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Sustainable Production and Consumption Unit
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KICK-OFF MEETING

FOR THE REVIEW OF THE

BEST AVAILABLE TECHNIQUES REFERENCE DOCUMENT ON LARGE COMBUSTION PLANTS

SEVILLE, 25 - 28 October 2011

MEETING REPORT

INTRODUCTION

The technical working group (TWG) for the review of the Best Available Techniques (BAT) Reference Document on Large Combustion Plants (the LCP BREF), held its first plenary meeting at the Institute for Prospective Technological Studies (IPTS) of the European Commission in Seville, Spain on 25 – 28 October 2011. This record represents a summary of the results of this first plenary meeting.

TWGs are set up to facilitate the exchange of information under Article 13(1) of Directive 2010/75/EU on Industrial Emissions (Integrated Pollution Prevention and Control), having originally been conceived under Article 17(2) of Directive 96/61/EC (which was subsequently recast as Directive 2008/1/EC).

The existing LCP BREF (available on the European IPPC Bureau website at http://eippcb.jrc.es) was formally adopted by the European Commission in 2006 under Directive 96/61/EC. The LCP BREF currently serves as information and guidance for regulators within the procedure of issuing permits to LCP installations.

This first plenary meeting, also called the kick-off meeting (KOM), officially started the work on the review of the LCP BREF document based on an exchange of information between the members of the TWG set up for the purpose. By virtue of Article 14(3) of Directive 2010/75/EU, the BAT conclusions that will be contained within the reviewed LCP BREF will be the reference for setting permit conditions for activities within the LCP sector.

The Head of the European IPPC Bureau (EIPPCB) chaired the meeting and the co-authors of the LCP BREF review team led the technical discussions.

The LCP TWG is made up of more than 140 experts representing Member States, Industry, Environmental NGOs and Commission services. The kick-off meeting was attended by more than 90 participants.

The agenda of the meeting included presentations and discussions on the exchange of information on best available techniques (as stipulated in Directive 2010/75/EU), the definition of the scope of the work to review the LCP BREF and the structure and content of the LCP BREF. These discussions were covered during the first two and a half days of the meeting. The final half day covered the information exchange tools (i.e. BATIS) as well as the conclusions of the meeting.

In order to facilitate discussions at the meeting, a background paper highlighting the items proposed for discussion at the meeting was prepared by the European IPPC Bureau and sent to the TWG members in advance of the meeting (background paper sent on 23 September 2011). The items had been derived from about 2400 wishes sent by the TWG. A 'wish' in this context stands for suggestions/comments provided by the members of the TWG to modify the existing LCP BREF.

Meeting and structure of this meeting report

The meeting was characterised by discussions on the wishes provided by the TWG. The key points for which agreements were expected were: the scope and structure of the revised LCP BREF, its interface with other BREFs and the key environmental issues of the industrial sector. Furthermore, agreement was expected on which information would be provided to the EIPPCB and by whom in order to revise and improve the LCP BREF. The format of the plant-specific data collection was also discussed.

Each item was discussed in the same way at the meeting. The European IPPC Bureau gave a presentation based on the background paper and proposed a way forward to the issue at stake. The participants then had the opportunity to discuss each item and ultimately reach conclusions on each discussion item.

This report presents the conclusions reached at the meeting. This document presents the content of the main issues discussed for each item. If a task was assigned to the TWG in connection with the item, this can also be found under each item.

All presentations delivered at the meeting are accessible to TWG members on the BATIS workspace together with the conclusion slides presented on the last day of the meeting.

The DG Environment presentation stressed the importance of focussing the information exchange such that BAT conclusions are developed/updated for the key environmental issues of the LCP sector. Any information that cannot be used to develop/update BAT conclusions will be assigned a lower priority.

During the meeting, some TWG members gave presentations. The UK presented the UK Government approach to data gathering for the LCP BREF revision, started well in advance of the kick-off meeting. Eurelectric presented the key issues to be considered in the LCP BREF review, and more specifically on the data collection exercise, from the power sector viewpoint. Eurofer gave a general presentation on the combustion plants in the iron and steel industry, and presented specific characteristic situations. EUTurbines, presented some proposals for the organisation of the work to be carried out for the review, as well as some suggestions for the data collection exercise. Finland gave a presentation on a case study of a typical waste co-incineration plant in Finland to illustrate the scope discussion on waste co-incineration in combustion plants, and two other case studies to illustrate the impact of load modes and load factors on emissions: the role of peak and reserve combustion plants in district heating with the Helsinki example, and a study on NO_x emissions from fluidised bed combustion of peat and wood in Finland. Sweden gave a presentation on the Swedish perspective of the biomass combustion plants. Germany presented the German approach for data collection based on a specific questionnaire and methodology. DG Environment and the EIPPCB gave additional presentations during the KOM to clarify specific issues on, respectively, the emission of greenhouse gases to be considered in the LCP BREF and the mapping of combustion units and processes across several sectoral BREFs.

All theses presentations are accessible to TWG members on BATIS.

As mentioned several times during the kick-off meeting, an important document for the future work of the LCP TWG is the Guidance document for the exchange of information under the IED. This document received a positive opinion from the IED Article 75 Committee in its meeting of 21 November 2011 and is in the process of being formally adopted by the Commission.

TABLE OF CONTENTS

1 GENERAL ISSUES

1.1 Interfaces with other BREFs

BAT Reference documents (BREFs) are developed so as to be complementary for the purpose of setting permit conditions for installations covered by the IED. In order to facilitate the use of those documents, appropriate cross-references need to be made in a BREF to other relevant reference documents.

In view of this principle, the LCP BREF should focus on matters that are specific to LCPs by purposefully minimising the overlap between it and other relevant reference documents.

The discussions put in light the current situation of the combustion issue throughout the entire BREF series and the need to have a clear view of which type of combustion plant is covered by which BREF.

Other examples of the interest for maximising cross-references with other BREFs were discussed (Economics and Cross-media Effects (ECM) REF, Cement, Lime and Magnesium Oxide Manufacturing Industries (CLM) BREF, Chemical BREFs, Iron and Steel Production (IS) BREF, Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector (CWW) BREF, Energy Efficiency BREF, etc.).

The need for providing consistency between different documents elaborated at different times and sometimes under different regulatory regimes was also pointed out.

Conclusions reached by the TWG for the revised LCP BREF:

- Maximise cross-references to horizontal and vertical (B)REFs, with special attention to the Waste Incineration BREF.
- LCP BREF will not cover processes/activities already covered in other BREFs.
- The EIPPCB will have a special role in ensuring consistency.

1.2 Scope of the LCP BREF

The LCP BREF is the main BREF that addresses the 1.1 activity of Annex 1 to Directive 2010/75/EU (IED): combustion of fuels in installations with a total rated thermal input of 50 MW or more.

A need for clarification of the scope was identified by the wishes collected, mainly regarding the category and size of combustion plants falling under the scope.

The EIPPCB proposed to include in the scope the new activity 1.4 listed in Annex 1 to IED: gasification or liquefaction of (a) coal, (b) other fuels in installations with a total rated thermal input of 20 MW or more, but to exclude waste co-incineration from the scope, with the exception of the waste considered to be biomass as per point 31 (b) of article 3 of the IED.

Discussions regarding the scope content focused on the main following topics:

- differences between the BREF scope derived from IED's Chapter 2 and Chapter 3
- size of plants/units below 50 MW_{th} and associated aggregating rules
- type of gasification/liquefaction plants to include
- diesel engines and combustion plants located on offshore platforms
- industrial process fuel combustion
- waste and waste-derived fuel combustion
- impact on land/soil and remediation issues
- post-combustion plants
- process heaters and furnaces
- CO_2 capture readiness.

Conclusions reached by the TWG for the revised LCP BREF:

The TWG agreed-upon the following scope for the LCP BREF review:

- The activities within the scope of Annex I to the IED covered by this review are:
  - 1.1 Combustion in installations with total rated thermal input of 50 MW_{th} or more, including plants composed of aggregated units of 15 MW_{th} or more, and including diesel engines, gas turbines and gas engines on off-shore platforms.
  - 1.4 Gasification or liquefaction of coal or other fuels in installations with total rated thermal input of 20 MW_{th} or more, when linked to the combustion process. Gasification plants linked to other activities, e.g. refining of mineral oil and gas, chemical industries and production of coke are covered in other BREFs.
  - 5.2 Disposal or recovery of waste in waste co-incineration plants, when taking place in an LCP (to be completed/modified according to the co-incinerated waste streams identified).

