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**ELEMENTS OF THE UNION SYSTEM FOR POLICIES AND MEASURES AND PROJECTIONS AND THE QUALITY ASSURANCE AND CONTROL (QA/QC) PROGRAMME AS REQUIRED UNDER REGULATION (EU) No 525/2013**

This document describes, for information purposes, the Union System for policies and measures and projections and the quality assurance and control programme currently in place in the Union in application of the Monitoring Mechanism Regulation.

This document has been prepared by DG CLIMA with support of the European Environment Agency. It has also been consulted with Member States experts through the Working Group 2 of the Climate Change Committee.

# **CHAPTER I – THE UNION SYSTEM FOR POLICIES AND MEASURES AND PROJECTIONS**

*The Union system in accordance with Article 12(1,2) of Regulation (EU) No 525/2013<sup>1</sup>*

## **1. OBJECTIVES**

The Union system for policies and measures and projections represents the institutional, legal and procedural arrangements established for reporting on policies and measures and projections of anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol. It seeks to ensure the timeliness, transparency, accuracy, consistency, comparability and completeness of the information on policies and measures and projections compiled by the Commission on the basis of the information reported by Member States pursuant to Article 13 and Article 14 of Regulation (EU) No 525/2013, the Monitoring Mechanism Regulation (MMR).

## **2. GENERAL RESPONSIBILITIES**

Overall responsibility for the Union system for policies and measures and projections of anthropogenic greenhouse gas emissions by sources and removals by sinks rests with the European Commission, more specifically its Directorate-General for Climate Action (DG CLIMA). The outcome of the system provides data for the evaluation of progress towards EU and international commitments, as per Article 21 of MMR and 4 and 12 of the UNFCCC and 3 of the Kyoto Protocol.

In accordance with Article 26(1) of Regulation (EU) No 525/2013, the Climate Change Committee established under Article 3 of Regulation (EU) No 182/2011<sup>2</sup> assists the Commission. The Committee is composed of representatives of the Member States and chaired by a representative of the Commission.

Working Group 2 'Implementation of the Effort Sharing Decision, Policies and Measures and Projections' (hereinafter WG 2) was established under the Climate Change Committee as a regular body for exchange of information on projections and policies and measures between the Commission, the EEA and the Member States. The related objectives and tasks of WG 2 include:

