
Dian Grueneich, *Principal at Dian Grueneich Consulting LLC*, has 35 years' experience in the energy sector. She served as a Commissioner on the California Public Utilities Commission (2005–2010) and led its efforts on energy efficiency, developing the California Long-Term Energy Efficiency Strategic Plan and overseeing a 40 percent expansion of California's energy efficiency funding. Ms. Grueneich currently serves on the DOE-EPA State Energy Efficiency Action Plan Leadership Group, the Advisory Council of Stanford University's Precourt Energy Institute, the Global Cool Cities Alliance, and Advisory Boards for the Cal Poly Institute for Advanced Technology & Public Policy and the Advanced Energy Economy. She is a graduate of Stanford University and holds a J.D. from Georgetown University.

David Jacot, P.E., is the Director of Efficiency Solutions for the Los Angeles Department of Water & Power, where he oversees all aspects of LADWP's offerings and strategies designed to overcome market barriers to the comprehensive adoption of energy efficiency by LADWP's customers. David also oversees the implementation of LADWP's water conservation and efficiency programs, as well as integration of water and energy efficiency program delivery. He holds a Bachelor's degree in Mechanical Engineering from the University of Oklahoma and a Master's degree in Urban and Regional Planning from California State Polytechnic University in Pomona. He has 15 years of experience designing high-performance building systems, modeling building energy usage, and managing cost-effective and investment-grade efficiency programs.

Scale, Speed, and Persistence in an Analytics Age of Efficiency: How Deep Data Meets Big Savings to Deliver Comprehensive Efficiency[☆]

By deploying advanced analytics, leading utilities are transforming their demand-side efficiency programs to target customers across portfolios, identify efficiency opportunities, engage customers continuously, implement measures, and monitor savings and ensure persistency.

Dian Grueneich and David Jacot

I. Introduction: The New 'Analytics Age of Efficiency'

The era of advanced analytics has arrived in many key segments of the economy. Analytics have quickly transformed how internal corporate functions operate and

even how entire industries identify and capture value. In the retail industry, for example, companies now leverage vast amounts of transaction data to inform strategic decisions regarding product development and supply chain management, pricing, customer segmentation, global go-to-market strategies, and micro-targeted advertising, to name a few. Similar applications can be found in financial services, consumer packaged goods,

[☆] This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial-No Derivative Works License, which permits non-commercial use, distribution, and reproduction in any medium, provided the original author and source are credited.

telecommunications, and electioneering.¹

This article describes how data analytics are on the cusp of transforming how we save energy – ushering in what we refer to as “The Analytics Age of Efficiency.” Advanced analytics are now fairly commonplace between generation sources and the meter (sometimes referred to as “supply side analytics”) to help utilities, for example, better manage grid operations.² Until recently, however, analytics have been far less utilized between the meter and the end user, or “behind the meter.”

Today, three fundamental forces are helping to create a paradigm shift in “demand-side” efficiency and are paving the way for analytics to play an increasingly strategic and essential role. First, significant investments in smart grid/advanced metering infrastructure (AMI) across North America and the broader globe have exponentially increased the availability of high-frequency consumption data coming from residential, commercial, and industrial meters.³ In the past, meters were read on a monthly basis and thus efficiency experts attempting to conduct historical energy consumption analysis only had a very limited 12 data points per year of consumption to analyze. With smart grid/AMI deployment, it is now possible to have 35,040 consumption data points per year (from interval meters that record consumption

every 15 min) to analyze – representing a rich trove of information that experts can mine to understand how, where, and why energy is being wasted.

Second, utilities are more motivated than ever to find new and better ways to achieve compliance with state policies requiring aggressive end-use energy savings goals and some utilities (e.g., Los Angeles

Utilities are more motivated than ever to find new and better ways to achieve compliance with state policies requiring aggressive end-use energy savings goals.

Department of Water & Power) are actively incorporating energy efficiency in their long-term power procurement planning (as discussed elsewhere in this issue of *The Electricity Journal*). Cost-effective efficiency procurement laws, loading orders that prioritize efficiency before generation, and energy efficiency resources standards (EERS) all place year-over-year savings requirements on utilities and pressure to find new sources of efficiency savings.⁴ In addition, EERS are often accompanied by revenue decoupling and performance incentives, which ensure

utilities are neutral to sales volume and are financially motivated to help their consumers save energy.

Third, private-sector companies, recognizing the proliferation of data and a market need, have developed innovative efficiency analytics solutions using high-frequency consumption data to derive deep insight into how buildings waste energy. Importantly, these advances fill a gap between (1) insufficiently accurate and more generic “yardstick-measurement” approaches such as energy use intensity, like-building comparisons, and even traditional energy simulation modeling and (2) time-intensive, costly approaches based on site visits and device installations.

The market transformation beginning to take place in efficiency programs through the use of analytics is tremendous – providing step-change improvements for utilities, customers, the environment, and the broader economy. More specifically, this Analytics Age of Efficiency is helping utilities and other program administrators overcome long-standing barriers to energy efficiency by providing the following benefits:

- Increased scale: Reaching a much larger proportion of the buildings in a utility’s service territory and identifying deeper retrofit and operational savings in that larger population of buildings.

Download English Version:

<https://daneshyari.com/en/article/10402373>

Download Persian Version:

<https://daneshyari.com/article/10402373>

[Daneshyari.com](https://daneshyari.com)