

Sub-group Small Combustion Installations (SCI) under EGTEI
Minutes of the 2nd meeting in Zurich
26th March 2010

Participants :

Nadine Allemand, CITEPA, EGTEI secretariat (F)
Staffan Asplind, Swedish Environmental Protection Agency (S)
Jean-Guy Bartaire, Electricité de France (EDF), EGTEI co-chair (F)
Anja Behnke, Umweltbundesamt (D)
Stefano Caserini, Environmental Protection Agency of the Lombardy Region (I)
Evelien Dils, VITO NV (B)
Silvia Galante, Politecnico di Milano (I)
Francesca Hugony, Combustion and Environment Laboratory (I)
Pieter Kroon, Energy Research Center of the Netherlands (ECN) (NL)
Simon Liechti, Federal Office for the Environment (FOEN) (CH)
Thomas Nussbaumer, Verenum (CH)
Jean Poulleau, INERIS (F)
Kristina Saarinen, Finnish Environment Institute (SYKE) (Fi)
Simon Schulte Beerbühl, Deutsch-Französisches Institut für Umweltforschung (DFIU) (D)
Gaston Theis, Federal Office for the Environment (FOEN) (CH)

Guest: Angelo Papis, Amt für Abfall, Wasser, Energie und Luft, Zurich (CH)

Apologized:

Liesbet Goovaerts, VITO NV (B)
Michael Hiete, Deutsch-Franz. Institut für Umweltforschung (DFIU), EGTEI secretariat (D)
Stephen Morrin, University College Dublin (Ir)
Thomas Krutzler, Umweltbundesamt (A)
Beat Müller, Federal Office for the Environment (FOEN) (CH)

1. Introduction

The meeting was chaired by Gaston Theis. He welcomed the 15 participants attending the meeting. The minutes of the 1st meeting were approved and the chairman thanked Nadine Allemand for compiling them. The draft agenda for the 2nd meeting has been approved.

2. Regulations on SCIs

Kristina Saarinen presented the (final) overview on national ELVs for SCIs. The overview will be added to the report of the subgroup. It was decided to add information on whether limit values are for type test or for "real-life" monitoring as well as on measurement methods. Gaston Theis will collect this information and have it added to the report of the subgroup.

Staffan Asplind presented the Swedish regulations for combustion plants. There are no general binding regulations for combustion plants, ELVs are decided case by case. In practice for plants from 0.5 to 10 MW an ELV for dust of 100 mg/m³ at 6% O₂ is applied in densely populated areas. ESP or FF are regarded as economically feasible in the range > 4 MW. Domestic heating is poorly regulated, but there is a recommendation to use an accumulator tank. During

discussion Thomas Nussbaumer stressed the importance of an accumulator tank: boilers without heat storage result in inappropriate use of the boiler, since the air inlet will be shut automatically resulting in smoldering combustion with huge emissions during hours. Jean Poulleau made a point on appropriate measurement methods for domestic installations: should we also measure condensables and integrate them into ELVs? This issue was taken up again under topic 3 (below). Stefano Caserini observed that for very small appliances no innovation technology has been introduced since there are no ELVs in Italy! Staffan Asplinds presentation will be made available on the Web (see address at the end).

Pieter Kroon presented the brand new Dutch regulations for combustion plants. ELVs for biomass are 20 mg/m³ at 6% O₂ in the range 1-5 MW and 5 mg/m³ at 6% O₂ in the range 5-50 MW. Discussion on ELVs for installations < 1 MW has started. The future Ecodesign directive shall be considered. Small-scale ESP might be subsidized. The discussion on small-scale ESP showed some controversies concerning dust abatement efficiency; for longer periods of time there is not very much experience. Gaston Theis will make available information on Swiss experiences with small-scale ESP. Pieter Kroon's presentation will be made available on the Web (see address at the end).

3. Options for PM ELVs

Gaston Theis gave a short overview of comments received from B, S, SF and A concerning the draft options for PM ELVs:

- O₂ reference content: 6% for wood combustion?
- Aggregation of size classes: 1 – [5] [10] MW and [5] [10] – 50 MW?
- omit gaseous fuels, because they are not relevant for PM?
- Liquid fuels: differentiate between gas oil, heavy fuel, biofuels?
- Better “adjustment” of BAT AELs and ELVs
- Technology: differentiate between low and high efficiency ESPs?
- Take cost criteria into account when determining BAT?
- Take ash content of fuels into account when determining BAT?
- Take operating time into account when determining BAT?
- Product standards < 300 / 400 kW for new appliances?
- Clearly differentiate between product standard or ELV (type-test / real-life)?
- Should we for Eco-Design Directive?
- Not possible to introduce requirements for existing small scale appliances?
- Consideration of monitoring methods when defining ELV's
- Distinguish between wood and other biomass?

Size range 1-50 MW (table 3 of draft options)

There was a discussion on pro and cons for 6% O₂ reference content for wood (as in draft annex VII for solid fuels > 50 MW) or 11% (a value used in many countries as well as in the draft Guidance document for combustion 1-50 MW). Decision: We stay with 11% for wood since the proposal is at 11% and since with respect with the draft annex here a smaller size range is regarded. If necessary, options on ELVs could be recalculated at a later point in time.