- The fuels considered in the LCP BREF review are any solid, liquid or gaseous combustible material including:
  - primary solid fuels (hard coal, brown coal, lignite, peat, oil shale)
  - solid and liquid biomass (grass, straw, vegetable waste, cork waste and wood waste which does not contain halogenated organic compounds or heavy metals)
  - primary liquid fuels (heavy fuel oil, gas oil, diesel and liquefied gas)
  - gaseous fuels (natural gas, shale gas, biogas, hydrogen and syngas)
  - other industry-specific fuels (production residues and by-products from chemical, iron and steel, and pulp and paper industries insofar as they are not yet covered by other BREFs)
  - solid / liquid / gaseous waste derived fuels which have ceased to be waste, and by-products according to the Waste Framework Directive 2008/98/EC
  - waste (used in co-incineration process).

- The processes covered are:
  - Combustion
  - gasification/pyrolysis/liquefaction linked to the combustion process
  - upstream and downstream activities directly associated as well as emission prevention and control techniques applied for:
    - waste gases
    - diffuse air emissions
    - final treatment or pretreatment in common facilities of waste water streams from flue-gas desulphurisation units, slag flushing and ash transport, boiler washing, air preheater and particulate matter collecting equipment
    - emissions to land/soil.

- Capture of CO_2 streams from combustion plants (as covered by activity 6.9 of Annex I to IED) will be covered.

- The LCP BREF review will consider the efficient use of raw materials, water and energy, the management/treatment of by-products and wastes from fuel combustion/gasification/pyrolysis/liquefaction when linked to the combustion process, as well as site remediation measures.

- The review will not cover:
  - upstream and downstream processes not directly associated with combustion or gasification/liquefaction processes

- ❖ process furnaces or heaters covered in other BREFs (a clearer definition will be provided in the BREF)
- ❖ post-combustion plants (a clearer definition will be provided in the BREF) and flares, except if they are part of waste gas treatment techniques
- ❖ coke battery ovens
- ❖ cowpers
- ❖ incineration.

- ➢ Safety in the workplace or the safety of products, not covered by the IED, will be discussed only where they affect matters within the scope of the IED.

Need for further clarification
There is a need to clearly define in the LCP BREF some key terms in addition to the ones clearly identified (e.g. new and existing plants).

Some key terms already identified by the TWG are:

- co-incineration
- unit, plant, installation
- furnace
- post combustion
- Commercial/non commercial/conventional/non conventional fuel.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

- Austria, Belgium, The Netherlands would provide information on plants/units of less than 50 MW_{th}.
- Germany would provide plant-related data on wood waste-fired combustion plants, on plants using blast furnace gas and on gas and diesel engines with thermal input of 15 MW_{th} or more.
- France, Italy, UK, EEB, EPPSA, Eurelectric would provide information on carbon capture readiness and carbon capture technologies.
- Romania would provide information on residues disposal.
- Eurofer would provide information for LCP combusting gases in the iron and steel industry.
- Finland, Eurits would provide information regarding co-incineration plants.

TWG tasks:

- Provide information on new topics identified.
- Identify the main waste streams used as fuels in LCPs, and submit a list to the EIPPCB before 25 November 2011 of possible wastes that should not be included in the LCP BREF.
- Send information to the EIPPCB on Waste-Derived Fuels which ceased to be waste.

1.3 Harmonisation with existing legislation and initiatives

The LCP BREF will be reviewed taking into consideration for consistency all other relevant legislations or initiatives.

Clarity on the meaning of 'initiatives' was requested and the TWG expressed different views on what is likely to be considered an existing plant for the purpose of defining differentiated BAT in the LCP BREF revision.

Conclusions reached by the TWG for the revised LCP BREF:

- The definition of 'new and existing LCP plants' for the purpose of the BREF will be determined by the TWG in upcoming discussions.
- Update the current BREF indicating relevant regulatory regimes and important regulatory requirements.

- Particular attention will be paid to the legislation mentioned in the new information identified and listed in the background paper. It was underlined however, that a BREF was not a textbook of EU environmental laws.

1.4 Structure and content of the LCP BREF

The content and structure of the LCP BREF will be revised on the basis of the scope agreed by the TWG. The proposed structure is likely to be modified during the course of the review according to issues of specific interest or to the information provided and assessed.

Discussions regarding the structure and content of the LCP BREF focused on the following topics:

- multi-firing and co-incineration plants
- emergency fuels
- non-conventional fuels
- iron and steel and pulp and paper combustion plants
- utility boilers
- gas turbines
- CO_2 capture.

Conclusions reached by the TWG for the revised LCP BREF:

- The final structure of the LCP BREF should differentiate between solid, liquid and gaseous fuels (three main chapters). Each chapter will consider the conventional fuels, and one new section will be developed: 'Combustion techniques for non-conventional fuels'.

- A new standalone chapter on 'Multi-fuel combustion' will be added. It will be structured into sections treating solid, liquid and gaseous multi-fuel combustion.

- The final structure of the LCP BREF might be amended depending on the data that will be received.

- New sections will be developed on:

  - specific power plants using process gases from the iron and steel sector;
  - non-commercial fuels associated with chemical, pulp and paper sectors, if not covered by other BREFs.

  These items will be included in the new sections called 'Combustion techniques for non nventional fuels' in the appropriate fuel chapters (liquid, solid, gas, multi-fuels, etc.).

- Whatever the final structure of the LCP BREF, the section on multi-fuel combustion with waste (now called co-incineration) and the section on combustion of process gases from the iron and steel sector should be kept clearly separate from other sections to explicitly address their specific features.

- Chapter 8 'Co-combustion of waste and recovered fuel' of the current BREF will be maintained but renamed, and its content will be reviewed.

- A new chapter will be added on 'gasification/pyrolisis/liquefaction of fuels' linked to the combustion processes.

- Chapter 2 'Common techniques for energy generation' and Chapter 3 'Common processes and techniques to reduce emission from large combustion plants' of the current BREF will be maintained (to be revised).

- The executive summary has been abolished (in all the BREFs).

- A range of strategies for limiting the size of the whole document will be adopted:

    - exclude general information that does not relate to BAT conclusions;
    - assess all the pollutants but address more thoroughly those pollutants and issues that could give rise to relevant environmental impacts;
    - mention specific process details only in the context of candidate BAT and BAT conclusions;
    - report examples of applied processes and techniques only if relevant, representative of the sectors and in the context of candidate BAT;
    - minimise the overlap between different chapters and/or sections;
    - maximise cross-referencing to other relevant (B)REFs.

2 OTHER THAN NORMAL OPERATING CONDITIONS

A summary of the IED with respect to other than normal operating conditions is given below.

- Emission levels associated with best available techniques (BAT-AELs) apply only for normal operating conditions. Therefore, definition or clarification of other than normal operating conditions (OTNOC) need to be developed.
- Permit conditions shall include measures relating to OTNOC.

The EIPPCB proposed that for the purpose of this LCP BREF review, normal operating conditions would be defined as the conditions during which the plant is operating and discharging emissions into the air, excluding start-up and shutdown periods, periods relating to malfunction or breakdown of the abatement equipment, and periods corresponding to the use of emergency fuels due to the lack of normally used fuels (serious shortage or sudden interruption), as mentioned in Annex V part 4 of the IED related to 'Assessment of compliance with emission limit values' for LCPs.

Discussions regarding this issue focused on:

- the need to have this definition accompanied by a more detailed list of examples of OTNOC
- testing periods
- how to take into consideration OTNOC in the data collection exercise
- the possible relations between load mode/factors and OTNOC.

Conclusions reached by the TWG for the revised LCP BREF:

- Identify and describe OTNOC for which BAT-AELs will not apply.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

TWG members should submit before 25 November 2011a list of OTNOC to the EIPPCB to be included in the BREF, with a goal of drawing conclusions useful for operators and for the elaboration of permits.

