



e-FILING REPORT COVER SHEET

COMPANY NAME: PORTLAND GENERAL ELECTRIC COMPANY

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION? No Yes If yes, submit a redacted public version (or a cover letter) by email. Submit the confidential information as directed in OAR 860-001-0070 or the terms of an applicable protective order.

Select report type: RE (Electric) RG (Gas) RW (Water) RT (Telecommunications)
 RO (Other, for example, industry safety information)

Did you previously file a similar report? No Yes, report docket number: 113

Report is required by: OAR 860-023-0151

Statute

Order

Note: A one-time submission required by an order is a compliance filing and not a report (file compliance in the applicable docket)

Other

(For example, federal regulations, or requested by Staff)

Is this report associated with a specific docket/case? No Yes, docket number:

List Key Words for this report. We use these to improve search results.

PGE 2018 Annual Reliability Report

Send the completed Cover Sheet and the Report in an email addressed to PUC.FilingCenter@state.or.us

Send confidential information, voluminous reports, or energy utility Results of Operations Reports to PUC Filing Center, PO Box 1088, Salem, OR 97308-1088 or by delivery service to 201 High Street SE Suite 100, Salem, OR 97301.



Portland General Electric Company
121 SW Salmon Street • Portland, Oregon 97204
PortlandGeneral.com

April 26, 2019

Public Utility Commission of Oregon
Attn: Filing Center
201 High Street SE
P.O. Box 1088
Salem, OR 97308-1088

RE: PGE 2018 Annual Reliability Report

Pursuant to OAR 860-023-0151, PGE hereby submits the Company's 2018 Annual Reliability Report.

Attachment A provides Section III, Feeder Performance Summary and Section VIII 2018 Feeder Information which will be sent on a CD. Attachment A should be treated as a confidential submission under OAR 860-001-0070 and is provided in a separate sealed envelope marked "Confidential."

Should you have any questions regarding this filing, please contact Mary Widman at (503) 464-8223.

Please direct all formal correspondence and requests to the following email address pge.opuc.filings@pgn.com

Sincerely,

A handwritten signature in black ink, appearing to read "Karla Wenzel". The signature is fluid and cursive, written over a white background.

Karla Wenzel
Manager, Pricing and Tariffs

Enclosure
cc: Lori Koho, OPUC



Portland General Electric 2018 Annual Reliability Report



January 1, 2018 through December 31, 2018

Section I

Report Summary

The Annual Reliability Report provides distribution system performance information based on service interruptions to PGE customers. The report is utilized to understand the overall reliability of the distribution system and to identify areas of improvement and excellence.

The overall performance of PGE's distribution system is represented by the following indices¹: System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), and Momentary Average Interruption event Frequency Index² (MAIFI_e).

PGE's distribution system performance calculations are based on the IEEE 1366 methodology. The data utilized for the calculations is captured from PGE's Outage Management System (OMS) and confirmed via a multi-step evaluation process. The results of the calculations are evaluated on a daily basis and confirmed via a standardized review process.

PGE did not experience any major event days in 2018 as defined by IEEE 1366 Major Event Day (MED) exclusion criteria.

Planned outage events³ were excluded from the 2018 distribution system performance indices⁴ based on PGE's understanding of best practices performed by peer utilities and analysis methods utilized in IEEE 1782. While planned outage events were not captured in PGE's 2018 indices, these events are reported in Sections II and V of this report to comply with Oregon Administrative Rule (OAR) 860-023-0151.

¹ Details regarding the performance indices can be found in Reliability Measure Definitions section of the Appendix

² MAIFI_e calculations are limited to feeders with remote monitoring equipment

³ Per IEEE 1366, a planned outage event is defined as "the intentional disabling of a component's capability to deliver power, done at a preselected time, usually for the purposes of construction, preventative maintenance, or repair." IEEE 1782, states "the planned outage event category includes, but is not limited to: road construction, maintenance and repairs, load swaps, replacing equipment, and house moves. Typically, planned interruptions are those interruptions that can be delayed by the utility personnel and performed only after the appropriate or required customer notification."

⁴ PGE began excluding planned outages from distribution system performance indices in 2016. Planned outage events were not excluded in previous years.

