

POEM and ESMOPO continuation

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Current activities at Chalmers using ETSAP tools

- **TIMES_Sweden: RES2020, Ancillary benefits and External cost studies;**
- **MARKAL_VG: Västra Götaland – regional analysis of polygeneration of power, heat and transport biofuels;**
- **MARKAL_gbg: Municipality model of the city of Göteborg used for evaluation of different biomass gasification technologies, options and strategies within the district heating system;**
- **POEM;**
- **ESMOPO**

Starting soon:
The POEM project

**Policy Options to engage
Emerging Asian economies in a
post-Kyoto regime**

Background

- **In order to keep global temperature increase at the 2K level, developing countries need to participate with binding targets, in particular China & India, ...**
- **... but reluctant to do so due to the risk of slowing economic growth.**

General objective

Are there ways to simultaneously provide necessary energy services to support poverty alleviation and economic growth, and to achieve sufficient GHG emission reductions? Which are the related health and environmental impacts?

Research questions I

Development implies several objectives: economic, social/health, environmental (local as well as global) -

- **Can the different objectives be reached simultaneously in a clever way ?**
- **What is the true mitigation cost of different pathways ?**
- **Are cost and benefits path dependent ?**
- **What national and international policies are needed?**

Research questions I

How can an analysis using a wide array of different types of models contribute?

Method

- **Application of integrated modelling framework including different model types**
- **Connection of models to policy**

Global and national models to be applied:

- the global climate model FAIR connected to global energy model TIMER,
- the global GE model DART,
- the global population and health model PHOENIX,
- national macro-economic models,
- national energy system MARKAL models.

More on methodology

- **Soft-linking primarily**
- **Common assumptions**
- **Iterative work procedure**

Participant organisations

- Chalmers University of Technology, Sweden
- Netherlands Environmental Assessment Agency, The Netherlands
- Tshinghua University, China
- Center for Energy and Environmental Policy Research, Chinese Academy of Sciences – Beijing Institute of Technology, China
- Kiel Institute for the World Economy, Germany
- Indian Institute of Management, Ahmedabad, India
- Indian Institute of Economic Growth, India

ESMOPO continuation ...

ESMOPO

Europe – South-east Asian Energy Modelling and Policy programme

Partners

- **Chalmers University of Technology (project co-ordinator);**
- **Stockholm Environment Institute (SEI);**
- **Department of Energy, Energy Policy and Planning Bureau (EPPB), Philippines;**
- **Institute of Energy (IE), Vietnam;**
- **Agency for the Assessment and Application of Technology (BPPT), Indonesia.**

ESMOPO aimed at ...

...Examining and quantifying the role of clean and advanced (fossil and renewable) energy technologies regarding

- **energy savings,**
- **fuel substitution,**
- **investment needed,**
- **pollutions avoided,**
- **energy security, and**
- **local and global environmental impact.**

Now, an ESMOPO continuation

With focus on

- **Vietnam**
- **rural energy demand development**
- **modern small-scale biomass technologies (SC & IGCC)**

Based on

Actual field studies,

- **Including demand patterns**
- **Supply options**

Taking into account

- **Technical,**
- **Economical,**
- **Environmental and**
- **Social aspects**
- **+ policies needed**

and connect the rural module to the national MARKAL model.

The End

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