

eReliability Tracker: Upgrades and User Tips

November 13, 2013

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Services Manager

Webinar Agenda

- Reliability Definitions & Overview
- Outage Information is important
- IEEE 1366 & Major Events
- Interesting Data
- Partial Restorations
- eReliability Tracker Walkthrough
 - Overview of eReliability Tracker Functions

Reliability - Defined

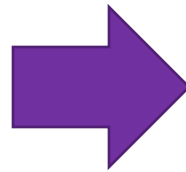
Reliability has individual and system components:

- The capacity of an item to perform as required over time
- The capacity of a population of designed, produced or maintained items to perform as required over time.
- The resistance to failure of an item or collection of items over time
- Reliability-related decisions involve complex tradeoffs between efficiency, resiliency and cost

Why Not Make Everything 100% Reliable?

Overdesign is too expensive for most customers to afford.

Excellent
Sun
Protection



Why Not Build Everything Only Considering Cost?

Ultra-low cost design fails too frequently for most customers to be satisfied with service.



It's Easy to Make Bad Decisions Without Good Data

Good Data is Important!!!!



eReliability Tracker Service

- The eReliability Tracker Service is designed to provide excellent outage data collection and categorization services
- To help ensure **ALL** public power utilities have access to an affordable reliability metrics tool
- Nationwide benchmarking service for public power consistent with RP3 best practices

eReliability Tracker Users

- 100 + Utilities all over U.S. using eReliability Tracker
- Significant program growth with over 30,000 utility outages entered into the system.
- Expanding infrastructure and addressing issues that users experience. Version 2 just released.
- YouTube channel for user support videos – visit: youtube.com/ereliabilitytracker

Reliability – Getting to the Right Outage Cause

- Always try to select the cause that most directly caused the outage and will help the utility make improvements in the future.
 - For example if a wind storm knocks a tree on to the line 'tree' is the cause.
 - Feel free to make special notes regarding the circumstances, or restoration, or equipment used in the Work Details field.

Work Details

Work Detail: 1 Delete

Equipment Action:

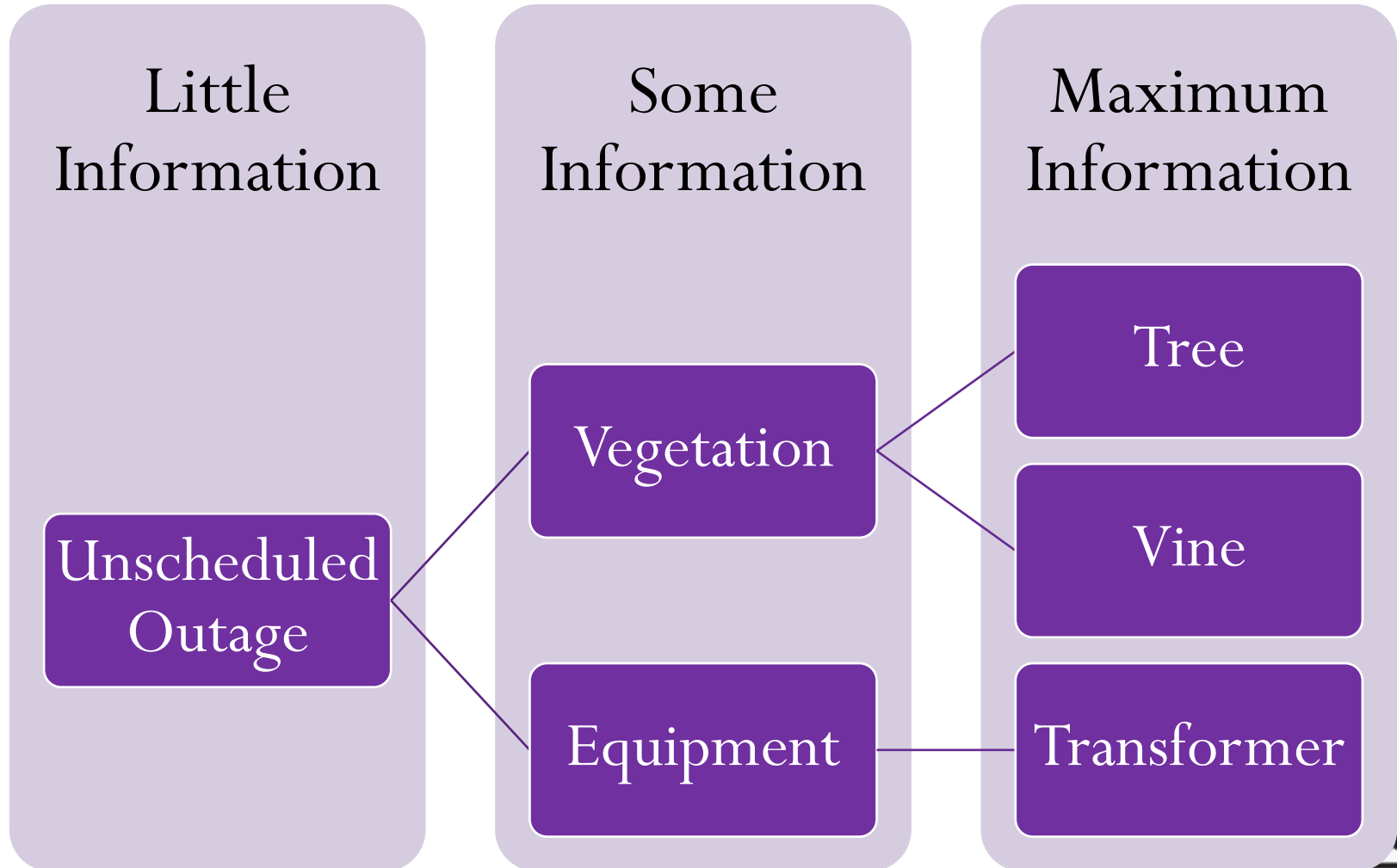
Equipment:

