



# eRELIABILITY TRACKER SOFTWARE LEADER USER GUIDE

# eReliability Tracker Software Leader User Guide

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## Introduction

### Create Your Account

You should have received a registration link that allows you to create your account. When you click the link, the Login screen should open.

Enter the required information, which includes:

- Email
- Username (firstinitiallastname)
- Password

Read and accept the terms and conditions, and then click the “Create User” button.

If creating your account is successful, a welcome page should open with a green text box saying the account was created successfully.

Since your role (permission level) is a “Leader”, your screen will contain all the tabs shown below.

## Types of Users and Permissions

- Spectator**      Permission to view Home tab and view and run Reports in the system
- Member**        Permission to document Outages and view and run Reports (ex. people in the field)
- Leader**         Permission to document Outages, view and run Reports, and create User profiles for personnel

## Edit Your Profile or Log Off

Click on the arrow next to your username in the top right-hand corner of the screen to access a drop-down menu.

Click “Profile” to edit your profile and view your account details. You can edit these details, including your password, on this page. Once finished, click “Update User” to finalize these changes.

Click “Sign Out” on the drop-down menu to log out of your account.

## Functions

### Home

At the top of your screen, the “Home” tab leads you to the welcome screen.

### Outages

When you click the “Outages” tab, five options will appear on your screen, shown to the right.

- Record Outage** Enter a new outage
- Outages** View all recorded outages
- Events** View all events (each outage is automatically recorded as a single event, but outages can be combined to form one event for partial restorations or related outages)
- Export** Export all outages from a specific time period
- Import** Import previously recorded events from a CSV file

### Record Outages

To record an outage, click “Record Outage” and fill out the required information in the top portion of the page. The bottom portion contains fields for additional details that you can add for your own convenience and recordkeeping.

### Required Fields

Fields required in order to submit a report:

<b>Address</b>	The address of the customer associated with the outage being reported OR the actual geospatial location of the outage.
<b>Substation</b>	<p>Substations perform as parts of a generation, transmission, and distribution system. It is an electric system facility.</p> <p>In the drop-down menu, select the specific substation where the outage occurred.</p> <p>Utilities can use their own naming conventions when naming their substations (more thoroughly described in the <b>Manage</b> section of this manual).</p>
<b>Circuit</b>	<p>Also called feeders, circuits carry power to load areas from substations. A substation is comprised of several incoming and outgoing circuits connected to a bus-bar system. In addition to noting the substation, it is important to note which circuit in the specified substation was relevant to the outage.</p> <p>In the drop-down menu, select the circuit on which the outage occurred.</p> <p>Utilities can use their own naming conventions when naming their circuits (more thoroughly described in the <b>Manage</b> section of this manual). Circuits are not automatically related to substations, so be sure to use a good naming convention and select the proper circuit.</p>
<b>Primary Cause</b>	<p>In this field, there is a drop-down menu with all of the causes of service interruption. It is important to fill out the correct primary cause so that you can analyze the reasons for the outages in your utility and take preventative measures for the future. It is also important to select the most exact cause of the outage. For example, if a storm blows a tree onto a line and causes an outage, the tree should be selected as the cause of the outage.</p> <p>Every service provider may categorize causes differently, but if you stay consistent with your own method of categorization, you will be able to analyze the causes of your utility’s outages in the future. This causal list follows IEEE recommendations.</p> <p>In situations where the cause of the outage is unknown, the utility should do its best to develop substantial conclusions about the most likely cause based on analysis of similar past interruption events.</p>
<b>Primary Cause: Scheduled</b>	This category includes interruptions that can safely be delayed by the utility personnel and customers can be notified in advance.

	<p><b>Customer Service</b></p> <ul style="list-style-type: none"> <li>▪ Non-Payment</li> <li>▪ Relocation</li> <li>▪ Repairs</li> </ul> <p><b>Non-Customer Requests</b></p> <ul style="list-style-type: none"> <li>▪ Fire Department</li> <li>▪ Police Department</li> </ul>	<p><b>Non-Utility Construction</b></p> <ul style="list-style-type: none"> <li>▪ Commercial Construction <ul style="list-style-type: none"> <li>○ Contractor Dig-In</li> <li>○ Non-Utility Employee</li> </ul> </li> <li>▪ Residential Construction</li> <li>▪ Road Construction</li> </ul> <p><b>Utility Maintenance and Repairs</b></p> <ul style="list-style-type: none"> <li>▪ Equipment Replacement</li> <li>▪ Load Swap</li> </ul>
<b>Primary Cause: Unscheduled</b>	<p>This category includes any interruption that is a result of the actions of the public.</p> <p><b>Equipment</b></p> <ul style="list-style-type: none"> <li>▪ Electrical Failure</li> <li>▪ Equipment Damage</li> <li>▪ Equipment Worn Out</li> <li>▪ Manufacturing Defect</li> </ul> <p><b>Natural</b></p> <ul style="list-style-type: none"> <li>▪ Lightning <ul style="list-style-type: none"> <li>○ Direct Stroke</li> <li>○ Lightning-Induced Flashover</li> <li>○ Other – Lightning</li> </ul> </li> <li>▪ Vegetation <ul style="list-style-type: none"> <li>○ Other – Vegetation</li> <li>○ Tree</li> <li>○ Vine</li> </ul> </li> <li>▪ Weather <ul style="list-style-type: none"> <li>○ Heat</li> <li>○ Ice</li> <li>○ Storm</li> <li>○ Wind</li> </ul> </li> <li>▪ Wildlife <ul style="list-style-type: none"> <li>○ Bird</li> <li>○ Other – Wildlife</li> <li>○ Snake</li> <li>○ Squirrel</li> </ul> </li> </ul> <p><b>Power Supply</b></p> <ul style="list-style-type: none"> <li>▪ Failure of Greater Transmission</li> <li>▪ Loss of Generating Unit</li> <li>▪ Overloaded</li> </ul> <p><b>Public</b></p> <ul style="list-style-type: none"> <li>▪ Contact with Foreign Object</li> <li>▪ Human Accident</li> <li>▪ Non-Utility Excavation</li> <li>▪ Non-Utility Fire</li> <li>▪ Vandalism</li> <li>▪ Vehicle Accident</li> </ul> <p><b>Unknown</b></p> <p><b>Utility Human Error</b></p> <ul style="list-style-type: none"> <li>▪ Construction</li> <li>▪ Maintenance</li> <li>▪ Operations</li> </ul>	
<b>Number of Customers without Power</b>	Specify how many customers were without power during the outage being reported. Enter the value in numerical format.	
<b>Time Outage Began</b>	Identify the most accurate time for when the outage began in military time.	
<b>Date Outage Began</b>	Identify the specific date when the outage began. The format should be mm/dd/yyyy, or you can click on the calendar icon to select the date.	
<b>Time Outage Ended</b>	Identify the most accurate time for when the outage ended in military time.	
<b>Date Outage Ended</b>	Identify the specific date when the outage ended. The format should be mm/dd/yyyy, or you can click on the calendar icon to select the date.	
<b>Is Reportable?</b>	This option allows you to decide if this outage will contribute to your outage-related reports. If the box is checked, the outage will contribute to any reports you run in the system (more thoroughly described in the <b>Reports</b> section).	

