

Quadrennial Energy Review

Comments by FirstFuel Software, Inc.

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FirstFuel Software, Inc. respectfully submits the following comments as a participant in the U.S. Department of Energy's (DOE) Quadrennial Energy Review.

FirstFuel is a customer intelligence company that enables utilities to become trusted advisors for their business customers by delivering demand side management and customer engagement solutions. FirstFuel uses advanced analytics to benchmark and assess building energy performance remotely, creating rich energy profiles that can be used to identify efficiency opportunities, increase customer participation in utility demand side management programs, and deliver, monitor, and verify energy savings. FirstFuel combines machine learning with deep building science expertise to help remotely disaggregate whole building energy usage data into its end uses and patterns of activity – without on-site visits or installed devices.

These comments are divided into two sections. The first describes the functionality of energy intelligence and data analytics software. The second offers four policy recommendations to the Review Committee to encourage it to address important opportunities related to the “grid edge”:

- Enable Utility Investment in Cloud-Based Computing and Software-as-a-Service (SaaS)
- Use Analytics to Facilitate the Use of Energy Efficiency as a Transmission and Distribution (T&D) Resource
- Promote Meter-Based Measurement and Verification (M&V) of Energy Efficiency
- Continue Federal Demonstration Projects for Advanced Technologies

FirstFuel is pleased to participate in the Quadrennial Energy Review process and looks forward to supporting the Department and all stakeholders in this process.

Section 1: Energy Intelligence and Data Analytics Solutions

This section describes the functionality of energy intelligence and data analytics solutions as key components of the “smart grid.” Two primary functions of energy intelligence software are enabling energy efficiency programs and increasing customer engagement.

Energy Intelligence Data Analytics-Enabled Energy Efficiency

Analysis of customer energy data is playing an increasingly important role in the way energy efficiency savings are identified and realized. Especially as “smart meter” deployments roll out across the country, utilities and building owners should be encouraged to explore the range of data analytics services to facilitate the adoption of energy efficiency and other demand-side management programs.

Data analytics provides the following advantages over traditional approaches:

- **Identification of High Value Projects:** By mining meter data for savings opportunities, data analytics can be used to identify energy users with the highest savings potential, or to separate them by market segment, demand profile, geography, or behavioral suitability (“propensity to act”) on efficiency opportunities. Directing the right programs and messages to the right customer at the right time is helping utilities to target their programs to specific customer needs and drive down the cost of marketing and customer acquisition.
- **Remote Building Audits:** Data analytics can be used to perform remote/low-touch audits for commercial buildings in a fraction of the time and cost of on-site audits. Remote audits utilize minimal inputs, such as building address and interval meter data, to disaggregate customers’ energy consumption patterns and deliver actionable energy conservation recommendations. Remote audits have the advantage of providing more repeatable results, eliminating the subjectivity of traditional audits, and providing far more comprehensive operational savings analysis, compared to traditional energy surveys or audits.
- **Advanced M&V of Whole-Building Energy Savings:** Data analytics tools can accurately measure whole-building energy consumption at the meter and use this information to measure and verify savings achieved due to retrofit and/or operational measures. Applications of analytics for M&V have shown that the meter-based approach can supplement current survey-based or “deemed” savings techniques and save time, effort, and cost.
- **Account Management and Customer Service Tools:** Today’s energy users are bombarded with a myriad of energy options and expect more sophisticated guidance from their energy provider. With access to advanced analytics, utility customer service and account manager teams can help educate and drive customers toward better informed, strategic energy options, including an array of cost-effective new energy alternatives.

Large electric and gas utilities in California, Maryland, Massachusetts, and New York have all announced large-scale deployments of energy data analytics programs in recent years. For example, in its 2015-2017 energy efficiency program plan filed in 2014, Baltimore Gas & Electric included a section on energy analytics tools, noting that “These time-saving and cost-effective tools may be used to better educate and motivate customers and have significant potential to generate more qualified leads, save time and resources, and drive deeper participation into the core [commercial and industrial energy efficiency] programs.”

Customer Engagement

From online banking, to on-demand entertainment, to hailing a cab, today’s consumers are accustomed to 24/7 online access to services they use on a daily basis. Increasingly, they expect the same level of service from their utilities. The rapid evolution of online customer engagement platforms, coupled with the growth of “smart meter” infrastructure, is enabling a new level of interaction between utilities and customers and creating new opportunities to save energy.

