Using the RES2020-TIMES Pan European model as basis for national model studies

Grohnheit, Poul Erik

Publication date:
2009

Citation (APA):
RES2020: Monitoring and Evaluation of the RES directives implementation in EU27 and policy recommendations for 2020

Using the RES2020-TIMES Pan European model as basis for national model studies

Northern Europe Final Project Workshop, Risø DTU, 28 August 2009.

Poul Erik Grohnheit
Systems Analysis Department
Risø National Laboratory for Sustainable Energy
Technical University of Denmark – DTU
Overview

- Pan European and national models
- RES-2020 results for Denmark
- CCS modelling
- Risø DTU milestone for 2010
- Harmonisation and further development of national models
Stepwise development of national and Pan-European models

- Common Base-Year templates with Eurostat 2000 data
- Common data for new technologies
- Demand forecasts by GEM-E3, POLES, etc.
- NEEDS national models submitted to Pan-European model (End 2006)
- First run of Pan-European model (March 2007)
- Harmonisation and modification of national models (until July 2007)
- Scenario results of Pan-European model for EU 27 (October 2007)
- Results of RES2020 Scenario Analyses for EU27 (May 2009)
- Parallel development of national models – national studies (ongoing).
- Regional studies (e.g. Storage Utsira) – 2009
- Need for harmonisation and exchange of experience
Final energy use of non-RES

Final energy use of RES
Direct use of RES in each sector

[Bar chart showing the use of RES in different sectors (Central heat & power, Industry, Transport, Commercial, Residential, Agriculture) for the years 2000, 2010, 2015, and 2020. The chart indicates the total energy usage in PJ (Petajoules).]
CO2 emissions from each sector

[Bar chart showing CO2 emissions from different sectors over years 2000 to 2020. The chart includes categories like Electricity, Transformation - ETS, Industry - ETS, Transport, Transformation - non ETS, Industry - non-ETS, Commercial, Residential, and Agriculture.]
RES2020 Pan Eur model:
Total electricity generation for Denmark
Status for the Danish model

• Latest distributed version of RES2020 Pan-European model (time horizon 2050) – November 2008
• Danish model developed in parallel with RES2020 Pan-European model
• Modelling of CHP/DH infrastructure not satisfactory in the Pan-European model
• RES2020-TIMES Pan-European results and national report (time horizon 2020) – May 2009
• Detailed survey of model data and parameters – August 2009
• RES 2020 Northern workshop 28 August 2009
• Continued exchange of experience with the model development for Sweden
CCS and other model issues for Denmark

• Data from forecasts to 2050 from national models (e.g. DTU Climate Centre)
• Model constrains for CHP/DH infrastructure
• Calibration and test of model with comparison to other studies
• Parameters for CHP plants with carbon capture
• Simplified geographical representation of power plants, CO2 pipes and national CO2 storage options
• Connection to CO2 storage in the North Sea
• Harmonisation to other national models within the FENCO-ERANET project “StorageUtsira”
• Implementation of national data for further studies (Risø DTU milestone for 2010)