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EXECUTIVE BODY FOR THE CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION

GUIDELINES FOR REPORTING EMISSION AND PROJECTIONS DATA UNDER THE CONVENTION ON LONG-RANGE TRANSBOUNDARY AIR POLLUTION

Note

This document presents proposed revised Emission and Projections Reporting Guidelines, prepared by the Task Force on Emission Inventories and Projections (TFEIP). The proposed Guidelines incorporate required changes in the future reporting of emissions information arising as a result of recent amendments made to protocols under the Convention and decisions of the Executive Body. It is noted however that these amended protocols have not yet all entered into force, and may not do so for some years.

A draft of this document was discussed by the TFEIP at its May 2013 meeting, and was subsequently further updated taking into account technical comments received. The proposed Revised Guidelines will be presented at the EMEP Steering Body for adoption (Sept 2013) followed by the CLRTAP Executive Body (Dec 2013). It is anticipated final translated versions will be published by the Convention Secretariat in early 2014 for use in 2015 and subsequent years.

Following discussion with the Convention Secretariat on options to simplify reporting processes, it is also proposed that these revised Reporting Guidelines will in future specify all reporting requirements, being a formal document adopted under the Convention. This means that separate supplementary decisions of the Executive Body will no longer be needed to specify reporting requirements, and that a number of now outdated decisions addressing reporting requirements shall be rescinded once these Guidelines are adopted (i.e. 2002/10, 2005/1, 2008/16).

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More specifically, the rationale for revising the 2009 Emission Reporting Guidelines (ECE/EB.AIR/97) 2009 Guidelines is to allow:

- changes from the 2012 amendment of the Gothenburg protocol to be incorporated including the addition of a new section on Inventory Adjustments;
- changes from the 2012 amendment of the Heavy Metal protocol to be incorporated;
- changes from the 2009 amendment of the Persistent Organic Pollutant (POPs) protocol to be incorporated;
- changes to the EMEP grid projection and resolution (EB decision 2012/13) to be incorporated;
- continued consistency between the CLRTAP Nomenclature for Reporting (NFR) and the UNFCCC Common Reporting Format (CRF) following changes to the latter for reporting from 2015 onward (see note (*));
- correction of minor errors in the existing 2009 guidelines;
- restructuring of the document by bringing together all definitions into one 'definitions' section that previously were provided throughout the Guidelines text and its annexes;

The present document still needs to undergo 'legal' checking; several questions requiring legal clarification are identified.

** Note that certain of the revised annexes which define the revised NFR structure remain subject to change, as a final agreement on the UNFCCC CRF structure will only be taken at the November meeting of the UNFCCC Conference of Parties. Thus minor technical changes to certain annexes may still be required in order to retain the desired close harmonisation of the NFR and CRF emission reporting structures.*

Track changes are shown compared to the original text of the 2009 Emission Reporting Guidelines (ECE/EB.AIR/97).

CONTENTS

Annexes[1]

[1] Annexes I~~:~~ to VII to these Guidelines are available online at: http://www.ceip.at/reporting-instructions/. ~~They are: II. Table of base years and years of ratification by Party and by protocol; III. Aggregation of Nomenclature for Reporting Codes (NFR) for gridded and Large Point Source (LPS) data; IV. Reporting templates; V. The EMEP emissions reporting grid; VI. Informative Inventory Report (IIR) and VII. References.~~

Comment [EEA1]: Information to be reported annually is grouped in Annexes I-IV

Comment [EEA2]: Information to be reported every two years is grouped in Annex V-VI

I. OBJECTIVES

1. The objectives of these Guidelines are ~~as follows~~:

(a) To assist Parties, through a common approach, in meeting their reporting obligations under the 1979 Geneva Convention on Long-range Transboundary Air Pollution (hereinafter 'the Convention') and its protocols;

(b) To support the evaluation of emission reduction strategies;

(c) To facilitate the technical review of air pollutant emission inventories, in accordance with the methods and procedures for the technical review of air pollutant emission inventories reported under the Convention and its protocols (EB.AIR/GE.1/2007/16) approved by the Executive Body at its twenty-fifth session (ECE/EB.AIR/91, para. 27 (m));

(d) To allow for the effective assessment of compliance with emission obligations under ~~Protocols~~ protocols by the Convention's Implementation Committee;

(e) To facilitate the harmonization of emission reporting with reporting under other relevant multilateral environmental agreements and relevant European ~~Community~~ Union legislation.

II. ~~PRINCIPLES AND~~ DEFINITIONS

2. ~~The legal standing of the parts of the Guidelines that have legally binding effect is based on Executive Body decisions 2002/10, 2005/1, and 2008/[16], adopted at its twentieth, twenty-third, and twenty-sixth and thirty first sessions respectively, and on emission data reporting obligations under the Convention and the protocols in force. However, the Executive Body may adopt subsequent decisions to alter, strengthen further or otherwise clarify the legal basis of the Guidelines, but only in virtue of specific treaty provisions (enabling clauses) giving them such effect.~~ The Guidelines should not be understood to imply that a specific ~~Protocol~~ protocol applies to a Party to the Convention that is not a Party to that ~~Protocol~~protocol.

3. The term 'Parties' in the Guidelines refers to Parties to the Convention, unless otherwise specified.

Comment [EEA3]: The expanded definitions section now brings together all definitions previously scattered across different parts of the Guidelines and Annexes.

This section also updates the definitions consistent with the text of the recently amended Gothenburg, Heavy Metals (HM) and POPs protocols e.g. for pollutant definitions

Comment [EEA4]: Requiring legal clarification:

Decision 2002/10 is now substantially outdated by more recent protocol amendments and other EB decisions, and hence the reference to 2002/10 should be deleted (and the EB decision rescinded).

Decision 2005/1 also requires updating with respect to reporting dates and the years for which projections are required

There is support from TFEIP representatives that valid parts of the old decisions should be consolidated and updated by the Executive Body(if it is considered separate decisions are still needed in addition to these Reporting Guidelines)

4. ~~National emission inventories and projected emissions should be transparent, consistent, comparable, complete and accurate.~~ In the context of the present Guidelines (and applicable to both emission inventories and projections):

(a) 'Transparency' means that the data sources, assumptions and methodologies used for an inventory should be clearly explained, in order to facilitate the replication and assessment of the inventory by users of the reported information. The transparency of inventories is fundamental to the success of the process for the communication and consideration of the information. The use of the Nomenclature For Reporting (NFR) tables and the preparation of a structured Informative Inventory Report (IIR) contribute to the transparency of the information and facilitate national and international reviews ~~Parties should provide clear documentation and report a level of disaggregation that sufficiently allows individuals or groups other than the designated emission expert or the compiler of the inventory or projection to understand how the inventory was compiled and assure it meets good practice requirements. The transparency of reporting is fundamental to the effective use, review and continuous improvement of the inventory and projection~~;

(b) 'Consistency' means that an annual inventory should be internally consistent for all reported years in all its elements across sectors, categories and pollutants. An inventory is consistent if the same methodologies are used for all years of the inventory and if consistent data sets are used to estimate emissions. ~~estimates for any different inventory years, gases and source categories are made in such a way that differences in the results between years and source categories reflect real differences in emission estimates. Annual emissions, as far as possible, should be calculated using the same method and data sources for all years, and resultant trends should reflect real fluctuations in emissions and not the changes resulting from methodological differences. Consistency also means that, as far as practicable and appropriate, the same data are reported under different international reporting obligations.~~ For projections, consistency also means that a year of the submitted inventory is used as a basis;

(c) 'Comparability' means that estimates of emissions reported by Parties in their inventories should be comparable. For that purpose, Parties should use the accepted methodologies as elaborated in Section IV below and the NFR formats for making estimations and reporting their inventories. ~~the national inventory and projection is reported in such a way that allows it to be compared with other Parties. This can be achieved by using accepted methodologies as elaborated in section V below, by using the reporting templates and through the use of the harmonized Nomenclature for Reporting (NFR), as specified in annex III to these Guidelines~~;

Comment [EEA5]: The following definition changes are made to align with agreed text from Decision 15/CP.17 (Revised reporting guidelines under UNFCCC) i.e. following the rationale that UNECE and UNFCCC definitions should remain as closely harmonised as possible to ensure consistency.

