



# Belgium's National Inventory System

for the estimation of anthropogenic greenhouse gas emissions by sources and  
removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol

April 2017





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# 1 Introduction

## 1.1 Background and definition

Article 5.1 of the Kyoto Protocol obliges Annex I parties to “*have in place, no later than one year prior to the start of the first commitment period, a national system for the estimation of anthropogenic emissions by sources and removals by sinks of all greenhouse gases (GHG) not controlled by the Montreal Protocol.*” The guidelines for the national information systems were decided upon by the 7<sup>th</sup> Conference of the Parties in Marrakesh and are laid down in Decision 20/CP.7 (“Guidelines for national systems”). According to Decision 280/2004/EC of the European Parliament and Council, repealed by Regulation (EU) No 525/2013 (Monitoring Mechanism Regulation, MMR) member states have to establish their national systems by 31 December 2005. The Belgian system under this Article, referred to below as National Inventory System, includes all institutional, legal and procedural arrangements made within Belgium for estimating anthropogenic emissions by all sources and removals by all sinks of all GHG, as covered by the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and IPCC good practice guidance, in accordance with relevant decisions of the COP and/or COP/MOP, and for reporting and archiving inventory information.

The National Inventory System is intended to ensure that GHG inventories are accurate in the sense that they are systematically neither over- nor underestimated as far as can be judged, and that uncertainties are reduced as far as possible. This is achieved through:

- Planning, preparation and management of inventory activities;
- Collecting activity data;
- Carrying out procedures for the verification of the inventory data;
- Selecting methods and emission factors appropriate to national circumstances;
- Estimating anthropogenic GHG emissions by sources and removals by sinks;
- Implementing uncertainty assessment and quality assurance/quality control (QA/QC) activities;
- Archiving and reporting inventory information, as described in the guidelines for national systems (Decision 20/CP.7).

## 1.2 Objectives

The overall objective of the National Inventory System is to ensure accuracy, consistency, comparability, completeness, transparency and timeliness of the Belgian GHG inventory.

More specifically, the objectives of the National Inventory System are to:

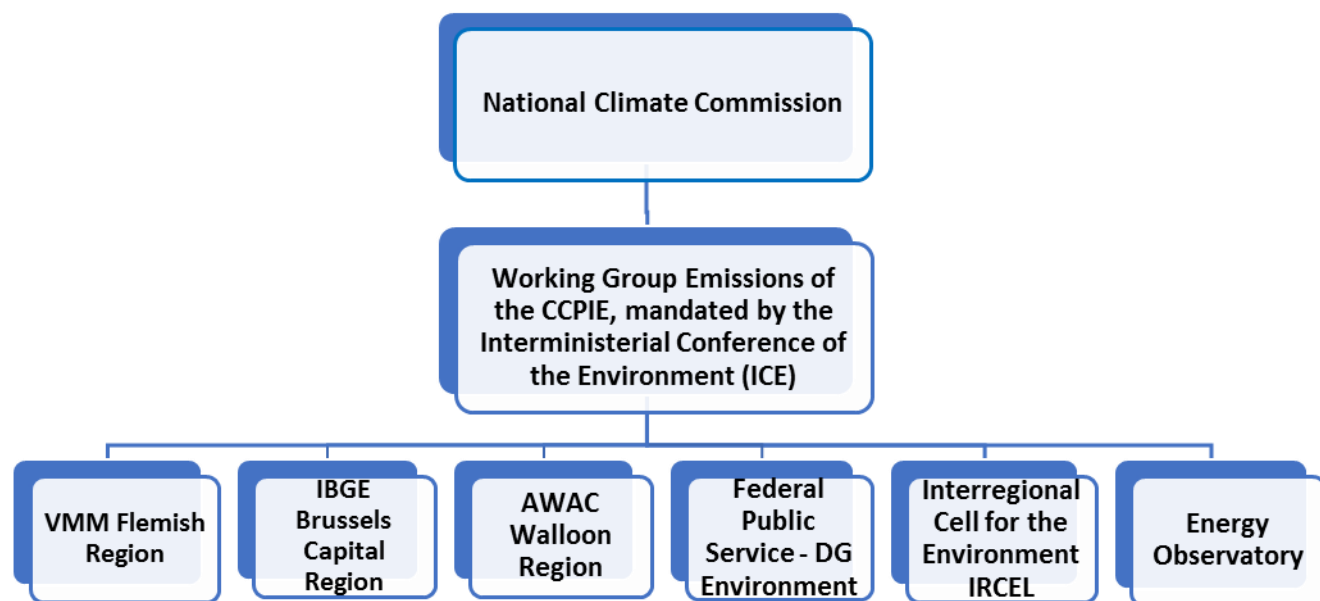
- Facilitate the review of information submitted under Article 7 as required by Article 8 of the Kyoto Protocol;
- Ensure and continuously improve the quality of the Belgian inventory.

# 2 LEGAL, INSTITUTIONAL AND PROCEDURAL ARRANGEMENTS

## 2.1 Legal arrangements

Belgium is a federal state in which the competences are spread between four entities (see Figure 1) : the federal and the three regions (Flemish Region, Walloon Region, Brussels-Capital Region). The activities of these four bodies, as regards the preparation of the national greenhouse gas inventory based on the three regional emission inventories and the implementation and development of the QA/QC plan, are coordinated via the “Working group on Emissions of the Coordination Committee for International Environmental Policy (CCIEP)” (referred to below as “CCIEP-working group on Emissions”) mandated by the Interministeriel conference for the Environment (ICE). This group plays a central role in the coordination of the national GHG inventory. The working group on Emissions is a permanent platform for the exchange of information between the three regions, IRCEL/CELINE, the National Climate Commission and the Belgian UNFCCC National Focal Point. All methodological aspects of the GHG inventory as well as the implementation and improvement of the national system, including the QA/QC plan, are coordinated via this CCIEP-working group on Emissions. This working group is meeting together on a regular basis and is responsible for coordinating all emission inventory tasks in Belgium. This group proposes a national inventory to the National Climate Commission (e.g. the Belgian political level) who sends to the UNFCCC.

**Figure 1 : Main institutions and organizations involved in the preparation of the National GHG inventory**



## 2.2 National responsibilities

### 2.2.1 The National Climate Commission

The National Climate Commission, established by the Cooperation agreement of 14 November 2002<sup>1</sup>, is composed of representatives of the three Regions and the federal authority. Its main responsibilities consist :

- In the establishment, execution and monitoring of the National Climate Plan and the fulfilling of reporting obligations under the UNFCCC and the Kyoto Protocol, and the European “Monitoring Mechanism Regulation” (regulation 525/2013/EC);
- Make sure that methodologies, procedures, data analysis, projections used by the Parties to the agreement are compatible and, if possible, harmonized.

In this respect, this Commission is in charge of the approval of the inventory reports.

### 2.2.2 The Inter-ministerial Conference for the Environment (ICE)

The Inter-ministerial Conference for the Environment<sup>2</sup> took a series of decisions that clarify the role and responsibilities of different entities, as regards the preparation of the national GHG inventory.

An overview of these decisions, and relevant extracts, are listed below:

(a) Decision of the Inter-ministerial Conference for the Environment (ICE), 7 October 1999

- [...] future inventories of GHG emissions shall be established on the basis of the data delivered by the regions, and completed, if required, by complementary information.

<sup>1</sup> Cooperation agreement between the Federal State and the Regions for the implementation and the follow-up of a National Climate Plan, and the reporting in the context of the UNFCCC and KP, 14 November 2002

<sup>2</sup> The Interministerial Conference for the Environment (ICE) is a specialised committee devoted to matters for which intergovernmental co-operation is required for implementing environmental policies

(b) Decision of the Inter-ministerial Conference for the Environment, 6 March 2002

- [...] The ICE confirms that the Regions shall deliver annually their most recent data on greenhouse gas emissions for the purpose of international reporting and for the assessment of the domestic climate change policy. The ICE decides that emission data shall be collected in accordance with procedures as defined in UNFCCC guidelines, concerning the national inventory of greenhouse gas emissions. Regions commit themselves to deliver their data on greenhouse gas emissions for the previous year as from 31-12-2004.
- [...] The Belgian Interregional Environment Agency (CELINE-IRCEL) is in charge of the annual compilation of data of the national greenhouse gas inventory, under the Common Reporting Format as described in the UNFCCC guidelines, based on data delivered annually by the regions. The ICE decides that the human resources within CELINE-IRCEL must be consolidated so as to ensure compliance with international reporting obligations as regards greenhouse gas inventories.
- [...] The ICE gives mandate to the Working group on Emissions of the Coordination Committee for international environmental policy (CCIEP) and CELINE-IRCEL, in collaboration with the coordination group “greenhouse effect” of CCIEP, [...] to elaborate a procedure of quality control of the national greenhouse gas inventory and to notify this procedure to the ICE.

### 2.2.3 CCIEP-working group on Emissions

The **Working group on Emissions** of the Coordination Committee for International Environmental Policy (CCIEP) (referred to below as “CCIEP-WG Emissions”) is composed by the regions and national entities. It plays a central role in the coordination of the national GHG inventory. The CCIEP is the principal organ for coordinating international environmental policy. Its Working group on Emissions is a regular body of exchange of information between the regions, IRCEL-CELINE and the UNFCCC National Focal Point. All technical aspects of the GHG inventory (methodological choices, emission factors, uncertainty analysis, QA/QC, etc.), as well as organizational aspects of the preparation process, are coordinated via the CCIEP-WG Emissions. Beside the CRF-submissions, other reporting requirements such as the National Inventory Report and responses to the review processes are prepared within this group. The CCIEP-WG Emissions is also the forum for the process of improvement of the national inventory system. It is also responsible for streamlining the QA/QC procedures and for the regular evaluation of the implementation of these procedures conducted at the regional level.

### 2.2.4 IRCEL/CELINE

The **Belgian Interregional Environment Agency** (IRCEL-CELINE) is established by the Cooperation agreement of 18 May 1994 (modified by the decision of 21 May 1995) about the monitoring of emissions in the atmosphere and the structuring of data. IRCEL-CELINE is the single national entity with overall responsibility for the preparation of the Belgian GHG inventory. IRCEL-CELINE operates as national compiler of greenhouse gas emissions in Belgium. It is responsible for :

- Coordinating and implementing the general and specific functions of the national inventory system;
- Compiling the national inventory, on the basis of the regional datasets (national compiler);
- Establishing, maintaining and archiving the national inventory database;
- Developing and implementing of a QA/QC plan, including the coordination between all actors and the assurance that the various organizations involved in the preparation of the national inventory follow the procedures established in the QA/QC plan. IRCEL/CELINE is the final responsible for the national inventory, and any change at this stage is conducted only by IRCEL/CELINE, after co-ordination with the relevant regional contacts;
- Coordinating the review activities (both on European and international level) and contacting with the associated organisations EEA and the UNFCCC Secretariat (inventory focal point).

