

Defining the SMART Grid for Electric Utilities

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World-wide demand for fossil energy resources, fuel transportation costs, climate change, renewable portfolio standards, and aging infrastructure: everyone agrees that retail electric rates and bills are going up. In fact, average electric rates nationwide are up over thirty-five (35) per cent in the last six (6) years. Jim Sullivan, Chairman of the Alabama Public Service Commission and the longest serving utility regulator in the nation, said recently to attendees at the 2008 EEI Annual Meeting, "The days of serial rate increases may soon be upon us."

Electric utilities must be prepared to offer solutions to their customers or potentially face a firestorm of protest in years to come. Many believe that the intelligent or SMART Grid is one such solution, however, electric utilities across America are struggling to answer the question: What is the SMART Grid?

Simply stated, *the SMART grid is the convergence of information and operational technology applied to the electric grid allowing sustainable options to customers and improved security, reliability and efficiency to utilities.*

This paper identifies the fundamental challenges to meeting the sustainability goals of regulators and concludes with a practical deployment strategy. The three major challenges are:

1. The DA or AMI build-out requires a secure, robust telecommunication network for mission critical and non-mission critical data transport
1. Meter data integration and management for billions of meter readings turning data into information and, ultimately, action will be culturally disruptive for utilities
1. Demand response and demand side management programs allowing for "prices to devices" for residential and small commercial customers must be part of an ultra simple, readily accepted rate structure

Thoughtful and prudent attention to these fundamental challenges of implementing the SMART Grid will lead to sustainable options for customers and satisfied regulators that will allow full recovery and return on investment. When that is accomplished, utilities can confidently use the SMART Grid to **achieve other security, reliability and efficiency objectives**. However, without early success in telecommunications, data integration management and customer programs, the industry will find that it has simply given old ideas a new name.