	<p>If you leave the “Is Reportable” box unchecked, the outage will be recorded as an outage but will <b>not</b> contribute to your outage-related reports. This feature can be used to exclude huge storm-related outages and loss of power supply outages. It is optional, so it’s up to you to decide which outages should be considered non-reportable.</p>
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### Optional Fields

Fields not required in order to submit a report (recommended additional details).

### System Characteristics

<b>Descriptive Characteristics</b>	<p>Describe the electrical distribution system impacted by the outage.</p> <p>Options: Distribution Overhead, Distribution Underground, Generation, Substation, Transmission, Customer Equipment.</p>
<b>System voltage at site</b>	<p>The voltage information should be based on the highest voltage level affected by the outage event.</p>
<b>Circuit Type</b>	<p>Choose the type of circuit that your utility system uses.</p> <ul style="list-style-type: none"> <li>• <b>Radial:</b> This is the most common and simple distribution system. It can be completely overhead or underground. It is connected to only one source of power.</li> <li>• <b>Primary Loop:</b> Also known as open ring system. Provides power from two feeders.</li> <li>• <b>Primary Selective:</b> This type of circuit uses some of the same basic components as the primary loop. Ahead of the consumer’s transformer, an automatic switch is provided, which helps to limit interruptions in the event of loss of feeder.</li> <li>• <b>Secondary Selective:</b> This system uses two transformers from two different primary feeders. Unlike the primary selective system, it uses low voltage switching. This system is generally used for industrial plants.</li> <li>• <b>Spot Network:</b> This system is very similar to a closed ring system. It is a network, which means it utilizes two or more transformer units in parallel. It is most commonly used in high load density areas.</li> </ul>
<b>Phases Impacted</b>	<p>A three-phase electric power system is a type of polyphase system. It is a common method of electric power transmission and tends to be a much smoother form of electricity than the single or two-phase systems.</p> <p>Select in the drop-down menu exactly which phases (which overhead line(s)) were affected by the outage.</p> <p>Options include any combination of phase 1 (A), 2 (B), and 3 (C).</p>
<b>Load Interrupted (in kVA)</b>	<p>This is the value, in kilovolt-amperes, of connected load interruptions.</p>

### Miscellaneous Details

<b>Key accounts without power</b>	<p>These are the key customers for which the utility wants to track service and reliability levels. These customers can be referenced when creating a new outage. Information on how these customers can be created can be found under the <b>Manage</b> section of this manual.</p>
<b>How was the outage reported</b>	<p>Options: Customer call-in, Outage Management System, and Other.</p>

<b>Total work hours to complete restoration</b>	Identify how many work hours it took to complete total restoration of the utility. Enter value in numerical format.
<b>Total Customers Served</b>	The utility’s total number of customers is automatically entered from the utility’s profile (more thoroughly described in the <b>Manage</b> section).

### Work Details & Custom Variables

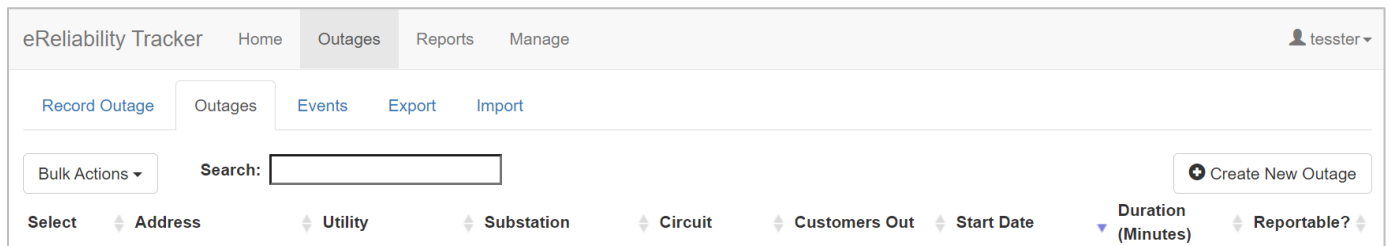
<b>Equipment Action</b>	Use the drop-down menu to identify if the equipment was used for restoration, repair, replace, or a work detail during the outage.
<b>Equipment</b>	The actual equipment used. This list is drawn from the customizable equipment list in the <b>Manage</b> tab.
<b>Notes</b>	This area is for notes related to the restoration, repair, replacement, or work details of an outage.

### To Finish Recording an Outage

Once the required information and additional details are filled out, click “Create Outage” and you will be automatically taken to the list of outages that you have for your utility. If the addition was successful, there will be a green text box at the top of the page that says it was successfully added.

From that page, if you wish to record another outage, click on “Create New Outage” on the top right corner of the page. This will take you to a blank form to record a new outage.

### Outages



If you click on the “Outages” sub tab, you will be taken to the complete list of your utility’s recorded outages. From this page, you can click “Create Outage” to record another outage. You can also search, edit, or delete the recorded outages. This page displays the following outage details: Address, Utility, Substation, Circuit, Customers Out, Start Sate, Duration (Minutes), and whether the outage is Reportable.

The Search box searches all eight fields listed as you type into the box. For a more detailed report on the outages, use the “Export” sub tab to create a spreadsheet.

On this “Outages” page, you can delete outages by checking the boxes next to each outage, clicking the “Bulk Actions” drop-down menu, and selecting “Delete Selected Outages”. Once an outage is deleted, you **CANNOT** recover it on your own. If outages were mistakenly deleted, contact APPA staff at [Reliability@PublicPower.org](mailto:Reliability@PublicPower.org).

By clicking on an outage, you can edit the recorded details and click “Update Outage” to save any changes.



## To Group Outages into a Single Event

	Substation	Circuit	Customers Out	Start Date	Duration (Minutes)	Reportable?
<input type="checkbox"/>	TESST APPA Utility	None	100	07/22/2020	5.0	True
<input type="checkbox"/>	TESST APPA Utility	None	50	07/22/2020	10.0	True
<input type="checkbox"/>	TESST APPA Utility	None	100	07/22/2020	10.0	True
<input checked="" type="checkbox"/>	TESST APPA Utility	None	2	03/28/2020	151.0	True
<input checked="" type="checkbox"/>	TESST APPA Utility	None	1091	03/28/2020	78.0	True
<input checked="" type="checkbox"/>	TESST APPA Utility	None	1	03/22/2020	100.0	True
<input type="checkbox"/>	TESST APPA Utility	None	8	03/20/2020	75.0	True

Check the boxes next to all the outages you would like to combine into a single event. Click the “Bulk Actions” drop-down menu and select “Group Selected Outages Into Single Event”. You should then see a green text box confirming the creation of a new event containing these outages.

