National Air Pollution Control Programme, 2019, Belgium

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2.1 Title of the programme, contact information and websites

2.1.1. Title of the programme, contact information and websites (M)	
Title of the programme:	Belgian national emissions reduction programme
Date:	27/3/2019
Member State:	Belgium
Name of competent authority responsible for drawing up the programme:	**Belgium (BE)**: Coordination Committee for International Environmental Policy – atmosphere working group **Federal Government (FED)**: FPS Health, Food Chain Safety and Environment **Flemish Region (VLA)**: Department of Environment **Walloon Region (WAL)**: Walloon Agency for Air and Climate (AwAC) **Brussels Capital Region**: Brussels Environment
Telephone number of responsible service:	**BE**: +32 2 553 11 38 **FED**: + 32 2 524 96 74 **VLA**: +32 2 553 11 34 **WAL**: +32 81 33 59 53 **RBC**: +32 2 775 75 75
Email address of responsible service:	**BE**: Steven.Lauwereins@vlaanderen.be **FED**: info@environnement.belgique.be **VLA**: lucht@vlaanderen.be **WAL**: info-airclimat@wallonie.be **RBC**: avanderpoorten@environnement.brussels
Link to website where the programme is published:	**BE**: The Belgian programme is published on each of the websites mentioned below. **FED**: Not applicable

	VLA: https://www.lne.be/luchtverontreining-vlaamse-plannen **WAL**: http://www.awac.be **RBC**: http://www.environnement.brussels
Link(s) to website(s) on the consultation(s) on the programme:	**FED**: **VLA**: https://www.lne.be/luchtverontreining-vlaamse-plannen **WAL**: http://www.awac.be **RBC**: http://www.environnement.brussels

2.2 Executive summary (O)

Please see the standalone document

2.3 The national air quality and pollution policy framework

2.2.1. Policy priorities and their relationship to priorities set in other relevant policy areas

The national emission reduction commitments compared with 2005 base year (in %) (M):	**SO_2**	**NO_x**	**NMVOC**	**NH_3**	**$PM_{2.5}$**
2020-2029 (M):	43 %	41 %	21 %	2 %	20 %
From 2030 (M):	66 %	59 %	35 %	13 %	39 %

The air quality priorities: national policy priorities related to EU or national air quality objectives (incl. limit values and target values, and exposure concentration obligations) (M):

Reference can also be made to recommended air quality objectives by the WHO.

BE: The national emissions reduction targets have been divided across the three regions in the form of absolute targets (in kt/year), for which a formula has been agreed that ensures that the total of the regional ceilings always meets the national reduction target. The division was based on the emissions reporting of February 2016.

	Emissions BE 2005 (kt)	**Target BE 2020 (%)**	**Emission ceiling 2020 (kt)**			
			BE	**VLA**	**WAL**	**RBC**
NO_x	303.5	-41 %	179.1	100.3	72.4	4.7
SO_x	142.1	-43 %	81.0	43.9	25.8	1.7
$PM_{2.5}$	34.8	-20 %	27.8	14.2	11.3	0.5
NMVOC	145.8	-21 %	115.2	73.1	36.8	4.6
NH_3	75.2	-2 %	73.7	40.5	30.4	0.0

	Emissions BE 2005 (kt)	Target BE 2030 (%)	Emission ceiling 2030 (kt)			
			BE	VLA	WAL	RBC
NO_x	303.5	-59 %	124.4	71.8	49.4	3.2
SO_x	142.1	-66 %	48.3	32.5	15.4	0.4
$PM_{2.5}$	34.8	-39 %	21.2	11.9	8.8	0.5
NMVOC	145.8	-35 %	94.8	58.8	32.1	3.9
NH_3	75.2	-13 %	65.4	38.3	27.0	0.1

FED: Not applicable

VLA: In the **short term** (as soon as possible) we will ensure that the European air quality standards and/or target values are not exceeded anywhere in Flanders and that we meet the 2020 emission ceilings. In the **medium term** (2030) we will achieve the 2030 emission ceilings. We will select a similar path for Flanders as for Europe. We aim to halve the health impact of air pollution as determined by the WHO when compared with 2005 and we will reduce by one third the surface area of ecosystems where the overfertilisation or acidification carrying capacity is exceeded when compared with 2005. By 2030 we aim to halve the number of people living on a road where the annual average NO_2 concentration is higher than the WHO recommendation in every municipality when compared with 2016. Provided that the WHO does not lay down any new recommendations for long-term exposure to NO_2, we assume a target of 20 µg/m³.

In the **long term** (2050) we will drastically reduce air pollution from anthropogenic sources such as industry, agriculture, heating of buildings and transport. We aim to ensure air quality in Flanders has no significant negative impact on the health of the population, as laid down by the WHO, and that the carrying capacity of ecosystems is no longer exceeded. In this plan, we treat the WHO recommendations as long-term targets. This means that the concentrations in 2050 may not be higher than the WHO recommendations anywhere.

In the Flemish air policy plan, measures are drawn up and selected in line with objectives regarding both

	emissions and air quality. **WAL**: Improving air quality is a key objective for Wallonia. A resolution of the Walloon Parliament of 31 May 2017 promotes an ambitious policy in this area, making reference to the WHO guidelines. The emission ceilings laid down for 2020 had already been reached by 2016. By 2030 Wallonia commits to meeting the reduction targets laid down in the NEC Directive and aims to respect the WHO guidelines for the protection of health as part of an integrated air/energy policy, including ambitious policies regarding renewable energy, transport and insulation. Priority is given to the impact of pollution on urban areas and/or areas close to roads. **RBC**: The Brussels Capital Region (RBC) has made improving air quality one of its main objectives. Since 2016 RBC has developed an integrated air, climate change and energy policy which aims to leverage the synergies between regional efforts in these three areas, as the greenhouse gas-emitting sectors and atmospheric pollutants are the same – transport (main sector for atmospheric pollutants) and buildings (main sector for greenhouse gases and energy consumption) – in accordance with the adoption of the regional air, climate change and energy plan (PACE) in June 2016. With regard to air quality, in the short term the plan aims to meet the European air quality standards and emission ceilings. It is valid for at least five years unless it is replaced. With regard to air quality, the main measure in the air, climate change and energy plan is the establishment of a low emission zone (LEZ) within the Brussels region, which entered into force in January 2018. In addition, in accordance with the long-term (2020-2030) European obligations regarding energy and climate change laid down in Regulation (EU) 2018/1999 on the governance of the Energy Union and Climate Action, the region has adopted a 2030 energy and climate change plan (PNEC 2030). PNEC 2030 will have a definite impact on pollutant emissions and air quality, because the transport chapter of the plan comprises the main measures in the future regional mobility plan (the 'Good Move' plan, which should be adopted in the first half of 2019). According to the initial estimates, which are yet to be detailed in the environmental impact report, the Good Move plan could contribute to a 21 % reduction in vehicle kilometres in RBC by 2030. The priority objectives of Good Move related to energy and the climate are reducing car use and ownership, and vehicle greening. From 2030, the Environmental Impact Reduction Strategy for existing buildings in the Brussels Capital Region (buildings chapter of PNEC 2030) will reinforce the existing plans by aiming to bring about an additional reduction in

	building energy requirements and thereby a reduction in pollutant emissions in the sector. These two plans (PACE and PNEC 2030) should enable us to achieve the objectives for reducing atmospheric pollutant emissions by 2020 and 2030.
Relevant climate change and energy policy priorities (M):	**BE**: The national energy and climate plan (https://economie.fgov.be/fr/publications/projet-de-plan-national) will implement the non-ETS greenhouse gas target laid down in the Effort Sharing Regulation, i.e. -35 % by 2030 compared with 2005. In addition, the plan also lays down a contribution to the EU targets for renewable energy and energy efficiency of 32 % and 32.5 % respectively. We have included the effect of the climate change and energy policy on NEC pollutant emissions in the calculation of emissions projections. The models that we use to make air quality projections are the same as the models used for the greenhouse gas projections. We can therefore use the same assumptions with regard to level of activity and fuel consumption. Both the figures and the measures from the air policy plan have been coordinated with the climate and energy plan. **FED**: The draft federal contribution to the national energy and climate change plan derived from the strategy adopted by the Federal Government in 2018 contains measures relating to transport, energy and investment that will complement the regions' efforts. These measures are integrated into the federal contribution to the national plan by means of a cooperation agreement that is currently being drawn up. **VLA**: The Flemish climate plan for the period 2021-2030 implements a non-ETS target of -35 % in 2030 compared with 2005. The Flemish energy plan lays down targets for renewable energy and energy efficiency that will be further integrated in the national energy and climate plan with the contributions of the other Belgian entities. For more information about the coordination of measures and assumptions, see chapter 4.2 and Annex 1 to the Flemish air policy plan. **WAL**: In the non-ETS sectors, Wallonia expects to reduce emissions by 37 % compared with 2005. • Share of renewable energy in gross final energy consumption in 2030: 23.5 % for electricity, heating and transport; • Energy efficiency: 23 % of final consumption and 36 % of primary consumption compared with 2005; • Renewable energy production in 2030: 37 % of final electricity consumption; • An increase of 60 % in renewable heat production in 2030 compared with the reference scenario.

	• Reduction in final energy consumption in Wallonia for 2030: -11 % compared with the reference scenario and -22 % compared with 2005; the reduction is primarily in industry (-35 % between 2005 and 2030) and in the residential sector (-30.5 % between 2005 and 2030 and -11.5 % between 2020 and 2030) and tertiary sector (-5.2 % between 2020 and 2030) as a result of building refurbishment (see the Walloon Building Refurbishment Strategy adopted on 20.4.2017) https://energie.wallonie.be/fr/strategie-de-renovation.html?IDC=9580 and transport (-9 %) under the strategic plan 'FAST – Vision for Mobility in 2030' – http://diantonio.wallonie.be/files/Documents/11037-fastmobilitwallonie2030.pdf • Residential and tertiary refurbishment: an average reduction in energy consumption of 29 %; in the long term (2050) moving towards an average energy performance rating of A for residential buildings and zero-energy buildings in the tertiary sector; • Research and development budget: 4 % for direct energy and climate change research; 11 % for integrated research. **RBC**: The projections made as part of the 2030 energy and climate change plan show that the measures proposed in that plan would enable the region to achieve the following by 2030: - a 31 % reduction in greenhouse gas emissions from the non-ETS sector compared with 2005; - a 25 % reduction in energy consumption (final energy) compared with 2005. With regard to renewable energy, the region's projection for electricity and heating and cooling combined is production of 470 GWh in 2030 (330 GWh in 2020).
Relevant policy priorities in relevant policy areas, incl. agriculture, industry and transport (M):	**BE:** Since 1 April 2016 heavy goods vehicles heavier than 3.5 tonnes have been subject to road pricing on a graduated scale according to the European emission standards. Additionally, the rate is affected by the type of road. In Brussels, for instance, the rate is higher on urban roads than on the motorways (thus helping to reduce through traffic on urban roads). **FED**: Energy consumption, domestic heating and tertiary sector – Belgium has strict legislation on heating appliances and fuels. There is a plan to revise the rules in 2022 as follows: Heating appliances: the federal authority will maintain the minimum requirements for heating appliances beyond 2022, i.e. above the standards laid down in the Ecodesign Regulation. The testing and inspection methods will be reviewed to reinforce this. In Belgium these standards also apply to second-hand goods and e-commerce. Market surveillance will be improved in this area.

