Impact of Hydrogen Production on U.S. Energy Markets

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A transition toward using hydrogen as a vehicle fuel would have dramatic impacts on U.S. energy and infrastructure markets, with long-term energy security and environmental implications. The focus of this study will be on the competition between different hydrogen production and distribution technologies with respect to hydrogen fuel demand, technology cost, regional mix, and impact on hydrogen feedstock prices. A portfolio of models will be employed, including EEA's Gas Market Data and Forecasting System (GMDFS), the Transitional Alternative Fuel Vehicle Model (TAFVM), the Highway Fuel Consumption Model (HFCM) and PEAR Coal Compliance Options and Competitive Generation Cost models. These models will be used to project demands for hydrogen as a vehicle fuel and impacts on feedstock price and supplies under a variety of alternative technological, regulatory and market scenarios. Brookhaven National Laboratory will use the U.S. Department of Energy's MARKAL model to assess the hydrogen demand and feedstock supply impacts by integrating results of these individual models, including biomass resources and nuclear technologies.

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