

# Future Electric Utility Regulation

## CHALLENGE

Modernizing electric grids in today's environment—with fast-changing technologies, aging infrastructure, and stagnant growth in retail electricity sales—requires utilities to make significant capital investments in the face of increasing risk and uncertainty. State regulators are examining changes to traditional utility regulation to encourage investments in grid upgrades that create consumer value.

In addition to diverse regulatory approaches, market structures vary by state. Some states have competitive retail electricity providers, others have vertically integrated utilities. Utilities themselves are diverse in terms of ownership type, size, cost structure, customer demographics and the physical environment served. With these complexities, regions and individual states need tailored analysis and technical assistance that both quantifies potential impacts of regulatory and ratemaking changes and supports state regulators and utilities in advancing their grid modernization goals.

## APPROACH

The Future Electric Utility Regulation project helps states, utilities and stakeholders three ways:

1. *Improved financial analysis tools* to help states make better-informed decisions as they consider changes to utility regulation and ratemaking.
  - LBNL's FINancial impacts of Distributed Energy Resources (FINDER) model to assess the combined financial effects of an aggressive 10-year ramp-up of energy efficiency and distributed solar on utility costs and returns and customer rates and bills
  - NREL's Integrated Energy System Model to evaluate the impact of several time-of-use rate designs on energy consumption patterns and associated distribution grid impacts
2. *Direct technical assistance* to state utility regulators as they grapple with new technologies and services, assess potential financial impacts on utility shareholders and customers, consider investments in infrastructure to enable consumer engagement, and better align utility incentives with grid modernization goals. Lab financial analysis tools and a technical report, *Multiyear Rate Plans for U.S. Electric Utilities: Design Details and Case Studies of Performance-Based Regulation*, will assist technical assistance efforts in this area.

## At-A-Glance

### PROJECT LEADS

- **Peter Cappers**  
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- **Lori Bird**  
National Renewable Energy Laboratory  
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### PARTNERS

See Advisory Group, next page

### BUDGET

\$3.08 million

### DURATION

April 2016 – December 2019

### TECHNICAL AREA

Institutional Support

Lead: Chuck Goldman  
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3. *An innovative series of reports and public webinars* by industry thought-leaders that provide diverse views on issues facing the power sector to better inform discussions to achieve grid modernization goals, guided by an advisory group of recognized experts. New reports in the series will include:

- *The Future of Centrally-Organized Wholesale Electricity Markets*
- *Regulatory Incentives and Disincentives for Utilities to Invest in Grid Modernization*
- *Value-Added Electricity Products and Services: New Roles for Utilities and Third Parties*



All reports are available at [feur.lbl.gov](http://feur.lbl.gov).

## EXPECTED OUTCOMES

As a result of the project, states will be better able to consider alternative regulatory and ratemaking approaches for utility investments in grid modernization. And the approaches states choose will better tie utility earnings to public policy goals like

value to consumers and economic efficiency. Ultimately, states will provide utilities with guidance and incentives to efficiently deploy capital to achieve grid modernization goals.

### ADVISORY GROUP – FUTURE ELECTRIC UTILITY REGULATION REPORT SERIES

#### State Utility Regulators

Commissioner Lorraine Akiba, Hawaii  
 Commissioner Travis Kavulla, Montana  
 Chair Nancy Lange, Minnesota  
 Commissioner Carla Peterman, California

#### Utilities

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 Tim Duff, Duke Energy  
 Val Jensen, Commonwealth Edison  
 Lori Lybolt, Consolidated Edison  
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#### Academics and Other Experts

Janice Beecher, MSU Institute of Public Utilities  
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 Kris Mayes, Arizona State University College of Law/Utility of the Future Center  
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 Rich Sedano, Regulatory Assistance Project

#### Consumer or Environmental Advocates

Paula Carmody, MD Office of People's Counsel  
 Ralph Cavanagh, NRDC  
 Sonny Popowsky, former consumer advocate (PA)

## LAB TEAM



Launched in November 2014 under the U.S. Department of Energy's Grid Modernization Initiative, the GMLC is a strategic partnership between DOE Headquarters and the national laboratories, bringing together leading experts and resources to collaborate on national grid modernization goals. The GMLC's work is focused in **six technical areas** viewed as essential to modernization efforts:

Devices and Testing | Sensing and Measurements | Systems Operations and Control  
 Design and Planning | Security and Resilience | Institutional Support