	Solid fuel: the current legislation, which lays down quality criteria for pellets only, will be expanded to cover a wider range of fuel products made of wood and sold in commercial outlets (direct or back-up energy supply in supermarkets and specialist shops). Transport: taxation – the federal authority will reform the taxation of federal transport, taking into account the objectives of the NEC Directive. For business travel, the reform of the existing regulations will be evaluated and adapted as necessary. Measures relating to maritime navigation are also envisaged. These measures will be determined through a cooperation agreement laying down the federal measures to be implemented by 2030. The impact of these measures is generally indirect, as they are linked to the federal organisation of competences in Belgium. **VLA**: When drawing up the air policy plan, the expected developments and existing and future Flemish policy in all the relevant sectors were taken into account. This includes industry (thresholds, incl. the implementation of BREFs, and climate and energy policy), buildings (energy policy and product standards), transport (mobility policy and future vehicles policy) and agriculture (policy regarding number of animals and specific policy on reducing, for example, nitrogen deposition, both in general and locally). In addition, consideration was given to the interconnection with policies regarding planning, nature conservation, preventive health and indoor environment. Chapter 2.7 of the air policy plan discusses these issues. **WAL**: Mobility/transport: http://diantonio.wallonie.be/files/Documents/11037-fastmobilitwallonie2030.pdf • Reduce the proportion of kilometres travelled attributed to private vehicles (83 % in 2017; 60 % in 2030); • Increase the proportion attributed to public transport (bus: 4 % in 2017 and 10 % in 2030; train 9 % in 2017 and 15 % in 2030); • For freight transport, increase the proportion by rail (4 % in 2017; 7 % in 2030) and river (14 % in 2017; 18 % in 2030) and decrease the proportion by road (from 82 % in 2017 to 75 % in 2030); • Cars on the road in 2030: 19 % fully electric, 5 % plug-in hybrids, 1 % hydrogen, 18 % CNG, 17 % diesel, 27 % petrol and 13 % non plug-in hybrids; • TEC bus fleet in 2020: 15 % hybrid buses; 2030: almost the entire fleet electric, hybrid or CNG buses; • From 2025: all new vehicles purchased by the authorities and for public transport will be ‘zero-emission’;

	• Lorries and vans: priority for LNG; • Low emission zones in the main cities in Wallonia. With regard to agriculture, the priorities relate to restricting mineral fertiliser, improving the application of manure and developing 'low-emission' buildings for large farms that are new or that undergo major refurbishment. In industry, the intention is to continue to improve energy efficiency and the decarbonisation of energy carriers. For atmospheric pollutants, the intention is to aim towards low levels of BAT-AELs. **RBC**: In the Brussels Capital Region, the two main measures that will have a significant impact on air quality and pollutant emissions are: • the low emission zone (LEZ), which entered into effect in January 2018 and gradually bans the most polluting vehicles from driving in Brussels. In 2018 diesel vehicles with Euro 1 standard or without a Euro standard were banned. In 2019 diesel vehicle with Euro 2 standard and petrol vehicles without a Euro standard or with Euro 1 standard were also banned. These criteria will be expanded until 2025. The LEZ concerns private cars, vans ≤ 3.5 tonnes and buses and coaches, whether registered in Belgium or abroad (with certain exceptions). For more information, see lez.brussels; • diesel phase-out by 2030: on 31 May 2018 the Brussels Government announced its intention for a complete ban on diesel-powered vehicles from 2030. A phase-out of petrol vehicles will also be considered. In this context, the Government also decided to develop alternative technologies in the short and medium term, focusing on those already available such as electric, hybrid and CNG/LNG vehicles. In addition, the Brussels Region is shortly expected to adopt its new regional mobility plan, 'Good Move', at first reading. According to initial estimates, the Good Move plan could contribute to a 21 % reduction in vehicle kilometres in the RBC by 2030. The priority objectives of Good Move related to energy and the climate are reducing car use and ownership, and vehicle greening.

2.2.2. Responsibilities attributed to national, regional and local authorities			
List the relevant authorities(M):	**Describe the type of authority (e.g. environmental inspectorate, regional environment agency, municipality) (M):** Where appropriate, name of authority (e.g. Ministry of XXX, National Agency for XXX, Regional office for XXX):	**Describe the attributed responsibilities in the areas of air quality and air pollution (M):** Select from the following as appropriate: • Policy making roles • Implementation roles • Enforcement roles (including where relevant inspections and permitting) • Reporting and monitoring roles • Coordinating roles • Other roles, please specify:	**Source sectors under the responsibility of the authority (O):**
National authorities (M):	Federal Government	By virtue of the regionalisation of certain powers in Belgium, the federal authority does not have direct responsibility for combating atmospheric pollution or for environmental protection more broadly. The federal authority is responsible for establishing product standards (placing on the market) and for drawing up rules regarding public procurement. It is also responsible for security of energy supply, monitoring of nuclear installations, certain aspects of the regulation of the electricity market, excise policies, VAT, rail transport, certain aspects of the highway code, and numerous aspects of corporation tax, including taxation of company vehicles (businesses (employers) and natural persons (users)). • Policy making roles • Implementation roles • Enforcement roles	
	Committee for International Environmental Policy Coordination (CCIM/CCPIE).	Discussion forum for regional and federal governments on positions in the development of international and European policy. The CCPIE has created thematic working groups, including 'Atmos' which manages coordination of European or international	

		work relating to atmospheric pollution. There is also a sub-group for emission inventories. • Coordinating roles	
	Interministerial Environment Conference (ICL/CIE)	The CIE comprises the federal and three regional ministers for the environment. It adopts decisions regarding the environment that apply to the four authorities and that may establish commitments for Belgium in relation to the European Union or to other international conventions. • Policy making roles • Implementation roles	
	Interregional Environment Agency (CELINE/IRCEL)	CELINE/IRCEL is responsible for the joint and coordinated monitoring of air quality throughout Belgium and compiles the data to fulfil the reporting requirements of the EU and international conventions. It also provides clear information to the public regarding current air quality. CELINE is also responsible for monitoring tropospheric ozone levels and episodes of fine particle pollution and informing the media and the public accordingly. The website http://www.irceline.be/fr provides continuous information about day-to-day air quality in Belgium. CELINE has also developed the app 'BelAIR', which uses geolocation on mobile phones to provide real-time data on local air quality gathered by telemetric stations to users anywhere in Belgium. App available in the Play Store or the App Store. CELINE has also been given responsibility for relations between Belgium and the European Environment Agency. • Reporting and monitoring roles	

Regional authorities (M):	Regional government: general (VLA, WAL and RBC)	Environmental policy is largely a regional competence (emission thresholds, air quality standards, energy policy (consumption and generation), environmental permits, mobility policy). The regions are also responsible for public works, spatial planning and urban planning. • Policy making roles • Implementation roles • Enforcement roles • Reporting and monitoring roles Energy policy, including renewable energy and energy efficiency, is also a regional competence: policies and measures, implementation, reporting and monitoring. Drawing up a contribution from the region to the Belgian NAPCP, the Belgian climate plan and the Belgian energy plan. Establishing an emission inventory and emission projection. Monitoring air quality and the impact of air quality on health and the environment.	All sectors
	Regional government: VLA	Permits: policy (general rules and conditions) Permits: implementation (procurement procedure for the largest installations (class 1))	
	Regional government: WAL	Environmental permits: adoption of policies, general and specific rules, and standards/limit values; inspection; appeals to the Minister for the Environment;	
	Regional government: RBC	Adoption of general operating conditions and limit values for classified installations (large and small); Environmental permits (for large installations and 'public' installations): laying down specific operating conditions and, in the absence of regulations, laying down limit values; inspection; administrative appeals and appeals to the Government. Environmental permits may lay down stricter limit values than	

		regulations.	
Local authorities (M):	VLA: Provinces	Permits: implementation (for the largest installations and procurement procedure for small installations (class 2 and 3) and monitoring (focus on largest installations))	
	VLA: towns and municipalities	Permits: implementation (for the small installations (class 2 and 3)) Mobility: local policy, implementation and monitoring	
	WAL: communes	Issuing environmental permits for all classes on the opinion of the Region's technical officer. (In Wallonia the provinces do not play any part.)	
	RBC: communes	Environmental permits (for small installations): laying down specific operating conditions and setting pollutant emission thresholds; inspection; administrative appeals and appeals to the Government. Municipal vehicle fleet. Municipal buildings. Public works, spatial and urban planning at municipal level.	
Add more rows as appropriate			

2.4 Progress made by current policies and measures (PaMs) in reducing emissions and improving air quality, and the degree of compliance with national and Union obligations, compared to 2005

2.3.1. Progress made by current PaMs in reducing emissions, and the degree of compliance with national and Union emission reduction obligations

Describe progress made by current PaMs in reducing emissions, and the degree of compliance with national and Union emission reduction legislation (M):

BE: Emission reductions from 1990 to 2017 and from 2005 to 2017 (excluding NO_x and NMVOC emissions from NFR sectors 3B and 3D) were: 58 % and 46 % respectively for NO_x, 90 % and 74 % for SO_2, 72 % and 43 % for NMVOC and 45 % and 11 % for NH_3. Emission figures for $PM_{2.5}$ are not available for 1990. The emission reduction from 2005 to 2017 was 34 %.

