year, the Flemish Energy Agency, in cooperation with the VREG, carries out a study into the support for wind energy among 1,000 Flemish families. These results create positive media attention for the theme: **PDF**

https://www.energiesparen.be/sites/default/files/atoms/files/draagvlak_windenergie_2018.pdf

Joint ventures between the Flemish Government and the rest of the world

A number of working groups have been set up at Flemish level to facilitate the supported development of wind energy on the one hand and to tackle a number of identified bottlenecks in a multidisciplinary manner on the other. For example, a core team with expertise in energy (including wind energy), spatial and environmental aspects was put together within the Flemish Government to support the roll-out of the action plan for the Wind Power 2020 concept paper. In addition, two thematic working groups were set up specifically on the themes of civil and military aviation. Within the latter group, a specific location along the E40 in the vicinity of Ostend Airport was also identified where the large-scale siting of wind turbines in the vicinity of airport activity is being investigated. A subsidy was also awarded for this with a view to realising this potential.

Analysis of the division of provincial objectives for wind energy

The purpose of the concept paper is to translate the general sub-target for wind energy in Flanders into provincial objectives. To this end, the core team analysed the available data on wind turbines in the various phases of permit and construction, together with the possible potential.

Encouraging small and medium-sized wind turbines

To research the possibilities and utilise the potential of small and medium-sized wind turbines, the existing circular was scrapped, as it constituted an obstacle to rather than an incentive for the application of this

technology. In addition, a new support scheme was introduced for this category of wind turbines. This consists of a competitive bidding procedure, a so-called "call" in which the most cost-efficient projects (projects that achieve the most production with the least support) are supported.

Green Heat Action Plan and Heat Plan 2020

On 2 June 2017, the concept paper on the heat plan 2020, the successor to the green heat action plan, was approved by the Flemish Government. The heat plan 2020 contains various measures to accelerate the application of green heat in Flanders. The following points describe the measures already worked out.

Green heat call

Additional support is given for the green heat produced by large-scale biomass installations (>300 kW). In 2015, the call was expanded with support for deep geothermal projects. In 2016, it was made possible to also request support in the green heat call for the heat recovery of new waste incineration plants and in 2017 the power limit for deep geothermal projects was lowered to 1 MWth. The aid scheme is subject to the rules of the General Block Exemption Regulation for companies.

The aid is granted in the form of an investment subsidy and allocated through a call system. A call is launched at least every 12 months. The applicant indicates the percentage of eligible costs required. The percentage is limited to a maximum percentage taking into account the maximum percentages from the General Block Exemption Regulation. Projects are ranked according to the level of the percentage of support requested and the CO_2 savings to be achieved. Projects with a combination of high CO_2 savings and a low requested support percentage are first supported until the available budget is exhausted. In the 2013-2019 period, six calls were organised.

Projects that use residual heat or produce and inject biomethane into the natural gas network are also eligible for the call.

After the call of 2018, the support scheme was opened up to all green heat technologies with a potential for the Flemish region and a need for support. Support for ORCs is also allowed in the case of residual heat and deep geothermal, provided there is no heat absorption potential.

Support is only provided for heat networks if the quality of the heat network is demonstrated. For this, a study is requested that demonstrates the future-proofness of the heat network.

When applying support to the projects, the use of heat in cascade is taken into account. For example, in the study of the future-proofness of heat networks, it must be demonstrated how the heat will be used in cascade, and support for ORCs is only possible if there is no more heat application.

Joint venture for heat networks between various services within the Flemish Government

On 18 September 2017, the first meeting of the joint venture for heat networks within the Flemish Government was held. Employees of the Department of the Environment (formerly Ruimte Vlaanderen), the Department of Spatial Economy and the Flemish Energy Agency, all of which have an interface with heat networks from their contexts, are committed to working more closely together. In the future, the departments will work more closely together on the following interfaces:

- Provincial objective 2030;
- Fitting heat networks into time (other work) and space;
- Evaluation of green heat call (and coordination of heat network support frameworks);
- Addressing existing construction for heat networks in urban areas;
- Informing and involving local authorities;
- Communication.

Objective of development of heat networks for 2020 and 2030

The Flanders Heat Network and the Flemish Energy Agency combined forces to arrive at a joint inventory of existing and planned heat networks in the Flemish Region. The overview contains data on the customers, the share of green heat and residual heat and technical data from the source for the various heat networks.

Regulatory framework for heat networks

The Decree of 10 March 2017 amended the Energy Decree with regard to the introduction of a regulatory framework for heat or cold networks. This framework has been further implemented and comes into effect via the implementing decision of the Flemish Government, which was definitively approved on 1 February 2019. Included are social protection measures and related public service obligations for domestic consumers of thermal energy in heat or cold networks (https://www.energiesparen.be/groene-energie-en-wkk/wetgeving).

Projects for informing/unburdening local authorities

Local authorities are informed and assisted in sustainable heat projects through various initiatives of the Flemish Government and sector federations. Together with the INTERREG project COBEN (with the Province of East Flanders as project partner), the Flanders Heat Network has written and published the "Guide to heat networks for local authorities". This guideline is made available on the revised ODE website, together with other specific background information for municipalities such as agreements, town planning regulations, projects, legal aspects and technical information (https://warmtenet.ode.be/nl/leidraad).

Guarantees of origin for green gas and green heat

In the spring of 2019, the Flemish Government adopted legislation enabling a system of GOs for gas and heat/cold from renewable energy sources ("green gas" and "green heat") to be set up.

Green heat in renovation advice

A renewed EPC is available from January 2019. This includes recommendations and cost estimates for renovation measures for various aspects of the home, including the heating and hot water installation and the application of renewable energy.

More efficient support for micro-CHP

The Energy Order was amended at the end of 2017 and provides a premium for qualitative cogeneration installations up to and including 10 kWe. This premium supports the installation of such equipment and replaces the previous certificate support. This simplification is important to limit the administrative burden both for applicants and for the Flemish Energy Agency.

Sustainability criteria for biomass

The sustainability criteria for solid and gaseous biomass (EU Directive 2015/1513) were added to the existing criteria for liquid biomass (EU Directive 2009/28/EC). This was transposed into the Flemish energy regulations. The modalities for implementing the sustainability criteria for biomass were laid down in a Ministerial Decree published on 5 April 2019.

Heat pump boiler premium

From 2019, whoever invests in the installation of a new heat pump boiler is eligible for the premium from the network operator. In 2019, the premium amounts to around EUR 400 per home or residential unit and a maximum of 40% of the invoice.

Deep geothermal warranty systems

Since May 2018, it has been possible to apply to the government for a guarantee scheme for drilling to deep geothermal energy.

European project, cooperation and support through Geothermal ERA NET

The Flemish Region participates in the Geothermal ERA NET. Two deep geothermal projects with Flemish partners have been approved for support.

Provide deep geothermal energy in EPB

The Ministerial Decree of 25 January 2018 changes the calculation method for external heat supply. As a result, deep geothermal energy for EPB declarations can be included in an external heat supply system as of 20 February 2018.

Energy awareness and energy behaviour survey

Every two years, the Flemish Energy Agency carries out market research among 1,000 families into the attitude, knowledge, actions and intentions of Flemish households with regard to their energy use, the self-

production of green energy and Flemish energy policy. These results create positive media attention for the subject.

Website and publications

The website www.energiesparen.be focuses on saving energy and green energy. Besides informing about large-scale and small-scale production possibilities for green energy, premiums, RESCert installers and participatory projects of energy cooperatives, attention is also paid to myths and misunderstandings, which often lie at the basis of resistance.

The Flemish Energy Agency also distributes leaflets and brochures. (www.energiesparen.be/publicaties).

Walloon Region

Pax Eolienica

To remove the obstacles to the development of wind power in Wallonia, the Walloon Government has identified 15 measures to encourage the development of the wind power sector. For the purpose of implementing these measures, several commitments from stakeholders will also be included in the Ecological Transition Agreement. This Ecological Transition Agreement mechanism is provided for in the Programme Decree (in force since 18/10/2018). Like a Green Deal, the Ecological Transition Agreement should enable the various players (private, public, associations, citizens, etc.) to be mobilised in a dynamic and collaborative process aimed at stimulating the energy transition in wind development projects.

The Pax Eolienica:

- Aims to simplify the administrative procedures of wind developers by enabling them to develop within a Walloon framework ensuring increased legal predictability. The current "mortality rate" of wind projects in administrative or litigation phases represents a real economic cost;
- Translates the desire of the Walloon Government to fully involve all the actors concerned in the issues related to the continued development of renewable energy production through the installation of wind turbines on Walloon territory;
- Seals the commitments of the parties involved. Thus, wind developers must undertake to ensure respect for the protection of the environment and biodiversity, the landscape and the living environment of the local residents as part of the deployment of wind turbines on Walloon territory.

The Pax measures concern sectoral conditions, acoustic monitoring, the necessary legal adaptations in the Regional Planning Code, in particular in terms of permits, the adaptations of the electricity decree allowing the deployment of micro-networks, administrative simplification, aeronautical criteria, access to cadastral data, social acceptance, taxation.

With regard to sector conditions, WPS Environment launched a public procurement contract at the end of 2018 relating to environmental impact assessment and the preparation of the environmental impact report (EIR), the project is under way.

Deep geothermal energy:

- the GEOTHERWALL_DOUBLET 1 project or the Porte de Nimy project in Mons, aimed at creating a heat network powered by a geothermal two-borehole system to be installed near Ambroise Paré hospital, with a view to meeting its heating and sanitary hot water needs.
- the MORE-GEO research project, focused on renewable energies and the sustainable use of the Earth's resources, including dynamic modelling of the geothermal reservoir of carboniferous limestone and resulting, in particular by supplementing it with an economic component, in a geothermal resource management model.
- Preliminary draft decree establishing a regional geothermal guarantee scheme for the exploration of geothermal energy deep underground
- Determination of the geothermal potential of the former coal mines in Wallonia.
- The underground decree relating to the exploitation of underground resources in Wallonia.

Brussels-Capital Region

Production from renewable energy in a highly urbanised area is a challenge that the Brussels-Capital Region has intended to meet since the early 2000s. The continuation of these efforts is part of the integrated

regional Air-Climate-Energy plan (*Plan Air Climat Energie/Lucht- Klimaat- en Energieplan*, PACE) adopted by the Brussels Government in June 2016, but also now part of the National Energy and Climate Plan that stems from European obligations linked to the clean energy package of 2018.

In particular, the PACE should enable the Region to achieve the following two strategic objectives:

- reduce its greenhouse gas emissions by 30% by 2025 (compared with 1990);
- double its energy production from renewable sources to 849 GWh of renewable energy by 2020.

