

Responding to Energy Data Challenges: Different Horses for Different Courses



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By

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Different Horses for Different Courses

- Demand for national information for policy, economic, and scholarly purposes appears to increase constantly
- Multiple drivers of change increase and diversify that demand; at the same time they generate more alternatives for meeting it
- Creativity in collecting, organizing, and presenting information in this context has become incredibly valuable, engaging *different information solutions based on the different natures of problems*
- Maintaining the statistical rigor long necessary to and characteristic of our work demands innovation in statistical methods and draws heavily on evolving statistical expertise

Federal data needs are driven by potent drivers

Focus: increasing demand from policymakers and industry analysts for information that is more timely and better designed to illuminate their issues

Technology: expanded capabilities to collect and organize information from a variety of sources with greater levels of automation, introducing a variety of methodological challenges

Efficiency: budgetary stresses arising from uncertainty, economic drivers, and expectations of benefits from new technologies

EIA has actively engaged in meeting changing needs

- 2011 budget challenges – adjusting to changing customer demands
- Crude oil movements by rail – using administrative data and modeling
- Weekly petroleum exports – using administrative data to manage balances
- Hourly electricity data – automated near-real-time operational data
- Other EIA efforts – more “different horses”

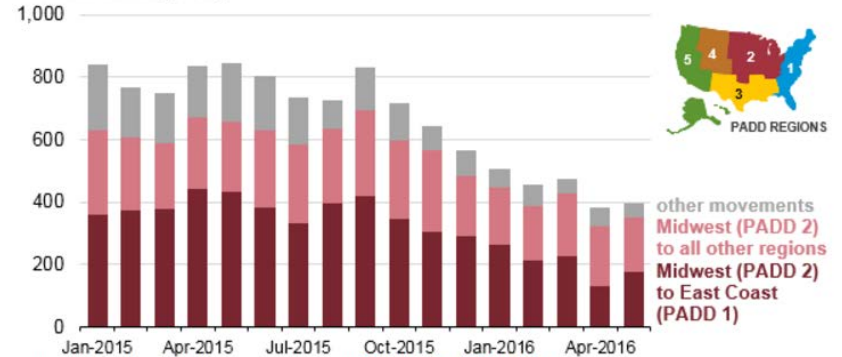
Late 2011 budget cuts drove reassessment of EIA work

- In Fiscal year 2011, EIA faced a 14% budget cut determined in April
- Eliminated efforts that were no longer supported by policymaker and industry interest (e.g., financial results of major energy companies)
- Delayed efforts that could not be funded (e.g., the Commercial Buildings Energy Consumption Survey, international energy statistics)
- Introduced operational efficiency improvements (e.g., shifted customer support from telephone to email-based)
- Made cuts public, invited comments to gauge reactions, and made adjustments as needed

Changing crude production patterns shifted focus to rail

- Increased crude oil production in the upper Midwest has attempted to move to the East, without sufficient pipeline capacity, resulting in material rail movements
- EIA started estimating this movement in March 2015, using the U.S. Surface Transportation Board Carload Waybill Sample
- This estimate provides insight into changing U.S. energy dynamics

Crude oil movements by rail (Jan 2015 - May 2016)
thousand barrels per day



Source: U.S. Energy Information Administration, [Petroleum Supply Monthly](#)

Note: PADD is Petroleum Administration for Defense District. Data shown include all U.S.-only rail movements (inter- and intra-PADD), and exclude movements to and from Canada.

