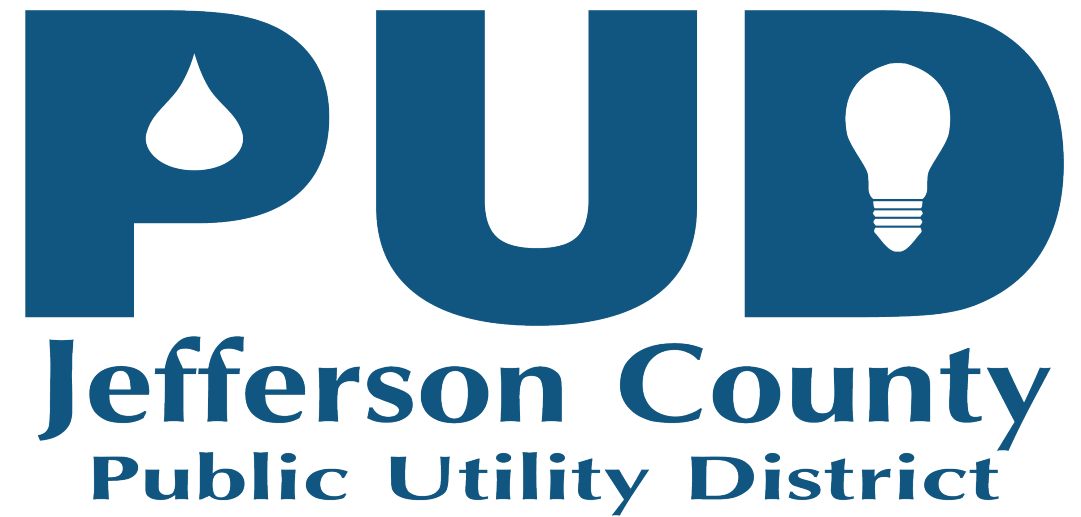
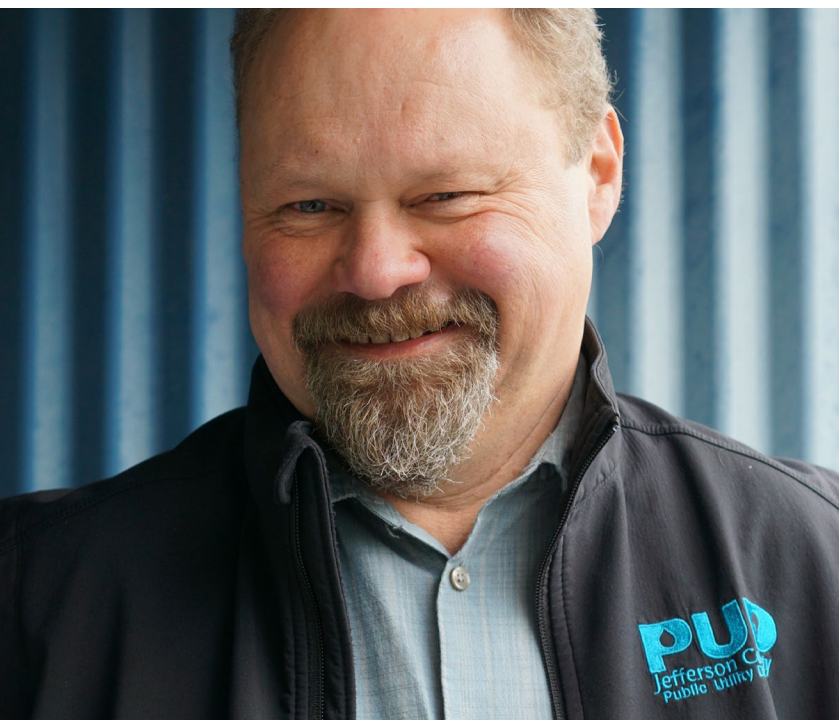


Workplan & Budget Priority Review

Kevin Streett, Acting General
Manager

1.29.19







2019 Major Projects

- PUD Facility Remodel/Expansion
- Downtown Port Townsend
- Irondale Substation
- Swansonville Feeder
- Chimacum Creek URD
- Port Ludlow Substation
- Kilisut Harbor Bridge
- SCADA Expansion
- Snow Creek Treatment Plant
- Quilcene Water Tank
- Community Solar Project



Jimmy Scarborough, Senior Electrical Engineer

Substation Transformer Purchase

- Currently working on RFP
- This would be a spare transformer, with plans to replace an existing transformer.
- Lead times for a substation transformer can be up to a year, so delivery would be end of 2019 or early 2020.

