



# How to Promote Smarter Water Use by Giving Consumers Access to Their Consumption Data

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By Daniel Castro & Brandon De Bruhl | September 7, 2015

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*The federal government should issue a high-profile call to action to spur water utilities to begin providing consumers access to their data using an industry-wide standard.*

**In many parts of the United States, water is quickly becoming a scarce resource. Data-driven insights can enable utilities and consumers to manage water use better, identify leaks sooner, and discover opportunities to use water more efficiently. To help unlock innovative uses of water data, utilities should provide consumers open access to their water usage data in a standardized format. The federal government should support this goal by encouraging water utilities to do this using the “Green Button” data standard, which has already been adopted by the energy industry to provide consumers access to their utility data.**

Most consumers do not know how much water they use on a daily basis or how their water consumption over time compares to that of others because they receive little such information on their monthly or quarterly utility bill. As a result, consumers receive little direct feedback on how changes in their behaviors, household appliances, or plumbing impact their consumption. This is a missed opportunity for people to save money on their water bills while contributing to greater environmental sustainability. Advances in sensor technology and the introduction of smart water meters are creating new ways to capitalize on this opportunity by capturing detailed water data and providing consumers timely information that can help them better understand and manage their individual water usage footprint. Utilities should facilitate this kind of data-driven water conservation by providing consumers access to their water consumption data in a standardized format. A single, industry-wide standard will make it

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easier for software developers to build a variety of applications that leverage water data to optimize water conservation.

In 2011, the federal government led a successful call to action for electric utilities to voluntarily join the “Green Button” initiative, a project to provide consumers direct access to their energy usage data in a standardized format by clicking a uniformly branded green button on their utilities’ websites.<sup>1</sup> The Green Button initiative created a standard for reporting and exchanging utility usage data among providers, third-party developers, and consumers. Water utilities need a similar high-profile call to action to adopt the standard and begin providing consumers access to their data. Therefore, the White House should convene a national summit on water data to bring together utilities, government agencies, technology companies, and civic hackers to work toward a common goal of providing consumers meaningful access to their water utility data. In addition, the federal government should help spur adoption through grants to local governments and early adoption by federal agencies.

## **THE BENEFITS CONSUMER ACCESS TO STANDARDIZED WATER DATA**

There are many ways that consumers might benefit from having access to their water data. For example, they could use apps to analyze their water consumption patterns and determine which water-saving household improvements would generate the greatest savings. Or they could subscribe to an online service that detects and sends real-time alerts about anomalous increases in water consumption that might be indicative of a leaking pipe. Consumers could also share their water usage data with third parties to generate household water efficiency scores. These scores could help households better market their water-efficient homes and reward those who invest in these types of updates.

It is not enough for utilities to provide consumers access to their water data, though. This data must also be provided in a standardized format. For third-party developers, a single industry-wide data standard would simplify the process of creating digital services for utilities or mobile applications for consumers, since applications would not need to be interoperable with a wide range of data standards. A single data standard also would increase the potential market for products or services, creating more incentive for innovation. For water utilities, a common standard would facilitate data exchange with others in the industry, and lead to better industry analysis and forecasting. It would also allow utilities to lower their costs by developing shared data analysis tools, which can translate to lower rates for consumers.

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Consumers could benefit from a common data standard by having more options to access and analyze their water data through online dashboards and mobile applications. Since many are already beginning to gain access to other utility data, such as gas and electricity usage, making water consumption data available will create additional benefits that come from being able to analyze different types of utility data together. For example, consumers might use the data to determine the cost savings of updating a washing machine, which impacts both water and energy consumption.

