The Smart Grid: How to adopt its functionality at a reasonable cost

Interview with
Graham Symmonds, CTO &
SVP-Regulatory Affairs &
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GWRI - Global Water Resources

We recently had the privilege of a one-on-one with Graham Symmonds from GWRI, one of SWAN's newest
member companies. Graham shared his years of experience and hands-on expertise in the water industry, and his views
on the value of data on the utility. Prior to joining GWRI, Graham worked at Algonquin Water Resources of America. Earlier
in his career, was employed by Hill, Murray & Associates as Director of Operations, specializing in design and operation
of membrane bioreactors, and had nearly a decade serving the Canadian Navy in operational and support roles. Graham
holds a degree in Mechanical Engineering from the University of Toronto and completed studies at the Royal
Naval Engineering College, UK.

**Q. You often use the term "Smart Water" and "Smart Water Grid" to describe your operation and vision. Can you
share your definition of Smart Water, and what it means from a practical point of view for Global Water?**

The Smart Grid for Water is a data integration and analysis platform. It's being smart about what data we collect and
how we use it. I believe that the Smart Grid for Water is changing the operating system for the utility by increasing
the granularity and frequency of data. For the consumer this means an understanding of where, when and why we use
water - and how much they are actually using; for the utility, it means resource and financial efficiency. As a result,
the Smart Grid for Water fits directly into themes of revenue assurance, responsible water resources management,
asset management and consumer engagement in conservation.

**Q. The US market seems to be quite focused on consumer metering but not a lot of investment in distribution
metering. Can you explain the differences between the US and the rest of the world in this regard, and do you foresee
a change?**

In part I think the answer lies in the relative costs of water. We know both Canada and the US charge the least amount
for water in the industrialized world - fifty cents per cubic meter versus $1.50 and more in Europe. Add to this a belief
- misplaced in my opinion - in water abundance. The result is that in the absence of water scarcity as a driver, investment
in internal leak detection has not been a priority. However, the recent economic downturn has drastically
impacted municipal budgets. This has led to increased scrutiny on low-value activities such as meter reading, the need
to ensure all revenue is collected, and to ensure no resources are wasted on non-revenue water. These issues can
be addressed at the consumer meter.

Water conservation mandates such as California's 20x2020 (20% reduction in per capita consumption by 2020) and the aging nature of the entire US water infrastructure are also driving an increased awareness of leaks and their rectification. This will lead to an increased interest in distribution system monitoring.

Q. We often relate to the value of data for the utility - but is there value for the consumer as well?

Without question. The average consumer knows neither how much water they consume, nor the impact that small changes in behavior can have on their own costs. We know that water prices are going up as a result of increasing scarcity, decreasing quality, degrading infrastructure and increasing operational costs. Once the cost of water crosses the "care point" for consumers, they will be demanding more information from their utilities.

Further, consumers are becoming increasingly data-hungry. But they want particularized information specific to their condition. They will want to know: How much water do I use? How much did I use yesterday? Is my consumption statistically different from a week ago? How do I fare compared to my street, my neighborhood, my city? How much water should I use? Based on weather data and evapotranspiration calculations - how much should I have used outside? Information from the Smart Grid answers these questions.

Q. Where do you still see challenges in the Smart Water Grid market space and how can we, as an industry, overcome them?

The Smart Grid for Water is in its infancy. I think most people view the Smart Grid as automated meter reading. But it's much more about the analytics and engaging the consumer. I think the market adoption comes naturally with utilities realizing that very large financial and resource efficiencies can be gained through the adoption of a Smart Grid approach.

Our challenge is to make the Smart Grid accessible for every size of community. There are over 50,000 community water systems in the US and almost 55% of those serve less than 100,000 people. To get these utilities across technological divide, our servicing models must be capable of providing Smart Grid functionality at a reasonable cost.