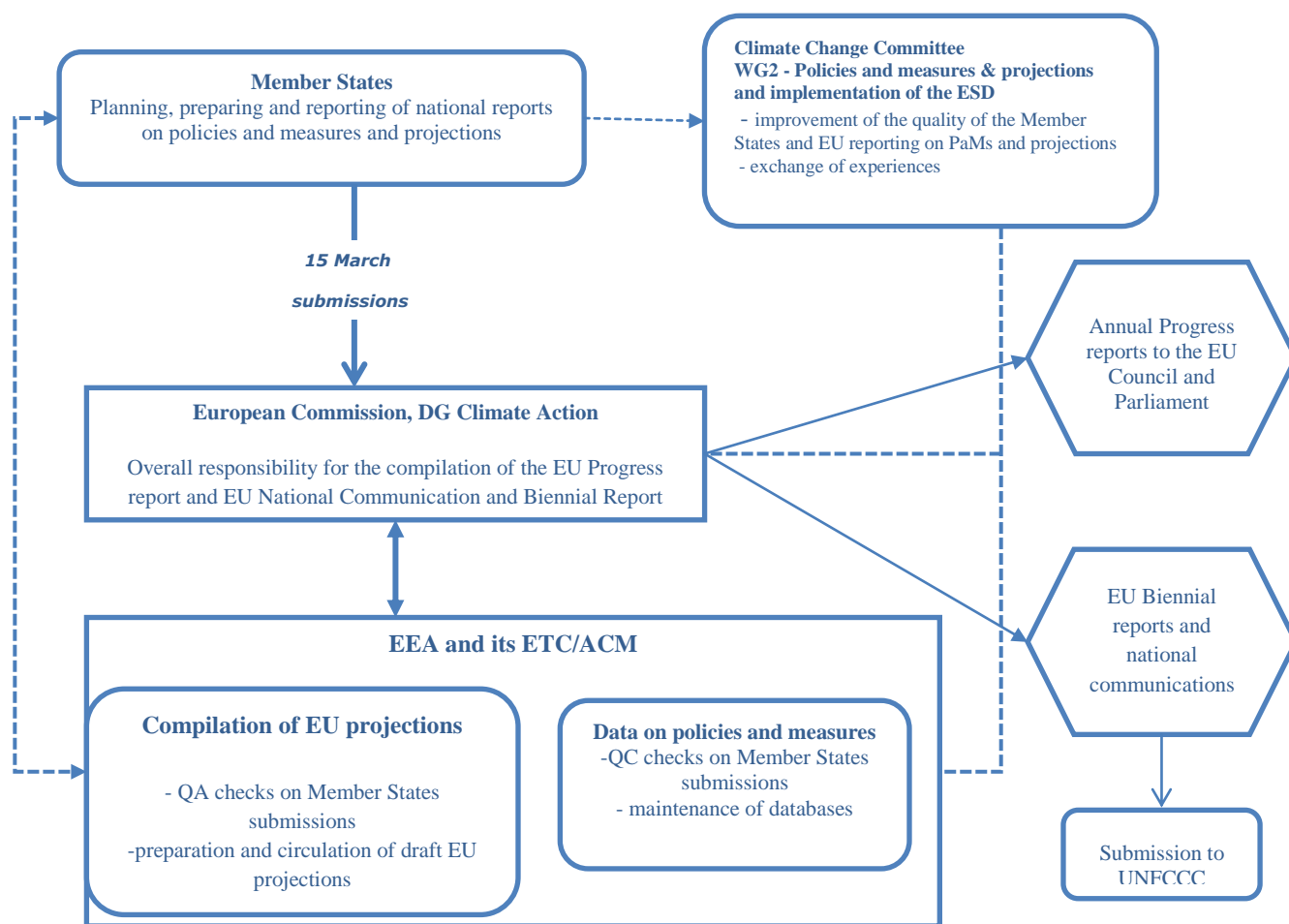
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<sup>1</sup> Regulation (EU) No 525/2013 of the European Parliament and of the Council of 21 May 2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC, OJ L165, 18.6.2013, p. 13.

<sup>2</sup> Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers (OJ L 55, 28.2.2011, p. 13).

- (a) promotion of the timely and complete delivery of national submissions of GHG projections and information on policies and measures as required under the Monitoring Mechanism Regulation;
- (b) improvement of the quality of the reported data on policies and measures and GHG projections by the Member States (transparency, consistency, comparability, completeness, accuracy and timeliness);
- (c) exchange of practical experiences on projections estimates and on reporting on policies and measures implemented

*Figure 1 - Union System for Policies and Measures and Projections*



DG CLIMA is assisted by the European Environment Agency (EEA), which is an agency of the European Union, with member countries going beyond the EU Member States to include Iceland, Liechtenstein, Norway, Switzerland and Turkey<sup>3</sup>. The EEA is governed by a

<sup>3</sup> The EEA was established in 1990 by Council (EEC) No 1210/90 of 7 May 1990 on the establishment of the European Environment Agency and the European Environment Information and Observation Network, repealed and replaced by Regulation (EC) No 401/2009 of the European Parliament and of

Management Board consisting of one representative of each of the member countries, two representatives of the Commission and two scientific experts designated by the European Parliament. Article 24 of the Monitoring Mechanism Regulation provides the legal basis for cooperation between the European Commission and the EEA. The specific activities of the EEA are outlined in its respective annual management plans, approved annually by its Management Board.