Swansonville Feeder

- The underground portion for the main feeder running down Swansonville Road is approximately 9,000 feet.
- In 2018 the PUD had 2,750 feet of conduit installed with vaults in preparation to install new conductor.
- In 2019 the PUD plans to install new conductor in the conduit installed in 2018.
- The PUD also plans to replace approximately another 2,000 feet of conductor.
- The PUD will continue replacing sections of the Swansonville for the next four years, until the entire route has been replaced.

Kilisut Harbor Bridge

- The Salmon Coalition in conjunction with WSDOT are installing a bridge from Indian Island to Marrowstone Island.
- Construction is expected to start summer of 2019. In preparation the PUD is needing to temporarily relocate power and water, so construction of the bridge can occur.
- For the electric temporary relocation, the in-house PUD staff has designed the relocation, the work will be completed by the PUD line crews or contractor.
- HDR is designing the relocation of the water line, and construction will be contracted out.
- Per franchise agreement with WSDOT, the work is to be done with PUD funds.

Quilcene School Line Relocation

- Relocate 5-6 poles for sidewalk project for Jefferson County and WSDOT project.
- Poles to move 3-4 feet for sidewalk, will be able to use alley arm construction. This will keep cost to a minimum.
- Due to franchise agreement JPUD will have to fund relocation of poles.
- Engineering to be completed, currently in preliminary phase.



Colton Worley, SCADA/Substations/Metering

2019 Projects



Substations

Port Ludlow Substation
Upgrades

\$100,000

3 Substation Regulators to be
installed in 2020

\$100,000

New Battery Bank Irondale
Substation

\$25,000

SCADA

12VDC Communication
Equipment to Improve Reliability

\$25,000

Transformer Monitor at Irondale
Substation

\$16,000

SCADA Device Communications

\$87,500

Engineering

Port Ludlow Transformer and
Low Side Bus Replacement

\$100,000

New 115kV Breaker and Relay
Replacement Irondale

\$150,000

Irondale Substation



Irondale Expansion Project

Completion Scheduled March 2019



Breaker and Building Upgrade

Completed November 2018



Battery Replacement

Scheduled November 2019

Port Ludlow Substation



Replace Building

Add conduit to all Equipment



Upgrade Regulators

Failure in January 2017

Current Regulators are Undersized

In Stock



Test Equipment

Help determine asset upgrade strategy

Maintenance on existing switches and Insulators.