### 2.2.5 Federal Public Service for Health, Food Chain Safety and the Environment - DG Environment

The **Directorate General Environment** of the **Federal Public Service** for Health, Food Chain Safety and the Environment (FPS - DG Environment) participates to the activities of CCIEP-WG Emissions in relation with GHG inventories. It is also involved in the national inventory system in its capacity of UNFCCC National Focal Point of Belgium. According to MRV (Monitoring, Reporting and Verification) law of 28 October 2016 and Royal Decree of 22<sup>nd</sup> December 2006, the Directorate General Environment of the Federal Public Service Health, Food Chain Safety and Environment is responsible for the reporting, monitoring and evaluation of



federal actions communicated by the entities and service of the federal state in possession of the relevant data and information, in accordance with Regulation (EU) no 517/2014 and 525/2013.

#### 2.2.6 Federal Public Service Economy, SMEs, independent Professions and Energy – DG Energy

The Energy Observatory of the **Directorate General Energy** of the Federal Public Service Economy, SMEs, Self-employed and Energy (FPS - DG Energy) is responsible for the top-down estimation of energy-related CO<sub>2</sub> emissions using the IPCC “reference approach”, on the basis of the national energy balance.

The Energy Observatory's mission is to collect, process and analyse energy data and use these data for prospective studies.

The energy balances are created as an obligation set by the European Regulation No 1099/2008 of 22 October 2008 on energy statistics amended by regulation No 844/2010 of 20 September 2010, regulation No 147/2013 of 13 February 2013 and regulation No 431/2014 of 24 April 2014.

On a national level, the law of 16 July 2001 (Belgian Official Journal of 20 July 2001) on the organisation of the electricity market allows DG Energy to collect data concerning the creation of the energy balances. It has the following implementing royal decrees on the gas, electricity, petroleum and coal balances: Royal Decree of 11 March 2003 (Belgian Official Journal of 31 March 2003), amended by Royal Decree of 16 May 2004 (Belgian Official Journal of 11 June 2004), Royal Decree of 23 May 2006 (Belgian Official Journal of 12 June 2006), Royal Decree of 10 August 2005 (Belgian Official Journal of 19 August 2005), and Royal Decree of 25 March 2016 (Belgian Official Journal of 08 April 2016).

There are also several Ministerial Decrees laying down the models of the questionnaires: Ministerial Decree of 14 June 2005 laying down the models of the questionnaires for the collection of data concerning electricity, heat and natural gas (Belgian Official Journal of 1 July 2005). Ministerial Decree of 14 September 2006 laying down the models of the questionnaires for the collection of data concerning the petroleum balance (Belgian Official Journal of 20 October 2006). Ministerial Decree of 25 March 2016 laying down the models of the questionnaires for the collection of data concerning the petroleum balance (Belgian Official Journal of 8 April 2016).

The collected data is made available on the website

[http://economie.fgov.be/en/statistics/figures/energy/energy\\_statistics/](http://economie.fgov.be/en/statistics/figures/energy/energy_statistics/)

## 2.3 Regional responsibilities

The three regions are responsible for :

- Collecting the data;
- Realising the estimates of emissions for the sources on their respective territories;
- Compiling this information in regional inventories;
- Providing this information in due time to the national inventory agency (*IRCEL/CELINE*);
- Providing any relevant documentation to the national inventory agency, according to the procedures of the national system, such as QA/QC checklists or updated procedures;
- Delivering yearly to the National Climate Commission a report containing the relevant information allowing the federal government to report data in accordance with the UNFCCC guidelines and with regulation (EU) No 525/2013;
- Following-up the review activities (both on European and international level) and contacts with the associated organisations EEA and the UNFCCC Secretariat (inventory focal point).

The construction of the emissions inventories has to be coordinated. The coordinators are responsible for reporting the regional emission inventory and managing relations with any external organization contributing to the inventories. When completed, the regional emission inventories are sent to the Belgian coordinator in IRCEL/CELINE (National Inventory Compiler – NIC) for aggregation.

The coordinators of the greenhouse gas inventories in the three regions are listed in Table 1. These coordinators are supported by a team of experts for the different sectors involved.

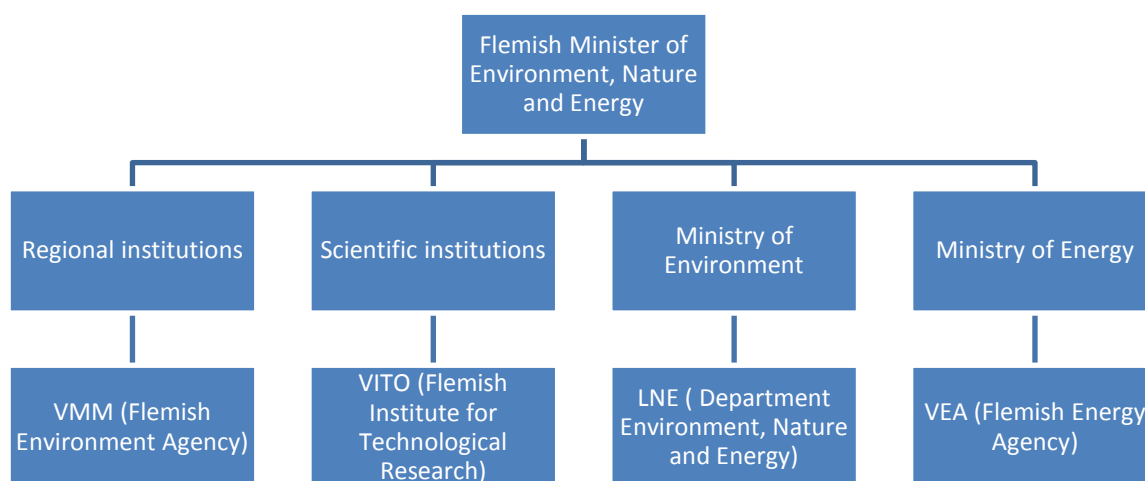
**Table 1 : List of the coordinators of the greenhouse gas emission inventories in the three regions in Belgium.**

Region	Coordinator
<b>Flemish region</b>	Miet D'heer
<b>Brussels Capital region</b>	François Goor
<b>Walloon region</b>	André Guns

Each region has also its own legal and institutional arrangements, which are detailed in the following sections.

### 2.3.1 The Flemish Region

Administrations/agencies in the Flemish Region, which are involved in the national inventory system, are listed here:



**Figure 2: Main institutions and organisations involved in the preparation of the Flemish GHG inventory**

The Flemish Environment Agency, hereafter referred to as VMM, is the Flemish entity designated with the overall responsibility for the regional (Flemish) GHG emission inventory

Article 10.2.2. of the Decree of the foundation of the VMM (Decree of May 7, 2004 to change of the Decree of April 5, 1995 with respect to the general regulations of environmental policy, to supplement with the title of Agencies and to changes of different other laws and Decrees changed by Decree of December 23, 2005, specially in relation to articles 10.2.1 to 10.2.5) determines the mission of the VMM:

The mission of the VMM is to help to realise the objectives of the environmental policy as mentioned in article 1.2.1 § 1 by preventing, limit and eliminate the harmful effects of water systems, the pollution of the atmosphere and to realize the objectives of the integrated water policy, as mentioned in article 5 of the Decree of the integrated water policy. Another mission of the VMM is to report about the state of the environment. Article 10.2.3 and 10.2.4 of the Decree of the foundation of the VMM and the Decree with respect to the general regulations in relation to environmental policy give a list of decretal tasks of the VMM to realize this mission.

Generally summarized, the main tasks of the VMM are: developing and operating monitoring networks, establishing a yearly inventory of air and surface water emissions, calculating pollution loads per river basin, formulating the Environment and Nature report for Flanders, contributing to the formulation of the Flemish Environmental Policy Plan and elaborating the General Water Quality Policy Plans.

More specifically, it is the service “Emissie Inventaris Lucht” (Emission Inventory Air) of the Department “Lucht, Milieu en Communicatie” (Department of Air, Environment and Communication) that is among others designated with the responsibility of setting up an emission inventory of GHG.

In practice and as formulated in the objectives of the VMM the service Emission Inventory Air is responsible for:

- identifying and quantifying relevant sources for each of the relevant pollutants and GHG per activity in order to estimate the contribution of different sectors;
- elaborating upon the emission inventory “Air” in a qualitative way in order to fulfill international requirements and to meet the needs of the different clients. To this end the VMM shall continuously optimize its methodologies and check the representativity of the reported (emission) data, identify and quantify the sources of relevant pollutants and GHG and report on emissions of different sectors.

The VMM is an internal independent agency and resorts directly under the Flemish Minister for Environment. 10 Full Time Equivalents (FTE) are responsible for compiling the complete Emission Inventory Air (air pollutants and greenhouse gases).

More information about the VMM can be found on its website <https://www.vmm.be/>

The establishment of Flemish energybalances is laid down by the Energy Decree of 8 May 2009 (article 12.1.1).

The Flemish Institute for Technological Research (VITO) is responsible for setting up yearly Flemish energy balances. The implementation of this project is a “reference assignment” for the VITO under the “management agreement” signed between the Flemish Government and the VITO (2014-2018). The energy balance forms the basis for calculations of the energy related CO<sub>2</sub>-emissions.

VITO is an independent research institute active in the fields of energy, materials, chemistry, health and landuse. VITO's areas of expertise are climate change, food security, resource scarcity, sustainable energy, ageing population...

More information about VITO can be found at <http://www.vito.be>. More information about the Flemish energy balances can be found at <http://www.emis.vito.be/node/160> and <http://www.emis.vito.be/node/159> and <http://www.energiesparen.be/energiestatistieken>

The mission of the Flemish Energy Agency (VEA) is to support the implementation, the monitoring and the evaluation of the Flemish sustainable energy policy.

The department of Environment, Nature and Energy (LNE) prepares, implements and evaluates the Flemish environment policy.

