TFTEI

Under the Convention on Long Range Transboundary Air Pollution

Revision of the Guidance Document on emission reductions of SO_2, NOx, VOC and Dust (including PM_{10}, $PM_{2.5}$ and BC) from Stationary Sources

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Work Plan adopted by EB in December 2023

Revision of the Gothenburg Protocol, as amended in 2012, **adopted** by decision 2023/5 at the 43rd session of the **Executive** Body, in December 2023

The Work Plan 2024-2025 for the implementation of the Convention for the Subsidiaries Bodies, and the Task Forces, adopted during the 43rd session

<u>Among other tasks for TFTEI:</u>

Development and promotion of guidance documents

- **Item** 2.2.2. **Revision of guidance documents on control techniques for emissions from stationary and mobile sources**
- **Develop update draft revised guidance documents** to be submitted **(through WGSR)** to the Executive Body in 2025 for Stationary Sources and in 2026 for Mobile Sources

A challenge for the update! A number of words not to be exceeded (editorial limit)

The current guidance document has 47 chapters:

- **6 transversal chapters** on **principles** for emission reduction of SO_2, NOx, VOC and dust (including PM10, PM2.5 and BC)
- **41 activity specific chapters:** combustion sources (different **installation sizes**), mineral industry, ferrous and non-ferrous metal industry, chemical industry, refineries, use of solvents…

The **current guidance document counts more than 100,000 words** in total.

The editorial requirement of UN Editor, for official documents:

not to exceed 10,000 words

Example of content of the transversal chapters of the existing guidance document

- **Common general issues for all the pollutants considered in this report**
  - Monitoring and reporting
  - Energy management, energy efficiency, energy mix
- **General issues for sulphur**
  - Sulphur content of fuels
  - Fuel switching
  - Fuel cleaning
  - Combustion technologies
  - Secondary measures-flue gas desulphurization process
  - Costs of reduction techniques of SO_2
  - By products and side effects

Typical limit values applied for liquid fuels in the EU

Fuel	*Current sulphur content (% weight)*	*EU directive*
Residual oil	< 1 % or 10,000 ppm	1999/32/EC
Gas-oil	< 0.1 % or 1,000 ppm	1999/32/EC

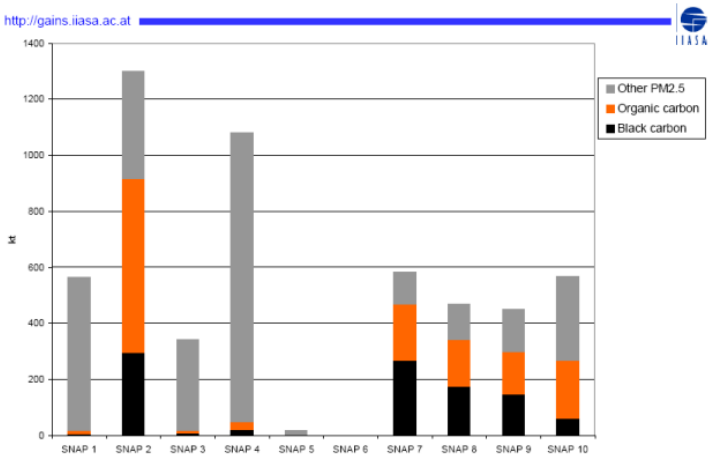
General description and performance for selected flue gas desulphurization processes [3]

	Wet scrubbing	*Dry scrubbing*	*Regenerative process*	*Acid sulphuric plant (double absorption)*
Efficiency	Desulphurization rate of 95 % to 98%) for a Ca/S ratio from 1.02 to 1.1	Desulphurization rate of 50% to 80% depending on the Ca/S ratio and systems (dry duct injection or furnace injection)	Recovery rate of 95–98%	Conversion rate of > 99%
By-product	Gypsum can be obtained under certain conditions and can be suitable for use in plasterboard production	Calcium sulphite and sulphate not recoverable		
Limits	Possible problem of scaling	Not cost effective, large amount of waste to be treated accordingly		Inlet dust concentration < 30 mg/Nm^3 Inlet O_2 concentrations to be 5 times higher than SO_2 concentrations.