Future Projects



Replace Relays Irondale

Outdated Technology



Replace Aging Equipment

Transformers

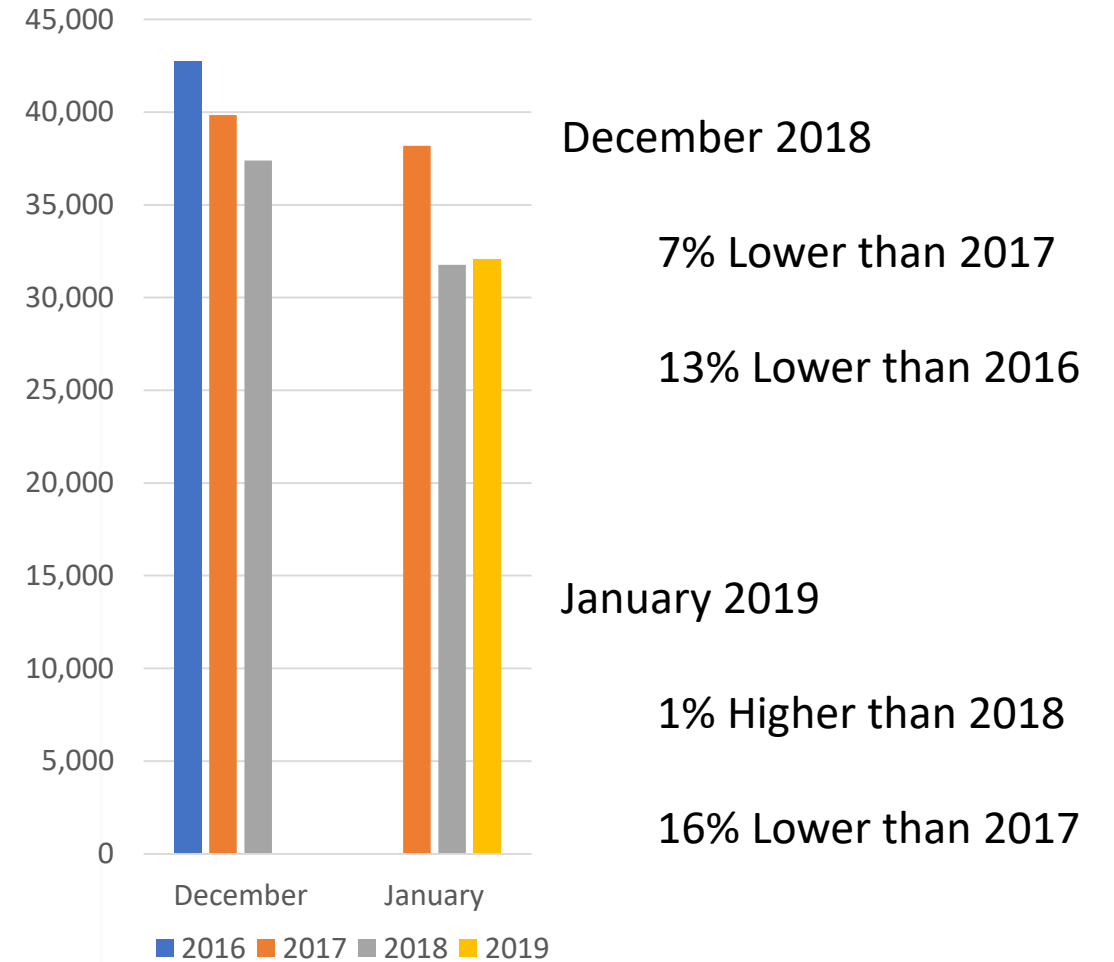
Regulators



Replace Fuses

Install Breaker

Loads



Lori Rae, Operations Assistant

Project priorities are set for the following reasons:

- Reliability - Chimacum Creek, Swansonville
- Franchise Agreement Fulfillment: New Bridge Project (Kilisut Bridge), Widening road (S. Discovery)
- New Services- Paying customers
- In conjunction with County, State & City Paving projects/ Sidewalk projects ext.

2018 Budget

URD Lined Extension & New Service	\$240,000.00
Work Order Costs	\$826,742.20
Contribution and Aid received	\$718,112.70
Irondale Substation Upgrade	\$1,500,000.00
Work Order Cost	\$1,137,925.19
Replaced Aging Conductor	\$554,500.00
Work Order Cost	\$41,134.87
Convert OH to Underground	\$ 400,000.00
Work Order Cost	\$63,747.76



Special Projects 2019:

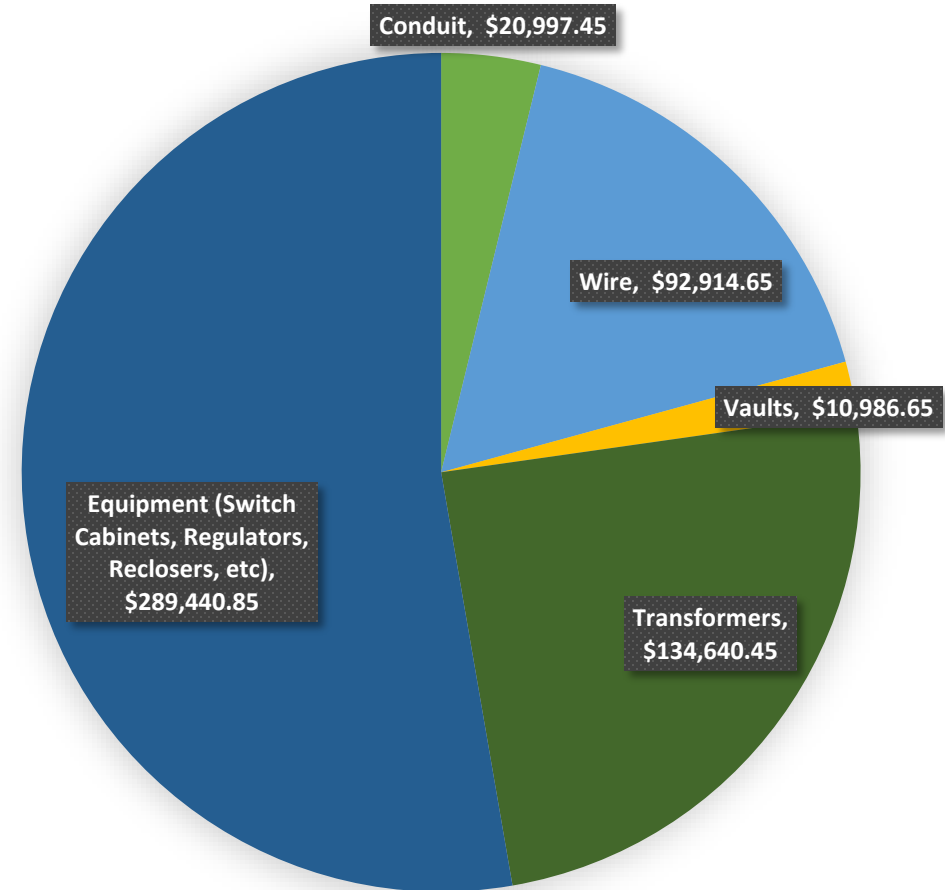
- Chimacum Creek – New Underground – in the middle of rebuilding the underground, currently in the process of the laying conduit & setting new transformers.
- Fiber to Les Schwab recloser and the South West to the industrial park. For new DSHS, Madrona Hill

