

U.S. DEPARTMENT OF
ENERGY

Office of
Electricity Delivery
& Energy Reliability

 **OAK RIDGE**
National Laboratory

 **ODIN**



Outage Data Initiative Nationwide

US Department Of Energy & Oak Ridge National Lab

Tuesday, May 17th, 2022

Introductions

Speakers

- **Christopher Irwin**, Program Manager for Transactive Energy, Communications and Interoperability in Smart Grid at DOE
- **Supriya Chinthavali**, Group Leader, Geoinformatics Engineering at ORNL
- **Scott Sternfeld**, ODIN Subject Matter Expert
- **Darrick Moe**, CEO, Minnesota Rural Electric Association (MREA)
- **Elizabeth King**, Energy Emergency Management Director, State of Washington
- **Bill Meehan**, Director of Electric Utility Solutions, Esri

ODIN Project Team

- **Varisara Tansakul**, Data Engineer
- **Matt Highfill**, Project Manager
- **Jackie Lemmerhirt**, Project Manager

Agenda

- Welcome & Introduction to ODIN
- Project Overview
- ODIN Interface
- Darrick Moe, Minnesota Rural Electric Assoc.
- Washington State Energy Program
- Use Cases & Why Utilities Should Care
- Why ODIN?
- Next Steps



Outage Data Initiative Nationwide (ODIN)

Problem: Outage data from utilities is valuable to its customers, neighboring utilities, and regional emergency management partners, but that data is **currently fragmented and poorly standardized.**

Solution: Outage Data Initiative Nationwide 

ODIN seeks to establish a comprehensive digital **reporting standard** for power outage data to enable utilities and others to exchange data freely with designated stakeholders at all levels.

Greater standardization allows participants to easily share data automatically **with any stakeholder** they choose:

- Customers
- Emergency management officials
- Mutual aid crews

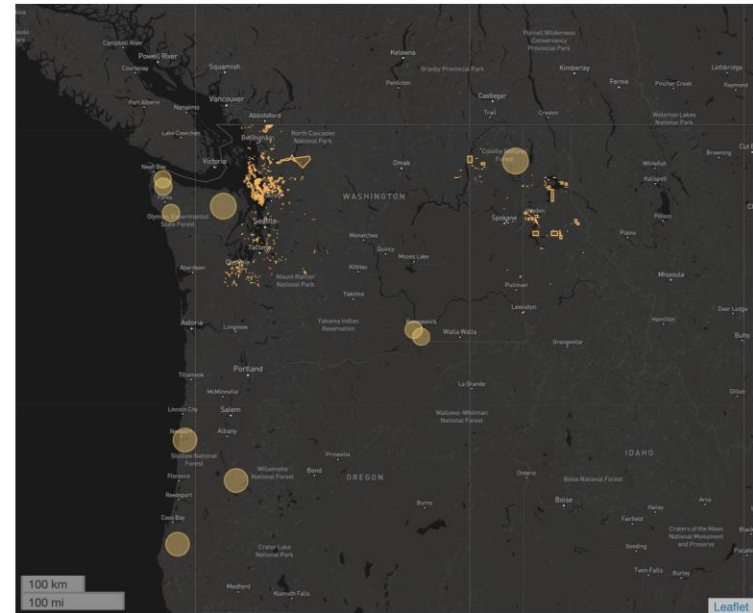
By implementing the standard **natively within existing** outage reporting systems, ODIN members can leverage benefits **without replacing their current systems.**

Participation is free!

ODI Nationwide Benefits

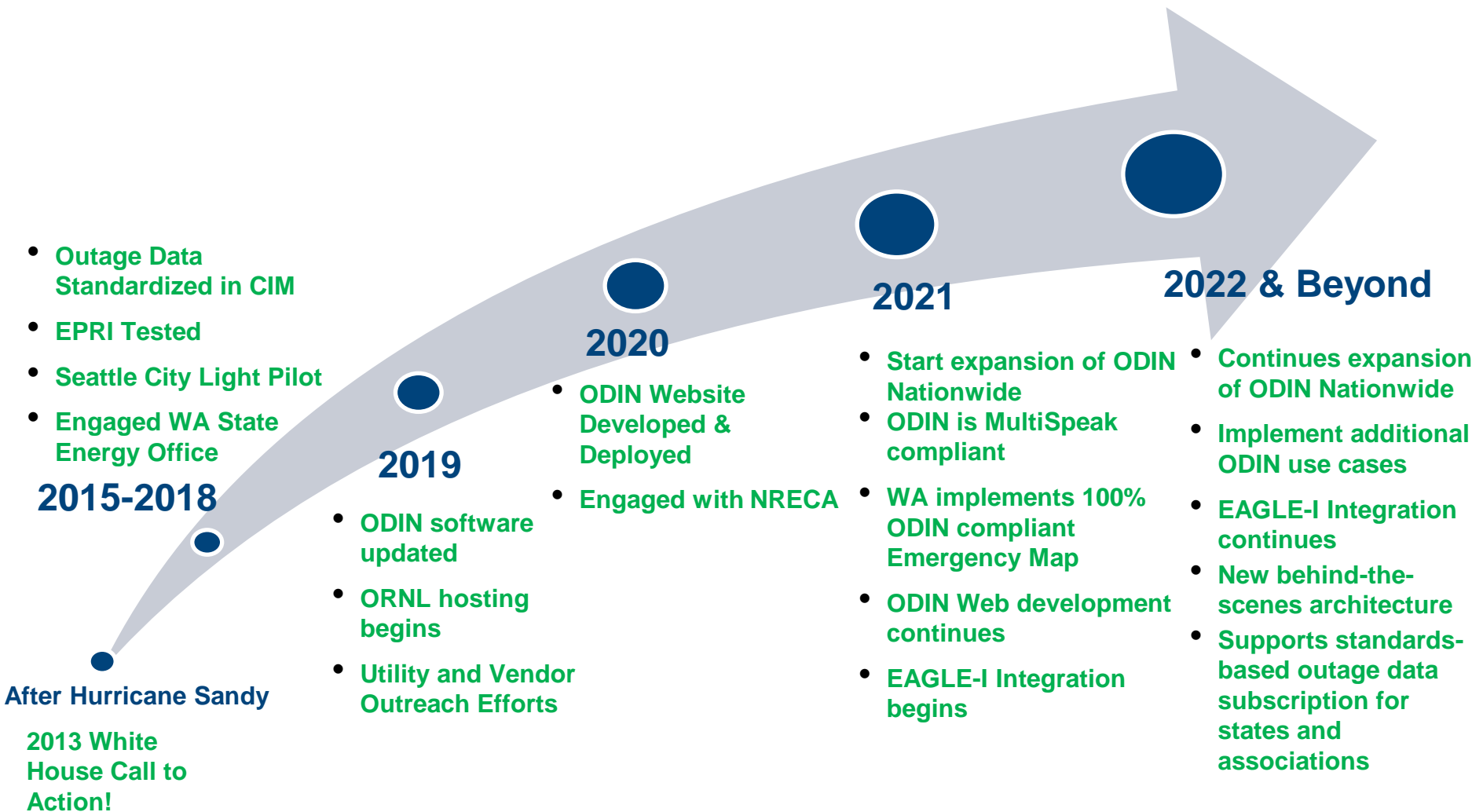
- Boosts interoperability among grid stakeholders
- Creates a conduit for sharing of critical information in real-time, whatever the situation
- Compliments existing mutual aid processes
- A single source of integration, increasing data reliability and reducing cost of data sharing
- FREE access to national DOE outage map