More information about this institute can be found on [http://www.energiesparen.be/over\\_vea](http://www.energiesparen.be/over_vea)

### 2.3.2 The Walloon Region

The Walloon Agency for Air and Climate (AWAC) , hereafter referred to as AWAC, is the Walloon administration with the overall responsibility for setting up the inventory of air pollutant emissions. This is stated in the following decree of the Walloon Government:

*3 JUILLET 2008. - Arrêté du Gouvernement Wallon portant organisation de l'Agence Wallonne de l'Air et du Climat*

*5° de réaliser des études et des analyses afférentes à la qualité de l'air et à l'évolution du climat, et en particulier :*

- récolter des informations et les stocker, notamment sous la forme de bases de données;*
- réaliser des cartographies et des inventaires réguliers d'émissions*

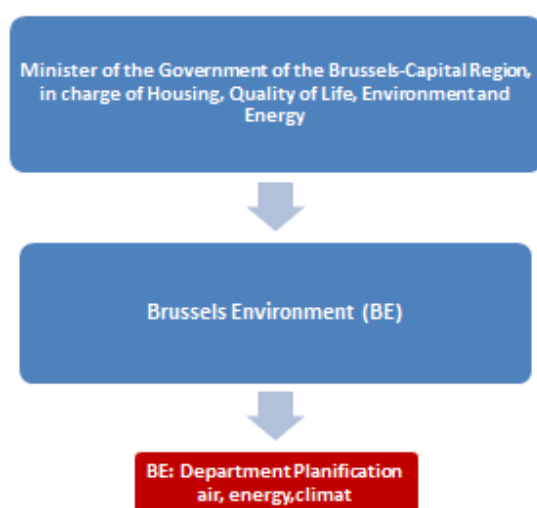
Within the AWAC, several experts are involved in air emission inventories, each covering specific sectors. They are in charge of the identification and quantification of the relevant sources for each of the relevant pollutants and GHG per activity in order to estimate the contribution of different sectors. They elaborate the emission inventory “Air” in a qualitative way in order to fulfil various international reporting requirements. One FTE is more specifically devoted to the compilation of the CRF-tables and the follow-up of the UNFCCC and Monitoring Mechanism Regulation reporting requirements.

The energy balance is prepared by the ICEDD (Institut d'Etudes et de Conseil en Développement Durable) on behalf of the Energy and Sustainable building Department. It is made available to the AWAC by courtesy of the Energy and Sustainable building Department , without any legal arrangement.

### 2.3.3 The Brussels Capital Region

The Brussels emission inventory are the responsibility of one pararegional Institute called Brussels Environment depended on the minister of the Brussels Capital region in charge of housing, quality of life, energy and environment (see Figure 3).

**Figure 3 : Main institutions involved in the preparation of the Brussels emission inventory**



Brussels Environment, the institute for management of the environment in the Brussels Capital region, hereafter referred to as IBGE, is indeed responsible for issues related to the environment and energy of the Brussels Capital Region. As stated in the following royal decree (8 mars 1989-Arrêté Royal créant l'Institut bruxellois pour la gestion de l'environnement - IBGE), this institute is responsible for the inventory of air pollutant emissions. The Brussels emission inventory team is composed by five experts: each expert is in charge of several sectors.

This team is supported by the Inspection Service, in charge of the control of industrial emissions and elaborates the atmospheric emission inventory in a qualitative way in order to fulfil various international reporting requirements.

The Brussels energy balance was prepared till 2013 by the external consultant ICEDD (Institut d'Etudes et de Conseil en Développement Durable). Since 2013, this energy balance has been partly integrated in the Brussels emission inventory team specially the energy survey.

## 3 Inventory Planning

### 3.1 Data sources

The various data sources that are used as input for the Belgian greenhouse gas emission inventory, as well as relevant regulations and/or institutional arrangements, are described in the following paragraphs. Some data sources are shared by the three regions (data available on national level), others are region-specific. Among the most important data sources are the regional energy balances, ETS data and data reported annually by companies through the environmental survey.

### 3.1.1 Regional Energy Balances

The most important data sources when compiling the greenhouse gas inventories are the regional energy balances as described above in chapter 2.3. More information about the energy balances can also be found in the NIR chapter 3.2.5..

### 3.1.2 ETS (European trading scheme) data

#### 3.1.2.1 General description and relevance of ETS to the GHG inventory

The Directive 2003/87/EC establishes a Community GHG emission trading scheme (ETS) from 1 January 2005. In this context, "allowance" means the entitlement to emit a ton of carbon dioxide or an amount of any other GHG with an equivalent global warming potential during a specified period.

With effect from 1 January 2005, all installations carrying out any of the activities listed in Annex I to this Directive (activities in the energy sector, iron and steel production and processing, the mineral industry and the wood pulp, paper and card industry) and emitting the specific GHG associated with that activity must be in possession of an appropriate permit issued by the competent authorities.

The Directive 2008/101/EC (amending Directive 2003/87/EC) ensured the inclusion of aviation activities in the emission trading scheme. From 1 January 2012 onwards emissions from aviation have been included. All airlines operating in Europe, European and non-European alike, became required to monitor, report and verify their emissions, and to surrender allowances against those emissions.

More information on the Greenhouse gas emission allowance trading scheme is available on :

[https://ec.europa.eu/clima/policies/ets\\_en](https://ec.europa.eu/clima/policies/ets_en)

#### 3.1.2.2 Legal arrangements of ETS in Belgium

Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for GHG emission allowance trading within the Community and amending Council Directive 96/61/EC is implemented in the three regions through:

- The Decree of the Flemish Government regarding GHG emission allowance trading was definitively approved on February 4<sup>th</sup>, 2005 and came into force on February 28<sup>th</sup>, 2005
- The Decree of the Walloon Government regarding GHG emission allowance trading was definitively approved on November 10<sup>th</sup>, 2004 and came into force on December 2, 2004.
- The Decree of the Brussels Capital Government regarding GHG emission allowance trading was definitively approved on June 3<sup>rd</sup>, 2004 and came into force on June 23<sup>rd</sup>, 2004. This Decree has been repealed; the Air-Climate-Energy Code (known as COBRACE) adopted by a Decree of the Brussels Capital Government of 2 May 2013 covers its substance. More information can be consulted on the following site:

<http://www.ejustice.just.fgov.be>

The Cooperation agreement of 20 January 2017 between the Federal State and the Regions on the organization and administrative management of the Belgian National Greenhouse Gas Registry in accordance with Directive 2003/87/EC of the European Parliament and of the Council, Regulation (EU) No 525/2013 of the European Parliament and of the Council and certain aspects of auctioning in accordance with Regulation (EU) No 1031/2010 of the Commission states that the registry administrator designated by Belgium is the FPS Health, Food Chain Safety and Environment.

### 3.1.2.3 ETS Allocation System

From 1 January 2013 (the start of the third trading phase, 2013-2020) free allocations to installations and aircraft operators are calculated based upon harmonized allocation rules. Moreover, in this phase, approximately half of the allowances are sold through regular auctions, in accordance with Commission Regulation (EU) No. 1031/2010 (the "Auctioning Regulation"). Basically, full auctioning is the rule for the power sector and a transitional system for free allocation, based on benchmarks, has been put in place for other sectors. The Belgian allocation tables, following the harmonized allocation rules, have been notified to and approved by the EC by 2014.

For information on the Belgian allocation tables as notified to "the EC the following link can be used:

<https://www.climateregistry.be>

More information related to the regional allocation plans can be consulted with the following links:

<http://environnement.wallonie.be/legis/air/air023.htm>

[http://environnement.wallonie.be/cgi/dgrne/plateforme\\_dgrne/visiteur/anim\\_v2.cfm?pere=491](http://environnement.wallonie.be/cgi/dgrne/plateforme_dgrne/visiteur/anim_v2.cfm?pere=491)

### 3.1.2.4 Regional reporting of ETS data

The data reported within the framework of the EU ETS, as described hereunder, are used in the greenhouses gas inventories.

## REPORTING OF ETS DATA IN THE FLEMISH REGION

### **Period 2005-2012**

In Flanders, the companies involved, reported each year before the 1<sup>st</sup> of February (starting in 2006) on the CO<sub>2</sub>-emissions of the involved installations to the Flemish Verification Office. This independent office verified the data before the 20th of March and shared the verified emissions (and reports) with the Flemish Environment Department.

### **Period 2013-20..**

According to the relevant EU Regulations (Monitoring & Reporting, and Verification & Accreditation Regulation), the emission reports of the ETS installations in the Flemish Region are verified by external accredited verifiers. The verified emission reports are submitted via an Internet-based tool to the Flemish Environment Department, which shares the verified emissions (and all underlying data) with the Flemish Environment Agency (VMM) and the Flemish institute for Technological Research (VITO).

## REPORTING OF ETS DATA IN THE WALLOON REGION

In Wallonia, the data from the EU-ETS plants are reported by the ETSWAP. ETSWAP is an electronic platform collecting Monitoring plants, Annual ETS Emissions, Verification reports. The verification are conducted by independent verifiers, afterwards the administration (Awac) validates the verification reports. Some non EU-ETS plans reports also their CO<sub>2</sub> emissions via the *Companies environmental integrated survey (REGINE)* described in 3.1.4.

## REPORTING OF ETS DATA IN THE BRUSSELS CAPITAL REGION

In the Brussels Capital Region, the Emission trading reporting is part of the *environment permit*. The verification will be conducted within the management system of BELAC.

### 3.1.3 Other data sources at national level (shared by the three regions)

Emission factors in the IPCC Guidelines (revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories, IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, IPCC Good Practice Guidance on LULUCF) constitute a data source for the preparation of the Belgian national GHG inventory, if more relevant national sources are not available.

With a view to harmonize the data sources between the regions and improve the consistency of the methodology, some national statistics and models are jointly used by the three regions. This information includes among others :

- Various statistics of Statistics Belgium are used such as the agricultural census (livestock counting, crop areas and crop production data) and the number of inhabitants (<http://www.statbel.fgov.be/>);
- the Federal Public Service Economy, SMEs, self-employed and Energy provides statistics on energy (petroleum products and coal; biofuels) from the federal energy balances . Some of these statistics are used to report about the reference approach;
- Information from SYNERGRID (Federation of grid operators of electricity and gas in Belgium) is used for general information on the natural gas market to calculate the emissions from gas distribution;
- Information from Fluxys (transport of natural gas) is used for general information on transport and storage of natural gas and to calculate the involved emissions;
- A study is conducted annually by VITO-Econotec to make up the inventory on F-gases and ozone depleting substances for Belgium and the three regions (see also chapter 4.1)
- In 2009 a study was conducted by University Gembloux to set up a common methodology for the three regions for making the land use matrix, which is an important basis for the calculations of emissions and sinks in the LULUCF sector
- data from Belgian Rail Company for calculation of emissions from rail transport ([http://www.belgianrail.be/nl/corporate?utm\\_source=NMBS-Home&utm\\_medium=link&utm\\_content=link-top&utm\\_campaign=corporate](http://www.belgianrail.be/nl/corporate?utm_source=NMBS-Home&utm_medium=link&utm_content=link-top&utm_campaign=corporate))
- emission data from EUROCONTROL and database with flight movements from BELGOCONTROL
- meteorological data (min/max temperature) and Reid Vapor Pressure (RMI, <https://www.meteo.be/meteo/view/en/65239-Home.html>)
- The Federal Public Service Mobility for the Belgian vehicle stock and other statistics as vehicle kilometers, mileage km per year (<https://mobilit.belgium.be/nl/wegverkeer>)

### 3.1.4 Other region-specific data sources

#### 3.1.4.1 The Flemish Region

In addition to the Flemish Energy Balance and ETS data, other important data sources in the Flemish Region to set up the air emissions inventory are:

- the annual data on air emissions reported by around 400 companies in their environmental report (so-called IMJV: Integrated Annual Environmental Report).
- officially reported energy data to establish the Flemish Energy Balance and
- various data from governmental and sectoral organisations (waste data, forest inventory data, transport data, etc.).