Customer engagement platforms can enable a variety of benefits for customers:

- **Support long-term growth of the customer as a “prosumer” of energy.** A defining trends in energy consumption is that end users are becoming more active participants in saving and generating electricity. Indeed, public policy goals for clean energy depend on expanded commitment by customers to distributed energy resources. Customer engagement platforms serve as a springboard to educate customers and involve them in making smarter energy choices over time.
- **Personalized tips on ways to save energy.** Providing customers with a regular snapshot of their energy usage and the cost associated with different personalized energy options can help them better understand the relationship between their energy usage and their monthly bills. In turn, this can aid in energy investments and decision-making.
- **Better understanding of bill components and rate designs.** Digital bill presentment with detailed pricing plan options provide value to customers and allow more control over their bill, especially when opting into a non-traditional rate plan. Engagement platforms provide a channel for utilities to promote and provide education about new rate classes optimized to clarify and improve price signals.
- **Mobile high energy use alerts.** Keeping track of monthly bills is difficult, and consumers don’t often know how much they’ll owe at the end of the month. Customer engagement tools can alert customers to unusually high energy consumption, so they can take action to save energy and lower their bill.
- **Building benchmarking support.** Commercial customers are increasingly asked to report on building energy consumption for local energy disclosure ordinances. Online engagement platforms can make this a simple and streamlined process.

Any utility proposing a smart meter deployment should consider the range of customer engagement platforms available for business and residential customers to ensure that customers get the maximum benefit from this infrastructure.

Section 2: Policy Recommendations

Enable Utility Investment in Cloud-Based Computing and SaaS

Cloud-based data analytics have become the industry standard in a range of businesses from retail to healthcare to financial services. Through these cloud and SaaS services, businesses can process vast quantities of data quickly, cost-effectively, and securely. The utility sector, however, has lagged behind other industries due to current accounting principles, which treat on-premise computing investments as capital expenses that earn a rate of return. By contrast, utility investments in SaaS and cloud-based solutions are treated as operating expenses, which do not earn a rate of return.

As utilities increasingly build grid infrastructure not only through poles, wires, and pipes, but in bits and bytes, cloud computing should be considered on equal footing to on-premise computing arrangements. The Financial Accounting Standards Board has opened a project on the accounting treatment of SaaS, and the Illinois Commerce Commission has opened a Notice of Inquiry proceeding on this topic to determine whether and if a shift to the cloud can enable both utilities and customers to leverage the economic and environmental value of the smart grid.

The Department of Energy can support these efforts by investigating best practices for cloud computing adoption and SaaS models within the energy sector, as well as by supporting cybersecurity practices that will enable utilities and their regulators to have confidence in these computing platforms' ability to protect customers' privacy and reliability on the grid.

Use Analytics to Enable Energy Efficiency as a Transmission and Distribution (T&D) Resource

As utilities take advantage of the increasing availability of data to build customer insights and improve the way they serve their customers, they can use customer intelligence to foster the use of energy efficiency as a T&D resource. Conventional energy efficiency programs have focused on reducing total energy consumption. T&D-focused energy efficiency programs, on the other hand, seek measures that achieve maximum reductions in peak energy usage.

Increasingly, public utility commissions (PUCs) are looking for ways to improve the average utilization of the electric system. They seek to avoid investing in infrastructure that is only used for a few hours per year. Peak load reduction programs can achieve this outcome. Given the high value of peak load reductions, demand-focused efficiency programs have a significant return to customers. Customer intelligence platforms help reduce the cost of procuring such resources.

The Federal Government and Department of Energy can enable this shift by establishing model initiatives to identify permanent peak load reductions within federal buildings. DOE could also outline best practices for using meter data analytics and customer intelligence for identifying and targeting the highest-value projects.

Promote Meter-Based M&V of Energy Efficiency

Accurate measurement and verification (M&V) of energy efficiency savings is critical to the development of efficiency as a grid-level resource. By accurately measuring building energy use at the meter level, with proper adjustments for weather conditions, occupancy, and other factors, data analytics platforms can determine with a high degree of accuracy the consumption and load reductions actually achieved.

This process enables utilities and other energy efficiency stakeholders to gain insights into actual savings achieved, as opposed to relying on databases of "deemed" or typical savings. They also enable utilities and their regulators to include a much broader array of measures and programs within energy efficiency program portfolios, including behavioral or operational programs, pay-for-performance programs, whole building programs, etc. Furthermore, as states continue to develop Clean Power Plan compliance strategies, M&V will be of utmost importance to emissions tracking and trading mechanisms when energy efficiency is chosen as a compliance path.

The Department of Energy can further these efforts by supporting the development of practical, credible, and scalable approaches to meter-based M&V that meet the needs of a full range of stakeholders.

Continue Federal Demonstration Projects for Advanced Technologies

Legislation currently pending in the U.S. Congress calls for funding for demonstration projects for advanced technologies. In general, it is critical to maintain funding for advanced clean energy research and demonstrations. However, funding demonstration projects for established technologies can impede market growth by signaling that certain technologies are not yet ready for “prime time.”

DOE should continue to look for suitable demonstration projects for data analytics, but focus on new applications of existing technologies at scale, particularly where they help demonstrate how an innovative, established technology can be used to satisfy new market needs.

Respectfully Submitted,

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