 **ODIN** OUTAGE DATA INITIATIVE NATIONWIDE

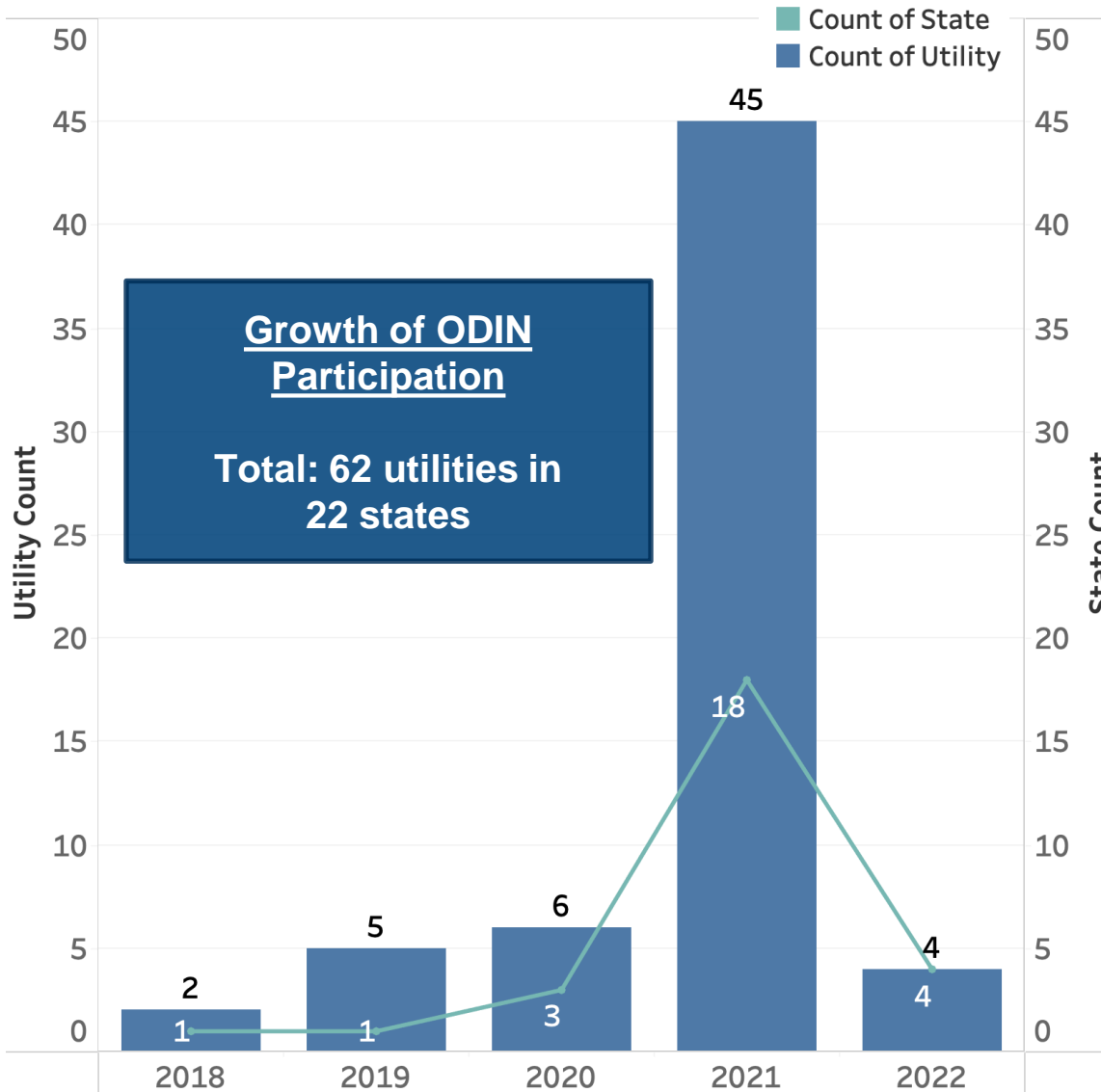


Current Outages: **50693**

Timeline




ODIN Participants




ODIN Website

Welcome to **ODIN**

Standardizing the exchange of customer power outage status in support of enhanced response and restoration activities

 [View Outage Map](#)

 [About ODIN](#)