Alyson Dean, Purchasing

We will be reducing inventory by \$550K in 2019 if all of the planned 2019 jobs go through



Inventory Committed to 2019 Projects



Bill Graham, Water Supervisor

Project	Cost	Timeline
Snow Creek Well Treatment Plant & Well House	\$150,000	2 nd Qtr
Hydrant Replacement	\$30,000	ongoing
Quilcene Water Tank	\$310,000	2 nd & 3 rd Qtr
Bywater SCADA	\$20,000	2 nd Qtr
Kilisut Harbor Bridge	\$50,000	3 rd Qtr



WATER UTILITY CAPITAL
PROJECTS

\$560K

Electric Utility Capital Improvement Projects

New Line Construction	\$423,000
Substation Changes	\$738,000
Miscellaneous Distribution Equipment	\$640,000
Other Distribution Items	\$182,500
Transmission Line and Station Changes	\$60,000
Other Transmission Items	\$40,000
Communications	\$75,000
Conversions	\$550,000
Electric System Plan	\$150,000
Warehouse Yard Improvements	\$45,000
Telecommunications Strategic Plan	\$75,000
Four Corners Facilities Upgrade	\$3,200,000

PUD FACILITIES PROJECT

- Currently working on final design
- Next Step is Construction Documents
- Permitting/Bidding: April 2018
- Begin Construction May/June 2018
- Finish Construction Spring 2020

Don McDaniel, Special Advisor to the PUD



PROJECT BUDGET CYCLE

- 2018: \$200K Design
- 2019: \$3.2M Construction
- 2020: \$800K Construction



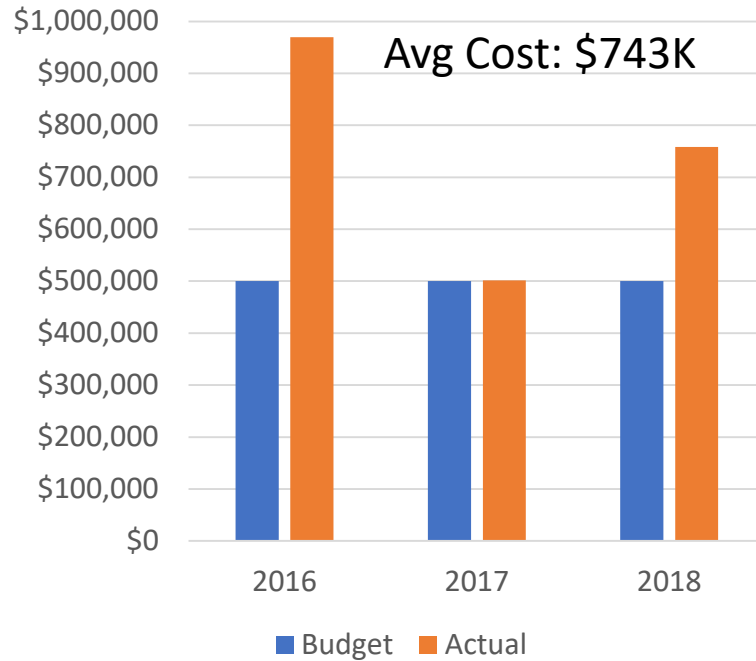
Total Project cost estimate: \$4.2M

EXPENSED PROJECTS

593.1	Maintenance of OH Line	\$993,455
593.2	Maintenance of OH Line	\$655,666
594.1	Maintenance of Underground Lines	\$568,560
592.1	Maintenance of Station Equipment	\$178,657

Scott Bancroft, Special Projects Coordinator Vegetation Mgmt Report

Tree Trimming Costs 16-18



Problem examples with the way the PUD is contracting tree trimming:

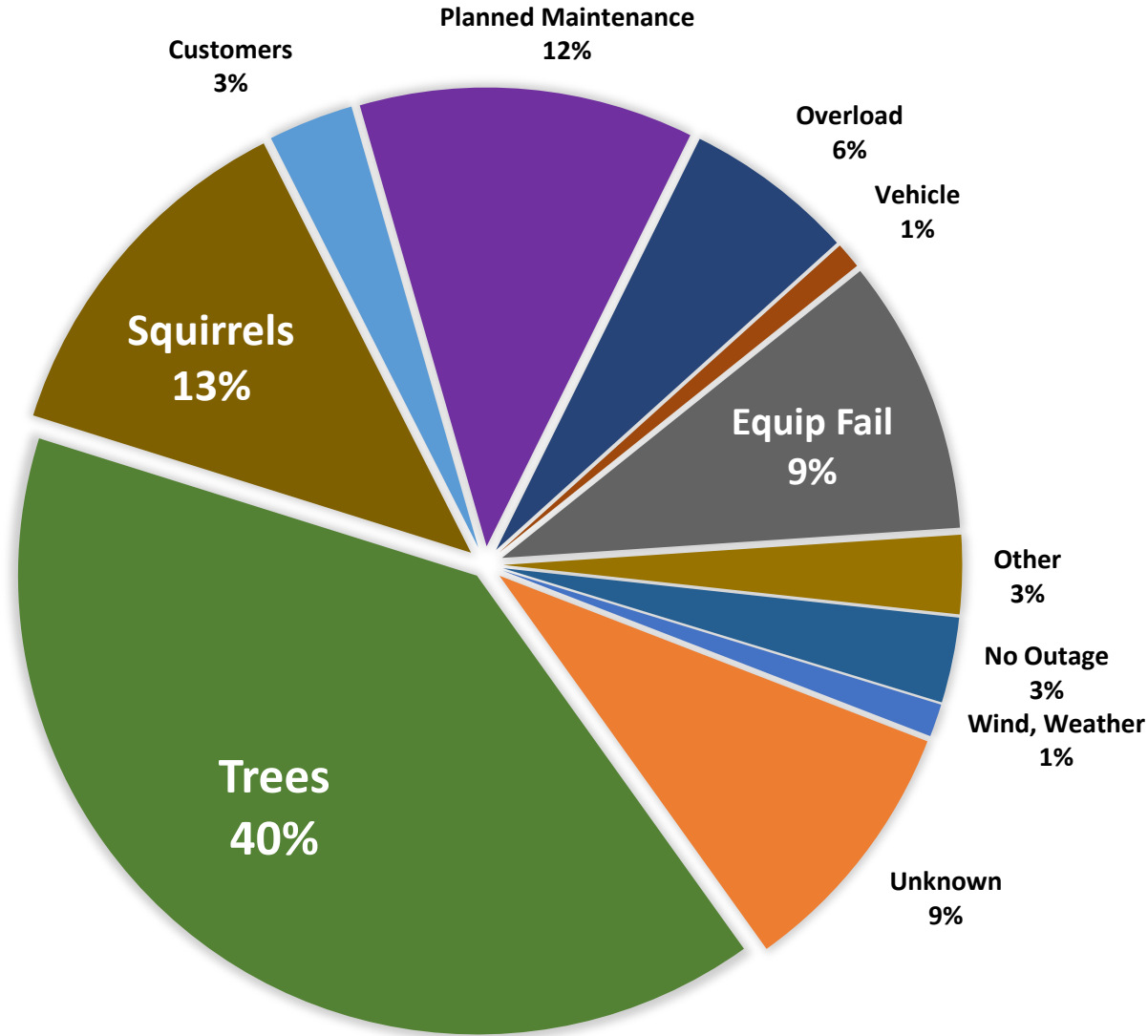
- Inability to keep up with small tree trimming spot jobs.
- Costs of tree trimming are continuing to rise.
- Small pool of contractors to choose from.
- Lack of ability to mobilize contract tree trimming crew to troubled area.
- PUD pays thousands of dollars every year in lump sum bids for areas that may not need trimming.