The EEA is assisted in its work by a European Topic Centre on Air Pollution and Climate Change Mitigation (ETC/ACM). The ETC/ACM is an international consortium working with the EEA under a framework partnership agreement<sup>4</sup>. The ETC/ACM assists the EEA in the following activities:

- (a) preparation and circulation of a total Union GHG Projections based on Member States' submissions;
- (b) maintenance of databases and archives;
- (c) development and implementation of quality assurance and quality control (QA/QC) procedures ;
- (d) consultation with Member States in order to clarify data and other information provided.

### **3. REPORTING ON PROJECTIONS AND PREPARATION OF THE UNION GHG PROJECTIONS**

The primary scope of Union GHG projections is defined by the requirements of the UNFCCC, its Kyoto Protocol and the obligations set out in Article 3 of Decision No 406/2009/EC (Effort Sharing decision, ESD). Projections for this purpose for the required time series of future years starting with the latest available historic inventory year are prepared on the basis of individual national projections of Member States' submissions to the European Commission under the Monitoring Mechanism Regulation<sup>5</sup>.

The total estimates in the Union GHG projections should reflect the sum of Member States' national GHG projections corresponding to the EU's geographical area. The quality of the Union GHG projections depends on the quality of the Member States' projections. Member States are responsible for the quality of the assumptions and methodologies used for the preparation of their national GHG projections. Member States are also responsible for establishing QA/QC procedures for their national projections.

The EEA is entrusted under Article 24 of the MMR with assisting the Commission in the compilation of the Union GHG projections. The ETC/ACM assists the EEA with the implementation of quality assessment and quality control (QA/QC) procedures. The QA/QC

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the Council of 23 April 2009 on the European Environment Agency and the European Environment Information and Observation Network (OJ L 126, 21.5.2009, p. 13–22).

<sup>4</sup> The current Framework Partnership Agreement between EEA and the consortium runs from 1 January 2014 until 31 December 2018. ETC/ACM is currently a consortium of 14 European organisations; the Netherlands Institute for Public Health and the Environment (RIVM) is the lead organisation of the consortium.

<sup>5</sup> Reported according to provisions of Article 14 of the MMR and Article 23 of Commission Implementing Regulation (EU) No 749/2014

procedures consist of a number of checks against quality criteria such as completeness, consistency, comparability, accuracy and transparency. A detailed overview of the QA/QC programme is described in detail in chapter 2.

Possible issues identified through QA/QC procedures on Member States' projections are documented and shared with the Member States concerned in order to guarantee transparency. In consultation with the Member States concerned, corrective actions may be applied as detailed in chapter 2. Once the QA/QC process is completed, the results of the QA/QC procedure are made available through a technical paper.

In order to improve consistency of Member States national projections, the Commission provides Member States with recommendations of what and how EU measures should be taken into account when preparing national projections.

In consultation with the Member States, the Commission also provides Member States with recommended harmonised values for key supra-nationally determined parameters, including carbon prices under the EU Emission Trading Scheme (EU ETS), international oil and coal import prices, with the view of ensuring consistency of the aggregated Union projections. In the case Member States do not follow these recommendations and use different national assumptions for national projections, Member States are encouraged to provide a sensitivity analysis based on the recommended values provided.

The Union GHG projections as compiled on the basis of the information reported by Member States under Article 14 of the MMR serve as basis for the assessment of progress of the Union and Member States towards reaching their target as published in the annual progress report referred to in Article 21 of the MMR<sup>6</sup>, the periodic communication of EU's progress towards commitments taken under the UNFCCC (biennial report and national communications<sup>7</sup>) and the annual EEA technical assessment of the trends and projections in Europe<sup>8</sup>.

#### **4. REPORTING ON POLICIES AND MEASURES**

The objective of the Union system is also to ensure the timely reporting of the policies and measures implemented, adopted and planned for the purpose of assessing the progress of the Union and the Member States towards their targets.