Adding CBP administrative data helped improve a missing component of published weekly petroleum balances

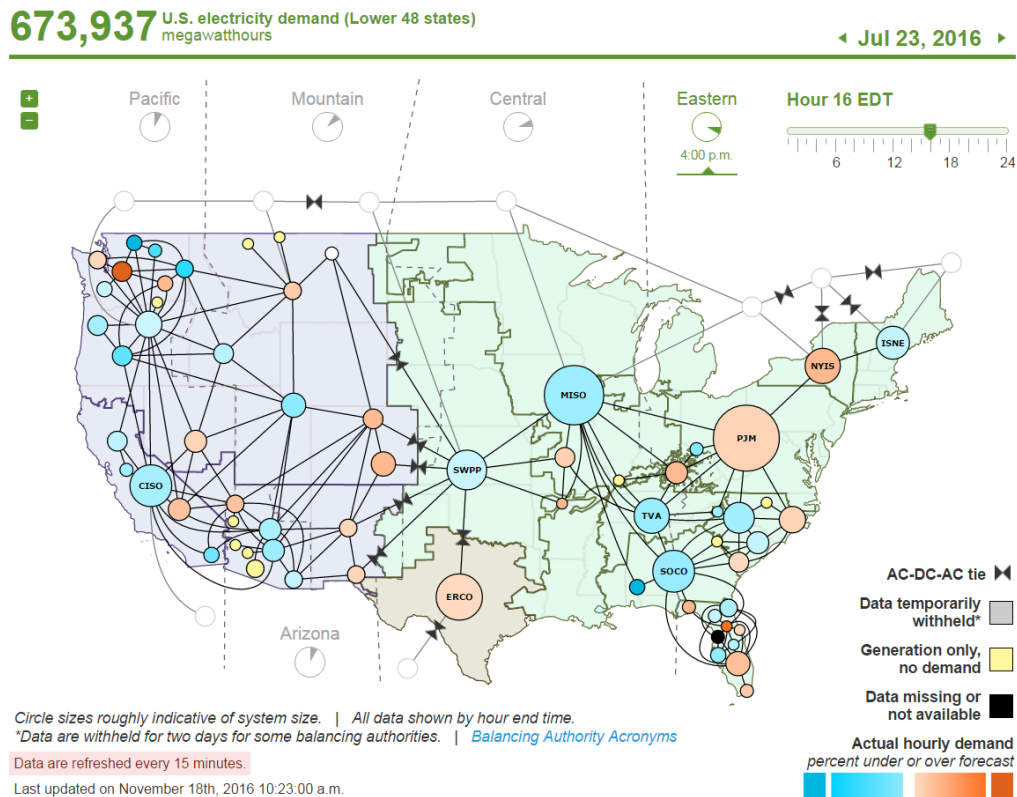
2015 Total Exports of Crude Oil:
Percent Difference from Final Census Bureau



- Prior approaches to estimating weekly petroleum exports could not manage volatility
- Incorporating near-real-time Customs and Border Protection data significantly improved accuracy
- Consumption estimates, closely followed by markets, are calculated as a residual – consequently improved

Emergence of new generation technologies meant rethinking data needs for electricity beyond monthly totals

- Historically, EIA published monthly totals of generation and consumption data collected by surveys
- Now collects operational information hourly, within 2 hours of generation or consumption, and delayed movement
- Crucial for understanding consumption patterns



EIA has driven innovation in other areas

- “Today in Energy” – short daily stories contribute context to data and forecasts and make energy information accessible to more people
- Distributed solar generation – modeled data tracks development of renewable energy at the State level
- Southern California energy report – automated dashboard designed for policymakers during emergency operations after the Aliso Canyon well blowout
- Internet and mail collection for residential consumption survey – managing a mode shift to deal with changing social drivers and vulnerable business model

Meeting the demands on Federal statistics in the future

- Meeting information needs requires extensive use of data sources beyond survey results, often in combination with sample survey data
 - Administrative data
 - Unaudited operational information
 - Information developed by commercial data providers
- Maintaining rigor in the process of bringing together these diverse data sources makes new demands on statisticians and other data experts
 - Modernized information technology management skills
 - Increased statistical skills in interpreting differently organized data from a wider variety of sources

For more information

U.S. Energy Information Administration home page | www.eia.gov

Short-Term Energy Outlook | www.eia.gov/steo

Annual Energy Outlook | www.eia.gov/aeo

International Energy Outlook | www.eia.gov/ieo

Monthly Energy Review | www.eia.gov/mer

Today in Energy | www.eia.gov/todayinenergy