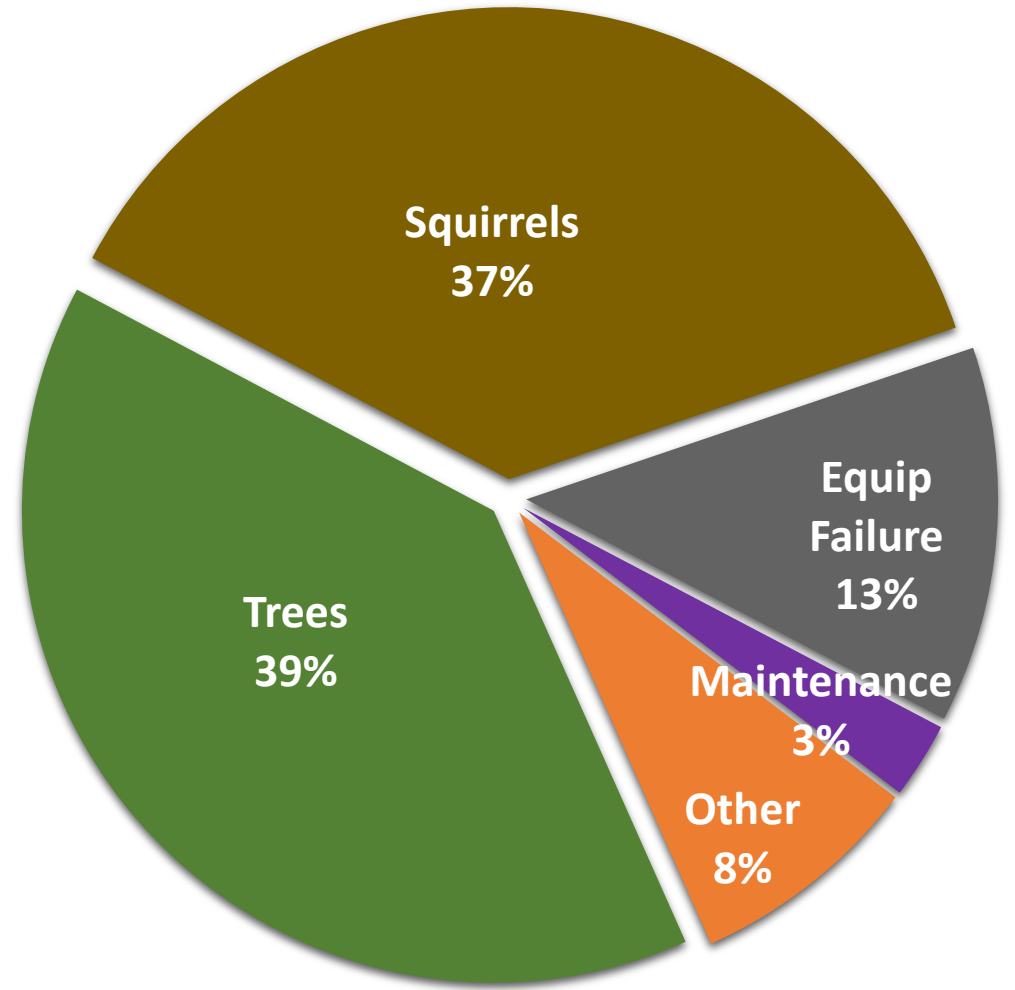
The PUD uses a 7-year strategic tree trimming cycle. The PUD also hires time and materials tree trimming contractors for smaller troubled areas.



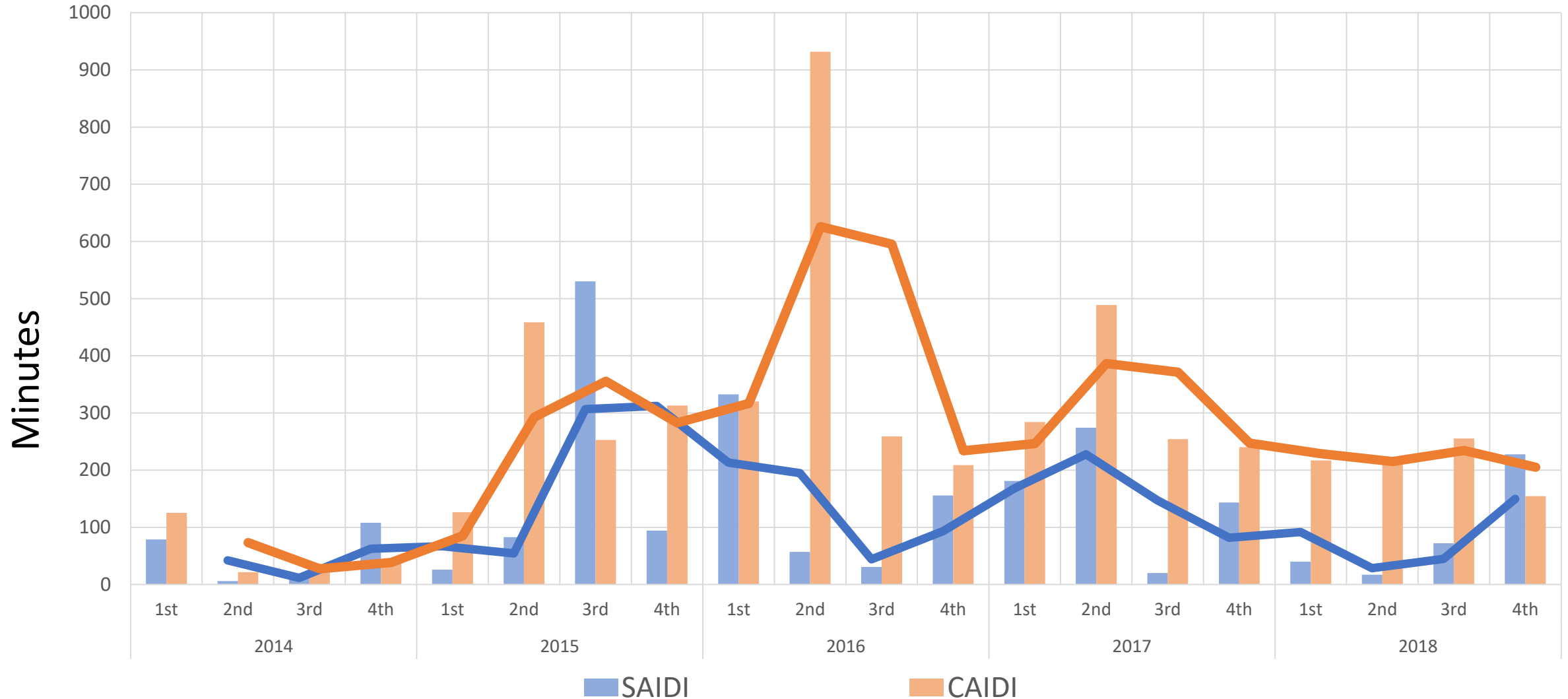
CAUSE OF OUTAGES BY NUMBER OF INCIDENCES



