



New Role for Utilities Leads to Business Opportunities

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Much has been written and generalized about the changing nature of the electric utility industry and its business model.

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the industry already has several business models, adapted from the need for utilities to satisfy federal and state laws and regulatory policy. Companies in the “utility” industry, broadly defined, include those providing generation, be it centrally located or distributed, demand-response and energy efficiency services, or transmission, distribution, and billing services. Efficiency improvements and associated cost savings available through adoption of technology and changes in energy-use profiles at customer sites and operational efficiencies at the transmission and distribution level with technology upgrades, sensors and controls, and digitalizing the grid all contribute to the dialogue surrounding the utility business model and the need to reconsider it.

Generalizing about the impact of technological innovation and disruption on the utility business model poses different challenges and opportunities.

Utilities can own generation and transmission and distribution assets and serve wholesale or end-use customers. These assets can be investor-owned, publicly owned, or an established regional cooperative. Utilities are regulated in some form at the state and federal levels, and in some areas most utility projects require local government approval. Utility companies can be vertically integrated owning generation and transmission and distribution assets or own one or the other and sell to end-use customers or into wholesale electricity

markets. Some companies in the industry are engaged in all or some aspects of providing electricity and related services.

The industry is not homogeneous, and as a result, generalizing about the impact of technological innovation and disruption on the utility business model poses different challenges and opportunities to utilities.

CHALLENGE

Business models defining the organizational structure and operational characteristics of an organization change over time as internal influences, including changes in ownership and management are made. External forces, be they economic, social, legal, or regulatory, cause an organization to rethink its place in the market and the organization's value proposition the why and how the organization creates and delivers value to customers, employees, and owners. The business model is constructed around a company's strategy and is executed through its people, business and operational processes, and use of technology.

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The challenge is one of determining what business the utility is in or wants to be in and how it intends to create value. The industry "value chain" or "process map" defining the various sub-businesses or steps in the process of creating and delivering value in the form of goods or services to customers, financial returns to owners, and satisfaction in the form of compensation and culture to employees, must be validated as change is forced upon the utility. In short, the business's purpose, strategies, policies, organizational structure, processes, culture, and assets are all at play when considering the opportunities available through innovation and disruption.

Over the past decade, utilities have placed bets on the future of the industry given projections of technology diffusion, economic climate and regulatory initiatives, and needs and wants

of stakeholders. Some utilities were closing or selling coal generation assets, betting the market would collapse, while others were buying coal for pennies on the dollar expecting to turn a profit until the plant retired. Utilities diversified into the energy services and distributed energy business (solar, storage, wind, demand response, and other fields) as "second-movers" once the market for these technologies and services matured, only to find that these utilities couldn't compete with "first-movers." Unregulated utility subsidiaries are being created to develop microgrids in regulated utility service areas and selling electricity as a commodity to regulated distribution utility customers.

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And the challenges and opportunities for new utility business models and revenue streams abound.

BUSINESS MODELS AND NEW REVENUE OPPORTUNITIES

Business model design is the framework through which an organization executes its business strategy.

New revenue opportunities can be achieved through regulatory fiat without changing the business model.

The business model reflects the logic of the strategy; the networked infrastructure; and the interdependency of assets, processes, capabilities, and functions for delivering value to market participants with whom it is engaged. New revenue opportunities tied to new business models require significant investment and organizational realignment tied to strategy. These opportunities can be achieved through regulatory fiat without changing the business model. They can be improving oper-

ational efficiencies through which a utility shares in the cost take-out, selling customer usage data, leasing fiber telecommunications infrastructure to others for private or public use, or providing technology attachments to utility poles for third parties.

Venturing into new revenue opportunities does not by itself require a change to the utility business model.

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New revenue opportunities within the existing business model might require some minimal investment, internal realignment of business processes, and regulatory approval. However, these opportunities might not require the wholesale change required when developing a new business. Such change requires large amounts of capital and new organizational structure aligned around the new strategy and business opportunity. Much of the literature on the subject makes no distinction between organizing for new revenue opportunities internally and organizing for new business opportunities externally.

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Establishing and enabling distribution utilities to act as distributed system platform providers is not a far stretch from what utilities do today, operating and maintaining reliability of the grid. Such a move might require some internal reorganization to manage operations and change the way utilities price their services depending on the number and amount of distributed energy resources (regardless of ownership) connected to the distribution system. On a continuum, the more and larger percentage of load met with localized distributed energy resources requiring operator visibility and

control, the greater the organizational change required to deliver on a utility's core mission and strategy. With smaller numbers and amounts of interconnected local resources, less organizational change is required.

Having utilities serve as the system platform for many interconnected resources and devices would require significant investment by the utility in communications technology, sensors and controls, asset and enterprise management, and perhaps even new customer information systems. Requiring utilities to manage both electricity supply and demand (end-use load) necessitates more sophisticated planning and operations platforms. Movement toward this role for utilities requires rethinking the business model across the value chain of how it is organized, operates, and delivers value to stakeholders.

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Making this change also requires rethinking the manner in which investments and costs are recovered. The traditional cost-of-service paradigm would need to change, perhaps with a hybrid of sorts. In this, utilities would recover replacement equipment investments necessary to support the backbone of the system for all users through rate-base cost-of-service recovery and through new investments in technology and operations platforms. These improvements would be recovered on a transactional basis, or possibly by using blockchain.

ROLE OF UTILITIES TO BE REDEFINED

How the twenty-first-century utility is defined will dictate whether the traditional utility business model needs to change, or alternatively, whether utilities are simply allowed to generate additional revenue through new service offerings. The new definition of the utility will also define the extent to which the regulatory paradigm needs to change to adapt enabling regulation to continue protecting customers from the perceived vagaries of the market while ensuring that cost of service remains just and reasonable. 