

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 reports will assist technical assistance efforts in this area.

At-A-Glance

PROJECT LEADS

- **Peter Cappers**
Lawrence Berkeley National Laboratory
PACappers@lbl.gov
- **Juliana Williams**
National Renewable Energy Laboratory
Juliana.Williams@nrel.gov

PARTNERS

See Advisory Group, next page

BUDGET

\$3.08 million

DURATION

April 2016 – June 2020

TECHNICAL AREA

Institutional Support

Lead: Chuck Goldman
Lawrence Berkeley National Laboratory
CAGoldman@lbl.gov

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.



All reports are available at feur.lbl.gov.

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

Doug Benevento, Xcel Energy
 Tim Duff, Duke Energy
 Val Jensen, Commonwealth Edison
 Lori Lybolt, Consolidated Edison
 Sergej Mahnovski, Edison International

Jay Morrison, NRECA
 Delia Patterson, APPA
 Peter Zschokke, National Grid

Academics and Other Experts

Janice Beecher, MSU Institute of Public Utilities
 Ashley Brown, Harvard Electricity Policy Group
 Steve Corneli, consultant
 Peter Fox-Penner, Boston University Questrom School of Business
 Scott Hempling, attorney

Steve Kihm, Seventhwave
 Kris Mayes, Arizona State University College of Law/Utility of the Future Center
 Karl Rábago, Pace University School of Law
 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)

OUTCOMES

As a result of the project, 13 state regulatory commissions and/or energy offices were provided with direct technical assistance in their grid modernization proceedings or initiatives, while another 20 states attended regional workshops on alternative regulatory and ratemaking approaches for utility investments in grid modernization. The technical assistance and foundational research has helped states better tie

utility earnings to public policy goals like value to consumers and economic efficiency. Ultimately, the project helped states provide utilities with better guidance and improve incentives to efficiently deploy capital for planning and operation of the electric grid that better align with the state's grid modernization goals.

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