

TFTEI

Under the Convention on Long Range Transboundary Air Pollution

Task Force on Techno Economic Issues

State of progress

Nadine Allemmand (CITEPA), TFTEI technical secretariat
45th TFIAM meeting - 23 to 25 May 2016, Lisbon

Content

- TFTEI mandate
- Recent deliverables
- Work in progress
- The Workshop on BAT (Berlin 20-22 April 2016)
- The Second TFTEI meeting (19-20 May 2016)

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TFTEI – Mandate (1/2)

- (a) **Update and assess on a regular basis the information on emission abatement technologies for the reduction of the atmospheric emissions of SO₂, NO_x, VOCs, dust** (including PM₁₀, PM_{2.5} and black carbon), heavy metals and POPs from stationary and mobile sources, including on the costs of these technologies;

- (b) **Create and maintain a regional clearing house of control technology information** for emissions of SO₂, NO_x, VOCs, dust (including PM₁₀, PM_{2.5} and black carbon), heavy metals and POPs with the aim of being a reference place for dissemination of information to the experts of the Parties;

TFTEI – Mandate (2/2)

- (c) Cooperate with the other technical bodies of the Convention to create synergies, maximize results and optimize resources when performing its tasks;
- (d) Cooperate with technical bodies outside the Convention as needed;
- (e) Cooperate with the Coordinating Group on the promotion of actions towards implementation of the Convention in Eastern Europe, the Caucasus and Central Asia with the purpose of providing techno-scientific assistance to those countries;
- (f) Organize seminars and workshops for the dissemination and promotion of information on abatement technologies, like the guidance documents on best available techniques and technical annexes to the protocols to the Convention;

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Recent deliverables

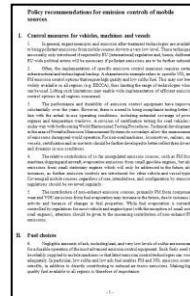
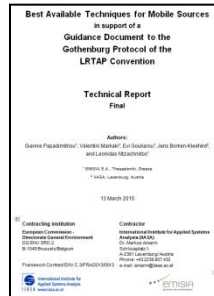
- ✓ Guidance document on BAT for mobile sources (light duty vehicles, heavy duty vehicles, motorcycles, non road machineries)
- ✓ Development of a tool for assessing costs of reduction techniques of emissions of SO₂, NO_x et PM of LCP
ERICCa_LCP : Emission Reduction Investment and Cost Calculation

Guidance document on mobile sources (1/4)

Documents provided

Project contracted by the **European Commission** (Dec. 2013 – Dec. 2014)

Work by **EMISIA** and **IIASA**



- ✓ **Guidance Document:** A 35p. document to provide input for replacing the 1999 document, after further review by TFTEI
- ✓ **Technical Report:** A 204p. document with detailed technical information and analysis to support the guidance document
- ✓ **Policy Recommendations:** A 3p. document with the policy context

Approach used

- ✓ Identify possible “Best Available Techniques” (BAT), i.e., measures that have a high probability to **lead to actual emission reductions** for mobile sources
 - Technically **feasible** and **cost-effective** techniques
 - Proven **record of implementation** in real-world applications
 - **Negligible side effects**

- ✓ These techniques or non-technical instruments can be used to meet the **environmental policy targets** set forward by the revised Gothenburg Protocol

Guidance document on mobile sources (3/4)

Type of information available

- ✓ BAT presented **per category** of vehicle or machinery
 - Differentiation between BAT applicable to **new** and **older** types
 - **Emerging techniques** separately addressed
- ✓ The document provides **guidance** of emission control techniques, **not encyclopedic presentation** of all possible measures
- ✓ BAT may not necessarily be implementation of the latest technology
 - Emphasis on existing stock
 - Cost-effectiveness important

Guidance document on mobile sources (4/4)

Techniques considered

Exhaust emissions



engine measures (combustion efficiency, control of fuel properties)

aftertreatment devices in exhaust line

fuel switching, alternative powertrain

non-technical measures

PM from component wear and abrasion (non-tailpipe primary emissions)



measures for **abatement**

brake measures

Evaporative emissions



measures to prevent **gasoline** fuel evaporation from the tank

ERICCa_LCP (1/4)

Work carried out

Name

ERICCa: Emission Reduction Investment and Cost Calculation

Application

ERICCa_LCP: Large Combustion Plants (> 50MW)
(other ERICCa-Tools are currently under development)