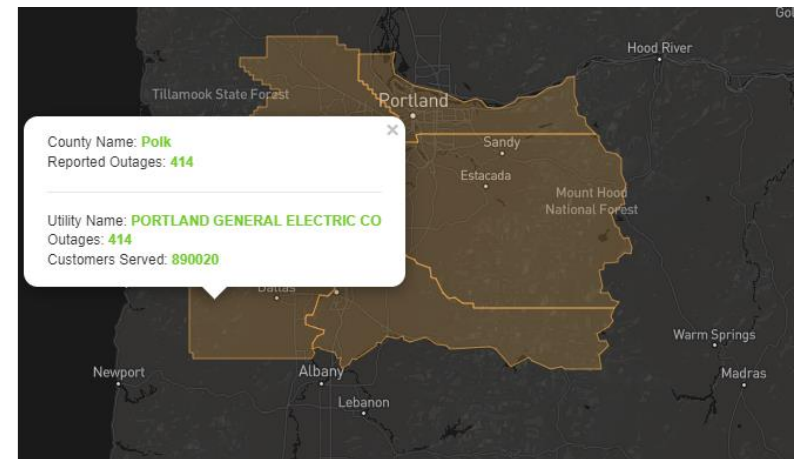
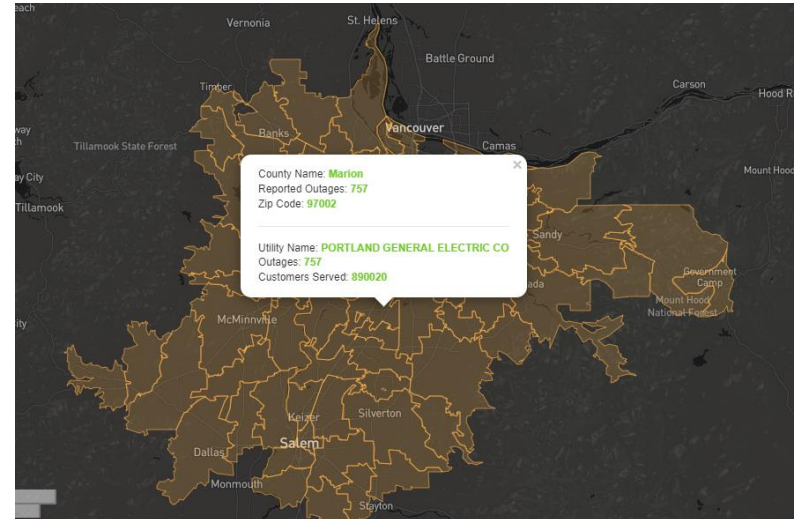
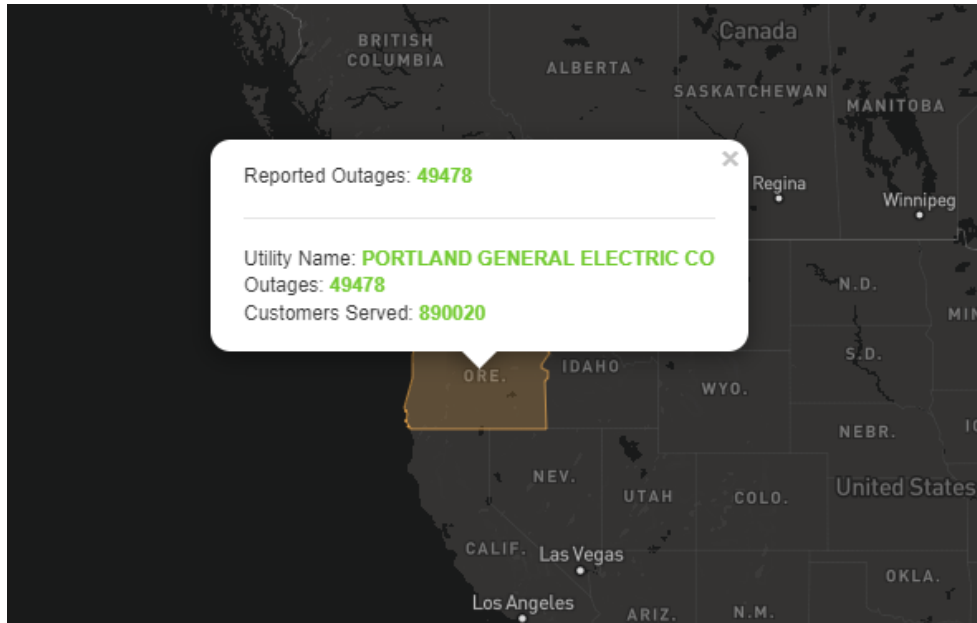
 [ODIN FAQ](#)

 [Contact us](#)

ODIN Website

Public Outage Map

Outage information displays at the state, county, or zip level so that depending upon the user's scale on the map we show more detailed information as the user zooms closer to any reported outage



ODIN Outage Service Improvements

ODIN Outage Status Information

ODIN now provides a receipt to outage information providers so that when the request is made with the outage information you receive a detailed response back that indicates if the request succeeded or failed with details on the issue or error(s) that occurred with the provided data

Accepted Data Response

```
^ <response>
  <status>accepted</status>
  <errors />
  <messages />
  <outage_id>57460656-eab6-4ce5-9966-6fc6fcb22a48</outage_id>
  <data_id>832e08b0-edb6-47c9-90fe-955bd5f7f4cf</data_id>
</response>
```

Bad Data Response / Invalid zip code / Invalid outage dates

```
^ <response>
  <status>accepted</status>
  <errors />
  ^ <messages>
    ^ <message>
      <severity>WARN</severity>
      <code>8</code>
      <message>Reported Date format is not valid provided Bad Data</message>
    </message>
    ^ <message>
      <severity>WARN</severity>
      <code>7</code>
      <message>Estimated Restoration Date format is not valid provided None
    </message>
  </messages>
  <outage_id>4b630116-176d-4e27-a982-f85c98d4aaf4</outage_id>
  <data_id>e48e81c2-7f4a-4b85-9310-07b12bd954ed</data_id>
</response>
```