(d) 'Completeness' means that an annual inventory covers at least all sources, as well as all pollutants, for which methodologies are provided in the latest *EMEP/EEA Air Pollutant Emission Inventory Guidebook* or for which supplementary methodologies have been agreed to by the Executive Body. Completeness also means the full geographical coverage of the sources of a Party. ~~estimates are reported for all pollutants, all relevant source categories and all years and for the entire territorial areas of Parties covered by the reporting requirements set forth in the provisions of the Convention and its protocols.~~ Where numerical information on emissions under any source category is not provided, the appropriate notation key defined in ~~section II.C of annex I~~paragraph 11 to these Guidelines should be used when filling in the reporting template and their absence should be documented;

(e) 'Accuracy' means that emission estimates should be accurate in the sense that they are systematically neither over nor under true emissions, as far as can be judged, and that uncertainties are reduced as far as practicable. Appropriate methodologies should be used, in accordance with Section IV below, to promote accuracy in inventories.~~emissions are neither systematically overestimated nor underestimated, as far as can be judged. This implies that Parties will endeavour to remove bias from the inventory estimates and minimize uncertainty~~;

5. ~~(f)~~ 'Key categories' for a given substance means a source category of emissions that has a significant influence on a Party's total emissions in terms of the absolute level of emissions of that substance~~,~~ the trend in emissions over a given time period and/or, for a Tier 2 key category analysis, the uncertainty in the estimates for that Party. The concept of key categories is an important aspect in inventory development in that it helps to identify priorities for resource allocation in data collection and compilation, quality assurance/quality control and reporting.

6. In the context of the present guidelines, substances for which reporting is required include[2]:

(a) 'Sulphur dioxide' (SO_2) means all sulphur compounds expressed as SO_2 (including sulphur trioxide (SO_3), sulphuric acid (H_2SO_4), and reduced sulphur compounds such as hydrogen sulphide (H_2S), mercaptans and dimethyl sulphides etc.);

(b) 'Nitrogen oxides' means nitric oxide and nitrogen dioxide, expressed as nitrogen dioxide (NO_2);

[2] Any departure from the definitions provided in this paragraph should be clarified in the IIR.

Comment [EEA6]:

Important issue for discussion at EMEP SB
The original protocol required inventories and reporting for sulphur (defined as including all sulphur compounds expressed as SO2). But the amended Gothenburg protocol now requires Parties to establish and report emission inventories for 'SO2', not sulphur. Ceilings for 2010 and 2020 are now similarly defined as for SO2 and not SOx.

Legal clarification is needed as to the intention of the amended protocol i.e. whether emissions inventories shall be just for SO2, or all sulphur compounds.

TFEIP questions whether the change to report just SO2 was intentional (?).

Note the available emission factors in the EMEP/EEA Guidebook are for SOx (all S-containing compounds and not SO2) – no guidance is available for only SO2.

June 2013 update: An informal communication received from the chair of the Implementation Committee confirms separate reporting of both SOx and SO2 appears necessary for compliance purposes.

Such a near-duplication of reporting is not supported by TFEIP members.

(c) Ammonia (NH_3);

(d) 'Non methane volatile organic compounds' (NMVOCs) means, unless otherwise specified, all organic compounds of an anthropogenic nature, other than methane, that are capable of producing photochemical oxidants by reaction with nitrogen oxides in the presence of sunlight. This means any organic compound as well as the fraction of creosote, having at 293.15 K a vapour pressure of 0.01 kPa or more, or having a corresponding volatility under the particular conditions of use;

(e) Carbon monoxide (CO);

(f) 'Particulate matter' or 'PM' is an air pollutant consisting of a mixture of particles suspended in the air. These particles differ in their physical properties (such as size and shape) and chemical composition. Particulate matter refers to:

(i) $PM_{2.5}$: particles with an aerodynamic diameter equal to or less than 2.5 µm;

(ii) PM_{10}: particles with an aerodynamic diameter equal to or less than 10 (µm)

(g) Cadmium (Cd) and its compounds;

(h) Lead (Pb) and its compounds;

(i) Mercury (Hg) and its compounds;

(j) 'Polycyclic aromatic hydrocarbons' (PAHs): For the purposes of emission inventories, the following four indicator compounds shall be used: benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and indeno(1,2,3_cd)pyrene;

(k) 'Dioxins and furans' (PCDD/F): Polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) are tricyclic, aromatic compounds formed by two benzene rings which are connected by two oxygen atoms in PCDD and by one oxygen atom in PCDF and the hydrogen atoms of which may be replaced by up to eight chlorine atoms;

(l) 'Polychlorinated biphenyls' (PCBs): means aromatic compounds formed in such a manner that the hydrogen atoms on the biphenyl molecule (two benzene rings bonded together by a single carbon-carbon bond) may be replaced by up to 10 chlorine atoms.

~~(a)~~(m) Hexachlorobenzene (HCB): CAS: 118-74-1

7. In the context of the present guidelines, substances for which emission inventory reporting is voluntary include:

(a) 'Black carbon' (BC) means carbonaceous particulate matter that absorbs light;

(b) total suspended particulate matter (TSP);

Comment [EEA7]: Definition from the Gothenburg protocol text.

Comment [EEA8]: A more technical definition is needed to complement the very general definition given in the protocol text. The proposed technical definition here is from the recent EU Industrial Emissions Directive (2010/75/EC) and is also consistent with the existing technical NMVOC definition in the current Emissions Reporting Guidelines

Comment [EEA9]: Note TSP is not included in this definition and thus annual reporting of TSP emissions is not proposed to be mandatory but voluntary (see next paragraph)

Comment [EEA10]: These substances are defined in a separate paragraph to reflect the fact reporting of BC inventories is not mandatory.

For additional HMs there is not any reporting obligation in the HM protocol, but these substances are included as voluntary reporting substances in Decision 2002/10, if a party considers it appropriate.

In addition, total suspended particulate matter (TSP) is now added as a substance for which reporting is voluntary.

The TFEIP questioned whether emission data for these substances are in fact used within the Convention. If not, some might be removed from the list of voluntary reporting. However, on balance it was preferred to retain their inclusion but stress the voluntary nature of reporting for these additional substances.

The TFEIP also considered the addition of benzene to the list of substances for which reporting is voluntary, but this was not supported.

(c) arsenic (As), chromium (Cr), copper (Cu), nickel (Ni), selenium (Se) and zinc (Zn) and their compounds.

8. 'Large Point Sources' (LPS) are defined as facilities[3] whose combined emissions, within the limited identifiable area of the site premises, exceed the pollutant emission thresholds identified below in Table 1. These thresholds have been extracted from the full list of pollutants in the E-PRTR Regulation[4] (annex II)[5] . Stack height class categories required for LPS reporting are provided in Table 2.

Table 1: List of pollutants to be reported for a LPS if the applicable threshold value is exceeded based on thresholds specified in E-PRTR Regulation (annex II).

Pollutants/substances	Thresholds in kg/year
SO_2	150 000
NO_x	100 000
CO	500 000
NMVOCs	100 000
NH_3	10 000
$PM_{2.5}$	50 000
PM_{10}	50 000
Pb	200
Cd	10
Hg	10
PAHs (Sum of the four	50

Comment [EEA11]: Note - there is no support from TFEIP to add BC reporting to the list of LPS substances – LPS are not a major BC emission source

[3] As defined in Article 2 (4) and (5) of the EU E-PRTR Regulation, '(4) 'Facility' means one or more installations on the same site that are operated by the same natural or legal person'; (5) 'Site' means the geographical location of the facility;' EC Regulation 166/2006 of the European Parliament and of the Council of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register and amending Council Directives 91/689/EEC and 96/61/EC, OJ L33 of 4.2.2006, p. 1.

[4] EC Regulation 166/2006 of the European Parliament and of the Council of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register and amending Council Directives 91/689/EEC and 96/61/EC, OJ L33 of 4.2.2006, p. 1.

[5] As $PM_{2.5}$ is not specified in the E-PRTR regulation, this has been added to Table 1 of these Guidelines with the same threshold as for PM_{10}.

indicator PAHs)	
PCDD/F	0.0001
HCB	10
PCBs	0.1

Parties that do not report combustion process emissions under any other international ~~or EU wide protocols or decisions~~agreement may limit their criteria for Combustion Process LPS selection to > 300 MW thermal capacity.