History

Development started in 2013
Since then the tool has continuously been improved and updated in close collaboration with the subgroup on LCP

Availability

It can be downloaded from the TFTEI website

<http://tftei.citepa.org>

Work in progress => Costs of reduction techniques for LCP

ERICCa_LCP (2/4)

ERICCa LCP at a glance

Plants

Boilers ($> 50 \text{ MW}_{\text{th}}$)

Pollutants

NO_x , SO_2 , PM

Fuels

Coal, oil, gas, solid biomass (wood) in co-combustion with coal

Fuel
approach

Detailed and general approach

Technologies

NO_x : LNB (Low NO_x Burner), SCR (selective catalytic reduction), SNCR (selective non-catalytic reduction)

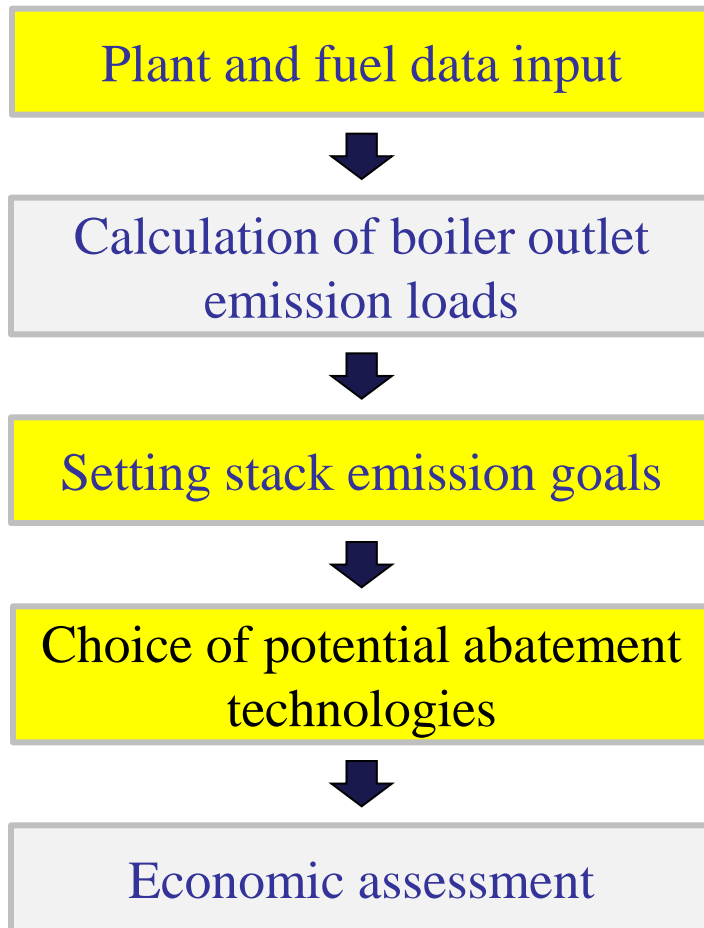
SO_2 : Wet flue gas desulphurization (FGD), lime spray dryer, dry process

PM: Fabric filter (FF), electrostatic precipitator (ESP)

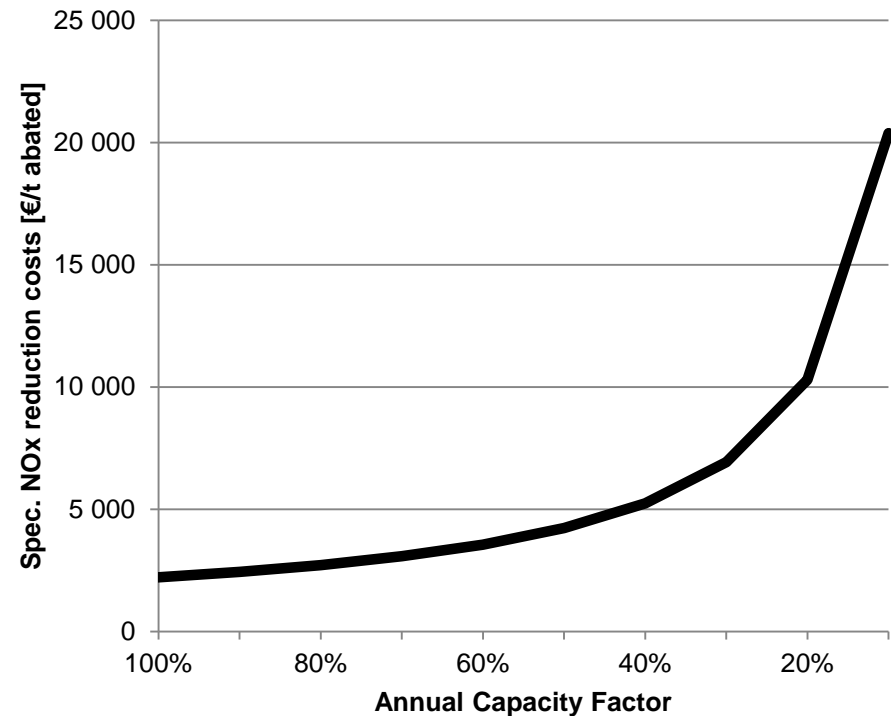
ERICCa_LCP (3/4)



