

Endogenous Technological Change in Climate Change Modelling: DEMETER

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The model DEMETER investigates the impact on optimal CO₂ abatement and carbon tax levels of introducing endogenous technological change in a macroeconomic model of climate change. It analyses technological change as a function of cumulative capacity, as incorporated recently in energy-systems models. Calculations with DEMETER confirm that including endogenous innovation implies earlier emission reductions to meet atmospheric carbon concentration constraints. However, the effect is stronger than suggested in the literature. Moreover, the development of non-fossil energy technologies constitutes the most important opportunity for emission reductions. Optimal carbon tax levels, reducing fossil energy use, are lower than usually advocated.