Table 2: ~~The s~~Stack height classes (physical height of stack) ~~in the reporting templates~~for categorisation of LPS emissions reporting

1. Height class 1 < 45 metres;
2. 45 metres ≤ Height class 2 < 100 metres;
3. 100 metres ≤ Height class 3 < 150 metres;
4. 150 metres ≤ Height class 4 < 200 metres;
5. Height class 5 ≥ 200 metres.

9. International ~~shipping~~navigation: Emissions from fuels used by vessels of all flags that are engaged in international water-borne navigation. The international navigation may take place at sea, on inland lakes and waterways and in coastal waters. The definition includes emissions from journeys that depart from the territory of one Party and arrive in that of a different Party and excludes consumption by fishing vessels. To ensure consistency of international emission inventory reporting, Parties should make every effort to both apply and report according to the same definitions contained in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories for separating domestic and international emissions.

10. International aviation: Emissions from flights that depart from the territory of one Party and arrive in that of a different Party. Emissions from international military aviation can be included provided that the same definitional distinction is applied. To ensure consistency of international emission inventory reporting, Parties should make every effort to both apply and report according to the same definitions contained in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories for separating domestic and international emissions.

11. In the context of the present guidelines, the following notation keys may be used for reporting purposes:

Comment [EEA12]: New entry to align with reporting required under the POPs protocol.

Question to the EMEP Centres - Is LPS data for all these pollutants needed? Can the list be shortened?

Comment [EEA13]:

For EMEP SB: The TFEIP was disappointed to learn that the EMEP Centers MSC-W and MSC-E are not using stack height data currently compiled and reported by countries.

The TFEIP requests the Steering Body to consider if this information should be compulsorily reported in the future, or if such information could be voluntarily reported on a one-off basis if it should be needed in the future by the EMEP Centers.

The TFEIP noted that the requirement to report stack heights increases the reporting burden for Parties by preventing them from simply re-using LPS data reported elsewhere e.g. E-PRTR.

Given limited resources in many countries, if data is not regularly used for EMEP modeling purposes it arguably should not be reported.

Comment [EEA14]: Sign changed from < to >. Error in original Guidelines

Comment [EEA15]: The following notation key definitions are changed to harmonise with new agreed text from the 2012 UNFCCC Decision 15/CP.17 (Revised reporting guidelines under UNFCCC) i.e. to follow the rationale that UNECE and UNFCCC definitions remain as closely harmonised as possible.

(a) Not estimated ('NE'): ~~Emissions occur, but have not been estimated or reported~~ for activity data and/or emissions by sources of pollutants which have not been estimated but for which a corresponding activity may occur within a Party. Where 'NE' is used in an inventory to report emissions of pollutants, the Party shall indicate in the IIR why such emissions have not been estimated. Furthermore, a Party may consider that a disproportionate amount of effort would be required to collect data for a pollutant from a specific category that would be insignificant in terms of the overall level and trend in national emissions and in such cases use the notation key 'NE'. The Party shall in the IIR provide justifications for their use of 'NE' notation keys e.g. lack of robust data, lack of methodology etc. Once emissions from a specific category have been reported in a previous submission, emissions from this specific category shall be reported in subsequent inventory submissions.

(b) Included elsewhere ('IE'): ~~Emissions for this source are estimated and included in the inventory but not presented separately for this source. The source where these emissions are included should be indicated.~~ for emissions by sources of pollutants estimated but included elsewhere in the inventory instead of under the expected source category. Where 'IE' is used in an inventory, the Party should indicate, in the IIR, where in the inventory the emissions for the displaced source category have been included, and the Party should explain such a deviation from the inclusion under the expected category, especially if it is due to confidentiality.

(c) Confidential information ('C'): ~~Emissions are aggregated and included elsewhere in the inventory because reporting at a disaggregated level could lead to the disclosure of confidential information.~~ for emissions by sources of pollutants of which the reporting could lead to the disclosure of confidential information. The source category where these emissions are included should be indicated.

(d) Not applicable ('NA'): ~~The source exists but relevant emissions are considered never to occur.~~ for activities under a given source category that do occur within the Party but do not result in emissions of a specific pollutant. If the cells for categories in the NFR tables for which 'NA' is applicable are shaded, they do not need to be filled in.

(e) Not occurring ('NO'): ~~A source or process does not exist within a country.~~ for categories or processes within a particular source category that do not occur within a Party.

(f) Not relevant ('NR'): According to paragraph 37 in the Emission Reporting Guidelines, emission inventory reporting for the main pollutants should cover all years from 1990 onwards if data are available. However, 'NR' (not relevant) is introduced to ease the reporting where emissions are not strictly required by the different protocols, e.g. for some Parties emissions ~~of NMVOCs~~ prior to ~~1988~~agreed base-years.

Comment [EEA16]: The TFEIP discussed introducing a threshold of significance, above which the use of the Not Estimated (NE) notation key could not be used, as exists now under UNFCCC). However this was not supported by the majority of TFEIP participants

12. For the purposes of reporting projected emissions, 'projections with measures' means projections of anthropogenic emissions that encompass the effects, in terms of air pollutant emission reductions, of policies and measures that have been adopted ~~and implemented~~at the time the projection is calculated. 'Projections with additional measures' means projections of anthropogenic emissions that encompass the effects in terms of air pollutant emission reductions of policies and measures which have been adopted ~~and implemented~~ as well as policies and measures which are planned at the time the projection is calculated.

13. The 'EMEP grid' refers to a 0.1° × 0.1° latitude-longitude projection in the geographic coordinate system WGS84. The EMEP domain covers the geographic domain between 30°N-82°N latitude and 30°W-90°E longitude[6].

III. SCOPE

~~5.~~14. The Guidelines provide guidance for reporting primary emissions and projections data related to the substances specified in ~~section I of annex I to~~paragraph 6 of these Guidelines, and define the scope of reporting of emission-related information by Parties. The Guidelines include a number of accompanying annexes. Information to be reported annually is grouped in Annexes I-IV; information to be reported less frequently is grouped in Annex V-VII.

Comment [EEA17]: Added to clarify that emissions reporting does not include secondary or resuspended emissions.

~~6.~~15. Parties are formally required to report on the substances and for the years set forth in protocols that they have ratified and that have entered into force.

~~7.~~16. The Guidelines apply only to Parties within the geographical scope of EMEP[7], as defined in the 1994 Protocol on EMEP, including those Parties whose respective national territories have a part that overlaps with the EMEP emissions reporting grid and another part lying outside the EMEP domain[8]. Parties outside the geographical scope of EMEP are ~~encouraged~~ invited to take

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[6] The EMEP Centre for Emission Inventories and Projections has geographical information system (GIS) files consistent with this grid definition available for each Party to the Convention on their website (http://www.ceip.at)

[7] The Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe.

[8] For these Parties, reporting requirements in the Guidelines and the annexes thereof referring to spatial coverage explicitly indicate if they refer to: (a) the entire national territory (referred to as 'national total') or (b) that part of

the Guidelines into account when preparing and reporting their annual submissions, and to exchange information similar to that listed in paragraph~~s~~ 17~~9 and 10~~ below.

~~8.~~17. Emission reporting required under the Convention and its protocols is set out in sub-paragraphs (a) to (h) below:

(a) Each Party shall, in accordance with article 8, paragraph (a), of the Convention, exchange available information on emissions of agreed air pollutants at periods to be agreed upon;

(b) Each Party to the 1985 Helsinki Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30 per cent ('the 1985 Sulphur Protocol') shall, in accordance with article 4, provide annually its levels of national annual sulphur emission, and the basis upon which they have been calculated;

(c) Each Party to the 1988 Sofia Protocol concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes ('the NO_x Protocol') shall, in accordance with article 8(a), annually report on the levels of national emissions of nitrogen oxides and the basis upon which they have been calculated;

(d) ~~(i)~~ Each Party to the 1991 Geneva Protocol on the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes ('the VOCs Protocol') shall,

(i) in accordance with article 8, annually report on the level of emissions of volatile organic compounds (VOCs) in its territory and in any tropospheric ozone management area in its territory, by total and, to the extent feasible, by sector of origin and by individual VOC for the previous calendar year, and any revision to the reports already made for previous years, and on the basis upon which these levels have been calculated;

(ii) Each Party to the VOCs Protocol shall annually[9] report information on VOCs emissions by sector of origin;

Comment [EEA18]:
For legal clarification:
Is this repetition of Protocol information needed in the Reporting guidelines?