General structure of the costs estimation



Type of results obtained



ERICCa_LCP (4/4)

Latest developments in ERICCa_LCP

Implementation of Part Load Calculation

- Total operating hours and the load dependent capacity factor are calculated from the part load input values.
- The following parameters are calculated for both, full load and annual average operation:
 - Fuel consumption
 - Flue gas volume
 - NO_x emissions
- For design parameters, full load operation is taken into account, for consumption parameters (except electricity) annual average values (considering part load) are used.

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Development of ERRIcCa_VOC

Task

Determination of costs of VOC emission reduction measures is one of the tasks assigned to TFTEI in the workplan for 2015-2016

Mandate

France proposed to exchange information on cost data of VOC abatement technologies through TFTEI on the basis of the work carried out in 2003-2006 by EGTEI (and used in the current BREF STS), in order to deliver this information to Sevilla for the revision of BREF STS.

Funding

The work is primarily financed by ADEME

Activities

TFTEI focuses in a first step on two activities:
flexible packaging printing and car manufacturing

Responsability

CITEPA: car manufacturing
KIT: packaging printing

Guidelines on VOC measurement and calculations (1/4)

Context of the guidelines

Gothenburg Protocol :

- ✓ Introduction of commitments for reduction of VOC emissions for Parties to the Convention in 2020
- ✓ Mandatory Emission Limit Values (ELVs) for different activities (for VOCs, annex VI and annex XI)
- ✓ Establishment of solvent management plans for activities using solvents covered by annex VI

Why to develop Guidelines

- ✓ VOC a complex pollutant : group of substances with different chemical properties, stack emissions and fugitive emissions, complex measurement...

Necessity to develop guidelines

to facilitate the ratification of the Protocol by EECCA countries

Guidelines on VOC measurement and calculations (2/4)

Why guidelines?

VOC a complex pollutant, not only stack emission

- ✓ **ELVs expressed as total organic carbon (TOC)**, which is a concentration of carbon in the gas stream, usually expressed in mg C per cubic meter (**mg C/m³**), in the standard conditions (STP), methane can be include or not,
- ✓ **ELVs related to one or several substances** which are assigned to specific risk phrases , expressed in mg of substances per cubic meter (**mg VOC/m³**) in the standard conditions (Article 5 of annex VI),
- ✓ **ELVs expressed as a total VOC emission, expressed in % of solvent input, or g VOC/unit of activity (g VOC/m², g VOC/kg dry extract, ...)** for some activities using solvents or % of petrol throughput for activities related to storage and handling of petrol,
- ✓ **Fugitive emission of VOC expressed in % of solvent input or in other unit**

Guidelines on VOC measurement and calculations (3/4)

Content of the guidelines

- ✓ Context and aim of the guidelines
- ✓ Types of ELVs implemented in annex VI
- ✓ VOC measurement techniques
- ✓ Solvent management plan
- ✓ Control of ELVs for some activities
- ✓ Summary of measurement methodologies for the different activities covered by annex VI
- ✓ Example of development of a solvent management plan

Guidelines on VOC measurement and calculations (4/4)

Process of adoption

- ❑ Guidelines produced by TFTEI for the 33rd Executive Body meeting in December 2015 for endorsement
- ❑ Endorsement of the Guidelines not possible due to additional questions raised by Belarus
- ❑ A drafting group set up aimed to answer to additional questions from this country to be produced just after the EB (the TFTEI TS + Belgium)
- ❑ Progress to be presented at the 34th EB meeting of May 2016 for endorsement of the document at the next EB meeting of December 2016
- ❑ Questions not received on time but just after the EB meeting in May 2016
- ❑ Deadline still achievable