*IMJV [“Integraal Milieu Jaarverslag” (Integrated Annual Environmental Report)] (see figure 7)*

Legal arrangements:



The IMJV is established by:

- Decree of 6/2/2004: Decree to alter the regulations concerning the reporting of environmental information and the annulment of the system of implicit environmental license. [BS (Belgian Bulletin of Acts, Orders and Decrees) 20-2-2004]
- Implementing decision of 2/4/2004: implementing decision of the Flemish government to establish an IMJV [BS (Belgian Bulletin of Acts, Orders and Decrees) 4 -6- 2004] ;
- Ministerial decision of 27/5/2004: Decision in which the former administration “AMINAL” (currently the Department of Environment, Nature and Energy) is appointed to which the IMJV has to be reported. [BS (Belgian Bulletin of Acts, Orders and Decrees) : 6 august 2004] ;
- Ministerial Decision of 7/1/2005: Decision in which the new IMJV format is published. This model needed to be used in 2004. From 2005 on other models needed to be used.
- Decision of the Flemish government of 08/12/2006: includes the obligation of information in the framework of European PRTR-Regulation to the IMJV.
- Decision of the Flemish government of 27/01/2006: change in some stipulations of the IMJV.

The above mentioned legal arrangements initiates the IMJV and changes other decrees and laws. The implementing decision determines the procedure for declaring, the period for declaring and the detailed contents of the IMJV.

Besides:

- Decision of the Flemish government of 20/01/2012 makes the reporting of the IMJV in a electronic way obligatory and takes into account a consistency of threshold values on the European and international level. Also the supplementary reporting of fugitive emissions was taken into account here.

#### General description of the IMJV and relevance to the Flemish GHG inventory:

The IMJV integrates the existing mandatory environmental reporting requirements on air, water and waste by the Flemish industry and need to be reported to the Flemish administration. The data must be reported each year before 15 March to the department LNE. First comparable, reporting obligations in this framework concerning the ‘air’ and ‘water’ emissions existed already in Flanders from the activity year 1993 on. The Flemish administration LNE distributes the different parts of the IMJV data to the responsible Flemish agencies and administrations. Data used in the preparation of the Flemish GHG inventory are reported in part II 1B and II 6 of the IMJV. The atmospheric emissions (including the emissions of GHG) and the energy and process data must be reported by industrial facilities (IPPC or consuming more than 0,1 PJ) exceeding defined threshold values at least for one of the pollutants involved. The threshold values of the GHG emissions are in accordance with article 3 of the Commission Decision of 17 July 2000 (2000/479/EC) on the implementation of an European Pollutant Emission Register (EPER) according to article 15 of Council Directive 96/61/EC concerning Integrated Pollution Prevention and Control (IPPC) and in accordance to article 5 of the Regulation EC/166/2006 of 18 January 2006 (E-PRTR). The threshold values (per year) are 100 kton for CO<sub>2</sub>, 100 ton for CH<sub>4</sub>, 10 ton for N<sub>2</sub>O, 0.1 ton for HFCs and PFCs and 0.05 ton for SF<sub>6</sub>.

From 2004 on the involved companies have the possibility to report their IMJV in an electronic way and from 2012 on the electronic submission became obligatory.

For more information the following site can be consulted: <http://milieujaarverslag.milieuinfo.be>.

#### Officially reported energy data (see figure 7)

#### Legal arrangements:



See: <http://www.energiesparen.be/verplichterapporteringenergiegevens>

- The legal base for the reporting obligations of energy data is article 12.2.1 of the Energy Decree of 8 May 2009.
- In article 10.1.1 until 10.1.9 and article 11.1.2, 11.2.4 and 11.2.5 of the Energy Order of 19 November 2010 this reporting obligations are more elaborated by the Flemish Government.
- The Ministerial Order of 23 February 2015 regulates the reporting of natural gas and electricity consumption by sector by the operators of the natural gas and electricity grids. The Order also includes the reporting obligations for CHP-installations, heat-installations based on renewables and autoproducers of electricity. This Order was changed by a Ministerial Order of 1 December 2010 (article 1 until 6) to regulate the sector classification, the reporting format and the requirements regarding accuracy, completeness and consistency.

#### General description and relevance to the Flemish GHG inventory:

The grid operators for electricity and natural gas operating in Flanders are obliged to report yearly to the VEA before the 1st of May of year X the amount of electricity and natural gas that is distributed on their grid during the year X-1. The supply data should be split up by sectors and subsectors.

Owners of CHP-installations, heat installations based on renewables and autoproducers are obliged to report to the VEA before the 1<sup>st</sup> of April of year X on production, consumption, technical specifications, etc during year X-1.

The reporting of deliveries of petroleum products is foreseen in the Energy Decree and can be made operational at any time in the future.

The reported data are used to help establish the Flemish energy balance, an important source to help estimating the emissions of GHG.

#### Other sources of data

The most important and essential information sources, necessary to prepare the Flemish GHG inventory, are described above. However several other organizations deliver important data. Both governmental as well as sectoral organizations have information and data that are necessary to complete the Flemish emission inventory. Some of the main organizations and data include:

- Sector Waste: OVAM (Flemish Waste Agency) for data on waste, VMM (Flemish Environment Agency) for data on waste water and VITO (Flemish Institute for Technological Research) for data on energy recovery in the waste sector;
- Sector Agriculture: VLM (Flemish Land Agency/Manure Bank) for data on animal number and N-excreted, dLV (Departement of Agriculture and Fisheries) for data on animal weight, milk yield, AWMS, fertilizer use;
- Sector LULUCF: ANB (Flemish Nature and Forest Agency) for data of the Flemish Forest Inventories; AGIV (Flemish Agency for Geographical Information) for GIS data to make up the land use matrix;
- Sector Energy:
  - Transport: NMBS (Belgian Railway Company) and 'De Lijn' (Flemish public transport company - buses and trams) for statistics on number of kilometres, total energy consumption;
  - administrators of waterways for statistics on inland navigation, Flemish Port Commission for statistics in Flemish ports (<http://www.serv.be/en/vhc>)
  - statistics on flight movements for Flemish airports,
  - amounts of fuel from dredging sector and tug boats (<http://www.deme-group.com/> ; <http://www.jandenul.com/en> ; <http://www.urs.be/> ; <http://www.portofantwerp.com/en> ;
  - statistics fishery (Department of Agriculture and Fisheries (<http://lv.vlaanderen.be/en>);

All data sources per sector / subsector can be found in the relevant chapters in the Belgian NIR and in more detail in the Flemish QA/QC document “VMM/EIL/GP/5.003 Procedure for the main process: setting up the greenhouse gas emission inventory”.

#### 3.1.4.2 The Walloon Region

Similarly as in the Flemish Region, in the Walloon Region the air emissions reported by companies (REGINE: Companies Environmental Integrated Survey) are an important data source in addition to the ETS data and the Regional Energy Balance.

##### EU-ETS plants

Each year, on the second Thursday of March, the operator of the EU-ETS plant must have declared and verified its emissions from the previous year through the ETSWAP application. The verification must be carried out by an independent auditor accredited according to ISO14065 and according to the European Accreditation and Verification Regulation.

The exchange of information between the operator and the verifier takes place via ETSWAP.

At mid April, the AWAC ETS team furnishes an excel file to the AWAC inventory team with all the ETS data (consumption, emissions factors, emissions, productions, ..).

##### REGINE : Companies environmental integrated survey (see 2 in figure 3)

Under the initiative of General Directorate of Agriculture, Natural Resources and Environment of the ministry of the Walloon Region (DGO3), Wallonia has committed itself to implement an ambitious approach on rationalisation and simplification of environment-related regulatory monitoring and reporting requirements for companies.

Recognising the importance of easing the understanding of companies and lowering the burdens and costs both for companies and the administration, the Walloon Region has created an Environmental Integrated Survey and REGINE (Référentiel Environnement: Gestion Intégrée des Entreprises – Environmental Referential : Integrated Management of Entreprises).

In 2003, an environmental integrated survey has been created which includes all pertinent environment-related reporting requirements for 300 companies.

The objective of this survey is to simplify data collection and ensure coherence between the different inventories and reports (as a result of international, European, federal and regional legislation) by collecting once a year all necessary information concerning air, water, waste, energy and environmental expenditures. The information is collected in a single authentic data source, and is made available to different services and administrations ensuring at the same time the confidentiality of certain data.

The information is collected to face many different reporting regulatory regional, federal, European and international obligations in the required formats as well as to evaluate the effectiveness of regional environmental policies. The environmental integrated survey is personalised to the 300 operators of the activities/installations pointed out by one or several regulations (four international Conventions and their protocols<sup>3</sup>, seven European Directives<sup>4</sup>, three European Regulations<sup>5</sup>, two European Decisions<sup>6</sup>, one European Recommendation<sup>7</sup>, two Walloon laws<sup>8</sup>, one Walloon Decree<sup>9</sup> and several non legally binding agreements<sup>10</sup>).

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<sup>3</sup> 1992 UN Framework Convention on climate change (UNFCCC) and its Protocol, Convention on long range transboundary air pollution (CLRTAP) and their Protocols, POP's Stockholm Convention and UNECE PRTR Protocol to the Aarhus Convention.

<sup>4</sup> 2003/87/EC Directive on green house gas emission trading , IPPC Directive, 2001/80/EC Directive on large combustion plant (LCP), 2000/ 60/EC Directive (water framework Directive), 91/414/EC Directive regarding placing of plant products on the market, 76/464/EEC Directive concerning pollution caused by dangerous substances discharged into the aquatic environment, Directive 91/689/CE on dangerous wastes.

<sup>5</sup> EC 850/2004 Regulation concerning persistent organic pollutants (POP's), 2150/2002/EC Regulation on waste statistics and E-PRTR project Regulation.

<sup>6</sup> Commission Decision of 29/01/2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions, 2000/479/EC Decision implementing EPER.

<sup>7</sup> Commission Recommendation of 30 may 2001 on the recognition, measurement and disclosure of environmental issues in the annual accounts and annual reports of companies

<sup>8</sup> AGW (Walloon government decree) of 13-11-02 on power plant permit conditions, AGW (Walloon government decree) of 9 april 1992 on dangerous waste.

