

SUCCESS STORY

Seattle City Light and ODIN*

A Case Study on the Implementation of Outage Data Standard to Improve Customer Engagement and Assist First Responders

Introduction and Background

In October 2012, Superstorm Sandy resulted in widespread power outages for more than 8.1 million people and substantial damage to utility infrastructure. Among the action items was one focused on customer communications—utility customers want timely, accurate information about outages, especially during severe, regional weather events. This outcome validated an Electric Power Research Institute (EPRI) project on using social media to support service outage and restoration communications in 2013. With 24-hour news sources on television, radio, internet news, and social media, utility customers expect accurate, instant status of outages. The Superstorm Sandy experience revealed that customers were the most frustrated if the outage information on the various information channels did not match. To enhance grid interoperability and resiliency the White House Office of Science and Technology Policy (OSTP) challenged utilities, software providers, and vendors to develop a standardized platform for data sharing to assist utilities, first responders, and the public to obtain consistent information during major grid events. The resulting effort is known as the Outage Data Initiative (ODI).

A voluntary open standard for publishing power outage and restoration information was developed by EPRI in collaboration with utilities and governmental entities and included in the Common Information Model or CIM. This standard puts data that is already public in a common, structured format, empowering emergency management agencies, utilities, and other first responders with wide area situational awareness for extensive events. Seattle City Light adopted, implemented, and tested the ODI standard. The results of their pioneer effort benefitted internal operations and external communications by enhancing customer engagement and improving outage visualization for the utility.

Approach/Methodology

Seattle City Light is a municipally owned utility serving approximately 800,000 customers in Seattle, Washington and surrounding areas. Seattle City Light has been a proponent of open data in the utility industry for several years, having been the first utility to embrace the Green Button standard. Seattle City Light was also the first utility to adopt the ODI standard and began work on the initiative as early as 2014 when the need to share outage data across departments in the City of Seattle was becoming well understood. By adopting the standard, utilities can convert data into a standard, consistent data format for creating a unified operating picture. The ODI standard supports two key areas—a public outage message published through utility websites or mobile applications, and a first responder message that contains greater detail to assist field crews, emergency managers, and mutual assistance efforts. Seattle City Light realized that on a data level, the organizational boundaries among organizations internal to the utility and other city departments were becoming blurred. The utility team recognized that to maintain custom point-to-point integrations with all the authorized systems that could benefit from outage information was not sustainable long-term. Adoption of a standard would reduce ongoing integration costs and data silos.

Working with EPRI, Seattle City Light and vendor Data Capable, SCL started developing a notification platform based on ODI. It provided Seattle City Light an opportunity to share its outage data with the surrounding utilities, to demonstrate the value of a standard outage data

*ODIN (Outage Data Initiative, Northwest) is a project to implement the ODI standard in the state of Washington. It is supported through the Office of Electricity Delivery and Energy Reliability, US Department of Energy and Oak Ridge National Laboratory.



The Power of Collaboration

“The Outage Data Initiative has enabled Seattle City Light to share its outage data so that other utilities and emergency management organizations can see it on their preferred platform. And the initiative is bringing other utilities together to do the same. Together, we can create a common operating picture and improve our response when storms, fires, earthquakes or other disasters strike.”

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format. By embracing standards and collaboration, utilities will benefit from significant cost savings related to integration while empowering new developers and vendors to leverage this much-needed data set in their own applications. Now, when a customer reports an outage the location of an incident can be mapped and used with a utility's outage management system (OMS) to expedite response and place field crews more efficiently.

Implementing the outage data standard included these steps:

- Identify outage data sources (i.e., which systems feed the outage map?).
- Determine if the data is accessible via a push or pull acquisition technique.
- Run the standard on the data.
- Provide the standard to approved third parties for real-time consumption in other applications.

Results

Typically, a utility's outage page is its most visited web page. The ODI project has enabled Seattle City Light to foster two-way digital communications through ArcGIS integration and the use of their social media platform to improve accurate outage communications to customers. Field crews can visualize outage data, customer communications, and imagery from the field in one location in near real-time. The addition of weather data can also assist with disturbance prediction to notify customers in advance. The integration of this non-traditional data set and a historical baseline for this information has the potential to provide more opportunities to assist customers, first responders, and utilities. The initiative is one example of how traditional OT (operational technology) and IT (information technology) lines blur in terms of the benefits of open data. Estimates from the Seattle City Light project team suggest that it would take a maximum of 20 labor hours for the contract developer as well as the same level of involvement required from a utility development employee.

Lessons Learned and Key Recommendations

Several key takeaways from Seattle City Light's experience include:

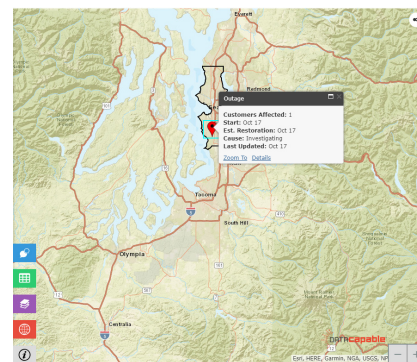
- Catastrophic weather events like a Hurricane Harvey or Superstorm Sandy underscore the need for a unified source of truth on power outages for improved restoration and response.
- Most project time was expended in identifying key data needed for the outage data standard and understanding how to package the data.
- The standard gives the utility the flexibility to inform stakeholders in any communication channel with the same ease of implementation.
- Monitoring storm damage assessments in near real-time and being able to shift resources based on this data may lead to significant reductions in outage times.
- Sharing timely data with mutual aid utilities in adjacent service territories would aid decision making when sourcing and sending foreign crews and contractors.

Adoption of the Outage Data standard may offer other benefits to utilities. These may include:

- Reduced costs associated with integrating outage data to stakeholders inside and external to the utility.
- Enhanced ability to correlate outage data with weather, resource allocation and other critical data in near real-time.
- The improved spatial awareness of outage events may continue to improve storm damage predictions, and enhance grid resiliency objectives.

The reference test scripts can be found in the following EPRI report: Development of Outage Management Status Messages and Test Plan for Phase 1: Red Button [3002006384](#).

EPRI acknowledges contributions from Seattle City Light and DataCapable in documenting this case study.



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