

# AMPERE and LIMITS

## 1. Overview of AMPERE (<http://ampere-project.eu/web/>)



The AMPERE project is dedicated to the "Assessment of Climate Change Mitigation Pathways and Evaluation of the Robustness of Mitigation Cost Estimates". The project AMPERE is aiming for a broad exploration of mitigation pathways and associated mitigation costs under various real world limitations, while at the same time generating a better understanding about the differences across models, and the relation to historical trends. Uncertainties about the costs of mitigation originate from the entire causal chain ranging from economic activity, to emissions and related technologies, and the response of the carbon cycle and climate system to greenhouse gas emissions. AMPERE will use a sizable ensemble of state-of-the-art energy-economy and integrated assessment models to analyse mitigation pathways and associated mitigation costs in a series of multi-model intercomparisons. It will focus on four central areas:

- (i) The role of uncertainty about the climate response to anthropogenic forcing on the remaining carbon budget for supplying societies around the globe with energy,
- (ii) the role of technology availability, innovation and myopia in the energy sector,
- (iii) the role of policy imperfections like limited regional or sectoral participation in climate policy regimes, and
- (iv) the implications for decarbonisation scenarios and policies for Europe.

AMPERE is coordinated by the Potsdam Institute for Climate Impact Research (PIK) (Project chair: Ottmar Edenhofer; Project Director: Elmar Kriegler). The steering committee of the project includes Detlef van Vuuren (Universiteit Utrecht), Keywan Riahi (IIASA), Pantelis Capros (ICCS) and Valentina Bosetti (FEEM).

## 2. Overview of LIMITS (<http://www.feem-project.net/limits/>)



Now and in the foreseeable future, action on climate mitigation and adaptation doesn't seem to be sufficient to manage greenhouse gases and their impact at the scale required to achieve stringent objectives such as those compatible with the 2°C target.

The LIMITS project (Low Climate Impact Scenarios and the Implications of Required Tight Emission Control Strategies) aims at generating original insight into how 2°C compatible targets can be really made implementable:

- The technological challenge of achieving a low carbon world. The outcome of the scenario work and the regional infrastructural change will provide a novel view of the physical challenge of transitioning to a low carbon world
- Climate finance. The project is meant to advance the status of knowledge on the issue of how to finance the low carbon transition
- Local versus global policy instruments: the project will advance our understanding of the interplay of climate and energy policies at different geographical scales
- Multidimensional analysis of climate change with specific assessments on the relation between climate and other (health, security, development) policies
- Will provide original research on the potential role of negative emissions technologies (such as biomass burning with CCS) on the timing and actions involved in meeting stringent climate policies

LIMITS takes advantage of the best methodological instruments to assess climate policies, whose analysis will interact with policy evaluation.

Key global integrated assessment models will run climate mitigation and adaptation scenarios under new conditions and constraints, and the policy implications will be thoroughly evaluated. 13 models will be used throughout the project covering a wide range of different aspects. Using these models, LIMITS will explore the implications and uncertainties in reaching a 2°C target under different assumptions regarding the remaining leeway for greenhouse gas emissions, technology availability, the participation of different regions in international climate policy, and implementation obstacles.

LIMITS is a 3-year research project (starting in October 2011), with ten partners from Europe, China, India, and collaborators from the US and Japan. The project brings together experts in several different domains which include integrated assessment modelling, energy system analysis, finance, economic development, land use and agriculture. Many of the researchers involved in the project are also authors of the IPCC for the 5th assessment report.