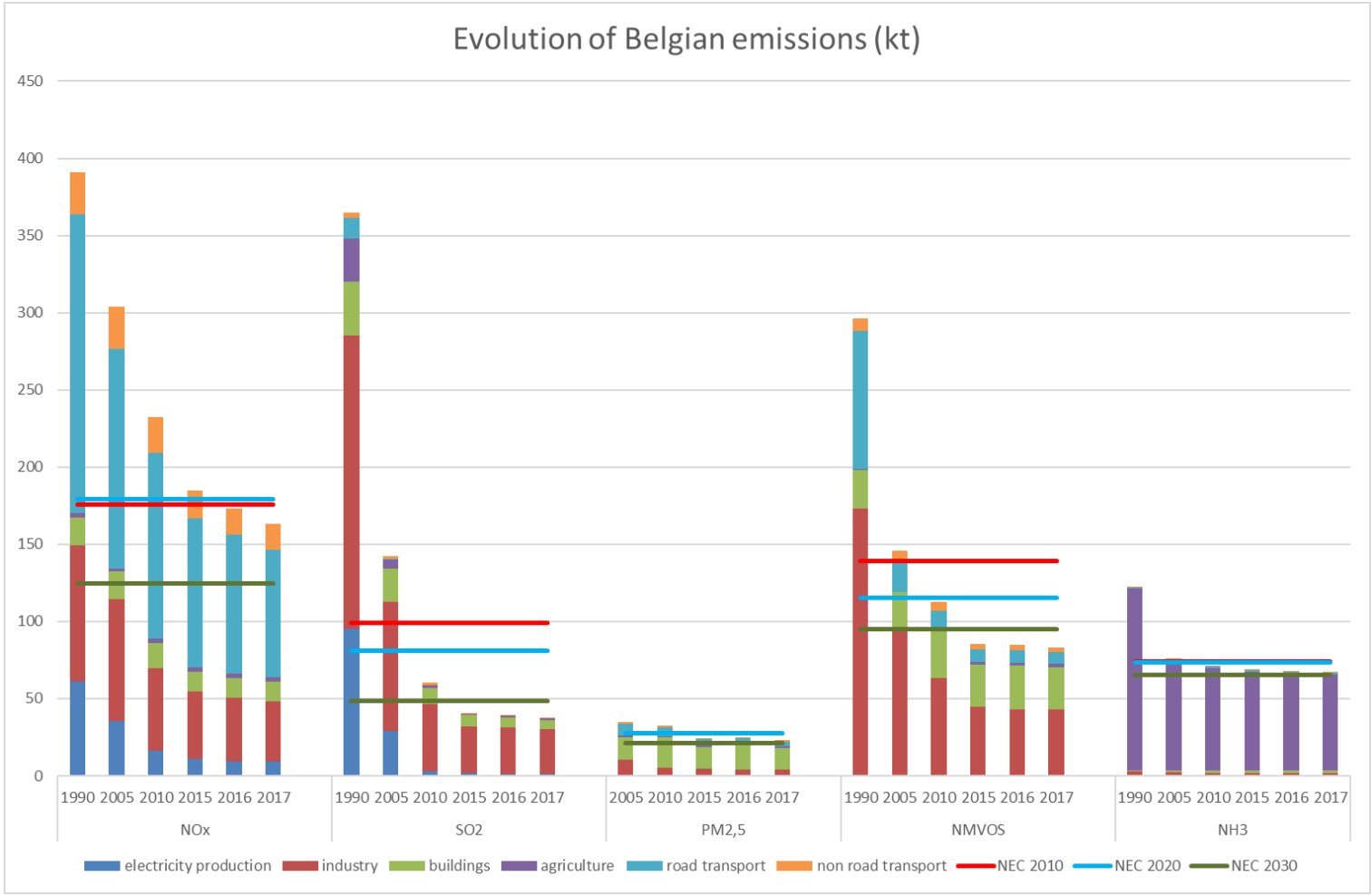
The 2010 national emission ceilings for SO_2 and NH_3 have been complied with since 2010. The reported emissions for NMVOC were only higher than the emission ceiling for 2010 because of the addition of emissions from NFR sectors 3B and 3D. If these emissions are excluded (approved adjustment), the ceiling was met in 2010 as well. The 2010 emission ceiling for NO_x was exceeded from 2010 to 2015. This is the result of adding the emissions for NFR sectors 3B and 3D and of the higher than predicted emissions from diesel vehicles. If both issues are taken into account (approved adjustments), then the ceiling has been met since 2010.

The table below gives the reported emissions for 1990, 2005, 2010, 2016 and 2017 in kt (excluding the NO_x and NMVOC emissions from NFR sectors 3B and 3D because these have been excluded from the reduction targets under Directive (EC) 2016/2284). The emission ceilings under Directive 2001/81/EC are also indicated. Because Belgium is allowed to use emissions on the basis of fuel used (FU) to review the emission ceilings, from 2010 the FU emissions are also indicated.

In 2010 and 2015 the NO_x ceiling is still exceeded (if category 3B and 3D emissions are included) and an adjustment is necessary. The adjusted emissions are also given in the table. Taking into account FU and with the approved adjustments, Belgium has in fact met its emission ceilings since 2010.

	FS emissions						NEC 2010	FU emissions				adjusted emissions, FU	
	1990	2005	2010	2015	2016	2017		2010	2015	2016	2017	2010	2015
NOx	391.0	303.7	232.4	184.6	173.1	162.2	176	215.9	172.8	162.2	155.0	167.7	127.6
SO2	365.1	142.5	60.6	40.7	39.2	39.2	99	60.5	40.7	39.2	37.6		
NMVOC	296.5	145.9	112.6	85.1	84.5	83.6	139	111.1	84.1	83.6	82.5		
NH3	122.2	75.2	70.6	68.3	67.6	67.4	74	70.5	68.1	67.4	66.7		
PM2.5		35.0	32.7	24.4	25.0	24.6		31.8	23.9	24.6	22.8		

	RBC: In February 2019 an initial evaluation was carried out on the impact of the LEZ. The main conclusions regarding regional emissions were as follows: - On the basis of the data from the LEZ cameras (real data), it was possible to estimate that the implementation of the LEZ in all likelihood led to an acceleration of the reduction in NOx emissions. Nitrogen oxide emissions from vehicles in RBC fell by 4.7 % in six months. By comparison, the annual reduction in NOx emissions reported in the emission inventories between 2016 and 2017 was on a similar scale, i.e. without the LEZ and over a period of one year. - As regards emissions from road transport, it was estimated on the basis of projections (made using vehicle registration data) that, with the LEZ, NOx emissions from road transport in RBC would fall by around 32 % by 2020 and 66 % by 2025 compared with 2015 levels.
Provide complete references (chapter and page) to publically available supporting datasets (e.g. historic emission inventory reporting) (M):	**BE**: http://cdr.eionet.europa.eu/be/eu/nec_revised/inventories/ http://www.irceline.be/nl/luchtkwaliteit/emissies **VLA**: https://www.vmm.be/data/internationale-rapporteringen **WAL**: http://www.awac.be/ **RBC**: https://qualitedelair.brussels/
Include graphics illustrating the emission reductions per pollutant and/or per main sectors (O):	**BE**: The development of emissions (fuel sold, excluding NO_x and NMVOC emissions from NFR sectors 3B and 3D, without adjustment for NO_x from diesel engines) is shown in the figure below. The emission targets that apply from 2010, 2020 and 2030 are also shown.


Evolution of Belgian emissions (kt)
450
400
350
300
250
200
150
100
50
0
1990 2005 2010 2015 2016 2017
NOx
1990 2005 2010 2015 2016 2017
SO2
2005 2010 2015 2016 2017
PM2,5
1990 2005 2010 2015 2016 2017
NMVOS
1990 2005 2010 2015 2016 2017
NH3
electricity production
industry
buildings
agriculture
road transport
non road transport
NEC 2010
NEC 2020
NEC 2030

2.3.2. Progress made by current PaMs in improving air quality, and the degree of compliance with national and Union air quality obligations

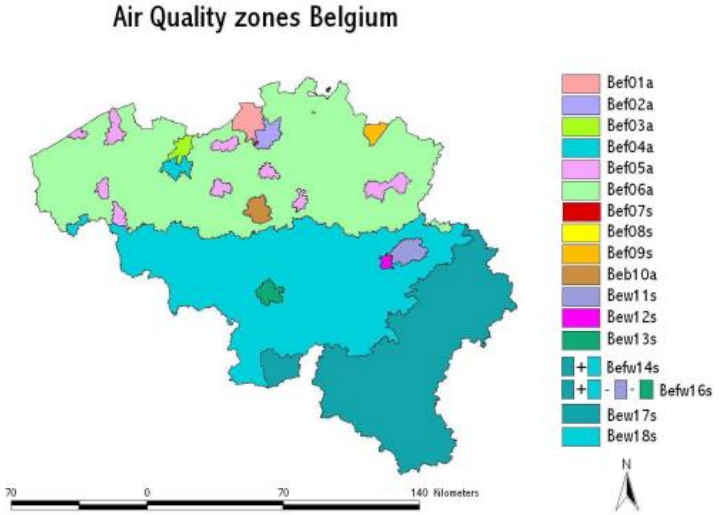
Describe progress made by current PaMs in improving air quality, and the degree of compliance with national and Union air quality obligations by, as a minimum, specifying the number of air quality zones, out of the total air quality zones, that are (non)compliant with EU air quality objectives for NO_2, PM_{10}, $PM_{2.5}$ and O_3, and any other pollutant(s) for which there are exceedances (M):

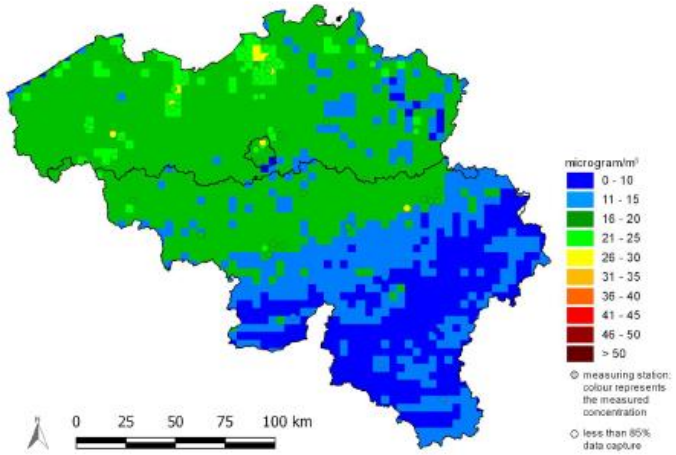
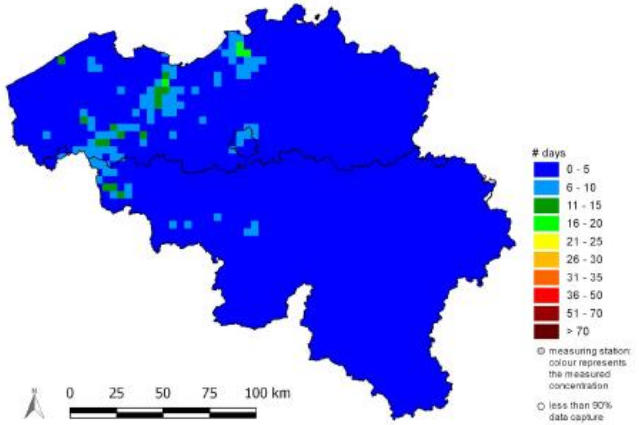
BE: The table below shows the number of zones, by region, where one or more air quality standards was exceeded in 2005 and 2010 to 2016 (on the basis of monitoring stations).