CAUSE OF OUTAGES BY LENGTH OF OUTAGE



2014-2018 Quarterly Reliability Data JPUD



RELIABILITY INDICATORS

SAIDI: System Average Interruption Duration Index

CAIDI: *Customer* Average Interruption Duration Index

$$\text{SAIDI} = \frac{\text{sum of all customer interruption durations}}{\text{total number of customers served}}$$

$$\text{CAIDI} = \frac{\text{sum of all customer interruption durations}}{\text{total number of customer interruptions}}$$

CAIDI gives the average outage duration that any given customer would experience. CAIDI can also be viewed as the average restoration time.

Item No.	Description	2020	2021	2022	2023	Total
100 New Line Construction						
101	Construct Underground Distribution line extensions and service runs to serve new customers; Single-Phase and Three-Phase. 50 per year - approximately 3 miles annually.	\$ 400,000.00	\$ 350,000.00	\$ 340,000.00	\$ 240,000.00	\$ 1,330,000.00
102	Construct Overhead Distribution line extensions and service lines to serve new customers; Single-Phase and Three-Phase. 30 per year - approximately 2 miles per year.	\$ 175,000.00	\$ 108,000.00	\$ 108,000.00	\$ 108,000.00	\$ 499,000.00
103	Construction for new Subdivisions. Approximately 1 per year.	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00	\$ 200,000.00
New Line Construction :: Annual Totals		\$ 625,000.00	\$ 508,000.00	\$ 498,000.00	\$ 398,000.00	\$ 2,029,000.00
200 New Distribution Main-Line Construction						
201	Start 8 miles of 15 kV 336 ACSR Three-Phase distribution overhead as underbuild on existing Transmission Line poles from Irondale Substation to Discovery Bay Switchyard.	\$ -	\$ 100,000.00	\$ 500,000.00	\$ 1,500,000.00	\$ 2,100,000.00
202	Underground feeds out of Irondale Bay 2	\$ 225,000.00				
203	New outgoing feed Hastings Substation	\$ 125,000.00	\$ 220,000.00			
203-1	New Feed Discovery, School to new roundabout	\$ 175,000.00				
New Distribution Main-Line Construction :: Annual Totals		\$ 525,000.00	\$ 320,000.00	\$ 500,000.00	\$ 1,500,000.00	\$ 2,845,000.00
300 Conversion						
301	Convert Single-Phase to Three-Phase	\$ -	\$ -	\$ 200,000.00	\$ -	\$ 200,000.00
302	Convert Single-Phase OH Distribution to UG along Olele Point Road	\$ 425,000.00	\$ -	\$ -		\$ 425,000.00
303	Convert OH Distribution to UG	\$ 350,000.00	\$ 250,000.00	\$ 350,000.00	\$ 300,000.00	\$ 1,250,000.00
Distribution-Line Conversion :: Annual Totals		\$ 775,000.00	\$ 250,000.00	\$ 550,000.00	\$ 300,000.00	\$ 1,875,000.00