Points (a) to (e) refer to the Convention itself and protocols that have not been amended.

For points (f) to (h) there are some countries that will be parties to the original protocol and others only to the amended one.

Comment [EEA19]: Note the intention of the text provided in the following points is to quote from the respective protocols, and therefore in general it has not been edited or paraphrased

Comment [EEA20]: For legal clarification – note no reporting of 'individual' NMVOCs has ever been implemented, only aggregated emissions of NMVOCs. TFEIP does not propose that the status-quo is changed.

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the territory overlapping with the EMEP emission reporting grid (referred to as 'total within the EMEP emission reporting grid') or both (a) and (b).

[9] Reporting interval specified in paragraph 2(b) of Decision 2002/10.

(iii) Each Party to the VOCs Protocol that is within the geographical scope of EMEP shall report information on VOCs emissions with a spatial resolution ~~of 50 km by 50 km~~[10], as set out in ~~annex V~~paragraph 13 to these Guidelines;

~~(d)~~(e) (i) Each Party to the 1994 Oslo Protocol on Further Reduction of Sulphur Emissions ('the 1994 Sulphur Protocol') shall, in accordance with article 5, paragraph 1(b), annually report information on the levels of national sulphur emissions, containing emission data for all relevant source categories;

(ii) Each Party to the 1994 Sulphur Protocol that is within the geographical scope of EMEP shall annually report information on the levels of sulphur emissions with spatial resolution as specified by the Steering Body of EMEP and as set out in paragraph 13 ~~annex V~~ to these Guidelines;

~~(e)~~(f) (i) Each Party to the 1998 Aarhus Protocol on Heavy Metals ('the Heavy Metals Protocol') and as amended shall, as appropriate and in accordance with article 3, paragraph 5, and article 7, collect and report information on the levels of emissions of the substances listed in annex I for the reference year specified in that annex; ~~collect and report relevant information relating to its emissions of heavy metals other than those listed in annex I to the Protocol, taking into account the guidance on the methodologies and the temporal and spatial resolution given in these Guidelines;~~

Comment [EEA21]: To refer to changes from the 2012 amendment. The changes marked for the following sub-paragraphs reflect the wording in the amended protocol

~~(ii) Each Party to the Heavy Metals Protocol that is within the geographical scope of EMEP shall annually report, subject to its laws governing the confidentiality of commercial information, information on its levels of emissions of the substances listed in annex I to the Protocol, using as a minimum the methodologies and the temporal and spatial resolution specified by the Steering Body of EMEP and set out in section V of these Guidelines;~~

(ii) Each Party within the geographical scope of EMEP shall annually report information on the levels of emissions of heavy metals listed in annex I to the Protocol, using the methodologies given in these Guidelines.

[10] ~~Spatial resolution specified in paragraph 2(c) of Decision 2002/10.~~

~~(iii) Each Party to the Heavy Metals Protocol that is outside the geographical scope of EMEP subject to its laws governing commercial information shall make similar information available, if requested to do so by the Executive Body;~~

(iii) Parties in areas outside the geographical scope of EMEP shall report available information on levels of emissions of the heavy metals listed in annex I to the Protocol.

~~(f)~~(g) (i) Each Party to the 1998 Aarhus Protocol on Persistent Organic Pollutants ('the POPs Protocol') and as amended shall, in accordance with article 3, paragraph 8, and article 9, collect and ~~annually~~ report information on its level of emissions of the substances listed in annex III to the Protocol for the reference year specified in that annex;

Comment [EEA22]: To refer to changes from the 2009 amendment

(ii) Each Party to the POPs Protocol ~~that is~~ within the geographical scope of EMEP shall annually report, ~~subject to its laws governing the confidentiality of commercial information,~~ information on ~~its~~ the levels of emissions of persistent organic pollutants using, as a minimum, the methodologies and the temporal and spatial resolution specified by the Steering Body of EMEP and ~~set out in section V of~~defined in these Guidelines;

(iii) ~~Each~~ Party~~ies~~ in areas ~~to the POPs Protocol that is~~ outside the geographic scope of EMEP shall~~, subject to its laws governing the confidentiality of commercial information,~~ make similar information available if requested to do so by the Executive Body;

~~(g)~~(h) (i) Each Party to the 1999 Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-level Ozone ('the Gothenburg Protocol') and as amended that is within the geographical scope of EMEP shall, in accordance with article 7, paragraph 1 (b) ~~and (c)~~, annually report information on:

Comment [EEA23]: To refer to changes from the 2012 amendment

a. Levels of emissions of sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds ~~and VOCs~~ and particulate matter using, as a minimum, the methodologies and the temporal and spatial resolution specified by the Steering Body of EMEP and set out in ~~section V of~~ these Guidelines;

Comment [EEA24]: Note earlier comment – the amended protocol requires emissions of SO2 to be reported and not all sulphur-containing compounds expressed as SO2 as previously .

Legal clarification needed

b. Levels of emissions of each substance in the reference year ~~(1990)~~specified in annex II to the protocol, using the same methodologies and temporal and spatial resolution;

c. Data on projected emissions ~~and current reduction plans~~; and

d. ~~When it deems it appropriate, any exceptional circumstances justifying emissions that are temporarily higher than the ceilings established for it for one or more pollutants~~An Informative Inventory Report containing detailed information on reported emission inventories and emission projections;

(ii) Parties in areas outside the geographical scope of EMEP shall report available information on levels of emissions, including for the reference year as specified in annex II and appropriate to the geographic area covered by its emission reduction commitments.~~Each Party to the Gothenburg Protocol that is outside the geographical scope of EMEP shall, subject to its laws and regulations, make information similar available if requested to do so by the Executive Body~~.

(iii) Each Party should also report, where available, its emissions inventories and projections for emissions of black carbon, using the guidance as set out in these Guidelines.

~~9. In addition to submitting emission data reports by completing the reporting templates set out in annex IV to these Guidelines, Parties should submit an Informative Inventory Report (IIR), prepared in accordance with the outline set out in annex VI to these Guidelines.~~

IV. METHODS

A. Emission estimation methods and principles

18. National emission inventories and projected emissions should be transparent, consistent, comparable, complete and accurate as defined in paragraph 4 of these Guidelines.

~~10.~~19. Parties shall as a minimum use the methodologies in the latest version of the *EMEP/EEA Air Pollutant Emission Inventory Guidebook – Technical Guidance to Prepare National Emission Inventories* ~~*following the LRTAP Convention's Reporting Guidelines and the EU National Emission Ceilings Directive*~~ (the *Guidebook*)[11], as approved by the Executive Body to estimate emissions and projections for each source category. Parties can use, as an alternative to

[11] The *EMEP/EEA Air Pollutant Emission Inventory Guidebook is available at http://eea.europa.eu/emep-eea-guidebook*

the *Guidebook*, national or international methodologies that they consider better able to reflect their national situation, provided that the methodologies produce more accurate estimates than the default methods, are scientifically based, are compatible with the *Guidebook*, and are documented in their IIRs, as described in annex ~~VI~~ III to these Guidelines).

~~11.~~20. Parties should make every effort to develop and/or select emission factors, and collect and select activity data in accordance with the *Guidebook*.

~~12.~~21. For sources that are determined to be key categories in accordance with the *Guidebook* methodologies, Parties should make every effort to use a ~~higher tier~~Tier 2 or higher (detailed) methodology, including country-specific information.

~~13. Inventories should be calculated and reported without adjustments corrections relating, for example, to climate variations or trade patterns of electricity. If Parties carry out such adjustments to inventory data, these should be reported separately in their IIR, with clear indications of the method follow~~

~~14.~~22. For emissions from transport, all Parties ~~within the EMEP region should~~ shall calculate ~~and report~~ emissions consistent with national energy balances reported to Eurostat or the International Energy Agency. Emissions from road vehicle transport ~~should~~ shall therefore be calculated ~~and reported~~ on the basis of the fuel sold in the Party concerned. ~~Parties outside of the EMEP region may use an alternative emission estimation strategy, provided that they give an explanation of the methodology to the EMEP Centre on Emission Inventories and Projections (CEIP).~~ In addition, Parties may ~~report~~ voluntarily calculate emissions from road vehicles based on fuel used or kilometres driven in the geographic area of the Party. The method for the estimate(s) should be clearly specified in the IIR.