4 year Corporate Annual Summary Excluding Major Event Days¹

Year	Reported Outages	SAIFI Average Annual Outages per Customer (occurrences)	SAIDI ² Average Annual Outage Duration per Customer (minutes)	MAIFle Average Annual Momentary Interruptions per Customer (occurrences)
2018	6,884 ³	0.52	88	1.3
2017	8,704 ³	0.62	113	1.4
2016	7,496 ³	0.59	97	1.1
2015	6,613	0.48	75	1.2

4 year Corporate Annual Summary Including Major Event Days

Year	Reported Outages	SAIFI Average Annual Outages per Customer (occurrences)	SAIDI Average Annual Outage Duration per Customer (minutes)	MAIFle ⁴ Average Annual Momentary Interruptions per Customer (occurrences)
2018	6,884 ³	0.52	88	1.3
2017	12,897 ³	1.04	350	1.4
2016	9,340 ³	0.79	169	1.1
2015	8,752	0.78	175	1.2

¹ A Major Event Day (MED) is a day in which the reasonable design and or operational limits of the electric power system were exceeded. MED's are determined via IEEE Standard 1366. See Section IX - Appendix for additional details.

² SAIDI values are rounded to the nearest whole number.

³ PGE transitioned to a new Outage Management System (OMS) in the fall of 2015. The new OMS system captures instances in a different manner than the former OMS system (i.e. events in lieu of outages). As a result, the 2015-2018 Reported Outages values do not directly correlate to customer outages and values reported prior to 2015.

⁴ MAIFle events for Major Event Days are not excluded.

2018 Corporate Annual Summary Without Major Event Days

Region	Reported Outages ¹	SAIFI Average Annual Outages per Customer (occurrences)	SAIDI Average Annual Outage Duration per Customer (minutes)	MAIFle Average Annual Momentary Interruptions per Customer (occurrences)
EASTERN	3,067	0.53	98	1.7
SOUTHERN	2,002	0.56	100	0.8
WESTERN	1,815	0.47	69	0.9
PGE:	6,884	0.52	88	1.3

2018 Corporate Annual Summary Including Major Event Days

Region	Reported Outages ¹	SAIFI Average Annual Outages per Customer (occurrences)	SAIDI Average Annual Outage Duration per Customer (minutes)	MAIFle Average Annual Momentary Interruptions per Customer (occurrences)
EASTERN	3,067	0.53	98	1.7
SOUTHERN	2,002	0.56	100	0.8
WESTERN	1,815	0.47	69	0.9
PGE:	6,884	0.52	88	1.3

¹ PGE transitioned to a new Outage Management System (OMS) in the fall of 2015. The new OMS system captures instances in a different manner than the former OMS system (i.e. events in lieu of outages). As a result, the 2018 Reported Outages values do not directly correlate to customer outages and values reported prior to 2015.

Section II

Outage Analysis

This section provides graphical representation of 2018 outage causes by both customer hours and event count. The intent of this section is to provide high-level analysis of the outages that result in the highest number of customer hours and the type of events with the highest frequency. Pie charts are utilized to reflect data from the most recent year and bar charts are utilized to capture the 4-year trend.