Following the adoption of its PACE in October 2016, the Brussels Government adopted its "renewable energy" strategy, which is based on a scenario of very significant strengthening of the installation of photovoltaic solar panels and the deployment of heat pumps, the two most usable avenues in an urban environment. The 2017-2018 period mainly consisted of operationalising this strategy by mobilising part of the revenues from the climate fund[2].

It is in this context that the following main measures have been implemented:

Public authorities setting an example

- The SolarClick programme, which began in 2018 (the first installation was inaugurated on 25 May), continues efforts to control energy consumption in regional and municipal public buildings by equipping their best roofs with photovoltaic solar panels. By 2020, this programme will make it possible to increase the photovoltaic capacity thus installed by 13 MWp with 85,000 m^2 of panels and a CO_2 saving of around 4,500 tonnes/year from 2020. By the end of 2018, 4 MWp had already been installed, i.e. 30% of the target.
- In 2018, the Government commissioned a technical feasibility study for the installation of a biomethanisation unit in the BCR. This study compared several biowaste treatment scenarios produced in the BCR to comply with Article 22(1) of Directive 2008/98. This is a first step towards the construction of a biomethanisation unit and studies to operationalise the biomethanisation scenario of 50,000 tonnes of green waste from Brussels will complete this first study.

Adaptation of legislation regarding *green* electricity

The Brussels Region has continued its efforts to optimise the "green certificates" mechanism. This resulted in the adoption, in October 2017, of new power categories for cogeneration units, making it possible to refine support for these installations. In addition, the multiplier coefficients for cogeneration systems have been revised upwards to guarantee a fixed return time of 5 years, as described in the Order of the Brussels-Capital Region of 17 December 2015 relating to the promotion of green electricity.

Facilitation measures

To facilitate and promote solar energy on shared roofs in co-owned collective housing, standard contracts were developed during 2017. These contracts are made available to co-owners.

Support actions

In addition to the initiatives in place for several years, such as the sustainable building facilitator, training courses and Homegrade (formerly the energy company(ies)), the 2017-2018 period saw the implementation of structural initiatives strengthening the support system for RES, particularly for individuals via:

- The eligibility of photovoltaic panels under the "Brussels Green Loan" scheme. Since 2018, private individuals in Brussels have had access to a green loan at a preferential rate (0%-1%) for the installation of photovoltaic and thermal panels.
- The development and launch of the "Solar Map of the Brussels-Capital Region" in 2018. With the solar map, www.cartesolaire.brussels, Brussels Environment has provided Brussels residents with

[2] The Brussels Climate Fund is established in COBRACE, Brussels Code for Air, Climate and Energy, in Article 4.1.4.

a web interface enabling them to view the solar potential of their roof (in the BCR). In one click, the solar map gives an overview of the surface area and the production capacity that can be installed (photovoltaic and thermal technologies), as well as an estimate of the cost of investment, profitability and economic but also environmental gains.

- The BRUGEO project, which began at the end of 2016, aims to exploit the geothermal potential of the Brussels-Capital Region. The project, which will run until the end of 2020, targets the following actions:
    - Characterisation of the subsoil from a geological, hydrogeological and thermal point of view through the pooling of existing data and the performance of new laboratory and field tests;
    - mapping of the geothermal potential of the Brussels region to estimate the energy that can be supplied or absorbed by the subsoil in a given location according to the depth of the borehole and the geothermal system chosen;
    - communication promoting the use of geothermal energy in Brussels (website, events) for citizens and professionals in the sector.

In addition, Brussels Environment continues to stimulate citizens by providing financial support for complementary local and regional initiatives (APERe, etc.)

Finally, in October 2019, the Brussels government adopted its final version of the National Energy and Climate Plan, which outlines the BCR's renewable strategy up to 2030. This strategy is still based on the deployment of solar energy (photovoltaic and thermal) and heat pumps. Moreover, despite its significant current and future efforts, the Brussels-Capital Region has limited capacity in its territory. On the other hand, renewable energy resources are available (sometimes, moreover, at a lower cost) in territories neighbouring or relatively close to the Region. In this context, the Region also wishes to develop a policy of extra-muros investment in new renewable energy production facilities through, for example, the establishment of joint projects with other Member States or other cooperation mechanisms provided for in Directive 2018/2001.

QUESTION 2A: PLEASE DESCRIBE THE PROGRESS MADE RELATING TO THE ASSESSMENT AND IMPROVEMENT OF ADMINISTRATIVE PROCEDURES IN ORDER TO OVERCOME REGULATORY AND NON-REGULATORY OBSTACLES TO THE DEVELOPMENT OF ENERGY FROM SUSTAINABLE SOURCES (ARTICLE 22(1)(E) OF DIRECTIVE 2009/28/EC).

Federal Government

Within the framework of the new tender law, a new royal decree will be drawn up concerning the conditions and the procedure for allocating domain concessions for the construction and operation of installations for the production of electricity from renewable sources in the sea areas in which Belgium can exercise jurisdiction according to international maritime law.

Flemish Region

Introduction of a physical environment permit

On 25 April 2014, the Decree concerning the physical environment permit was definitively approved. The Decree contains the procedure under which the physical environment permit will be issued. This new decree is a framework decree. The actual implementation will become clear in the implementing decisions to be drawn up. The physical environment permit became effective in Flanders on 23 February 2017.

A physical environment permit aims to integrate the former separate building and environmental permit and streamline the advisory and decision-making powers in the permit procedure. It is a means of achieving a more efficient authorisation process with maximum synergy of the steps to be followed. More attention is being paid to the preliminary stage of permit granting and good cooperation between the initiator and the authorities involved and between the authorities involved.

Wind Plan

The Wind Power 2020 concept paper defines, among other things, the following specific actions to support the realisation of wind energy potential:

- Establishment of an inter-governmental consultation on provincial wind turbine objectives.
- Support to provinces in the research and analysis of wind potential.
- Maximising the wind potential of Flemish port areas.
- Maximising wind potential in large-scale industrial areas.
- Setting up a thematic working group on defence.
- Setting up a thematic working group on civil aviation.
- Investigating opportunities to accelerate the turnaround time of permit procedures.
- Strengthening and increasing support: Developing a Wind Guide. Voluntary declaration of commitment with measures to increase support.
- Promoting energy maximisation of favourable project zones.
- Determining the long-term potential for wind energy.
- Facilitating the possibilities of wind turbines at radar locations/airports.

Walloon Region

The Pax Eolienica:

- Aims to simplify the administrative procedures of wind developers by enabling them to develop within a Walloon framework ensuring increased legal predictability. The current "mortality rate" of wind projects in administrative or litigation phases represents a real economic cost;
- Translates the desire of the Walloon Government to fully involve all the actors concerned in the issues related to the continued development of renewable energy production through the installation of wind turbines on Walloon territory;
- Seals the commitments of the parties involved. Thus, wind developers must undertake to ensure respect for the protection of the environment and biodiversity, the landscape and the living environment of the local residents as part of the deployment of wind turbines on Walloon territory.

Creation of the transversal biomass committee

According to the conclusions of the Walloon "Wood-Energy" strategy, the government has set up the transversal biomass committee. It is composed of members from different Walloon administrations (agriculture, environment, energy and economy), the Walloon regulator and experts.

The missions of the committee are:

- Finalise the document relating to the Walloon "Wood-Energy" strategy;
- Participate with the Ministers for Energy, Agriculture and the Environment in the drafting of a "Biomass-Energy" strategy document;
- Provide the various Ministers concerned with an opinion on the legal texts relating to the management of "Wood-Energy" (negative list etc.);
- Provide the various Ministers concerned with own-initiative opinions on the management of "Wood-Energy";
- Propose a "biomass" declaration document enabling DGO4 and the CWaPE to decide on the sustainability of the resource and compliance with cascading use;
- Submit an opinion on the "Wood-Energy" files by means of the "biomass" declaration;
- Submit to the Walloon Government any own-initiative opinion that the Committee deems useful and relevant.

Brussels-Capital Region

Article 90 of the Ordinance of 23 July 2018 amending the Ordinance of 19 July 2001 on the organisation of the electricity market in the Brussels-Capital Region provides that the regional regulator, BRUGEL, has "*the possibility of adopting, for a limited period of time, market rules and specific tariff rules for defined geographical or electrical zones. These zones are specifically developed through the implementation of innovative pilot projects and in particular for the development of solutions to the problem of connecting decentralised production in relation to distribution networks.* "

This provision pursues, among other things, the objective of identifying solutions to remove the barriers preventing the deployment of renewable energies in the Brussels Region, in particular via collective self-consumption.

Finally, during the period under review, the Region also continued its contacts with stakeholders in the sector. Possible improvements in the administrative procedures relating to green certificates for renewable installations have been carefully considered.

QUESTION 2B: PLEASE DESCRIBE THE MEASURES AIMED AT GUARANTEEING THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY PRODUCED FROM SUSTAINABLE ENERGY SOURCES AND IMPROVING THE FRAMEWORK OR REGULATIONS CONCERNING THE MANAGEMENT AND SHARING OF COSTS INCURRED BY CONNECTIONS TO THE NETWORK AND STRENGTHENING OF THE NETWORK (ARTICLE 22(1)(F) OF DIRECTIVE 2009/28/EC).

Federal Government

In addition to the development of the first phase of the Modular Offshore Grid (MOG), which has now been commissioned, this network will be expanded for the future wind turbine zone under the name of MOG II. The legal framework for this still has to be created.

The onshore grid reinforcement consists of two parts: "Ventilus", the high-voltage connection from the coast to Avelgem, and "Boucle d'Hainaut", the high-voltage connection from Avelgem to Courcelles.

In addition to the measures included in the National Action Plan, the federal and regional regulators are currently working with TSOs and DSOs to strengthen network access for electricity from renewable energy sources. The option of the flexible access route - if there are congestion problems - is currently being studied, both for access to the transport network and for access to the distribution network.

In principle, the connection to and reinforcement of the network is done by the network manager, which therefore initially bears the associated costs. However, connection tariffs are charged - which are published on the CREG site - so that the network manager can recover the connection charges. The producer pays the connection charges through these tariffs, although there is a way to share the costs for certain categories of customer. However, the regulations that have now been introduced by the national regulator offer the customer the option of carrying out certain connection work on the transmission network himself or having it carried out by a third party appointed by him.

There are several exceptions to the general principles mentioned above. As an example we can cite:

In the Flemish Region, connection charges are limited. For example, the costs of connecting to the network paid by "green" production are limited to the costs of a virtual connection, i.e. the costs of the shortest distance between the installation and the network;

The transport network operator must finance one third of the costs of the undersea cable for a maximum amount of EUR 25 million for a project of 216 MW or more. This financing of EUR 25 million will be reduced proportionally if the project is less than 216 MW.

The costs for the technical adjustment (deep connection costs) are paid by the network operator.