3 TECHNIQUES (GENERALLY APPLIED PROCESSES AND TECHNIQUES)

This chapter refers to the applied processes and techniques for preventing/reducing the pollutions and consumptions that could be generic for all or several types of LCP falling under the scope of this BREF.

The review of the LCP BREF is taking place within a current overall context of an energy market influenced by the concepts of a sustainable environment and climate change, leading to specific constraints on greenhouse emissions and energy efficiency which have direct consequences on the type of fuels used and techniques implemented in the LCP sector. The 2400 wishes received reflect these fundamental changes and entail a lot of expectations on the techniques to be considered as BAT and BAT-AELs.

However, responding to all the wishes would require a too sound data collection exercise so that only key issues, relevant for the sector, will be considered for the review and the related information collection process. The further discussion will help to define these key issues.

3.1 General and common issues

A lot of wishes expressed refer to the need to update techniques to be considered for the determination of BAT, to update general information and examples presented in the current BREF, in order to take into consideration environmental progress, newly operating plants, a wider range of fuels combusted, and to reflect recent experience.

Discussions regarding general and common issues focused on the need to consider:

- the change of status of the BREFs/BAT conclusions under IED
- the Categorisation of plants with the aim of associating different BAT-AELs
- the Purpose of the plant in order to create sub-categories
- the Differentiation between plant and unit, and related aggregating rules
- a Review of split views
- the Impact of site-specific constraints
- specificities of small isolated systems
- the Economic viability of techniques
- the Remaining lifetime and age of the plant
- retrofits
- the Impact of load modes on emissions levels
- a definition of load factors
- clarification of the different load meanings.

Conclusions reached by the TWG for the revised LCP BREF:

- The TWG agreed upon the need for reviewing, according to new information gathered during the data collection process:
  - existing combustion techniques
  - existing abatement/prevention techniques and BAT
  - identified emerging techniques
  - applied techniques not contemplated in the current BREF
  - split views
  - recommendations for future work (chapter 9 of the current BREF)

in order to (re)assess the techniques based on:

- ❖ performance:
  - o efficiency,
  - o emissions levels;
- ❖ technical applicability
- ❖ economic viability.

➢ The review assessment will consider:

- ❖ the age of the plants/units and retrofits performed (the data collection exercise will take account of these parameters when appropriate and, depending on the information collected, a sub-group could be created to assess the applicability of BAT to existing plants/units);
- ❖ load factors and modes according to the following statements:

  - o the following provisional load factors will be used for defining, if appropriate, sub-categories for the BAT assessment:

    - nominal Load (> 70 % of nominal capacity)
    - lower Load (from technical minimum load to 70 % of nominal capacity)

  - o the following provisional load modes will be used for defining, when appropriate, sub-categories for the BAT assessment:

    - emergency: < 500 operating hours/year
    - peak: 500 – 1500 operating hours/year
    - mid merit: 1500 – 4000 operating hours/year
    - base: > 4000 operating hours/year

  These load factors and modes are provisional and will be revised when needed according to the information gathered and assessed at unit and plant levels during the data collection process.

- ❖ plant and unit sizes: the following provisional sub-categories will be used at unit and/or plant level for the BAT assessment:

  - o 15 – 50 MW_{th}
  - o 50 – 100 MW_{th}
  - o 100 – 300 MW_{th}
  - o > 300 MW_{th}

  They will be revised if needed according to the information gathered and assessed at unit and plant levels during the data collection process.

- ❖ the impact of fuel characteristics on emissions, mainly when the fuel contains high levels of potential pollutants;
- ❖ the combustion of given fuels in existing plants originally designed for other fuels;
- ❖ the purpose of the combustion units;
- ❖ local conditions (e.g. temperature, humidity, small isolated systems) in terms of how they may influence generically the performance of some techniques;
- ❖ cross-media effects.

Regarding the remaining lifetime criteria, the TWG decided that information will be collected to inform the assessment.

- Furthermore, the TWG agreed that the review of general applied processes and techniques would consider the following:

  - relevant aspects of emission prevention and control techniques, with particular emphasis on technical and economic viability (prevention and control of NO_x, CO, SO_2, N_2O, dust emissions);
  - economic sustainability of desulphurisation measures for peak load or small sized plants;
  - performances of primary and secondary techniques for abatement of pollutants in coal- and lignite-fired plants, taking into consideration matters specific to coal firing processes (fuel pretreatment, grain size reduction, fuel additives, carbon in ash separation);
  - applicability of techniques used in biomass combustion in terms of type of fuel used and in consideration of relevant operational aspects and related emissions in the revision of BAT;
  - relevant aspects of liquid fuel combustion, especially in terms of operability, differentiating types of fuel used;
  - performance of primary and secondary techniques for the prevention and control of emissions by liquid-fired plants, according to the latest updated information provided, including those of liquid-fired gas turbines;
  - operability issues (mainly start-up and shutdown), technical applicability (retrofitting) and economic analysis of SCR for gaseous-fired plants.

- Information will also be collected on monitoring fuel characteristics and on site-specific issues when gathering data, in order to inform the assessment on BAT candidates.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

- Germany and CEFIC: techno-economic data on existing/retrofitted plants
- Finland, EEB, EPPSA: updated data on emission control techniques
- Germany, Greece, UK, Eurelectric: relationship between load factor and plant efficiency
- Eurelectric: emission ranges related to local conditions and plant ageing
- EPPSA: boilers, CHP and the technology update of biomass combustion
- Eurelectric: effect of district heating on power plant operation
- France: release of hazardous substances in waste water and the radioactive content of ashes
- Marcogaz: H_2S washing
- UK: operational information from commercial power plants
- Eurelectric: peak load energy production and the effect of back-up fuel on emissions
- Finland: peak and reserve power plants and plants to maintain grid stability

TWG tasks:

- provide data/methodologies on the link between fuel contents and pollutant contents just after combustion
- provide information on monitoring fuel characteristics
- provide information on existing plants originally designed for other fuels
- take part in the TWG sub-group on 'Defining and estimating cost, savings and subsidies related to applied techniques' if/when created
- take part in the TWG sub-group on 'Performances and retrofitting for existing plants' if/when created

3.2 Energy generation

Under this chapter the issues related to the performance of applied processes and energy efficiency related matters will fall.

Conclusions reached by the TWG for the revised LCP BREF:

- special emphasis will be given to efficient technologies: CHP – IGCC, other integrated technologies. Carry out a special data collection and assessment accordingly;
- a new chapter will be created on 'Gasification/pyrolysis/liquefaction of fuels;
- the impact of the abatement techniques on plant energy efficiency will be evaluated;
- the effect of increasing the plant energy efficiency on emission levels will be evaluated;
- the need to use the term 'co-combustion' which is not defined in the IED wil be reconsidered ; 'Co-incineration' and 'multi-fuel combustion' could be more appropriate terms.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

- Finland, Sweden, UK, EPPSA, Eurelectric: information on multi-fuel firing and related environmental performances
- Estonia: information on co-firing biomass and oil shale
- Spain, EEB: IGCCs (integrated gasification combine cycle power plant) data and related environmental performances
- Finland, EPPSA: information on gasification processes
- UK, Eurelectric: combined heat power plant (CHP) data.

TWG tasks:

- provide a list of reference CHPs and IGCCs or other efficient integrated plants;
- provide information related to trade-offs between energy efficiency and setting up abatement techniques;
- take part, for those with related experience, in the following TWG sub-group: key environmental issues regarding gasification/liquefaction/pyrolysis plants.

3.3 Prevention and control of NO_x, CO, SO_2, N_2O, SF_6, and dust emissions

This part of the kick-off meeting dealt with air pollution from LCPs and key pollutants.

The TWG expressed different opinions on the relevance of N_2O and SF_6 emissions and on the need to provide related information in the review process.

Discussions focused on:

- dust
- the need for consulting air emissions conditions in existing permits
- the methodology for getting N_2O and SF_6 emission data
- the interface with ETS (European Trading Scheme) on greenhouse gas emissions
- the contribution of N_2O and SF_6 emissions from LCPs to the global N_2O/SF_6 European emissions.