Notes:

Add New Equipment Detail

Selecting a Cause that Represents your Level of Available Information

- Nationwide Cause Harmonization



Reliability - Outage Causes



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Reliability - Outage Causes

Cause of Interruption				
Cause level 1	Cause level 2	Cause level 3	Cause level 4	
Unscheduled	Public	Vandalism		
		Human Accident		
		Vehicle Accident		
		Contact with Foreign Object		
		Non-Utility Fire		
		Non-Utility Excavation		
	Natural	Lightning		Direct Stroke
				Lightning-Induced Flashover
				Unknown/Other
		Wildlife		Squirrel
				Snake
				Bird
				Other
		Weather		Storm

Reliability - Outage Causes

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				Snake
				Bird
				Other
		Weather		Storm
	Ice			

Reliability - Outage Causes



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Reliability Statistics (IEEE 1366)

- IEEE 1366- 2012 (Guide for Electric Power Distribution Reliability Indices)

$$\text{SAIDI} = \frac{\Sigma \text{ Customer Interruption Durations}}{\text{Total Number of Customers Served}}$$

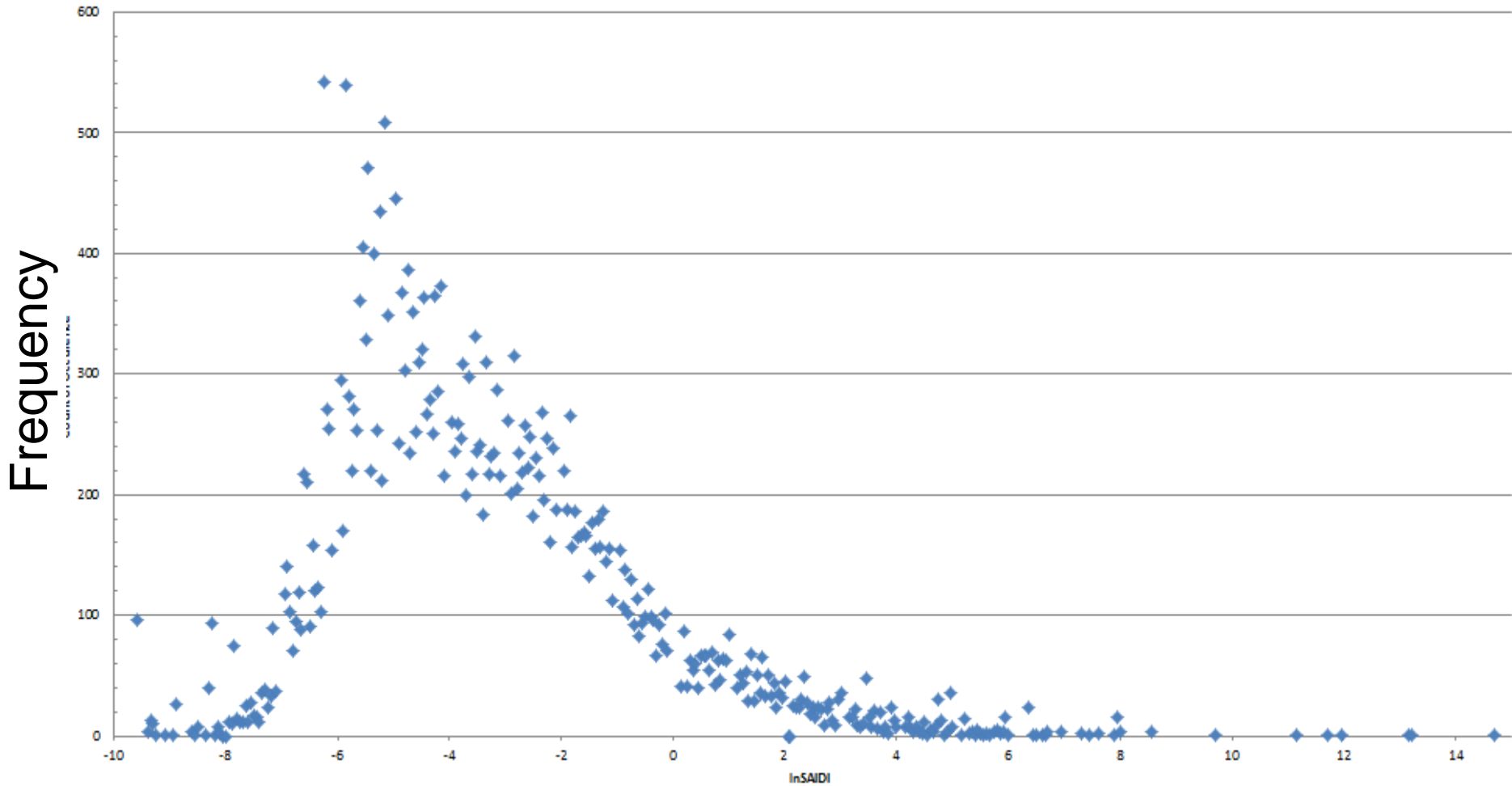
$$\text{SAIFI} = \frac{\Sigma \text{ Total Number of Customers Interrupted}}{\text{Total Number of Customers Served}}$$

$$\text{CAIDI} = \frac{\text{SAIDI}}{\text{SAIFI}}$$

$$\text{ASAI} = \frac{\text{Customer Hours Service Availability}}{\text{Customer Hours Service Demand}}$$