Clearing House on reduction techniques (1/3)

Some characteristics

- **Recently** incorporated in the mandate of TFTEI
- CH at an early stage of development
- CH will be **tailored to the needs** of the experts of the Parties
- **Translation in Russian language** will be possible

- The **purpose of the CH** is not to define BATs

Clearing House on reduction techniques (2/3)

Aim of the CH

- The purpose of the CH is
 - **Provide information on BATs :**
 - Guidance Documents adopted under the LRTAP Convention
 - Other BAT documents developed under specific legal frameworks
 - **to provide new information** on technologies
 - Information on new (emerging) technologies
 - Information on sources which are new and/or not covered in BAT documents
- Possible format: **fact sheets**
- In addition, there is a need to provide a more interactive process when targeted questions are raised by experts of the Parties.

Clearing House on reduction techniques (3/3)

Organisation

❑ Organisation of the clearing house website

Two parts:

- ✓ A **publicly available part** with information checked
- ✓ An **exchange platform** only available for registered persons

❑ Exchange process of information

- ✓ Information coming from plant operators and equipment suppliers provided through the **exchange platform**
- ✓ From this platform, interesting information made publicly available after **evaluation by a committee : clearing house evaluation committee**

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Workshop to Promote the Understanding and Implementation of BAT (1/4)

Some facts

- Held in Berlin, Germany, from 20 to 22 April 2016
- Organisers: TFTEI, EU Commission, Federal Environment Ministry Germany and UBA Germany
- Funded by EU Commission, Sweden and Germany
- Simultaneous translation; English-Russian

- 60 participants:
 - from 23 countries
 - EU COM, UN ECE Secretariat, UN ESCAP
 - 4 industrial organisations

Workshop to Promote the Understanding and Implementation of BAT (2/4)

Aim of the workshop

Focus on Countries in the EECCA Region (11 EECCA countries represented on 12) with the aims :

- ✓ to learn from different BAT approaches adopted in different parts of the UNECE region (e.g. EU, US, Russia),
- ✓ to improve the understanding of the concept of BAT and its application, with examples from different sectors,
- ✓ to learn about different perspectives of BAT implementation, e.g. national administrations, industry,
- ✓ to discuss obstacles for implementation of BAT.

Workshop to Promote the Understanding and Implementation of BAT (3/4)

Recommandations made

- ✓ **Promote awareness of policy makers** by constructive dialog between decision makers and operators /companies in a way for win/win situations (environment and sustainable production)
- ✓ **Information exchange platform** (via the TFTEI Clearinghouse) to be used /complemented with basic information to BAT (description)/ installation definition/ technical requirements/ permitting system and permits as examples / monitoring – check emission control) in form of explanatory notes or fact sheets
- ✓ Possibilities to ask questions from expert to expert via the TFTEI Clearinghouse
- ✓ Clearinghouse shall be complemented with other information like EU BREF, BAT Conclusions, US EPA database, Russian BAT and other national BAT and information

Workshop to Promote the Understanding and Implementation of BAT (4/4)

Recommandations made

- ✓ **Training and demonstration projects on integrated permitting** (as workshop to teach and as practical experience in the field/ installation – issue of permit for a certain installation as example for the sector)
- ✓ **Low level /cheap measures below BAT** could be explored were practical (best environmental practice - BEP)
- ✓ Access to permits which have been granted to real installations by competent authorities (links on the website of the Clearinghouse)
- ✓ **Develop guidance for a permitting procedure** (guidance for operators as well as for authorities)
- ✓ **Include information on mobile sources under TFTEI** (guidance document and links on website)

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Annual TFTEI meeting

- ✓ On 19 May, kick off meeting of the Clearing House Evaluation Committee
- ✓ On 20 May 2016, annual meeting
- ✓ Hosted by the Catania University of technologies
- ✓ Around 28 persons with experts from the Russian federation, Azerbaidjan, Belarus, Germany, Sweeden, France, Italy, Croatia, Serbia and experts from industry (Eurometaux, ACEA, ESIG), experts from EIPPCB and the UNECE secretariat
- ✓ Presentation of the state of progress on different TFTEI issues
- ✓ Definition of some additional tasks to be included in the agenda if endorsed by the WGSR

TFTEI

Under the Convention on Long Range Transboundary Air Pollution

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<http://tftei.citepa.org/en/forum/index>

Questions?