After creating an event, you can edit your current events in the “Events” sub tab. At first, the Event is named after the first outage that occurred in the event. You can edit an Event’s name by clicking its name, writing its new name, and hitting “Update Event”.

## Events

Select	Name	Outages Involved	Start Date
<input type="checkbox"/>	Storm 1	3	07/22/2020

Under the “Events” sub tab, you will see a page with a list of all the events that have been recorded for your utility. Note that each outage is automatically recorded as a single event, but an event can also be a collection of outages – these collections are typically partial restorations related to single outages (further information on partial restorations are available in the **Manage** section). The details shown on this page include: Name, Outages Involved, and Start Date.

On the events page, you can delete events by checking the boxes next to the events you would like to delete, clicking on the “Bulk Actions” tab, and selecting “Delete Selected Events.” CAUTION: This action deletes the individual outages nested under the event as well as the event itself.

By clicking on one of the events, you may change the name of the event, edit any of the outages involved with the event, or sort the outages listed. This is a good way to group partial outages together to be treated as one event in the system.

To sort outages out of an event, check the boxes next to the outages you would like to select, click the “Bulk Actions” drop-down menu, and chose “Separate Selected Outages into Unique Event.” To delete outages, check the desired boxes, click the “Bulk Actions” drop-down menu, and select “Delete Selected Outages.”

When you create an Event, it is automatically identified as a “Multi-Cause Event.” This means that all the different causes of the outages in the Event will be recorded and will appear in your “Cause Pie Chart” report (see more information in **Reports** section). If you select “Single-Cause Event,” the event will be attributed to the earliest cause of the outage.

Once you are done editing this Event, click “Update Event” – a green text box will appear confirming the modification is successful.

**Edit Event**

Name:  Cause Type:  Single-Cause Event  Multi-Cause Event

**Outages for this Event**

An event with multiple outages is treated as one interruption for the purposes of reliability statistics (i.e. an event is a series of partial restorations).

Bulk Actions ▾ Search:

Select	Address	Substation	Circuit	Cause ⓘ	Customers Out	Start Time	Is Part of Restoration?
<input type="checkbox"/>	Outage 1	None	None	Lightning ✓	100	07/22/2020 08:30:00	No
<input type="checkbox"/>	Outage 3	None	None	Utility Human Error ✓	50	07/22/2020 08:35:00	No
<input type="checkbox"/>	Outage 2	None	None	Lightning	100	07/22/2020 08:35:00	Yes

Showing 1 to 3 of 3 entries

Previous **1** Next

Customer Interruptions **150**

Customer Minutes of Interruption **2000.0**

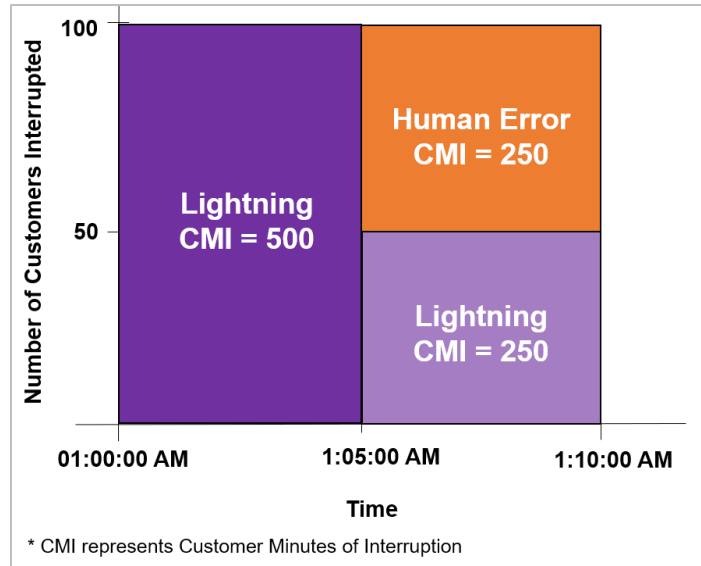
**Part of Restoration**

You can also label outages as “Part of Restoration” by checking the box next to the outage, clicking “Bulk Actions,” and selecting “Set ‘Is Part of Restoration’ to ‘Yes.’” This feature allows you to keep track of outages that were partially restored in an event.

### Scenario 1

For example, if a lightning strike caused a power outage for 100 customers, a worker restored power to half of the customers affected but caused another 50 customers to lose power, and then power was restored for all customers ten minutes later (see figure to the right), you would use the partial restoration tool.

Partial restorations ensure the customers who originally lost power due to lightning and continued to not have power after the human error are not double counted in the number of customer interruptions or the calculated customer minutes of interruption (see figure below).



Select	Address	Substation	Circuit	Cause	Customers Out	Start Time	Is Part of Restoration?
<input type="checkbox"/>	2451 Restoration Avenue	North Substation	North Circuit 1	Lightning ✓	100	01/01/2016 01:00:00	No
<input type="checkbox"/>	2451 Restoration Avenue	North Substation	North Circuit 1	Lightning ✓	50	01/01/2016 01:05:00	No
<input type="checkbox"/>	2451 Restoration Avenue	North Substation	North Circuit 2	Utility Human Error ✓	50	01/01/2016 01:05:00	No

ss	Substation	Circuit	Cause	Customers Out	Start Time	Is Part of Restoration?
Restoration Avenue	North Substation	North Circuit 1	Lightning ✓	100	01/01/2016 01:00:00	No
Restoration Avenue	North Substation	North Circuit 1	Lightning ✓	50	01/01/2016 01:05:00	Yes
Restoration Avenue	North Substation	North Circuit 2	Utility Human Error ✓	50	01/01/2016 01:05:00	No