Conclusions reached by the TWG for the revised LCP BREF:

- the techniques for the prevention / reduction of NO_X emissions will be reviewed considering:
  - trade-offs between NO_X abatement and CO emissions or energy consumption
  - the impact of air preheating on NO_X emissions
  - the need to provide more details about primary measures and associated emissions.
- a specific section on CO emissions and applied reduction techniques will be developed;
- NH_3 slip from SCR and SNCR will be assessed;
- information related to the relevance, monitoring and permitting of N_2O and SF_6, as well as information related to associated emission (measured or estimated with detail on the methodology used) and prevention/control techniques will be collected.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

- Cefic: Emissions from gas boiler installations
- EPPSA: N_2O, CO and other emissions
- Finland, UK, Eurelectric: abatement of SO_2, NO_X and dust emissions
- Finland and EPPSA: NH_3 slip
- Germany: plant-related data concerning emissions
- UK, Marcogaz: gas plant emissions
- EEB: information about plants with high NO_x reduction
- Finland, Euromot : information concerning the composition of fuels
- France: methodology for deriving N_2O annual estimates and results for some combustion plants
- Finland: data on N_2O and/or SF_6 for 6 plants (biomass and peat).

TWG tasks:

- provide information on economic sustainability of desulphurisation measures for peak load or small plants.

3.4 Prevention and control of other pollutants

Apart from the main pollutants identified in the previous chapter, the need for informing other pollutants was discussed as a consequence of a set of wishes.

Discussions focused on the following pollutants and related issues: emissions of dioxins, metals, VOCs, PAHs for biomass-fired plants, CH_4 leakage from gas engines, Hg into fly ash and gypsum.

Conclusions reached by the TWG for the revised LCP BREF:

- emissions of mercury to air and water and related abatement techniques will be reassessed; the issue on mercury contents in by-products and residues will be reviewed.
- the following emissions will be (re)assessed:
  - emissions of dioxins and furans (especially for biomass combustion)
  - VOCs and PAHs emissions (especially from biomass combustion)
  - control of HCl and HF emissions when not using a FGD (Flue-Gas Desulphurisation)
  - emissions of heavy metals: Cd, Tl, Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V (*in relation to fuel characteristics*).

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

- Belgium, Germany, EEB, Eurelectric: data concerning mercury emissions, and associated monitoring (UK)
- France, EPPSA: data concerning dioxins and furans
- France: data concerning heavy metals, VOCs and PAHs emissions
- Germany: Hg emissions to air and content into fly ash and gypsum.

TWG tasks:

- provide information related to HCl and HF emissions control when not using a FGD;
- provide information related to Hg emissions and the contents in by-products and residues.

3.5 Handling, reduction and reuse of combustion residues and by-products

This part of the kick-off meeting dealt with the residues and by-products generated by the LCPs.

Conclusions reached by the TWG for the revised LCP BREF:

- Guidelines on the end use of by-products is outside the scope of the LCP BREF, however, emphasis will be put on techniques that reduce the environmental impact of residues.

- When reviewing prevention / reduction techniques for each pollutant, associated residues and related treatments will be taken into account in the determination of BAT.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

- Greece, Finland, EPPSA, Eurelectic: information on ash properties and utilisation
- EPPSA: guidelines about by-products
- Finland – (*Language: Finnish*): guidance on handling of residues and by-products
- Romania: information about techniques for the slag and ash (wastes) evacuation, transport and disposal

4 FUELS (SPECIFIC APPLIED PROCESSES AND TECHNIQUES)

This chapter refers to processes and techniques for preventing/reducing the emissions and consumptions that are more fuel-fired plant-specific.

Fuel choice has an impact on the environmental performance of the plant and it is recommended as a first primary measure to combust fuels with a low potential pollutant content. But often, the main drivers for selecting a type of plant will be the fuel availability and the energy policies that could be or have been implemented at the national level.

Wishes received reflect these parameters with more fuels to be considered and flexibility to define conclusions for multi-fuel combusting installations.

The proposed structure of the revised LCP BREF takes into consideration the importance of fuel choice. The chapters have been defined in function of the type of fuel combusted (solid, liquid, gas, multi-fuel, co-incineration).

4.1 Coal and lignite

This part referred to specific techniques applied in coal- or lignite-fired plants.

Conclusions reached by the TWG for the revised LCP BREF:

- according to the new structure agreed upon, specific, related techniques will be addressed in sections of the chapter on solid fuels;
- data on sulphur fuel characteristics will be collected for assessing processes and abatement techniques related to coal/lignite with a high-sulphur content;
- a specific assessment will be developed and, if needed, a section on oil shale-related processes and abatement techniques;
- leachate from storage areas will be reassessed.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

- Germany: coal with high sulphur and mercury emission data
- EEB: new mercury abatement techniques and AELs
- Netherlands: application of abatement techniques for mercury
- Estonia: oil shale as an energy source
- EEB: FGD and SCR used in lignite firing
- Eurelectric: leachate from coal/lignite storage areas
- UK: new examples of coal combustion performance.

TWG tasks:

- provide information on leachate related to coal/lignite storage;
- provide information on installations burning fuels with a high sulphur content;
- provide information on installations burning oil shale;
- participate in the finalisation of the questionnaire developed for the data collection exercise;
- give support to operators in properly completing the questionnaires.

4.2 Biomass and peat

This part was related to specific techniques applied in biomass- and peat-fired plants.

Discussions focused on:

- plant performance after a fuel switch (e.g. from coal to biomass);
- the creation of separate provisions for peat-fired plants only if the assessment of data provided allows for it.

Conclusions reached by the TWG for the revised LCP BREF:

- according to the new structure agreed upon, specific related techniques will be addressed in the sections of the chapter on solid fuels;
- the data collected will be assessed according to sub-categories which will be created for each type of solid biomass:
  - wood
  - herbaceous (straw, grass, etc,.)
  - energy crops, etc.

  The creation of sub-sections in the biomass fuel section of the revised LCP BREF, and of specific BAT-AEPLs will depend on the results of the assessment.
- in the chapter on solid fuels a separate section for peat will be created, if needed, according to the findings of the assessment;
- different case studies of multi-fuel combustion of biomasses will be evaluated in order to identify the type of BAT, if needed, to apply for such multi-fuel combustion;
- the techniques will be reviewed, with special attention to:
  - fuel load factors
  - fuel handling/preparation for the different biomasses
  - the differences between PC (pulverised combustion) / FBC (fluidised bed combustion) / BFBC (bubbling FBC) / CFBC (circulating FBC) techniques
  - the increased efficiency for biomass combustion in comparison with the values figuring in the current BREF.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

- Belgium (Flanders): information on the combustion of renewable energy sources
- Eurelectric, EEB: efficiencies and emissions of peat-fired plants
- Finland, UK, Eurelectric, EPPSA: information on biomass combustion
- Finland, Eurelectric: statistical data on the use of biomass and peat
- Finland, Eurelectric: biomass handling and the use, composition and quality of biomass and peat
- Eurelectric: information on noise sources
- UK: information on co-firing biomass with other fuels
- Sweden: information on the multi-firing of fuels with biomass.

TWG tasks:

- provide specific information on fuel handling/preparation for the different biomasses;
- provide information on multi-fuel combustion of biomasses.

4.3 Liquid fuels

This part was related to specific techniques applied for plants firing liquid fuels.

Discussions focused on:

- biofuels used in diesel engines and boilers
- gas turbines
- emissions from liquid fuel storage
- diesel engines in small isolated systems.

Conclusions reached by the TWG for the revised LCP BREF:

- the information available in the current BREF on liquid fuels will be updated, in particular:
  - types, properties and characterisation of liquid fuels combusted in gas turbines, diesel engines and boilers will be revised;
  - in the liquid fuels chapter, sections related to different types of liquid fuels will be created if needed depending on the information provided; in particular, a biofuel section will be envisaged and, if needed, a distinction will be made between HFO (heavy fuel oil) and LFO (light fuel oil).

- within each section dedicated to a specific liquid fuel, sub-sections will be created for:
  - boilers
  - gas turbines
  - engines.