Initiatives have been or will be launched to study the various challenges associated with the transition to smart grids. The various parties involved are discussing this issue.

The offshore platform[3] is cited by the EU as a project of common interest (PCI). Until now, the different wind farms in the North Sea have each been connected separately to the onshore grid. Developing the meshed network means connecting the wind farms to high-voltage stations that will be built on two platforms, Alpha and Beta. These platforms will in turn be connected to the onshore grid.

This solution offers enormous technical, economic and environmental benefits. Developing a real network at sea is safer, cheaper and better for the environment than connecting every park "from point to point" as is still the case today.

In the future, the intention is to connect this meshed network to an international platform with direct current connections. These connections make it possible to transport greater power over longer distances.

Text from Elia - the operator of the Belgian high voltage transmission system

Neighbouring countries such as England or the Netherlands, for example, are also currently working on the development of networks in their territorial waters of the North Sea.

In concrete terms this means that such an international interconnected platform can provide access to other energy sources, such as hydropower in Scandinavia. These energy sources can be used if there is no wind in the North Sea. On the other hand, the connections could also store wind energy if there is an energy surplus. This new network in the North Sea could provide Belgian consumers with green electricity, even if there is no wind.

The vision ties in with the European Commission's energy policy and with the project of the Member States' North Sea Countries around the North Sea.

Flemish Region

Smart grids

The transition to smart energy grids in Flanders is monitored via the Policy Platform. This policy platform brings together stakeholders in smart grids and smart meters within the Flemish Government and beyond. The purpose of the policy platform is to obtain and maintain a general overview of ongoing actions.

On the one hand, this focuses on the network-related aspects of smart grids and the proper integration of decentralised production into the network (including technological possibilities, interface with spatial planning, etc.), and on the other on the market opportunities of smart grids and smart meters and their impact on the consumer (including aspects such as privacy, energy saving, influence on social energy policy, impact on invoicing, market processes, energy services, link with electric cars, etc.).

Work is currently under way to develop the regulatory framework that supports the introduction of a smart meter. The smart meter (so-called "digital meter" in Flanders) is the first step towards developing a smart grid. A monitoring committee is in place to keep stakeholders informed of concrete regulatory steps.

Solution to network capacity constraints

The VREG is of the opinion that the connection of decentralised production (and, in the long term, also a decrease) under the flexible access regime makes it possible to make better use of the network. This flexibility to support the network has a cost, and regulations must include who bears this cost and how.

As a first step towards creating a regulatory framework for flexible connections, the VREG has added an article to the technical regulations that makes a connection with flexible access possible under normal operating conditions of the network in the case of a connection to a production installation, and should this connection be refused according to the standard rules due to a lack of capacity because of congestion. In principle, this flexible access can only be applied temporarily pending the implementation of a planned grid reinforcement. In exceptional cases, this flexible access can be applied permanently for technical economic reasons and subject to the agreement of the VREG.

Together with Elia, Eandis has run a successful pilot project at the Waasland port, which has been operational for over a year. To date, the VREG has received two applications for the permanent flexible connection of production installations under normal operating conditions. The VREG has conditionally agreed in both cases.

The VREG issued a policy advice (ADV-2016-1) on 15 February 2016 for a general framework for flexibility on the medium-voltage and high-voltage electricity distribution network and the local electricity transport network. This opinion distinguished between commercial and technical flexibility. The aim of this advice to the Flemish legislator is to advocate the start of a regulatory framework for flexibility so that the main definitions, principles and recognition of various market roles are anchored, a basis can be provided for a contractual framework between the various parties and the role, new tasks and responsibilities of the DSO can be clarified.

The implementation of Connection with Flexible Access is included in the draft Flemish decree on flexibility, the implementation of which is planned for the coming months.

Connections with flexible access have since been successfully implemented by the various distribution system operators. This is to cope with congestion in exceptional operating conditions.

Since 2017, separate figures on applied flexible access have been reported by Elia

in Flanders. It was indicated that a total of 187 units have a flexible connection on 10 June 2019. This is for an installed capacity of 747 MW, including 494 MW from wind turbines.

The former congestion in the coastal zone has come to an end now that the Stevin project is operational. In the event of a future connection of the offshore wind farm in the western Belgian North Sea, new congestion will occur in the coastal zone. To this end, Elia has launched the Ventilus project.

Walloon Region

In the Walloon Region, the general rule is to give priority to the connection of production installations using renewable energy sources and to qualitative and/or high-efficiency cogeneration units, as well as to those that produce electricity from waste and recovery from industrial processes.

This priority is organised in terms of connection, injection and investment in network infrastructure.

Connection

The orientation studies (RTTL[4] - Article 84; RTD[5] - Article 72) and connection requests (RTTL - Article 100; RTD Article 81) concerning these installations must be dealt with as a priority in relation to the other requests currently being analysed by the network operator. The connection of these installations (RTTL - Article 113; RTD Article 90) is also a priority, at least in relation to non-urgent works, i.e. those whose delay does not cause a danger for people, nor a risk of real direct damage to the existing installations. In the context of carrying out tests aimed at proving the conformity of the connection, a simplified procedure exists for the installations concerned, when they are standardised and of less than 25 MW (RTTL - Article 117).

Production/injection

Congestion management on the network is carried out taking into account the priority given to production installations using renewable energy sources and qualitative and/or high-efficiency cogeneration units, as well as those that produce electricity from waste and recovery from industrial processes (RTTL - Article 173).

Small installations of less than 10 kVA connected to the LV network can benefit from compensation between offtakes and injections, for each period between two (annual) index readings. In practice, more than 120,000 installations in the Walloon Region are concerned by this simplified support mechanism. This mainly concerns photovoltaic production.

Currently, there is no price per injection for the use of the network for small installations with a power ≤ 10 kVA.

Investments

The general principle is as follows: the producer invests in the infrastructure necessary to connect its installation to the substation of the network operator, while the latter is responsible for upstream investments: substation and network reinforcements.

To be able to verify the proper match between the planned work and the actual connection requests, the network operator is obliged, when drawing up its adaptation plan (= investments), to present the last known situation (updated quarterly) in terms of injection capacities and studies carried out at the request of candidate producers (RTTL and RTD Article 28). The TSOs and DSOs must also exchange all useful information on this subject (RTTL - Article 28; RTD - Article 228) and make a concerted investment, both in terms of the technical solutions selected and in terms of completion deadlines.

The regulator (CWaPE) approves and checks the content and suitability of the work described in the adaptation plans. In the event of an observed breach, it may instruct the network operator to make the

[4] **Order of the Walloon Government of** 26 January 2012 relating to the revision of the technical regulations for the management of and access to the local electricity transmission network in the Walloon region

[5] **Order of the Walloon Government** of 3 March 2011 approving the technical regulations for the management of and access to electricity distribution networks in the Walloon Region

investments necessary to comply with its legal obligations (DWe[6] - Article 15), including those concerning the integration of renewable production.

In particular, the local transmission system operator (TSO) is required to report the injection capacities in the substations on a quarterly basis.

When the network operator cannot guarantee the availability of the network to absorb the entire production in the short or medium term, a connection contract with flexible access can be concluded. It should be noted that several contracts of this type have been activated in the last two years. The decree also provides for a compensation mechanism in the event that flexibility is activated limiting injection subject to compliance with certain conditions. To this end, an order of the Walloon Government was adopted on 10 November 2016 to determine the methods for calculating and implementing financial compensation.

Brussels-Capital Region

The Brussels regulator Brugel has exclusive jurisdiction over distribution tariffs. It establishes tariffs based on the costs generated by each use of the network. To date, the integration of renewable powers does not generate additional investment costs in the distribution network. As a result, Brugel has not provided for an injection tariff, whatever the power of the decentralised production unit.

Since the Brussels electricity distribution network is highly interconnected and the new installations are decentralised and relatively small, it is not necessary to put in place specific measures to ensure the transmission and distribution of renewable electricity.

However, the system operator is obliged - according to the provisions of Article 12 of the Order of 19/07/2001 on the organisation of the electricity market - to propose a five-year investment plan annually, the execution of which must "[...] *ensure the security, reliability, regularity and quality of supply on the network* [...]". In particular, this plan must contain "*an estimate of capacity needs, taking into account the likely evolution of production, energy efficiency measures promoted by the authorities and envisaged by the network operator, supply, consumption, scenarios for the development of electric cars and exchanges with the two other Regions and their characteristics*". This plan is approved each year by the government after public consultation and advice from Brugel.

Finally, the technical regulations of the Brussels distribution network operator also contain specific provisions for the connection of green electricity production units.

QUESTION 3: PLEASE DESCRIBE THE AID SCHEMES AND OTHER EXISTING MEASURES THAT ARE CURRENTLY IMPLEMENTED TO PROMOTE ENERGY PRODUCED FROM SUSTAINABLE SOURCES AND COMMUNICATE ANY NEW ELEMENT INTRODUCED IN THE MEASURES APPLIED RELATING TO THOSE SET OUT IN YOUR NATIONAL ACTION PLAN RELATING TO SUSTAINABLE ENERGY *(ARTICLE 22(1)(B) OF DIRECTIVE 2009/28/EC)*.

The Royal Decree of 16 July 2002, concerning the establishment of mechanisms for the promotion of electricity produced from renewable energy sources and the remuneration of the holders of an offshore domain concession in the event of the unavailability of the Modular Offshore Grid, determines the support received by wind farms for electricity produced.

The federal government and the regions have based support schemes on annually increasing quotas and tradable certificates to promote the production of electricity of renewable origin, taking into account the allocated powers.

These instruments are complemented by a series of investment support mechanisms implemented at federal and regional level. These mechanisms are described in detail in the National Action Plan.

DWe: Decree of 12 April 2001 on the organisation of the regional electricity market

Table 3: Support schemes for renewable energy

Flemish Region

	2017		2018	
Flemish region				
RES aid scheme				
System of green energy certificates				
Obligation/quota (%)	20.5%		21.5%	
Fine (EUR/GEC)	100		100	
Minimum rate (EUR/GEC, installation start date in years 2017 and 2018)	93		93	
Average price (EUR/GEC)	89.03		93.01	
Total cost (EUR millions)	EUR 1,160k		EUR 1,346k	
Premium for electricity distribution system operator	Number	Total	Number	Total
Private solar boiler	3,589	EUR 8,586k	1,622	EUR 3,716k
Non-private solar boiler	45	EUR 90k	33	EUR 71k
Private heat pump	1,066	EUR 1,714k	951	EUR 2,534k
Non-private heat pump	27	EUR 67k	23	EUR 128k
Total		EUR 10,457k		EUR 6,449
Green heat call budget (EUR millions)	Call 5: 10.5		Call 6: 10.5	

Clarification of the minimum tariff

For green electricity, the minimum rate for the reform of the support mechanisms in 2012 was equated to EUR 93/certificate for all technologies. The amount of aid that an installation receives with a start date from 1 January 2013 will henceforth only depend on the "banding factor" that applies to the project category in question (or - in case of a project-specific aid calculation - the project itself).