Minnesota CO-OP & State Outages

Minnesota is working to improve CO-OP mutual aid and build a state outage map

Darrick Moe, CEO

darrick@mrea.org



Minnesota Rural Electric Association

Emergency Management Use Case

- **Allows near-real time status** updates to:
 - Emergency Managers
 - Critical infrastructure partners
 - Neighboring utilities
- **“Single pane of glass”** = avoid consulting 30+ outage maps during a storm
 - Creates a Common Operating Picture for the State Energy Office and County emergency managers
- **Elimination of phone calls** asking for “status updates”
 - Allows utility to dedicate resources to restoring power

Standard outage data helps your state



WASHINGTON ENERGY INFRASTRUCTURE ASSESSMENT TOOL



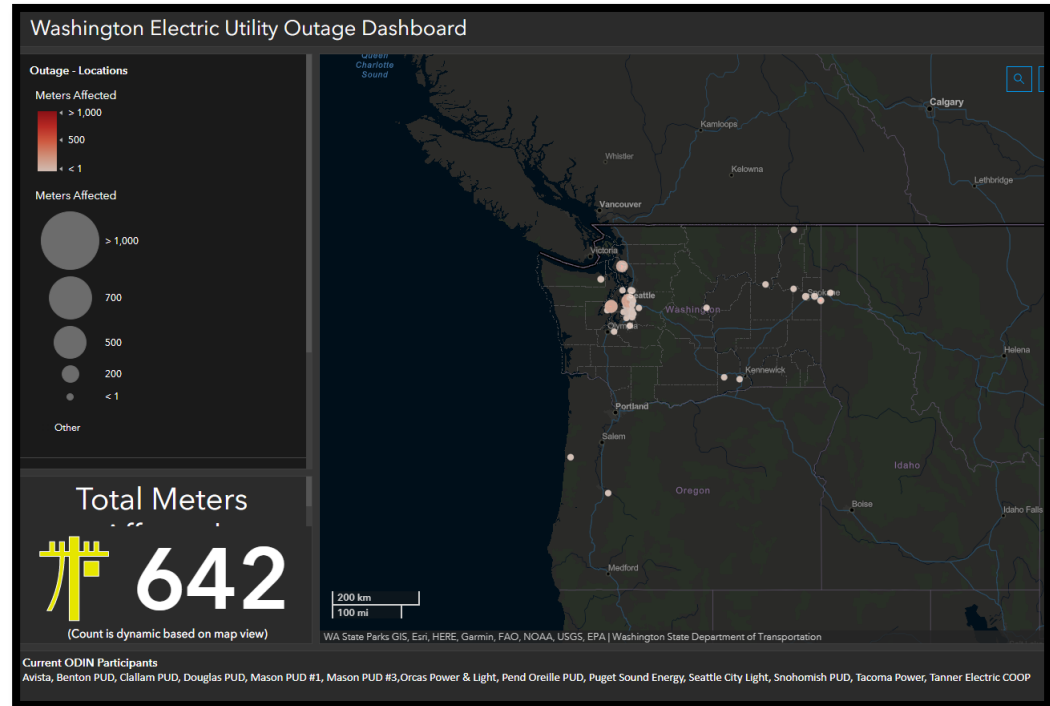
WEIAT – Operational Use in 2021

- **Monitoring electric outages from storms or other causes**
- **Energy sector operational status due to COVID safety changes, county status, and other factors**
- **Wildland fires and utility service territories**

State Energy Outage Map

The Washington State Energy Emergency Management Office is working with utilities to participate in our state-specific version of ODIN, called the Washington Energy Infrastructure Assessment Tool (WEIAT).

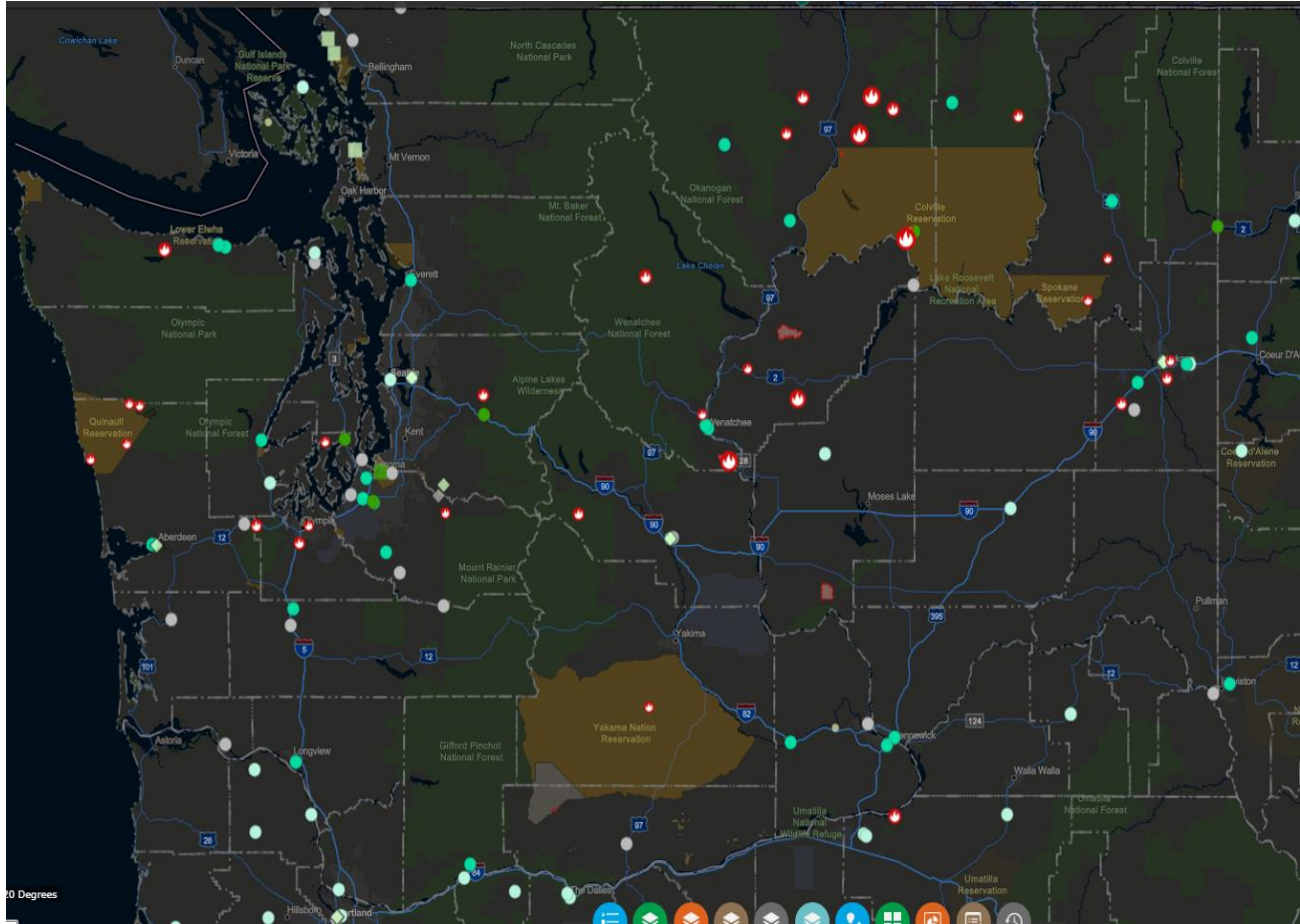
This tool provides a map that shows real-time, state-wide outage data. The outage map collects data directly from utilities who “opt-in” to data sharing and helps us more easily see the impact of an outage at a glance, which can help responders prioritize delivery of resources to communities