- liquid fuel specifications for gas turbines will be addressed.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

- CONCAWE: properties and specification of commercial fuel oils
- Germany: information on new light oil-fired plants
- Eurelectric: information on liquid fuels used in gas turbines
- Finland and Euromot: information on diesel engines
- France: information on liquid fuel-fired plants.

4.4 Gaseous fuels

This part was related to specific techniques applied for plants firing gaseous fuels.

Discussions focused on:

- specificities of the fuels burnt in the iron and steel industry
- how to deal with non-conventional fuels burnt in the pulp and paper industry
- interfaces with vertical BREFs for these industrial process fuels
- the location of the combustion plant in an industrial facility (inside or outside of the industrial site)
- dust and SO_2 air emissions which would not be important for natural gas-fired plants
- the effect of H_2 fuel content on NO_x air emissions for industrial process gas.

Conclusions reached by the TWG for the revised LCP BREF:

- in the gaseous fuels chapter, sections related to different types of gaseous fuels will be created if needed depending on the information provided, in particular:

  - a section is envisaged on multi-fuel combustion (e.g. industrial process gases with natural gas);

- ❖ a section is envisaged on 'non conventional gaseous fuels' within which will be considered in separate sub-sections process gases produced by e.g.:
    - o the chemical industry
    - o the iron and steel industry,
    - o the pulp and paper industry;
- ❖ processes and techniques applied to the combustion of shale gas will be considered;
- ❖ a specific assessment will be developed and, if needed, sections on syngas- and biogas-related processes and prevention/control techniques.

- ➢ applied processes, techniques and emissions related to the combustion of gaseous fuels will be reviewed with special attention to:
    - ❖ CH_4 slip;
    - ❖ NH_3 slip;
    - ❖ CO and NO_x emissions, detailing primary measures for NO_x abatement;
    - ❖ dust and SO_2 emissions; for natural gas fired plants, information about the irrelevance of the environmental impact of such pollutants will be provided by TWG members.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

- Germany: plant related data
- EPPSA, Eurelectric: information on industrial process gases
- Eurelectric: information on the co-firing of natural gases with other fuels and emissions from the combustion of natural gas
- Eurelectric: cost data for techniques
- UK: information on applied SCR
- EEB, Eurelectric: data on CCGT plants
- Netherlands: data concerning CH_4 slip
- Netherlands: information about the relation between NO_x emissions and H_2 fuel content for industrial process fuels.

TWG tasks:

- Provide information on installations burning shale gas or any other non-conventional natural gas.
- Provide information on installations burning process gas only or co-firing process gas and natural gas.

4.5 Co-combustion of waste and recovered fuels

This part was related to specific techniques applied for plants firing waste as well as one or more of the fuels mentioned in the previous chapters.

Discussions focused on:
- the name of the BREF to reflect the fact it also covers waste co-incineration;
- The need to consider mainly the waste co-incinerated a secondary fuel;
- The need, when defining BAT-AELs, to bear in mind the IED provisions for incineration and co-incineration;
- Which waste should or should not be considered within the scope of the revision.

Conclusions reached by the TWG for the revised LCP BREF:

Except the inclusion of waste co-incineration in combustion plants within the scope of the BREF, already taken into account during the discussions about the scope, no more conclusions were reached on this issue.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:
- EPPSA: information on combusted secondary fuels
- UK: information on co-firing coke in existing coal plants.

5 EMERGING TECHNIQUES

A number of techniques were identified and considered BAT in the current BREF, but some were still in a stage of development and were considered emerging. Their application and environmental consequences had to be assessed. Other new techniques may have appeared since the current LCP BREF approval and may now be tested.

Discussions regarding emerging techniques focused on:

- risks linked to the downgrading of a current BAT
- combustion technologies to be included within emerging techniques
- pyrolysis to be considered as an emerging technique
- information available on CCR (carbon capture readiness).

Conclusions reached by the TWG for the revised LCP BREF:

- the emerging techniques mentioned in the original BREF will be evaluated for a possible upgrade to BAT candidate;
- new emerging techniques not covered in the original BREF will be checked to see if inclusion is possible;
- the status of techniques listed as BAT will be checked and it will be identified if any should be re-evaluated and considered 'emerging';
- a collaboration will take place with the UNECE-CLRTAP (United Nations Economic Commission for Europe - Convention on Long-Range Transboundary Air Pollution) Expert Group on Techno-Economic Issues - Sub-group on emerging technologies/techniques in the large combustion plant sector (EmTech50-500);
- results of EC-supported projects dealing with clean techniques, emerging effluent treatment and recycling techniques, and management strategies will be looked at closely.

Information identified or promised to be delivered by the TWG for the revised LCP BREF:

- EGTEI: reports on emerging techniques for LCPs >500 MW_{th} and on LCPs <500 MW_{th}
- EEB: information on closed-steam cooling systems
- Finland, EPPSA: information on gasification
- Italy, UK, EEB: CO_2 capture
- Eurelectric: information on plants with efficiency >50 %.

TWG tasks:

- give technical comments on the status of the emerging techniques mentioned in the current LCP BREF and provide quantitative information (according to the 'standard structure for describing BAT candidate techniques'), to justify whether these techniques should become techniques to consider in the determination of BAT;
- provide information on the emerging techniques which are not currently covered in the original BREF (according to the structure set out in Annex I);
- clearly state if there is any technique currently listed as BAT which should be re-evaluated and considered as emerging, and give a rationale for it;
- inform the EIPPCB of any research results which are relevant to the scope of the LCP BREF.

6 DATA COLLECTION

The provision of data during the exchange of information will be a vital part of the LCP BREF review.

As identified during the meeting, and as recognised in Chapter 9 '*Recommendations for future work*' of the current LCP BREF:

- too limited data and information on the current consumption and emission levels is contained, and on the performance of techniques to be considered in the determination of BAT and associated BAT-EPLs, with special regard to the related split views;
- major improvements are needed with respect to economic information. In particular the current LCP BREF contains limited, or insufficiently qualified information on costs and/or savings on BAT. More information (especially on specific costs and savings such as amortisation time of measures, and unit costs) is required;
- major improvements are needed on energy efficiency, including a further analysis of available methods for quantification, and the development of a transparent methodology for calculation;
- the BREF could be improved on potential soil contamination (e.g. environmentally sound decommissioning of plants, prevention of hazardous substances escaping during storage, transportation and use) and health and safety aspects;
- the BREF could be improved in differentiating abatement measures to be used in new and existing plants.

Considering the need to fill these gaps, information and data on environmental performances have to be collected. This information should be:
- site-specific and unit/process-specific, when relevant
- qualitative and quantitative, when necessary
- clear and detailed, regarding in particular the requests provided in Annex I
- representative of the units/processes described.

Consistent and coherent data at the installation level will be submitted, using a common template. This template shall, in particular, enable the comparison of data and easier identification of gaps and anomalies.

6.1 Data collection methodology

A methodology on data collection for larger and smaller plants, economic issues, gasification/pyrolysis/ liquefaction processes and other issues was presented.

Discussions focused on:

- the representativeness of the plants which will provide data and who will decide which plant is representative;
- the appropriateness of the methodology proposed by the EIPPCB for larger plants which:
    - ◊ aims to be based first on a statistical approach to help define reference plants;
    - ◊ seems to require much more time than available;
    - ◊ would have covered too many plants, with too much associated data with a risk of being too conservative;
- the need to have enough representative plants to draw conclusions;
- the quality of the data to be provided given the new status of the BAT conclusions and associated emission levels under IED;
- the different tools to be used for collecting information: plant-specific questionnaire, case studies, reports, etc.
- BAT conclusions already defined in the current BREF which could help to define reference plants;

- how to select representative plants in the iron and steel sector, with participation of both Member States and Industry;
- how to consider older plants;
- economic data and the need for creating a TWG subgroup responsible for economic issues:
  - ◊ which TWG member should participate in the subgroup?
  - ◊ which economic parameter and cost data to take into consideration?
  - ◊ which unit to use to reflect the costs?
  - ◊ should we consider the differences of costs depending on countries?
- the need to draft clear mandates before the subgroup's creation;
- use or permits to inform the data collected.

