UTILITY BUSINESS MODEL PRIMER

Electric distribution utilities are grappling with challenges to their traditional business models. A revolution is under way, driven by reduced cost and increased availability of distributed energy resources (DER), that is causing a shift away from the historic model of one-way power flow from centralized generators to end customer loads and toward a 21st-century electric grid that integrates clean DER and active participation by electricity customers. This shift presents challenges for the traditional utility business model, which relies on load growth to be able to make investments in transmission and distribution (T&D) infrastructure while keeping electricity costs affordable for ratepayers.

New York's Reforming the Energy Vision (REV) initiative is catalyzing a shift away from the traditional utility model to innovative business models that are compatible with a clean, affordable, more resilient, and more distributed energy future. The increased prevalence of DER, along with enhanced customer knowledge, creates opportunities for new markets that leverage customer-sited resources for improved system efficiency with greater resource diversity. Climate change requires clean, distributed energy to reduce emissions and provide greater system resilience. And as increased DER penetration leads to lower volumetric sales for utilities, T&D utilities need to reduce capital investments and diversify revenue streams in order to remain profitable while maintaining affordable electricity costs for ratepayers.

The REV Connect platform enables market solution providers to put innovative ideas directly in front of relevant utility stakeholders to demonstrate effective models and accelerate the pace of change. To be able to successfully develop and implement innovative business models with New York utilities, suppliers of products and services (market players) must understand both the traditional utility business model and the opportunities for innovation under REV. This primer describes the traditional business model, highlights key factors that differentiate innovative models for REV, and provides guidance on how to design effective ideas to submit to utilities through REV Connect.

Traditional Utility Business Model

Under the traditional utility business model, the structure of the market is largely driven by the fact that T&D utilities receive a guaranteed monopoly in exchange for a significant degree of regulation in order to keep costs affordable for ratepayers. Investor-owned utilities recover costs for capital investments in T&D infrastructure with highly predictable financial returns, but these investments must first be approved by regulators, who seek to ensure that ratepayers receive highly reliable electricity at an affordable cost. T&D utilities recover costs through energy, demand, and fixed charges to customers based upon their revenue requirement and expected electricity sales. A typical simplified formula for determining the revenue requirement is as follows:

$$RR = O + D + T + r*B$$

where RR = revenue requirement, O = operating expenses, D = depreciation, T = Taxes, r = allowed rate of return, and B = rate base (or regulatory asset base). This approach tends to yield steady, highly predictable returns from utilities for low-risk investments.

There are several important factors to consider for the utility business model in New York State. First, New York is a "de-regulated" market. In the 1990s, New York – along with many other US states – implemented de-regulation, which separated generation utilities from T&D utilities. The objective was to create competitive generation markets to keep energy costs low, while maintaining highly regulated T&D utilities with guaranteed monopolies. New York also has implemented revenue decoupling, which separates utilities' revenue from volumetric electricity sales. The intention is to avoid utilities being incentivized to sell more electricity in order to make greater returns. Instead, utilities are encouraged to implement energy efficiency and demand-side management (EE/DSM) programs that help customers to reduce their electricity consumption. More recently, New York launched the REV regulatory docket to restructure the state's regulatory model for T&D utilities.

New Business Models Under REV

A central focus of REV is to transition T&D utilities from simply being asset owners that distribute electricity to customers toward being distributed system platforms (DSPs), with functions that combine system planning and grid operations with enabling markets that support active participation from DER.

Another core focus is on market-based solutions that can be implemented without relying on ratepayer funding. Such solutions can enable utilities to diversify their revenue to become less dependent upon the rate base for profitability. These solutions further enable utilities to be more innovative and adaptive, deploying solutions quickly without necessitating a lengthy regulatory approval process.