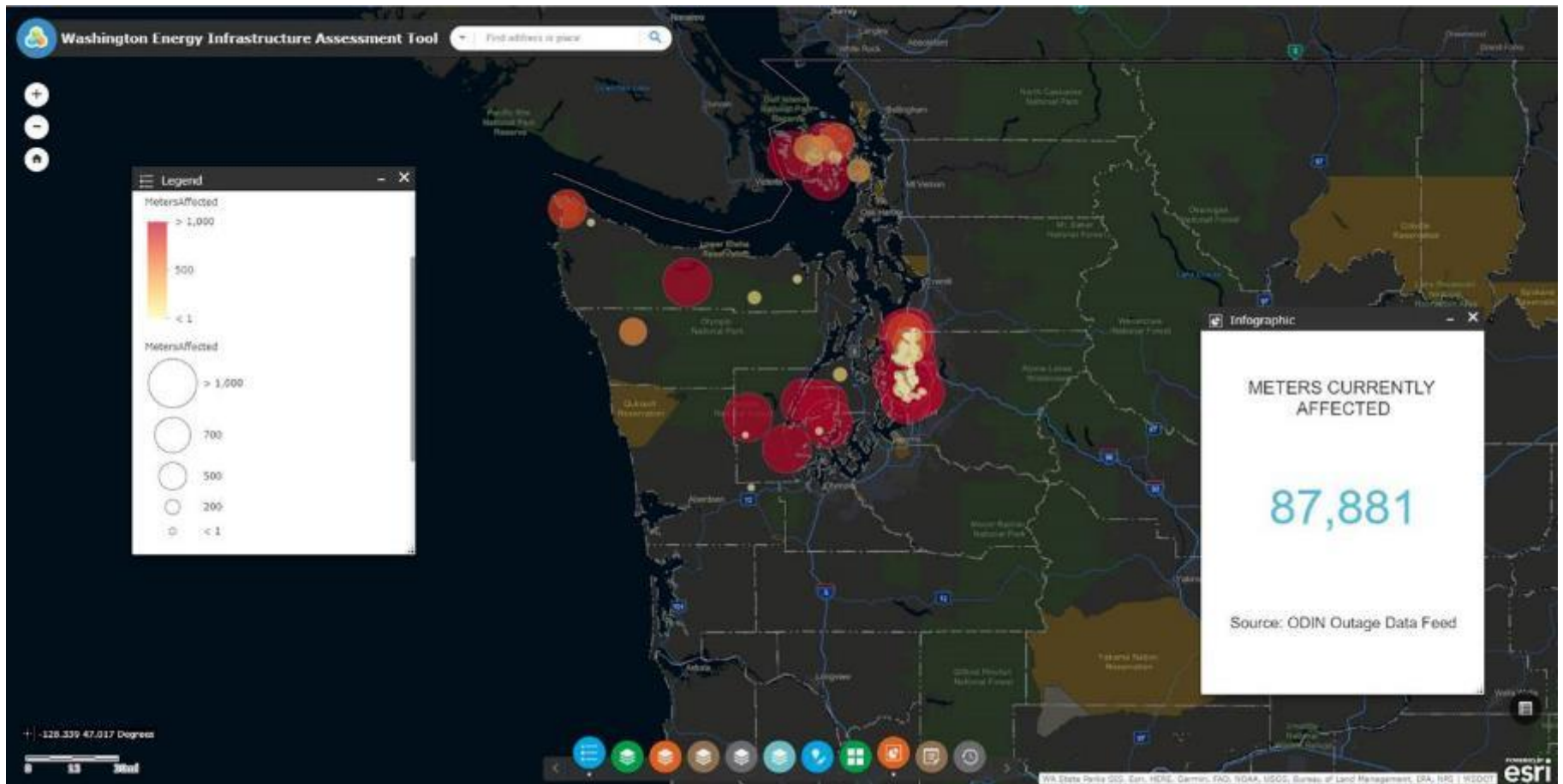
<https://www.commerce.wa.gov/growing-the-economy/energy/energy-emergencies/electric-utility-outage-map/>