The next discussion was on cutpoints for subcategories in this size range. All participants agreed that ESP or FF could be considered technically feasible in the range > 1 MW, but there were split views concerning economic feasibility in the range below < 5 MW. Taking this into account it was decided to consider 2 subcategories in the size range 1 – 50 MW, namely 1-5 MW and 5-50 MW. In order to have a common basis of understanding for defining options on ELVs the emission levels associated to selected dust control measures from chapter 7.2 of the draft Guidance document were slightly modified as follows for multicyclones and ESP in the range 1-5 M based on expertise of participants :

	Control measures	PM emission level (mg/m ³)	
		new	existing
Solid fuel 1-5 MW (11% O ₂ for wood) (6% O ₂ for coal)	Multicyclone	100 – 150	100 – 150
	ESP	5 – 20	5 – 50
	FF	5 - 20	5 - 20
Solid fuel 5-50 MW (11% O ₂)	ESP	5 – 20	5 – 50
	FF	< 5 - 20	< 5 -20
Liquid fuel 1-5 MW (3% O ₂)	ESP	5 – 20	5 – 50
	FF	< 5 - 20	< 5 - 20
Liquid fuel 5-50 MW (3% O ₂)	ESP	5 – 20	5 – 50
	FF	< 5 - 20	< 5 - 20

Finally it has been decided to omit gaseous fuels, because they are not relevant for PM. Then the following options for PM ELVs were agreed upon:

	Option 1 mg/m ³	Option 2 mg/m ³	Option 3 mg/m ³
Solid fuel 1-5 MW (11% O ₂ for wood) (6% O ₂ for coal)	New: 10 Ex.: 20	New: 20 Ex.: 50	New: 150 Ex.: 150
Solid fuel 5-50 MW (11% O ₂)	New: 10 Ex.: 20	New: 20 Ex.: 30	New: 50 Ex.: 50
Liquid fuel 1-5 MW (3% O ₂)	New: 10 Ex.: 20	New: 20 Ex.: 50	New: 50 Ex.: 50
Liquid fuel 5-50 MW (3% O ₂)	New: 10 Ex.: 20	New: 20 Ex.: 30	New: 50 Ex.: 50

During discussion Evelien Diels argued that a definition of BAT (including costs) would be necessary before agreeing on ELVs. However no cost criteria are given in the Gothenburg protocol, so we have to decide by expert judgement. Staffan Asplind mentioned problems with tall oil (residue from pulp industry) with natural ash content which gives PM levels of 60 or 70 mg/m³ at 3 % O₂. Kristina Saarinen mentioned a problem with peat, because this is used a lot in "small" plants and they have high emissions (twice the level of wood).

Conclusion: general agreement, except open questions for peat and tall oil to be discussed at next meeting.

Size range <1 MW (Table 1 & 2 of draft options)

Some participants stressed the issue of measurement methods which should be clearly defined before discussing on options for ELV's. Since condensable VOC may give important emission contributions for small-scale appliances, it was suggested to add options for VOC ELVs. Some countries may choose in the near future a more appropriate method than the currently practiced filter method, e.g. filter + absorbers or dilution tunnel.

Jean Poulleau from INERIS made a short presentation of some studies on biomass combustion. INERIS is also involved in ERA-NET projects investigating new measurement methods for biomass combustion emissions.

Angelo Papis made a presentation on the concept of monitoring and inspection of wood combustion installations in the Canton of Zurich. He stressed the importance of good operation and maintenance practice and recommended checking fuel quality, intensifying public awareness for a correct ignition and continuous monitoring of ESP/FF operation.

Conclusion of discussion: Monitoring of dust is very complex. The presentation of Thomas Nussbaumer in the 1st meeting already reflected discrepancies which can emerge from the different techniques. It is not the aim of the work to go into such details. Jean-Guy Bartaire (co-chair of EGTEI) stated clearly that we cannot decide about new measurement methods in this framework but rather have to stay within the framework of CEN or ISO standards. However, the background document to be prepared by Thomas Nussbaumer will give information on this issue. It was decided that this report should also include chapter on open questions for further R&D (including the topic of measurement methodology on PM, connex to VOC etc) to be treated by EGTEI at a later point in time. It was also decided to make an additional remark to table 1 of the draft options paper, that options for ELVs or type test values refer to current measurement methods in hot gases, while the values might be transferred to other methodologies later.

Concerning small-scale appliances (table 1 of the options paper) a large majority of participants was in favour of product standards with type test values. There was agreement to extend the size range for product standards to 300 or 400 kW which would be in line with current CEN standards (e.g. EN 303-5, EN 12809 etc.). It was decided not to just wait for the Eco-Design Directive but to present alternatives as a recommendation for countries who are willing to take a high level of ambition. However the Eco-Design Directive should also be mentioned as a possible future option. Suggested ELVs in table 1 of the draft options paper have not been discussed in detail. We have to come back to consolidate those values in the next meeting.

The intermediate size range [300][400] kW – 1 MW has not been discussed due to lack of time. Thomas Nussbaumer suggested the option that we might consider an overlap between table 1 and table 2; where product standards are possible, but not mandatory. In the case of absence of product standards there would be regular ELVs to be applied. Table 2 will have to be consolidated at the next meeting.

5. Compliance testing and monitoring

This topic has been discussed in conjunction with topic 4 (see above).

5. Defining fuel quality specifications

This topic has been deferred to the next meeting

6. Work program

- Gaston Theis will send out a revised version of the paper "Draft options for limit values for emissions of dust from small combustion installations". All participants are invited to comment before 23rd April. Revised version to be sent out again before the next meeting.
- 3rd meeting to be held during the next EGTEI meeting in Rome in the afternoon of 6th May 2010. Subgroup reporting to plenary EGTEI session on 7th May.
- Approval of final draft for options on PM ELVs for SCIs by EGTEI
- Official document with options for PM ELVs for SCIs to be submitted by EGTEI for consideration at the 47th meeting of WGSR before 5th June 2010

1st April 2010

- Background paper and complement to chapters 7.1 and 7.2 of the Guidance Document to be finalized by electronic comments and to be submitted to EGTEI before the end of June 2010

Documents of the meeting will be made available on the EGTEI website
www.citepa.org/forums/egtei/egtei_sci.htm

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