## **THE STATE OF WATER DATA TODAY**

Water usage data comes from water meters. Until recently, most water meters were purely analog devices, which required a worker from the utility to manually view each meter to take a reading. Utilities have begun to install more advanced water meters that collect and transmit water usage data electronically so that the utility can remotely read the meter. In addition, some utilities have begun to deploy smart water meters, which in addition to providing automatic meter reading, collect more detailed data and provide features such as remote disconnects.<sup>2</sup>

The United States is still in the early stage of deploying smart water meters. Nationwide, less than 20 percent of the one hundred million metered water customers have smart meters.<sup>3</sup> However, where smart meters have gained a foothold, communities have seen substantial savings. Smart meters can also help spot businesses or homeowners who ignore mandatory water restrictions. For example, the water utility in Long Beach, California, has used smart meter data in this way.<sup>4</sup> Over the long term, better data from smart meters can help policymakers make the most use of limited resources, for example by prioritizing water efficiency grants for the most effective updates to businesses and homes, or by deploying new pricing models that reward efficiency.

The biggest challenge in providing consumers standardized access to their water data is coordination, since there are roughly 52,000 water utilities in the United States.<sup>5</sup> These utilities vary in terms of size, ownership structure, and government oversight. Private water companies often operate in multiple local jurisdictions and, in some cases, multiple states. State water commissions and boards regulate these utilities, and each may set different water data reporting standards.

## **HOW TO CREATE AN INDUSTRY STANDARD FOR CONSUMER WATER DATA**

The water industry can build on the success of the energy industry in providing consumers standardized access to their data. In 2011, the White House challenged electric and gas utilities to adopt a common standard for

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reporting consumer energy usage.<sup>6</sup> Since then, approximately 3,200 utility companies across the United States have adopted the Green Button standard, including 200 investor-owned companies, 900 rural electricity cooperatives, and 2,100 public utilities.<sup>7</sup> In total, approximately 60 million homes and businesses now have access to Green Button data.<sup>8</sup> Third-party developers have used the Green Button standard to create dozens of new digital products and services, including consumer dashboards, mobile applications, and push notifications for peak and trough usage times.<sup>9</sup> For example, the Electric Power Board of Chattanooga used the Green Button standard to build a dashboard to allow its 170,000 residential customers to compare their usage against others in the community.<sup>10</sup> A non-profit organization that promotes sustainable energy built an app that lets users upload their energy usage data to discover their return on investment if they were to install solar panels.<sup>11</sup>

Although the Green Button standard has been adopted principally by electric and gas utilities, it was designed to work with all utility data. Utilities should therefore make water data available to consumers using the Green Button standard. Adoption of this standard is not likely to occur quickly without government intervention. This is a collective action problem where there is little incentive for any particular utility to adopt the standard unless everyone else does as well. To overcome this problem, the White House should convene a summit on water data to encourage stakeholders, including water utilities, technology companies, and civic technologists to adopt the Green Button standard and develop a roadmap for providing consumers meaningful use of their water utility data. By vocally championing this technology, the White House will be able to bring together various stakeholders who might otherwise ignore this opportunity.

In addition, the National Institute of Standards and Technology, in conjunction with the Environmental Protection Agency and the U.S. Department of Housing and Urban Development, should offer a series of grants to spur the development of technologies that would use standardized water data and implementation of the Green Button standard. By funding the initial development of technologies that use the water data, these agencies can help overcome the “chicken or egg” problem—developers do not want to create apps until there is data, but utilities do not want to make data available unless there are apps. Finally, the General Services Administration (GSA) should commit to adopting the Green Button standard for water data in federal buildings, much as it has done for energy usage, and make any open source tools it develops to use this data publicly available. By doing so, GSA can provide an initial set of tools to ensure that others in the private sector who manage buildings can benefit from access to water data.

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## CONCLUSION

Standardizing consumer water data is the first step to spurring data-driven water conservation. Consumers will be able to gain a better understanding of their water usage if utilities give them access to their data. The Green Button standard is a model industry-led program that the federal government should support expanding to water utilities by bringing together stakeholders, funding pilot projects, and acting as an early adopter.

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The Center for Data Innovation at the Information Technology and Innovation Foundation conducts high-quality, independent research and educational activities on the impact of the increased use of data on the economy and society. In addition, the Center for Data Innovation formulates and promotes pragmatic public policies designed to enable data-driven innovation in the public and private sectors, create new economic opportunities/and improve quality of life. The Center for Data Innovation also sponsors the annual Data Innovation Day.

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