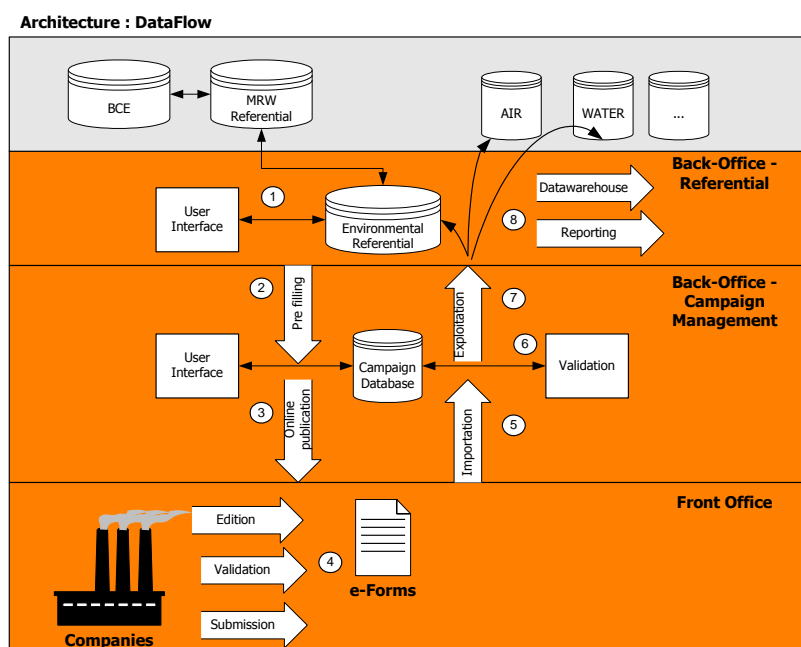
<sup>9</sup> Walloon Decree of 10 november 2004 establishing a scheme for greenhouse gas emission allowance trading .

<sup>10</sup> OECD/Eurostat Joint Questionnaires on waste, expenditure and regional statistics.

This survey not only integrates comprehensive information, but also optimises the comfort for companies and the relevance of collected data due to a personalisation and pre-fill up of the questionnaire, according to the company's profile and the regulatory requirements.

Since 2005, the questionnaire of the environmental integrated survey is on line. The on line survey aims at exploiting as much as possible the possibilities offered by the technologies of information and communication, and represents a tool of dematerialisation as it allows to replace the paper questionnaires by electronic exchange.

**REGINE** (Référentiel « Environnement » pour la Gestion INtégrée des Entreprises) is one of the master pieces of the system. It has been conceived to enable a personalisation and a pre-fill up of the on-line questionnaires. It integrates several referentials for each of the 300 companies concerned (activities, installations, products, processes, fuels, pollutants into air and water, wastes, kind of expenditure, etc...).



**Figure 4 : Companies Environmental Integrated Survey in Wallonia**

The institutions involved in the environmental integrated survey in Wallonia are the AWAC, 4 departments of the General Directorate of Agriculture, Natural Resources and Environment: the environment and 4 external services of DG environment, 2 Consulting firms (ICEDD and NSI), 7 Industrial Federations (Cement, Chemistry, Metallic sector, Pulp and Paper, Food industry, Electricity, Steel industry) and the Walloon Federation for enterprises.

Further information can be found on <http://bilan.environnement.wallonie.be>.

**REGINE** has allowed to consolidate overlapping regulations (ex. Emission Trading and IPPC Directives, PRTR protocol, etc...), update and anticipate regulations (ex. LCP Directive, E-PRTR Regulation...), solve contradictory issues (ex. Series of PCBs, HAPs...) and comply with reporting regulations; to concentrate efforts by targeting the most pertinent companies; to benefit from a single and centralised information and ensure coherence between collected information for different administrative services and for Wallonia as a whole (a single authentic source); to improve the relevance and the quality of collected data due to a personalisation and pre-fill up of the questionnaire according to the company's profile and the regulatory requirements; to improve the coherence of economic, social and environmental data (through the links that REGINE has established with the Enterprises Crossroads Bank); to reduce the time spent for the data encoding work; to save time and administrative burdens and costs for companies and public authorities (a single survey, personalisation, pre-filling up and IT based solutions); to optimise the comfort and understanding for companies; to respect the reporting deadlines by both, companies and public authorities; to put into practice effective and fluid exchanges of information, increasing transparency and awareness of companies about

environmental obligations and improving dialogue between companies and public authorities; to improve, highlight and reinforce co-operation between services and administrations; to replace the paper questionnaires by electronic exchange (an on-line system for digital sending of data) and create a tool of dematerialisation. The information related to GHG emissions is used to calculate the emissions of the most important emitters in the industry, waste and energy sectors.

Legal arrangement : Decision of the Walloon government of 13/12/2007 : obligation of reporting of environmental and energy data in the framework of the IED Directive.

#### Energy balance (see 3.3.1 in figure 8)

One main data source for the inventory preparation is the energy balance delivered yearly by the ICEDD (“Institut d’Etudes et de Conseil en Développement Durable”, consultant office in sustainable development) on behalf of the Energy and Sustainable building Department . The energy balance describes the quantities of energy imported, produced, transformed and consumed in the Walloon Region in a given year.

In the residential sector, the information is split by use and type of fuel. In the commercial and industrial sector, the consumption balances are split by branch and by type of fuel.

The preparation of the energy balance combine top-down and bottom-up approach. It is based on an annual survey by installation for industrial and commercial sectors (see REGINE system above) and on data collection by general data providers. The survey is organised around a questionnaire sent to all the plants using high voltage in the region. This survey is used in a database in combination with all the characteristics (employment, area, ovens and boilers,...). The complete energy balance is not made publicly available for confidentiality issues.

#### Other sources

In the waste sector, main data on the incineration plants and solid waste disposal sites are collected through the REGINE survey explained above. Some complementary information is also available on the following websites: for SWDS and for incineration plants. Some data are also directly collected at the Walloon Waste Office which is part of the DGARNE.

In the agricultural sector, the Statistics Belgium is the main source of data, including annuals census of the livestock, crop and grassland areas <http://statbel.fgov.be/fr/statistiques/chiffres/economie/agriculture/> Surveys on the type of housing are also conducted by Statistics Belgium. Data on the use of mineral fertilisers are collected through annual surveys by the Agricultural Economy Institute (IEA).

In the air transport, the two main airports (Liège and Charleroi) communicate each year their fuel consumption (national and international) and the LTO activities.

The Walloon Forest Inventory is an important data source for the LULUCF sector.

#### 3.1.4.3 The Brussels Capital Region

In the Brussels Capital Region, the main data source is the Regional Energy Balance.

#### Energy balance

The Brussels Capital region is an urban region; consequently the main data source for the inventory preparation is the energy balance delivered yearly. The energy balance describes the quantities of energy imported, produced, transformed and consumed in a given year for every activities sectors in the region.

In the residential sector, the information is split by use and type of fuel. In the commercial and industrial sector, the consumption balances are split by branch and by type of fuel.

The preparation of the energy balance combine top-down and bottom-up approach. It is based on an annual survey by installation for industrial and commercial sectors and on data collection by general data providers. The survey is organized around a questionnaire sent to all the plants using high voltage in the region. This survey is used in a database in combination with regional and national statistics (for example, from Statistics Belgium, <http://statbel.fgov.be/en/statistics/figures/>).

The methodology and the results of the energy balance is publicly available and can be found on the following website (the year n-2 is available from June of year n) :

[http://documentation.bruxellesenvironnement.be/documents/Study\\_energy\\_BEN2012\\_Juin2014\\_FR.PDF](http://documentation.bruxellesenvironnement.be/documents/Study_energy_BEN2012_Juin2014_FR.PDF)

*Other sources*

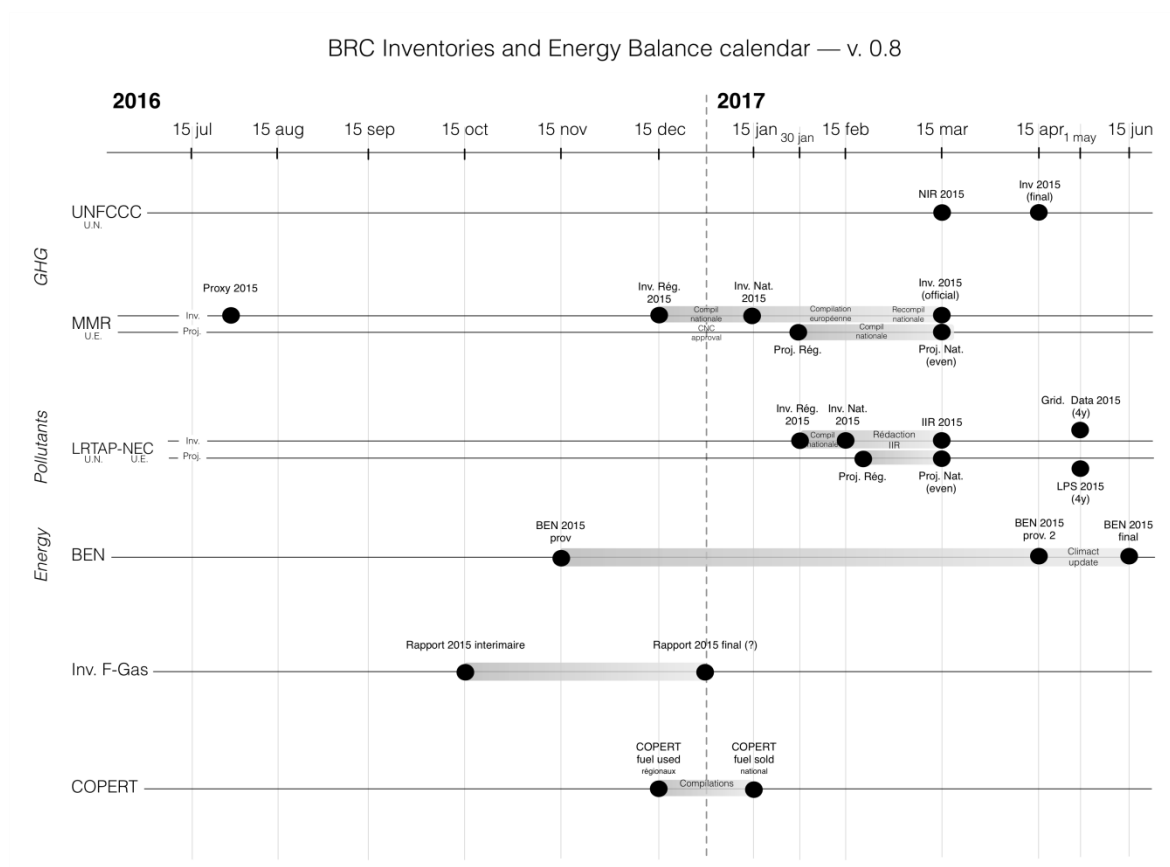
The other sources of emission are limited and concern only a few industries. These industries are subject either to a legal obligation of data supply (for example, waste register for waste incinerator) or to an individual environment permit enforcing the industry to supply the data, which is afterwards controlled by independent and agreed organisms.

