

Demand Response Sustainability

Increasing environmental awareness is prompting many electricity consumers across the province to consider ways to reduce energy use. The results of Earth Hour last March and IESO power advisories last summer demonstrated the extent of customer motivation. Demand-side participation is proving to be a critical part of balancing Ontario's electricity needs of the future. The Ontario Power Authority, in partnership with Local Distribution Companies (LDCs)

such as ENWIN Utilities Ltd., has developed a suite of Conservation and Demand Management (CDM) programs providing the tools for industrial, commercial and residential consumers to participate in the management of the province's power supply.

Transmission constraints at the Armitage Transformer Station prompted the implementation of the York Region Demand Response program.



Where conservation lowers overall electricity use, demand management is a resource to be used in short-term system planning. Demand Response (DR) is quickly emerging as a flexible real-time resource in the CDM portfolio.

DR is effectively the generation 'antidote' to increased demand. Peak demand is limited to often no more than 100 hours a year. Building new generation and infrastructure to supply the demand required for 1% of the year is a lengthy and costly process. By securing DR resources during times of constraint, system planners can minimize the additional infrastructure needed and comply with increasing pressure for the 'greening' of the grid.

Demand-side resources are of growing importance to system operators. Controlling demand rather than simply meeting the required load is poised to become the new market paradigm. With CDM markets established, utilities represent these markets to their customers. The emerging Demand Response (DR) market, however, has proven problematic. Either through direct participation or aggregation, all but a few LDCs are limited in their contribution to the process that directly affects their customers and load requirements within their respective service territories.

Since the customer relationship is key, ENWIN Utilities Ltd. has partnered with Rodan Energy and Metering Solutions Inc. to provide the EnerShift DR service offering to Windsor's large power consumers. As the front-line contact with the customers, ENWIN is strengthening its relationship and gaining insight into the electricity needs of its service territory through actively promoting DR.

"Demand Response is a new concept in the Ontario market," explains Lawrence Musyj, Director of Conservation & Energy Management for ENWIN Utilities. "Our involvement with Rodan's EnerShift Program allows ENWIN to interact with local industrial consumers and provide

another opportunity to educate large energy consumers about energy conservation through demand response initiatives. In doing so, we are setting the groundwork for future CDM programs."

DR need not be limited to the provincial scale - local system reliability isn't always determined by generation status. Many LDCs have faced increased load growth without a corresponding increase in transmission or distribution assets. Community objection and the necessary regulatory approvals can often delay needed infrastructure upgrades, putting excessive strain on the local system. Load management strategies can easily be implemented to mitigate these constraints and minimize service disruption.

Integrating DR resources into system operations at the local level provides LDCs with a number of benefits:

Operational Advantage

Load management enables the LDC to minimize the risk of power disruptions due to constraints on the distribution system. Mergers & Acquisitions have broadened service territories and economic growth has fueled increased demand. Integrating assets into a uniform operational protocol and minimizing expenditures on new infrastructure become the challenges in establishing the new operational standard. DR provides the flexibility to meet these challenges by minimizing blackouts and facilitating quick power restoration in the event of a localized emergency. Effective DR resources also allow the LDC greater flexibility in scheduling maintenance of transmission and distribution assets.

Infrastructure Optimization

The integration of DR into system planning allows LDCs to maximize the existing and future technologies. Recent metering initiatives such as AMI and MDM/R have provided a platform on which an LDC can better identify and manage loads. The implementation of these technologies within a service territory greatly enhances the resolution of control the LDC has over load management. These technologies also expand the scope of DR to make smaller loads a more viable option from the perspective of the measurement and verification of load reduction. In addition, the acquisition of DR resources within a service territory provides the opportunity to aggregate distributed behind-the-meter generation assets to increase overall system reliability.

CDM Program Offerings

As their service provider, the LDC has the existing load history and metering requirements for each customer and the visibility with which to transform the marketplace. By approaching the customer, the LDC is afforded the opportunity to better promote all applicable programs within their CDM portfolio. This generates greater awareness within the community; provides a 'greener' solution to meeting growing local demand; and helps to position the LDC within eco-friendly market.

"By partnering with Rodan, this initiative expands the scope of our CDM programming and allows ENWIN to build on established

through Customer Empowerment

customer relationships to achieve energy efficiencies which will have a favourable impact on the customer's bottom line," Musyj explains.

In today's ever-adapting industry, LDCs are taking on greater responsibilities with respect to load management. Conservation programming, renewable energy initiatives, environmental regulations and the emerging Load-Serving Entity concept are changing the archetype of electricity distribution in the province. As the initial customer contact, LDCs have an opportunity to build a stronger community relationship, effective distribution systems and cleaner solutions that enhance economical and ecological sustainability within their business model. ■

EnWin Utilities Ltd. is Windsor's Local Distribution Company, responsible for the distribution of electricity and the servicing and maintenance of Windsor's power line infrastructure. As well, EnWin Utilities Ltd. is a management services company providing fleet, billing, collections, credit, financial, human resources, customer service, and information technology services to Windsor Utilities Commission and the City of Windsor.

EnWin Utilities serves 85,000 customers in Canada's largest and busiest border city. (photo courtesy of EnWin Utilities)

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