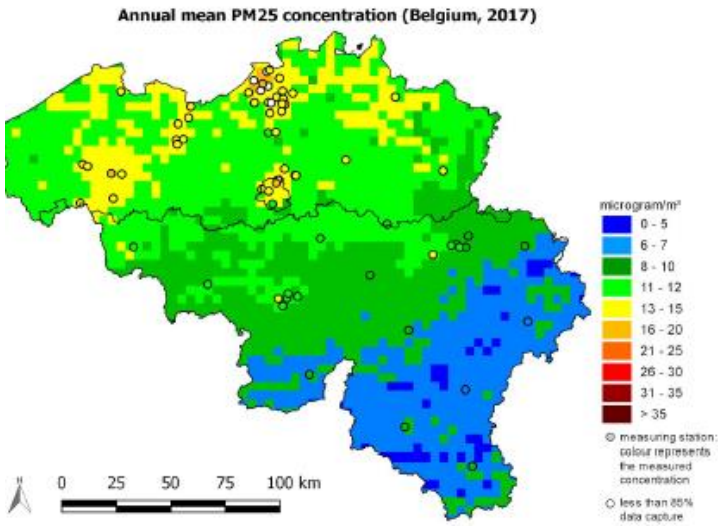
	2005	2010	2011	2012	2013	2014	2015	2016
NO2	**4**	**3**	**3**	**3**	**1**	**1**	**2**	**2**
VLA	2	2	2	2			1	1
WAL	1							
RBC	1	1	1	1	1	1	1	1
PM10	**10**	**7**	**10**	**8**	**5**	**1**		
VLA	6	4	6	4	3			
WAL	3	2	3	3	1	1		
RBC	1	1	1	1	1			
Ozone	**4**	**1**						
VLA	2	1						
WAL	1							
RBC	1							
Ash		**2**	**2**	**1**	**1**	**1**	**1**	**2**
VLA		2	2	1	1	1	1	2
Cd		**2**	**3**	**3**	**1**	**3**	**3**	**2**
VLA		1	1	2	1	2	2	2
WAL		1	2	1		1	1	
Ni			**1**			**1**	**1**	
VLA		1	1			1	1	
WAL								
Pb	**2**						**1**	
VLA	2						1	

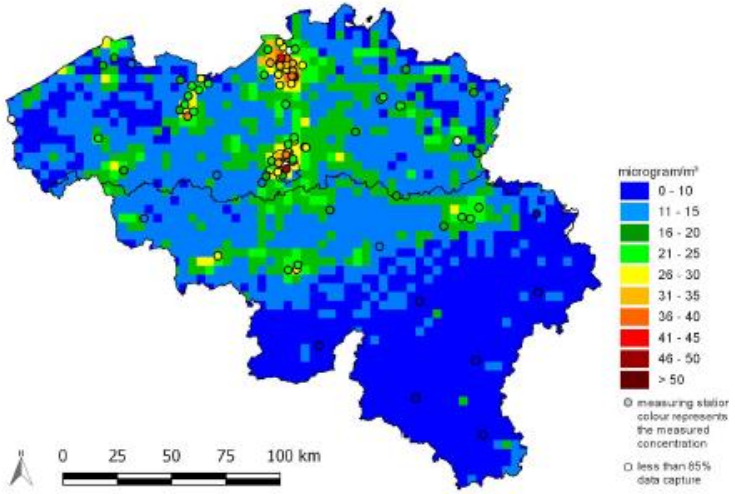
	VLA: Until 2013, the PM_{10} daily limit value was exceeded at a number of monitoring stations. Thanks to various Flemish and local action plans (Flemish 2005 particulate plan, 2007 industrial hotspot action plan, 2008 fine particulate matter and NO_2 action plan for the city and port of Antwerp, etc.), the exceedances have since been eliminated. Various industrial companies (especially in the ports of Antwerp, Ghent and Roeselare and in the area of Oostrozebeke) have made significant investments in order to reduce their conducted and diffuse fine particulate emissions. In addition, exceeded annual limits for lead have been measured locally (in the direct vicinity of two non-ferrous metal companies). As a result of targeted investments in the companies concerned (see the 2010 lead action plan for Beerse and the 2017 lead action plan for Hoboken), the limits are no longer exceeded. Finally, exceeded annual limits for NO_2 were measured until 2017 in the 'Antwerp agglomeration' zone (BEF02A). In 2018 no exceedance of the annual limits was measured. On the basis of the output of the ATMO street model (which takes into account the effect of street canyons), it was established that the NO_2 annual limit value was exceeded in all Flemish air quality zones in 2017. This information was transferred via the EIONET Central Data Repository to the European Environment Agency in early February 2019. **WAL**: The Walloon Region complies with the air quality standards laid down in European directives. However, in order to improve the monitoring network, the Walloon authorities are in the process of installing two new stations linked to road traffic, one in Charleroi (BEW13S) and the other in Liège (BEW11S). Two temporary trailers have been installed close to roads in Liège and two in Charleroi while waiting for the installation of the permanent monitoring stations in the two cities to be completed. **RBC**: The average annual concentration of NO_2 in the Brussels region (air quality zone BEB10A) is non-compliant. In 2016 three stations still exceeded the threshold. In 2017 there was one station that still exceeded the threshold (Ixelles, exposed to heavy traffic). Annual NO_2 concentrations have shown a downward trend at most stations over recent years. This is clearly the case at stations situated away from direct vehicle emissions (Uccle (41R012) and Berchem-St-Agathe (41B011)). The downward trend is slightly less

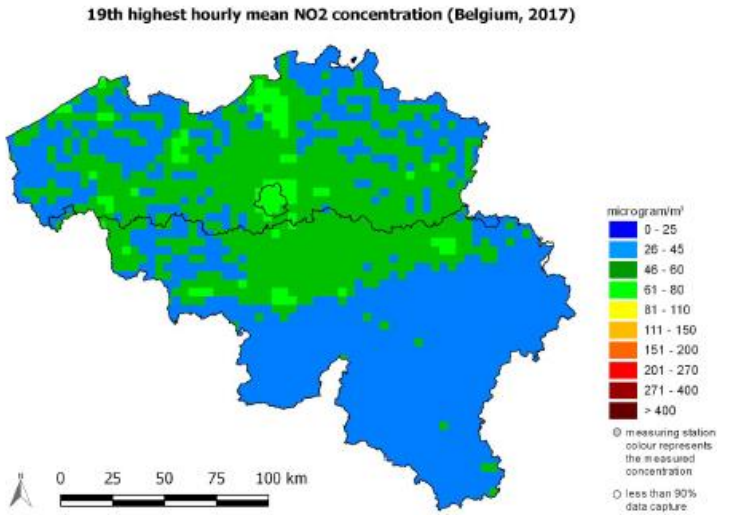
	marked but is nonetheless visible at the stations that are more exposed to vehicle emissions (see figure 4), such as Haren (41N043), Molenbeek-St-Jean (41R001), Ixelles (41R002) and Woluwe-St-Lambert (41WOL1). The measures implemented by the Region have clearly not yet had sufficient impact to comply with the NO_2 standards at all the Brussels monitoring stations. However, there is evidence that they are effective in helping to reduce the length of the non-compliance. In February 2019 an initial evaluation was carried out on the impact of the LEZ. With regard to air quality, it has been estimated that the NO_2 concentration would show a downward trend at all monitoring stations in the region, with or without the LEZ. However, the LEZ amplifies this trend, in particular in places with heavier traffic. At the Ixelles station – the only Brussels station that still exceeded the threshold in 2017 and characteristic of an urban environment heavily influenced by traffic – the NO_2 concentrations should be reduced as a result of the LEZ by 16 % by 2020 and 33 % by 2025 compared with 2015. By comparison with a scenario without an LEZ, the LEZ will lead to an additional reduction of 1 percentage point by 2020 and 10 percentage points by 2025. The LEZ will thus have an increasing impact over the years to come and will alone achieve compliance with the limit values for NO_2 by 2020 at all monitoring stations currently included for measuring compliance with the European standards. With regard to the monitoring network, in May 2018 the Government of the Brussels Capital Region instructed the Minister for the Environment to present a memorandum to the Government that aimed to reinforce the measures and means of monitoring air quality. In order to implement this decision, a decision was taken to expand the network of monitoring stations in Brussels and to install an additional eight stations at a rate of one a year on average. The new sites will primarily be exposed or heavily exposed to vehicle emissions. The choice of sites is currently being finalised. In addition, the possibility of measuring air quality using low-cost sensors is currently being evaluated.
Provide complete references (chapter and page) to publically available supporting datasets (e.g. air quality plans, source apportionment) (M):	**BE**: all monitoring data is available at www.irceline.be **VLA**: The air quality plans are available on the website https://www.lne.be/luchtverontreining-vlaamse-plannen. These plans discuss source attribution.

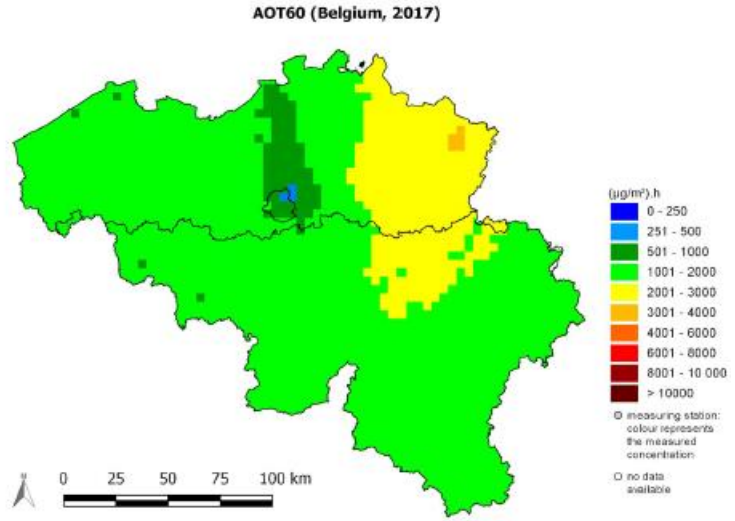
	WAL: http://www.awac.be/index.php/thematiques/politiques-actions/plan-pace http://airquality.issep.be/webairquality/accueil.aspx **RBC**: https://qualitedelair.brussels/
Maps or histograms illustrating the current ambient air concentrations (for at least NO_2, PM_{10}, $PM_{2.5}$ and O_3, and any other pollutant(s) that present(s) a problem) and which show, for instance, the number of zones, out of the total air quality zones, that are (non)compliant in the base year and in the reporting year (O):	**BE**: The figures below provide a picture of air quality in Belgium in 2017. The first figure shows the delineation of the air quality zones. More information can be found in the annual report on air quality drawn up by CELINE/IRCEL (http://www.irceline.be/nl/documentatie/publicaties/jaarrapporten/jaarrapport-luchtkwaliteit-in-belgie-2017/view). 