Reliability - Frequency & Duration

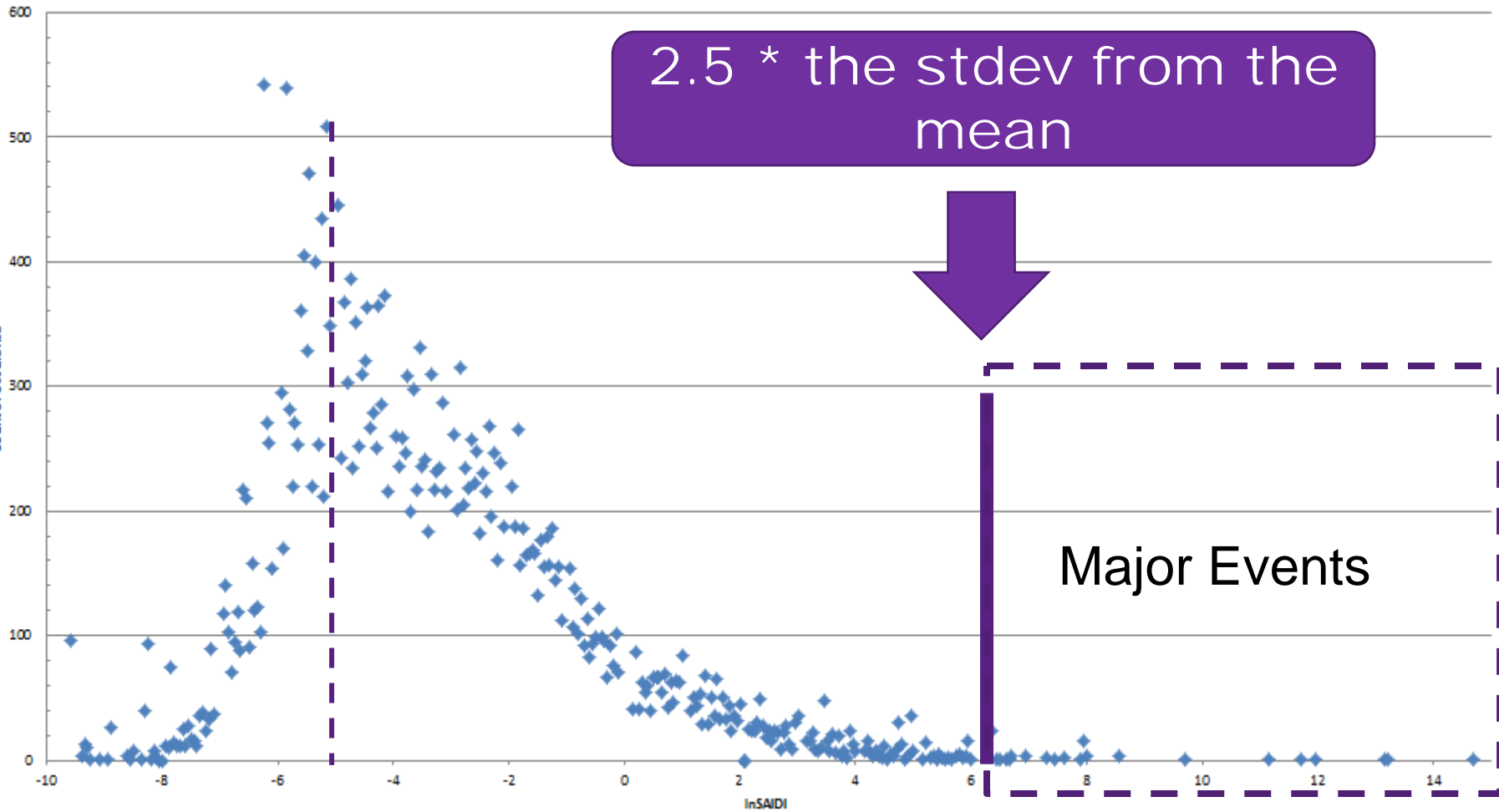
Log-Normal Curve Analysis of 30,000 Public Power Outage Data Points