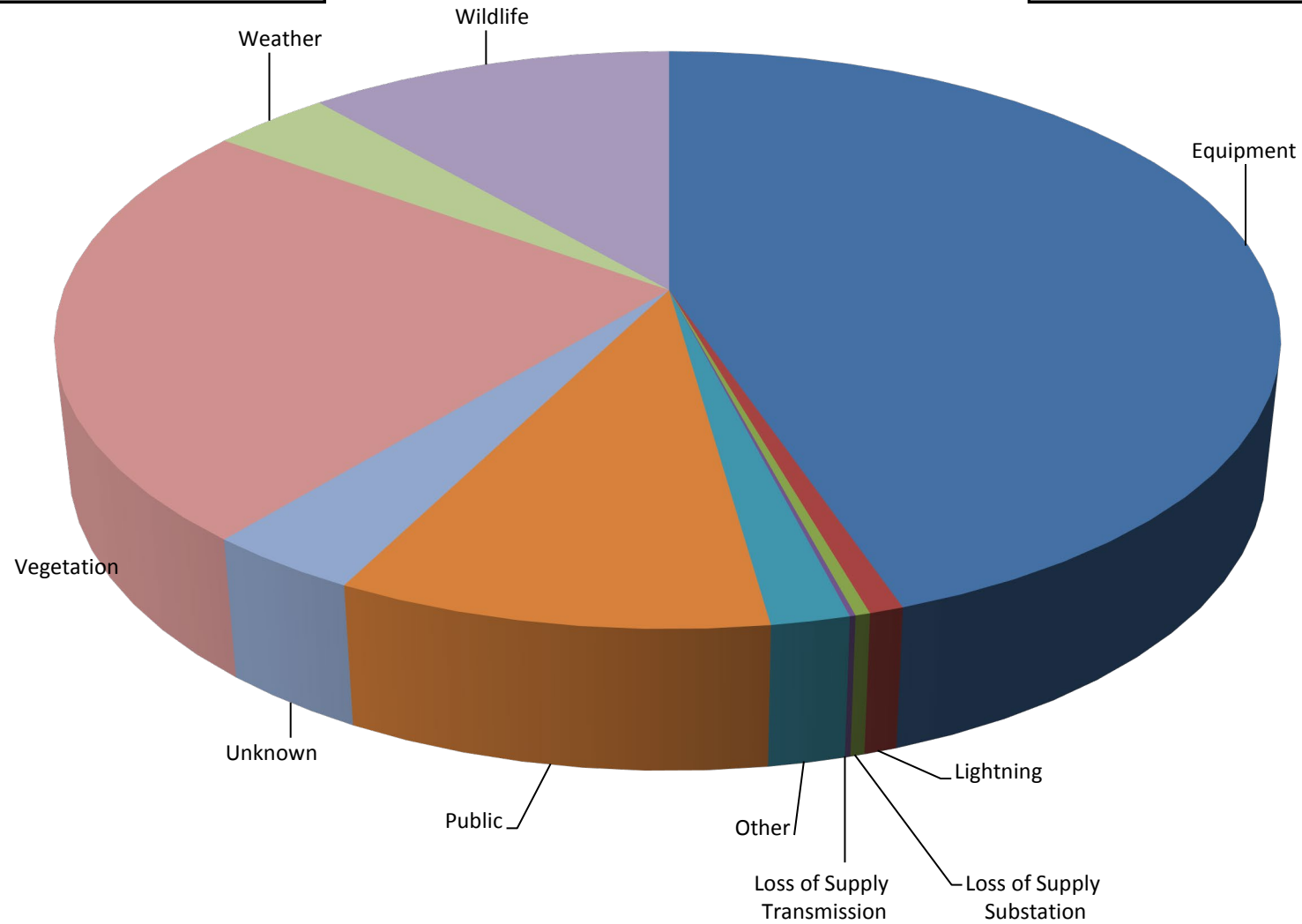
- Outage Causes by Events – Pie Chart
- Outage Causes by Events – 4 Year Comparison Bar Chart
- Outage Causes by Customer Hours – Pie Chart
- Outage Causes by Customer Hours – 4 Year Comparison Bar Chart

2018 Outages by Cause - Count

Equipment	3,082	44.8%
Lightning	53	0.8%
Loss of Supply - Substation	23	0.3%
Loss of Supply - Transmission	9	0.1%
Other	122	1.8%
Public	669	9.7%
Unknown	240	3.5%
Vegetation	1,653	24.0%
Weather	252	3.7%
Wildlife	781	11.3%
Total:	6,884	100.0%

Vegetation:		
Limb on Line	852	51.5%
Tree / Limb Burning	196	11.9%
Tree Uprooted	605	36.6%
Total Vegetation:	1,653	100.0%

Equipment:		
Cutout, Fuse, Arrestor	570	18.5%
Meter	23	0.7%
OH Conductor	330	10.7%
OH Hardware	769	25.0%
Pole / Structure	17	0.6%
Primary Device	19	0.6%
Transformer	329	10.7%
UG Accessory	214	6.9%
UG Conductor	811	26.3%
Total Equipment:	3,082	100.0%