For installations with a start date before 1 January 2013, the reform also introduced the finality of the aid. Unless there is a derogation, the support period for these installations is now limited to ten years. However, this period can be extended, where for the duration of the extension the above minimum value of EUR 93/certificate also applies.

Walloon Region

Assistance schemes for RES		Help per unit	Total	Help per unit	Total
		2017		2018	
Walloon Region					
Electricity production					
Instrument	Obligation/quota (%)	34,03%		35,65%	
	Penalty (€/unit)	100,00 €		100,00 €	
	minimum guarantee (€/unit)	65,00 €		65,00 €	
	Average certificate price	66,76 €		66,51 €	
	Total GC cost (€)	526.707.759,96 €		574.329.080,79 €	
Investment aid					
Biomethanisation	average €/unit	299.566 €	898.699 €	1.109.739 €	3.329.216 €
Biomass boilers	average €/unit	46.753 €	374.028 €	44.131 €	176.523 €
Biomass cogeneration	average €/unit	78.600 €	78.600 €	- €	0 €
Fossil cogeneration	average €/unit	132.504 €	662.522 €	9.072 €	18.144 €
Large wind farms	average €/unit	- €	0 €	867.221 €	0 €
Hydropower	average €/unit	41.382 €	165.528 €	327.749 €	1.310.998 €
PAC	average €/unit	9.955 €	149.319 €	22.517 €	94.209 €
Small wind farm	average €/unit	24.413 €	195.300 €	21.753 €	195.780 €
Thermal solar power	average €/unit	30.000 €	30.000 €	5.858 €	5.858 €
Geothermal	average €/unit	- €	0 €	- €	0 €
Investment premiums					
heat pump (ECS)	€/unit	400 €	135.259 €	750 €	311.701 €
Biomass boilers	average €/unit	800 €	92.000 €	1.750 €	173.621 €
heat pump (heating)	average €/unit	800 €	54.560 €	1.500 €	69.506 €
Thermal solar power	average €/unit	1.500 €	213.614 €	1.500 €	137.043 €
			3.049.428 €		5.822.599 €
Tax reductions and deductions are not included.					
* Current tools do not allow assessment of support for the production of renewable energies for transport					
** Amounts modified from 01/03/2018					

[It is possible that dots and commas in numbers have been switched in the above table. Please read numbers in the format #,###.##]

Brussels-Capital Region

Investment support

The Brussels Region supports individuals and businesses with investment projects in equipment to produce energy from renewable sources. This is done by Brussels Environment which offers an energy bonus scheme for both individuals and companies.

The table below breaks down the energy premiums granted for 2017 and 2018:

Energy premiums	**2017**			**2018**		
	Total	No. of files	Average help/unit	**Total**	No. of files	Average help/unit
Solar thermal panels	EUR 56,182	7	EUR 8,026	EUR 75,920	22	EUR 3,451
Heat pumps - domestic hot water	EUR 20,935	15	EUR 1,396	EUR 36,704	25	EUR 1,468
Heat pumps - heating	EUR 17,719	4	EUR 4,430	EUR 115,990	10	EUR 11,599
Total	EUR 94,836	**26**	EUR 3,648	EUR 228,614	**57**	EUR 4,011

Source: Brussels Environment

Operational support

The Brussels Region also grants green certificates (GCs) as part of the promotion of green electricity. The granting of these GCs is linked to the production of the installation and the CO_2 savings that it allows in relation to reference installations.

In October 2017, new categories of multiplier coefficients (based on power) for support to cogeneration installations were created in the GC system. At the same time, these coefficients were revised upwards. The aim is to guarantee a fixed return period of 5 years for all cogeneration installations, as provided for by the order of 17 December 2015 relating to support for green electricity. The following table shows this development:

	Power category (kW)	Multiplier coefficient	Granting rate (GC/MWh)
Until 13/10/2017	P < 50 kWe	2	Depending on the efficiency of cogeneration
	P > 50 kWe	1.5	
Since 10/14/2017	P ≤ 15 kWe	6.3	
	15 kWe < P ≤ 50 kWe	3	
	50 kWe < P < 200 kWe	2	
	P ≥ 200 kWe	1.5	

Source: Brugel

The table below details the granting of GC by type of technology for 2017 and 2018.

2017 and 2018 data

Green certificates (GC)	**Unit**	**2017**	**2018**
Quota	%	7.8%	8.5%
Fine	EUR	EUR 100	EUR 100
Average GC price	EUR	EUR 90	EUR 95
Grant of GCs to photovoltaic panels	Number of GCs	215,634	268,676
Granting of GCs to cogeneration plants using rapeseed oil (liquid biomass)	Number of GCs	3,351	2,974
Granting of GCs to biogas cogeneration	Number of GCs	22,265	11,987
Granting of GCs to natural gas cogeneration	Number of GCs	69,041	80,711
Granting of GCs to incinerators	Number of GCs	112,521	111,701
Total grants	Number of GCs	422,812	476,049
Evaluation of the total annual cost based on the average GC price	EUR	EUR 38,053,080	EUR 45,224,655

Source: Brugel

Table 3a: In summary, all the Belgian measures:

Abbreviations used in the table:

Type of measure	**Expected result**	**Target group and/or activity**	E = Existing
R = regulatory	BC = behaviour change	INV = investors	or
FIN = financial	MW = installed capacity (MW;	USRS = end users; ADM = public administrations	UD = under development
NB = non-binding	KTOE = energy produced/consumed (ktoe)	INST = installers, biofuel production	
		TSO/DSO = Transport system operator/distribution system operator	

Name and reference of the measure	Type of measure	Expected result	Target group and/or activity	E = Existing	Start date
1. Promotion of renewable energy					
1.1. Electricity from offshore wind energy					
Demarcation of an area reserved for the construction of offshore wind farms	R	MW	ADM	E	2000>
Allocation of domain concessions	R	MW	INV	E	2000>
Supporting the production of electricity from renewable energy sources (green certificates)	FIN	KTOE	INV	E	2002>
Favourable system for derogations in production	FIN	KTOE	INV	E	2009>
Contribution to cable costs	FIN	MW	INV	E	2008>
1.2. Onshore electricity					
Mechanism of green certificates with guaranteed minimum price	FIN	KTOE	INV	E	2002>
Green energy quotas	FIN	KTOE	Electricity suppliers	E	2002>
Specific value of green certificates for photovoltaic energy (FR)	FIN	KTOE	DSO	E	2006>
Multiplication factor (RW)				E	
Compensation principle for systems with a capacity of less than 10 kVA	FIN	KTOE	Producers	E	2008
Allocation of guarantee of origin labels	R	KTOE	INV	E	2002>
Removal of restrictions on wind turbines in agricultural areas (FR)	R	MW	INV	E	2009>
Action plans for public procurement of green electricity	NB	BC	ADM	E	2009>
Encouraging small and medium-sized wind turbines via call (FR)	FIN	MW	INV	E	2018>
1.3. Heating and cogeneration					
Cogeneration certificates	FIN	KTOE	Electricity suppliers	E	2005>
Additional support for green heat	FIN	KTOE	INV	UD	>2012
Green heat call (FR)	FIN	KTOE	INV	E	2013>
Deep geothermal warranty scheme (FR)	FIN	KTOE	INV	E	2019>
2. Promoting investment in renewable energy					
Tax reduction for investments in renewable energy (private individuals)	FIN	MW	INV	E	2002-2011
Tax deduction for investments in renewable energy (companies)	FIN	MW	INV	E	2004>
Tax relief on the interest of a loan and tax relief on the interest for investments in renewable energy in homes (private individuals)	FIN	MW	INV	E	2009-2011

Financing from a third investor FEDESCO	FIN	MW	ADM	E	2007>2015
Premiums for the installation of renewable energy equipment	FIN	MW	Companies	E	continuous
			Private individuals	E	
Agricultural investment (VLIF)	FIN	MW	Agriculture and horticulture	E	continuous
Contribution to the costs of connecting an installation with renewable energy sources (FR)	FIN	MW	DSO	E	2004>
Additional support to local authorities	FIN	MW	Local authorities	E	2004>
Mandatory (prior) feasibility study into Renewable Energy for new homes (> 1000 m^2) and heavily renovated homes from 5000 m^2	R	BC	INV	E	2008>
Subsidy for the construction of particularly innovative and exemplary homes	FIN	MW	Architects	E	2007>
Premium for heat networks	FIN	MW	INV	E	2008>
LGO for injection of biogas					
Mandatory share of renewable energy in the building regulations	R	KTOE	INV	E	2014>
Energy loan	FIN	KTOE	INV	E	2007>
Strategic ecology support (FR)	FIN	KTOE	INV	E	2013>
3. Promotion of transport using renewable energy sources					
3.1. Electric vehicles					
Tax advantages and premiums for electric vehicles and charging terminals	FIN	BC	USRS	E	2010-2012
Exemplary role of the government	NB	BC	ADM	E	2010>
3.2. Promotion of biofuels					
Mandatory blending of sustainable biofuels	R	KTOE	Oil companies	E	01/07/2009-30/06/2011 01/07/2011-30/06/2013 17/07/2013 21/07/2016
Marketing authorisation for non-standardised biofuels and pure rapeseed oil	R	KTOE	Car manufacturers, oil product distributors, farmers	E	November 2006>
Tax exemption from sustainable biofuel quotas	FIN	BC	Oil companies	E	01/11/2006-30/09 /2013
Exemption from pure rapeseed oil	FIN	BC	Farmers	E	March 2006>
4. Administrative simplification					
A single federal interface for energy infrastructure licensing	R	Administrative simplification	ADM	UD	2016>
Circular on the construction of wind farms	R	MW	Authorised bodies	E	2001<
Wind farms in agricultural areas	R	MW	Authorised bodies	E	2008>
Circular on the construction of biogas plants	R	MW	Authorised bodies	E	2006>
Working group on the coordination of policy and actors in the field of biomethane formation	R, guidance		Agricultural cooperatives	E	2009>
Permit exemption for solar panels	R	MW	INV	E	2008>
Introduction of a single physical environment permit (FR)	R	Administrative simplification	ADM	E	2014>
5. Access to the network					
Electrical infrastructure development plans (and TSE)	R	MW	INV, TSO		Three-yearly