On the basis of the information as reported by Member States under Article 13 of the MMR, the system enables expanding the knowledge base on national policies and measures and their links with EU policies.

The data on policies and measures as reported by Member States through the MMR is published in the EEA policies and measures database<sup>9</sup>. This information serves inter alia the analyses done in the EEA trends and projections report, analyses done in the context of the European Semester and ex-post evaluation of climate related policies.

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<sup>6</sup> 2014 report available at [http://ec.europa.eu/clima/policies/g-gas/docs/kyoto\\_progress\\_2014\\_en.pdf](http://ec.europa.eu/clima/policies/g-gas/docs/kyoto_progress_2014_en.pdf)

<sup>7</sup> 2014 reports available at [http://ec.europa.eu/clima/policies/g-gas/monitoring/documentation\\_en.htm](http://ec.europa.eu/clima/policies/g-gas/monitoring/documentation_en.htm)

<sup>8</sup> 2014 report available at <http://www.eea.europa.eu/publications/trends-and-projections-in-europe-2014>

<sup>9</sup> <http://www.eea.europa.eu/data-and-maps/pam>

Under the provisions of Article 24 of the MMR, the EEA is entrusted with the implementation of quality control (QC) procedures for the Member States' submissions of policies and measures under the MMR. The QC procedures consist of checks (mainly completeness) of the Member States submission with respect to the required information in Article 13 of the MMR and Article 22 of Commission Implementing Regulation (EU) No 749/2014<sup>10</sup>.

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<sup>10</sup> Commission Implementing Regulation (EU) No 749/2014 of 30 June 2014 on structure, format, submission processes and review of information reported by Member States pursuant to Regulation (EU) No 525/2013 of the European Parliament and of the Council.

## **CHAPTER II – QUALITY ASSURANCE AND QUALITY CONTROL PROGRAMME FOR PROJECTIONS**

*The Union quality assurance and quality control programme in accordance with Article 14(3) of Regulation (EU) No 525/2013*

### **1. INTRODUCTION**

This chapter describes the quality assurance and quality control (QA/QC) programme for the national and Union GHG projections. It also describes the responsibilities for the performance of the QA/QC procedures. A compilation of definitions used is included in Annex 1.

### **2. GENERAL RESPONSIBILITIES FOR QA/QC AT EU LEVEL**

The European Commission (DG CLIMA) ensures that the objectives of the QA/QC programme are fulfilled and is responsible for coordinating QA/QC activities at EU level. The EEA is responsible for the development and annual implementation of QA/QC procedures i.e. to apply quality assurance checks of Member States' national projections and quality control checks of the compiled Union GHG projections.

Given the specific manner in which the Union GHG projections are compiled and recognising that projections of the required quality and consistency can only be achieved by systematic improvements in all Member States, the successful implementation of the Union QA/QC activities will necessarily involve the coordinated participation of each Member State. The Working Group 2 under the Climate Change Committee is the forum of discussions and exchange of practical experiences related to the submission and compilation of GHG projections at EU level.

### **3. OBJECTIVES OF THE EU QA/QC PROGRAMME**

The objectives of the QA/QC programme are:

- (a) to establish quality objectives for the Union GHG projections taking into account the specific nature of the Union GHG projections as a compilation of Member States' GHG projections;
- (b) to implement the quality objectives in cooperation with the EEA in defining QA procedures including proposed corrective actions and gap-filling for Member States' national projections and QC procedures for Union GHG projections.
- (c) to provide Union GHG projections consistent with the sum of Member States' national projections covering the EU's geographical area.
- (d) to ensure the timeliness of the compilation of the Union GHG projections;

- (e) to ensure the completeness of the Union GHG projections,
- (f) to seek to ensure the consistency of the time series and of the underlying assumptions of the Union GHG projections
- (g) to seek to ensure the comparability of the Member States projections
- (h) to contribute to the improvement of the quality of Member States' projections by providing the results of the Union QA/QC procedure and recommendations for Member States if relevant.