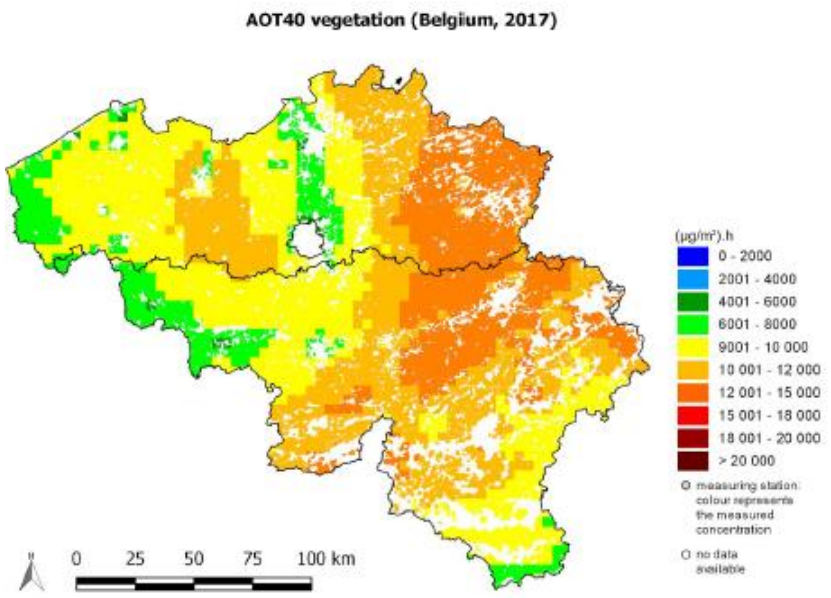
	Annual mean PM10 concentration (Belgium, 2017)  **Number of days with daily mean PM10 > 50 µg/m³ (Belgium, 2017)** 


Annual mean PM25 concentration (Belgium, 2017)
microgram/m³
0 - 5
6 - 7
8 - 10
11 - 12
13 - 15
16 - 20
21 - 25
26 - 30
31 - 35
> 35
measuring station: colour represents the measured concentration
less than 85% data capture
0 25 50 75 100 km


Annual mean NO2 concentration (Belgium, 2017)
microgram/m³
0 - 10
11 - 15
16 - 20
21 - 25
26 - 30
31 - 35
36 - 40
41 - 45
46 - 50
> 50
measuring station colour represents the measured concentration
less than 85% data capture
0 25 50 75 100 km


19th highest hourly mean NO2 concentration (Belgium, 2017)
microgram/m³
0 - 25
26 - 45
46 - 60
61 - 80
81 - 110
111 - 150
151 - 200
201 - 270
271 - 400
> 400
measuring station: colour represents the measured concentration
less than 90% data capture
0 25 50 75 100 km


AOT60 (Belgium, 2017)
(µg/m³).h
0 - 250
251 - 500
501 - 1000
1001 - 2000
2001 - 3000
3001 - 4000
4001 - 6000
6001 - 8000
8001 - 10 000
> 10000
measuring station: colour represents the measured concentration
no data available
0 25 50 75 100 km



VLA: The air policy plan contains maps with more detailed modelling (at street level, including street canyons).

WAL: The following dedicated website for air quality in Wallonia http://airquality.issep.be/webairquality/accueil.aspx makes information available to the public on the concentrations of atmospheric pollution measured in ambient air in Wallonia for all pollutants covered by the European directives, and provides the annual report on air quality in Wallonia.

RBC: On the website https://qualitedelair.brussels/ from Brussels Environment, it is possible to track changes in the concentration of pollutants in ambient air continuously in real time. The data comes from the Brussels Region's telemetric network. The site also provides information on where European standards are exceeded and on measures in the event of peaks in pollution.

In addition, the Exp'AIR project, which was launched in 2013 and completed in 2017, had

	two aims: – to evaluate public exposure to air pollution in the Brussels Capital Region by measuring concentrations of the pollutants that are most representative of the indoor and outdoor environment and by mapping pollution; – to inform the public in Brussels and raise awareness about their exposure to urban pollution and to encourage them to reduce pollution, for example by choosing more environmentally friendly modes of transport and/or heating systems. A dedicated tool (http://geoportal.ibgebim.be/webgis/expair.phtml) gives a map of the concentration of *black carbon* in each street in the Brussels region. The project will also be expanded, starting in 2019 with a study of pupils' exposure to air pollution in school. Action campaigns in schools will be planned to measure concentrations of black carbon particles in particular directly linked to particles of NO_2. The project will take place over 2 years.
Where problems are identified in (an) air quality zone(s), describe how progress was made in reducing the maximum concentrations reported (O):	**VLA**: See description of progress in the first line of this table ('Describe progress made by current PaMs …'). More detailed information about the measures taken can be found in chapters 4 and 5 of the Flemish air policy plan. **WAL**: In an industrial area in Liège (Engis) the PM_{10} limit values have been exceeded regularly since the end of 2014. A consultation committee was set up involving the administration (AWAC, environmental permits and monitoring office), the businesses concerned, local residents and the municipality. Measures taken: detailed inventory of emissions from each business + specifying the chemical composition of the particles in order to identify the main sources, measuring concentrations away from the telemetric station, logbook and list of unusual emissions, a plan for the reduction of diffuse emissions and revision of the permits to reinforce the ELVs. The same applies to three companies in Hainaut. In the event of a general peak in pollution, Wallonia reduces the speed limit on the motorways, makes public buses free and bans use of solid fuel for heating when another source of heating is available. Wallonia is going to ban engine idling and burning organic waste (from gardens, parks, agriculture) in the open air on a permanent basis.

	RBC: The future regional mobility plan, Good Move, should be adopted in the first half of 2019. According to the initial estimates, which are yet to be detailed in the environmental impact report, the Good Move plan could contribute to a 21 % reduction in vehicle kilometres in the Brussels Region by 2030. The priority objectives of Good Move related to energy and the climate are reducing car use and ownership, and vehicle greening.

2.3.3. **Current transboundary impact of national emission sources**	
Where relevant, describe the current transboundary impact of domestic emission sources (M): *Progress can be reported in quantitative or qualitative terms.* *If no issues were identified, then state that conclusion.*	**BE**: A significant proportion of air pollution is attributable to cross-border transport to other countries and vice-versa. This contributes to an increase in background concentrations. In Belgium there are air pollution clusters that cause a relevant local increase in air pollution (for instance large cities, industrial and port areas). These clusters are not close to national borders, so there is no relevant local impact on the air quality in neighbouring countries.
In case quantitative data is used to describe the results of the assessment, specify data and methodologies used to conduct the above assessment (O):	

2.5 Projected further evolution assuming no change to already adopted policies and measures

2.4.1. Projected emissions and emission reductions (WM scenario)									
BE									
Pollutants (M):	**Total emissions (kt), consistent with inventories for year x-2 or x-3 (year to be specified) (M):**				**Projected % emission reduction achieved compared with 2005 (M):**			**National emission reduction commitment for 2020-2029 (%) (M):**	**National emission reduction commitment from 2030 (%) (M):**
	2005 base year :	**2020:**	**2025:**	**2030:**	**2020:**	**2025:**	**2030:**		
SO_2:	142.5	42.7	40.9	39.5	70 %	71 %	72 %	43	66
NO_x:	303.7	150.5	119.7	104.8	50 %	61 %	65 %	41	59
NMVOC:	145.9	86.5	88.1	90.0	41 %	40 %	38 %	21	35
NH_3:	75.2	70.9	69.5	66.8	6 %	8 %	11 %	2	13
$PM_{2.5}$:	35.0	22.0	20.8	19.9	37 %	40 %	43 %	20	39
Outline the associated uncertainties for the WM projections to meet the emission reduction commitments for 2020, 2025 and 2030 onwards (O):									
Date of emission projections (M):									

Where the projected evolution demonstrates non-attainment of the emission reduction commitments under the WM scenario, section 2.6 shall outline the additional PaMs considered in order to achieve compliance.

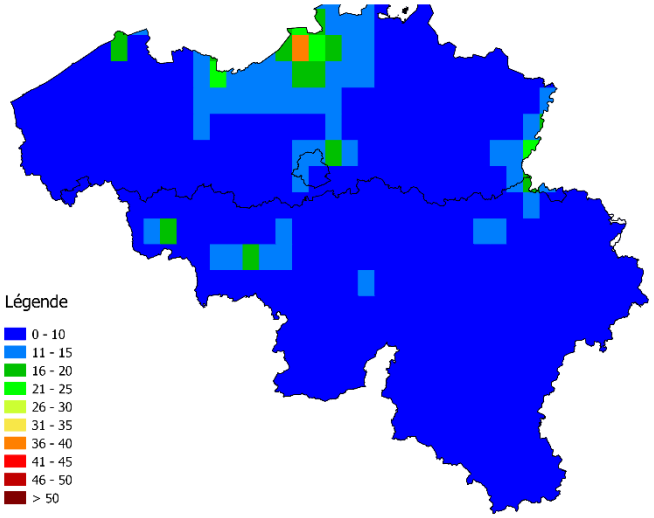
VLA									
Pollutants (M):	**Total emissions (kt), consistent with inventories for year x-2 or x-3 (year to be specified) (M):**				**Projected % emission reduction achieved compared with 2005 (M):**			**National emission reduction commitment for 2020-2029 (%) (M):**	**National emission reduction commitment from 2030 (%) (M):**
	2005 base year :	**2020:**	**2025:**	**2030:**	**2020:**	**2025:**	**2030:**		
SO_2:	97.4	30.1	29.2	28.0	69 %	70 %	71 %	55	66
NO_x:	173.6	86.8	67.0	58.0	50 %	61 %	67 %	42	59
NMVOC:	93.6	53.1	54.0	54.9	43 %	42 %	41 %	22	37
NH_3:	43.6	42.5	41.3	40.1	2 %	5 %	8 %	7	12
$PM_{2.5}$:	19.1	11.9	10.5	9.3	38 %	45 %	51 %	24	37
Outline the associated uncertainties for the WM projections to meet the emission reduction commitments for 2020, 2025 and 2030 onwards (O):					Remark: emission projections for NH_3 have been based on new information that was not yet included in the emission inventory as reported in February 2019 and that will lead to higher 2005-emissions.				
Date of emission projections (M):					February 2019				

