



The ETP MARKAL model

Dolf Gielen
Niclas Mattsson
Fridtjof Unander

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Topics

- ETP structure and operation;
- Activities last 6 months;
- Activities next 6 months;
- Proposals for improvements of the tools.

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ETP Structure and Operation

- Energy Technology Perspectives
- Based on Multi-Regional MARKAL
- 15 Regions; “from well to wheel” (endogenous fuel supply/prices)
- Model is based on enhanced ANSWER shell (library, operators, extended run facility)
- Calibrated with IEA energy statistics and WEO via Energy Model Builder (EMB) Excel spreadsheets
- EMB contains base year (2000) technology data + demand projections by region by sector (same structure in all regions)
- New technologies (starting year 2005+) from library + operator parameters
- Consequence: ETP will remain an ANSWER-MARKAL model for the foreseeable future

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ETP Structure and Operation II

- Renewables GIS system
- Transport module developed in co-operation with WBCSD
- Industry integrated energy/materials modelling (but no materials cycles)
- Detailed oil and gas supply module
- Trade in energy and materials commodities

- Solves in 20-40 minutes on 2 GB RAM computer

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Activities last 6 months

- EMB finalized
- Revised transport, residential & commercial demand sector modules
- Revised renewables dataset & CO2 capture and storage (CCS) dataset
- New ANSWER run facility (Ken Noble)
- Revised MARKAL learning code (Gary Goldstein/Richard Loulou)
- Model analyses for upcoming CCS book
- NORDLEDEN cooperation
- Chinese model (Yang Yufeng)

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Available analyses

- EET working documents: CCS analysis & industry module discussion
- H2 analysis for IPHE and HCG (see also WEO 2003)
- Via IEA website: www.iea.org

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Analyses next 6 months

- CCS book (October 2004)
- Renewables/learning
- WEO 2004

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Suggestions for activities with ETSAP

- Validation model code (objective function, learning, trade,...)
- Finalize ENV_ENT (process emission coefficients calculated by the model)
- Develop jointly more ANSWER-MARKAL multi-region models
- Enhanced DMD modelling via ANSWER shell

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