Planning for the Future of the Electric Power Sector through Regional Collaboratives

As it undergoes rapid evolutionary change, the electric power sector has become highly fragmented and complex, with divided responsibilities, lopsided investments, and insufficient coordination to set goals and meet them. The use of regional collaborative governance structures might reimagine the goals and governance of the sector.

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I. The Electric Power Sector Is in a Precarious State

The electric power sector in the United States is in the midst of rapid and significant change. A generation of technological, market and policy developments has created numerous opportunities and exciting changes, yet at the same time, the U.S. power grid is troubled by transmission congestion and the complexity of integration of intermittent renewable energy resources. The electric power sector is beset by competing goals and policies, but lacks any system for prioritization or resolution of competing objectives.

There are a great many causes that have contributed to this state of affairs.

- ***Deregulation and market restructuring:*** The type of integrated, holistic planning that was once the purview of utilities that enjoyed monopoly status is no longer. The result has been a mismatch between generation (which has seen innovation, falling

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costs, and vastly expanded capacity), and transmission and distribution (which lags behind in capacity, innovation, efficiency, and cost reductions). Meanwhile, system operators struggle to keep increasingly complex regional systems functioning efficiently and reliably.

- ***Distributed generation (DG):*** The falling cost and rising use of solar power allow DG customers to use less power supplied by utilities, while benefitting from net metering. While these customers see DG as an opportunity to be less reliant on utilities and clean power, the utility industry sees its entire business model threatened by distributed solar power (Edison Foundation, 2013).
- ***Intermittent generation:*** The rapid growth of renewable energy use – especially wind power – has led to growing concerns about integrating intermittent resources into the grid. Utilities and regional transmission organizations (RTOs) have addressed this problem via curtailment of renewable energy (which is often given priority over fossil fuel generation), facilitating sales of renewable energy at negative wholesale prices, and seeking to establish ''imbalance'' markets, but the problem is expected to worsen and become more complex to manage.
- ***Carbon constraints:*** The electric power sector is changing due to concerns about climate change. At the national level, tax incentives (the investment tax credit and production tax credit) have promoted the use of renewable energy, while proposed EPA rules on fossil fuel power generation are expected to diminish the use of coal. At the state and regional level, tax incentives, rebates, and renewable portfolios standards (RPS), along with efforts such as California's cap-and-trade program, and the Northeast states' Regional Greenhouse Gas Initiative (RGGI) seek to curb CO_2 emissions.

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For regulated utilities, which have been at the center of this system for more than a century, these new technologies and policies are changing the economics of the system, even while existing regulation creates economic disincentives to adopting new energy technologies or business models. While utilities are starting to propose new rate structures, calls for change to utility roles go much further than this. Proposals include unbundling utility assets, creating new business models to sell value-added services (efficiency, cost-savings), and even dismantling existing utilities.

This litany of changes has occurred in a parallel, but not coordinated, manner. At the same time technology and markets have evolved, policy changes have expanded the goals of the system from growth and low prices to reliability, national security and sustainability. The result is that the system is highly fragmented, with divided responsibilities, lopsided investments, and insufficient coordination to set goals and meet them. The emerging electric power system is trapped in the older business models and governing structures without a clear path forward

In light of the challenges facing the electric power sector, we review the goals to be sought in the industry, alongside theoretical and practical alternative models for renewed goal setting and prioritization in the industry. We find that theoretical models of collaborative governance and existing regional organizations that operate in the electric power sector provide strong support for a governance change in the industry. Based this analysis, we make policy recommendations for a path forward.

II. The Goals to Be Achieved Are Continually Evolving

The market for electric power began to develop in the early 20th century, and in this era, policy

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