To facilitate the implementation of REV, the New York Public Service Commission (PSC) is advancing a new regulatory model that incentivizes utilities to take actions to achieve REV objectives by better aligning utility shareholders' financial interests with customers' interests. The REV Track Two Order builds on the way that conventional rates are set—based on the cost of service—and adds a combination of market-based and outcome-based earnings opportunities for utilities. These new earnings mechanisms reward novel approaches of supplying energy and providing services to customers, and include:

- **Shared Savings Approaches** – REV seeks to attract DER to meet system needs at lower costs than capital spending on conventional solutions. This cost difference provides a shared savings opportunity for customers and utilities, which can also earn on a return on the DER investment. Non-wires alternatives (NWAs) are the best-known example of this type of earning opportunity. With NWAs, utilities can show the efficiency of procuring DER to meet system needs by comparing DER costs to the cost of conventional infrastructure. The PSC specifically encourages utilities to bring forward shared savings/benefits approaches to compensation as an alternative or complement to traditional cost recovery or rate-base approaches.
- **Platform Service Revenue (PSR)** – PSRs are utility earnings tied to selling products and services that facilitate the operation of DSP markets, shared revenue opportunities, and options for customers to pay a fee for value-added services such as advanced data analytics. As a DSP, the utility may earn PSRs by providing new services, with pricing and revenue sharing approved by the PSC.
- **Earning Adjustment Mechanism (EAM)** – EAMs are incremental performance incentives that utilities, as a DSP, can earn for achieving REV objectives. Each utility is negotiating the performance areas, metrics and targets, and incentive levels with the PSC. EAM opportunity areas include system efficiency and peak reduction, energy efficiency, improved DG interconnection, improved customer engagement, and reduced greenhouse gas emissions.

The purpose of REV Connect is to accelerate business model innovation in NY in alignment with REV objectives by facilitating partnerships between utilities and market players. While the traditional business model will still be central in the near-term, REV Connect provides an opportunity to demonstrate ideas that can scale and help to transform the utility business model. Those who are successful will position themselves to lead the charge as new markets develop.

Bridging the Gap

Industry incumbents and new market entrants alike may face challenges with business model innovation under the REV paradigm. Those who are most familiar with the traditional model have it embedded in their existing business models and rely on their understanding of it to engage with utilities. Those who are less familiar with the traditional model have less inertia with it, but may lack full understanding of utilities' perspectives, which is important for communicating the value of alternative models.

The traditional model described above understandably shapes utilities' mindsets. Investor-owned utilities are highly focused on maintaining reliability and keeping rates affordable while generating reasonable, predictable returns for shareholders. Thus, the traditional model is wary of risk. Further, innovation tends

to be slow, in part due to long timeframes for deploying projects requiring regulatory approval.

By understanding both the traditional model and new opportunities under REV, market players can position themselves to design and communicate a more compelling value proposition for utilities. By utilizing different business models and leveraging REV financial mechanisms, market players can help utilities to improve financial returns while reducing costs to ratepayers and delivering solutions that customers value.

A few key considerations can help market partners to offer more compelling solutions to utilities:

- **Monetization** – In many cases, grid solutions produce benefits that are not readily monetized. This is particularly true for distribution-sited and customer-sited resources where there is no explicit market price as there is with wholesale markets. In the absence of these markets, placing a monetary value on benefits such as reliability and resiliency through bilateral or multilateral agreements can improve the allocation of costs and benefits between the customer, utility, and market partner. Additionally, there are opportunities to create more value with a solution relative to the status quo, where unclaimed value is often left on the table. For example, AMI network data or bandwidth could potentially be utilized by third parties to generate additional revenue.
- **Partnership Structure** – Elements of shared risk and reward can offer value for both utilities and market partners. By both having "skin in the game," each can benefit. With this approach, utilities can diminish their risk to make the investment more palatable, while potentially devoting more resources to the solution to increase the reward, which in turn creates more reward for the market partner. Many market players seek utility partners to be able to improve their acquisition of the utilities' customers, so shared rewards can incentivize utilities to deliver on this role. Furthermore, such partnerships may be more readily scaled with fewer regulatory barriers.
- **Value Proposition** – Market partners, utilities, and customers can all share in the value created by making clean, distributed energy solutions more accessible. Solutions may address an unmet need, helping customers reduce costs or risks, or otherwise enable utilities to offer a significantly better value to their customers. However, there may be a tendency of market players who traditionally sell to either utilities or customers to only clearly communicate the value to one or other. A clear statement and quantitative substantiation of the benefits to each party in the transaction is critical to demonstrate the viability of a proposed solution.

