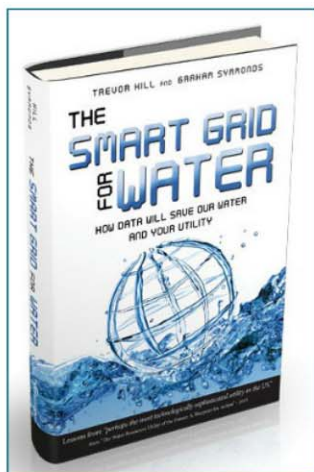




“The Smart Grid for Water”

By Trevor Hill and Graham Symmonds



The global water shortage problem will continue to be exacerbated by several factors, including population growth, continuing urbanization and increasing volatility of our natural water supplies. In the last century, the world’s population has tripled and is expected to increase from 6.5 to 8.9 billion by 2050. Asian cities alone are expected to grow by 1 billion people in the next twenty years. Globally,

changes in atmospheric temperature are driving an increase in extreme events with wet places getting wetter, leading to more severe and more frequent flooding, and dry places getting drier, meaning longer and more intense droughts.

How are we, then, with a finite and increasingly fickle water resources, a burgeoning population and continued urbanization, to quench the thirst of society? The answer lies in regaining the knowledge of how, where and when we use water so that we can make conscious, informed decisions. The beauty of this path is that it not only extends our water resources but also extends the useful life of our water infrastructure, future-proofing our cities.

This volume describes the current – and unsettling – state of our water supply and distribution networks systems and discusses the ways that Smart Grid technologies can be of significant value in this regard. By providing real-time consumption information to customers, utilities can realize significant water savings, which translate into the deferral of construction and water acquisition costs. Further, ensuring our data systems are complete can significantly enhance the financial performance of our utilities.

“The Smart Grid for Water” describes in clear terms why and how our water systems are becoming increasingly vulnerable. But this is not a book on the impending doom of water scarcity for the world.

Rather it is a handbook, a description of how we – and our utilities – can use data to better manage our water resources to achieve sustainability. Moreover, it provides an overview of the promise and purpose of converting our utilities to smarter infrastructure. Beginning with an understanding of the implications of water scarcity and the volatility of our natural water cycle, “The Smart Grid for Water” lays out why we need to consider water in a new light: one of sustainability, and demand-driven conservation.

Author Profiles

Trevor Hill is a leading voice for water scarcity management. He has led several successful water businesses, most recently founding Global Water FATHOM – a software-as-a-service company providing geospatial billing, customer service platforms and data-driven utility optimization analytics. He has a degree in Mechanical Engineering from Canada’s Royal Military College in Kingston, Ontario.

Graham Symmonds has 20 years of regulatory water policy and technology development experience including, advances in total water management using membrane bioreactors and developing communication, control and analysis systems for water and wastewater utilities. He holds a degree in Mechanical Engineering from the University of Toronto. **uhQ**

Water has always defined the human landscape. Since the dawn of humanity, civilization has been bounded by the spatial and temporal availability of water.

The massive engineering works associated with civilizations such as the Egyptians, the Romans, the Hohokam, and the Maya inspired our own nineteenth- and twentieth-century responses to the age-old conundrum of getting water to the people.

The abundance of water and ultimately the availability of cheap power to move it finally decoupled humans from our most important resource. However, this decoupling has actually re-exposed the water reality on Earth: while the amount of water in the Earth system is constant, it varies in quality, location, access, delivery, and availability.

In fact, the distribution of fresh water is extremely disproportionate, with eleven countries sharing approximately 60 percent of the world’s fresh water resources, and 450 million people in twenty-nine countries suffering from chronic water shortages.