Introduction
Workshop on Energy Market Decisionmaking for the New NEM
December 11, 2007
Washington, D.C. 20585

The Energy Information Administration (EIA) completed the original development of the National Energy Modeling System (NEMS), a large-scale model of energy supply, demand, prices and technologies in 1992 and first used it in 1993. Both the Administration and Congress rely on EIA to use NEMS to assess various proposed energy policies and to provide analyses and forecasts directed by statute, including the *Annual Energy Outlook*.[1] NEMS is in the public domain, and is used by DOE program offices, National Laboratories, non-governmental organizations, academic researchers, and others for various energy analysis purposes. While much of the model has evolved substantially over the years, some fundamental aspects of the 15-year old NEMS structure have limitations that threaten EIA's ability: to provide accurate baseline energy projections, to analyze proposed energy policies, and to support studies of energy technology programs by DOE program offices to comply with the Government Performance and Results Act (GPRA).

The potential need to develop a new National Energy Model (NEM) which better serves EIA and its customers resulted in a dialogue with EIA customers of model capabilities and features that should be considered for incorporation within the new model. The DOE Office of Energy Efficiency and Renewable Energy (EERE) and the Office of Fossil Energy (FE) have raised the need to review, as a top priority, how investment decisions are actually made within each energy market, how expectations about the future are formed, and how foresight is actually used in each sector. EERE and FE argue that the theoretically convenient paradigm of perfect foresight, while easy to describe to audiences, is inappropriate for representing how most markets operate.

The purpose of this workshop was to convene a group of experts in a technical workshop at EIA in December 2007. Six short review papers (up to 15 pages per paper) were prepared in advance of the workshop. Additional experts were invited to participate at the workshop itself and the papers were provided to the experts for review 2-4 weeks before the workshop. The prepared papers were used to focus the discussions on how decisionmaking is made in each energy market segment/sector and how each agent in each market forms and uses expectations in its decisionmaking.

Each author was asked to clearly state how investors make choices in their assigned market segment (i.e., what are they key factors considered and how are they combined to make decisions), how the consumers/decisionmakers form their expectations, and how they use those expectations in their decisionmaking. While each writer presented their

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[1] *The Annual Energy Outlook* (AEO) is the U.S premier annual report that presents a 25 year forecast and analysis of U.S. energy supply, demand, and prices. The AEO includes the reference case, additional cases examining energy markets, and complete documentation. For more information see EIA's Web site at: www.eia.doe.gov/oiaf/aeo/index.html.

own perspective, EIA requested that their conclusions be supported by the public literature or other verifiable data. The following six groups of topics were covered:

- the Buildings sector (Residential and Commercial Sectors);
- the transportation sector;
- the industrial sector;
- the electricity generation sector;
- the refinery sector;
- other energy supply and conversion sectors (that is, oil, gas, coal supply and transportation).

The papers provided by the authors, as subsequently revised after the workshop *by the authors* are provided by the links below.

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