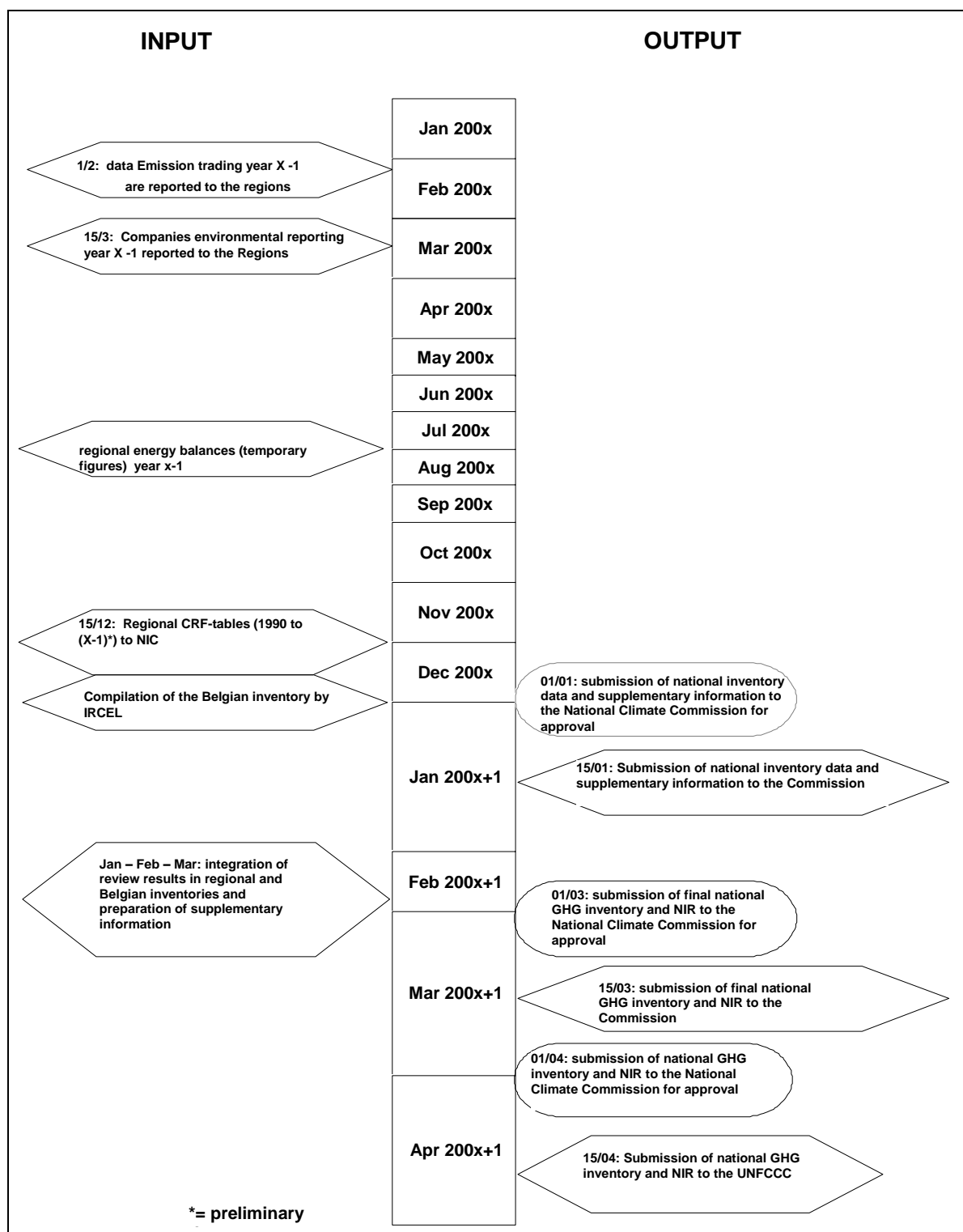
## 3.2 Calendar / timeline

Figure 5 represents the timeline that is followed as far as possible to prepare the Belgian greenhouse gas emission inventory.

**Figure 5a : Timeline of officially reported submissions**

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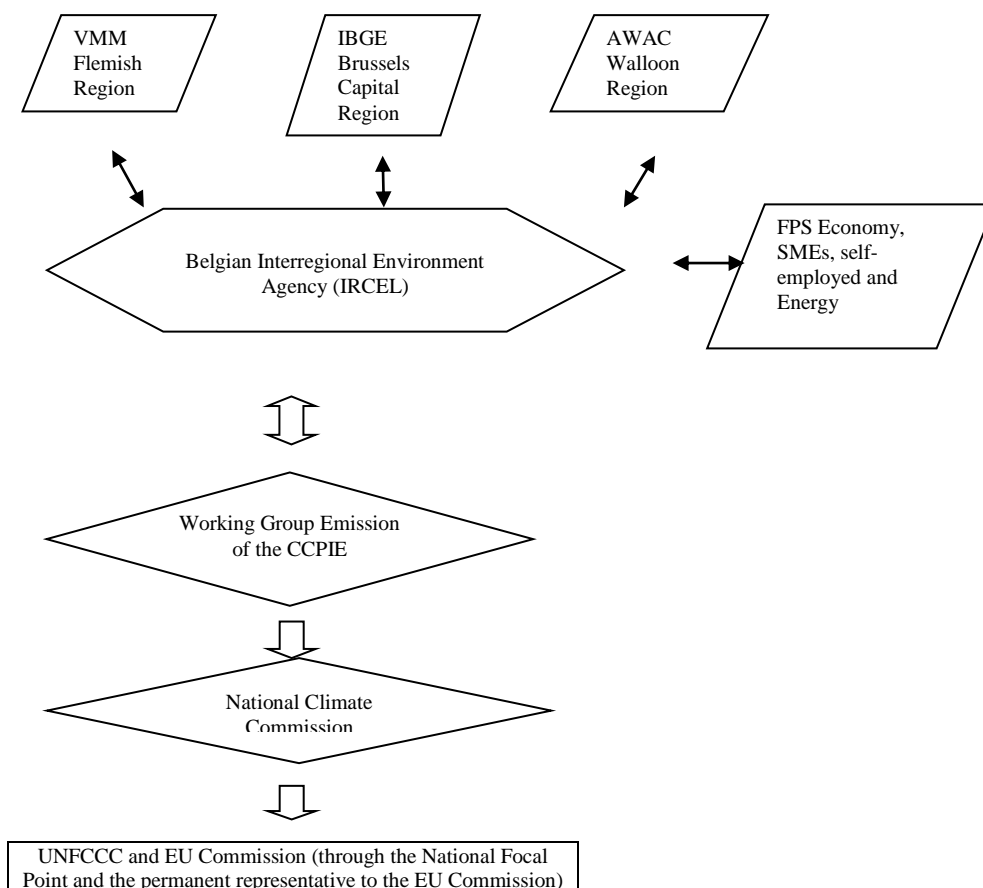
**Figure 5b : Timeline of preparation of the greenhouse gas inventory and official submissions.**

## 3.3 Data flows

### 3.3.1 At national level

Data flows for the preparation of the national inventory are based on the timeline described in the previous figure.

**Figure 6 : Data flow at the national level**



The data flow at the national level is presented in Figure 6 and briefly described hereunder.

The regional GHG inventories are transmitted by the 15th of December in the shape of CRF-tables to IRCEL-CELINE, the national inventory compiler. IRCEL-CELINE makes the compilation of the three regional inventories into the national one by the 31<sup>st</sup> of December. This implies coordination with the three regions, within the context of the CCIEP-WG on Emissions.

The top-down calculation of the energy-related CO<sub>2</sub> emissions (reference approach) is made by the Directorate General Energy of the Federal Public Service Economy, SMEs, Self-employed and Energy via the Energy Observatory, and transmitted to IRCEL-CELINE.

The national CRF-tables are cross-checked by the CCIEP-WG Emissions and then transmitted to the National Climate Commission for the official approval (by the 1<sup>st</sup> of January, by the 1<sup>st</sup> of March and for final approval by the 31<sup>st</sup> of March).



After approval by the National Climate Commission, the national GHG inventory is submitted to the EU Commission via the EIONET - Central Data Repository (CDR)<sup>11</sup> of the European Environment Agency (EEA) to the European Union by the 15<sup>th</sup> of January and the 15<sup>th</sup> of March and to the UNFCCC secretariat through the UNFCCC National Focal Point by the 15<sup>th</sup> of April.

