

# Modeling Experience Curves in MERGE

Socrates Kypreos

Energy Systems Analysis Group, General Energy Department, Paul Scherrer Institute (PSI), Switzerland  
Corresponding author: <socrates.kypreos@psi.ch>

The National Centre of Competence in Research on Climate aims at exploring the predictability, variability and risk of climate change. PSI is involved in this programme, using Integrated Assessment Models (IAM) to simulate policies for climate change mitigation under uncertainty. We report here selected results of the MERGE-(ETL) model with endogenous technological learning (ETL). The study presents numerical examples concerning the timing of carbon abatement to stabilize carbon concentrations (e.g., at 550 ppmv) as well as cost/benefit analysis. The endogenous learning formulation is contrasted with the original version of the model without ETL. The improved methodology indicates a potential for significant reduction in carbon abatement cost and in economic losses. The method, which is basically in favour of late actions in abatement, assumes implicitly early R&D support and learning investments in carbon-free systems to help them following their learning curves. The endogenous treatment of learning shows significant reductions of carbon emissions already in the baseline case and indicates that low carbon concentrations and improved environmental performance can be obtained when policies are followed that compensate for externalities related to climate change.

Abstract for the International Energy Workshop  
jointly organized by the  
Energy Modeling Forum (EMF), International Energy Agency (IEA) and IIASA.  
24-26 June 2003 at IIASA Conference Center, Laxenburg, Austria