The quality objectives of the QA/QC programme are based on the quality principles of transparency, accuracy, consistency, comparability, completeness and timeliness. These quality principles, as have been defined by the IPCC to characterise the quality of historic emission inventories, need to have a slightly different scope in the context of emission projections:

With regard to transparency, the objectives are to ensure that transparent information is provided on underlying assumptions, methodologies used and sensitivity analysis performed in Member States' national projections to enable further assessment by users of the reported information and for the purpose of the Union GHG projections compilation.

With regard to accuracy, the objectives are that an accurate aggregation of sectors, and in particular sectors covered by the Effort Sharing Decision (ESD), for national GHG projections and for an accurate aggregation of Member States data into the Union GHG projections is provided. It should be ensured that projected total GHG and ESD sector estimates are accurate in the sense that they are plausible and neither systematically over- nor underestimated e.g. with respect to key emission drivers and policy impacts as far as can be judged and that uncertainties inherent to the methodology and input data are reduced as far as practicable.

With regard to consistency, the objectives are to ensure internal time series consistency in all elements of national and Union GHG projections over a period of historic and future years as well as to ensure that key input parameters and assumptions are aligned across different sectors for national GHG projections and across different Member States for Union GHG projections.

With regard to comparability, the objectives are to ensure that national estimates of projected emissions and removals reported by Member States are comparable across Member States. The allocation of different sources and sink categories by gas follows the split in accordance with the Monitoring Mechanism Regulation and recommendations by the Commission with regard to projections horizon, reference year, ETS/ESD split, EU policies and measures to be taken into account and harmonised key assumptions are followed as appropriate.

With regards to completeness, the objectives are to ensure that projections are reported by Member States as required under the Monitoring Mechanism Regulation for all years, sources and sinks, gases and sectors and a sensitivity analysis is provided, to enable further assessment of the reported information and the compilation of the Union GHG projections.



With regards to timeliness, the objective of the Union System is to ensure that fully completed Union projections are annually available in time for the analysis required to prepare the report on progress as per Article 21 of the MMR by 31 October.

#### **4. QUALITY ASSURANCE (QA) AND QUALITY CONTROL (QC) PROCEDURES**

Quality assurance and control procedures are performed at several different stages during the preparation of the national and Union GHG projections.

- Firstly, quality control checks of national GHG projections should be performed as technical routine activities by the Member State's personnel compiling the projections. These QC checks aim at maintaining the quality of national projections as they are being compiled.
- Secondly, quality assurance checks of national GHG projections are carried out by the EEA's ETC/ACM to review the quality of Member States reported projections against quality criteria as specified in the specific quality objectives in this document.
- Thirdly, QC checks of the compiled Union GHG projections are performed by the EEA and its ETC/ACM to ensure that the data are compiled correctly at EU level.

While the sections below focus on the procedures performed at EU level, the QC (and QA) checks performed by MS on their own projections are not described into detail in this document.

##### **4.1. Quality assurance (QA) procedures**

Quality assurance checks of Member States' submissions are conducted annually as soon as their projections are received and include:

- (a) Completeness checks that assess to what extent mandatory and recommended information in accordance with the reporting requirements under the MMR has been reported by the Member States and whether the information has been reported in a transparent manner.
- (b) Consistency checks that assess the time series consistency between historic and projected estimates of Member States reported projections and to what extent recommended harmonised parameter values have been used by Member States for their national projections.
- (c) Comparability checks that assess how the ETS/ESD split has been reported for the main source categories and whether harmonised key assumptions have been followed as appropriate.
- (d) Accuracy checks that assess the error-free aggregation of Member States submitted projections and the plausibility of reported future trends on the basis of historic trends and surrogate projections developed at EU level if available.

Where Member States do not submit complete projections estimates or where the timeliness, transparency, accuracy, consistency, comparability and completeness of the information reported on policies and measures and projections is not ensured, the Member State are consulted during the QA procedure and corrective actions such as gap-filling may be applied.