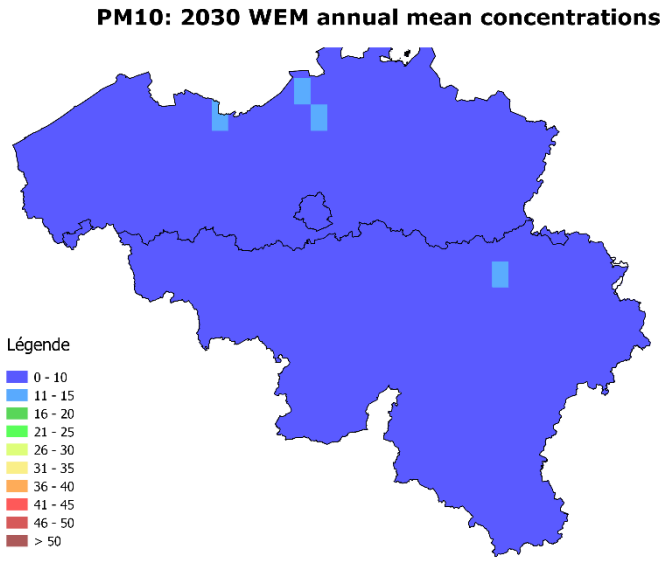
WAL									
Pollutants (M):	**Total emissions (kt), consistent with inventories for year x-2 or x-3 (year to be specified) (M):**				**Projected % emission reduction achieved compared with 2005 (M):**			**National emission reduction commitment for 2020-2029 (%) (M):**	**National emission reduction commitment from 2030 (%) (M):**
	2005 base year :	**2020:**	**2025:**	**2030:**	**2020:**	**2025:**	**2030:**		
SO_2:	44.2	12.1	11.3	11.0	73 %	74 %	75 %	42	65
NO_x:	122.2	59.7	49.8	44.4	52 %	59 %	64 %	41	60
NMVOC:	46.3	29.9	30.8	31.8	36 %	34 %	31 %	21	31
NH_3:	31.6	28.3	28.1	26.7	10 %	11 %	16 %	4	14
$PM_{2.5}$:	15.2	9.7	10.0	10.1	37 %	34 %	33 %	26	43
Outline the associated uncertainties for the WM projections to meet the emission reduction commitments for 2020, 2025 and 2030 onwards (O):									
Date of emission projections (M):					February 2019				

RBC									
Pollutants (M):	**Total emissions (kt), consistent with inventories for year x-2 or x-3 (year to be specified) (M):**				**Projected % emission reduction achieved compared with 2005 (M):**			**National emission reduction commitment for 2020-2029 (%) (M):**	**National emission reduction commitment from 2030 (%) (M):**
	2005 base year :	**2020:**	**2025:**	**2030:**	**2020:**	**2025:**	**2030:**		
SO_2:	0.9	0.4	0.4	0.4	53 %	54 %	55 %	0	61
NO_x:	7.9	4.1	2.9	2.5	48 %	64 %	69 %	40	61
NMVOC:	6.0	3.5	3.3	3.3	42 %	45 %	45 %	23	35
NH_3:	0.1	0.1	0.1	0.1	25 %	19 %	20 %		
$PM_{2.5}$:	0.6	0.4	0.4	0.4	33 %	38 %	40 %	23	19
Outline the associated uncertainties for the WM projections to meet the emission reduction commitments for 2020, 2025 and 2030 onwards (O):					For now, we haven't outlined the uncertainties for the WM projections.				
Date of emission projections (M):					July 2018				

2.5.1. Projected impact on improving air quality (WM scenario), including the projected degree of compliance

2.5.1.1. Qualitative description of projected improvement in air quality (M)

Provide a qualitative description of the projected improvements in air quality and projected further evolution of degree of compliance (WM scenario) with EU air quality objectives for NO_2, PM_{10}, $PM_{2.5}$ and O_3 values, and any other pollutant(s) that present(s) a problem by 2020, 2025 and 2030 (M): **Provide complete references (chapter and page) to publically available supporting datasets (e.g. air quality plans, source apportionment) describing the projected improvements and further evolution of degree of compliance (M):**	**BE**: Below are the results of the air quality projections for Belgium for pollutants NO_2 and PM_{10} (the pollutants for which there have been problems meeting the targets in the past). These maps are also available for $PM_{2.5}$ and O_3 (for which target compliance has been achieved for longer) (calculated using Chimère, 11 km x 7 km). NO2: 2030 WEM annual mean concentrations 



On the basis of this model, further significant exceedances of the EU annual limit values are not expected for either of these pollutants. In both cases, they are below 20 µg/m^3 on the majority of Belgian territory (WHO recommendation for PM_{10} and NO_2 threshold value from the WHO's HRAPIE study).

VLA: The impact of the emission projections on air quality is calculated in more detail in the air policy plan (chapter 4.2.2). In 2018 the standards are met at all monitoring stations, and this will also be the case in 2030.

RBC: As regards air quality, it has been estimated that the NO_2 concentration would show a downward trend at all monitoring stations in the region, with or without the LEZ. However, the LEZ amplifies this trend, in particular in places with heavier traffic. At the Ixelles station – the only Brussels station that still exceeded the threshold in 2017 and characteristic of an urban environment heavily influenced by traffic – the NO_2 concentrations should be reduced as a result of the LEZ by 16 % by 2020 and 33 % by 2025 compared with 2015. By comparison with a scenario without an LEZ, the LEZ will lead to an additional reduction of 1 percentage point by 2020 and 10 percentage points by 2025.

	The LEZ will thus have an increasing impact over the years to come and will alone achieve **compliance with the limit values for NO_2 by 2020 at all monitoring stations** currently included for measuring compliance with the European standards. For more information, see **https://lez.brussels/fr/content/limpact-de-la-lez**

2.5.1.2. Quantitative description of projected improvement of air quality (O)

AAQD values:	**Projected number of non-compliant air quality zones:**				**Projected number of compliant air quality zones:**				**Total number of air quality zones:**			
	Specify base year:	2020:	2025:	2030:	Specify base year:	2020:	2025:	2030:	Specify base year:	2020:	2025:	2030:
$PM_{2.5}$ (1 yr):												
NO_2 (1 yr):												
PM_{10} (1 yr):												
O_3 (max 8 hr mean):												
Other (please specify):												

2.6 Policy options considered in order to comply with the emission reduction commitments for 2020, and 2030, intermediate emission levels for 2025

The information required under this section shall be reported using the 'Policies and Measures Tool' ('PaM tool') provided for that purpose by the EEA.

2.6.1. Details concerning the PaMs considered in order to comply with the emission reduction commitments (reporting at PaM level) :

Name and brief description of individual PaM or package of PaMs (M):	Affected pollutant(s), select as appropriate : SO_2, NO_x, NMVOC, NH_3, $PM_{2.5}$, (M); BC as a component of $PM_{2.5}$, other (e.g. Hg, dioxins, GHG) (O) please specify:	Objectives of individual PaM or package of PaMs* (M):	Type(s) of PaM(s)^ (M):	Primary, and where appropriate, additional sector(s) affected† (M):	Implementation period (M for measures selected for implementation):		Authorit(y)(ies) responsible for implementation (M for measures selected for implementation) : Refer to those listed in table 2.3.2 as appropriate.		Details of the methodologies used for analysis (e.g. specific models or methods, underlying data) (M):	Quantified expected emission reductions (for individual PaM or for packages of PaMs, as appropriate) (kt, per annum or as a range, compared to WM scenario) (M):			Qualitative description of uncertainties (M, where available):
					Start	Finish	Type	Name		2020	2025	2030	
Add more rows as appropriate													

2.6.2. Impacts on air quality and the environment of individual PaMs or packages of PaMs considered in order to comply with the emission reduction commitments (M, where available)	
Where available, impacts on air quality (reference can also be made to recommended air quality objectives by the WHO) and environment:	**BE**: See chapter 2.8.

2.6.3. Estimation of costs and benefits of the individual PaM or package of PaMs considered in order to comply with the emission reduction commitments (O)						
Name and brief description of individual PaM or package of PaMs:	Costs in EUR per tonne of abated pollutant:	Absolute costs per year in EUR:	Absolute benefits per year:	Cost/benefit ratio:	Price year:	Qualitative description of the cost and benefit estimates:
Add more rows as appropriate						

2.6.4. Additional details concerning the measures from Annex III Part 2 to Directive (EU) 2016/2284 targeting the agricultural sector to comply with the emission reduction commitments			
	Is the PaM included in the national air pollution control programme? **Yes/No (M):**	**If yes,** **- indicate section/page number in programme:** **(M):**	**Has the PaM been applied exactly? Yes/No (M):** **If no, describe the modifications that have been made (M):**
A. Measures to control ammonia emissions (M):			
1. Member States shall establish a national advisory code of good agricultural practice to control ammonia emissions, taking into account the UNECE Framework Code for Good Agricultural	**VLA**: a-e) Yes f) No	**VLA**: a) Manure Decree, Chapter III, Section III, Sub-section II	**VLA**: a-e) Yes f) No, but use of urea-

