TFTEI

Under the Convention on Long Range Transboundary Air Pollution

TFTEI informal background document for the review of the Gothenburg Protocol for industrial processes Annexes IV, V, V, X and XI

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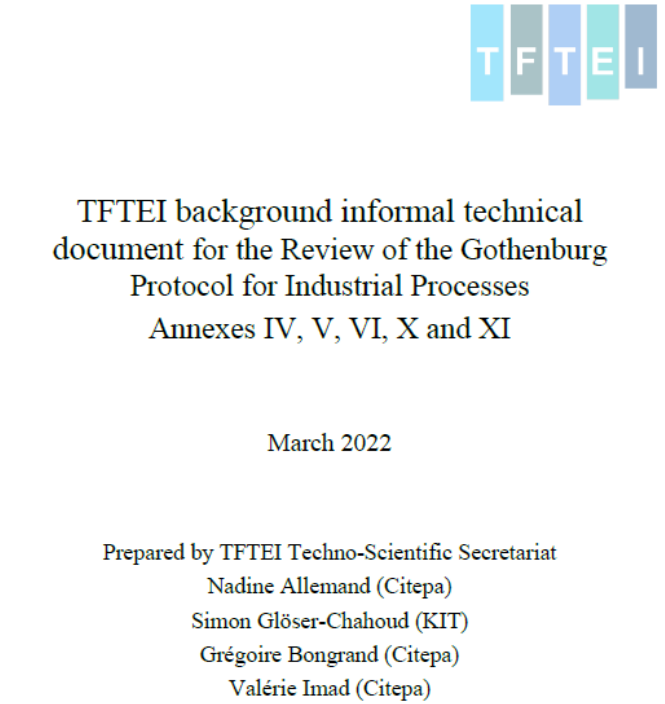
Introduction

Context and objectives

- In the scope of the review of the AGP from 2021 to 2023 and its work plan, TFTEI carried out an extensive review of Technical Annexes both for stationary and mobile sources
- For stationary sources, the technical annexes with limit values IV (SO_2), V (NOx), VI (VOC), X (dust), XI (VOC for paints and varnishes), were reviewed
- Proposals for updates of emission limit values were provided


TFTEI background informal technical document for the Review of the Gothenburg Protocol for Industrial Processes
Annexes IV, V, VI, X and XI

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MINISTÈRE DE LA TRANSITION ÉCOLOGIQUE
Liberté
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Activities currently considered in the pollutant specific annexes

Annex IV Limit values for emissions of sulphur	Annex V Limit values for emissions of NOx	Annex X Limit values for emissions of PM	Annex VI Limit values for emissions of VOC	Annex XI Limit values for emissions of VOC content in products
4 sectors	6 sectors	14 sectors	16 sectors	2 sectors
• Large combustion plants • Sulphur in gasoil • Sulphur recovery units • TiO_2	• Large combustion plants • Turbines • Cement • Stationary engines • Sinter plants • Nitric acid	• LCP • Refineries • Cement • Lime • Iron and steel • Iron foundries • Non-ferrous • Glass • Paper pulp • Waste inc. • TiO_2 • Installation < 500 kW, 100 to 1 MW and 1-50 MW	Sectors using solvents (paints, inks, adhesives…)	• Paints and varnishes • Refinishing products

Methods used for proposals of ELV updates

- 38 processes have been examined and information provided for potential updatable limit values (ELVs)
- An “Update Index” (1-3) has been defined to express the level of update which can be potentially introduced in the technical annexes, according to the results of the research carried out by the TFTEI Techno-scientific board, on the available technologies
  - 1 is high level of update,
  - 3 means no update available/possible.
- ELVs and the related information on BATs for emission abatement, are provided in this technical document for each sector/pollutant
- Bibliography survey carried out, but European sources of information mainly used

Example of proposals made

Current ELVs and index	Potential update	Available Techniques	Potential ELV
Coal, lignite and other solid fuels: Combustion plant with a thermal input capacity between 50 and 100 MW New and existing plants: **400** mg/m^3 at 6 % O_2 **[Update Index 1]**	Upgraded current abatement techniques are available	- boiler sorbent injection - duct sorbent injection (DSI) - spray dry absorber (SDA) - circulating fluidised bed (CFB) dry scrubber - wet flue-gas desulphurisation (FGD) - seawater FGD	New plant: **170-220** mg/m^3 at 6 % O_2 Existing plant: **170-400** mg/m^3 at 6 % O_2