Ln Event SAIDI

Reliability – IEEE 2.5 Beta

Log-Normal Curve Analysis of 30,000 Public Power Outage Data Points

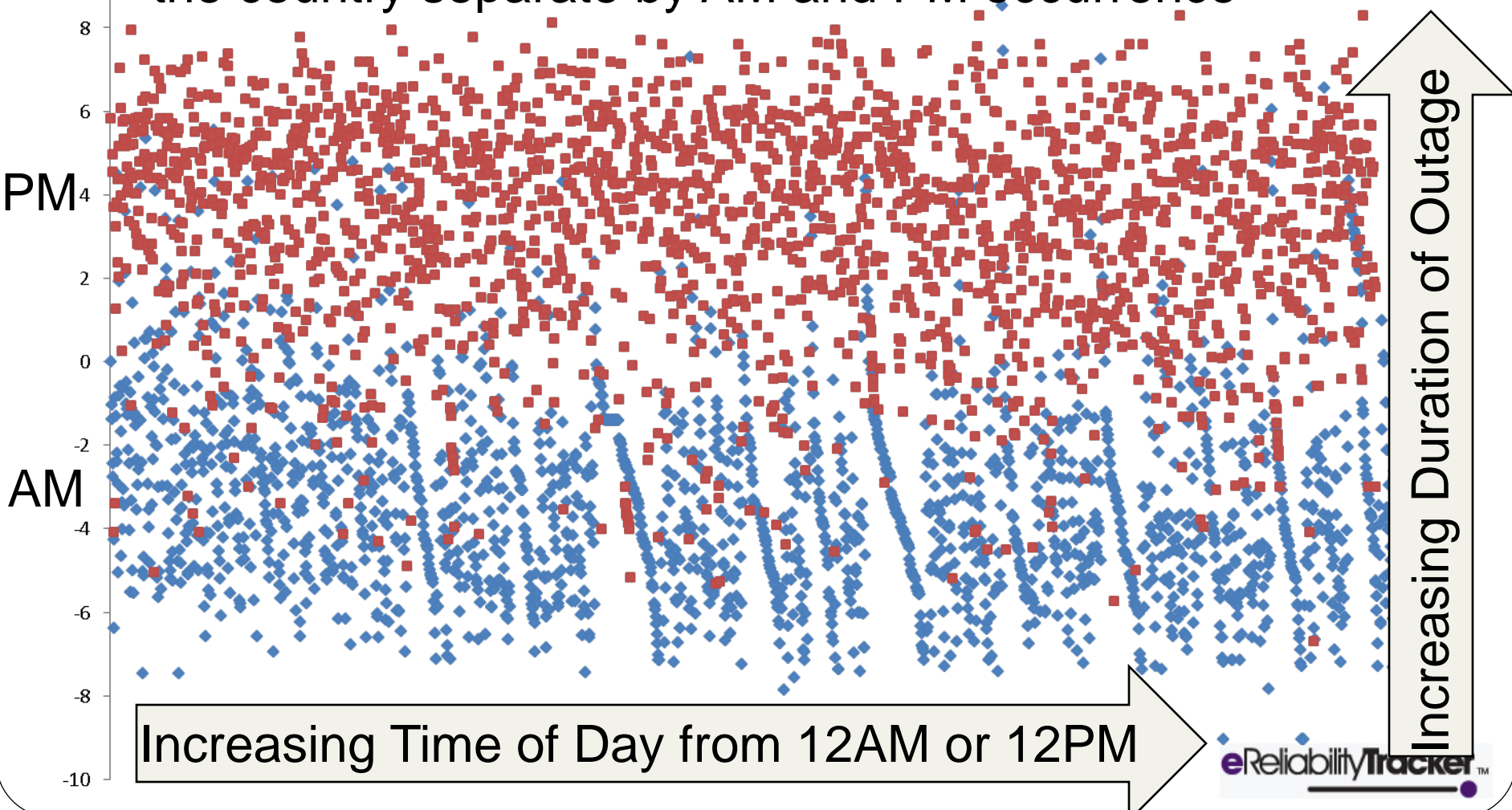


Ln Event SAIDI

