

**Abstracts for EIA's Spring 2009 Meeting
with the
ASA Committee on Energy Statistics**

1. EIA's New Biodiesel Survey, Mary Joyce, Office of Coal, Nuclear, Electric and Alternate Fuels (CNEAF), EIA

Biodiesel is a renewable fuel typically made from vegetable oils, animal fats, or recycled grease. It can be used as a substitute for petroleum-derived diesel or distillate fuel. Biodiesel is primarily used as a fuel for onroad vehicles, but it also has several uses in other markets. As the United States endeavors to stimulate and encourage the use of non-petroleum motor fuels, there has been significant growth in the use of biodiesel. Investment in new production plants indicate that this growth is poised to continue over the next several years. This growth will have an impact on petroleum diesel markets, and thus the entire petroleum industry, as well as the transportation energy sector.

Despite accelerated activity, there are, at this time, no sources of comprehensive and statistically reliable data to monitor growth in the biodiesel industry. The Energy Policy Act of 2005 directed EIA to conduct a survey of "renewable fuels demand in the motor fuels market." In 2009, EIA will begin a new survey, the EIA-22M "Monthly Biodiesel Production Survey." This presentation will describe EIA's new biodiesel survey, explain the survey's objectives, identify the survey respondents, and specify the data items being collected. It will also describe data collection and processing methods, and present the proposed schedule for survey implementation and rollout of data products.

2. Economics of Coal Production and Prices, Phillip Tseng and Jason Worrall, Statistics and Methods Group (SMG), EIA

In 2008, spot prices for the Northern Appalachian region exceeded \$140 per ton. That was much higher than long term contract prices and reflected the existence of binding constraints on either the supply side or the transportation networks. Otherwise, coal producers can increase production and sell in the spot market; coal buyers with long term contracts can re-sell the purchased coal in the spot market and profit from the price difference between spot and long term contract prices.

High spot market prices lead to questions of short term supply responses and the economics of long term capacity expansion. Coal provides about 50% of the energy in U.S. electricity production and plays a very important role in supply reliability. In this paper, we will examine production capacity and utilization rates to identify short term production responses to price changes. In the long run, regional capacity expansion will depend on the long term cost of production, which is a function of capital cost, labor productivity, technical progress, and the amount and quality of coal reserves.

We will use the EIA Form-7A, Coal Production and Preparation Report, data to conduct our analysis. We will describe the data base, present historical productivity trends, identify data issues, and discuss some of the dilemmas on the analysis of productivity changes. We will also propose a modeling methodology intended to capture the interactions between prices, productivity changes, and capacity expansion. This methodology will be used to estimate regional cost of production, which can have significant implications on supply availability and transportation net works.

3. Considerations for Using the New American Community Survey as the Benchmark for the Residential Energy Consumption Survey (RECS) and Other EIA Efforts, Eileen O'Brien, Office of Energy Markets and End Use (EMEUE), EIA

When the American Community Survey, conducted by the U.S. Census Bureau, made its full debut in 2005, EIA was in the field with its periodic survey of residential energy consumption (RECS). The 2005 RECS' sample design was already in place and based on updates to Census 2000 counts and listings for selected segments. However, the availability of ACS data for the same reference year meant EIA had a new data source to consider for post-stratification weighting adjustments. Control totals are used to adjust the RECS sample to more precise intercensal estimates for occupied housing units. Specifically, EIA could continue to use housing unit control totals derived from the Current Population Survey or use direct estimates of housing units from the much larger sample survey, the ACS. EIA did choose the ACS, primarily to reduce variances for sample domains. Over time, however, Census and other federal users have issued new guidance about the quality, limitations and appropriate uses of the data. For example, HUD has established that ACS may be overestimating occupied housing units—the basis to which EIA adjusts the RECS data (HUD, 2007). Differences in residency rules that affect whether a housing unit is considered occupied at the time of interview, statistical methods used to estimate occupied housing units, the reference period, and other essential unresolved issues with the ACS design affect its value for RECS and other EIA projects.

This talk discusses advantages of using the ACS data alongside new considerations of differences between the ACS and CPS methods, ACS' compatibility with core RECS concepts, and implications for use in future EIA survey, analysis or forecasting efforts.

Given the inherent features of the two sources of postratification data, ASA committee members will be asked to comment on their likely impact on EIA's estimates of population means and totals, models and forecasts of residential energy consumption, to provide suggestions for future monitoring and analysis of the impact, and recommendations for any intermediate adjustments to uses of the data.

References:

National Research Council (2007). *Using the American Community Survey: Benefits and Challenges*. Panel on the Functionality and Usability of Data from the American Community Survey, Constance F. Citro and Graham Kalton, eds. Committee on National Statistics. Washington, DC.: National Academy Press.