600 Miscellaneous Distribution Equipment											
601-1	Install new pole-mount Transformers to serve new customers. 10 per year.	\$	30,000.00	\$	30,000.00	\$	30,000.00	\$	30,000.00	\$	120,000.00
601-2	Install new pad-mount Transformers to serve new customers. 15 per year.	\$	40,000.00	\$	40,000.00	\$	40,000.00	\$	40,000.00	\$	160,000.00
601-3	Transformer replacement of aging units. 60 per year.	\$	180,000.00	\$	180,000.00	\$	180,000.00	\$	180,000.00	\$	720,000.00
602-1	Install/Upgrade meters to serve new/existing customers. XX per year.	\$	25,000.00	\$	5,000.00	\$	5,000.00			\$	35,000.00
602-2	CT replacement of aging units. XX per year.	\$	45,000.00	\$	-	\$	50,000.00	\$	50,000.00	\$	145,000.00
604-1	Install four new Three-Phase distribution-line reclosers.	\$	50,000.00	\$	100,000.00	\$	50,000.00	\$	-	\$	200,000.00
605-1	Install new line Regulators. 3 per year.	\$	-	\$	-	\$	75,000.00	\$	75,000.00	\$	150,000.00
605-2	Regulator replacement of aging units. XX per year.	\$	50,000.00	\$	50,000.00	\$	50,000.00	\$	-	\$	150,000.00
607	Pole Replacements. 20 per year.	\$	80,000.00	\$	80,000.00	\$	80,000.00	\$	80,000.00	\$	320,000.00
608	Replace Aging Conductors. XX projects - X miles per year.	\$	200,000.00	\$	175,000.00	\$	250,500.00	\$	354,500.00	\$	980,000.00
608-1	Install single phase 15kv 1/0 distribution line 4 miles	\$	205,000.00	\$	200,000.00	\$	-	\$	-	\$	405,000.00
609	Miscellaneous Replacements	\$	-	\$	-	\$	-	\$	-	\$	-
610	Wildlife Protection. X sites.	\$	75,000.00	\$	25,000.00	\$	-	\$	25,000.00	\$	125,000.00
Miscellaneous Distribution Equipment :: Annual Totals		\$	980,000.00	\$	885,000.00	\$	810,500.00	\$	834,500.00	\$	3,510,000.00

700 OTHER DISTRIBUTION ITEMS

701	Security and Street Lighting	\$ 10,000.00	\$ 20,000.00	\$ 10,000.00	\$ 20,000.00	\$ 60,000.00
703	SCADA System Distribution Line Devices Communications and Control Upgrades.	\$ 75,000.00	\$ 75,000.00	\$ 60,000.00	\$ 60,000.00	\$ 270,000.00
704	SCADA Communications	\$ 90,000.00	\$ -	\$ -	\$ 40,000.00	\$ 130,000.00
705	Meter Replacement Study	\$ 185,000.00				
705-1	Meter Replacement Project		\$ 1,500,000.00	\$ 1,500,000.00	\$ 800,000.00	\$ 250,000.00
Other Distribution Items :: Annual Totals		\$ 360,000.00	\$ 1,595,000.00	\$ 1,570,000.00	\$ 920,000.00	\$ 4,445,000.00

1000 Transmission Line and Station Changes

1001	Move Transmission Poles for easements	\$ 60,000.00	\$ -	\$ 60,000.00	\$ 60,000.00	\$ 180,000.00
1002	Install 115kVA switches	\$ 110,000.00	\$ 185,000.00		\$ 125,000.00	
Transmission Line and Station Changes :: Annual Totals		\$ 170,000.00	\$ 185,000.00	\$ 60,000.00	\$ 185,000.00	\$ 600,000.00

1100 Other Transmission Items

1101	Easements and Right-of-Way	\$ 45,000.00	\$ 25,000.00	\$ -	\$ 80,000.00	\$ 150,000.00
Other Transmission Items :: Annual Totals		\$ 45,000.00	\$ 25,000.00	\$ -	\$ 80,000.00	\$ 150,000.00

1200 Communications

1201	Fiber Line Extensions	\$ 145,000.00	\$ 75,000.00	\$ 50,000.00	\$ 100,000.00	\$ 370,000.00
Communications :: Annual Totals		\$ 145,000.00	\$ 75,000.00	\$ 50,000.00	\$ 100,000.00	\$ 370,000.00

2015-2019 Plan of Service :: Annual Cost		\$ 4,319,000.00	\$ 4,277,000.00	\$ 4,263,500.00	\$ 4,397,500.00	\$ 17,257,000.00
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