



Bringing the customer to the market: A new utility business model



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ABSTRACT

This article outlines principles that govern a new utility business model for vertically integrated electric utilities. The principles spell out a direct relationship between the utility and its customers in which customers may have a greater say in the sources of their energy. A sample program illustrates these principles.

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1. Introduction

Distributed generation, home storage, smart appliances, or even light bulbs . . . each has been identified as the technology that will force a transformation in the utility business model. However, these are only symptoms of the same issue: electric customers are becoming more educated and informed about the power they use. The rise of the educated electric customer has led to the various “death spiral” culprits, but that discourse is a distraction from the real opportunity—these customers offer utilities new potential for growth in embracing those customers.

2. Background

Let's start with a quick review of the world today. State utility commissions were created to protect ratepayers from monopolistic abuse and to provide incentives for utility investors who provide an essential service. Utilities could maximize their profits by building more infrastructure, but the commissions needed to find a way to make sure that the ratepayers weren't overpaying for things they didn't need. In a normal marketplace, the company and its customers could send price signals back and forth to incentivize prudent and profitable behavior. But electricity has never acted like a traditional market.

Instead, state commissions assumed the role of customer-at-large to speak for the entire ratepayer population. When many of these commissions were created in the early 1900s, most people didn't understand how power was delivered to their homes and businesses; the most important things were that the lights would come on and the price was low. Thus, the commissions adopted need-based criteria to evaluate utility project. Was the proposed project the most cost-effective, and was it necessary to ensure

equal or better reliability? These two criteria served ratepayers very well during the 20th century. The commissions could ensure that the lights came on and the price was low; ratepayers were mostly satisfied.

Fast forward to today, where ratepayers have begun to educate themselves about the power they used to take for granted. According to the EIA, electricity rates have increased by about 50% from 2001 to 2016. Customers began to realize that they may not be able to control the rate, but they can control their bills to keep the payment low. This, combined with government-sponsored education campaigns and technology advances, has allowed customers to not just look at their consumption, but to also become their own suppliers.

Also, from continued research on climate change, public health hazards from pollution, and ecological disasters such as ash spills, customers are starting to have a growing desire for cleaner sources of power. Ratepayers who used to be satisfied with cheap, reliable power have added a third demand to the marketplace: clean energy. Not only that, but a growing segment of the ratepayer population is willing to put the clean energy preference above the low-cost preference. To use more economic language, these customers have a willingness to pay for cleaner energy that state commissions have not traditionally incorporated into the evaluation of utility projects.

3. An opportunity

Currently, conversations around how to prepare for the disruptive forces talk in terms of adding things to the existing utility/customer marketplace. Residential demand rates, increased time-of-use, expanded energy efficiency programs, performance-based ratemaking; all of these are simply modifications of the

underlying relationship between customer and utility. The customers apply for service, and the utility presents them with the tariff. There may be some tariff options, but the customers have little or no say on the products they purchase.

The educated energy consumer presents an opportunity for a utility to change the nature of the interaction between it and its customers. In the last century, when customers had little understanding about electricity and the sources of power, they were content to turn over their bargaining power to the state commissions, the experts in the field. But as customers become more knowledgeable and informed about the energy world, they may wish to exercise their market power through purchases just as in any other market interaction. In the current utility system, these customers have little recourse outside of changing consumption patterns or supplying from non-utility sources. At the end of the day the state commission still acts as the agent of all customers, regardless of each customer's ability to act as their own agent.

States with retail choice have already turned over purchasing power to customers. In those states, "specialist" energy marketers can source specific types of energy. Customers can contract with these marketers to have 100 percent green energy, either through REC purchases or renewable generation companies that act as marketers. However, for a variety of policy reasons many states still have vertically integrated utilities. For those states with the traditional utility regulatory model, a middle ground approach could bring both the market benefits of retail choice and the public good protections of the regulated retail utility monopoly.