Practice for Reducing Ammonia Emissions of 2014, covering at least the following items : **a) nitrogen management, taking into account the whole nitrogen cycle;** **b) livestock feeding strategies;** **c) low-emission manure spreading techniques;** **d) low-emission manure storage systems;** **e) low-emission animal housing systems;** **f) possibilities for limiting ammonia emissions from the use of mineral fertilisers.**	**WAL**: Yes **RBC**: N/A	b) Manure Decree, Chapter IV, Section II c) Manure Decree, Chapter III, Section III, Sub-section VII d) See (e) e) Ministerial Order of 31 May 2011 … list of low ammonia emission housing systems; together with subsequent Ministerial Orders **WAL**: code currently being drafted. **RBC**: N/A	based manure is low in Flanders (less than 2 %). **WAL**: The code will include all the headings listed. **RBC**: N/A
2. Member States may establish a national nitrogen budget to monitor the changes in overall losses of reactive nitrogen from agriculture, including ammonia, nitrous oxide, ammonium, nitrates and nitrites, based on the principles set out in the UNECE Guidance Document on Nitrogen Budgets :	**VLA**: Partially **WAL**: No **RBC**: N/A	**VLA**: Annual 'manure report' **WAL**: **RBC**: N/A	**VLA**: No **WAL**: **RBC**: N/A
3. Member States shall prohibit the use of ammonium carbonate fertilisers and may reduce ammonia emissions from inorganic fertilisers by using the following approaches: **a) replacing urea-based fertilisers by ammonium nitrate-based fertilisers;** **b) where urea-based fertilisers continue to be applied, using methods that have been shown to reduce ammonia emissions by at least 30 % compared with the use of the reference method, as specified in the Ammonia Guidance Document;** **c) promoting the replacement of inorganic fertilisers by organic fertilisers and, where inorganic fertilisers continue to be applied, spreading them in line with the foreseeable requirements of the receiving crop or grassland with respect to nitrogen and phosphorus, also taking into account the existing nutrient content in the soil and nutrients from other fertilisers.**	**VLA**: a) No b) No c) Yes, the Sixth Action Programme under the Nitrates Directive, but on a general level. **WAL**: Yes **RBC**: N/A	**VLA**: a) / b) / c) Action plan on manure treatment that forms part of MAP 6 + Manure Decree, Chapter III, Section III, Sub-section II (vegetables, MAP 6) **WAL**: Chapter 6.8 of the PACE: New policies and measures in agriculture and forestry. **RBC**: N/A	**VLA**: a) / b) / c) Yes **WAL**: replace with less polluting fertiliser or with urease inhibitors; reduce the time for working-in (24 hours); develop agri-environmental methods that prohibit the application of

			fertilisers. **RBC**: N/A
4. Member States may reduce ammonia emissions from livestock manure by using the following approaches: **a) reducing emissions from slurry and solid manure application to arable land and grassland, by using methods that reduce emissions by at least 30 % compared with the reference method described in the Ammonia Guidance Document and on the following conditions:** **i. only spreading manures and slurries in line with the foreseeable nutrient requirement of the receiving crop or grassland with respect to nitrogen and phosphorous, also taking into account the existing nutrient content in the soil and the nutrients from other fertilisers;** **ii. not spreading manures and slurries when the receiving land is water saturated, flooded, frozen or snow covered;** **iii. applying slurries spread to grassland using a trailing hose, trailing shoe or through shallow or deep injection;** **iv. incorporating manures and slurries spread to arable land within the soil within four hours of spreading;** **b) reducing emissions from manure storage outside of animal houses, by using the following approaches:** **i. for slurry stores constructed after 1 January 2022, using low emission storage systems or techniques which have been shown to reduce ammonia emissions by at least 60 % compared with the reference method described in the Ammonia Guidance Document, and for existing slurry stores at least 40 %;** **ii. covering stores for solid manure;** **iii. ensuring farms have sufficient manure storage capacity to spread manure only during periods that are suitable for**	**VLA**: a) i) Yes a) ii) Yes a) iii) Yes a) iv) Yes b) i) Yes b) ii) No b) iii) Yes c) Yes d) Yes **WAL**: Yes, partially **RBC**: N/A	**VLA**: a) i) / a) ii) Manure Decree, Chapter III, Section III, Sub-section V a) iii) Manure Decree, Chapter III, Section III, Sub-section VII a) iv) Manure Decree, Chapter III, Section III, Sub-section VII b) i) Manure Decree, Chapter III, Section III, Sub-section I b) ii) / b) iii) Manure Decree, Chapter III, Section II c) Ministerial Order of 31 May 2011 … list of low ammonia emission housing systems; together with subsequent Ministerial Orders d) Manure Decree, Chapter IV, Section II **WAL**: Some measures form part of the Wallonia Agricultural Management Plan (PGDA), coming under the protection of watercourses from nitrates. Chapter 6.8 of the PACE: New policies and measures in agriculture and forestry. **RBC**: N/A	**VLA**: a) i) / a) ii) Yes a) iii) Yes a) iv) Yes b) i) Yes b) ii) / b) iii) Yes c) Yes d) Yes **WAL**: a) spreading the whole of the slurry close to the ground or injected into the soil within 24 hours; B ii: the Walloon administration (DGO3) visits all farms and issues certificates of conformity for manure storage infrastructure. b) and c) equipping large installations for pigs and poultry with filtration and ventilation systems and air scrubbers; d) no changes in animal feed; extensive

crop growth: **c) reducing emissions from animal housing, by using systems which have been shown to reduce ammonia emissions by at least 20 % compared with the reference method described in the Ammonia Guidance Document;** **d) reducing emissions from manure, by using low protein feeding strategies which have been shown to reduce ammonia emissions by at least 10 % compared with the reference method described in the Ammonia Guidance Document.**			farming mainly on pasture. **RBC**: N/A
B. Emission reduction measures to control emissions of fine particulate matter ($PM_{2.5}$) and black carbon (M)			
1. Without prejudice to Annex II on cross-compliance of Regulation (EU) No 1306/2013 of the European Parliament and of the Council (1), Member States may ban open field burning of agricultural harvest residue and waste and forest residue. Member States shall monitor and enforce the implementation of any ban implemented in accordance with the first subparagraph. Any exemptions to such a ban shall be limited to preventive programmes to avoid uncontrolled wildfires, to control pest or to protect biodiversity.	**VLA**: Yes **WAL**: Yes **RBC**: N/A	**VLA**: Flemish Environmental Permit Regulation (Vlarem), Title II, Chapter 6.11 **WAL**: Chapter 6.9 of the PACE: New policies and measures in the waste industry. **RBC**: N/A	**VLA**: Yes **WAL**: Burning of forestry waste is already banned in Wallonia. **RBC**: N/A
2. Member States may establish a national advisory code of good agricultural practices for the proper management of harvest residue, on the basis of the following approaches: **a) improvement of soil structure through incorporation of harvest residue;** **b) improved techniques for incorporation of harvest residue;** **c) alternative use of harvest residue;** **d) improvement of the nutrient status and soil structure through incorporation of manure as required for optimal plant growth, thereby avoiding burning of manure (farmyard manure, deep-straw bedding).**	**VLA**: Partially **WAL**: Not yet **RBC**: N/A	**VLA**: - Manure Decree, Chapter I (farm compost) - Manure Decree, Chapter III, Section III, Sub-section II (equivalent) **WAL**: **RBC**: N/A	**VLA**: Yes **WAL**: **RBC**: N/A
C. Preventing impacts on small farms (M)			

In taking the measures outlined in Sections A and B, Member States shall ensure that impacts on small and micro farms are fully taken into account. Member States may, for instance, exempt small and micro farms from those measures where possible and appropriate in view of the applicable reduction commitments (M):	**VLA**: No, not provided for in the Manure Decree. **WAL**: Yes **RBC**: N/A	**VLA**: - small farms are exempt from mandatory reporting, but not from generally applicable rules such as fertiliser application standards, fertiliser spreading, etc. **WAL**: Chapter 6.8 of the PACE: New policies and measures in agriculture and forestry. **RBC**: N/A	**VLA**: No. Given the extent of the problem of NH_3 and nitrates in Flanders, there is no scope to exempt small farms from the fertiliser application standards. **WAL**: The air scrubbers apply to installations housing 2 000 finishing pigs and/or 750 sows and/or over 40 000 poultry birds. **RBC**: N/A

2.7 The policies selected for adoption by sector, including a timetable for their adoption, implementation and review and the competent authorities responsible

2.7.1. Individual PaMs or package of PaMs selected for adoption and the competent authorities responsible								
Name and brief description of individual PaM or package of PaMs (M): *Refer to those listed in table 2.6.1 as appropriate.*	**Currently planned year of adoption (M):**	**Relevant comments arising from consultation(s) in relation to the individual PaM or package of PaMs (O):**	**Currently planned timetable for implementation (M)**		**Interim targets and indicators selected to monitor progress in implementation of the selected PaMs (O):**		**Currently planned timetable for review (in case different from general update of the national air pollution control programme every four years) (M):**	**Competent authorities responsible for the individual PaM or package of PaMs (M):** *Refer to those listed in table 2.3.2 as appropriate.*
			Start year	End year	Interim Targets	Indicators		
Insert more rows as appropriate								

2.7.2. Explanation of the choice of selected measures and an assessment of how selected PaMs ensure coherence with plans and programmes set up in other relevant policy areas	
An explanation of the choice made among the measures considered under 2.6.1 to determine the final set of selected measures (O)	**FED**: **VLA**: Given the long-term Flemish goal of bring air quality into line with the WHO guidelines, all measures are taken that could contribute to this aim, that are technically and economically feasible and for which there is political and public support. **WAL**: The measures regarding energy and transport have been guided by the requirements of the climate, renewable energy and energy efficiency objectives and the desire to decarbonise energy carriers. The additional measures concerning air quality have been selected mainly in the field of transport and mobility (the FAST programme to reduce the kilometres travelled by people and goods and vehicle greening) and emissions in the residential and tertiary sectors (domestic heating). **RBC**: The measures proposed under point 2.6.1 (see PAMs tool) have all been selected to ensure compliance with air quality standards and emission ceilings.
Coherence of the selected PaMs with air quality objectives at national level and, where appropriate, in neighbouring Member States (M):	**FED**: **VLA**: When selecting measures, account is taken not only of the current emission ceilings and air quality standards, but also the guidelines set by the WHO. Flanders intends to move gradually closer to those guidelines. **WAL**: The emission ceilings and air quality objectives laid down in European directives are not the ultimate goal, as there is a desire to aim towards the WHO recommended limits. **RBC**: The measures selected concern the main sectors responsible

	for atmospheric pollution in the Brussels Capital Region.
Coherence of the selected PaMs with other relevant plans and programmes established by virtue of the requirements set out in national or Union legislation (e.g. national energy and climate plans) (M):	**FED**: **VLA**: The calculations for the air policy plan have been coordinated with the calculations for the climate and energy plan and the impact of those measures has also been calculated as far as possible. For more information, see chapter 4.2 and Annex 1 to the Flemish air policy plan. **WAL**: Wallonia's air quality plan has been drawn up in tandem with the energy and climate change plan. The two plans will be edited and integrated into one single plan: PACE 2030 – Air, Energy and Climate Change Plan. The data regarding energy, renewable energy, transport and building insulation is the same in the two plans. The policies and measures for all these areas are therefore based on the same data and hypotheses. The air quality plan integrates the impact of energy, climate and transport measures on atmospheric emissions. **RBC**: The Brussels Capital Region has been developing an integrated air, climate change and energy policy since June 2016 (adoption of regional air, climate change and energy plan). The measures announced in this document come under this integrated policy: they are fully coherent with the measures in PNEC 2030. The projection models are identical, as is the data.