Financing the BeProne platform on the reliability of the networks	NB		ADM, universities	E	2009>
Priority connection to the network for installations producing electricity from renewable energy sources	R	KTOE	TSO, DSO	E	2002>
Priority access to the network for installations producing electricity from renewable energy sources	R	KTOE	TSO, DSO	E	2002>
Technical requirements for the connection of decentralised production installations operating in parallel with the distribution network	R	KTOE	INST	E	2001>
Simple declaration for installations with a capacity of less than 5 kW with a single-phase connection or less than 100 kW with a three-phase connection	NB	MW	USRS	E	2009>
Development of smart grids (including pilot projects)	R	MW	DSO	UD	2009>
6. Cooperation between the federal government and the regions					
Cooperation agreement for energy consultation*	R	Consultation	ADM	E	1993>
Platform for installer certification	NB	Harmonisation	ADM	E	2009>
Addenda to the AREI laying down the technical requirements for renewable energy installations (note 71)*	NB	Cooperation	ADM, INV	E	07/10/2008>>
7. Protecting and informing consumers					
Informing citizens about renewable energy	NB	BC	USRS	E	continuous
Support for bodies for the promotion of renewable energy (e.g. facilitators, counters, etc.)	NB	BC	Public	E	continuous
Government promotional campaigns (telephone support, website, professional guidance, magazines, advertisements, campaigns, fact sheets, instruments, reference works, etc.)	NB	BC	Public	E	continuous
Raising awareness among professionals in the sector (technical seminars, competitions, technical data sheets, etc.)	NB	BC	INV, architects	E	continuous
Training of RES home installers (solar heat and photovoltaic)	Training	BC	INST	E	2003>
Certification of installers for small-scale renewable energy installations	R	BC	INST	E	2012>
Arousing the interest of local actors and citizens in wind energy projects (participative wind energy)	FIN, guidance	MW	Municipalities and private individuals	E	2008>>
Drawing up reference works (guide to good practices, vademecum, etc.)	NB	BC	INST	E	continuous
Publication of annual statistics: installed capacity, price, amount of renewable energy produced	NB	BC	ADM, public	E	continuous
8. Exemplary role of the government					
Special provisions for the promotion of energy efficiency and renewable energy in public buildings, in particular of the Federal Buildings Authority	NB	BC, MW, KTOE	ADM	E+IB	2008>>
9. R&D, studies					
Environment-Innovation Programme 2	FIN	Knowledge	Study Centres	E	2009
Studies on explaining and solving problems in the renewable energy sector in the Brussels-Capital Region	NB	MW	INV	E	continuous
Feasibility study of the heat networks	R, FIN	KTOE	ADM	E	2009
Study on supporting the production of green heat	NB	KTOE	ADM	E	2010

Federal government

Offshore support mechanisms

The tradable certificates schemes established by the Federal Authority are based in the case of offshore wind energy, on an obligation of the transmission system operator (Elia) to buy the certificates at a minimum price set by federal legislation. The purchase of green certificates from offshore wind energy production by the TSO is based on an agreement between the TSO and the producer, subject to approval by the regulator (CREG).This system, established through the Royal Decree of 16 July 2002 (see above) has been amended in 2014 as follows:

- For wind energy produced from installations with a financial close up to 1 May 2014, the minimum purchase price by the TSO for green certificates amounts to:
  - 107 euro/MWh for electricity originating from the first 216 MW of installed capacity;
  - 90 euro/MWh for electricity originating from installed capacity above 216 MW.
- For wind energy produced from installations with a financial close after 1 May 2014, the minimum purchase price by the TSO for green certificates is calculated as follows: minimum price = LCOE – [reference price of electricity – correction factor]

where:

- LCOE is equal to 138 euro/MWh;
- the correction factor is equal to 10 % of the reference price of electricity.

These minimum prices are guaranteed for a period of 20 years.

Rem.: The minimum purchase price for installations with a financial close after 1/5/14 can be equal to 0 if production occurs while the imbalance tariff for a positive imbalance is equal or less than -20 EUR/MWh.

The main legal principles governing these different support systems are as follows:
- Law of 19 April 1999 on the organisation of the electricity market;
- Royal Decree of 16 July 2002 establishing mechanisms for the promotion of electricity produced from renewable energy sources;
- Royal Decree of 30 March 2009 on production derogations from installations producing electricity from wind in sea areas;
- Law of 17 July 2013 on biofuels.

2. Evolution of the support systems

The federal government and the regions have developed their own support schemes for investments with a view to promoting the production of renewable electricity.

- *Investment support*

In addition to the measures proposed under point 2 of this report, we can also mention:
- Contribution to the financing of connection costs for offshore wind farms

The transport network operator must finance one third of the costs of the undersea cable for a maximum amount of EUR 25 million for a project of 216 MW or more. This financing of EUR 25 million will be reduced proportionally if the project is less than 216 MW.
- Tax deduction for investments for companies

Companies can also benefit from a tax deduction for certain investments in renewable energy. The tax deduction rate is between 13.5% and 20.5% based on the evolution of the average of the consumer price index.
Investments in the production of energy from renewable energy sources eligible for a tax deduction are:
- *Systems for capturing direct or diffuse sunlight;*
- *Use of wind energy;*
- *Hydraulic power stations for the production of energy with a maximum capacity of 1 MW;*
- *Production of energy by incineration of waste;*
- *Use of gas from anaerobic fermentation of waste;*
- *Heat pumps.*

3. Periodic review

- *Support for production (tradable green energy certificates)*

No periodic review is foreseen.

- *Investment support*
- Contribution to financing the connection costs of offshore wind farms: no periodic review is foreseen. This measure complements the series of measures introduced by the federal government to support the development of offshore wind farms on the Belgian continental shelf, and thus were followed up by the CREG3.
- Tax deduction for investments for companies: the system of tax aid can be reviewed each financial year. However, this arrangement has not been **adjusted** for several years.

Flemish Region

System of green energy certificates

The Flemish Government encourages the production of electricity from renewable energy sources through the system of green energy certificates (GEC).

The main legal principles governing this support system are as follows:

- Decree of 8 May 2009 laying down general provisions on energy policy (Energy Decree);
- Order of the Flemish Government of 19 November 2010 laying down general provisions on energy policy (Energy Order).

Reform of the system of green energy certificates

The evaluation of the support mechanism provided for by decree in 2012 resulted in a reform of the support mechanism for green electricity and qualitative cogeneration. This evaluation was launched one year earlier than planned, with the aim of bringing a reformed support mechanism into force on 1 January 2013.

The reform also incorporated mechanisms to build in more periodic evaluations of the operation of the support mechanism and in particular the certificate market, to allow the Flemish Government to respond more quickly to trends in the certificate market and to further guarantee its proper functioning.

The decree provides for a number of important adjustments to be made to the certificate system to better align the granting of aid with the support needed to make the project sufficiently profitable, including by finality of the certificate support, the introduction of "banding" and the deduplication of the support and guarantee of origin functions.

Since the reform of the support mechanism, the Flemish Energy Agency has drawn up an annual report for the calculation of the front-end costs, from which the banding factor of the various representative project categories is determined. The calculation method is included in the appendices to the amended Energy Order. The Flemish Minister for Energy "validates" these calculations and publishes the banding factors for the next period, or can submit a proposal for a derogation to the Flemish Government, which can determine other banding factors by order. The reports containing the banding factors are published on the website: http://energiesparen.production.cloud.kanooh.be/monitoring-en-evaluatie/rapporten.

The Minister also determines a maximum banding factor annually. For 2017 and 2018, this maximum banding factor was "1" for a support period of 10 years, "0.8" for a support period of 15 years and "0.7" for a support period of 20 years.

For technologies without fuel costs, the banding factor is also updated during the course of the project based on the evolution of the electricity price.

The Flemish Region is thus implementing the Commission's recent guidelines, which aim to calculate the appropriate support for each technology, and phase out the support gradually as regular evaluations show that this is possible.

Walloon Region

The main legal bases for these different support schemes are as follows:

Decree of 12 April 2001 on the organisation of the regional electricity market;

Order of the Walloon Government of 30 November 2006 relating to the promotion of electricity produced from renewable sources of energy or cogeneration.

Order of the Walloon Government of 30 March 2006 relating to public service obligations in the electricity market.

Evolution of support systems

- *Investment support*

Investment premium (and exemption from property tax):

Companies can benefit from a premium for investments in energy production from renewable energy sources. The level of support corresponds to 50% of the eligible additional cost for small and medium-sized

enterprises and 20 to 30% for large enterprises (depending on their geographical location). The eligible additional cost varies depending on the technology.

Bonuses are also planned for individuals, for the installation of biomass boilers, heat pumps and thermal solar panels.

- *Production support*

A mechanism to support the production of electricity from renewable energy sources and qualitative cogeneration has been in place in Wallonia since 1 January 2003.

As in Flanders and Brussels, Wallonia has opted for a green certificate mechanism, the management of which has been entrusted to the CWaPE.

Three financing systems make up the green electricity support mechanism, in the form of production aid:

- *The green certificate quota system applicable to the volume of electricity supply.*
All electricity suppliers are subject to an obligation to provide the CWaPE with a quota of green certificates set by the government on a quarterly basis. This quota is expressed as a percentage representing the ratio between the number of green certificates to be produced and the number of electrical MWh supplied to end customers located in Wallonia. Green certificates are granted to producers of renewable energy by the CWaPE under certain conditions. One of these conditions for installations after 1 July 2014 is the prior reservation of green certificates within allocations set by the government.

- *The system for guaranteeing the purchase of green certificates by the local transmission system operator, Elia.*
Green certificates are granted quarterly by the CWaPE to each producer of green-certified electricity, in proportion to the net quantity of electricity produced and according to, on the one hand, the estimated additional cost of production of the sector and, on the other hand, the measured environmental performance (CO_2 savings rate) of the installation compared with standard reference production.

QUESTION 3A: PLEASE PROVIDE INFORMATION ON THE METHOD OF DISTRIBUTION BETWEEN END USERS OF ELECTRICITY RECEIVING AID ACCORDING TO ARTICLE 3(6) OF DIRECTIVE 2003/54/EC *(ARTICLE 22(1)(B) OF DIRECTIVE 2009/28/EC).*

European Directive 2009/72/EC concerning the internal market in electricity (and repealing Directive 2003/54/EC) obliges each supplier to provide its customers with transparent information on the energy sources used to guarantee the supply of electricity (fuel mix disclosure).

In Belgium, the regional regulator validates these fuel mixes on the basis of a simple declaration, except for electricity from renewable energy sources (RES) and for electricity from high-efficiency cogeneration installations (CHP). Since it is physically impossible to trace electrons, the three regional legislations impose the cancellation of guarantees of origin (LGO or GO) as the only means of proof for renewable electricity and high-efficiency cogeneration. This traceability method is based on a harmonised standard in the internal market for electricity in the European Union.

Flemish Region

Article 7.4.1 of the Decree of 8 May 2009 laying down general provisions relating to energy policy (hereinafter referred to as "the Energy Decree") obliges every electricity supplier to state on its invoices and in all its printed and electronic promotional materials the fuel mix of the energy source of the electricity that it supplied to the respective customers in the Flemish Region in the previous year, in total and for the product offered.

