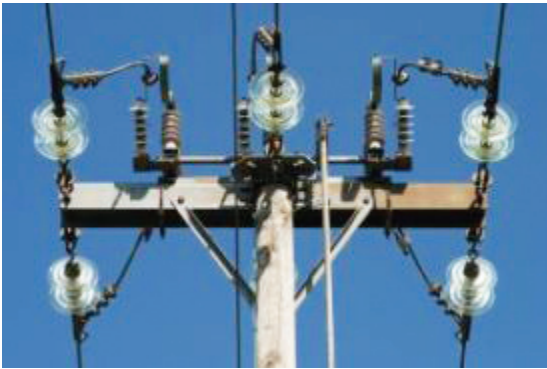


Power Delivery, the Smart Way

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by Ted Samson

Congress contemplates upgrading the nation's dumb electricity-delivery infrastructure to a smart grid



Electricity prices are costly, sure, but you know what else is expensive? Power outages. They cost U.S. business at least \$50 billion a year, according to Electric Power Research Institute estimates, as computer screens go black, servers stop humming, conveyor belts stop moving, and workers step out for coffee. (By an odd coincidence, InfoWorld's San Francisco office is suffering a power outage as I write this article at my home office in Sacramento. I think I've discovered another benefit to telecommuting.)

It's rather heartening to see that elected officials have taken notice of the problems with the nation's energy-delivery systems,

which have proven to be, at times, unreliable (rolling blackouts, anyone?) and unable to meet the nation's ever-increasing demand.

Part of the proposed energy bill from members of Congress calls for the possible development of a countrywide smart electric grid, a system that could result in overall more efficient and reliable electricity service here in the States.

Essentially, a smart grid is an intelligent electricity-delivery system, through which energy suppliers and consumers are all interconnected through a network. Smart meters are installed at homes and business to monitor energy consumption and transmit that information back to energy providers. Energy providers not only have the ability to track energy consumption -- but also to automatically throttle down energy consumption on a granular level when demand gets too high.

For example, participating users -- be they business or home owners -- might agree to have their building's air conditioning systems automatically turned down, or certain lights turned off, during peak hours when the grid is being heavily taxed. That reduces the strain on the grid, thus preventing rolling blackouts and costly downtime.

Preventing unplanned downtime for systems and employees is but one of the benefits of a smart grid. Smart meters are capable of measuring energy consumption all hours of the day, and utilities could set prices according to demand during a given time. Thus, those who wait until after peak hours to perform certain tasks -- be it a consumer turning on the dishwasher or a network admin setting systems to be woken up for patching -- could save some green.

"Letting customers choose to lower their bills by shifting usage reduces peak demand and helps avoid power shortages, transmission problems and the need to build new power plants," says Richard Mora, president and CEO of Landis+Gyr, a member of the Demand Response and Advanced Metering (DRAM) Coalition. "Just as important if not more so, by some customers reducing peak demands, it dampens the market power of sellers during peak periods and thus lowers prices for everyone."

Mora also notes that "the two-way communication ability that comes with smart meters and other demand-response technologies gives electricity providers another tool for optimizing their planning and operations and creating a truly smart grid."

(There's an interview with Steve Widergren, administrator for the GridWise Architecture Council, right here in which he discusses in more detail how this might work for a business.)

A smart grid also can deliver energy more efficiently, according to a report by the Energy Future Coalition titled "Challenge and Opportunity: Charting a New Energy Future." [PDF] "Grid upgrades that increase the amount of power that can be moved through the transmission grid and that optimize those power flows will reduce waste and maximize use of the lowest-cost generation resources."

Again, that's good for consumers -- plus by reducing waste, it's also good for the environment.

Yet another benefit: Using the smart grid monitoring tools, providers could assess in real time how much electricity far-flung green power sources, such as wind farms and solar panels, are churning out at a given time.

Points for the grid

Smart-grid technology is already proving is worth. I recently spoke with JT Keating, the VP of marketing at Site Controls. The company offers an energy and facilities management solution called Site-Command. The platform remotely monitors, logs, and controls HVAC, lighting, outdoor signage, refrigeration, and other major in-store energy consumers. Admins have online, real-time access to the switches for all of these energy-users.

Additionally, the company offers a hosted service to monitor energy usage at its customers facilities. (Right now, the company targets large retail, restaurant, and convenience store chains.)

According to Keating, the company works with customers to establish practices for reducing energy consumption for times that local utilities are threatening to launch rolling brownouts because energy demand is too high -- a practice Keating likens to "performing surgery with an ax."

Depending on the customer, that might mean setting the AC a couple of degrees higher or turning off certain lights, practices that can add up and prevent the need for a planned blackout. According to the company, "Site Controls' intelligent load management capabilities reduced peak load by 38 percent during the emergency curtailment requested by the Electric Reliability Council of Texas (ERCOT)" in 2006.

Utilities such as PG&E in California and Con Edison in New York already have smart meters in place at some of the customer's locations, which have proven successful in helping monitor energy consumption and promote conservation to stave off power outages.

Smart grid technology is out there, and as evidenced by the proposed energy bill, even our sometimes non-tech-savvy elected officials are now becoming aware of the potential benefits. Even if the overall bill ends up getting buried, I, for one, certainly hope that the Feds vigorously pursue legislation promoting smart grids. Like so many other green-technologies, it's good for business and it's good for the environment, something all politicians should be behind.

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