

Publication

The Demand Side in Economic Models of Energy Markets: The Challenge of Representing Consumer Behavior

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Energy models play an increasing role in the ongoing energy transition processes either as tools for forecasting potential developments or for assessments of policy and market design options. In recent years, these models have increased in scope and scale and provide a reasonable representation of the energy supply side, technological aspects and general macroeconomic interactions. However, the representation of the demand side and consumer behavior has remained rather simplistic. The objective of this paper is twofold. First, we review existing large-scale energy model approaches, namely bottom up and top-down models, with respect to their demand-side representation. Second, we identify gaps in existing approaches and draft potential pathways to account for a more detailed demand-side and behavior representation in energy modeling.

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