2.8 Projected combined impacts of PaMs ('With Additional Measures' - WAM) on emission reductions, air quality and the environment and the associated uncertainties (where applicable)

2.8.1. Projected attainment of emission reduction commitments (WAM)

BE

Pollutants (M)	Total emissions (kt), consistent with inventories for year x-2 or x-3 , please specify the year (M):				% emission reduction achieved compared with 2005 (M)			National emission reduction commitment for 2020-2029 (%) (M):	National emission reduction commitment from 2030 (%) (M):
	2005 base year	2020	2025	2030	2020	2025	2030		
SO_2:	142.5	39.3	35.1	33.1	72 %	75 %	77 %	43	66
NO_x:	303.7	148.2	117.1	95.9	51 %	61 %	68 %	41	59
NMVOC:	145.9	86.2	86.2	85.8	41 %	41 %	41 %	21	35
NH_3:	75.2	70.5	66.1	60.9	6 %	12 %	19 %	2	13
$PM_{2.5}$:	35.0	21.7	18.9	17.0	38 %	46 %	51 %	20	39
Date of emission projections (M):									

VLA									
	Total emissions (kt), consistent with inventories for year x-2 or x-3 , please specify the year (M):				**% emission reduction achieved compared with 2005 (M)**			**National emission reduction commitment for 2020-2029 (%) (M):**	**National emission reduction commitment from 2030 (%) (M):**
Pollutants (M)	**2005 base year**	**2020**	**2025**	**2030**	**2020**	**2025**	**2030**		
SO_2:	97.4	27.1	23.5	22.0	72 %	76 %	77 %	55	66
NO_x:	173.6	86.5	65.5	51.8	50 %	62 %	70 %	42	59
NMVOC:	93.6	52.3	52.5	52.7	44 %	44 %	44 %	22	37
NH_3:	43.6	42.5	39.4	36.6	2 %	10 %	16 %	7	12
$PM_{2.5}$:	19.1	11.5	9.8	8.2	40 %	49 %	57 %	24	37
Date of emission projections (M):				February 2019					

WAL									
	Total emissions (kt), consistent with inventories for year x-2 or x-3 , please specify the year (M):				**% emission reduction achieved compared with 2005 (M)**			**National emission reduction commitment for 2020-2029 (%) (M):**	**National emission reduction commitment from 2030 (%) (M):**
Pollutants (M)	**2005 base year**	**2020**	**2025**	**2030**	**2020**	**2025**	**2030**		
SO_2:	44.2	11.7	11.2	10.8	73 %	75 %	76 %	55	65
NO_x:	122.2	57.6	47.8	41.7	53 %	60 %	66 %	41	65
NMVOC:	46.3	30.3	30.3	29.9	35 %	35 %	35 %	20	31
NH_3:	31.6	27.9	26.6	24.2	12 %	16 %	23 %	4	14
$PM_{2.5}$:	15.2	9.8	8.7	8.4	36 %	43 %	45 %	20	43
Date of emission projections (M):									

RBC									
	Total emissions (kt), consistent with inventories for year x-2 or x-3 , please specify the year (M):				% emission reduction achieved compared with 2005 (M)			National emission reduction commitment for 2020-2029 (%) (M):	National emission reduction commitment from 2030 (%) (M):
Pollutants (M)	2005 base year	2020	2025	2030	2020	2025	2030		
SO_2:	0.9	0.4	0.4	0.3	57 %	60 %	64 %	0	61
NO_x:	7.9	4.1	3.0	1.9	48 %	62 %	75 %	40	61
NMVOC:	6.0	3.6	3.4	3.2	41 %	44 %	46 %	23	35
NH_3:	0.1	0.1	0.1	0.1	37 %	37 %	39 %		
$PM_{2.5}$:	0.6	0.4	0.4	0.3	33 %	38 %	45 %	23	19
Date of emission projections (M):				July 2018					

2.8.2. Non-linear emission reduction trajectory	
Where a non-linear emission reduction trajectory is followed, demonstrate that it is technically or economically more efficient (alternative measures would involve entailing disproportionate costs), will not compromise the achievement of any reduction commitment in 2030, and that the trajectory will converge on the linear trajectory from 2025 onwards (M, where relevant):	BE: -

Refer to costs listed in table 2.6.3 as appropriate.	

2.8.3. **Flexibilities**	
Where flexibilities are used, provide an account of their use (M):	**BE**: -

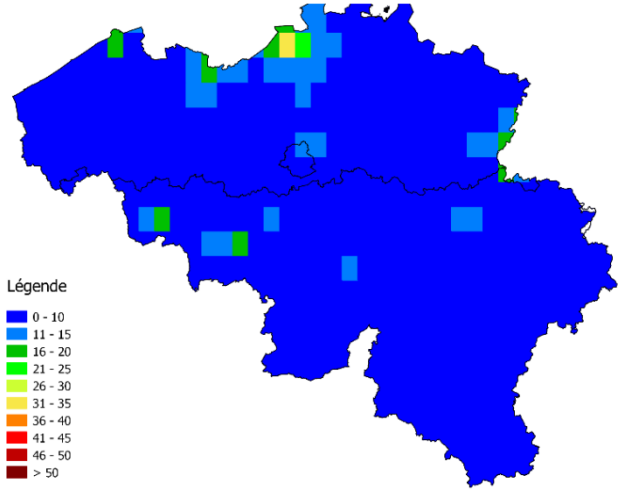
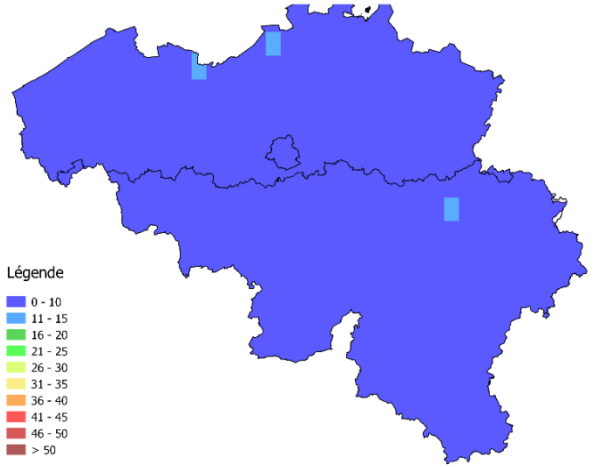
2.8.4. Projected improvement in air quality (WAM)

A. Projected number of non-compliant and compliant air quality zones (O)

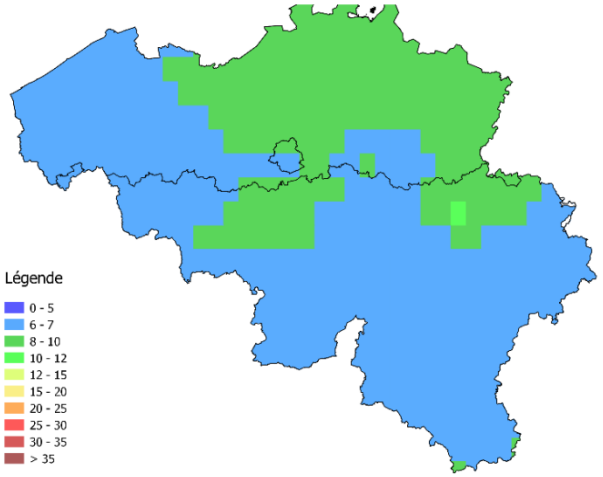
AAQD values:	Projected number of non-compliant air quality zones:				Projected number of compliant air quality zones:				Total number of air quality zones:			
	Specify base year:	2020:	2025:	2030:	Specify base year:	2020:	2025:	2030:	Specify base year:	2020:	2025:	2030:
$PM_{2.5}$ (1 yr):												
NO_2 (1 yr):												
PM_{10} (1 yr):												
O_3 (max 8 hr mean):												
Other (please specify):												

B. Maximum exceedances of air quality limit values and average exposure indicators (O):								
AAQD values:	Projected maximum exceedances of air quality limit values across all zones:				Projected average exposure indicator (only for $PM_{2.5}$ (1 year):			
	Specify base year:	2020:		2030:	Specify base year:	2020:	2025:	2030:
$PM_{2.5}$ (1 yr):								
NO_2 (1 yr):								
NO_2 (1 hr):								
PM_{10} (1 yr):								
PM_{10} (24 hrs):								
O_3 (max 8 hr mean):								
Other (please specify):								

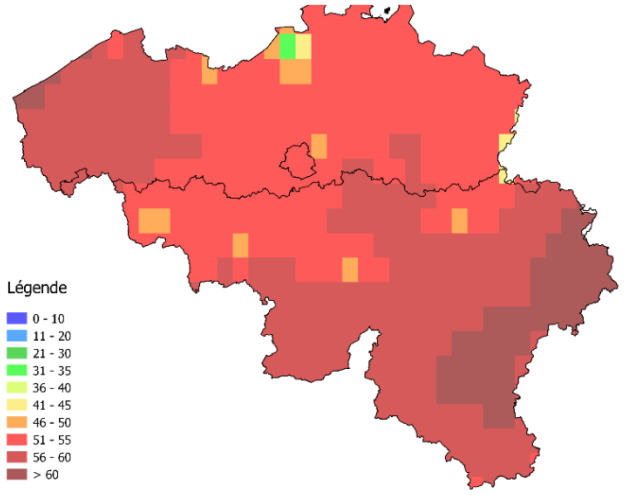
C. Illustrations demonstrating the projected improvement in air quality and degree of compliance (O)	
Maps or histograms illustrating the projected evolution of ambient air concentrations (for at least NO_2, PM_{10}, $PM_{2.5}$ and O_3, and any other pollutant(s) that present(s) a problem) and which show, for instance, the number of zones, out of the total air quality zones, that will be (non)compliant by 2020, 2025 and	**BE**: Below are the results of the air quality projections for Belgium for pollutants NO_2, PM_{10}, $PM_{2.5}$ and O_3 (calculated with Chimère, 11 km x 7 km).

2030, the projected maximum national exceedances, and the projected average exposure indicator:	**NO2: 2030 WAM annual mean concentrations**  **PM10: 2030 WAM annual mean concentrations** 

PM2.5: 2030 WAM annual mean concentrations



O3: 2030 WAM annual mean concentrations



D. Qualitative projected improvement in air quality and degree of compliance (WAM) (in case no quantitative data is provided in the tables above) (O)	
Qualitative projected improvement in air quality and degree of compliance (WAM):	

For annual limit values, projections should be reported against the maximum concentrations across all zones. For daily and hourly limit values, projections should be reported against the maximum number of exceedances registered across all zones.

2.8.5. Projected impacts on the environment (WAM) (O)					
	Base year used to assess environmental impacts (please specify:	2020:	2025:	2030:	Description:
Member State territory exposed to acidification in exceedance of the critical load threshold (%):					
Member State territory exposed to eutrophication in exceedance of the critical load threshold (%):					
Member State territory exposed to ozone in exceedance of the critical level threshold (%):					

Indicators should be aligned with those used under the Convention on Long Range Transboundary Air Pollution on exposure of ecosystems to acidification, eutrophication and ozone[1].

[1] https://www.rivm.nl/media/documenten/cce/manual/Manual_UBA_Texte.pdf