Navarro, A., Saialia, Love, S., Sirkis, R., and Robinson, G. *Family Equalization Project*. Presentation to the Washington Statistical Society, April 23, 2007.

U.S. Department of Housing and Urban Development (2007, September). *Comparison of the American Housing Survey and the American Community Survey*. Washington, DC. Available: http://www.huduser.org/Publications/pdf/comparison_hsg.pdf

U.S. Government Accountability Office (2004, October). *American Community Survey: Key Unresolved Issues*. GAO-05-82 Washington, DC: U.S. Government Printing Office. Available: <http://www.gao.gov/new.items/d0582.pdf>

4. Electricity 2011: The Clearance Process for EIA-Electric Power Division Surveys, Howard Stone, CNEAF, EIA

The Electric Power Division Staff describes the triennial process now underway for the clearance of its surveys of financial and operating performance information from market participants operating within various segments of the electric power industry. EIA is required by the Office of Management and Budget (OMB) to obtain clearance for its surveys every three years. The clearance process provides EIA, with input from industry constituent groups, to consider modifications to its existing survey forms, including possible both deletion and addition of new data items. Depending on the survey, the granularity of the data range from the company level to individual generating plants.

EPD conducts a four step process consisting of (1) determining proposed modifications to its surveys, (2) design of the surveys, (3) internet-based data collection and processing, and (4) analysis and dissemination of monthly and annual products. In undertaking this process, EIA must balance (1) reflect structural changes in electricity markets including new market participants, products and services, (2) modifications that improve the quality of data, (3) maintain the consistency of historical time series data and (4) minimizing the reporting burden respondents.

5. Modeling Uncertainty in Short-Term Energy Price Forecasts, Tyler Hodge, Alex King and Kobi Platt, EMEU, EIA

The recent extreme volatility in energy prices has spurred interest in developing methods for quantifying the uncertainty around the price forecasts in EIA's Short-Term Energy Outlook (STEO). One promising method involves using the implied volatility derived from the premiums of options contracts that are traded in the financial markets. Such forward looking estimates of price volatility are believed to capture the market's pooled expectations of future price fluctuations and relative uncertainty. The traditional means of measuring implied volatility is the Black-Sholes model for pricing options. Some analysts have presented time-series graphs of implied volatility to show how the uncertainty of future prices has changed over time. Others have used current values of implied volatility to report ranges for future energy prices or even

complete probability distributions of prices. Ideally, we hope to use the implied volatility measure to calculate confidence intervals around the futures market price curves, and show how the STEO price forecast relates. Our questions for the ASA members will center on the appropriate assumptions for a probability distribution function along with the appropriate methodology for constructing confidence intervals using the implied volatility measure.

6. Re-Labeling Price Data As Nominal, Jacob Bournazian, SMG, EIA

EIA does not require the word “nominal” to be shown when disseminating price information. The customary practice has been to show the term “nominal” along side the term “real” when both real and nominal price data are shown in the same table or chart. Some program offices within EIA have re-labeled previously released price information as “nominal” without showing real price information. Other offices have expanded the labeling to graphs that show prices but not to the corresponding data tables. The inconsistent manner in labeling price data across EIA’s website may cause confusion among data users when the same data series appear in multiple information products. Feedback will be collected from the committee members on their preference for using the “nominal” label when viewing price information.

7. Liquid Fuels Market Methodology: Summary of Stakeholders’ Issues and Questions, Andy Kydes, Office of Integrated Analysis and Forecasting, EIA

World energy markets have evolved and changed significantly in the past fifteen years. In the transportation sector, demand for fuels is no longer limited to the traditional petroleum based products such as gasoline, distillate, jet fuel, and residual fuel oil. On the supply side, ethanol has made significant penetration in the transportation fuel market, thanks to recent legislation and high crude oil prices. Other technologies such as coal-to-liquids (CTL), gas-to-liquids (GTL), and biomass-to-liquids (BTL) all have the potential to penetrate the market in the next several decades. The Renewable Fuel Standard (RFS) of recent legislation (*EISA2007*) is most likely to favor cellulosic ethanol and BTL technologies while the perceived risk to investors of new Greenhouse Gas (GHG) legislation is likely to discourage investments in CTL and GTL technologies.

The structure of a new model will depend on the questions and issues it is designed to answer, its usefulness will depend on how well the proper questions were identified and future questions anticipated. To maximize the usefulness of the new liquids fuel market model, EIA seeks to develop a prioritized list of issues and questions that the model should be able to address. After the requisite issues and questions have been sufficiently articulated, a subsequent technical meeting will be organized in the late spring or summer of 2009. This meeting will address the model’s technical design aspects, such as the choice of a suitable modeling platform, coverage of fuels, coverage of regions, and modeling methodology to best satisfy the prioritized liquid fuel market issues and questions identified.