



Cost effective climate protection paths robust under uncertainties about the economic and climate system

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We discuss a stylised portfolio of climate change mitigation options and ask the following question: what is the intertemporally optimal mix of these options under the boundary condition of a climate guardrail and uncertainty about the temperature response to rising carbon dioxide concentrations? We impose a guardrail that requires the increase of global mean temperature T to be limited to 2K with at least a minimum probability P (e.g., $P=0.75$). The uncertainty about the temperature response is captured by a PDF for climate sensitivity and ocean heat uptake. Furthermore we treat learning rates of renewable energy technologies as well as the stock of fossil reserves as poorly known. For economic optimisation, we use an ensemble-version of the growth model MIND [1]. As a key results we show that robust climate protection paths will require aggressive mitigation measures.

References

[1] O. Edenhofer., N. Bauer, E. Kriegler: The Impact of Technological Change on Climate Protection and Welfare: Insights from the Model MIND. *Ecological Economics*, 54 (2-3): 277-292 (2005).