In implementation of Articles 6.3.4 to 6.3.5 of the Order of the Flemish Government laying down general provisions on energy policy of 19 November 2010 (hereinafter referred to as "the Energy Order"), every electricity supplier must, as of 1 March of the current year, state the origin of the electricity that it supplied to final customers in the previous calendar year via the transmission or distribution network on every invoice or on an accompanying document, and in the promotional material that it sends directly to its final customers.

The origin of electricity must be indicated in the following categories:

i. electricity produced from renewable energy sources;

ii. electricity produced in qualitative cogeneration installations;

iii. electricity produced from fossil fuels;

iv. electricity produced in nuclear power stations;

v. electricity of unknown origin.

This classification is also called the "fuel mix".

This fuel mix must be stated, both as regards the total deliveries from the supplier ("total fuel mix") and for the product supplied or offered to the final customer concerned ("fuel mix per product").

Check by the VREG for the correctness of the fuel mix

The VREG must check whether the information given by the supplier when implementing this obligation is correct. In an annual report, the VREG describes the way in which the fuel mix is calculated, and this report contains the percentages per electricity supplier and per product supplied regarding the origin of the electricity they supplied in the previous year, with which the VREG has declared its agreement after inspection.

Since 2017, the VREG fuel mix report has provided much more detailed information on the origin, both geographical and technological, of the guarantees of origin submitted by each electricity supplier.

The most recent report can be found on the VREG website via the following link:

https://www.vreg.be/sites/default/files/document/brandstofmixrapport_2018_4.pdf

An infographic was also included in the report to communicate the essence of the report quickly to the reader.

In September 2015, the VREG launched a new free tool at vreg.be - De Herkomstvergelijker (The Origin Comparator)

When choosing an electricity supplier, compare the source of the electricity - where does the electricity come from and with which energy sources is the electricity produced?

This online module allows consumers to compare the origin of electricity for the electricity contracts offered in Flanders. For example, households and companies can choose energy suppliers based on the origin of electricity.

In the non-deregulated market, it was very simple. Electricity came out of the socket and no further questions. In the current market with different players and many types of contracts, the consumer chooses which electricity comes out of the socket. Fossil energy, nuclear energy or renewable energy. Norwegian, French, or would you rather use green electricity from your own country? A preference for biomass or solar energy? The choice is the consumer's.

The customer therefore has an additional element on which to base his or her choice of electricity supplier. Besides the price (with the V-test) and the service (with the Service Check) of the energy suppliers, the consumer can also compare the origin of the electricity. There is a choice of electricity from a specific region/country and produced from certain energy sources.

The module now contains data for 2018. The data will be updated annually.

This module allows the consumer to:

1. review the energy sources of the electricity offered per contract (renewable, cogeneration, fossil, nuclear)

An electricity supplier sometimes offers more than one electricity contract. Examine the origin of each contract of one particular electricity supplier from 2018.

2. make a comparison between different electricity suppliers on the origin of the electricity supplied in 2018, based on:

- country of origin
- details of the energy sources.

The Origin Comparator can be accessed via www.vreg.be/nl/herkomst-stroom

Each family and business in Flanders that concludes a green electricity contract can then check via the GROENCHECK at vreg.be what percentage of green electricity has been supplied at its own offtake point in the past 12 months. This is also a free VREG service. More information on this can be found at www.vreg.be/groencheck.

On 5 March 2019, the VREG announced that the Groencheck also now contains much more detailed information on the origin, both geographical and technological, of the guarantees of origin submitted by each electricity supplier. The level of detail of the information shown is therefore now equally high in Fuel Mix Report, Origin Comparator and Groencheck.

Walloon Region

The distribution between subsidised end consumers of electricity is exactly the same as the distribution between unsubsidised end consumers of electricity, given that there is absolutely no link between the system of support for renewable energy production (2009/28) and the obligation of transparency of sources (2003/54).
The guarantee of origin issued for renewable electricity and cogeneration is a simple traceability instrument; it makes it possible, after commercial exchanges, to clearly and unequivocally allocate each renewable MWh and cogeneration to a given consumer. Thanks to this, each electricity consumer can choose the desired electrical product (100% renewable, 50% renewable, 0% renewable) from the various suppliers thus encouraged to differentiate themselves.
Furthermore, all consumers in the same category (quantity of electricity consumed) contribute equally to the financing of the support.
In terms of bills, the Walloon Region applies federal legislation aimed at detailing the energy mix in electricity bills.

Brussels-Capital Region

The remark of the Walloon Region concerning the distribution of electricity also applies to the Brussels-Capital Region.

The online tool “Green check” developed by BRUGEL in 2016 allows each Brussels consumer to check, by entering their EAN code, the share of green electricity declared by their supplier and that validated by BRUGEL.

QUESTION 4: PLEASE PROVIDE INFORMATION ON THE WAY IN WHICH THE AID SCHEMES ARE STRUCTURED, WHERE APPLICABLE, TO INTEGRATE THE RES APPLICATIONS THAT PRESENT ADDITIONAL ADVANTAGES BUT WHICH MAY PRESENT HIGHER COSTS, PARTICULARLY BIO FUELS PRODUCED FROM WASTE, RESIDUE, NON-FOOD CELLULOSE MATTER AND LIGNOCELLULOSES MATTER *(ARTICLE 22(1)(C) OF DIRECTIVE 2009/28/EC)*

The federal government and the regions have each developed different support schemes within their own areas of competence, depending on the sectors for the production of renewable electricity. By definition, these different approaches - expressed in a different number of green certificates issued per sector or a different guaranteed minimum price based on the sector - take into account the different benefits and costs across sectors.

Federal government

As of tax year 2013 (i.e. for expenses paid in 2012), the tax reduction for all energy-saving expenses is abolished except for those for roof insulation. The tax reduction amounts to 30% of the expenditure actually incurred. For the 2013 tax year (2012 income), the reduction per home amounts to a maximum of EUR 2,930.

Flemish Region

The use of waste that cannot be recycled is eligible for green energy certificates.

For applications that provide additional benefits compared with others, such as digestion of manure, organic-biological waste, vegetable, fruit and garden waste, a separate calculation of the front-end cost is carried out and a banding factor is allocated.

Walloon Region

As regards electricity production, to compensate for the maturity of the sectors between them and to put their support into perspective, a multiplier coefficient was put in place to influence the green certificate granting rate.

The following table gives, by way of indication, the theoretical maximum, depending on the fine to which suppliers are subject in the event of non-compliance with their quota return obligation (EUR 100/GC), which a green producer can expect during the first 10 years (before application of the reduction factors and excluding cases of "historical" installation) as well as the minimum income guaranteed (if the producer meets the conditions) by the regional mechanism.

	Sectors (and total installation power)	Granting rate (GC/MWh)	Guaranteed minimum level of support (EUR/MWh)	Theoretical maximum level of support (EUR/MWh)
Walloon Region	Fossil cogeneration (≤ 20 MW)	0.1 to 0.4	6.5 to 26	10 to 40
	Biomass (≤ 20 MW)	0.1 to 2.5	6.5 to 162.5	10 to 250
	Hydraulic (≤ 20 MW)	0.8 to 2.5	52 to 162.5	80 to 250
	Wind	1	65	100
	Biomass cogeneration (≤ 5 MW)	0.15 to 2.5	9.75 to 162.5	15 to 250
	Photovoltaic (10 - 250 kWc)	1.2 to 6	78 to 390	120 to 600
	Photovoltaic (> 250 kWc)	0.63 to 4.1	40.95 to 266.5	63 to 410

Source: CWaPE Specific annual report 2017 - GC market

	Sectors (and total installation power)	Granting rate (GC/MWh)	Guaranteed minimum level of support (EUR/MWh)	Theoretical maximum level of support (EUR/MWh)
Walloon	Fossil cogeneration (≤ 20 MW)	0.1 to 0.4	6.5 to 26	10 to 40

	Biomass (≤ 20 MW)	0.1 to 2.5	6.5 to 162.5	10 to 250
	Hydraulic (≤ 20 MW)	0.8 to 2.5	52 to 162.5	80 to 250
	Wind	1	65	100
	Biomass cogeneration (≤ 5 MW)	0.15 to 2.5	9.75 to 162.5	15 to 250
	Photovoltaic (10 - 250 kWc)	0.88 to 6	57.2 to 390	88 to 600
	Photovoltaic (> 250 kWc)	0.32 to 4.1	20.8 to 266.5	32 to 410

Source: CWaPE Specific annual report 2018 - GC market

Brussels-Capital Region

The number of GCs granted to a green electricity production installation is obtained by dividing the CO_2 saving achieved by the installation in question by the CO_2 emission coefficient of natural gas. A GC is thus granted to the holder of a certified installation for each quantity of 217 kg of CO_2 saved by its green electricity production. For a facility that does not consume fuel (photovoltaic, wind, hydraulic), the calculation is greatly simplified and results in a granting of 1.81 green certificates per megawatt hour produced.

Cogeneration and photovoltaic installations benefit from a multiplier coefficient guaranteeing a fixed return time of, respectively, 5 and 7 years (defined in the Order of the Government of the Brussels-Capital Region of 17 December 2015 relating to the promotion of green electricity), considered as a fair balance between support for photovoltaics and the impact of this support on the energy bill.

The table below summarises the levels of granting of green certificates for green electricity production installations:

Coefficient Multiplicateur et Taux d'Octroi				
Installation consommant du carburant				
Technologie	Conditions		Coefficient Multiplicateur	Octroi (CV)
Installation de cogénération	Biomasse	/	1	En fonction du rendement et de l'économie de CO2
	Au gaz naturel			
	Au gaz naturel sous certaines conditions*	Pe ≤ 15 kWe	6,3	
		15 kWe < Pe ≤ 50 kWe	3	
		50 kWe < Pe < 200 kWe	2	
		Pe ≥ 200 kWe	1,5	
Installation ne consommant pas de carburant				
Technologie	Conditions		Coefficient Multiplicateur	Taux d'Octroi (CV/MWh)
Taux de base			1	1,81
Photovoltaïque	/	Pe ≤ 5 kWc	1,65	3
		Pe > 5 kWc	1,32	2,4
	Intégrées en usine à des éléments de construction			
Éolienne	/	/	1	1,81
Hydroélectrique	/	/		

Source: https://www.brugel.brussels/acces_rapide/energies-renouvelables-11/mecanisme-des-certificats-verts-35

QUESTION 5: PLEASE PROVIDE INFORMATION ON THE OPERATION OF THE GUARANTEES OF ORIGIN SYSTEM FOR ELECTRICITY, HEATING AND COOLING FROM RES AND THE MEASURES TAKEN TO ENSURE THE RELIABILITY AND PROTECTION OF THE SYSTEM AGAINST FRAUD *(ARTICLE 22(1)(D) OF DIRECTIVE 2009/28/EC)*.