**Corrective actions for completeness issues - gap-filling procedures for mandatory reporting requirements:**

- (a) In case Member States cannot provide data for one or more of the mandatory reporting years, the dataset is gap-filled using where available surrogate projection datasets developed at EU level, and extrapolation, as required to compile complete Union GHG projections.
- (b) In case Member States cannot provide data organised by sector and gas, the dataset is gap-filled by using relative shares of sectors of a surrogate dataset (if available). The sectoral split of national projections is required to compile sectoral Union GHG projections.
- (c) In case Member States cannot provide data split by ETS/ESD, the dataset is gap-filled by using either the relative ETS/ESD share of the total emissions of a surrogate dataset (in case the national total emissions are available) or the growth rate of the ESD sectors of a surrogate projection dataset developed at EU level (in case the national total emissions are not available).
- (d) In case Member States cannot provide data for mandatory memo items, the dataset is gap-filled by using the value of the latest historic inventory year for the entire time series, as required to compile complete Union projections.

**Corrective action for potential errors:**

- (a) If a potential error cannot be clarified or corrected by Member States, general error correction is applied (e.g. unit correction, sum correction).

**Corrective action for significant consistency/accuracy issues:**

- (a) It is good practice that the emissions of the starting year of projections (reference year) are consistent with the emissions of the respective historic year of the inventory. In case Member States show significant inconsistencies between the emissions in reference year and inventory year, the projections trend can be recalibrated and aligned to the historic year, as required to compile consistent Union projections. Member States shall be informed of potential corrections in a timely manner.

## **4.2. Quality Control (QC) procedures**

Quality control checks of the Union GHG projections are conducted after the QA procedure and corrective actions as well as gap-filling have been carried out and the national projections have been aggregated and include sum checks, outlier checks and ETS/ESD split checks to

ensure the correctness of the compilation of the Union GHG projections. As additional QC, for those national projections which are not based on recommended parameters and for which sensitivities using these parameters have been provided by the Member State, the impact on EU emissions of using these sensitivities for aggregation will be explored.

## ANNEX I

### *Definitions for the EU national system for policies and measures and projections and quality control (QC) and quality assurance (QA)*

#### **QA programme**

The QA programme is a document serving to organise, plan and implement all QA/QC activities. The programme should in general outline QA/QC activities that will be implemented, and include a scheduled time frame that follows the preparation of the Union GHG projections.

#### **Quality assurance**

Quality assurance (QA) activities include a planned system of review procedures conducted to verify that data quality objectives have been met, to ensure that the compilation of the Union GHG projections represent the best possible estimate of emissions and sinks given the current state of scientific knowledge and data available, and to support the effectiveness of the quality control (QC) programme.

#### **Quality control**

Quality control (QC) is a system of routine technical activities, to measure and control the quality of the data. The QC system is designed to:

- provide routine and consistent checks to ensure data integrity, correctness, and completeness;
- identify and address errors and omissions;

#### **Quality Objectives**

The objectives of QA/QC activities are to improve transparency, consistency, comparability, completeness, accuracy and timeliness in national and Union projections .

- **Transparency** means that the assumptions and methodologies used should be clearly explained to facilitate assessment by users of the reported information.
- **Consistency** means that projections should be internally consistent in all elements over a period of historic and future years.
- **Comparability** means that estimates of emissions and removals reported should be comparable among Member States.
- **Completeness** means that all required information as per MMR is reported.
- **Accuracy** means that projected estimates should be accurate in the sense that the reported trends are plausible as far as can be judged on the basis of historic trends and surrogate datasets if available and that uncertainties inherent to the methodology and input data are reduced as far as practicable.

**Reference Year**

The reference year is the starting year for the projections; it is good practice that the reference year of emission projections is consistent with the respective historic year of the emission inventory.