### 3.3.1 At regional level

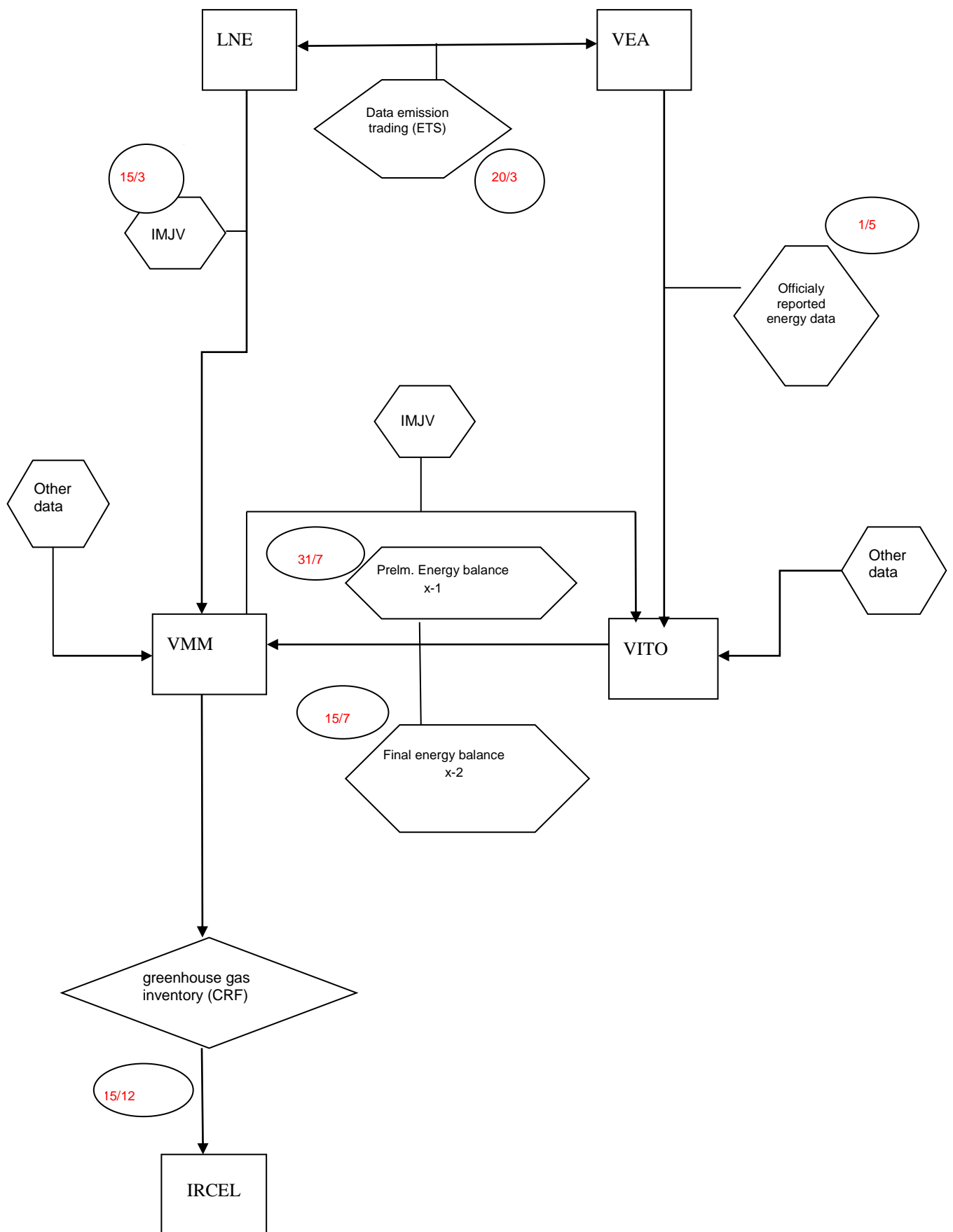
#### 3.3.1.1 The Flemish region

Figure 7 shows the flow of information between the partners concerned in the preparation of the Flemish GHG inventory.

**Figure 7 : Information flow between the parties concerned in the preparation of the Flemish GHG**

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<sup>11</sup> [http://cdr.eionet.europa.eu/be/eu/mmr/art07\\_inventory/](http://cdr.eionet.europa.eu/be/eu/mmr/art07_inventory/)



*Below a description of how the Flemish greenhouse gas emission inventory is compiled: who is involved and which officially reported data are used. The relevant parts are presented in Figure .*

- **The department LNE** distributes the relevant parts of the IMJV to Flemish Energy Agency, VMM and VITO shortly after 15/3/200X.

It also distributes the verified emissions data for the companies involved in the emission trading scheme to these institutions.

- **The Flemish Energy Agency VEA** distributes the officially reported energy data to VITO shortly after 1/5/200X.

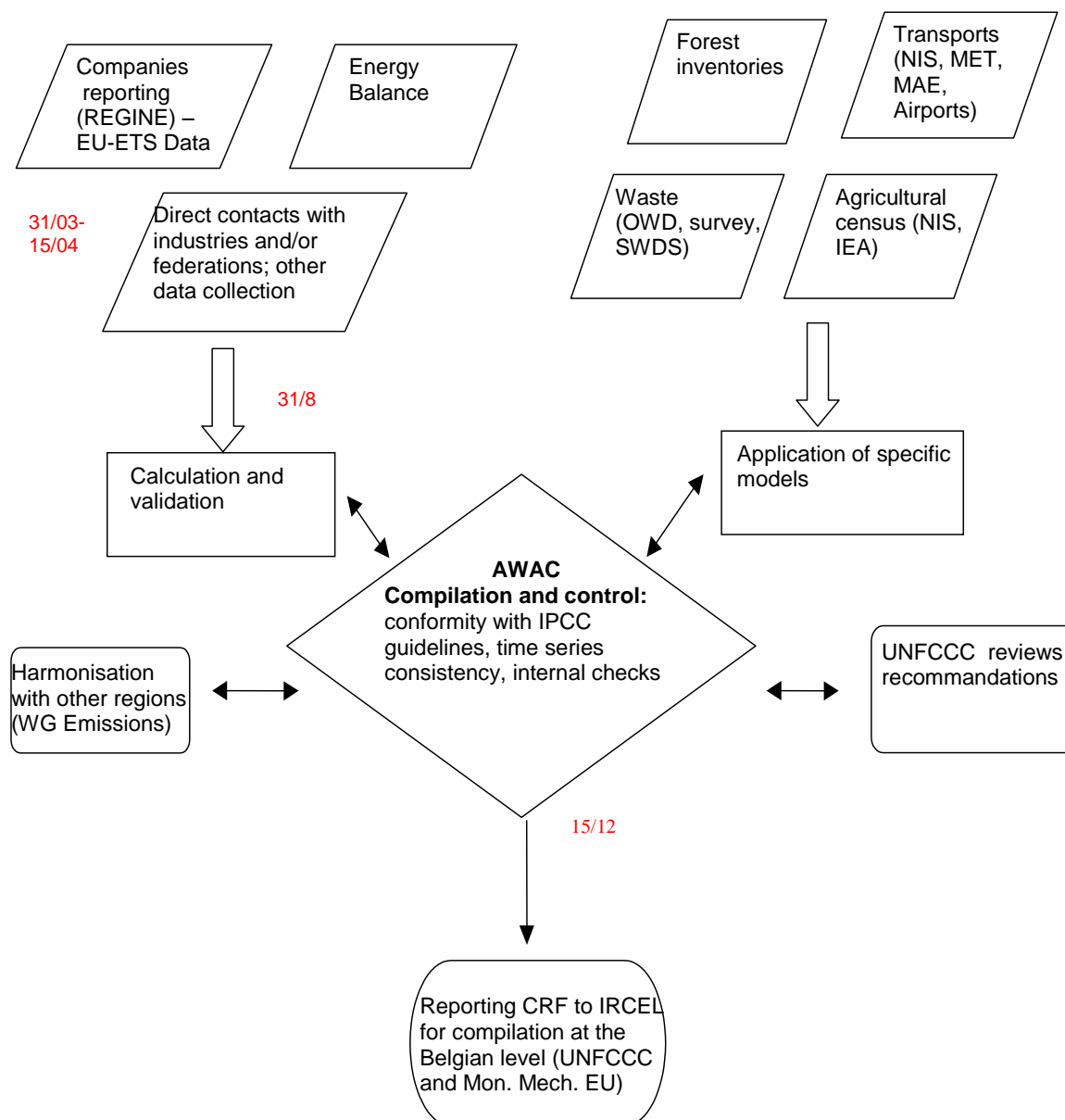
- **VITO** establishes a yearly energy balance using data from the IMJV (part III), data from the officially reported energy data towards VEA, data from the emission trading agreement and other available, necessary data.

Preliminary energy balances for 1990 until the year X-1 is made before 31/07/200X. The report on the energy balance (1990-year X-1) is approved by the Flemish Government before 30 september of year X. After the approval the results are publically available on <http://www.energiesparen.be/energiestatistieken>.

- **VMM** uses the data from the IMJV, the ETS, the energy balance and other relevant, necessary data to establish an overall GHG emission inventory for the Flemish region. The CO<sub>2</sub>-data from the emission trading agreement are completely integrated in the greenhouse gas inventory since the integration of the emissions of the year 2013 . The GHG data are reported in the CRF-format and are distributed (CRF-tables and xml-files) to IRCEL-CELINE, the national inventory compiler at the 15<sup>th</sup> of December to prepare the Belgian GHG inventory.

### 3.3.1.2 The Walloon Region

**Figure 8 : Data flows in Wallonia for the preparation of the GHG inventory**



The data flows in Wallonia are presented in 8.

The definitive energy balance for the year X-2 is available in June of the year X. A provisional energy balance for the year X-1 is available in December of the year X and is used to make a provisional estimate of the emissions of the year X-1.

The REGINE survey is reported by the companies from 31 March on. The EU-ETS data are also validated by AWAC for the 31st of March.

The delivery time for other data mentioned in figure 7 do not imply a particular time constraint for the calculation of the emissions and removals.

The time series of GHG inventory from 1990 to year X-2 are prepared by the 15th of December and transmitted to IRCEL-CELINE, the national inventory compiler. The provisional estimate for the year X-1 is transmitted in December.

### 3.3.1.3 The Brussels Capital Region

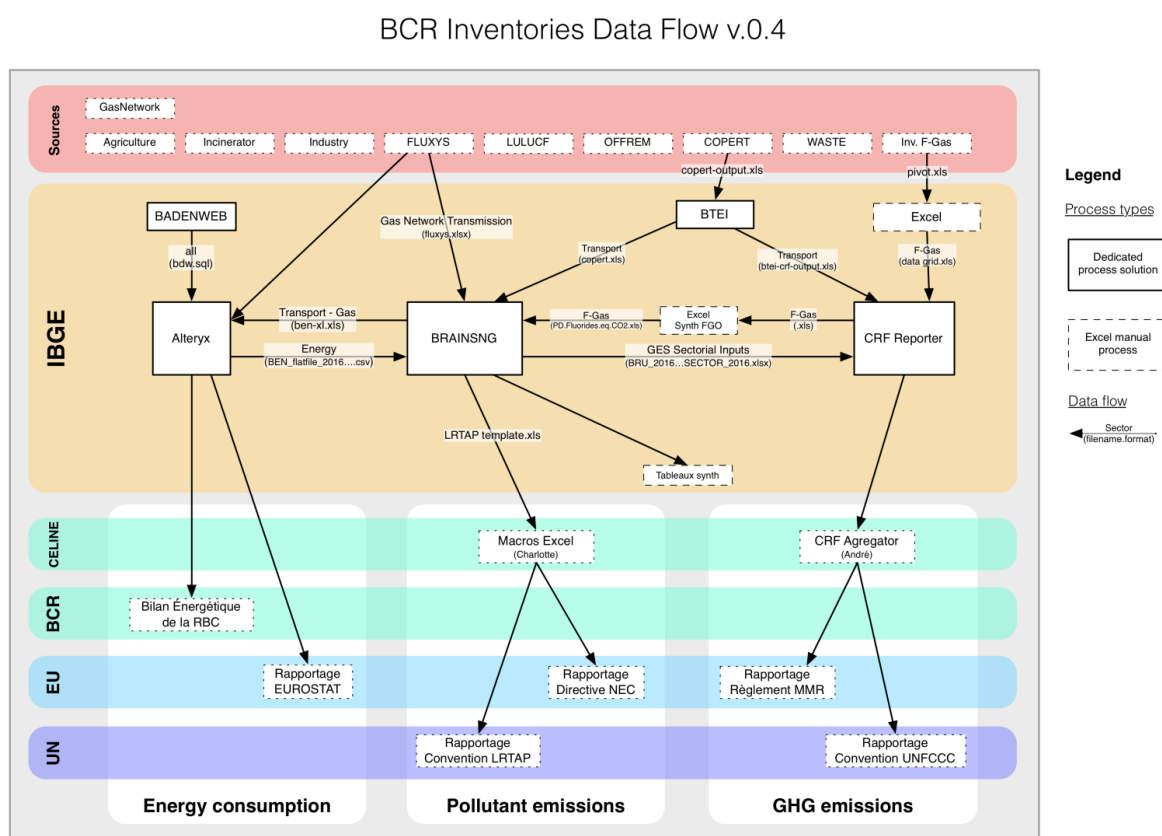
Figure 9 summarizes the data flows involved in the determination of the emission inventory in the Brussels Capital Region.

