Shaping the Nation’s Energy Future
2017 National Summit on RPS

Katie Jereza, Deputy Assistant Secretary
November 7, 2017
November is…

Critical Infrastructure Security and Resilience Month

ALL Americans

ACCESS

Electricity underpins ALL
Secretary Perry Requested a Grid Study in April 2017

The memo asked staff to examine:

• The evolution of wholesale electricity markets
• Compensation for resilience in wholesale energy and capacity markets
• Premature baseload power plant retirements
Key Definitions

- **Baseload power plants**: defined by their operation
  - High, sustained output levels
  - High capacity factors
  - Limited cycling or ramping
- **Premature retirement**: subjective term

*Figure 1.2. Schematic of Typical Daily Load Curve Showing Base Load*
Retirements: Key drivers

1. Advantaged economics of natural gas-fired generation

2. Low growth in electricity demand

3. Investments in environmental regulations

4. Dispatch of VRE
Reliability: PJM’s perspective

- PJM: determine how different resources can provide ERS
- More work is needed to fully define, value, procure, and compensate ERS
Reliability vs. Resilience

PJM simulation: when 98 reliable portfolios were subjected to a polar vortex event, only 34 were also resilient.
Affordability

- Wholesale-retail disconnect
- Limited work done to-date on the affordability of the BPS as a system or portfolio
Policy recommendations

**Department of Energy**
- Support industry efforts and focus R&D to enhance system resilience (for example, OE awards)
- Accelerate and reduce costs for re/licensing and permitting
- Facilitate programs for workforce development
- Prioritize energy dominance and EO 13783
- Increase coordination of electric and natural gas industries

**Federal Energy Regulatory Commission (FERC)**
- Expedite efforts to reform energy price formation
- Value new(existing essential reliability services

**Environmental Protection Agency (EPA)**
- Allow coal-fired power plants to improve efficiency and reliability without triggering new regulatory approvals and associated costs

**Nuclear Regulatory Commission (NRC)**
- Revisit nuclear safety rules
- Ensure safety without unnecessarily adding costs
Areas for further research

<table>
<thead>
<tr>
<th>Market Structure and Pricing</th>
<th>Reliability and Resilience</th>
<th>Cost and Affordability</th>
<th>Regulatory</th>
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<tbody>
<tr>
<td>Study mechanisms to enable equitable, value-based remuneration for desired grid attributes</td>
<td>Develop policy metrics and tools for evaluating system-wide provision of these attributes</td>
<td>Estimate system-wide costs of different generation mixes and sensitivities to fuel price fluctuations</td>
<td>Explore potential to utilize existing authorities to ensure system reliability and resilience</td>
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<td>Evaluate ongoing capacity market reforms</td>
<td>Examine ways to improve power generator fuel delivery data collection</td>
<td>Update analysis of subsidies and support for electricity production</td>
<td>Explore costs and benefits of states applying cost-of-service regulation to at-risk plants</td>
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Regulatory Reform

• Accelerating transmission development through Integrated Interagency Pre-Application (IIP)

• Improving coordination and oversight with Title 41 of Fixing America’s Surface Transportation Act (FAST-41)

• If you could reform just one regulation, what would it be?
Decision Making Resources for Infrastructure Investments

Example: DSPx
A rigorous approach to support development of grid modernization strategies and implementation plans based on best practices

**Volume I**: Maps Grid Modernization Functionality to Objectives

**Volume II**: Assessment of Grid Technology Maturity

**Volume III**: Implementation Decision Guide

https://doe-dspx.org/
State Objectives Are Fairly Consistent

Leading to grid properties enabling DER utilization – though timing, scale and scope are different

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<th>Objectives</th>
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Evolution of Capabilities

Customer needs and policies drive grid capabilities and corresponding enabling business functionality and technology

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<tr>
<th>Functions</th>
<th>Grid Capabilities</th>
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<tr>
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<td>Reliability, Safety &amp; Operational Efficiency</td>
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More Decision Making Resources for Infrastructure Investments and Regulatory Change
Energy Reliability

Recent studies:

- "Assessing Changes in the Reliability of the U.S. Electric Power System"
- Electric and gas reliability impacts of potential disruption of service from underground natural gas storage facilities
- Tool for estimating value to customers of reliability ("ICE calculator")
Future Electric Utility Regulation Series

A series of reports featuring differing opinions on major current and near-future electricity policy issues that are not settled.