Customer Interruptions	200
Customer Minutes of Interruption	1000.0

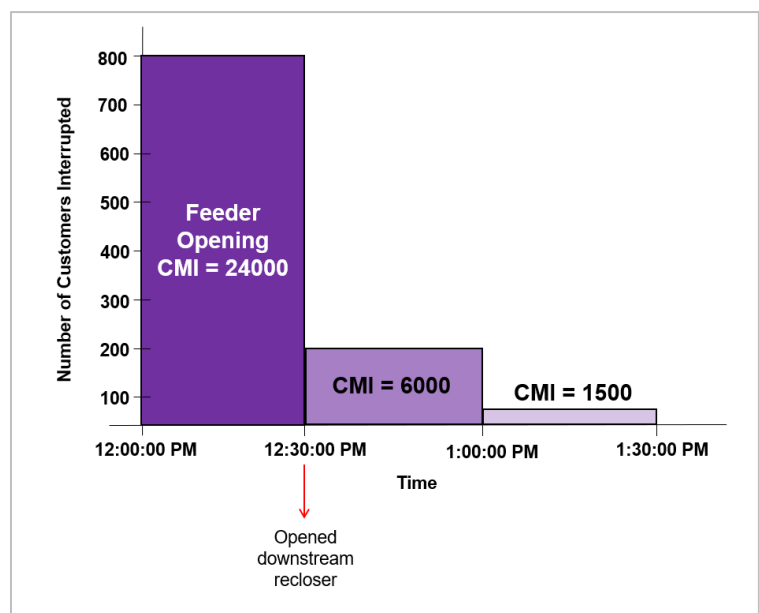
  

Customer Interruptions	150
Customer Minutes of Interruption	1000.0

### Scenario 2

In addition, if your utility restored power to customers in increments after an outage, you would use the “Part of Restoration” tool to record these increments.

For example, take an outage event that started at noon with a feeder opening and a total of 800 customers losing power. After the crew opened the downstream recloser, 600 of those customers were restored, but there were still 200 customers without power. This is reflected in the second box in the diagram on the right. At 1:00 PM, 150 customers got their power back. The third outage / box represents the 50 remaining customers that were without power until 1:30 PM when the recloser was closed.



When recording these outages, you do not want customers to be double counted. There were 800 total customers affected, not 1,050. To reflect these numbers, you would check “Is Part of Restoration?” next to the last two outages once the outages have been recorded and grouped into one event (see figure below).

Select	Address	Substation	Circuit	Cause	Customers Out	Start Time	Is Part of Restoration?
<input type="checkbox"/>	1 Crystal Drive	Central Substation	Circuit 2	Equipment ✓	800	09/21/2018 12:00:00	No
<input type="checkbox"/>	2 Crystal Drive	Central Substation	Circuit 2	Equipment ✓	200	09/21/2018 12:30:00	No
<input type="checkbox"/>	3 Crystal Drive	Central Substation	Circuit 2	Equipment ✓	50	09/21/2018 13:00:00	No

Showing 1 to 3 of 3 entries

Customer Interruptions: 1050  
Customer Minutes of Interruption: 31500.0



Select	Address	Substation	Circuit	Cause	Customers Out	Start Time	Is Part of Restoration?
<input type="checkbox"/>	1 Crystal Drive	Central Substation	Circuit 2	Equipment ✓	800	09/21/2018 12:00:00	No
<input type="checkbox"/>	2 Crystal Drive	Central Substation	Circuit 2	Equipment	200	09/21/2018 12:30:00	Yes
<input type="checkbox"/>	3 Crystal Drive	Central Substation	Circuit 2	Equipment	50	09/21/2018 13:00:00	Yes

Showing 1 to 3 of 3 entries

Customer Interruptions: 800  
Customer Minutes of Interruption: 31500.0

### Export

Only leaders can view this sub tab. When you click on “Export,” you will see two boxes where you can input the date range of the outages you want exported. Once you’ve selected your dates, click the “Export Outages” button to see all your data in a spreadsheet format.

Once exported, you can perform additional analyses on your outages data.

eReliability Tracker   Home   Outages   Reports   Manage

Record Outage   Outages   Events   Export   Import

## Export Outages

Earliest start date of outage

Latest start date of outage

[Export Outages](#)

## Import

Use this function to upload a large set of outage information. The spreadsheet you upload should be arranged in the format explained below. First, download the csv file with the proper headers from the hyperlink in the first paragraph. Then, fill out the proper information for your outages in the csv file and upload this file into the tracker by hitting "Import Outages."

CSV File:  No file chosen

Use this function to import a CSV file containing significantly more data (up to and including all the data that can be entered in the Record Outage form). The data in this CSV file should be arranged in the same format produced by the Export function. A CSV file with the proper headers can be downloaded [here](#). See the manual ([Leader's Guide](#) or [Member's Guide](#)) for additional information on column names.

All headers in the template must be included in the spreadsheet. The following fields are **required** to have data in the CSV file you import:

Name	Column
Address	B
Utility Name	C
Total Customers Impacted	F
Start Datetime	G
Cause Name	J
Total Customers for Utility	R

Only the following six columns are required to import a data file: Address, Utility Name, Total Customers Impacted, Start Datetime, Cause Name, and Total Customers for Utility (see screenshot below). The Tracker does not require the End Datetime so that utilities can upload outages that are ongoing at the time of the upload. The Event ID will be automatically created by the system.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	event id	address	utility name	substation name	circuit nar	total_cust	start_datetime	end_datetime	is_partial_restoration	cause name	M/S Cause	descriptiv	voltage	circuit_tyr	phases_in	load_inter	total_customers_served	key
2	43	153 Reliability Road	TESST APPA Utility	Central Substation	Circuit 4	14	12/6/2018 5:00	12/6/2018 5:20	No	Tree	M							46000
3	43	153 Reliability Road	TESST APPA Utility	Central Substation	Circuit 4	14	12/6/2018 5:20	12/6/2018 5:45	Yes	Squirrel	M							46000
4	43	153 Reliability Road	TESST APPA Utility	Central Substation	Circuit 4	14	12/6/2018 5:45	12/6/2018 6:25	Yes	Squirrel	M							46000
5																		

For Cause Name, please choose and enter one of the cause types listed in our default eRT cause table (see below). Try to enter the most accurate and detailed cause possible – this allows your reliability reports to be as detailed and informative as possible.

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
				Other - Lightning
		Wildlife		Squirrel
				Snake
				Bird
				Other - Wildlife
		Weather		Storm
				Ice
				Wind
				Heat
	Vegetation		Tree	
			Vine	
			Other - Vegetation	
	Equipment	Electrical Failure		
		Equipment Worn Out		
		Equipment Damage		
Manufacturing Defect				
Power Supply	Overloaded			
	Loss of Generating Unit			
	Failure of Greater Transmission			
Utility Human Error	Construction			
	Maintenance			
	Operations			
Unknown				
Scheduled	Non-Utility Construction	Commercial Construction	Non-Utility Employee	
			Contractor-Dig-In	
		Residential Construction		
		Road construction		
	Non-Customer Requests	Police Department		
		Fire Department		
	Customer Service	Non-Payment		
		Relocation		
		Repairs		
	Utility Maintenance and Repairs	Load Swap		
Equipment Replacement				

## Manage

There are two sub tabs under the “Manage” tab – “Utilities” and “Users.”