Early COVID-19 Operational Status Tracker

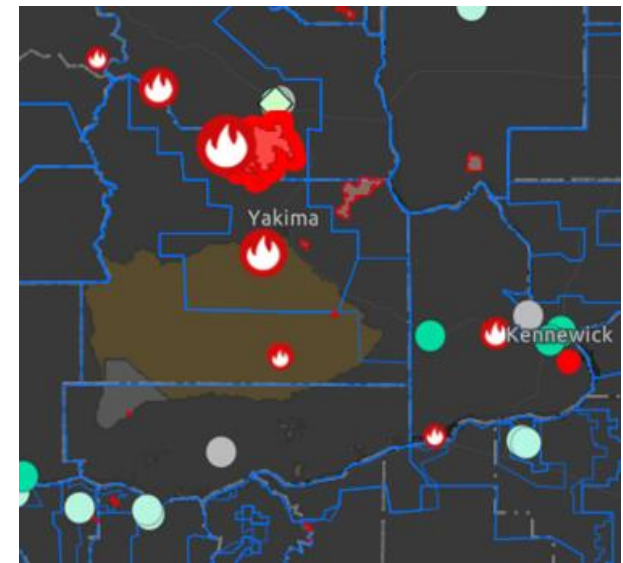
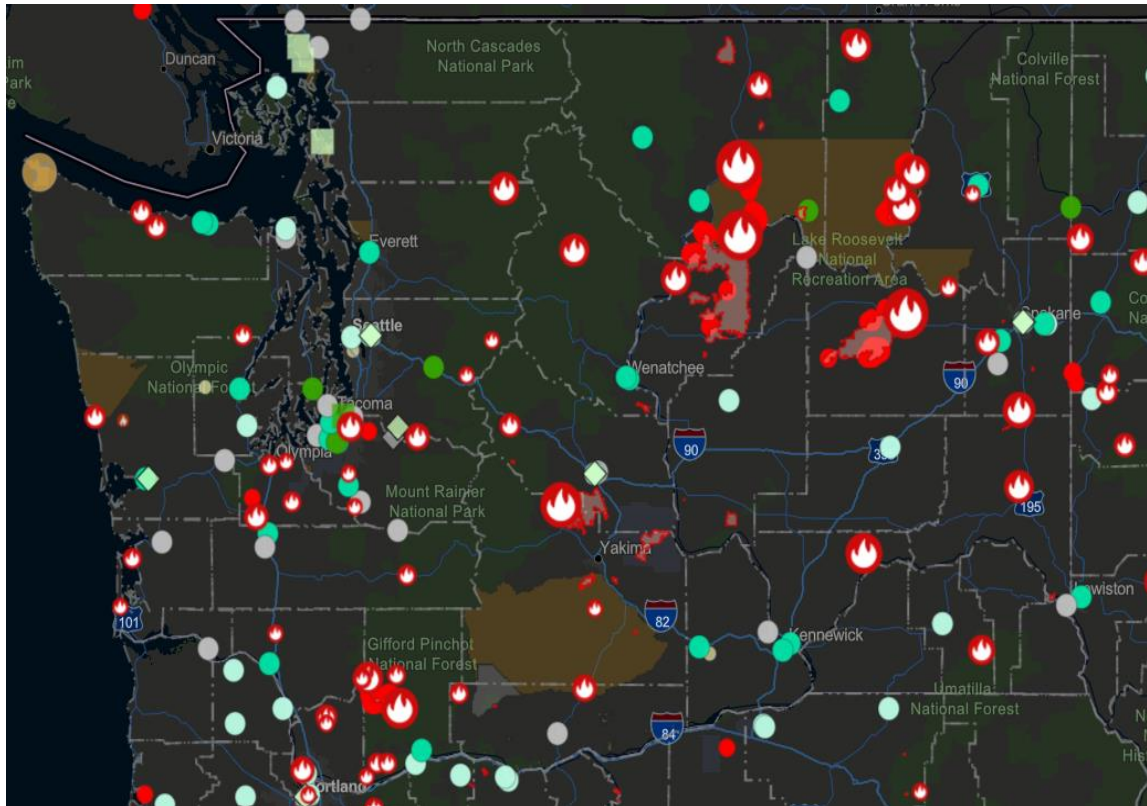
- Operational New Normal
- Phased New Normal
- Essential Operations
- Essential Services Impacted
- Essential Services Severely Impacted
- Unable to Provide Essential Services
- Unknown