Example of content of the transversal chapters of the existing guidance document

- **General issues for dust (including PM_{10}, $PM_{2.5}$ and BC)**
  - Fuel switching
  - Fuel cleaning
  - Primary measures
  - Secondary measures
  - Costs of emission reduction techniques of SO_2
  - Side effects

BC and OC emission sources in the United Nations Economic Commission for Europe region according to GAINS [28]



References:
SNAP 1: combustion in energy and transformation industries
SNAP 2: non industrial combustion plants
SNAP 3: combustion in manufacturing industries
SNAP 4: production processes
SNAP 5: extraction and distribution of fossil fuels and geothermal energy
SNAP 6: solvent and other product use
SNAP 7: road transport
SNAP 8: other mobile sources and machinery
SNAP 9: waste treatment and disposal
SNAP 10: agriculture

Example of content of the transversal chapters of the existing guidance document

- Available techniques for different activities: Cement production

BAT associated dust emission levels to reduce emissions in cement industry[1]

Emission source	*Techniques*	*Associated emission level with BAT (mg/Nm^3)*
All kiln system Clinker cooler Cement mills	Fabric filters or ESP	Dust: <10–20
Dusty operations[a]	Dry exhaust gas cleaning with a filter	Dust: <10[b]

[a] It has been noted that for small sources (<10,000 Nm^3/h) a priority approach has to be taken into account.

[b] Spot measurement, at least half an hour.

Cost of techniques for controlling dust emissions in cement industry [1]

Technique	*Applicability*	*Costs*[a] *Investment (in 106 euros)*	*Operating (euros/tonne of clinker)*
Electrostatic precipitators	All kiln systems	2.1–6.0	0.1–0.2
	Clinker coolers	0.8–1.2	0.09–0.18
	Cement mills	0.8–1.2	0.09–0.18
Fabric filters	All kiln systems	2.1–6.0	0.15–0.35
	Clinker coolers	1.0–1.4	0.1–0.15
	Cement mills	0.3–0.5	0.03–0.04

[a] Investment cost and operating cost to reduce the emission to 10–50 mg/m^3, normally referring to a kiln capacity of 3000 tonne clinker per day and initial emission up to 500 g dust/m^3.

Solution adopted for the revision

Solution adopted in **agreement** with the **UNECE Secretariat of the Convention**:

- Develop **a summary of max 10,000 words as official draft revised guidance document,** translated in the UN official languages (Russian and French), to be submitted to the next WGSR meeting, in May 2025, **for discussion and text agreement**, (**by mid-February 2025**, at the latest, **submission to the UNECE Secretariat)**
- **Development of a side complementary informal document, on the basis of the current guidance document text, in English, with all the details on technologies**, (no word limit for this informal document and no strict deadline for delivery, but sufficient time to be allowed to read it before the WGSR meeting). **No discussion and text agreement (formal approval) needed in WGSR**

Challenges in the revision

The existing guidance document was still “good” in general, however:

- old references,
- old figures,

and

- old performances of reduction techniques.

Main revisions carried out

Generic chapters (6 chapters, general issues for the reduction of SO_2, NOx, Dust (including BC) and VOC emissions):

The existing guidance document focuses mainly on stack emissions and primary/secondary emission reduction techniques.

Main changes introduced

→ Better explanations on how to address reduction of emissions by considering both management of processes and primary and secondary reduction techniques.

→ Better consideration of dust and VOC fugitive emissions and their reduction measures

Main revisions carried out

Generic chapters: Black carbon

The existing guidance document is not enough explanatory on how to reduce BC emissions

Main changes introduced

→ Better explanations on reduction measures of BC through optimisation and control of combustion and dedusting of processes

→ Addition of further information on possible lower efficiency in BC abatement, in some dust reduction techniques

Main revisions carried out

Activity specific chapters (41 chapters):

On case by case, some chapters not developed enough and performances of BAT not up to date

Main changes introduced

→ Chapters completed when necessary

→ Inclusion of BAT Associated Emission Levels from the newest EU BAT reference documents (BREF)

Time schedule

New draft revised guidance document, the summary (official document):

- Provisional summary : mid-November
- **Round of views exchange with voluntary experts** (already designated, both from Parties and industry) **by mid-November for one month**
- **Final revision of the draft and delivery to the UNECE Secretariat by February 15, 2025**

New draft side complementary informal document:

- Provisional updated informal document: draft by mid-November
- **Round of views exchange with voluntary experts** (designated both from Parties and industry) **by end October for one month**
- **Final revision of the draft afterword (delivery to be agreed with the UNECE Secretariat)**

Thank you very much

Questions?