

Expert Workshop of the ADVANCE project

# UNCERTAINTY IN CLIMATE CHANGE MODELING AND POLICY

Milan, May 13-14, 2014  
Fondazione Eni Enrico Mattei  
Corso Magenta 63

## Agenda

### Objectives

Uncertainty is a key component of climate change, characterizing both the science and the human response of a changing climate. Understanding the problem of climate change and formulating a set of policy responses will thus need to account for the key uncertainties at play, and to provide risk management strategies which are robust to such risks.

In the most recent years, new research has emerged with the potential to improve the way we model uncertainty in climate change policy. Advances in decision theory, dynamic and stochastic programming, and in data availability allows for a richer accounting of uncertainty than previously possible. Yet, important challenges remain in the applicability of these new methods to large scale integrated assessment models (IAMs) which are routinely used for assessing climate change policies.

The aim of this expert workshop is to provide an opportunity for reviewing the latest developments in uncertainty and risk analysis in climate change, and their potential applications to IAMs. The agenda is organized around three main sessions, covering the theoretical, numerical and applications aspects. The final part aims at compiling a set of insights and recommendations for modeling climate change policies under uncertainty.

*This project has received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No. 308329 (ADVANCE).*

**Tuesday, 13 May 2014**

**11.00 - 11.15 Welcome**

Giuseppe **Sammarco** - Executive Director, FEEM

**11.15 - 11.30 Objectives of the workshop and framing of climate change uncertainty in the ADVANCE project**

Massimo **Tavoni** - FEEM

**Session I: Decision making under uncertainty**

**11.30 - 12.00** Antony **Millner** - LSE: Uncertainty and decision in climate change economics

**12.00 - 12.30** Loic **Berger** - FEEM: Abatement under ambiguity

**12.30 - 13.00** Discussion

*13.00 - 14.00 Lunch*

**Session II: Incorporating uncertainty in IAMs**

**14.00 - 14.30** Haewon **McJeon** - PNNL: Integrated Comparison of Uncertainties in Climate Change Mitigation

**14.30 - 15.00** Laurent **Drouet** - FEEM: Selection of robust climate policies under current knowledge of uncertainties

**15.00 - 15.30** Discussion

*15.30 - 16.00 Coffee Break*

**16.00 - 16.30** Erin **Baker** - U. Mass: R&D Decision Making Frameworks

**17.00 - 17.30** Emanuele **Borgonovo** - Bocconi Univ.: Global sensitivity analysis and climate change

**17.30 - 18.00** Discussion

*19.30 Dinner*

Wednesday, 14 May 2014

**Session III: Managing risks and vulnerabilities**

**09.00 - 09.30** Antony **Patt** - ETH: Instrument effectiveness and uncertainty: a review of empirical and model findings

**09.30 - 10.00** Roger **Cooke** - RFF: Messaging Uncertainty in Climate Change

**10.00 - 10.30** Discussion

*10.30 - 11.00 Coffee Break*

**11.00 - 12.00 Presentation from main modeling groups on their experience in incorporating uncertainty into IAMs (5/10 mins each)**

Celine **Guivarch** - CIRED

Volker **Krey** - IIASA

Elmar **Kriegler** - PIK

Gauthier **De Maere** - FEEM

Ilkka **Keppo** - UCL

**12.00 - 13.00 Discussion: how to integrate uncertainty in climate change modeling and policy**

*Chair:* Valentina **Bosetti** - FEEM

*13.00-14.00 Lunch*

### The FP7 ADVANCE project

Integrated assessment and energy-economy models have become central tools for informing long-term global and regional climate mitigation strategies. There is a large demand for improved representations of complex system interactions and thorough validation of model behaviour in order to increase user confidence in climate policy assessments. ADVANCE project (Advanced Model Development and Validation for Improved Analysis of Costs and Impacts of Mitigation Policies) aims to respond to this demand by facilitating the development of a new generation of integrated assessment models. This will be achieved by substantial progress in key areas where model improvements are greatly needed: end use and energy service demand; representation of heterogeneity, behaviour, innovation and consumer choices; technical change and uncertainty; system integration, path dependencies and resource constraints; and economic impacts of mitigation policies. In the past, methodological innovations and improvements were hindered by the unavailability of suitable input data. The ADVANCE project will make a large and coordinated effort to generate relevant datasets. These datasets, along with newly developed methodologies, will be made available to the broader scientific community as open-access resources. ADVANCE will also put a focus on improved model transparency, model validation, and data handling. A central objective of ADVANCE is to evaluate and to improve the suitability of models for climate policy impact assessments. The improved models will be applied to an assessment of long-term EU climate policy in a global context, and disseminated to the wider community. The ADVANCE consortium brings together long-standing expertise in integrated assessment and energy-economy modelling with a strong expertise in material flows, energy system integration, and energy service demand.

ADVANCE is a 4-year research project (starting in January 2013), with fourteen partners from Europe. It consists of 8 main workpackages.

### Logistics

The workshop is held at FEEM premises, in Palazzo delle Stelline, corso Magenta 63, Milano. This link contains directions and a map.

[http://www.feem.it/getpage.aspx?id=36&sez>About us&padre=24&sub=35](http://www.feem.it/getpage.aspx?id=36&sez>About%20us&padre=24&sub=35)

If you have any trouble, you can call Mariaester Cassinelli at: +39 02 52036989