Public Power Outage Patterns

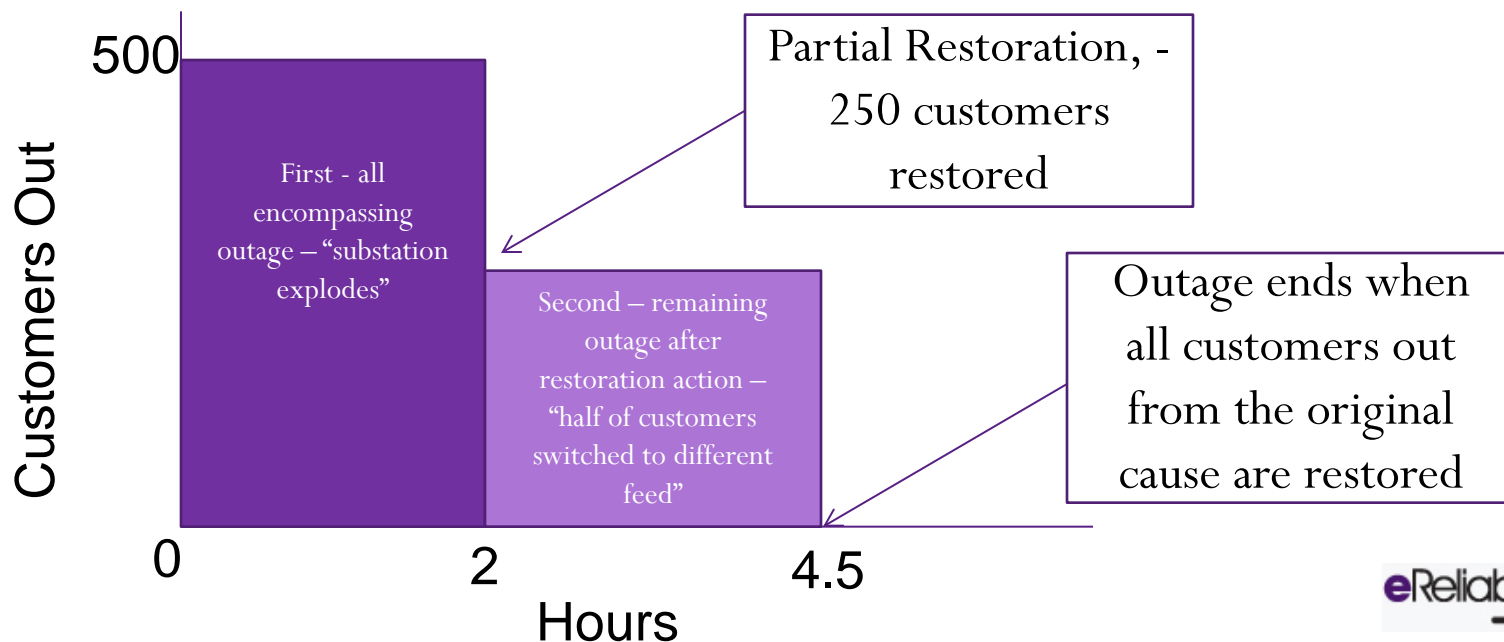
Ln SAIDI of 4,508 outages from utilities across the country separate by AM and PM occurrence

