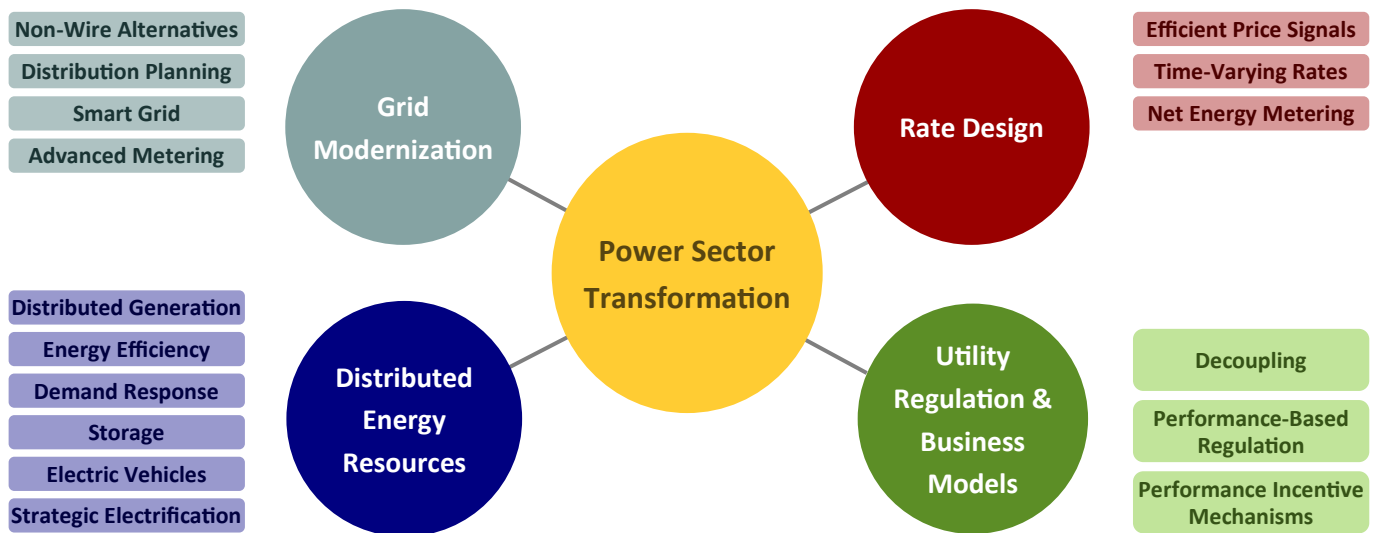


The Grid of the Future: Now Unfolding



Power Sector Transformation

The past few years have seen an explosion of activities related to power sector transformation, the concept that electric utilities should evolve to meet changing electric system conditions. These include emerging technologies, increasing expectations from customers, and expanding opportunities for third-party actors and markets to assist in the delivery of electricity services.

While these concepts are all framed as related to the “utility of the future,” they are very much relevant today. Regulatory policies and utility decisions implemented today can have far-reaching implications for whether and how utilities evolve over time to meet the demands and expectations of the future.

These ongoing activities and emerging concepts should be of interest to a wide range of stakeholders: utilities, commissioners, commission staff, consumer advocates, state energy offices, environmental advocates, clean technology developers, third-party product vendors, and more. The decisions made regarding these issues will have important implications for all who are affected by the electricity industry.

An Inter-Related Web of Topics

Power sector transformation encompasses a wide range of inter-related topics. When addressing any one of these topics it is important to recognize how it relates to other topics, and how it fits in with the overall vision of the power sector’s transformation.

Distributed Energy Resources. Declining costs and increasing customer demand are pushing forward a variety of technologies for customers to optimize their consumption and reduce their costs.

Grid Modernization. Regulators and utilities are recognizing the need to proactively plan for emerging technologies, enable customers to optimize their consumption, and promote innovative approaches for providing electricity services.

Regulatory and Utility Business Models. As the electricity industry evolves, regulatory and utility business models must also evolve to ensure that utilities have proper incentives and are able to thrive financially from the new electricity services being offered.

Rate Design. Regulators and utilities are evaluating a range of options for improving utility financial incentives,

maintaining customer equity, and providing efficient price signals to customers. If done well, new rate designs can help to expand the development of distributed energy resources. If not, they can be a substantial obstacle.

Driving Forces

In some states, these issues are high-priority because legislatures and regulators have explicitly directed utilities and other stakeholders to proactively consider ways to transform the electricity industry. In other states, these issues arise because utilities are proposing new ratemaking mechanisms or new types of rate designs that have important implications for distributed energy resources and customers' ability to control their consumption patterns. Either way, all states should be attuned to the important policy developments that are defining the future of this industry.

How We Can Help

Synapse offers our clients technical, analytical, and policy support on all of the inter-related power sector transformation topics. We offer both breadth and depth

of expertise to help clients participate effectively in planning, regulatory, litigated cases, and other forums for public involvement and decision-making.

Synapse works on power sector transformation issues for a wide variety of clients, including: utility commissions, consumer advocates, environmental advocates, clean energy technology developers, and more. This allows us to approach these inter-related issues from a broad perspective with the overarching goal of seeking solutions that are in the public interest over the long term.

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Sample Reports and Testimony

Samples of our recent work, listed below, are available at www.synapse-energy.com.

- [Distributed Solar in the District of Columbia Policy Options, Potential, Value of Solar, and Cost-Shifting](#)
- [Show Me the Numbers: A Framework for Balanced Distribute Solar Policies](#)
- [Performance-Based Regulation In A High Distributed Energy Resources Future](#)
- [Caught in a Fix: the Problems with Fixed Charges for Electricity](#)
- [Benefit-Cost Analysis for Distributed Energy Resources: A Framework for Accounting for All Relevant Costs and Benefits](#)
- [Utility Performance Incentive Mechanisms: A Handbook for Regulators](#)
- [Direct Testimony of Tim Woolf and Melissa Whited, Rate Design for National Grid in Massachusetts](#)
- [Grid Modernization in New Hampshire](#)
- [Massachusetts Electric Grid Modernization Stakeholder Working Group Process](#)
- [A Plug for Effective EV Rates](#)
- [Value of Distributed Solar in Maine](#)
- [Direct Testimony of Tommy Vitolo PhD Regarding Duke Energy Carolinas NEM Methodology](#)

Synapse is a research and consulting firm specializing in energy, economic, and environmental topics. Since its inception in 1996, Synapse has grown to become a leader in providing rigorous analysis of the electric power sector for public interest and governmental clients. We analyze electric-sector planning, regulation, and policies in states, regions, and market structures across the nation. For information on power sector transformation issues, contact:

Tim Woolf | twoolf@synapse-energy.com
Melissa Whited | mwhited@synapse-energy.com
Asa Hopkins | ahopkins@synapse-energy.com

485 Massachusetts Avenue, Suite 2, Cambridge, MA 02139