## Utilities

When you click on “Utilities,” your utility will be displayed. If you are a multi-utility user (e.g., JAA and SA), a list of all your utilities will be displayed. This page shows the name of each utility and whether it is active. By clicking on one of the utilities, you may edit the name, address, or number of customers for that utility. Keeping the number of customers up to date is important because this information is automatically entered into any outages you record and used for any reports you run.

After clicking on your utility’s name, you will see options to edit your substations, customers, and equipment on the right-hand side of the screen.

To create new substations, customers, and equipment, click on the “Edit” button and then click the “Create New...” button on the top right-hand side of the new screen. Once you’ve added the necessary information, click the blue “Create Substation,” “Create Customer,” or “Create Equipment” button.

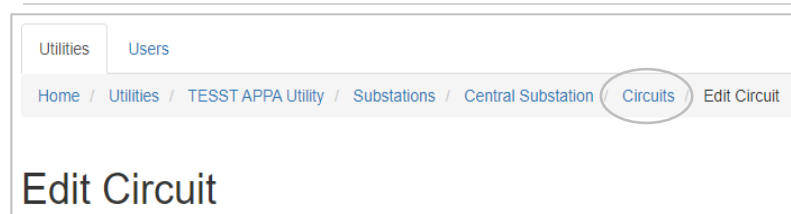
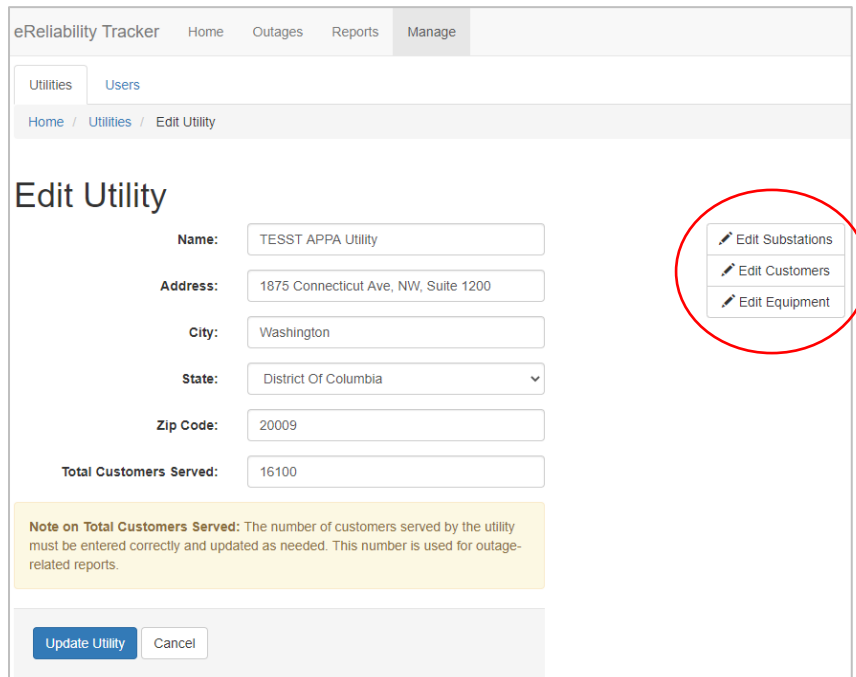
To edit your utility’s circuits, click into the “Edit Substation” page and then click the name of the circuit you want to edit.

Once in the circuit editing page, you can then select the blue “Circuits” link to go to a list of your utility’s circuits (see image to the right). On the “Circuits” page, you can see and edit your existing circuits, or you can click the “Create New Circuit” button in the top right-hand corner to create a new circuit.

Through the “Edit Customers” button, you can add or edit your utility’s recorded customer accounts. These customers are often key accounts that utilities want to keep track of. To create a new key account, click the “Create New Customer” button on the top right-hand side of the screen. When creating a new customer, you can classify them as commercial, industrial, or residential. If you want to edit a customer already entered in the system, simply click the name of the customer. In the Outage tab, your customers are referred to as “Key Accounts.”

In the “Edit Equipment” page, you can either use the defaults listed or click the “Create New Equipment” button on the top right-hand side of your screen to name a new piece of equipment. If the new equipment does not fall under any of the categories already listed on the equipment page, leave the “Parent” field blank (“-----”) and simply enter the name of your equipment. If the new equipment is related to a piece of equipment already listed, then choose the name of this equipment in the “Parent” field.

You can also import a list of equipment your utility uses through the “Import Equipment CSV” button on the top right-hand side of your



	A	B
1	Equipment	Parent Equipment
2	Sub-equipment	Equipment
3	Laptop Mouse	Computer
4	Wheels	Desk Chair
5	Paper	Notebook

screen. Any files uploaded should have the same formatting as the Excel sheet image to the right. **Please note that there cannot be any headers in the spreadsheet you are trying to import.**

## Users

To manage the user accounts associated with your utility, click on the “Users” tab. A list of all users will be displayed. In this list, you will see the user account’s username, associated utilities, role (permission level), and the time they last logged in.

On this page, you can search, edit, and add users.

The screenshot shows the 'Users' management interface in eReliability Tracker. The top navigation bar includes 'Home', 'Outages', 'Reports', and 'Manage' (which is active). A user profile for 'TestUtilityLeader' is visible in the top right. Below the navigation, there are tabs for 'Utilities' and 'Users' (the active tab). A search bar is present with the text 'Search:'. To the right of the search bar is a 'Create New User' button. Below these elements is a table listing users.

Username	Utilities	Role	Last Login
TestUtilityMember	Test Utility	Member	Thu, 21 May 2020 15:02
TestUtilityLeader	Test Utility	Leader	Thu, 02 Sep 2021 20:51
tesster2	Test Utility, TESST APPA Utility	Member	Fri, 29 May 2020 17:40



**Edit Users (Includes Password Reset)**

To edit a user, navigate to the user’s account by searching their username in the Search box. Then, click on their username to see their account details. In this page, you can edit the account’s email address, username, role, and tracker communications preferences. You can also reset the user’s password if needed. To do this, type a one-time password into the “Password” and “Confirm Password” fields and check off “Requires Password Reset?”. Then, hit “Update User”, and the user will be prompted to update their password once they log in using their username and one-time password.

**Inactivate User**

The eReliability Tracker system does not allow leaders to delete utility users. Instead, you must mark the unwanted user account as “Inactive”. To do this, navigate to the user’s account and change their “Role” to be blank (“-----”). Then, hit “Update User”.

**Add User**

To add users, select “Create New User” in the main “Users” tab. This will bring you to a new page where you have two options for creating a new user. Under the “Create New User” heading, you can fill in all the necessary information to create a user account in the system. This includes the user’s email, username, password, role, associated utility, and communications preferences. If you would like to have the new user create their own account instead, you may do so under the “Registering a new User” heading. Here, you simply select the new user’s role and associated utility and then click “Create Registration”. This will generate a link that you can share with the new user. This link will bring them to a webpage where they can fill out their username, email, and password. This is the recommended method for creating new users.