The pink line “Source” represents all the input data necessary to determine the emission inventory: from the energy distributor, the incinerator, output from COPERT for the transport sector, industrial sources, LULUCF sources...

These input are injected in several tools : BRAINSNG (directly or within an altéryx tool or the road transport tool BTEI) or in CRF reporter directly as for the F gas. (More information on the BRAINSNG tool is included in the Belgian QA/QC plan).

The output of BRAINSNG and regional CRF reporter(emission inventory) are sent to IRCEL/CELINE as the national GHG inventory can be compiled based on the three regional emission inventory. Finally, the Belgian emission inventory is sent to UNFCCC.

**Figure 9 : Data flow to determine the Brussels emission GHG inventory**



## 3.4 Approval and submission procedures

### 3.4.1 At National level

After compilation of the national inventory, under the CRF format, the Belgian CRF-submission is first approved by the CCIEP-WG Emissions. Afterwards it is transmitted to the National Climate Commission. All the mandatory reports in the framework of the UNFCCC, the Kyoto protocol and the Monitoring Mechanism Regulation (EU) no 525/2013 are subject to approval by the National Climate Commission. The final drafts of these mandatory reports are communicated to the National Climate Commission two weeks before the due date for those submissions, for approval. These draft reports may be amended at the request of the National Climate Commission. At least 1 week before the due date for the submission, the National Climate Commission gives its approval on the documents, which are then submitted to the UNFCCC Secretariat through the UNFCCC National Focal Point or to the EU Commission via the EIONET - Central Data Repository of the European Environment Agency to the European Union.

The timeline for the approval and submission of inventory data and other information related to GHG inventories is described in Figure and summarized below:

- 01/01/200X+1: submission of inventory data and supplementary information to the CNC for approval (submission to the European Commission : 15/01)
- 01/03/200X+1: submission of the final versions of the national inventory data, the NIR and supplementary information to the National Climate Commission (submission to the European Commission : 15/03);
- 31/03/200X+1: submission of the final versions of the national inventory data, the NIR and supplementary information to the National Climate Commission (submission to the UNFCCC : 15/04).

### 3.4.2 At Regional level

#### 3.4.2.1 THE FLEMISH REGION

Different parts in the preparation of the Flemish GHG emission inventory have approval procedures. Following text explains the approval procedures for the Flemish energy balance.

The work of the energy balance for Flanders, including the choice of methodology and activity data, is followed by a committee of representatives of different governmental authorities. VMM, VEA and LNE are some of the members of this committee. During the committee-meetings, the methodology used and the results of the energy balance are discussed. These meetings take place approximately twice a year.

Section 2.3.1. mentions that the project of establishing the Flemish energy balance is a part from the BBT-EMIS-project. This BBT-EMIS project is followed by a steering group with representatives of VMM, VEA, LNE, OVAM, and several other organizations (VLM,...) and representatives of the cabinet of the Flemish Ministry of Environment and Energy. This steering group approves each year the final energy balance for Flanders.

The regional CRF-submission itself is not subject to an official approval procedure on the regional level.

#### 3.4.2.2 THE WALLOON REGION

The preparation of the energy balance in Wallonia is followed, and subject to approval, by a committee of representatives of different governmental authorities and chaired by the Energy and Sustainable building Department. Also one representative of the AWAC is present in this committee.

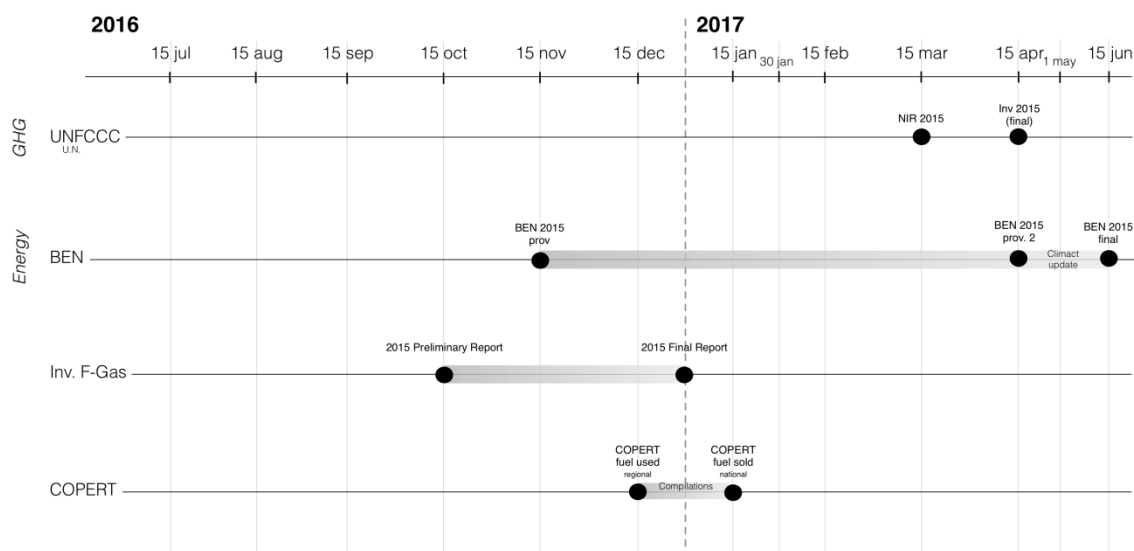
The regional CRF-submission itself is not subject to an official approval procedure on the regional level.

#### 3.4.2.3 THE BRUSSELS CAPITAL REGION

Figure10 describes the timetable of the energy balance and GHG emission inventory preparation. Below, the detailed timing for all the steps in the process:

- 31st July year X-1 : proxy of the GHG emission inventory;
- 15 October year X-1 : provisional F gas determination;
- 15 December year X-1 : provisional energy balance of year X-2 and the time series of GHG inventory from 1990 to year X-2 are prepared and transmitted to IRCEL-CELINE.
- At the end of December of year X-1 : regional emission inventory and final F gas emission; the provisional estimate for the year X-1 is transmitted to IRCEL-CELINE.
- 15 January of year X : national emission inventory within European legislation;
- 15 March year X : The industries data of year X-1 are delivered at the latest in March of the year X and NIR submission;
- 15 Avril of year X : GHG emission inventory submission;
- End of June: definitive energy balance of year X-2;
- A provisional energy balance for the year X-1 is available in December of the year X and is used to make a provisional estimate of the emissions of the year X-1.

**Figure 10: Timetable of the energy balance (BEN) and emission inventory production in the Brussels Capital Region**



The energy balance of the Brussels Capital Region is followed and approved by a committee composed of representatives of the Ministry and Brussels Environment. The regional CRF-submission itself is not subject to an official approval procedure on the regional level.

## 4 Inventory preparation and management

### 4.1 Estimates of emissions and removals

Belgium prepares estimations of emissions and removals of GHG in accordance with the methods described in the Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories, as elaborated by the IPCC Good Practice Guidance, and ensures that appropriate methods are used to estimate emissions and sinks for all source categories.

#### 4.1.1 General methodology

A general description of the methodologies can be found in the National Inventory Report (chapter 1 Introduction) and all details about the methodologies used (sectoral approach) can be found in the chapters 3 to 8 of the National Inventory Report.

By following intensively regional, national and international workshops about estimating emissions and sinks of GHG, the responsible organizations for setting up the emission inventory in Belgium keep in touch with all possible developments on that subject and try to optimize the emission inventory as efficient as possible. Each time when more detailed information becomes available (new studies carried out, improvement of statistics,...) an evaluation of the methods used to calculate the emission estimates is carried out in order to improve the quality of the emission inventory. This is and will always be a continuous and ambitious task in the further development and improvement of the atmospheric emission inventory.

Estimating the emissions of substances depleting the ozone layer and greenhouse gases HFCs, PFCs and SF<sub>6</sub>, at the national level and at the level of the three regions is carried out by an external, independent consultant because of a.o. the complexity of collecting these data in Belgium. A first study in this perspective was carried out in 1999 on the development of a methodology for this emission inventory and a first application of this methodology to the years 1995 to 1997. An update for the years 1998 and 1999 was carried out in 2001. From that moment the emission estimates are optimized and actualized on a yearly basis. This annual study is financed by the National Climate Commission.

The following tasks are carried out in the study:

1. Data collection;
2. Estimation of emissions at national and regional level for the year X-1;
3. Update and optimization of the emission estimates for the period 1995-(X-2);
4. Uncertainty analysis;
5. Compilation of the detailed data for the sectoral calculations of emissions for all the relevant gases, in the IPCC format;
6. Compilation of the relevant emission tables in the CRF-format;
7. Drafting of explanatory text on F-gases for the National Inventory Report (describing the methodology, the information sources, the recalculations made, the uncertainty analysis, the trend analysis);
8. Drafting of intermediate and final reports;
9. Answering questions in the framework of performed reviews (f.i. reviews carried out by UNFCCC-experts and experts of EC/ETC ACC).

#### 4.1.2 Reference approach

CO<sub>2</sub>-emissions from fuel combustion are also estimated in accordance with the 'Reference Approach' (Tier 1 Approach – IPCC guidelines). This estimation is based on the national energy balance, which is derived from national statistics of fuel supply. More details about this methodology (carried out on the national level) is given in the National Inventory Report of Belgium (see chapter 3 Energy).

## 4.2 Additional information

For additional information on the Belgian greenhouse gas emissions inventory, we refer to the Belgian NIR and the Belgian QA/QC plan.

The NIR contains a lot of information on the preparation of the GHG emission inventory:

- Recalculations, see sections 3 to 9;
- Identification of key sources, see section 1.5;
- Uncertainties analysis, see section 1.7

The QA/QC plan describes also other information :

- Archiving, see section 8;
- The follow up of the review process, see section 6.1;
- The description of the QA/QC procedures, see section 4.

## 5 PUBLIC INFORMATION ON GREENHOUSE GAS EMISSIONS

To avoid that different values for greenhouse gas emissions circulate, the different users of the greenhouse gas emission inventories, at the national or at a regional level, use only the emission values of the officially reported data to the European Commission on 15/01/200X+1 and 15/03/200X+1 and to UNFCCC on 15/04/200X+1.

These official national data are available on the websites <http://www.climatechange.be> and <http://www.cnc-nkc.be>