OPEN-PROM

(Open version of the world energy model PROMETHEUS)

MODEL OVERVIEW

OPEN-PROM is a modular open-source simulation-based integrated assessment model (IAM) that projects energy system developments under varying macroeconomic, technological, and policy scenarios.

OPEN-PROM is composed of a central core and eleven interconnected modules: Power Supply, Heat Supply, Hydrogen Supply, Industry and Domestic Demand, Transport Demand, Rest of energy, Prices, Economy CO_2 Emissions, and Learning curves. This modular architecture means each component can operate as a standalone model or as part of the integrated framework. The core orchestrates these interactions to ensure that the model reaches a coherent solution where energy supply meets demand in every market. Within this framework, variables are calculated based on their values from previous years, adjusted for the evolution of explanatory variables ("drivers") and other exogenous inputs and parameters.

OPEN-PROM can also be coupled with MAgPIE to capture the interaction between energy and land systems. The two models are linked by exchanging biomass demand and prices and run until pre-defined convergence condition is reached.

ACCESS

OPEN-PROM:
https://open-prom.readthedocs.io/en/latest/
GitHub:
https://github.com/e3modelling/OPEN-PROM/
Zenodo:
https://zenodo.org/records/20527802

LICENSE

GNU AGPLv3 adding the "Commons Clause"

OTHER INFORMATION

Time Horizon: 2010-2100

CONTACT DETAILS

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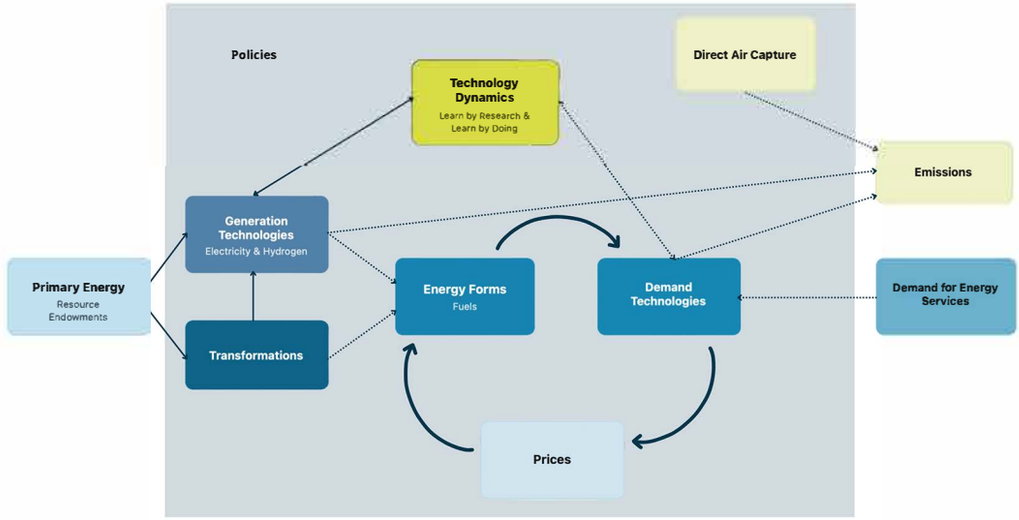


OPEN-PROM model structure

SUPPORTED ANALYSES

- Analysis of climate mitigation pathways and low-emission strategies.
- Evaluation of energy system, economic and emission implications of policy measures.
- Integrated Assessment (including land-use implications) of all greenhouse gas emission reduction strategies across all economic (sub-)sectors.

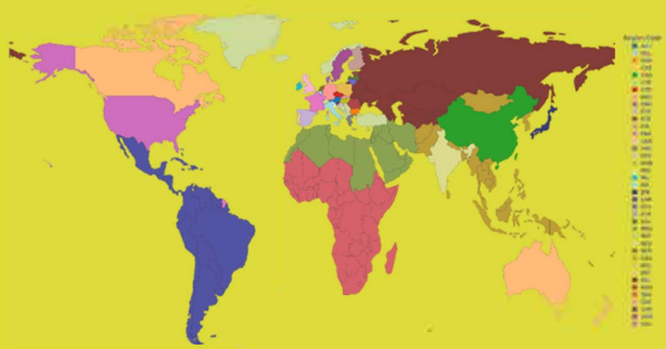
WHAT'S NEW

- Spatial disaggregation of the energy system across regions.
- Enhanced technological and sectoral coverage of energy demand and supply.
- Extended global coverage; Calibration year 2024.
- Extended time horizon.
- Enhanced calibration mechanism.
- Detailed technology options in industrial subsectors and in households.
- CDR technologies (e.g. DAC, enhanced weathering).

SDG COVERAGE

REGION MAP

40 world regions including EU-27



SECTORS