~~15.~~23. For Parties ~~within the EMEP region~~ for which emission ceilings are derived from national energy projections based on the amount of fuels sold, compliance checking will be based on ~~the reporting on the basis of~~ fuels sold in the geographic area of the Party. Other Parties within the EMEP region[12] may choose to use the national emission total calculated on the basis of fuels used in the geographic area of the Party as a basis for compliance with their respective

[12] Austria, Belgium, Ireland, Lithuania, Luxembourg, the Netherlands, Switzerland and United Kingdom are in this case.

Comment [EEA25]: There is significant support from technical experts to reinforce reporting requirements by changing existing 'should' to 'shall' in these and subsequent paragraphs. The 'shalls' are not in all cases enabled by supporting language in the protocols.

However, a similar approach is followed for reporting of GHG inventories under UNFCCC is applied here, whereby the equivalent Reporting Guidelines have a binding legal status in their own right (being adopted by the COP), thus enabling the clearer definition of reporting requirements as is possible in the Convention and the Kyoto protocol

TFEIP generally considers that the past use of 'shoulds' throughout the LRTAP Reporting Guidelines has seriously weakened reporting quality (and assessment of compliance).

Comment [EEA26]: In this paragraph and subsequently, references to 'Parties within the EMEP region' and 'Other Parties' have been deleted, as paragraph 16 already defines the Parties for which the Guidelines are relevant. i.e. this helps remove repetition.

emission ceilings [for 2010]. ~~For Parties outside the EMEP region, which use an alternative methodology as identified to the EMEP Centre on Emission Inventories and Projections, compliance checking will be based on that methodology.~~

~~16.~~24. ~~International aviation is defined in section II B. of annex I to these Guidelines.~~ Emissions of aviation (national and international) during the landing and take-off (LTO) cycle ~~belong~~ shall be included in ~~to~~ the national totals. Cruise emissions from domestic and international aviation ~~should~~ shall not be included in national totals but calculated in a way that allows them to be reported separately as memo items in ~~table VI.1 of~~ the annex I reporting template ~~annex IV to these Guidelines~~.

~~17.~~25. ~~18.~~ ~~International shipping is defined in section II.B of annex I to these Guidelines.~~ Emissions from fuels used for international maritime shipping ~~should~~ shall not be included in the national totals, but ~~should~~ shall be calculated in a way that allows them to be reported separately as a memo item. Emissions from international inland shipping ~~should~~ shall be included in the national totals for the part that is emitted on national territory. ~~In addition, they should be reported separately as memo items in table IV.1 of annex IV to these Guidelines.~~

~~18.~~26. ~~19.~~ Natural e~~E~~missions from forest fires, volcanoes etc ~~should~~ shall not be included in national totals, but calculated in a way that allows them to be reported separately as memo items in the annex I reporting template~~table IV.1 of annex IV to these Guidelines~~.

~~19.~~27. ~~20.~~ Projections of emissions ~~should~~ shall be estimated and aggregated to the relevant source sector set out in ~~table IV.2a of~~ annex ~~IV~~ II to these Guidelines. Parties ~~should~~ shall provide a 'with measures' and, where relevant, a 'with additional measures' projection for each pollutant in line with the guidance given in the *Guidebook*. ~~Reported~~ Calculated projections should be consistent with the latest inventory. Methodologies and assumptions for projections should be transparent and should allow for an independent review of data. For Parties within the European Union (EU), reported projections should, as far as appropriate, be consistent with those compiled under the EU NEC Directive[13] and the EU Monitoring Mechanism Regulation (EU MMR)[14].

Comment [EEA27]:

Legal clarification is needed as to whether this provision applies to the 2020 GP emission reduction commitments, noting that these reduction commitments are expressed in percentage terms.

Differences in absolute amounts between fuel used and fuel sold are arguably are not as relevant as for the 2010 ceilings which were in contrast expressed in absolute terms.

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[13] Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants, OJ L 309, 27 November 2001, p. 22.

[14] ~~Decision~~ Regulation (EU) No ~~280/2004/EC~~ 525/2013 of the European Parliament and of the Council of ~~11 February 2004~~21 May 2013 Regulation on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change.~~concerning a mechanism for~~

~~20.~~28. ~~21.~~ Emission data ~~reported~~ calculated by Parties within the geographic scope of EMEP ~~should~~ shall be spatially allocated in the EMEP grid ~~set out in annex V~~as defined in paragraph 13 ~~to~~ of these Guidelines. Spatially allocated emissions (gridded data) ~~should~~ may be calculated using national datasets appropriate to each Gridding NFR (GNFR) source category (as defined in annex V) in accordance with the *Guidebook*.

~~21.~~29. ~~22.~~ ~~Reported~~As far as possible reported- LPS data (as ~~set out~~defined in ~~table IV.3b of annex IV~~VI toparagraph 7 of these Guidelines) should be consistent with emissions ~~reported~~ available under the Protocol on Pollutant Release and Transfer Registers (PRTR Protocol) and relevant EU legislation (e.g. E-PRTR). ~~Differences of more than 10 per cent between LPS data reported elsewhere and those reported under the present Guidelines should be explained in the IIR.~~

B. Key categories and uncertainties

~~22.~~30. ~~23.~~ Parties ~~should~~ shall identify in their IIR national key categories ~~as described~~in accordance with ~~in~~ the *Guidebook* for ~~the base year and~~ the latest inventory year.

~~23.~~31. ~~24.~~ Parties ~~should~~ shall quantify uncertainties in their emission estimates using the most appropriate methodologies available, taking into account guidance provided in the *Guidebook*. Uncertainties should be described in the IIR.

C. Quality assurance/quality control

~~24.~~32. ~~25.~~ Procedures for quality assurance and quality control (QA/QC) ~~should~~ shall be implemented during the planning, preparation and management of the national inventories and shall be documented in the IIR. Examples of adequate QA/QC procedures are those set out in the *Guidebook* and those accepted by the Intergovernmental Panel on Climate Change (IPCC) for greenhouse gas inventories.

D. Recalculations and time-series consistency

~~monitoring Community greenhouse gas emissions and for implementing the Kyoto Protocol, OJ L 49, 19.02.2004, p. 1~~. OJ L 165, 18.6.2013, page 13.

~~25.~~33. ~~26.~~ The aim of recalculations is to ensure consistency of the time series and thus improve the accuracy and completeness of the emission inventory. A complete time series, including the base or reference year and all other years for which emissions and projections ~~have been~~are to be reported ~~and projections~~, should be calculated using the same methodologies throughout the time series to ensure that the inventory reflects real changes in emissions rather than changes in methodologies. Recalculations should be made if there are changes in methodologies or changes in the manner in which emission factors and activity data are obtained or used, or if estimates are provided for sources which have existed since the ~~base~~ reference year but which were not previously accounted for in previous submissions. Parties should apply any recalculations to every relevant year in the full timeseries to ensure consistency across years. ~~recalculate emissions when necessary and report their recalculations as part of their annual submissions and document them in the IIR.~~

34. ~~27.~~ In cases where activity data or other data cannot be obtained for certain years, including the ~~base~~ reference year, emissions should be estimated using alternative methodologies or appropriate techniques for estimating activity levels or emissions for these years, taking into account guidance provided in the *Guidebook*. In these instances, Parties should ensure that the time series is consistent and significant fluctuations between years are explained in the IIR.

E. Reporting of 'adjusted' national inventories

35. Inventories shall be calculated without corrections or normalisation relating, for example, to climate variations or trade patterns of electricity.

~~26.~~36. Parties may apply to adjust their emission reduction commitments or inventory data in extraordinary circumstances as defined in Executive Body Decisions 2012/3 and 2012/12. Guidance on the application process to adjust either an emission reduction commitment or emission inventory is available separately in Executive Body Decision 2012/12. A Party applying an adjustment to its inventory for the purpose of comparing total national emissions with emission reduction commitments shall include supporting documentation in its IIR or in an alternative report. The IIR template, Annex III to these Guidelines, lists the required supporting information required. Further, Parties shall report details of their adjusted aggregated emissions using the appropriate row contained in the main emissions reporting template (Annex I), as well as report detailed information by pollutant and sector for each ~~approved~~ adjustment using the template provided in ~~A~~annex ~~XXX~~VII to these Guidelines. Reporting of information on adjusted emissions in no way removes the mandatory requirement for Parties to report unadjusted emissions as laid down in section IV.A of these Guidelines.