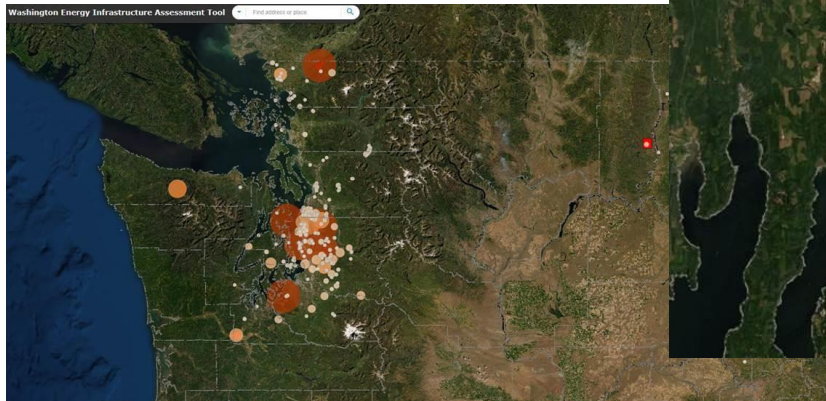
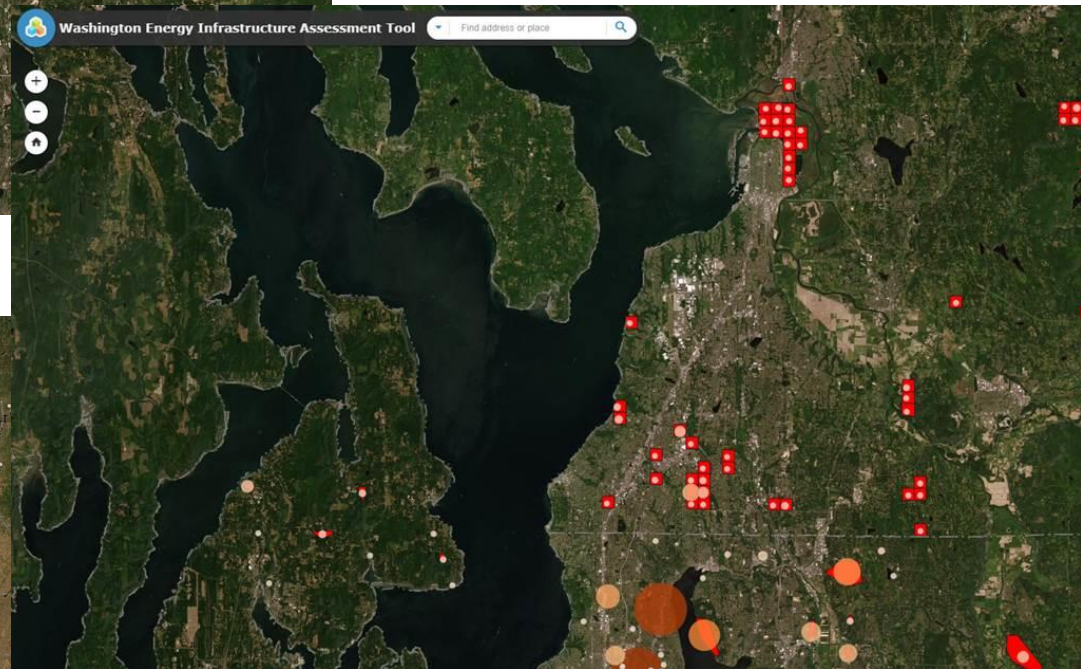
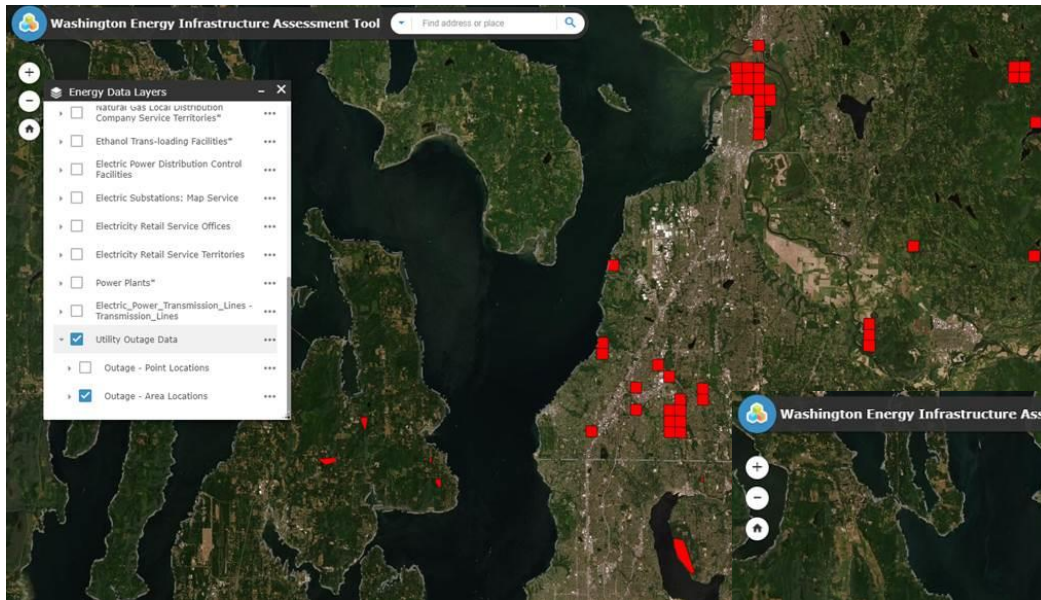
WEIAT Example



