

QUANTIFYING ENERGY SCENARIOS OF A LOW CARBON SOCIETY

The Annual Conference of the

ENERGY SYSTEMS AND MODELLING THEME

of the

UK ENERGY RESEARCH CENTRE

Workshop synopsis

This is a concept note for the 2006 Annual Energy Modelling Conference (AEMC) of the UK Energy Research Centre (UKERC). Further information of the energy modelling activities of UKERC are at <http://www.ukerc.ac.uk/content/view/142/112>. The AEMC provisional title is *Quantifying Scenarios of a Low Carbon Society*. The AEMC will take place in December 2006 in Oxford, UK. It is intended to be a focused technical workshop on modelling low carbon scenarios. A particular emphasis will be on developing country participation. The workshop will define common modelling runs which will be a direct research output to the 2nd UK-Japan workshop on low carbon scenarios (LCS) in June 2007. Further information on the 1st UK-Japan LCS workshop is at http://2050.nies.go.jp/index_e.html

Further information

Scenarios of LCS involving profound shifts in energy systems will necessitate a interacting and broad array of technology deployment and behavioural change. Scenarios can identify the principal drivers and uncertainties in any transition as well as identify barriers and opportunities, and also to allow structured thinking of the (inevitable) unexpected developments. Modelling these scenarios to quantify key mechanisms, pathways and impacts is a critical but complex task. Different modelling tools have alternate specifications of the energy systems and its wider E4 interactions (economy-engineering-energy-environment), operate at different geographical and temporal scales, and are designed to answer different questions and produce different output metrics.

This workshop on LCS will be hosted over 3 days in Oxford UK in December 2006. The first day will be a wider energy stakeholder event on characterization of low carbon scenarios (LCS) and the resulting quantification of LCS through formal energy modelling. A high profile speaker (provisionally Sir Nicholas Stern on the UK review of the economics of climate change) would be the dinner speaker after the stakeholder meeting. The remaining two days would be a dedicated Research Hotel with a focused set of energy modellers. The workshop would explore the quantification of LCS, and define a set of comparative model runs to feed into the 2nd UK-Japan LCS conference in June 2007. Issues for discussion would include:

- Model type: bottom up vs. top down vs. hybrid;
- Model coverage: energy sector vs. inclusion of wider economic feedbacks, trade, land-use, non-CO₂ GHGs etc;
- Geographic scope: national vs. regional vs. global; developed vs. developing;
- Stakeholder input and definition of the low carbon scenarios;
- Steps to encapsulate LCS features as inputs into energy models.

The major new features of this energy model comparison initiative are:

- A focus on long term deep reductions in carbon emissions
- A focus on inclusion of developing country modelling teams
- A range of alternate energy modelling platforms for wide spectrum of results and insights

Participation

The one-day wider stakeholder workshop; would be expected to have around 50 participants from the UK energy modelling community, and those academics, policy makers and NGOs interested in the results of energy modelling and how they are used.

The remaining two day workshop would consists of a small focused group of energy modellers (between 5 and 10 teams). Some potential modelling teams participation are listed in the table below, noting that this is a very provisional list and suggestions/changes are welcomed.

Note that participants travel and accommodation expenses will be paid by UKERC and DEFRA.

Country	Model	Institute	Contact
UK	MARKAL	Policy Studies Institute	Neil Strachan, Ramachandran Kannan
UK	MDM-E3, E3MG	4CMR, U. Cambridge	Terry Barker, Tim Foxon
Japan	AIM	NIES	Junichi Fujino, Mikiko Kainuma
Japan	DNE21	RITE	Keigo Akimoto
Thailand	AIM	Asian Institute of Technology	Ram Shrestha
India	MARKAL	TERI	Ritu Mathur
South Africa	MARKAL	U. Cape Town	Mark Howells, Thomas Alfstad
Netherlands	IMAGE	RIVM	Tom Kram
USA	Minicam	Battelle National Lab / U. Maryland	Jae Edmonds
EU	POLES	U. Grenoble, IPTS	Patrick Criqui, Antonio Soria
Global	MESSAGE	IIASA	Shilpa Rao, Keywan Riahi
Global	MARKAL	IEA	Fridtjof Unander, Michael Taylor