◆ AM_LN_EVENT_SAIDI
■ PM_LN_EVENT_SAIDI



Partial Restorations in eRT

- Partial restorations can be complicated, the key is keeping track of what went on in the way that best serves your utility and keeps statistics
- Use work details and group related outages together as an event



eRT – Before we get started

Navigation



User Info



The screenshot shows the eReliabilityTracker application interface. At the top left is the logo "eReliabilityTracker" with a small purple dot. To its right is a navigation menu with links for "Home", "Outages", "Report", and "Manage". On the far right of the header is a user profile icon labeled "ultraReliable" with a dropdown arrow. Below the header is a large heading: "Welcome to the eReliability Tracker application". Underneath this heading is a yellow banner with text: "Free eReliability Tracker webinar on November 13. Please click here to register: <http://publicpower.org/Events/webinar.cfm?ItemNumber=39463>". Below the banner is a paragraph of text: "To help public power utilities with reliability metrics, the American Public Power Association created this eReliability Tracker software. Development of this software was supported by a grant from APPA's DEED (Demonstration of Energy and Efficiency Developments) program. This software is designed to provide excellent outage data collection and categorization services with good introductory coverage of the standard IEEE 1366 metrics for public power." This is followed by another paragraph: "To help ensure all public power utilities have access to a reliability metrics tool, APPA updates and maintains this software regularly. If you have questions on how to use this software, visit our [youtube channel](#) for instructional videos, or read the user's guide ([Leader's Guide](#) and [Member's Guide](#)). If you have additional questions please email reliability@publicpower.org." The final paragraph reads: "Please use the most up to date version of your preferred web browser. For the best user experience, please use a non-proprietary browser, such as Google Chrome or Firefox."

eReliability Tracker Walkthrough

- The basics of the system
 - Users, Circuits, Substations, Equipment, Customers
 - Outages
 - Reports
- Tips and Tricks that can be done in five minutes
 - Quick Outage categorization
 - Separating out outages for analysis
 - Analyzing special equipment

eReliability Tracker Tips

- Use an up-to-date non-proprietary browser, such as Google Chrome or Firefox
- Be as detailed as possible when recording outages
- Help other users at your utility
- Did we mention our YouTube channel?
<http://www.youtube.com/ereliabilitytracker>

eReliability Tracker Program Contact Information

- To ask questions, or for technical support email: reliability@publicpower.org
- To view the latest Distribution System Reliability and Operations Survey Report or see any of the other eReliability Tracker resources go to publicpower.org find the 'engineering tab' and select 'reliability'

Purchasing eReliability Tracker

- APPA's Product Store:
<http://www.publicpower.org.store>
- Contact: reliability@publicpower.org

DEED Updates & General Information

DEEDWebinars

DEMONSTRATION OF ENERGY & EFFICIENCY DEVELOPMENTS



DEED Project Database (DPD)

DEED members may use the DPD, an online, searchable database containing summaries and reports on current and completed DEED–funded projects. Learn what others are doing on topics of interest to you.

Go to www.PublicPower.org/DEED then choose “Project Database” from the top bar. Log in with your APPA username and password.

Upcoming DEED Deadlines

- **December 1, 2013** – DEED grant and scholarship applications open. Obtain up to \$125,000 for an innovative utility project or attract new talent by applying for a \$4,000 student internship. More information is available on DEED's funding opportunities page. Applications are due by midnight, February 15th.
- **January 31, 2014** – Energy Innovator Award and Award of Continued Excellence nomination deadline. Submit your nomination online or via email at www.publicpower.org/DEED and then chose "Awards" tab at the top.

DEED Program Contact Information

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