Conclusions reached by the TWG for the revised LCP BREF:

- The methodology of data collection for LCPs in order to reach conclusions on BAT and BAT AEPLs (including AELs) is the following:
  - ❖ Member States, with the participation of industry, will provide, for each sub-category, 'reference plants' with good environmental performances, indicating the rationale as to why they have been considered a 'reference';
  - ❖ reference plants for each sub-category will be assessed.

- For economic issues, the EIPPCB will elaborate a draft for a mandate for a TWG sub-group; the mandate will specify the mission of the sub-group within the review process of the LCP BREF. TWG members will then be asked to volunteer for this TWG sub-group. This subgroup may be created, if needed, once all the information, including at the plant level, has been gathered.

- For gasification/pyrolysis/liquefaction process, the EIPPCB will elaborate a draft for a mandate for a TWG sub-group; the mandate will specify the mission of the sub-group within the review process of the LCP BREF. TWG members will then be asked to volunteer for this TWG sub-group.

- Information on:
  - ❖ fuel characterisation and pretreatment techniques
  - ❖ emissions from handling and storage area (fuel; chemical products; solid by-products/residues/wastes)
  - ❖ noise
  - ❖ emissions to land and site remediation measures;
  - ❖ other-than-normal operating conditions
  - ❖ good management and operation & maintenance practices
  - ❖ emerging techniques
  - ❖ other issues (emissions of N_2O, SF_6; content of Hg in by-products, etc.)

  will be derived from reports, scientific articles, technical information, case studies and environmental permits provided by the TWG.

6.2 Questionnaire

A proposal for a template to collect plant-specific data, hereinafter referred to as the 'questionnaire', has been prepared by the EIPPCB and was uploaded to BATIS, with a communication to the TWG on 2 August 2011. This first draft took into consideration, to the greatest extent possible, the various wishes expressed on the issue of emissions and data collection.

From comments received in September 2011 from TWG members a second draft was elaborated and uploaded onto BATIS before the kick-off meeting. It was presented during the kick-off meeting.

Discussions focused on:

- deadlines for providing comments on the second draft of the questionnaire and for submitting filled-in questionnaires at the plant level;
- the raw data proposed to be collected and associated average calculations, given that LCPs are already reporting according to standardised rules defined in the 2011 LCP Directive and in the IED;
- the time needed to fill in the questionnaire which should be taken into consideration;
- translations of the questionnaire which could not be realised by the EIPPCB;
- testing of the questionnaire;
- the wish from Industry Federations and Member States to be involved in the quality check of the filled-in questionnaires;
- the need to organise a workshop to finalise the content of the questionnaire;
- the size of the questionnaire and the amount of data requested;
- the possibility to design different questionnaires depending on the type of fuel combusted or of the combustion technology;
- the need to clarify how energy efficiencies would be defined and informed;
- the use of readily available data from compliance reporting;
- the possible creation of a TWG subgroup on data collection, if needed;
- guidance to be provided to ease the proper completion of the questionnaire;
- pre-definition of other than operating conditions to clearly understand the content of the data provided.

Conclusions reached by the TWG for the revised LCP BREF and TWG tasks:

- comments will be provided to the 2nd draft of the questionnaire (uploaded to BATIS on 26.10.2011) paying particular attention to the following:
  - identifying the questions which ask for data not likely to be available and data which could be considered confidential/business sensitive;
  - if questionnaire is to be used for a specific sub-category of LCPs, the list of questions which are not relevant for the sub-category should be provided.
  - suggestions should be sent on how the questionnaire could be improved in order to be better understood by the operators;
- in the meantime, the EIPPCB will analyse how the questionnaire can be restructured/reduced, taking into account the conclusions from the KOM;
- when the comments/suggestions are received, the EIPPCB will elaborate a 3rd draft of the questionnaire;
- a workshop will be organised by the EIPPCB (location to be confirmed) to elaborate the last draft of the questionnaire and to identify the plants where it can be tested;
- the questionnaire will be tested and the final adjustments of the questionnaire will be made accordingly;
- if needed, a sub-group of the TWG could be created for verifying and analysing the data provided in the questionnaire;
- to supplement the appropriate cross-references which will be introduced in the revised document, the TWG will gather and review additional information and data related to measurement techniques, monitoring practises and calculation methods which are sector-specific for LCP.

7 INFORMATION EXCHANGE

An effective information exchange is dependent on the active involvement of all TWG members. The TWG is expected to collaborate fully and to use objective technical information to support the views expressed. Information submissions may take the form of quantitative data or qualitative descriptions, but must be made by **2 May 2012 in respect of information other than the data collection exercise outlined in Section 6.2**. Earlier submissions are encouraged in order to speed up the work. **There is no guarantee that late information will be taken into account**.

The information/data should be provided using agreed-upon templates and tools (questionnaire, 'standard structure for describing BAT candidate techniques' - see Annex I, 'information mapping sheet' – see Annex II).

E-mail and the European IPPC Bureau information exchange forum (within the BAT Information System, BATIS) both play an important role in the information exchange. The exchange of information necessarily involves public disclosure (since members of the TWG share all information), but there is a provision for accepting confidential submissions. In this case, this request should be clearly communicated to the European IPPC Bureau.

The TWG will also have access to a workspace (BATIS forum for LCP) for exchanging information. The LCP forum in BATIS is only accessible to members of the LCP TWG and to European IPPC Bureau staff. An invitation to join BATIS has been sent by e-mail to all TWG Members. Should you request any assistance in the use of BATIS, please do not hesitate to contact the European IPPC Bureau secretariat.

Site visits to installations constitute a good method for gathering and validating information. Some TWG members have already offered their help to organise site visits for the BREF review team. Visits will be prepared in advance so that the topics to be discussed can be selected and studied.

Other conclusions reached by the TWG for the revised LCP BREF on subsequent deadlines:

Mid-November Draft summary report of the kick-off meeting/Mandates for sub-group creation produced by the EIPPCB
25/11/2011 TWG submits comments on the 2nd draft of the questionnaire and provides the following lists:

- waste streams co-incinerated in LCPs
- plants burning wastes which ceased to be waste (Article 6 of the WFD)
- other than normal operating conditions.

December 2011 Workshop on the questionnaire
January 2012 Questionnaire testing
February 2012 Finalisation of questionnaire and dissemination
31/05/2012 Filled-in questionnaires submitted to the EIPPCB

The overall estimated workflow for the LCP BREF review is presented in Annex III.

8 ANNEX I: STANDARD STRUCTURE FOR DESCRIBING THE 'TECHNIQUES TO CONSIDER IN THE DETERMINATION OF BAT'

When providing information on "Techniques to consider in the determination of BAT', the use of a standard structure is required in order to enable comparisons of techniques and so that an objective assessment against the definition of BAT given in the IED (2010/75/EU) can be made. This standard structure is stipulated in the Guidance on the practical arrangements for the exchange of information referred to in points (c) and (d) of Article 13(3) of Directive 2010/75/EU and including the collection of data and the drawing up of BAT reference documents and their quality assurance. It is necessary to use this standard structure for the provision of information for specific techniques.

Standard structure for describing BAT candidate techniques (see Guidance Document for the Exchange of Information under IED)

In order to determine BAT, all techniques to be considered in the BAT decision-making process will be presented in the BREF according to a standard structure, shown in the first two columns of the following table. The third column gives more details on the specific data which are needed in order to draft 'Techniques to consider in the determination of BAT' and to derive useful BAT conclusions from them.