Flemish Region

Use of guarantees of origin as proof of the origin of the electricity supplied

The origin of electricity supplied to final customers that is produced from renewable energy sources is guaranteed to the customers of electricity in the Flemish Region by the VREG's control of the return of guarantee of origin (GOs).

The regulations relating to the granting and use of guarantees of origin as proof of the origin of the electricity supplied are regulated in Articles 7.1/1.1 up to and including 7.1/1.4 and Article 7.4.1 of the Energy Decree, and Articles 6.2/3.1 up to and including 6.2.5 of the Energy Order.

These articles regulate the transposition in the Flemish Region of Article 15 of Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and repealing Directives 2001/77/EC and 2003/30/EC.

Allocation of GOs by the VREG

The VREG grants a guarantee of origin to the owner of a production installation located in the Flemish Region, or to the natural or legal person designated by him, for every 1,000 kWh of electricity produced in the installation from renewable energy sources in the Flemish Region.

No more than 1 guarantee of origin shall be granted for the same 1000 kWh of electricity production, regardless of the energy source or technology. The guarantees of origin granted by the VREG are recorded in a central database, just like imported foreign GOs (see below).

An application to grant guarantees of origin is submitted by providing an application file to the Flemish Energy Agency. The application file consists of a correctly and fully completed application form, the model of which is determined, and the documents in support of the application indicated in the application form.

After the application has been approved, the guarantees of origin are granted monthly per tranche of 1000 kWh of electricity produced. The remaining number of kWh will be carried forward to the next month.

The electricity produced is the amount of net electricity production.

The amount of net electricity production is the electricity produced, less the measured electricity offtake or the equivalent electricity offtake of the utility facilities that belong to the production installation and were injected into a network.

If these utilities use energy sources other than electricity, their equivalent electricity offtake is calculated by the FEA as the electricity that can be produced in a reference installation with the same amount of energy.

If the application for the granting of guarantees of origin shows that this or the equivalent electricity offtake is small in relation to the electricity produced, the FEA can decide to calculate the net electricity production from the total electricity production on the basis of an estimate.

Management of GOs

The VREG manages the guarantees of origin granted in an online database. The following data are recorded for each guarantee of origin: the owner of the certificate, the registration number, a number of data on the production installation (place of production, rated capacity, etc.), the renewable energy source used, the year and month of production, etc.

The database also records the status of the guarantee of origin: surrendered, not yet surrendered, used on site (= non-negotiable), exported or expired.

Trade in GOs

Guarantees of origin are freely tradable. Sales of GOs, including their imports and exports, are recorded in the central database. The VREG makes it possible to publicise the supply of and demand for guarantees of origin.

Every month, the VREG publishes the average transaction price of the guarantees of origin recorded in the central database, the number of guarantees of origin granted, per technology and the number of imported and exported guarantees of origin traded within Flanders, classified into countries of destination or origin and technology.

Import and export of GOs

A guarantee of origin originating in another region or another country in the European Economic Area, or in a country with which the European Union has concluded an agreement on the mutual recognition of guarantees of origin issued in the European Union and on compatible systems for guarantees of origin established in that third country, can be imported into the Flemish Region and used to substantiate the source of energy supplied, if the owner thereof demonstrates to the VREG that certain conditions are met.

After the necessary data of the guarantee of origin have been transferred electronically to the VREG by the competent authority of the other region or country, and after the guarantee of origin has been definitively rendered unusable in the other region or country, the guarantee of origin is made available in the central database with the status "not yet surrendered", unless more than twelve months have elapsed since the end of the production period of the energy in question, in which case the status is "expired".

The VREG is a member of the Association of Issuing Bodies (AIB). The AIB website can be accessed via http://www.aib-org.net. Guarantees of origin created by a body that is a member of the AIB in the European Energy Certification System (EECS) and that is specifically registered with the AIB as an "Issuing Body" for guarantees of origin for electricity from renewable energy sources in any case satisfy the above conditions and can therefore be imported into the Flemish Region.

These guarantees of origin must then be imported into the Flemish Region according to the protocol established by AIB in "The Principles and Rules of Operation of Members of the Association of Issuing Bodies for The European Energy Certification System" (to be consulted on the AIB website), supplemented with the specific domain protocol for Flanders.

This specific domain protocol for Flanders was published as an appendix to BESL-2011-7 (pdf) of the VREG, concerning the establishment of more detailed technical rules regarding the use of green energy certificates as a guarantee of origin: http://www.vreg.be/sites/default/files/uploads/domain_protocol_vreg_flanders_v8_07092017.pdf

Surrender of GOs

The supply of electricity in the Flemish Region as a quantity of electricity from renewable energy sources is allowed if the quantity of electricity thus supplied corresponds to the corresponding number of kWh of the guarantees of origin for electricity from renewable energy sources that have been surrendered to the central database.

Each month, a supplier surrenders a number of guarantees of origin for electricity produced from renewable energy sources and a number of guarantees of origin for electricity produced from qualitative cogeneration that correspond to, respectively, the quantity of electricity that it sold to customers in the Flemish Region in the previous month as electricity from renewable energy sources and the quantity of electricity that it sold to customers in the Flemish Region in the previous month as electricity from qualitative cogeneration.

These guarantees of origin can be granted by the VREG or by a competent authority of the federal government, the other regions or another country.

A guarantee of origin may only be surrendered within twelve months of the end of the production period of the energy quantity in question.

Only guarantees of origin with the status "not yet surrendered" can be surrendered.

Each month, the number of guarantees of origin that have been surrendered is compared by the VREG with the quantity of electricity delivered that month by the supplier to its customers as electricity from renewable energy sources or electricity from qualitative cogeneration.

Each month, a supplier of electricity provides the VREG with a list of customers who are connected to the network of a network operator or transmission system operator and who are supplied by the supplier with electricity, produced from renewable energy sources and qualitative cogeneration, stating for each

customer the share of electricity from renewable energy sources and qualitative cogeneration in the total electricity supply to this customer.

Each month, the network operators and the transmission system operator notify the VREG and the supplier concerned of the aggregated offtake data of the customers, broken down according to the share of electricity from renewable energy sources and qualitative cogeneration in the total electricity supply to these customers.

Each month, the VREG checks whether a supplier has submitted the correct number of guarantees of origin. If the supplier has not submitted sufficient guarantees of origin, an administrative fine may be imposed.

The VREG then offers electricity customers the possibility of checking on its website whether, and to what extent, their supplier has supplied their electricity produced from renewable energy sources and qualitative cogeneration.

See http://www.vreg.be/groencheck

Reliability and fraud-proofing of the system of guarantees of origin

Fraud-proofing is guaranteed by avoiding double counting of the same quantity of green energy.

Only the VREG has been designated as the issuing body of GOs for the production of electricity in the Flemish Region.

Article 7.1.8. Energy Decree

The supply of electricity in the Flemish Region as a quantity of electricity from renewable energy sources or electricity from qualitative cogeneration is allowed if the quantity of electricity thus supplied corresponds to the respective number of guarantees of origin submitted to the VREG.

Article 7.1.9.

The Flemish Government shall determine under which conditions guarantees of origin granted by the competent authority of the federal government, other regions or other countries may be accepted for the supply of electricity, as stated in Article 7.1.8. Those conditions must be objective, transparent and non-discriminatory.

Walloon Region

In the Walloon region, the "disclosure" mechanism for electricity of renewable origin (RES-E) and electricity produced from cogeneration units (CHP) is entirely based on guarantees of origin. No other proof of green character is accepted, in the same way that no sale of electricity of renewable origin or produced from "cogeneration" units is authorised if the guarantees of origin concerned are not cancelled. Imports and exports of guarantees of origin from Member States that have implemented the rules relating to the European Electricity Certificate System *(EECS)* of the Association of Issuing Bodies (AIB) are immediately accepted.

Guarantee of origin

Electricity produced from certified renewable or cogeneration units (CHPs) receives guarantees of origin, whether or not these units are supported. Only electricity sold, usually after injection into the network or more rarely directly on the production site, is subject to the granting of guarantees of origin. Only the net electricity produced gives the right to a guarantee of origin. A guarantee of origin may be in the form of a RE-GO, CHP-GO, or both RE-GO and CHP-GO.

The role of the issuing body has been assigned to the CWAPE, the Walloon regional energy market regulator. The system is entirely administered by CWAPE electronic registers, which on a quarterly basis grant guarantees of origin to producers on the basis of quarterly production reports. Guarantees of origin are granted according to EECS rules. These guarantees of origin are then exchanged within the Member States applying the EECS rules. No request for import or export from a non-EECS Member State has been registered.

The green certificate (support function) and the guarantee of origin (disclosure function) are completely separate. Their uses are limited exclusively to the objectives they pursue to avoid double counting or misuse. The guarantee of origin may only be used for disclosure purposes. The cancellation of a guarantee of origin does not in any way affect the validity of the green certificate for the purpose of respecting the quota, and vice versa.

Disclosure

The disclosure regime is implemented by Article 11, §2, 3° of the Order of the Walloon Government of 30 March 2006 relating to public service obligations in the electricity market, which requires electricity suppliers to indicate in their contracts and bills the origin of the electricity supplied during the previous year.

Article 43(2) of the Order of the Walloon Government of 30 March 2006 relating to public service obligations in the electricity market stipulates that each year before 31 March, electricity suppliers must inform the CWAPE of the origin of the electricity supplied the previous year. The CWAPE ensures the reliability of this information and draws up an annual report on its findings. The calculation relating to the energy mix (Fuel Mix calculation) is based exclusively on the cancelled guarantees of origin (GO-RE and/or GO-CHP) on the one hand and on the suppliers' declarations regarding energy of fossil and fissile origin on the other. To avoid any double counting of the energy of renewable origin, the renewable part is deducted from the calculation of the residual mix of the producer's production facilities. With regard to the electricity purchased 46/55 on the stock exchange, the Belgian energy mix calculated within the framework of the RE-DISS project (EPED Platform) is used.

The CWAPE uses data reported by distribution network operators and transmission network operators to establish the amount of electricity supplied by supplier. Based on these data, the suppliers declare the total amount of electricity sold for each of their products.

Guarantees of origin are used as part of the monthly control of the shares of energy of renewable origin or from renewable cogeneration units in the energy mix to be allocated to each offtake point. Furthermore, suppliers can still cancel the guarantees of origin for their contracts which are not stamped green but contain electricity produced from renewable or cogeneration units. Monthly and annual totals are aggregated to establish the annual "disclosure".