The screenshot shows the 'Edit User' interface. At the top, there's a navigation bar with 'eReliability Tracker', 'Home', 'Outages', 'Reports', and 'Manage'. Below that, 'Utilities' and 'Users' tabs are visible, with 'Users' selected. The breadcrumb trail is 'Home / Users / Edit User'. The main heading is 'Edit User'. The form contains the following elements:

- Email:** tesster2@appa.com
- Username:** tesster2
- Password:** (empty field)
- Confirm Password:** (empty field)
- Requires Password Reset?:**
- Role:** Member (dropdown menu)
- Utilities:** ----- (dropdown menu showing TESST APPA Utility and Test Utility)
- Receive email communications related to eReliability Tracker?:**
- Is Point of Contact:**
- Timezone Offset:** [UTC - 5] Eastern Standard Time (dropdown menu)

At the bottom of the form are two buttons: 'Update User' (highlighted in blue) and 'Cancel'.

eReliability Tracker Home Outages Reports **Manage** tesster

Utilities **Users**

Home / Users / New User

## Create New User

Email:

Username:

Password:

Confirm Password:

Role:

Utilities:  TESST APPA Utility

Receive email communications related to eReliability Tracker?

Is Point of Contact

Timezone Offset:

**Create User** Cancel

## Registering a new User

You can create a new user by filling out the screen to the left. Alternatively you can generate a registration link that allows a user fill out the form themselves. If you would like to generate a registration link, please complete the form below:

Role:

Utilities:  TESST APPA Utility

**Create Registration**

## Reports

Reports are used to visually display data. Reports can be essential to discovering problem areas and identifying the most severe outages. There are five different types of reports you can generate in the eReliability Tracker as a utility. If you are a JAA user, you have a sixth report of "JAA IEEE Statistics".

eReliability Tracker Home Outages **Reports** Manage tesster

Monthly Statistics **IEEE 1366 Statistics** Circuit Ranking Cause Pie Chart JAA IEEE Statistics Interruption Cost

## IEEE 1366 Statistics

This report generates your utility's ASAI, CAIDI, SAIDI, and SAIFI statistics as well as an outage event count based on several filters detailed in the **Filters** section.

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### IEEE Statistics Report - TESST APPA Utility

**Start Date**

**End Date**

**Remove Major Events?**  ▾

**Top-level Cause**  ▾

**Minimum event duration (in minutes)**

**Maximum event duration (in minutes)**

**Substation**  ▾

**Circuit**  ▾

**Exclude Loss of Supply** ⓘ 

- Failure of Greater Transmission
- Loss of Generating Unit

Generate Report 
Download to CSV 
Print 
Clear Filters

IEEE Results	
ASAI (percent)	99.9989%
CAIDI (minutes)	206.708
SAIDI (minutes)	6.039
SAIFI (number of interruptions)	0.0292

Range Results	
Event Count	6
APPA Major Event Threshold (minutes)	71.512 ⓘ

## Monthly Statistics

This report generates a monthly or annual report for your utility. This includes the IEEE 1366 Statistics of SAIDI, SAIFI, CAIDI, and ASAI, as well as Momentary Interruptions and Sustained Interruptions. It also shows your utility’s monthly SAIDI and SAIFI charts. If you have your utility’s circuit information uploaded in the tracker, it calculates your top three worst performing circuits ranked by outage count, customer interruptions, and minutes of duration. Furthermore, the generated report ranks the top outages causes by both count and duration. Finally, it shows the top 10 outages of the month or year ranked by Customer Minutes of Interruption and details the total customers affected for the month/year and the average customers affected per outage. To see more details on the filters you can use to generate this report, please see the **Filters** section.

To view details for listed circuits and outages, click the “View” eye icon next to the one you would like to see.

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### Annual Report [Jan 2020 - Dec 2020] - TESST APPA Utility

Year:

Starting Month:

Annual Report?  Yes  No

Minimum duration:

Maximum duration:

Top-level Cause:

Substation:

Circuit:

Remove Major Events?:

Generate Report
Print
Clear Filters

IEEE 1366 Statistics

Metric	Jan 2020 - Dec 2020	Jan 2019 - Dec 2019
SAIDI	6.039	2.1
SAIFI	0.0292	0.0967
CAIDI	206.708	21.734
ASAI	99.9989%	99.9996%
Momentary Interruptions	0	1
Sustained Interruptions	13	13

Monthly SAIDI Chart

Circuit Ranking - Worst Performing

Ranked by Outage Count

Circuit	Substation	Number of Outages	View
Test 2 Circuit	Test 2 Substation	1	<a href="#">View</a>
Test 3 Circuit	Test 2 Substation	1	<a href="#">View</a>
Test 1 Circuit	Test Substation	1	<a href="#">View</a>

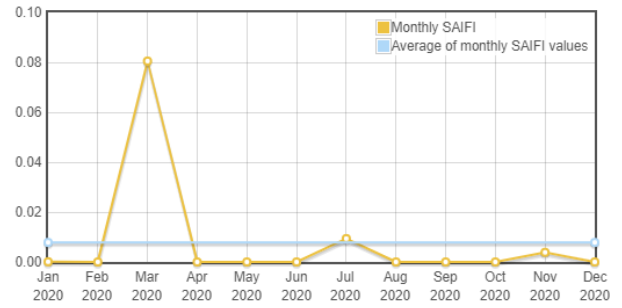
Ranked by Customer Interruptions

Circuit	Substation	Customer Interruptions	View
Test 1 Circuit	Test Substation	6	<a href="#">View</a>
Test 2 Circuit	Test 2 Substation	4	<a href="#">View</a>
Test 3 Circuit	Test 2 Substation	2	<a href="#">View</a>

Ranked by Customer Minutes of Duration

Circuit	Substation	Customer Minutes of Duration	View
Test 2 Circuit	Test 2 Substation	822.533333	<a href="#">View</a>
Test 3 Circuit	Test 2 Substation	386.366667	<a href="#">View</a>
Test 1 Circuit	Test Substation	211.3	<a href="#">View</a>

Monthly SAIFI Chart



## Circuit Ranking

If you have entered your circuit information into the eReliability Tracker, this report provides three different rankings of your worst-performing circuits. It shows the top 10 circuits ranked by outage count, customer interruptions, and customer minutes of duration.

To view details for listed circuits, click the “View” eye icon next to the circuit you’d like to see.