Name of the type of information	Type of information to be included in the BREF	Important information to collect and to report([1])
Description	A brief description of the technique with a view to being used in the BAT conclusions.	
Technical description	A detailed and concise technical description of the technique (including chemical or other equations, pictures, diagrams and flow charts when appropriate).	The description can include both prevention and control measures (in-process and end-of-pipe).
Achieved environmental benefits	The main potential environmental benefits (including reduced consumption of energy, reduced emissions to water, air and land, raw material savings as well as production yield increases, reduced waste etc) to be gained through implementing the technique.	
Environmental performance and operational data	Actual plant-specific performance data (including consumption and emission levels, consumption levels – of raw materials, water, energy – amounts of residues/wastes generated, including reference conditions – e.g. O_2 level – and monitoring methods used) achievable applying the technique. Any other information on how to design, operate, maintain and control the technique.	Emissions data (see also Section 6) • both the concentration and (specific) load of pollutant(s) (if available) or the data needed to derive this information. For specific load data, the product referred to should be clearly defined • the quantity of pollutant before and after the abatement system in order to determine the abatement efficiency • details of relevant operating conditions (percentage of full capacity, fuel composition, bypassing of the abatement technique, inclusion or exclusion of other than normal operating conditions, reference conditions) • emission monitoring issues (including information on frequency, averaging period, uncertainties, plant operating conditions etc) Consumption data: • the type and amount of fuel, energy (heat, electricity), water and raw materials/chemicals consumed/used by the technique Waste: • the type and quantities of waste generated and treatment/disposal methods and/or techniques to prevent waste Others: • sensitivity and durability of the technique • operation/control/maintenance issues • issues regarding accident prevention

([1]) based on the main gaps identified during the elaboration of the first series of BREFs

Name of the type of information	Type of information to be included in the BREF	Important information to collect and to report([1])
Cross-media Effects	Relevant negative environmental effect due to implementing the technique, allowing a comparison amongst techniques in order to assess the impact on the environment as a whole (such as consumption and nature of raw materials and water, energy consumption and contribution to climate change, stratospheric ozone depletion potential, photochemical ozone creation potential, acidification resulting from emissions to air, particulate matter in ambient air (including microparticles and metals), eutrophication of land and waters resulting from emissions to air or water, oxygen depletion potential in water, persistent/toxic/bioaccumulable components (including metals), generation of residues/waste, limitation of the ability to reuse or recycle residues/waste, generation of noise and/or odour, increased risk of accidents.	The Reference Document on Economics and Cross-media Effects (ECM) is a document that should be taken into account with regard to cross-media aspects as far as there are significant cross-media effects. This document is available from the European IPPC Bureau website at http://eippcb.jrc.es/reference/ecm.html
Technical considerations relevant to applicability	Indication if the technique can be applied throughout the sector; otherwise, information on the main general technical restrictions on the use of the technique (including an indication of the type of plants or processes within the sector to which the technique cannot be applied, and constraints to implementation)	
Economics	Information on costs (both investment and operational) and possible savings, including details on how these costs have been calculated	• capital/investment, operating and maintenance costs including details on how these costs/savings have been calculated/estimated • possible savings (including payback time), including details on how these costs/savings have been calculated/estimated • cost data will preferably be given in euros (EUR). If a conversion is made from another currency, the data in the original currency and the year when the data were collected will be indicated. This is important as conversion rates vary over time • price/cost of equipment or service will be accompanied with the year it was purchased • information relevant to both new and existing plant enabling, where possible, the economic viability of the technique for the sector concerned • information on the cost-effectiveness of the technique (e.g. in EUR per abated mass of pollutant), where relevant The Reference Document on Economics and Cross-media Effects (ECM) and the Reference Document on the General Principles of Monitoring (MON) should be taken into account with regard to economic aspects and monitoring costs, respectively. Both documents are available from the European IPPC Bureau website at http://eippcb.jrc.es/reference/ecm.html
Driving force for implementation	Local conditions or requirements (e.g. legislation, safety measures) or non-environmental triggers (e.g. increased yield, improved product quality, economic incentives) which drive or may stimulate implementation. Information on reasons other than environmental ones for implementation	Examples: • information on type/quality of receiving waters (e.g. temperature, salinity) • information on environmental quality standards • information on the increase of production or productivity
Example plants	Reference to plants in which the technique is implemented and from which information has been collected and used in writing the section, including an indication of the degree to which the technique is in use in the EU or worldwide	
Reference literature	Literature or other reference material that was used in writing the section and that contains more detailed information. When the reference material consists of a large number of pages, reference will be made to the relevant page(s) or section(s)	

9 ANNEX II – HOW TO PROVIDE BULK INFORMATION FOR THE LCP BREF REVIEW – INFORMATION MAPPING SHEET

Bulk information should be sent before 2 May 2012, and as soon as possible if readily available. This information will be assessed as it is received.

According to the Guidance on the practical arrangements for the exchange of information under the IED Section 4.6.3, the information to be provided to the European IPPC Bureau, with the exception of filled-in templates/questionnaires, should be accompanied by 'information mapping sheets' (IMS) indicating the parts of the BREF to which each piece of submitted information relates, and the section where draft text proposals should be inserted.

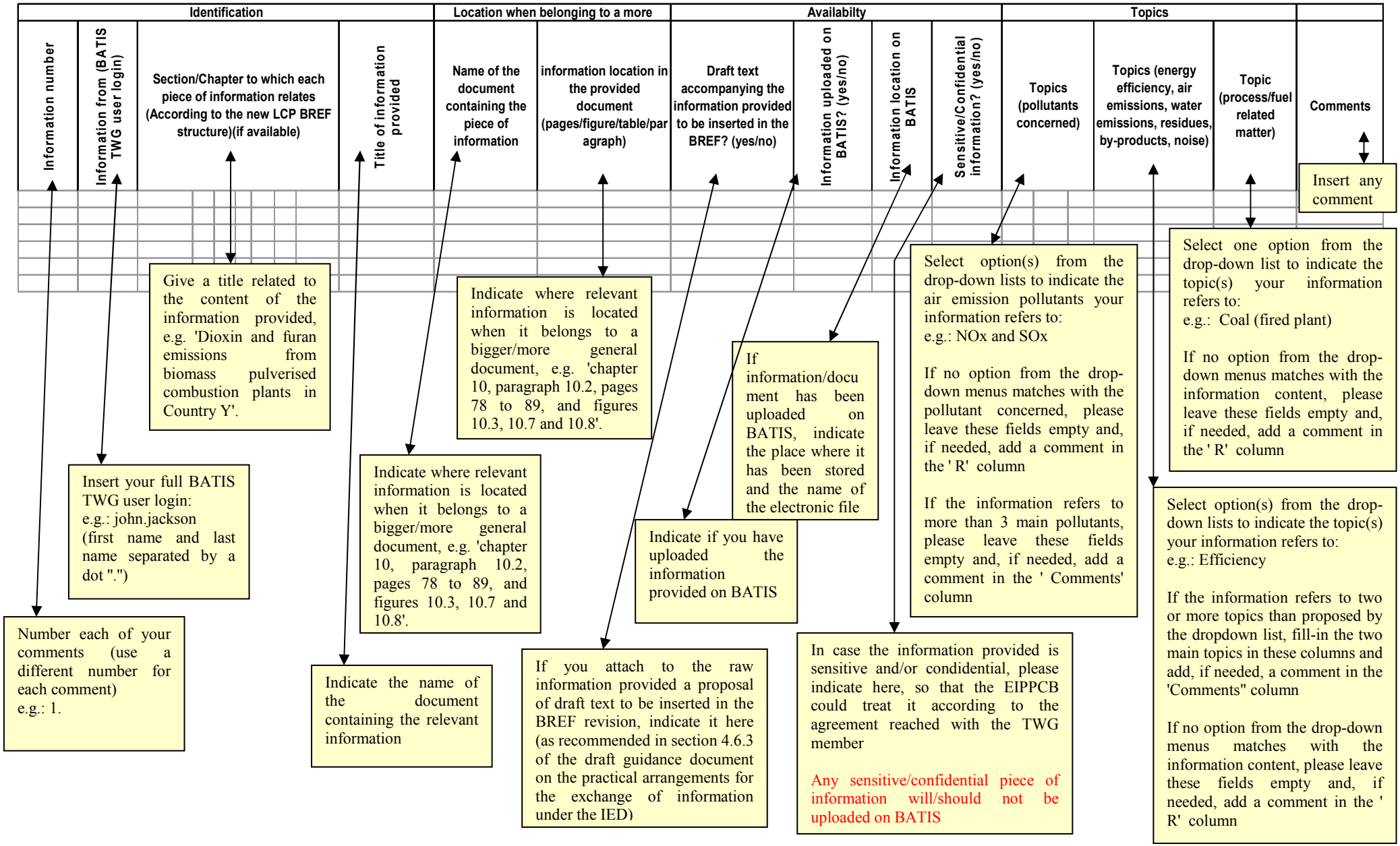
In order to ease the process of gathering and reviewing the information provided from various sources, the European IPPC Bureau has prepared a special IMS Excel template. This template can be downloaded from the LCP Forum of BATIS at: **Forums > Large Combustion Plants > Review of the LCP BREF - 2011 > 04 – Information collection.**

Once filled-in and named, you can post your IMS (your Excel file) along with the information/document provided directly onto the BATIS Forum for LCP at: **Forums > Large Combustion Plants > Review of the LCP BREF - 2011 > 04 – Information collection > Member States and EFTA countries or Industry or Environmental NGO or European Commission > Organisation name > IMS and Document File Names,** or you can send them to us by e-mail to JRC-IPTS-EIPPCB-LCP@ec.europa.eu if the information is sensitive or confidential, indicating clearly that this is the case.

