DISTRIBUTED DELIVERY

In Search of a Silver Lining: The Gulf Coast Restoration Effort

By Robert T. Zabors

The industry is adopting elements of a new, distributed delivery model. Several utilities are working with customers, partners and regulators to address a variety of hurdles to accelerate implementation. The devastation following hurricane Katrina creates a situation where, among the tragic consequences, many of the economic, technological and regulatory obstacles may also have been swept away. Adoption of this approach in some areas may help restoration efforts, lower costs and provide a long-term competitive advantage for the region.

The old saying goes "in every cloud there is a silver lining." In the clouds of Hurricane Katrina, and the devastation that followed, the silver lining may be in the form of an opportunity to reshape the electric infrastructure of the most heavily affected areas to create a long-term advantage for residents, and an example for the rest of the industry.

Slowly but steadily, the electric industry is adopting a new approach to distribution that uses proven and emerging technologies to engage customers in a mutually beneficial shaping of energy needs. This approach includes distributed generation, energy efficiency, and a variety of communication and control technologies that enable utilities and customers to better manage supply and demand.

Traditional hurdles to implementation of this model include:

- High capital cost for utilities when compared to incremental investment in the existing network;
- Low rates of customer adoption due to higher initial costs and existing applications;
- Regulatory mechanisms to compensate for the loss and deferral of traditional "rate base" investment; and
- Complexity costs for utilities in developing a new operating model in parallel with maintaining an existing, traditional one.

The unprecedented disaster that recently hit the Gulf Coast represents a situation where these traditional hurdles literally have been washed away – along with the infrastructure and customer's equipment and appliances. The absence of electricity is contributing to an unfolding human crisis. The near-term need is clear – to quickly restore power for emergency response, public health and safety – but there is also a longer term need to restore stability and confidence in the area to encourage rapid redevelopment.

Restoration will take time and money. Projections vary widely, but the total cost will be enormous – and restoring utility infrastructure will be a major component. Before the investment is made in completely rebuilding the previous infrastructure, restoration through a distributed approach should be articulated and evaluated.

Adopting a distributed approach may speed restoration in some areas where the infrastructure is severely damaged. What remains in those areas presents major safety issues in the logistics of re-energizing. Restarting the gas service is even more problematic. Once restored, systems will be even more fragile. It will take years to approach previous levels of reliability, which ultimately may not be the desired level for customers, or the level that is possible given current technology.

A new approach would start with building small areas of reliable electric service around distributed resources. These "nodes" eventually would connect in more of a traditional grid, and due to their design, would enable a network that is more robust and efficient than the traditional "central-station" model.

The modularity of each installation would require less time and enable more people to participate in the process – fewer technical skills required means a larger pool of people can do the work. This would lower total cost and more important, it could create additional jobs for residents. Faster restoration would reduce economic consequences to local businesses and therefore employees and insurers as well.

One simple analogy is the restoration of phone service. Cellular providers were able to restore most service within days by dropping in new antennas and portable generators. Modularity and a distributed network provided fast and relatively inexpensive restoration. The next challenge was for customers to find a way to charge their phones.

Ultimately, a more complete damage assessment will be required to define the scope of applicability to the near-term restoration effort. However, the real value of this distributed approach comes in the long-term. A new infrastructure, planned around the inherent advantages of a distributed system would be a powerful means to » attract new businesses to the area. Increased reliability, improved efficiency and greater control that customers have over electric use in a distributed model are key considerations for many businesses.

Rebuilding, with the right designs and incentives, could trigger an unprecedented level of adoption of high efficiency appliances and use of renewable energy sources. Incentives in the Energy Policy Act of 2005, and the current level of natural gas prices should also encourage these decisions. The resulting load shape would be far different, and more economical to serve.

The challenge to all involved is to guide and enable consumer choices to the best long-term solutions as they rebuild. From a regulatory perspective, this is also a unique opportunity to work with utilities to recognize and share the value created by a distributed approach.

Rebuilding the gas infrastructure also presents an opportunity. Rather than burden the area with the cost and disruption of a complete rebuild of a heavily damaged, old, and underground gas distribution network, a new integrated system could feature a more selective construction of gas lines to distributed generation and to key commercial and industrial customers. A capital cost savings in the hundreds of millions may be possible, in addition to shifting some customers to a lower cost, lower volatility energy source.

These are lost opportunities if not pursued now.

It is also easy to imagine a scenario of a downward economic spiral. The magnitude of rebuilding could result in a massive increase in rate base. These very legitimate expenditures ultimately would form an equally formidable rate increase for the customers who return to the area. In comparison to the qualitative improvements from a distributed approach, higher rates for similar service would represent another barrier to reinvestment. As fewer customers return to the area, the fixed-cost burden on those that remain puts them at further disadvantage.

It will take time to consider these alternative approaches, and also a high degree of collaboration among many parties. And this discussion is not intended in any way to diminish the incredible efforts of all currently involved in the restoration effort. It is simply an attempt to spark discussion of yet another way that their efforts can provide even greater, lasting benefits for the region and a powerful example for the rest of America. ■

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GUEST EDITORIAL

Will California Finally Make Good on its Promise to Include DG in the State's Energy Mix?

Recognizing the Cost & Benefits of DG in Tariffs.

By Ann L. Trowbridge in conjunction with the California Clean DG Coalition

Distributed Generation (DG) is at a crossroads in California. The State has long professed to support DG, but has been slow in providing much needed regulatory and rate certainty to those who are ready and willing to invest in DG. The California Clean DG Coalition (CCDC) sees the DG Rulemaking currently taking place before the California Public Utilities Commission (CPUC) as an extremely important means toward the goal of assuring DG a meaningful position in the State's resource mix. CCDC's efforts in the case have focused on (i) developing a framework that accurately captures and values the benefits of DG, and (ii) moving toward long-term DG tariffs, thereby establishing California's DG market as an example for the rest of the nation. Specifically, CCDC has argued that:

(1) The cost effectiveness of DG should be measured using the methodology currently applicable to energy efficiency programs (with slight modifications);
(2) The environmental benefits of DG should be counted in the DG cost-effectiveness methodology;
(3) Grid-side physical assurance requirements that do not penal-