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### Circuit Ranking Report - TESST APPA Utility

Start Date

End Date

Top-level Cause

Minimum event duration (in minutes)

Maximum event duration (in minutes)

Substation

Generate Report 
Download to CSV 
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**Top 10 Circuits Ranked by Outage Count**

Circuit Name	Substation Name	Number of Outages	View
Test 2 Circuit	Test 2 Substation	1	
Test 3 Circuit	Test 2 Substation	1	
Test 1 Circuit	Test Substation	1	

**Top 10 Circuits Ranked by Customer Interruptions**

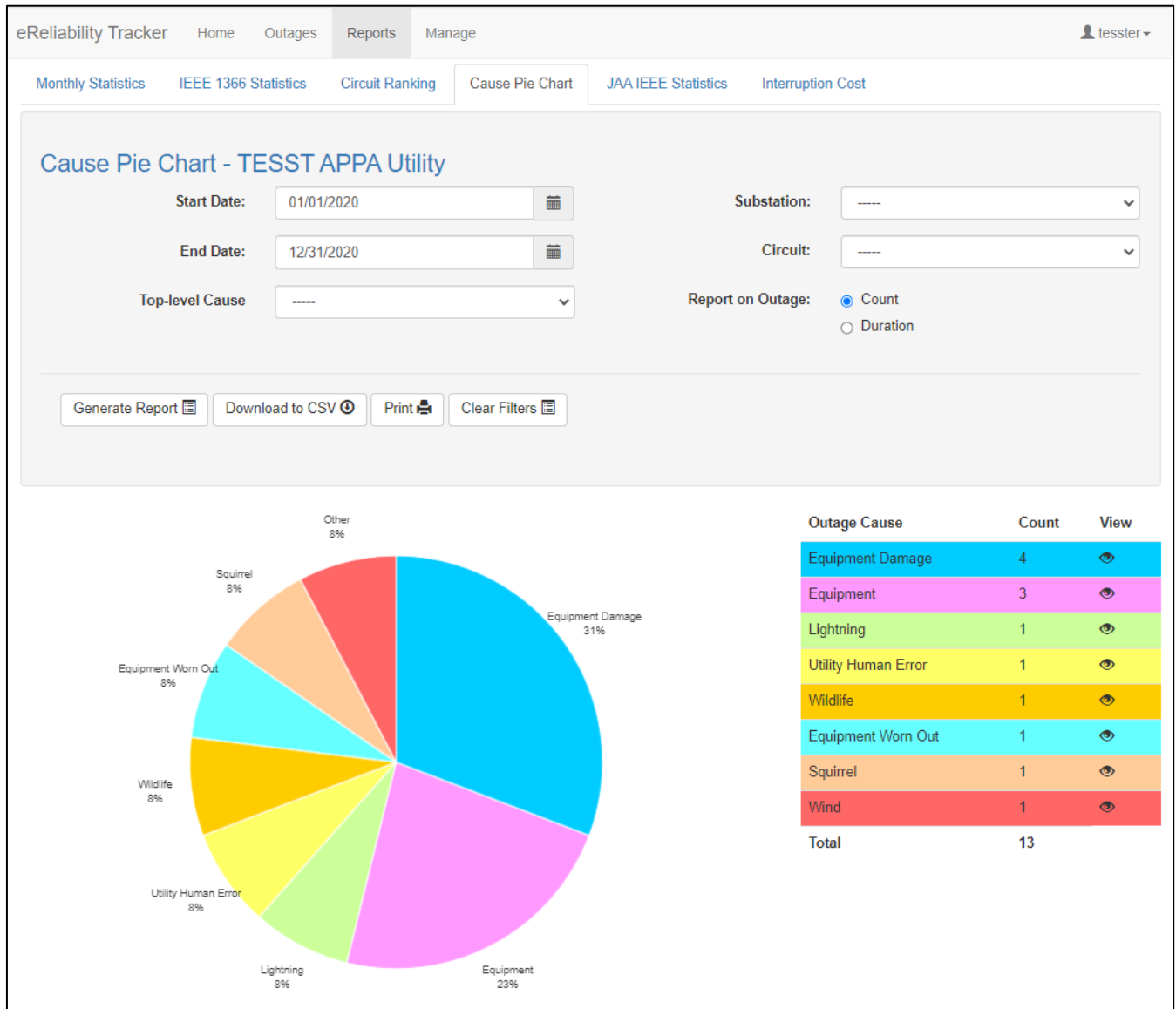
Circuit Name	Substation Name	Customer Interruptions	View
Test 1 Circuit	Test Substation	6	
Test 2 Circuit	Test 2 Substation	4	
Test 3 Circuit	Test 2 Substation	2	

**Top 10 Circuits Ranked by Customer Minutes of Duration**

Circuit Name	Substation Name	Customer Minutes of Duration	View
Test 2 Circuit	Test 2 Substation	822.533333	
Test 3 Circuit	Test 2 Substation	386.366667	
Test 1 Circuit	Test Substation	211.3	

### Cause Pie Chart

This report provides a pie chart and list of your outages grouped by cause or duration (in minutes). To view details for listed outages, click the “View” eye icon next to the outage cause you’d like to see.

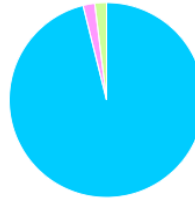


Causes Ranked by Count



Cause	Count	View
Equipment Damage	4	<a href="#">View</a>
Equipment	3	<a href="#">View</a>
Lightning	1	<a href="#">View</a>

Causes Ranked by Duration



Cause	Duration	View
Equipment Damage	264,673	<a href="#">View</a>
Wildlife	5,360	<a href="#">View</a>
Equipment Worn Out	5,358	<a href="#">View</a>

Top 10 Outages for the Year

Address	Customers Interrupted	Duration	Customer Minutes of Interruption	Start Date	View
e	732	347	254,004	03/24/2020	<a href="#">View</a>
b	337	30	10,110	03/31/2020	<a href="#">View</a>
f	80	67	5,360	03/23/2020	<a href="#">View</a>
d	57	94	5,358	03/26/2020	<a href="#">View</a>
2451 Crystal Drive	62	30	1,860	11/22/2020	<a href="#">View</a>
Outage 2	100	10	1,000	07/22/2020	<a href="#">View</a>
tesetingprovo2	4	205.633333	822.533333	01/15/2020	<a href="#">View</a>
Outage 3	50	10	500	07/22/2020	<a href="#">View</a>
Outage 1	100	5	500	07/22/2020	<a href="#">View</a>
tesetingprovo3	2	193.183333	386.366667	01/20/2020	<a href="#">View</a>

Total Customers Affected for the Year: **1,432**

Average Customers Affected per Outage: **110.153846**



### JAA IEEE Statistics

For JAA users, this report generates the SAIDI, CAIDI, SAIFI, ASAI, and Event Count for all utility accounts you have associated with your user account. Select which utility you would like to view in the “Utilities” field. To select multiple utilities, hold down your “Control” or “Command” key as you click multiple utilities in the list.