Comment [EEA28]: Note – this section deals with the new adjustment procedures accommodated in the amended Gothenburg Protocol.

Adjustments can be either
a) made to the inventory (in which case a change to the annually reported information is required and this then is within the scope of the updated Guidelines)
b) To the emission reduction commitment defined in the GP (in which case there is no change to the annually reported information, and this therefore does not need addressing in the guidelines).

V. REPORTING ~~GUIDANCE~~

A. General

37. ~~28. Annex II to these Guidelines sets out the base year by Party for each protocol.~~ Emission inventory reporting ~~should~~ shall cover all years from ~~1980~~ 1990 onwards as well as for the relevant reference year for those Parties ~~to~~ that have ratified protocols for which reporting of base year emissions is required ~~protocols for which 1980 is the base year, unless an alternative base year has been specified~~. Particulate matter emissions, including black carbon emissions where available, shall be reported from 2000 onward. Emission and activity data should be reported ~~for~~ up until the latest inventory year (X minus 2), where X is the year in which reporting occurs. For example, for reporting in ~~2010~~2015, emission activity data for the years ~~2008~~ 1990 – 2013 ~~should~~ shall be reported. Parties may voluntarily report data for years prior to 1990, and for PM for years prior to 2000.

38. Recalculated data for all previous years should be included in any reported emission time-series 1990 – X-2. Criteria for recalculations are outlined in ~~also be reported as described in~~ paragraph 33~~27~~ above. Parties are encouraged to submit recalculated data both on a sectoral basis and a gridded basis. Parties should provide justification for any recalculation and describe in the IIR the methods used to ensure time-series consistency, changes in the data and calculation methods, and the inclusion of any new sources not previously accounted for, indicating any relevant changes in the source category.

~~27.~~39. Where Parties do not have sufficiently detailed data to allow estimation of individual source categories in their inventory, they may report aggregated emissions. Aggregated emissions may be reported under 'other' or under the most significant single sector within the aggregation. Where aggregated emissions are reported, the available notes columns shall be annotated to explain which detailed sectors are included and the notation key 'IE' shall be used for sectors that have emissions reported elsewhere. A rationale for reporting aggregated emissions should be included in the IIR

~~28.~~40. ~~29.~~ Reporting guidance covers deadlines for submission of data, ~~initiation of the reporting round and~~ preparation of templates and electronic submissions of data, as follows:

(a) Reporting deadlines: The deadline for submitting emission and projections reports is ~~15~~ 1 February. The deadline for submitting gridded data and LPS data is 1 March. The deadline for submitting the IIR is 15 March. Parties are, however, encouraged to submit their IIRs at the same time they submit their emission reports. The European ~~Community~~ Union may deliver the emission report, the gridded data and LPS data for the European ~~Community~~ Union

Comment [EEA29]: Formalises current practices – reporting of emissions from 1990 onward as a general requirement (and no longer from 1980). Reporting of PM to be from 2000 onward, as is presently done

Comment [EEA30]: Original paragraph 30 moved here together with instructions for reporting recalculated data

Comment [EEA31]:

The current reporting date for emissions and projections data is 15 Feb. An earlier reporting date of 1 February for emissions (and projections) data is proposed by CEIP.

The TFEIP discussed and agreed a reporting date of 1 Feb for emission and projections, but with a two week re-submission window to allow for correction of errors i.e all emissions and projections data to be received by CEIP by 15 Feb.

It should be noted a number of countries also supported retaining the 15 Feb, but with no 'resubmission' window – i.e. late submissions will not be accepted.

on 30 April~~.~~, and its ~~The European Community may deliver a compilation of the IIRs of the EU Member States~~IIR ~~on~~ by 30 May;

~~(b) Initiation of emission reporting round and preparation of templates: At the start of each emission reporting round, the UNECE secretariat sends a letter to designated emission experts initiating the reporting round. Reporting templates to be applied by Parties are available on the website of the EMEP Centre on Emission Inventories and Projections (CEIP) (http://www.ceip.at/);~~

~~(c)~~(b) Reporting templates: Parties ~~should~~ shall use the reporting templates in annex ~~IV~~ I-VI to these Guidelines or other harmonized reporting options as specified below. Submissions reported in formats other than the agreed templates may not be considered for use in EMEP activities;

~~(d)~~(c) Submission of data by electronic means: ~~Data should be transmitted electronically according to the instructions contained in the letter to designated emission experts referred to in subparagraph (b) above. Electronic~~ Data submissions shall be transmitted electronically to CEIP, and may be made to a central data repository[15]~~,~~ provided that the Party informs CEIP that this has been done and that the submission is consistent with these Guidelines. In addition, the completed notification template, annex IV to these Guidelines, ~~should~~shall be sent by email to the Convention Secretariat with copy to CEIP.

~~29. 30. Parties are encouraged to submit recalculations on a sectoral basis and on a gridded basis, if recalculations are made for a year for which gridded data are required. Parties should indicate the justification for any recalculation and describe in the IIR the methods used to ensure time-series consistency, changes in the data and calculation methods, and the inclusion of any new sources not previously accounted for, indicating any relevant changes in the source category.~~

~~30.~~41. ~~31.~~ Re-submissions due to errors ~~should~~ shall be provided within ~~three~~ two weeks from the due date for submission and include a clear explanation of the changes made. Re-submissions received later than ~~three~~ two weeks from the due date for submission may not be considered for use in EMEP activities.

[15] E.g. the Central Data Repository (CDR) of the European Environment Information and Observation Network (EIONET) of the European Environment Agency (http://cdr.eionet.europa.eu/).

Comment [EEA32]:
New text to strengthen the implementation and consistency of data reporting.

An informal 'transition year' in 2015 could assist parties in making the change to the new reporting template.

B. Annual reporting

~~31.~~42. ~~32.~~ Each Party shall annually report emissions of substances listed in paragraph 6 of these Guidelines, and where available emissions of black carbon, ~~annually~~ in accordance with the deadlines set forth in paragraph 40~~29~~ (a) above. In addition, Parties are encouraged to voluntarily report emissions of substances listed in paragraph 7. ~~In addition, Parties are encouraged to voluntarily report emissions of arsenic (As), chromium (Cr), copper (Cu), nickel (Ni), selenium (Se) and zinc (Zn).~~ ~~Emission reports~~Annual reporting shall include national emissions and should include activity data for the ~~substances and~~ sectors identified in ~~table IV.1 of~~ annex I~~V~~ to these Guidelines for the years indicated. Parties ~~should~~ shall complete the tables at the requested level of aggregation. Where values for individual NFR categories or aggregated NFR categories are not available, the notation keys described in ~~section II.C of annex I to~~paragraph 11 of these Guidelines ~~should~~ shall be used.

43. Parties to the Gothenburg Protocol shall regularly update and annually report their latest available projections ~~at least every five years, and provide any updated projections~~ annually ~~by 15 February~~, for the years ~~2010,~~ ~~2015,~~ 2020, 2025 and 2030, and where available also for 2040 and 2050[16]. ~~Parties to the Convention that are not Parties to the Protocol are also strongly encouraged to provide this information.~~

44. Projected emissions for SO_2, NO_x, NH_3, particulate matter $PM_{2.5}$, NMVOCs, and where available black carbon, should be reported using the template within annex II to these Guidelines. Parties should complete the tables at the requested level of aggregation. Where values for individual categories or aggregated NFR categories are not available, the notation keys defined in paragraph 11 of these Guidelines should be used.

~~32.~~45. Quantitative information on parameters underlying emission projections should be reported using the templates set out in annex II to these Guidelines. These parameters should be reported for the projection target year and the historic year chosen as the starting year for the projections.

[16] Parties are not required to report projections for those years in which emissions data are reported as part of the annual inventory reporting.

Comment [eea33]: Note: paragraph 6 contains the list of all substances covered under the Gothenburg, POPs and HM protocols.

