

Innovation Awards: Promoting Innovation among Utility Regulatory Policy and Utilities

Award Winners

Organized by the NARUC Task Force on Innovation

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Innovators in Regulatory Policy

New York State Department of Service Staff: Scott Weiner, Warren Myers, Marco Padula, Ted Kelly

State-level Innovation in Regulatory Policy

The nominees lead a successful collaboration among a diverse group of stakeholders that lead to the replacement of net metering with a new innovative methodology to value and compensate distributed energy resources (DER) based upon the value they offer to the grid and society. The new methodology, Value of Distributed Energy Resources (VDER) replaces net metering for solar and the limited number of other technologies that received compensation towards an increasingly more accurate valuation and compensation methodology that will be available for all DER.

Sacramento Municipal Utility District, California: Indirect Evaporative Cooling Systems Program

Municipal-level Innovation in Regulatory Policy

Sacramento Municipal Utility District in California has long recognized the heavy demand that summer air conditioning puts on the grid. Eighty percent of commercial HVAC systems are located on rooftops, leading to startling inefficiencies as outside temperatures rise. However, alternative systems using indirect evaporative cooling showed potential in reducing peak demand. SMUD ran multiple field tests with large commercial customers to evaluate the feasibility of the technology. It found that despite the high initial cost of converting to a different cooling technology, the conversion results in significant energy savings over time, and can reduce peak demand by up to forty percent.

Danny Kermode

Individual Innovator in Regulatory Policy

Danny Kermode, a CPA and regulatory accountant with more than 30 years of experience, recognized the growing gap between technology and regulatory oversight. He is now leading the Washington Utilities and Transportation Commission's initiative to analyze companies' data instantly, using commission designed dashboards and templates. Mr., Kermode has taken an internationally recognized business reporting standard called XBRL (short for eXtensible Business Reporting Language) and adapted it to recognized the UTC's regulatory accounting and operating reporting requirements. The project developed a data-collection standard for all the of the UTC's regulated companies, including water and transportation.

Utility Industry Innovators Utility Industry Innovation by Functions and Values

Puget Sound Energy (PSE) – Energy Upgrades Campaign

Utility Industry Innovation in Customer Care, Engagement, and Empowerment

As part of its 2017 Energy Upgrades Campaign -- a campaign to educate consumers on PSE's energy offerings -- PSE partnered with Nest and Blackhawk Engagement Solutions to pioneer a new validated instant rebate strategy. The Energy Upgrades Campaign proved an innovative alternative to the status quo validation process by creating an online tool that validates customers based on their utility account number and name, and then issues them a coupon code with which to claim their rebate instantly online at Nest.com or in a store. PSE managed the pilot program, leveraged Nest's marketing and customer experience expertise to design the customer journey, and worked with Blackhawk Engagement Solutions to develop and manage the online validation tool.

Demand Energy and Partners

Utility Industry Innovation in Reliability, Resiliency, or Security

The Marcus Garvey Village project is a first-of-its-kind urban microgrid that integrates solar PV, storage, and a fuel cell with Demand Energy's Distributed Energy Network Operating System (DEN.OS) to manage, control and optimize the performance of these distributed energy resources. The system is New York's first-ever solar + storage microgrid in a low income housing development, and the first behind-the-meter (BtM) microgrid deployed under Consolidated Edison's BQDM program. Additionally, it's the first lithium-ion battery system approved for use in a multi-family building in NYC.

These pioneering firsts represent notable technical innovations and effective project execution. What makes the project truly award-worthy is what the Marcus Garvey microgrid does to ensure reliability, resiliency, and energy security for housing complex residents, as well as the sound financial model upon which the project is based, including attractive returns from provision of beneficial grid services.

