

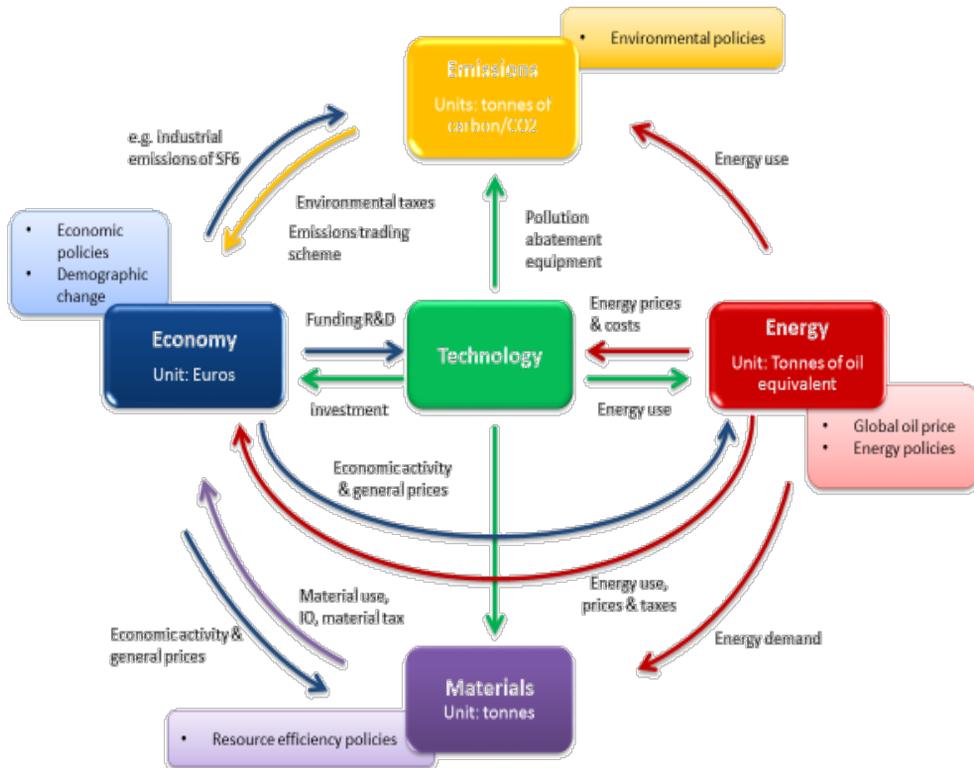


The model



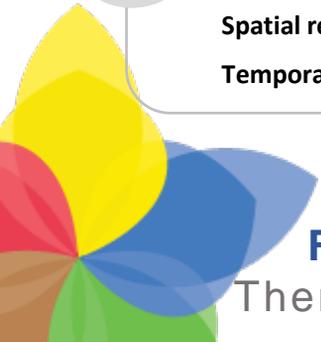
E3ME – global E3 (Energy-Environment-Economy) macro-econometric model – is a computer-based model of the world’s economic and energy systems and the environment. It was originally developed through the European Commission’s research framework programmes and is now widely used in Europe and beyond for **assessment of long-term impacts of climate and energy policy on economic activity and employment**. The current version of E3ME comprises 59 global regions.

E3ME is fully integrated with the FTT (Future Technology Transitions) model of technology diffusion. FTT simulates the uptake rates of new technologies based on evolutionary theory. Currently FTT covers the power and passenger transport sectors.



Spatial and temporal coverage

- Spatial coverage:** Global
- Spatial resolution:** National (covering all EU-28 Member States)
- Temporal scale:** Until 2050 in annual time steps





Nexus coverage

E3ME has been designed from the outset to handle interactions between the economy and the energy system. Its two-way linkages make it well placed to provide a detailed analysis of the macroeconomic impacts of energy policy. A land use module is currently under development, which will allow a better assessment of biofuels, including feedbacks to food prices.

E3ME does not have a detailed module of water demand or supply. However, an interface exists with which E3ME could be linked to another model that can handle these aspects. E3ME can also be linked to climate models.



Inputs

- ★ Energy policy (e.g. energy technology-specific transport and electricity sector regulations, etc.)
- ★ Energy/carbon price/taxes, ETS coverage
- ★ Additional exogenous investment assumptions
- ★ Optional exogenous energy technology scenarios.



Outputs

- ★ GDP and other macroeconomic indicators
- ★ Employment
- ★ Sectoral production
- ★ Energy consumption by source and sector
- ★ GHG emissions from fuel combustion



Recent applications

E3ME is used to assess the impacts of climate and energy policy on economic activity and employment.

★ European Commission (2014). [A policy framework for climate and energy in the period from 2020 to 2030](#). Brussels: European Commission.

★ Mercure, J-F, H Pollitt, U Chewpreecha, P Salas, A M Foley, P B Holden, N R Edwards (2014) 'The dynamics of technology diffusion and the impacts of climate policy instruments in the decarbonisation of the global electricity sector', Energy Policy, Volume 73, pp 686–700, Elsevier.



Further information

E3ME website

Model manual

Contact:

Hector Pollitt

hp@camecon.com

Jean-François Mercure

J.Mercure@science.ru.nl



Radboud University