The electric sector in the United States is seeing significant changes resulting in new challenges for regulators that have no easy answers. These reports take a unique point-counterpoint approach to highlight different views on the future of electric utility regulation. Regulators are then better informed to make their decisions.

Completed topics:
1. Electric Industry Structure and Regulatory Responses in a Distributed Energy Resources (DERs) Future
3. Performance-Based Regulation in a High DER Future
4. Distribution System Pricing with Distributed Energy Resources
5. Recovery of Utility Fixed Costs: Utility, Consumer, Environmental and Economist Perspectives
6. The Future of Electricity Resource Planning
7. The Future of Centrally Organized Electricity Markets
8. Regulatory Incentives and Disincentives for Utility Investments in Grid Modernization

Reports can be accessed at https://emp.lbl.gov/projects/feur.

**FINDER Model:** The FINancial impacts of Distributed Energy Resources model quantifies changes in utility costs and revenues with the addition of demand-side and distributed energy resources (DERs)
https://emp.lbl.gov/finder-model

**State-Specific Technical Assistance:** Efforts are tailored to meet the particular needs of individual states or groups of states

**Stakeholder Webinars on analytical papers**

**Panels held at NARUC meetings and similar venues**
Assistance to States through NARUC

- National Association of Regulatory Utility Commissioners
- NARUC uses a combination of reports, webinars, meetings, individual member assistance on state electricity issues

Applying Valuation to Baseload
An Experts Roundtable
A Meeting of the National Council on Electricity Policy
Thursday, January 5, 2017 • Marriott Waterfront Hotel, Baltimore, MD

Roundtable Purpose: Participants will explore how the value of baseload power is incorporated into rates, the impacts of our nation’s changing generation fleet on valuation pricing, and the role that state officials play in addressing these changes.

NARUC Site-Visits at MARC
6/14 The Dakota Gasification Company & 6/15 Coal Creek Station

June 14 & 15th, 2016
Bismarck, North Dakota

Travel support is available for one or both tours, please request a RAFT from Ivy Lyn at ilyn@naruc.org

EISPC
Eastern Interconnection States Planning Council
State Energy System Roadmapping Efforts

NASEO Energy Markets and Planning Pilot Project

- NASEO Energy Markets and Planning Pilot effort takes more holistic approach to addressing changing energy markets, flows, and challenges to deliver greater economic growth, improved environmental quality, and increased energy system resilience

- 3 state pilots: competitively selected; engage public/private energy leaders and other stakeholders; prepare state energy profiles and needs assessments; identify “best practices” (roadmap exercise)

- Develop NASEO toolkit for other states to use in their planning and market/policy designs

NGA Power Sector Modernization Policy Academy

- NGA’s Policy Academy provides a forum to help states undertake efforts to modernize the electric power sector by designing action plans around issues such as fostering grid modernization, resiliency and environmental stewardship

- 4 states: competitively selected; engage state teams of diverse expertise to help better position the state as it seeks to align market incentives with its policy goals for a cleaner, more efficient, and more resilient power sector

- NGA policy academies provide an intensive technical assistance opportunity for selected states which is intended to serve as a catalyst for adoption of best practices in other states.
Energy Zones Mapping Tool

- Web-based EZ Mapping tool looks at 9 clean energy resource for development
  - ~1100 registered users
- Developed by ANL
  - Evaluation of potential transmission facility locations in sensitive areas or resource-constrained areas
  - 368 Corridor Study
- Produces user-customized maps of areas that fit the screening factors and criteria for various electrical power generation technologies
- ANL continues its stakeholder outreach campaign and technical assistance for the EZ Mapping Tool
  - New data layers added as needed/requested (FY14 - national trails, energy-water)
RAPID Toolkit

http://en.openei.org/wiki/RAPID

Permitting Topic

Jurisdiction

Federal & State Agencies
Electricity Underpins All Infrastructures

Looking forward...

Be proactive

Cultivate an ecosystem

Reliable, affordable, resilient energy