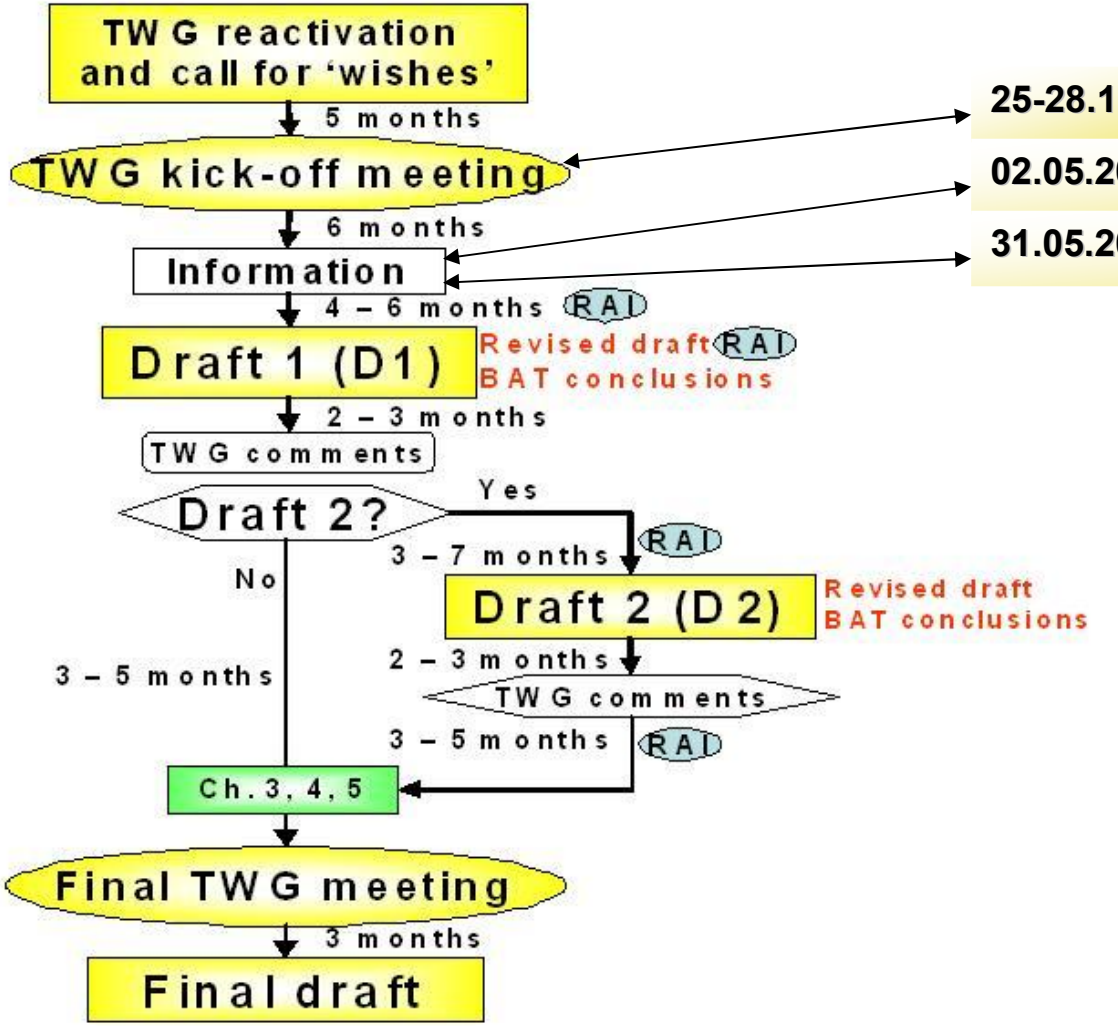
When using the new IMS Excel template:

- **never merge cells** in the template
- **only include text in the template**; documents (e.g. Word documents), tables, pictures and diagrams should be sent as e-mail attachments or introduced onto the LCP BATIS forum
- **follow the guidelines** at the top of each column, and consult the example provided on the second sheet of the IMS Excel template itself.

TWG members that have already provided information, mainly on BATIS, should also provide the corresponding IMS in order to have this information considered in the review.


Identification
Location when belonging to a more
Availabilty
Topics
Information number
Information from (BATIS TWG user login)
Section/Chapter to which each piece of information relates (According to the new LCP BREF structure)(if available)
Title of information provided
Name of the document containing the piece of information
information location in the provided document (pages/figure/table/paragraph)
Draft text accompanying the information provided to be inserted in the BREF? (yes/no)
Information uploaded on BATIS? (yes/no)
Information location on BATIS
Sensitive/Confidential information? (yes/no)
Topics (pollutants concerned)
Topics (energy efficiency, air emissions, water emissions, residues, by-products, noise)
Topic (process/fuel related matter)
Comments
Insert any comment
Select one option from the drop-down list to indicate the topic(s) your information refers to:
e.g.: Coal (fired plant)
If no option from the drop-down menus matches with the information content, please leave these fields empty and, if needed, add a comment in the ' R' column
Select option(s) from the drop-down lists to indicate the air emission pollutants your information refers to:
e.g.: NOx and SOx
If no option from the drop-down menus matches with the pollutant concerned, please leave these fields empty and, if needed, add a comment in the ' R' column
If the information refers to more than 3 main pollutants, please leave these fields empty and, if needed, add a comment in the ' Comments' column
Select option(s) from the drop-down lists to indicate the topic(s) your information refers to:
e.g.: Efficiency
If the information refers to two or more topics than proposed by the dropdown list, fill-in the two main topics in these columns and add, if needed, a comment in the 'Comments" column
If no option from the drop-down menus matches with the information content, please leave these fields empty and, if needed, add a comment in the ' R' column
Give a title related to the content of the information provided, e.g. 'Dioxin and furan emissions from biomass pulverised combustion plants in Country Y'.
Indicate where relevant information is located when it belongs to a bigger/more general document, e.g. 'chapter 10, paragraph 10.2, pages 78 to 89, and figures 10.3, 10.7 and 10.8'.
If information/document has been uploaded on BATIS, indicate the place where it has been stored and the name of the electronic file
Insert your full BATIS TWG user login:
e.g.: john.jackson
(first name and last name separated by a dot ".")
Indicate where relevant information is located when it belongs to a bigger/more general document, e.g. 'chapter 10, paragraph 10.2, pages 78 to 89, and figures 10.3, 10.7 and 10.8'.
Indicate if you have uploaded the information provided on BATIS
Number each of your comments (use a different number for each comment)
e.g.: 1.
Indicate the name of the document containing the relevant information
If you attach to the raw information provided a proposal of draft text to be inserted in the BREF revision, indicate it here (as recommended in section 4.6.3 of the draft guidance document on the practical arrangements for the exchange of information under the IED)
In case the information provided is sensitive and/or condidential, please indicate here, so that the EIPPCB could treat it according to the agreement reached with the TWG member
Any sensitive/confidential piece of information will/should not be uploaded on BATIS

ANNEX III: Expected workflow for the review of the LCP BREF



25-28.10.2011

02.05.2012: Deadline for bulk information

31.05.2012: Deadline for questionnaire submission