

EGTEI

Kick off meeting of the expert sub-groups on Emerging Technologies for Large Combustion Plants (LCP) 7 June 2007 Paris

Meeting report

Participation

15 people participated in the kick-off meeting of the EGTEI sub-groups on emerging technologies in large combustion plants and power generation. The following persons were present: Mr Gwénaél GUYONVARCH (ADEME), Mrs Nathalie THYBAUD (ADEME), Mr Eric VESINE (ADEME), Mr Jean-Guy BARTAIRES (Co-chairman of EGTEI, EDF), Mrs Carole ORY (EDF), Mr Jean-Pierre RIVRON (expert in LCP), Mrs Nadine ALLEMAND (CITEPA), Mr Dave HARRIDGE (ENTEC, representative of DEFRA), Mr Mats LINDGREN (Swedish EPA), Mr. Peter MEULEPAS (Ministry of the Flemish Region, Environmental Administration), Mr Michael HIETE (IFARE), Mr Pierre KERDONCUFF (IFARE), Mr Jacek GADOWSKI (BOT Gornictwo i Energetyka SA), Mr Andrzej JAGUSIEWICZ (Clean Air for Europe - KlinEr), Mr Pier Lorenzo Dell'Orco (EDIPOWER s.p.a.), Ms Katja KRAUS (German Federal Environmental Agency), Ms Andrea KRIZOVA (Czech Hydrometeorological Institute), Ms Kristina SAARINEN (Finnish Environment Institute), Mr Hartmut KRUGER (VGB PowerTech e.V.) and Mr Richard HOTCHKISS (RWE nPower) were excused.

Context

The kick-off meeting was hosted by ADEME and chaired by G. GUYONVARCH. After a brief presentation of ADEME, G. GUYONVARCH presented the aim of the meeting. Taking a proposal prepared by N. THYBAUD as a starting point, the objective was to structure the work to be carried out and to identify the main contributions that the experts could make in both sub-groups (up to 2020 and 2020 to 2050).

N. ALLEMAND reminded that taking emerging technologies into account will lower the emissions of the MTFR scenario and hence will reduce the gap still present between the effect level obtained with the MTFR scenario and the no emissions effect level. JG BARTAIRES reminded that IIASA expects both information on the evolution of existing techniques performance and information on new technologies. JG Bartaire stated that the work is also useful for the future revision of the LCP BREF.

N. THYBAUD proposed a structure for the work plan and the types of data to be collected. She proposed to distinguish between two groups: i) emerging techniques and technologies, and improvement of existing abatement techniques up to 2020, which is the time horizon considered by the Thematic Strategy for the new NEC and by a potential revision of the Gothenburg Protocol and ii) emerging techniques and technologies with a longer term perspective (2020 to 2050).

Experience from experts

M. HIETE presented the project on emerging technologies carried out by IFARE and UBA Vienna with a participation of ITA and CITEPA, for the EC in 2003/2004. The project was very ambitious with a very short lead time. The study covered all industrial sectors (excluding transport and agriculture). A list of promising candidate technologies was set up for all sectors, but the data collection was not satisfying as experts were not willing/unable to make projections. For IFARE, data collection must be simpler for the LCP sector, as it is rather well defined. The energy production system is already partially described in PRIMES, whose data are used as exogenous data in RAINS/GAINS. According

to the participating experts, PRIMES is not sufficiently transparent and the work of the EGTEI group on emerging technologies will also help to improve the situation. The added value of EGTEI is the participation of industry on this item.

A. JAGUSIEWICZ presented the situation of the electricity market in Poland and EU environmental challenges to be faced by Poland. The energy consumption in Poland increased continuously during the last years and is expected to increase further in the coming years. New plants have to be built to face the increasing demand. Existing Polish plants are often old and do not meet the LCP Emission Limits Values scheduled to come into force in 2016. The accession treaty demands lower emission ceilings than the Gothenburg Protocol. The technological choices for new plants depend on environmental constraints. As example, a new plant in operation in 2009 will meet the performances of BAT for SO₂, NO_x and PM. Poland does not agree with PRIMES results whereby only 6 % of electricity generation in Poland will be coal-based in 2020, because coal will remain the main energy source in Poland. To meet the legal requirements, Poland must go towards emerging technologies, BAT and CCS.

