

# Development of a Dynamic Energy-economic Assessment Model with Multi-regions and Multi-sectors for the Evaluation of the Carbon Emission Reduction Policy

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In order to enable analysis on both industrial structures and energy systems changes up to the middle of this century, we developed a global optimization model DEARS (Dynamic Energy-economic Assessment model with multi-Regions and multi-Sectors) by integrating a top-down economic model and a bottom-up energy technologies assessment model. The model consists of 18 non-energy sectors and 12 kinds of energy technologies, dividing the world into 18 regions. The simulation studies under various kinds of the carbon reduction policies are also described. The obtained computational results reveal the global and regional impacts on industrial structure, energy technologies and energy systems.

**Keywords:**

climate change mitigation, global warming, industrial structure change, economic model, energy model