Comment [EEA34]: This specific point is added to reflect that reporting of BC emissions is not mandatory according to the Gothenburg protocol

Comment [EEA35]: Projections reporting is now proposed by TFEIP as an annual obligation to improve better assessment of distance to targets and Party information on future emission trends, and thus help ensure a focusing of resources in countries and better data quality

Comment [EEA36]: Note – the 'latest available' projections should be reported – there is therefore not a proposal to require projections to be updated yearly – just reported yearly based on the latest data available.

Comment [EEA37]: Pollutants for which projections are requested are the 5 Gothenburg pollutants, plus BC, for which the Protocol requests projections if available.

~~33. If a Party considers that a disproportionate amount of effort would be required to collect data for sources or a pollutant for a specific source that would be insignificant in terms of the overall level and trend in national emissions, the Party should list in its IIR all sources excluded on these grounds, together with a justification in terms of the likely level of emissions and an identification of the category as "Not Estimated", using the notation key "NE" in the reporting tables.~~

~~34.~~ ~~34. Where Parties do not have sufficient detail in their inventory, they may report aggregated emissions. Aggregated emissions may be reported under otheror under the most significant single sector within the aggregation. Where aggregated emissions are reported, the available notes columns should be annotated to explain which detailed sectors are included and the notation key IE should be used for sectors that have emissions reported elsewhere. A rationale for reporting aggregated emissions should be included in the IIR~~.

~~35.~~46. ~~35.~~ The IIR ~~should~~ shall be submitted annually. However, certain elements of the report (as indicated in annex ~~VI~~ III to these Guidelines) need only be updated every five years.

C. ~~Five~~Two-yearly reporting

Comment [EEA38]: TFEIP discussed and agreed that reporting of gridded and LPS data should be biennial. More frequent reporting requirements is anticipated to lead to a greater availability and quality of data available for the EMEP centres.

~~36. Parties to the Gothenburg Protocol shall report their latest available projections at least every five years, and provide any updated projections annually by 15 February, for the years 2010, 2015, 2020, 2030 and 2050[17]. Parties to the Convention that are not Parties to the Protocol are also strongly encouraged to provide this information.~~

~~36.~~ ~~37. Projected emissions for sulphur dioxide (SO_2), nitrogen oxides (NO_x), ammonia (NH_3), particulate matter 10 (PM_{10}), $PM_{2.5}$ and non-methane volatile organic compounds (NMVOCs) should be reported using table IV.2a of annex IV to these Guidelines. Parties should complete the tables at the requested level of aggregation. Where values for individual categories or aggregated NFR categories are not available, the notation keys defined in section II.C of annex I to these Guidelines should be used.~~

~~37.~~

~~38.~~ ~~38. Quantitative information on parameters underlying emission projections should be reported using the templates set out in table IV.2b of annex IV to these Guidelines. These~~

~~[17] Parties are not required to report projections for those years in which emissions data are reported as part of the inventory reporting specified in paragraph 29.~~

~~parameters should be reported for the projection target year and the historic year chosen as the starting year for the projections.~~

~~39.~~47. ~~39.~~ Every two years from 2016 onward,~~For every fifth year from 2005, or where changes in country boundaries occur~~ Parties ~~should~~ shall report for the year X-2 updated aggregated sectoral (Gridding NFR (GNFR)) gridded emissions and LPS emissions ~~for every fifth year from 2000,~~ as defined in ~~section II.A of annex I~~paragraphs 6 and 13 ~~to~~ of these Guidelines. ~~The aggregated sectors (GNFR) for reporting are defined in table III B of annex IV to these Guidelines.~~ Gridded emissions shall be reported for all substances referred to in paragraph 6 of these Guidelines including, where available, black carbon. LPS emissions shall be reported for all substances referred to in paragraph 8 Table 1 of these Guidelines taking into account the defined release thresholds. ~~Reported substances should include all substances referred to paragraph of these Guidelines including, where available, black carbon.sulphur oxides, nitrogen oxides, ammonia, NMVOCs, carbon monoxide (CO), $PM_{2.5}$, PM_{10}, lead, cadmium, mercury, polycyclic aromatic hydrocarbons (PAHs), hexachlorobenzene (HCB) and dioxins and furans (PCDD/F)~~. Parties are encouraged to update their gridded and LPS data and report ~~more frequently~~annually where changes in spatial patterns have occurred, so that the EMEP models can represent the most up-to-date information.

Comment [MA39]: Taking into account agreement at TFEIP to make reporting of gridded and LPS data every 2 years. Only data for year X-2 is requested, starting from 2016

Comment [eea40]: i.e. all mandatory substances but noting that reporting of BC should only be where information is available according to the Gothenburg protocol text.

Comment [eea41]: i.e. all mandatory substances but noting that reporting of BC should only be where information is available according to the Gothenburg protocol text.

~~40.~~48. ~~40.~~ Gridded emissions for each GNFR aggregated sector (as defined in ~~table III B of~~ annex ~~III~~ IV to these Guidelines) ~~should~~ shall be provided for the EMEP ~~grid~~latitude-longitude coordinate resolution ~~squares~~, as defined in ~~annex V~~paragraph 13 to these Guidelines, that overlie the Party's territory.

~~41.~~49. ~~41.~~ ~~For each~~ LPS emissions shall be reported using the template provided in Annex VI to these Guidelines.~~, the coordinates (latitude and longitude), stack height class, emissions of the specified substances and, where applicable, the appropriate European Pollutant Release Transfer Register (E-PRTR) and PRTR facility ID codes as used for the corresponding data set year, should be reported using the templates provided in table IV.3b of annex IV VIto these Guidelines.~~ For the purposes of reporting under the Convention and its protocols, Parties can aggregate the emissions from individual locations/processes within the facility as long as they are consistent with the GNFR sector aggregations (see ~~table 3 of~~ annex ~~III~~ V to these Guidelines) and separate emissions according to the appropriate stack height classes identified in ~~table 3b of annex IV~~ paragraph 8 Table 2 to these Guidelines.

~~42.~~50. ~~42.~~ Parties may report LPS data through the provision of electronic copies of Point Sources Reports provided under any other international or EU legislation as long as the following provisions are met~~with regard to the following~~:

(a) includes the coordinates (latitude and longitude);

(b) includes stack height class;

(c) includes emissions of the specified substances;

(d) includes where available the European Pollutant Release Transfer Register (E-PRTR), PRTR facility ID codes or EU Emissions Trading System identifier;

~~(a)~~(e) ~~Emission~~ emissions ~~estimates~~ must be consistent with the annual inventory submitted under the Convention, in accordance with these Guidelines;

~~(b) The LPS has a unique spatial identification;~~

~~(c)~~(f) ~~A~~ a clear explanation of the process and source sector must be given, including their relationship to the aggregated GNFR sector presented in annex ~~III, table B~~IV, to avoid double counting;

~~For those point sources meeting the definition of an LPS, submitted information should include for each facility those parameters listed in paragraph 42, including accompanying stack height class data for each facility (which is excluded from for example E-PRTR reporting) must be provided;~~.

~~43. **Review of information and additional reporting**~~

~~44.~~ ~~43.~~ ~~For every fifth year (2010, 2015, 2020, etc.), Parties are encouraged to inspect and comment on the representativeness of the Party-specific data used for modelling at the Meteorological Synthesizing Centres (MSC-West and MSC-East). This includes:~~

~~(a) Land-use data;~~

~~(b) Diurnal and seasonal (weekly and monthly) temporal patterns of emissions by aggregated sectors (as defined in table III.B of annex III to these Guidelines);~~

~~(c) Chemical speciation of primary PM emissions, in particular in terms of the share of organic versus elemental carbon;~~

~~(d) Emission inventories of mercury broken down into elemental mercury, divalent inorganic gaseous mercury, and mercury associated with particles, as national totals, for source categories and for EMEP grid squares;~~

~~(e) Information on the relative contribution (%) of toxic congeners of PCDD/F (dioxins and furans) emissions: 1,2,3,7,8-PeCDD; 2,3,4,7,8-PeCDF; 1,2,3,4,7,8-HxCDF; 1,2,3,6,7,8-HxCDF;~~

~~(f) Information on natural emissions.~~

~~45. 44. All these data necessary for chemical transport modelling will be made available via the EMEP website for transparency and review by each Party.~~

VI. RECORD-KEEPING

~~46.~~51. ~~45.~~ Parties ~~should~~ shall archive all relevant emission information for each year, including, ~~if~~ as far as practicable, all disaggregated emission factors, activity data and documentation about how these factors and data have been generated and aggregated for reporting. This information should allow the reconstruction of the inventory and projections, inter alia, for the purpose of inventory review, its evaluation for use by the Implementation Committee, and transparency for users. Inventory information, including the corresponding data on any recalculations, should be archived for all years from the ~~base~~ reference year. Parties are encouraged to collect and archive the information in a single location, or at least to keep the number of ~~facilities~~ locations at a minimum.

