The Computerworld Honors Program

Honoring those who use Information Technology to benefit society

Final Copy of Case Study

YEAR:
2012

STATUS:
Laureate

ORGANIZATION:

Organization:
OG&E (a unit of OGE Energy Corp.)

Organization URL:
www.oge.com

Project Name:
Positive Energy Smart Grid

What social/humanitarian issue was the project designed to address? What specific metrics did you use to measure the project's success?

Among other results, this project delays the addition of fossil fuel electrical generation capacity, reduces the use of fossil fuels and reduces electricity usage. Moving demand away from the peak hours is allowing OGE to avoid building a power plant. During the past two summers, as we have been rolling this out to our area, we have seen success. Our demand response program, which includes providing customers day ahead variable peak pricing, tied to information and programmable controlled thermostat, is effective in reducing peak demand by 20% from those participating in the program. Another component of the project, which involves changing voltage of the grid depending on data from our sensors, has been found to reduce peak demand by 2%. Shifting electricity use off of peak allows the following benefits: less power plant capacity is needed; less costs and pollution (the most costly plants are brought into service last; reducing peak load reduces the use of these plants); better capability to take advantage of renewable resources (this program allows us to make electricity more expensive and less used when the wind does not blow strong enough on our wind farms). Of lesser (yet still important) impact are operational and reliability benefits. The two-way communication to the meters at that home and to our devices on the grid allow a substantial reduction in vehicle miles, as we no longer need to go on-premises as often. Reliability of electrical service is improved, which is especially important to

the more vulnerable customers (on respirators or other electrically powered medical equipment or aged).

Please describe the technologies used and how those technologies were deployed in an innovative way. Also, please include any technical or other challenges that were overcome for the successful implementation of the project.

The technologies that are part of what we call the Smart Grid are varied. While other smart grid projects are found in different utilities using different portions of the smart grid technologies, the real innovative in the OG&E Positive Energy Smart Grid is in the combination of these immature technologies to accomplish the benefits. Although it takes years to change out all meters, OG&E is innovatively capturing benefits incrementally, and not just at the end of the project. Within days of a customer's meter being changed out, the customer has access to the Energy Information Website. Integrating needs of the meter side and grid automation parts of the electric grid, OG&E built an area-wide telecommunications structure. The network covers the 30,000-sq.-mile territory, which includes communication to substations and meters, and through Home Area Networks in homes to thermostats and other devices. The Information Factory was created. Teradata appliances serve as high-speed repositories, managing large amounts of information. A logical data model relates data in such a way that analytics and reporting makes sense. A new Tibco Enterprise Service Bus updates the Information Factory. Analytical and reporting tools from Business Objects, Microsoft and SAS are involved, structured to allow repeatability. This allows OG&E to take the information from the smart grid and use it more holistically for other purposes. For instance, our operations people can look on a map and see a spatial view of outages, substations, poles, weather, vulnerable customers or priority needs, truck location and other information together. The scale of IT has changed, and the information technology has changed from being a small, expert-led shop to a more disciplined organization following ITIL guidelines. Led by these guidelines, an Integrated Operations Center has been created to improve performance.

Please list the specific humanitarian benefits the project has yielded so far.

OG&E's 2020 goal (adding no new fossil fuel generation until 2020) is being achieved. The shaving of peak demand results in the burning of less fossil fuels, as electricity load is shifted to times when wind or more efficient plants can take more loads. OG&E has been very active in the U.S. utility industry, providing information concerning the experiences. In fact, Electric Light and Power has named OG&E as North American Utility of the Year for 2010. The OG&E program highlights putting our customers in charge. Customers are provided with information and products that allow and incent them to take individual action if they care to sacrifice comfort in favor of the environment. For instance, customers on our SmartHours program receiving programmable thermostats receive rate information from our meter. While they have the option of setting the level of comfort they desire, most will choose to automate a response that has the dual purpose of saving them money and reducing our need to operate our less-efficient power plants. With this, we allow people the dignity of choosing for themselves, while still bringing about environment benefits.

Please provide the best example of how the project has benefited a specific individual, enterprise or organization. Feel free to include personal quotes from individuals who have directly benefited from the work.

Please refer to the following links: Good Morning America report: http://abcnews.go.com/GMA/video/show-money-save-power-bill-14151750; Local news: http://www.kfor.com/videobeta/?watchId=9b6eed6d-a08f-468a-9ef0-d405a8ddbda4; http://www.youtube.com/watch?v=7lRS-l80bBk&feature=share.