



DISTRIBUTED GENERATION: TOO MUCH OF A GOOD THING?

Electric utilities face a number of challenges these days. One of the most serious is the increasing difficulty associated with siting new generation plants. For example, with environmental regulations continuing to tighten, it is almost impossible to site a new coal plant these days. And, while nuclear remains a viable option, it can take many years and millions of dollars to get a new site up and running. Along the same lines, not only is it becoming more difficult to site new coal-fired plants, but environmental regulations are actually forcing some utilities to consider closing some of their existing plants, thus leading to a shortfall of baseload power generation.

Additionally, the costs associated with building new transmission lines continue to increase, and ROW (including NIMBY) issues not only aren't going away, but are actually increasing. Furthermore, a certain amount of energy is lost when it is transmitted long distances, thus reducing the efficiency of the existing centralized grid system.

One viable solution seems to be distributed generation (DG), the most popular of which are residential and commercial rooftop solar units. One benefit of DG is that, as customers produce electricity rather than consume it, especially during peak periods (excessively hot days, for example), the need to construct new baseload and peaking plants is reduced.

However, for utilities, when it comes to DG, a little bit is good; too much is not. The number of customers who have installed solar panels on their homes and businesses continues to increase, due to advances in the technology, decreased capital costs, and construction subsidies from governmental bodies. In some cases, these installations are beginning to reach "critical mass." Wal-Mart, for example, which has about 4,500 stores nationwide, expects to have 1,000 solar-powered stores in six years (by 2020).

As more and more DG comes on-line, one potential problem for utilities relates to loss of revenue. In addition, utilities are also having to assume the roles of "customers" themselves, in that they are often

required to buy back excess power generated by DG customers. (For more information on this, see "Net Metering.")

Travis Miller, director of global utilities equity research for Morningstar, notes in an article in *Renewable Energy World* that: "Utilities' centralized network monopolies break down when customers become self-sufficient competitors." He adds: "DG leads to the so-called death spiral. As more customers adopt DG, utilities' costs to maintain and operate the grid are spread across a smaller demand base, raising customer rates and increasing customers' economic incentive to cut the cord."

Another challenge relates to the technologies that will be required to manage the new two-way grid - where power is flowing to AND from customers. For example, there are fluctuations in voltage and frequency which must be managed in order to prevent reliability problems. Even more important, there are safety considerations, such as backfeed, that can put utility workers and others at risk.

Still, there are some steps utilities can take to become "players" in the DG trend. For example, they can retain value from their centralized grid networks by helping customers integrate and manage DG. In return for providing these services to DG customers, they can collect infrastructure support revenue as a way to help defray the costs associated with maintaining the grid that DG customers no longer pay directly via their monthly utility bills.

In addition, a number of utilities are investing in and selling DG technologies themselves, as well as providing financing for DG installations. By providing these products and services themselves, utilities are able to create new revenue streams and reduce the chances that customers will seek these products and services elsewhere.