VII. LANGUAGES

~~47.~~52. ~~46.~~ The IIR ~~should~~ shall be submitted in one of the working languages of the United Nations Economic Commission for Europe, in accordance with its rules of procedure (i.e. French, English or Russian). Where possible, Parties submitting IIRs in French and Russian are encouraged to also provide an English translation to facilitate its use by the emission inventory expert review teams.

VIII. UPDATING OF GUIDELINES

~~48.~~53. ~~47.~~ The Guidelines are subject to review and revision as decided by the Executive Body. The Task Force on Emission Inventories and Projections may, if necessary, propose amendments to the Steering Body to EMEP to achieve harmonization with other reporting obligations, as well as to meet needs for increased transparency or other needs for further revision. The Task Force should transmit to the Steering Body any problems or discrepancies encountered by emissions experts in the application of the Guidelines.

~~Annex I~~

~~**SUBSTANCES AND DEFINITIONS**~~

~~**I. SUBSTANCES**[18]~~

~~**A. Category 1 - Substances for which there are existing emission reporting obligations**~~

~~1. Sulphur oxides (SO_x) means all sulphur compounds, expressed as sulphur dioxide (SO_2). The major part of anthropogenic emissions of sulphur oxides to the atmosphere is in the form of SO_2 and, therefore, emissions of SO_2 and sulphur trioxide (SO_3) should be reported as SO_2 in mass units. Emissions of other sulphur compounds such as sulphate, sulphuric acid (H_2SO_4) and non-oxygenated compounds of sulphur, e.g. hydrogen sulphide (H_2S), are less important than the emissions of sulphur oxides on a regional scale. However, they are significant for some countries. Therefore, Parties are also recommended to report emissions of all sulphur compounds as SO_2 in mass units.~~

~~2. Nitrogen oxides (NO_x) means nitric oxide and nitrogen dioxide, expressed as nitrogen dioxide (NO_2).~~

~~3. Ammonia (NH_3).~~

~~4. Non-methane volatile organic compounds (NMVOCs) means any organic compound, excluding methane, having a vapour pressure of 0.01 kPa or more at 293.15 K, or having a corresponding volatility under the particular conditions of use. For the purpose of these Guidelines, the fraction of creosote which exceeds this value of vapour pressure at 293.15 K should be considered as an NMVOCs.~~

~~5. Heavy metals (i.e. cadmium, lead, mercury) and their compounds.~~

~~6. Persistent organic pollutants: (polycyclic aromatic hydrocarbons (PAHs), dioxins and furans (PCDD/F) and hexachlorobenzene (HCB).~~

~~[18] Any departure from the below definitions should be clarified in the IIR.~~

B. Category 2 Substances for which parties are encouraged to report emission data

7. Carbon monoxide.

8. Particulate matter (PM10 and PM2.5 and TSP (total suspended particulate matter)).

(a) $PM_{2.5}$: The mass of particulate matter that is measured after passing through a size-selective inlet with a 50 per cent efficiency cut-off at 2.5 µm aerodynamic diameter;

(b) PM_{10}: The mass of particulate matter that is measured after passing through a size-selective inlet with a 50 per cent efficiency cut-off at 10 µm aerodynamic diameter;

(c) (TSP the mass of particles, of any shape, structure or density, dispersed in the gas phase at the sampling point conditions which may be collected by filtration under specified conditions after representative sampling of the gas to be analyzed, and which remain upstream of the filter and on the filter after drying under specified conditions.

9. Heavy metals (arsenic, chromium, copper, nickel, selenium, zinc) and their compounds.

10. Persistent organic pollutants (lindane, dichloro-diphenyl-trichloroethane (DDT), polychlorinated biphenyl (PCBs), pentabromodiphenyl ether (PeBDE), perfluorooctane sulfonate (PFOS) ,hexachlorobutadeine (HCBD), octabromodiphenyl ether (OctaBDE), polychlorinated naphthalenes (PCNs), pentachlorobenzene (PeCB) and short-chained chlorinated paraffins (SCCP).

II. DEFINITIONS

A. Large Point Sources

11. Large Point Sources (LPS) are defined as facilities[19] whose combined emissions, within the limited identifiable area of the site premises, exceed the pollutant emission thresholds

[19] As defined in Article 2 (4) and (5) of the EU E-PRTR Regulation, "(4) 'Facility' means one or more installations on the same site that are operated by the same natural or legal person; (5) 'Site' means the geographical location of the facility;" EC Regulation 166/2006 of the European Parliament and of the Council of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register and amending Council Directives 91/689/EEC and 96/61/EC, OJ L33 of 4.2.2006, p. 1.

identified below which have been extracted from the full list of pollutants in E-PRTR Regulation[20] (annex II)[21] and listed in table 1 below.

Table 1: List of pollutants to be reported for a LPS if the applicable threshold value is exceeded based on thresholds specified in E-PRTR Regulation (annex II).

Pollutants/Substances	Thresholds in kg/year
SO_2	150,000
NO_x	100,000
CO	500,000
NMVOCs	100,000
NH_3	10,000
$PM_{2.5}$	50,000
PM_{10}	50,000
Pb	200
Cd	10
Hg	10
PAHs	50
PCDD/F	0.0001
HCB	10

Parties that do not report combustion process emissions under any other international or EU-wide protocols or decisions may limit their criteria for Combustion Process LPS selection to > 300mw thermal capacity.

[20] EC Regulation 166/2006 of the European Parliament and of the Council of 18 January 2006 concerning the establishment of a European Pollutant Release and Transfer Register and amending Council Directives 91/689/EEC and 96/61/EC, OJ L33 of 4.2.2006, p. 1.

[21] As $PM_{2.5}$ is not specified in the E-PRTR regulation, this has been added to the table 1B of these Guidelines with the same threshold as for PM_{10}.

Table 2: The stack height classes (physical height of stack) in the reporting templates

1. Height class 1 < 45 metres;
2. 45 metres ≤ Height class 2 < 100 metres;
3. 100 metres ≤ Height class 3 < 150 metres;
4. 150 metres ≤ Height class 4 < 200 metres;
5. Height class 5 < 200 metres.

B. International air and sea traffic[22]

C.

D. International Shipping: Emissions from fuels used by vessels of all flags that are engaged in international water-borne navigation. The international navigation may take place at sea, on inland lakes and waterways and in coastal waters. The definition includes emissions from journeys that depart in one country and arrive in a different country and excludes consumption by fishing vessels.

E.

F. International Aviation: Emissions from flights that depart in one country and arrive in a different country. Include take-offs and landings for these flight stages. Emissions from international military aviation can be included provided that the same definitional distinction is applied.

[22] The below definitions apply to the present Guidelines and are taken from chapters 3.5.1 and 3.6.1 of volume 2 of the IPCC 2006 Guidelines.

G. Notation keys to be used when preparing submissions

Table 3: Notation Keys

Definition	UNECE/EMEP explanation
Not estimated (NE)	Emissions occur, but have not been estimated or reported.
Included elsewhere (IE)	Emissions for this source are estimated and included in the inventory but not presented separately for this source. The source where these emissions are included should be indicated.
Confidential information (C)	Emissions are aggregated and included elsewhere in the inventory because reporting at a disaggregated level could lead to the disclosure of confidential information.
Not applicable (NA)	The source exists but relevant emissions are considered never to occur.
Not occurring (NO)	An source or process does not exist within a country.
Not relevant (NR)	According to paragraph 9 in the Emission Reporting Guidelines, emission inventory reporting should cover all years from 1980 onwards if data are available. However, "NR" (not relevant) is introduced to ease the reporting where emissions are not strictly required by the different protocols, e.g. for some Parties emissions of NMVOCs prior to 1988.