Generating Innovative Partnership and Business Models

Figure 1 summarizes some of the key components of a business model and some opportunities for differentiation relative to traditional models. Shifting away from traditional rate-based investments in T&D infrastructure (i.e., wires) invites opportunities for NWAs, DERs, services, and integrated offerings that make clean energy solutions more accessible to customers. These solutions can offer monetizable value through avoided costs in traditional infrastructure, better meeting customer needs, sharing of costs between the utility and participating customers for mutually beneficial solutions, and generation of utility performance incentives (EAMs) and PSRs. Partnership models can extend beyond the conventional vendor sale of equipment or services to the utility by sharing risks and rewards, for example via revenue sharing and/or performance-based fees. Finally, these partnerships will be structured to drive value for utility customers and actively engage them for the benefit of the customer and the grid. Solutions can be made more accessible to customers by facilitating more efficient and lower cost customer acquisition, providing value-added services, generating greater savings, and leveraging customer-sited resources to engage customers as energy prosumers.

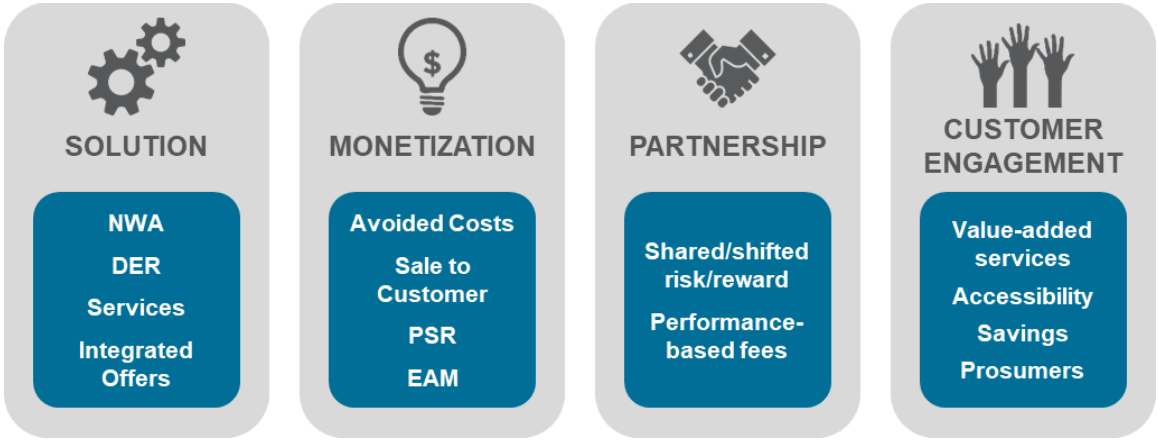

Figure 1. Business Model Components

Recent REV Demonstrations and other projects in New York State have begun to demonstrate these business model concepts. Some notable examples include:

- **DSP Demo** – National Grid's REV Demonstration project at Buffalo Niagara Medical Center is creating a distribution-level marketplace for energy that leverages customer-owned DERs to address system needs and incorporates the locational value of resources.
- **Brooklyn Queens Demand Management (BQDM)** – Con Edison was able to defer a $1.2 billion substation upgrade through procurement of demand response from DERs. Utilities across the state have deployed a variety of NWAs through similar approaches.
- **Marketplaces** – Utilities across the state have implemented online marketplaces that provide customers with easy access to a selection of devices and services to save energy and money, while supporting achievement of energy efficiency targets and generating PSRs through transaction and referral fees.

Market partners looking to engage New York utilities in the context of REV, including through REV Connect, can draw from these insights and examples to offer compelling solutions – which focus not just on novel technologies, but on maximizing and monetizing the value of available technologies. Proposing partnership structures that incorporate greater risk for the partner can also provide greater returns for both the partner and the utility. Effectively communicating and evincing the value proposition for all stakeholders will help in engaging utilities. One place to start is REV Connect, where a team of real people are helping innovative companies to shape ideas and connect with New York utilities.

Together, market players and utilities can accelerate innovation through new business models that deliver win-win-win scenarios. What is your idea to make this happen?