

The Digital and Distributed Grid

By **LISA WOOD**

The Institute for Electric Innovation (IEI) held its first National Dialogue Series meeting in July on the digital and distributed grid, how the growth in distributed energy resources (DERs) is changing the role of the energy grid, and the future. Two dozen electric and technology company executives discussed the challenges and opportunities electric companies face as they take advantage of new technology and digitize the energy grid to better serve their customers.

As more and more customers install private solar on their rooftops, purchase EVs, and connect energy storage systems and other devices to the grid, electric companies are investing in software and analytics aimed at greater visibility into the distribution system and seamless DER integration. The digital grid is the platform for enabling and providing new energy products and services. Electric companies play a key role as grid managers, optimizers, resource enablers, and integrators in this transition.

The IEI dialogue yielded 10 key takeaways and some questions for the future.

Key Takeaways

- *This is an evolution.* Grid digitization is not a one-off technology project, but an iterative transformation.
- *Collaboration is critical.* Electric and technology companies are increasingly collaborating, and it is effective for them to jointly talk with regulators.

- *Electric companies need regulatory flexibility to respond to the rapidly changing technology landscape.* This will enable them to modernize and digitize the grid and to work with technology companies to create new service arrangements.
- *Articulating a clear vision to regulators is a top priority.* When seeking cost recovery for grid and technology investments, electric companies must make clear to regulators how these investments benefit customers and deliver value.
- *Deliver the value proposition.* Electric companies must better communicate the digital transformation story by focusing on the value and benefits of the energy grid.
- *Properly designed retail electric rates will incent the efficient location of resources.* Accurate price signals are an effective mechanism in siting customer-owned DERs where they are needed most on the grid.
- *Properly designed retail electric rates will incent optimized DER response.* Accurate price signals are an effective mechanism for utilizing all DERs efficiently.
- *Electric companies require visibility into the grid edge.* With 360-degree visibility, all resources can be better managed to deliver greater value to both customers and the grid.
- *Planning for a future of exponential DER growth is critical.* Electric and technology companies are preparing for a hybrid grid where customer load is a significant resource.

- *Data need to be actionable.* Investing in processes to verify and validate data is essential, as is leveraging data to create real value for customers and the grid. Each electric company's digital grid transformation will follow a certain path. Two keys to a successful transformation are clearly articulating to regulators why technology and software investments make sense for today's customers and for the energy grid, and collaborating with technology partners. **EP**

Questions for the Future

- What is the digital grid transformation story and how do we tell it?
- How do we incent investments in DERs at specific locations?
- How are electric companies extracting value and intelligence from data?
- How must ratemaking change to allow for increased experimentation?



LISA WOOD is executive director of the Institute for Electric Innovation and vice president of The Edison Foundation.

The Institute for Electric Innovation focuses on advancing the adoption and application of new technologies that will strengthen and transform the energy grid. The Institute's members are investor-owned electric companies that represent about 70 percent of the U.S. electric power industry and are committed to an affordable, reliable, secure, and clean energy future.



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