

# **Using Data Analytics to Monitor and Reduce Energy Consumption**

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## **ABSTRACT**

Data is abundant and growing exponentially. Utility operators and other industry professionals are used to data coming from instruments, but now data is coming from everywhere. We have smart assets, such as pumps, that not only tell us their run status, but now also tell us about their energy use, efficiency, and even conditions that affect their reliability and maintenance requirements (e.g., bearing temperature and pump vibration). We collect more and more water quality data as new multi-parameter analyzers are developed and the number of required laboratory analyses increases. Combine that with customer use data and a more informed public, and you get data overload. The question facing the industry is how to use this data.

Energy is one of the major annual operating costs to all utilities. Utilities can track their energy cost, but usually only at a high level and only after the fact by reviewing bills from a previous period. Using data integration and data analytics to calculate or estimate energy use down to the asset level could improve the understanding of how much energy is being used and how it relates to the energy bill. Using real-time status and other sensor data on assets, data analytics can be used to estimate the energy use without installing many expensive energy meters. With this data, Key Performance Indicator (KPI) metrics such as energy and cost calculations to show asset use and efficiency can be calculated. Analytics provides decision support on how to balance energy consumption and production with real-time energy market prices.

This paper will discuss the implementation of an energy management pilot project, show the graphical interface, and discuss the benefits to utilities that have copious quantities of “data”, but have not developed an approach to use the data to address energy management issues effectively.

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## **ABOUT THE AUTHOR**

**Stephen Wortendyke** *has spent 26 years in the water and wastewater business including rolls in product management and sales management in analytical equipment companies, most recently as Business Development Manager for Smart Analytics as part of Black & Veatch's Smart Integrated Infrastructure initiative. Prior to this Steve flew B-52s for the USAF. Steve has a BS in Chemistry and an MBA. Contact: [wortendykesa@bv.com](mailto:wortendykesa@bv.com).*