First Solar, California Independent System Operator, and National Renewable Energy Laboratory

Utility Industry Innovative Pilots or Demonstration Projects

First Solar, California ISO (CAISO) and NREL carried out a groundbreaking test demonstrating that large utility-scale solar photovoltaic resources can be relied upon to provide essential reliability services necessary to enhance grid flexibility and reliability. The services include spinning reserves, load following, voltage support, ramping, and frequency regulation. The tests, which were conducted on a newly built 300MW solar PV plant, showed that the solar plant reacted very quickly and could be regulated very tightly. In fact, the plant is capable of responding to dispatch much more accurately than conventional generation such as thermal or

hydroelectric turbines. The automatic generation control (AGC) test showed regulation accuracy of 87-93% compared to the best accuracy of convention generation of 63%. By unlocking these capabilities, the solar power plants can not only reduce the need of conventional power plants that typically provide these services but also provide higher level of performance.

Utility Industry Innovators Utility Industry Innovation by Sector

SUEZ Smart Water Network

Utility Industry Innovation in Water and Sewer

SUEZ in North America built the largest Smart Water Network in the United States across several BUs (business units) with the mission of reading every meter, every hour, every day. This correlates with the findings that 90% of customers recently surveyed expressed interest in receiving consumption information/alerts and detailed account information online. The wireless network covers nearly 1000 square miles and over 150 towns and cities. At the time of this writing (October 2017), SUEZ has well over 200,000 water meters, LED street lights, leak detectors and quality sensors on the network and seeks to add 100,000 more water meters and additional sensors to enhance network management in 2018 and beyond.

American Electric Power's Breakthough Overhead Line Design (BOLD®) Transmission Technology

Utility Industry Innovation in Electricity

AEP engineers were challenged to develop a transmission solution that is high-capacity, highefficiency, cost-effective, and enhances public acceptance. With this objective, AEP engineers focused on how to creatively reshape the physics of our conventional design to deliver the desired improvements utilizing fewer right-of-way corridors. And to enhance public acceptance during siting, the new design also needed to leave a more appealing visual impression than conventional options offer. The result of this engineering effort is the now patented Breakthrough Overhead Line Design (BOLD) technology. By re-imagining the spatial, geometric and material aspects of line design, AEP was able to leverage physics to produce a transformative improvement in electric performance to previously unachieved levels for an Extra-High Voltage (EHV) line between 115-kV and 500-kV voltage classes. BOLD's compact "delta" configuration along with the expanded bundle design (conductor diameter, size, and number of sub-conductors) are optimized for maximum performance.

Gas Demand Response REV Demonstration Project

Utility Industry Innovation in Gas

The natural gas demand response pilot program from National Grid breaks new ground in the energy industry by extending the benefits of flexibility management beyond the electricity grid

to the commercial natural gas market. The innovative three-year program, the first of its kind for National Grid in the United States and one of the first in the gas sector to go beyond thermostatcontrolled programs, brings internet-age data analytics and networking capabilities to gas equipment.. Using AutoGrid flexibility management software, National Grid can transform existing gas-fueled machinery outfitted with direct-load-control electrical controllers into modern, two-way devices that can receive automated on-off signals from a remote software platform, as well as send data on status and consumption for monitoring, prediction, optimization, and control. With this capability, National Grid can balance gas supply and demand more efficiently and effectively by turning gas-fired equipment into flexible resources that can be easily ramped up or down in real time and at scale.

OneWeb's Small Satellites

Utility Industry Innovation in Telecommunications

OneWeb was founded to make access possible and affordable for everyone. Our vision is to make possible connecting the unconnected schools of the world by 2022 and to bridge the digital divide by 2027, making broadband Internet access available and affordable for everyone. OneWeb is a global communications company; we will partner with Mobile Network Operators (MNOs), Internet Service Providers (ISPs), Cable Operators, Service Partners, and others to provide coverage beyond the reach of existing terrestrial networks, all over the world. OneWeb will begin launching its 900 satellites in 2018 and continue ramping-up until the progressive launch of service in 2019-2020.