JP RIVRON completed the questionnaire sent by ADEME to prepare the meeting. The power generation system in France is untypical because fossil fuel plants are used to satisfy the peak demand, whereas they are used for the base load in most countries. Therefore, they contribute to only 5 % of the total electricity production in France. 13 fossil fuel plants will be closed by 2015 according to the National reduction scheme. All remaining 12 plants still operational in 2015 will be equipped with SCR and FGD. In fact the abatement techniques are well known but investments for plants working less than 1000 h per year are economically unviable.

Discussions

Future technological choices depend on environmental policies and GHG reduction policies and especially CO₂ market. The security of power supply is also of major importance, which is not guaranteed when a country depends on a single imported energy source.

The initial proposal was to have two sub-groups working on different time horizons as described above. However, discussions have led to the decision to merge the two sub-groups and to consider an intermediate time horizon of 2030. It has been recognised that collecting information for the longer term horizon would be very difficult. The future energy production system will be probably very different from what can be imagined now. The BREF can be used to establish a first list of emerging technologies. CCS will be included.

The proposed definitions were largely commented. It was agreed to keep a certain degree of flexibility in the definition of emerging technologies. However, only techniques/technologies not yet in a commercialisation phase should be considered as emerging.

The group will focus both on combustion based technologies for power generation, on emerging applications of existing abatement techniques and on existing abatement techniques and the evolution of their performance over time. This is a request of IIASA for improving the modelisation, in which the efficiency of abatement techniques is presently kept constant over time.

The power of a combustion plant is defined at the unit level (not at the stack level).

The penetration rates (defined in RAINS as application rates) and the applicability rates will have to be clearly defined. The definition could be a little bit different from the RAINS definition in which the rates are defined for an activity level (e.g. consumption of different types of fuels in a given sub-sector).

It is not the job of the EGTEI group to decide what technologies/techniques will be integrated but a proposal will be made to TFIAM for future possible integration changes in RAINS/GAINS.

To facilitate the work of data collection, ADEME will prepare a proposal of sheets to be completed by experts and will provide definition of the terms used.

Some parameters in the list proposed by ADEME will be difficult to obtain; mainly those related to investments or operational costs for emerging technologies/techniques. Contacting manufacturers should be envisaged in order to get better information.

Conclusions

The group will focus on LCP up to 2030 by considering the different types of combustion based energy production technologies and abatement techniques according to the following definitions:

- New technologies and abatement techniques (R&D)
- Improvement:
New applications of existing abatement techniques, technical improvements of existing technologies and abatement techniques.

Clear definitions are necessary; however, a certain flexibility must remain. Pollutants to be addressed are SO₂, NO_x, PM and CO₂.

A list of potential technologies/techniques has to be established. Experts are invited to express which technologies/techniques should be prioritized by the group.. The list should be at minimum 10 items long (fluidised bed, IGCC, pressurised bed...)

By the 22nd of June ADEME prepares a document with definitions, a first list with technologies/techniques, and information about the type of data to be collected. Comments are expected soon, so that ADEME can send a consolidated document with a list of technologies/techniques by July 6th. Detailed contributions about the technologies are expected from experts until the end of August. Experts will be able to complete the form based on a common understanding.

The report of the kick off meeting will be sent at the same time for comments expected by the end of June, for a consolidated report by the 6th of July.

ADEME will merge all contributions for the second meeting of the group scheduled on 1st of October, just before the EGTEI meeting on 2nd of October. The second meeting will take place in Angers.

The EGTEI website will be updated for including this new group.

The timing for the work is still as proposed: 3rd meeting in December, 4th meeting in February 2008 for final delivery of a report on April 2008.