Example of proposals made

Appliance	Current limit value for new appliances with a rated thermal input < 500 kW	Updated lower limit values	Updated upper limit values
	mg/m^3 at 13% O_2		
Closed fireplaces and stoves using wood	75	40	75
Log wood boilers (with heat storage tank)	40	No proposal	40
Pellet stoves	50	20-30	50
Pellet boilers	50	30	50

Main conclusions (1)

For Industrial Processes and Large Combustion Plants (> 50 MW):

- In Annex IV, V, VI and X, the abatement techniques are rather the same compared to the techniques considered during the previous review of the AGP, in 2008-2010, but, in many cases, their performances have evolved, and the innovations introduced significantly improved the abatement efficiency of the technologies and/or expanded their domain of application.
- These technologies deliver lower emissions compared to the levels achieved by the limit values in the existing Technical Annexes, in many cases. As an example, higher efficient primary measures are available for the reduction of NOx emissions from combustion of liquid and gaseous fuels.
- The performances of the techniques are available, as range values, for the industrial processes and large combustion plants concerned in the 4 annexes on stationary sources.

Main conclusions (2)

For Small and Medium size Combustion Installations (< 50 MW):

Small and Medium size Combustion Installations, with a rated thermal input lower than 50 MWth, are covered in Annex X for PM emissions.

Updated PM limit values technically achievable have been identified for:

- Residential combustion installations with a thermal input lower than 500 kWth (mainly small domestic appliances using wood and coal, in this category).
- Non-residential combustion installations with a thermal input ranging between 100 kWth and 1 MWth.
- Combustion installations with a thermal input ranging between 1 MWth to 50 MWth.

Main conclusions (3)

Analysis of sections in the Technical Annexes which could be simplified

- For all Annexes related to stationary sources, the cross paragraphs on compliance checking of ELVs and measurement, ***are rather complex***, but, at the same time deemed necessary to ensure a good implementation of limit values and make progress in emission reduction.
- Rather than simplifications, some updates would be suggested on definition of ***the mean value considered*** (monthly, daily or other means).
- TFTEI proposed the development of a guidance document on pollutant measurements for SO_2, PM and NOx (similarly as the 2016 guidelines for estimation and measurement of emissions of VOCs), in the next future, consistently with other priority tasks.

Main conclusions (4)

Analysis of possible gaps in the Technical Annexes

The current technical annex V on limit values of NOx, is not focussed on a large number of industrial sources, potentially responsible for high emissions of NOx, and does not consider combustion installations lower than 50 MWth.

Considering the new WHO air quality guideline for NO_2 in ambient air (10 µg/m^3 as an annual average compared to the current value of 40 µg/m^3), the introduction of a set of additional industrial processes and combustion plants, with power lower than 50 MWth, is suggested, in the technical annex V. The related abatement technologies are available.

Main conclusions (5)

Implementation of Limit values for condensables and black carbon?

Measurement techniques for condensables and black carbon exist but have not yet largely agreed standards applied across Europe and North America.

For condensables, different analytical protocols may give different concentrations. Standardised methods should then be developed to ensure the correct measurement of total PM concentrations in flue gases for the purposes of identifying technically feasible limit values for PM, including condensables and BC.

There is also a lack a measurement of PM emissions including condensables on small domestic appliances.

(The limit values identified for filtrable PM (or solid PM) in this kind of appliances, allow significant emission reductions of BC and the condensable part of PM).

Work plan for 2025

Conclusions of the Executive Body, with respect to technical annexes, :

(b) Requested the Task Force on Techno-economic Issues (TFTEI), with the WGSR Bureau, to work on potential options to revise the technical annexes, **in particular taking into account the needs of non-Parties and using the proposal set out in the informal document entitled "Preparatory work on the revision of the technical annexes to the present Gothenburg Protocol" to commence this work.**

(c) Requested the Working Group on Strategies and Review to further discuss the mandatory or non-mandatory nature, status and content of the technical annexes taking into account any work progressed by the TFTEI ;

(d) **Invited Parties to the Convention, and in particular non-Parties to the present Protocol, to send nomination of technical experts with relevant knowledge to support TFTEI in this work, to the secretariat by 31 January 2025**.

(e) Encouraged the Working Group on Strategies and Review to further discuss the merits of the Batumi Action for Cleaner Air approach for non-Parties.

Thank you very much

Questions?