The cancellation of guarantees of origin applies exclusively to electricity suppliers with an authorisation, mainly to increase competition in the energy market. Consequently, no end consumer is allowed to cancel the guarantees of origin for their own use. Self-producers are legally obliged to cancel their GO-RE or GO-CHP in proportion to their consumption. These mechanisms make it possible to ensure the correspondence between the RE and CHP attributes on the one hand, and the physical energy on the other.

References:

- *Order of the Walloon Government on public service obligations in the electricity market, 30 March 2006, http://wallex.wallonie.be/index.php?doc=8986*
- *Ministerial Decree establishing the method for determining the primary energy sources used to produce electricity, 13 December 2006. - (Belgian Official Gazette of 22/12/2006, p. 73884), http://wallex.wallonie.be/index.php?doc=9393*
- *Decree on the organisation of the regional electricity market, 12 April 2001 http://wallex.wallonie.be/index.php?doc=9075*

Brussels-Capital Region

In the Brussels-Capital Region, the granting and management of the guarantee of origin mechanism is the responsibility of BRUGEL, the Brussels body for local regulation of the electricity and gas markets. BRUGEL has been a member of the Association of Issuing Bodies (AIB) since 2008. The AIB promotes the use of a standardised system, based on a harmonised environment, structures and procedures, to ensure the reliability of international energy certificate systems. This standardised system is known as the EECS® (European Energy Certificate System) and is set out in the document "The Principles and Rules of Operation" ("PRO" i.e. the EECS rules) and its supporting documents. Registration with the AIB, implementation of the PRO and interconnection with other members ensure the reliability and transparency of the procedures for granting, transferring and cancelling guarantees of origin.

For the 2017-2018 period, almost all green electricity production installations in the Brussels-Capital Region were self-consuming or equivalent. For the period 2017-2018, the electricity produced via the

municipal waste incinerator remained the only one to benefit from transferable GOs for the part of the electricity injected into the network. In 2017, 112,521 GOs were granted[7] and 111,701 GOs in 2018[8].

Data published quarterly on the Brugel website www.brugel.brussels.

idem

QUESTION 6: PLEASE DESCRIBE THE EVOLUTION OVER THE LAST 2 YEARS OF THE AVAILABILITY AND USE OF BIOMASS RESOURCES FOR ENERGY SAVING PURPOSES *(ARTICLE 22(1)(G) OF DIRECTIVE 2009/28/EC)*

*We suggest that you use **tables 4 and 4a** to provide more detailed information on the biomass supply.*

Table 4: Biomass supply for energy saving purposes

* Quantity of raw material in m^3 if possible for biomass from forestry and in tonnes for biomass from agriculture and fishing and for biomass from waste
** The definition of this biomass category must comply with table 7, section 4.6.1 of decision C (2009) 5174 from the Commission establishing a template for the national action plans concerning sustainable energy in accordance with directive 2009/28/EC

Table 4a. Allocation of national agricultural land to crops specifically devoted to energy production (ha)

	Surface area (ha)	
	2017	2018
1. Land used for traditional agricultural crops (wheat, sugar beet, etc.) and oilseeds (rapeseed, ~~sunflower,~~ etc.)		
Corn	4,816	7,197
2. Land used for very short rotation coppices (specify species); willow and poplar	122	122
3. Land used for energy crops (grass, miscanthus, ~~sorghum,~~ etc.)	509	408

QUESTION 7: PLEASE PROVIDE INFORMATION ON ANY CHANGES MADE TO THE PRICES OF COMMODITIES AND TO THE ALLOCATION OF LAND IN YOUR MEMBER STATE IN THE LAST 2 YEARS LINKED TO THE INCREASED USE OF BIOMASS AND OTHER TYPES OF ENERGY FROM SUSTAINABLE SOURCES. PLEASE INDICATE, WHERE APPLICABLE, THE REFERENCE OF THE DOCUMENTS RELATING TO THESE IMPACTS IN YOUR COUNTRY *(ARTICLE 22(1)(H) OF DIRECTIVE 2009/28/EC).*

For the assessment of impacts on the prices of commodities, we suggest you examine the following basic products as a minimum: common food and feed crops, firewood, pellets.

No effects are known on changes in raw material prices and land use due to increased use of biomass and other renewable energy sources.

QUESTION 8: PLEASE DESCRIBE THE EVOLUTION AND THE SHARE OF BIO FUELS PRODUCED FROM WASTE, RESIDUE, NON-FOOD CELLULOSE MATTER AND LIGNOCELLULOSES MATTER (ARTICLE 22(1)(I) OF DIRECTIVE 2009/28/EC).

Table 5: Production and consumption of bio fuels within Article 21(2) (ktoe)

[1] Bio fuels produced from waste, residue, non-food cellulose matter and lignocelluloses matter.

	2017	2018
Production - fuel type X (specify)	0.00	0.00
Consumption - fuel type Annex IX - Part A - (d)	0.50	4.70
Consumption - fuel type Annex IX - Part A - (o)	0.60	0.28
Consumption - fuel type Annex IX - Part B - (a)	2.46	9.90
Consumption - fuel type Annex IX - Part B - (b)	8.85	8.99
Total production in Article 21(2), biofuels in question	0.00	0.00
Total consumption in Article 21(2), biofuels in question	12.41	23.87
% share of fuels referred to in Article 21(2), in total RES-T	0.28%	0.54%

QUESTION 9: PLEASE PROVIDE INFORMATION ON THE ESTIMATED IMPACT OF BIO FUEL AND BIO LIQUID PRODUCTION ON BIODIVERSITY, WATER RESOURCES, WATER QUALITY AND SOIL QUALITY IN YOUR COUNTRY OVER THE LAST 2 YEARS. PLEASE PROVIDE INFORMATION ON THE WAY IN WHICH THESE IMPACTS ARE EVALUATED, BY PROVIDING REFERENCES TO RELEVANT DOCUMENTS CONCERNING THESE IMPACTS IN YOUR COUNTRY *(ARTICLE 22(1)(J) OF DIRECTIVE 2009/28/EC).*

There are no known negative impacts on biodiversity, water and soil quality specifically due to the cultivation of biofuels.

QUESTION 10: PLEASE ESTIMATE THE NET REDUCTIONS IN GREENHOUSE GAS EMISSIONS ACHIEVED THANKS TO THE USE OF ENERGY FROM SUSTAINABLE SOURCES *(ARTICLE 22(1)(K) OF DIRECTIVE 2009/28/EC).*

To calculate the net reductions in greenhouse gas emissions achieved thanks to the use of sustainable energy, we suggest the following methodology:

For bio fuels: in accordance with the provisions of Article 22(2) of Directive 2009/28/EC. Valbiom

For electricity and heating, we suggest the use of fossil fuel comparators at European level for the electricity and heating that appears in the report on the sustainability requirements for the use of solid and gaseous biomass sources relating to the production of electricity and heating and cooling energy[9], if there are no more recent estimates.

If a Member State decides not to use the methodology suggested for the estimation of net reductions in greenhouse gas emissions, please describe the methodology used to estimate these reductions.

The report can be consulted at the following address:

.

Table 6: *Estimated reductions in greenhouse gas emissions attributable to the use of sustainable energy sources (equivalent tonnes of CO_2)*

Environmental aspects	TOT	TOT
Tonnes CO_2	2017	2018
Total estimated greenhouse gas emission reductions from renewable energy [1]		
Estimated net greenhouse gas emission reduction through the use of renewable electricity		
Estimated net greenhouse gas emission reduction through the use of renewable energy for heating and cooling		
Estimated net greenhouse gas emission reduction through the use of renewable energy for transport		

QUESTION 11: PLEASE INDICATE (FOR THE LAST 2 YEARS) AND ESTIMATE (FOR THE COMING YEARS UP TO 2020) THE SURPLUS/DEFICIT PRODUCTION OF ENERGY FROM SUSTAINABLE SOURCES AS AGAINST THE INDICATIVE TRAJECTORY, WHICH MAY BE TRANSFERRED TO/IMPORTED FROM OTHER MEMBER STATES AND/OR THIRD COUNTRIES, AS WELL AS THE ESTIMATED POTENTIAL FOR JOINT PROJECTS LOOKING AHEAD TO 2020 *(ARTICLE 22(1)(L) AND (M) OF DIRECTIVE 2009/28/EC).*

Table 7: Surplus and/or deficit (-) production, actual and estimated, of energy produced from sustainable sources, as against the indicative trajectory, which may be transferred to/imported from other Member States in Belgium (ktoe)[10],[11]

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Actual/estimated surplus or deficit in production	0	0	0	0	0	0	0	0	0	0

Please use the actual figures to count the surplus production over the two years prior to the presentation of the report and estimates for the coming years up to 2020. In each report, the Member State can correct the data provided in the previous reports.

When completing the table for the deficit production, please indicate the production deficit using negative figures (e.g. -x ktoe).

QUESTION 11A: PLEASE PROVIDE DETAILS OF STATISTICAL TRANSFERS, JOINT PROJECTS AND DECISION-MAKING METHODS FOR JOINT AID SCHEMES.

At present, Belgium still has not performed any exchange of statistics.

QUESTION 12: PLEASE PROVIDE INFORMATION ON THE EVALUATION OF THE SHARE OF BIODEGRADABLE WASTE IN ALL THE WASTE USED FOR ENERGY PRODUCTION, AS WELL AS ON THE MEASURES ADOPTED WITH A VIEW TO IMPROVING AND CHECKING THESE ESTIMATES *(ARTICLE 22(1)(N) OF DIRECTIVE 2009/28/EC).*

Note that the first progress report (2011) calls on Member States to set out their plans in relation to the questions raised in Article 22(3)(a), (b) and (c). In addition, each Member State may provide any other information it considers relevant to its specific situation in relation to the development of renewable energy.

Flemish Region

Based on data from the 2006 local waste sorting campaign in Flanders, the renewable share of residual waste on an energy basis is 47.78%. The method is described in the report "Determination of the renewable share of residual waste" (Vito, April 2009).

Walloon Region

The biodegradable organic share of incinerated waste is estimated at 47% of the intermunicipal waste mass. The PCI of the organic share of waste is estimated at 4.24 GJ/tonne. The share of primary energy considered renewable is 511 GWh.

(Reference: ICEDD, energy balance 2013)

Brussels-Capital Region

The municipal waste incinerator in Neder-Over-Heembeek combined with a turbine producing electricity is the only facility in Brussels that uses waste to produce electricity. Guarantees of origin are granted for the share of electricity produced from the organic share of incinerated waste. This portion is determined using the "Carbon 14" method according to current standards.

In 2017[12], this facility recovered 506,354 tonnes of waste. BRUGEL granted guarantees of origin for the share of electricity from renewable sources of this production estimated at 117.258 GWh. In 2018[13], 489,040 tonnes of waste, including 245,784 tonnes of biowaste, were recovered. Net production of renewable electricity reinjected into the

Source: Energy balance 2017

Source: Energy balance 2018