



In support of the G8 Plan of Action

ETP2008 - Towards Country Level Granularity

A joint ETSAP – IEA workshop, 4-5 June, IEA Headquarters, Paris

The meeting consisted of two days:

- Day 1: Evaluation of models
- Day 2: Presentation and discussion of key ETP datasets

The ETP2008 will contain a detailed analysis of the ETP2006 scenarios for the G8 + 5 countries. Six of these countries are separate regions in the ETP model (Canada, Japan, USA, China, India, Mexico). The other seven are not (Brazil, France, Germany, Italy, Russia, South Africa, UK). Most of the countries that are represented are very large. Regionalised country models can better capture the specifics of these countries. It is hoped that the use of more detailed models can complement and inform the ETP model analysis. A similar joint model analysis was done by the ETSAP Implementing Agreement in the late 90's which received a lot of attention.

The models that are used should have a clear value added compared to the existing ETP model. That is, they should be specific for a country of the list above that is not a region in ETP, or they should be regionalised models for a country that is already a separate region in ETP. It is likely that such analysis will provide more robust results than the ETP model analysis can provide on such a detailed aggregation level.

A CD has been prepared with all presentations and some background materials that is available from the IEA secretariat. A questionnaire was sent around in advance and the responses helped to characterize the country models.

The following parties attended this workshop:

- Canada – NRCAN
- France – Ecole des Mines Paris
- Germany – IER Stuttgart University
- Greece - CRES
- Italy – ENEA
- Norway - IFE
- US - Brookhaven National Laboratory

The following parties have indicated that they are interested in participating in this analysis, but could not attend the workshop:

- China – ERI and Tsinghua University
- Germany – FZ Jülich
- Japan – Institute of Applied Energy
- South Africa – SANERI
- UK - PSI

Missing countries:

- Brazil
- India
- Mexico
- Russia

The NEEDS model was recommended for the EU analysis, this option will be investigated further. Some participants indicated that they need additional country funding (EU, UK). The IEA secretariat can help to raise this issue with member countries, if needed.

Goal is an analysis with “minimum effort, maximum impact”, given the very tight deadline.

The following approach is proposed:

- A number of indicators will be used to assess the coherence and compatibility of the models. This includes data on (per capita) emissions, energy flows and energy prices (e.g. for electricity).
- The country models are run with 0- 10 - 25 – 50 – 100 - 200 USD/t CO₂, to get a feeling for their suitability for analysis of deep emissions reductions. Target is to have this ready for the next ETSAP meeting at the end of June. This quick analysis will provide insights to what extent the models are comparable and suitable for the proposed analysis, and will provide clues to what type of adjustments are needed.
- An issue is how to deal with different national energy policies (bounds in the model), such as acceptance of nuclear in France and phase-out in Germany. As a first approach such differences will be taken into account in the analysis. Some sensitivity analysis may be done on this issue.
- In certain cases adjustments are needed to make the national databases comparable with the ETP assumptions. This includes adjustments to the technology data, demand projections and constraints.
- The analysis will focus on four scenarios: Baseline, ACT Map, TechPlus and possibly TechPlus Plus. These national runs will be done with datasets that are consistent with the ETP dataset on 1st order effects in terms of CO₂ impacts. Also the original national model will be run (Baseline and USD 25/t CO₂). The difference with the ETP runs will provide an indication of the robustness of the results. The viability of a Tech Plus Plus scenario run with national models (-50% worldwide) depends on the suitability of the models for deep emission reductions. The teams from France, Germany and the UK have already analysed such scenarios. It will be important to consider demand changes as well. MARKAL elastic demand seems more suited than MARKAL-MACRO.
- The country analysis will focus on 2050 only and its technology detail will be limited, given resource and time constraints.

Next steps:

- A next meeting about this analysis will be held as part of the ETSAP meeting in Stanford on 29 June 2007;
- The IEA will identify parties for the missing four countries;
- The participants will send to the IEA (a list of) recent reports and papers that can be used to better understand the models;
- The participants will send the IEA the revised country questionnaires for distribution to the whole group;
- The IEA will provide templates for results that are needed for the analysis and a list of priority areas for national model validation;
- Goal is to have draft results ready this fall, to be discussed at an expert meeting in late September-early October, followed by government review and another round of model analysis, if needed;
- The final draft ETP2008 report will be submitted to the G8 in February 2008, for preparation of the G8 summit in Japan July 7-9 2008;
- This analysis could develop into a recurring ETSAP contribution to ETP, provided there is sufficient country interest to make this into an Annex.

Other comments (these comment were made by individual modellers and do not necessarily reflect the opinion of the whole group)

- Repowering of Combined Heat and Power (CHP) can result in significant efficiency gains;
- New types of CHP deserve special attention (eg steam injection for gas turbines);
- Cost of CHP were not discussed in ETP 2006 and merits further discussion;
- Apart from CHP, competing options such as heatpumps deserve attention;
- Solar trough technologies (a special type of concentrating solar power) deserves some attention;
- CRES will report on bioenergy resources for Europe, based on the European RES2020 project;
- It would be worthwhile to point out that the contribution of ocean energy will be rather small, even by 2050;
- Compressed Natural Gas (CNG) hybrids deserve more attention;
- Plug-in hybrids with hydrogen fuel cells instead of internal combustion engines (ICEs) could become an option in the longer term;
- Earlier scrapping of existing capital stock (buildings etc.) can result in additional efficiency gains and CO₂ reductions;
- Some participants expressed doubts that single factor learning curves could adequately reflect the cost reduction potentials. Certain Canadian and US models are using decreasing learning;
- Certain feedback loops/rebound effects such as reduced oil prices due to CO₂ reductions deserve more attention.

Participants

Tom Alfstad	BNL	US	Reconfirmed
Edi Assoumou	ENSMP	France	Reconfirmed
Markus Blesl	IER	Germany	Reconfirmed
Maurizio Gargiulo	Torino Politechnico	Italy	Reconfirmed
George Giannakidis	CRES	Greece	Reconfirmed
Francesco Gracceva	ENEA	Italy	Reconfirmed
Gilles Guerassimoff	ENSMP	France	Reconfirmed
Juergen-Friedrich Haake	FZ Juelich	Germany	Not attending
Volker Krey	FZ Juelich	Germany	Not Attending
Wilhelm Kuckshinricks	FZ Juelich	Germany	Not attending
Atsushi Kurosawa	IAE	Japan	Not attending
Hertsel Labib	NRCAN	Canada	Not attending
Nadia Maizi	ENSMP	France	Reconfirmed
Peter Markewitz	FZ Juelich	Germany	Not attending
Dag Martinsen	FZ Juelich	Germany	Not attending
Thomas Martinsen	IFE	Norway	Reconfirmed
Phindile Masangane	SANERI	South Africa	Not attending
Hervé Pouliquen	Centre d'analyse stratégique	France	Reconfirmed
Uwe Remme	IER/IEA	Germany	Reconfirmed
Jeremy Sager	NRCAN	Canada	Reconfirmed
Osamu Sato	JAEA	Japan	Not attending
Neil Strachan	PSI	UK	Not attending
GianCarlo Tosato	ETSAP	Italy	Reconfirmed
Alfred Voss	IER	Germany	Not attending