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#### Joint Action Agency IEEE Statistics Report

Start Date:

End Date:

Remove Major Events?:

Top-level Cause:

Minimum event duration (in minutes):

Maximum event duration (in minutes):

Utilities: 

-----  
 Portia Franco - FAKE TEST  
 TESST APPA Utility

Generate Report
Download to CSV
Print
Clear Filters

Utility	SAIDI (minutes)	CAIDI (minutes)	SAIFI (interruptions)	ASAI (percentage)	Event Count	APPA Major Event Threshold	View
Portia Franco - FAKE TEST	18.34	96.527	0.19	99.9965%	4		
TESST APPA Utility	6.039	206.708	0.0292	99.9989%	6		
<b>Average Statistics</b>	12.19	151.618	0.11	99.9977%	10		

## Interruption Cost

This report provides an estimated cost of the interruptions that occurred in your systems during the specified time frame. There are two categories used for this cost ranking: by circuit and by event.

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### Interruption Cost Report for TESST APPA Utility

Start Date

Minimum Outage Duration

Substation

Top Level Cause

End Date

Maximum Outage Duration

Circuit

Exclude Loss of supply

This interruption cost estimate does not include outages lasting longer than 16 hours

Generate Report
Simulate Utility-Wide Cyber Incident
Clear Form

Circuit Name	Res.	Com.	Ind.	Substation Name	Customer Interruptions	Customer Minutes of Interruption	Estimated Cost	Outages
Test 2 Circuit	50%	10%	40%	Test 2 Substation	4	822.533	\$18,126	
Test 1 Circuit	30%	20%	50%	Test Substation	6	211.3	\$13,337	
Test 3 Circuit	80%	20%	0%	Test 2 Substation	2	386.367	\$916	

Event Name	Circuit Name	Substation Name	Customer Interruptions	Customer Minutes of Interruption	Estimated Cost	Outages
tesetingprovo2	Test 2 Circuit	Test 2 Substation	4	822.533	\$18,126	
tesetingprovo1	Test 1 Circuit	Test Substation	6	211.3	\$13,337	
tesetingprovo3	Test 3 Circuit	Test 2 Substation	2	386.367	\$916	

You can also simulate a utility-wide cyber incident to estimate the cost of a theoretical cyber event that results in a utility-wide outage. To do this, click the “Simulate Utility-Wide Cyber Incident” button.

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Interruption Cost

## Interruption Cost Report for TESST APPA Utility

Start Date

Minimum Outage Duration

Substation

Top Level Cause

End Date

Maximum Outage Duration

Circuit

Exclude Loss of supply

This interruption cost estimate does not include outages lasting longer than 16 hours

Generate Report
Simulate Utility-Wide Cyber Incident
Clear Form

[What is the utility-wide cyber incident simulation?](#)

Circuit Name	Res.	Com.	Ind.	Substation Name	Customer Interruptions	Customer Minutes of Interruption	Estimated Cost
North Circuit 1	10%	20%	70%	North Substation	200	36,000	\$1,409,843
Test 2 Circuit	50%	10%	40%	Test 2 Substation	200	36,000	\$799,391
North Circuit 2	30%	40%	30%	North Substation	150	27,000	\$563,164
NS Circuit 1	55%	30%	15%	North Substation	55	9,900	\$116,163
Circuit 5	5%	15%	80%	Central Substation	10	1,800	\$78,729
Circuit A	10%	10%	80%	Substation Test 1	10	1,800	\$77,567
Test 1 Circuit	30%	20%	50%	Test Substation	15	2,700	\$77,540
Modified Circuit	50%	40%	10%	East Substation	34	6,120	\$63,735
Circuit 6	20%	50%	30%	Central Substation	12	2,160	\$47,843
Circuit 4	90%	9%	1%	South Substation	100	18,000	\$30,798

Event Name	Circuit Name	Substation Name	Customer Interruptions	Customer Minutes of Interruption	Estimated Cost
Utility-Wide Cyber Incident	All Circuits	All Substations	980	176,400	\$3,381,064

## Filters

For each report, you can set parameters to receive the calculations and results you are interested in seeing. Specifically, each report can be filtered by basic information like the date range, substation, or top-level cause. See below for more details about each of these filter options.

### IEEE Statistics Report - TESST APPA Utility

**Start Date**

**End Date**

**Remove Major Events?**

**Top-level Cause**

**Minimum event duration (in minutes)**

**Maximum event duration (in minutes)**

**Substation**

**Circuit**

**Exclude Loss of Supply**

-----

Failure of Greater Transmission

Loss of Generating Unit

<b>Start Date</b>	dd/mm/yyyy
<b>End Date</b>	dd/mm/yyyy
<b>Remove Major Events</b>	<p>APPA Event Threshold: This threshold is calculated based on outages and removes outages that exceed the IEEE 2.5 beta threshold as calculated based directly on outages.</p> <p>IEEE Day Threshold: This threshold is based on SAIDI-days (all of the outage events grouped together by day) and removes SAIDI-days where the IEEE 2.5 beta threshold is exceeded. After using this filter, any outage event that occurred starting/occurring on a day where the SAIDI-day calculation exceeds the IEEE 2.5 beta threshold is removed.</p>
<b>Top Level Cause</b>	Scheduled vs. Unscheduled outages.
<b>Minimum Event Duration (in minutes)</b>	Provide the minimum number of minutes for included outages.
<b>Maximum Event Duration (in minutes)</b>	Provide the maximum number of minutes for included outages.
<b>Substation</b>	Filter based on the substations that you add to your utility profile.
<b>Circuit</b>	Filter based on the circuits that you add to your utility profile.
<b>Annual Report? (Monthly Report Only)</b>	Select "yes" to run an annual report instead of monthly.
<b>Exclude Loss of Supply (IEEE Statistics and Interruption Cause Reports Only)</b>	Filter for the exclusion of outages initiated from a high-voltage transmission system. Hold the "Control" or "Command" key to select multiple causes.
<b>Report on Outage (Cause Pie Chart Report Only)</b>	Choose whether the pie chart and list generated are grouped by outage cause or duration in minutes.
<b>Utilities (JAA IEEE Statistics Report Only)</b>	Filter results by utility. Hold the "Control" or "Command" key to select multiple utilities.

## Generating Reports

For each type of report, press the “Generate Report” button to generate a report that uses the constraints you chose via the report filters. You can run an infinite number of reports. You can also “Download to CSV” and “Print” these reports as well.

Additionally, every user permission level can access and run reports. If someone from your utility needs access to the tracker simply to view and run reports, you can create a new user account with a “Spectator” permission level for this goal.

## Troubleshooting

If you run into any issues while using the eReliability Tracker, find a bug in the system, or have general eReliability Tracker system questions, please contact [Reliability@publicpower.org](mailto:Reliability@publicpower.org).