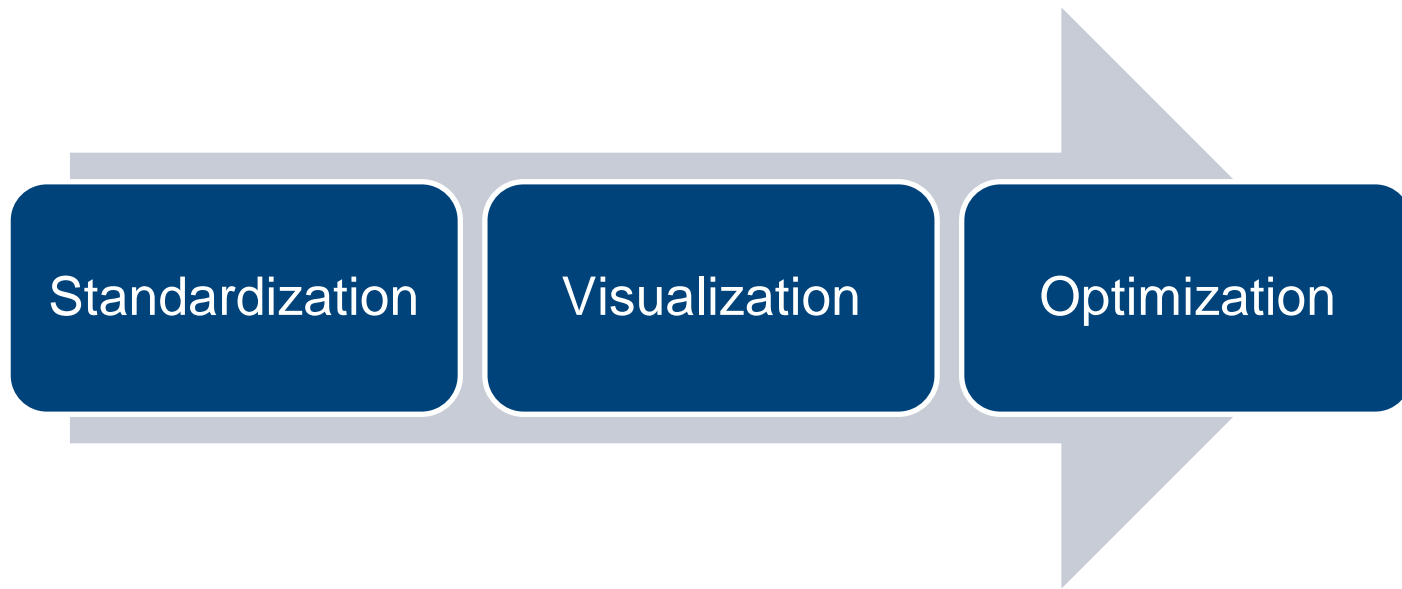
Wildland Fires



Outages & Weather Activity



Broad Use Cases for Open Outage Data



Broad Use Cases for Open Outage Data

Standardization

Visualization

Optimization

Standardization of Data Exchange:

- 1) Within a utility (Detailed outage data)
- 2) Between utilities (Generalized outage data)
- 3) With emergency management agencies (Detailed outage data) [more accurate, granular]
- 4) With media, public (Generalized outage data)
- 5) With other infrastructure providers [Cellular, Joint utility providers]
- 6) From AMI meters, streetlights and traffic lights.
(Leading to smarter traffic management, crew routing)

Broad Use Cases for Open Outage Data

Standardization

Visualization

Optimization

Visualization:

7) Standardized reporting to public outage map

8) Integration of Social Media for outage reporting to / from customers

9) Integration of Augmented Reality, Drones, mobile platforms and WMS with GIS & OMS for damage assessment

Broad Use Cases for Open Outage Data

Standardization

Visualization

Optimization

Optimization:

- 10) Analysis of outage reporting codes
- 11) Standardized outage reporting
- 12) Improved Post-Storm Analysis “report card”

Integration Options

Standards:

1. Common Information Model (CIM) - IEC 61968-3
2. Multispeak v4.1



Methods:

1. Vendor supported integration
2. ESB integration
3. Utility development and deployment of a standards-based API

Participation Information

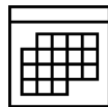
- **FREE** to Participate
- One-on-one support from ODIN
- Implementation with OMS vendor:

Participating
ODIN Vendor

Under ½ hour!



New Vendor or
Custom System



Several
weeks

- **Support ODIN in your region**
 - Start participating!
 - Encourage your organization to participate!
 - Encourage your members to participate!
 - Use this standardized data to your benefit

<https://pollev.com/scotts759>

Project Lead: DOE, Oak Ridge National Laboratory

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ODIN Implementation Resources

Visit the ODIN website at <https://odin.ornl.gov/outages/pages/about.html>

Resources

ODIN Developer Guide

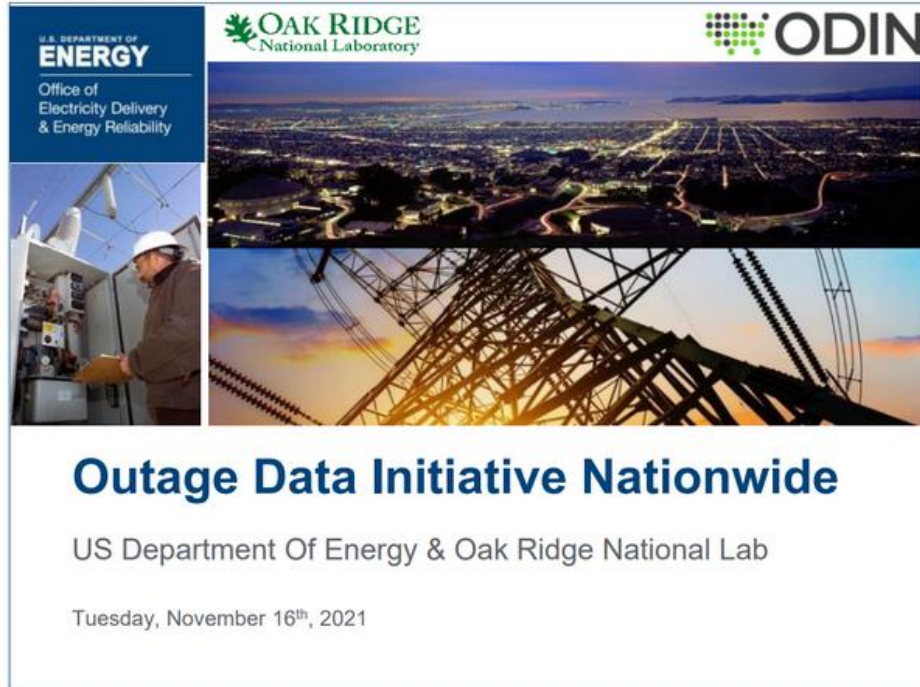
Invitation Letter (pdf)

Participation Letter (docx)

Webinar (pdf)

FAQ (pdf)

Webinar Recording



The banner features a collage of images: a worker in a hard hat and safety vest working on an electrical panel, a night view of a city with illuminated power lines, and a close-up of high-voltage power line towers against a sunset sky. Logos for the U.S. Department of Energy, Oak Ridge National Laboratory, and ODIN are positioned at the top.

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Tuesday, November 16th, 2021

Steps to Participate

1. **Respond to this simple poll**
<https://pollev.com/scotts759>
2. **Visit the ODIN Website**
 1. Review the FAQ
 2. Download and sign the participation letter
3. **Email your participation letter to the ODIN team**
4. **Within a week, ODIN will setup 30 minutes to discuss and confirm implementation method**
5. **Within 2 weeks, implementation and testing begin**

Q&A