

Extending the Macroeconomic Impacts Forecasting Capabilities of the National Energy Modeling System

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Decision makers involved in energy policy are facing unprecedented challenges arising from globalization, decarbonization, and the advent of new energy technologies. Energy-economy forecasting models are often used to help inform their decisions regarding the development of critical energy infrastructure development and implementation of new energy technologies. Forecasts generated by these models, however, rarely include detailed estimates of the macroeconomic impacts associated with policy changes. And those that do, lack the transparency required for large scale utilization.

Recognizing the need for a transparent model that was capable of producing comprehensive estimates of the macroeconomic impacts of changes in long-term forecasts the energy-economy, the United States Department of Energy's National Energy Technology Laboratory (NETL) worked with researchers at West Virginia University (WVU)'s Regional Research Institute (RRI) to develop the WVU/NETL econometric input output (ECIO) model. The ECIO model is capable of estimating industry-specific changes to employment, labor income, and gross domestic product associated with departures from a reference forecast of the U.S. energy-economy over a long-term time horizon. This manuscript provides an overview of the methodological foundations of the NETL/WVU ECIO model, its functionality as an extension of integrated energy-economic modeling frameworks, and its role in providing a consistent method for assessing the economic impacts associated with long-term energy forecasts.

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