Recently, the Public Service Commission of Wisconsin approved a community solar pilot program for Madison Gas & Electric that contains the kernel of how a new utility marketplace might work.¹ Briefly, the program allows residential customers to source up to half of their energy from a specific solar PV array. Customers participating in the pilot pay a solar rate based on the cost of the solar array and only pay toward the existing generation fleet for the non-solar portion of their energy requirement. What follows below is a program that expands this pilot under a set of guiding principles to a full-scale utility business model.

4. Principles of customer choice

As the disruptive technologies and consumer behaviors continue to threaten utility bottom lines and investments, how can utilities respond in ways that don't result in getting trapped in that much-discussed "death spiral?" The death spiral is primarily a concern that arises out of the current state of the utility marketplace.² Customers cannot communicate their market preferences directly with the utility, so they must find other ways to express their preferences. A new utility business model might do well to start with the customer. The following principles would be the guideposts of any new business model:

1. Customers control their energy supply;
2. Utilities build infrastructure responsive to customer preferences; and
3. Utility risk is tied to customer preferences.

A program that embraces these principles should start with unbundled rates. Separate customer charges, distribution, transmission, and energy rates will protect the utility from potential under-recovery of distribution and transmission assets. The

energy, or production, rate would be the focus of a customer choice program.

4.1. Customers control their energy supply

One possible way to embrace the educated customer would be to offer more control over the electric service they purchase. Rather than having the state commission be the agent for these ratepayers, the utility could offer them more choice in their energy mix and be responsive to the customer directly. Customers would be able to choose what share of their overall energy requirement comes from different technologies. Fig. 1 shows an example of how that might look to a customer. For example, a residential customer might choose to receive 30% from solar, 30% from wind, 20% from natural gas, and the rest from the existing generation portfolio. Commercial or industrial customers could choose a mix that best meets their needs.

Under such a program a customer requesting service would be presented with a menu rather than a tariff. Each technology available to the customer would be listed on this menu, and customers can choose the energy mix that is right for them. Those who value renewable energy might pick more solar, biomass, and wind energy; others, valuing price, may opt for natural gas or the existing utility generating portfolio.

Of course a utility can't promise that the electrons actually used by a customer at a given time come from a specific generator, but it can commit to produce a certain quantity of energy. The remaining portion consisting of the existing generation fleet will ensure that each customer contributes something to grid stability and also helps protect the utility against stranded assets. The protection is not complete, however, as will be discussed in the next section.

4.2. Utilities build infrastructure responsive to customer preferences

The commitment to generate a certain amount of electricity from specific technologies requires that those generation assets be built. Under the traditional utility model, construction is only approved by a state commission if it is found to be in the ratepayers' best interest. As discussed above, that interest is a combination of need and cost. Under this new utility model, utilities would use market research of its customers to decide where the demand is and build the needed infrastructure to meet that market demand. The state commissions would still have a role to play in approving construction projects for such programs. Commissions would continue to do prudency reviews to ensure that the prices are set appropriately and that program participants are getting the most cost effective options. Commissions would also play a role in setting the rate of return for each project. One potential objection to this principle would be that it encourages overbuilding by utilities, thereby raising the price of electricity. To some extent a utility operating under a customer preference model might build more generation than would otherwise be built under the traditional utility model. The main difference between the two models is that the traditional utility model treats customers as a monolithic block that can be supplied by the same portfolio. By recognizing that different customers want different things and are willing to pay for what they want, the concern of overbuilding from a price perspective is unfounded. However, there is a risk component that results from overbuilding. I will discuss that in more detail with the third principle

4.3. Utility risk is tied to customer preferences

The third principle is one that depends on both the utility and the state commissions. Programs that rely on consumer preferences are inherently riskier than traditional utility investments

¹ See PSCW docket 3270-TE-101; *Final Decision* dated April 1, 2016.

² The primacy of cost-recovery in the face of disruptive challenges is explained more fully in Graffy & Kihm. "Does Disruptive Competition Mean a Death Spiral for Electric Utilities". *Energy Law Journal*. Vol. 35, No.1. May 2014

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