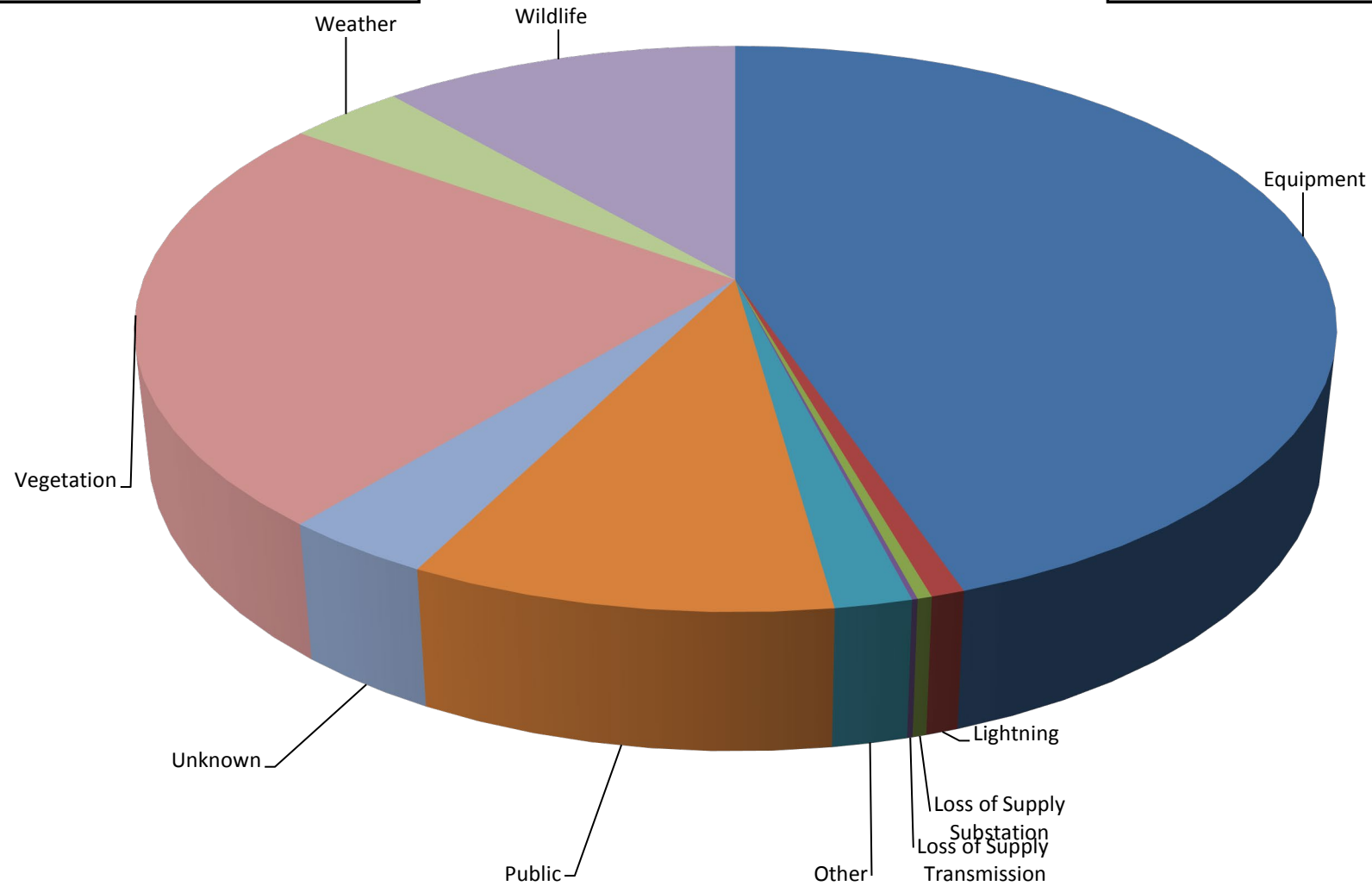


2018 Outages by Cause Including Major Event Days - Count

Equipment	3,082	44.8%
Lightning	53	0.8%
Loss of Supply - Substation	23	0.3%
Loss of Supply - Transmission	9	0.1%
Other	122	1.8%
Public	669	9.7%
Unknown	240	3.5%
Vegetation	1,653	24.0%
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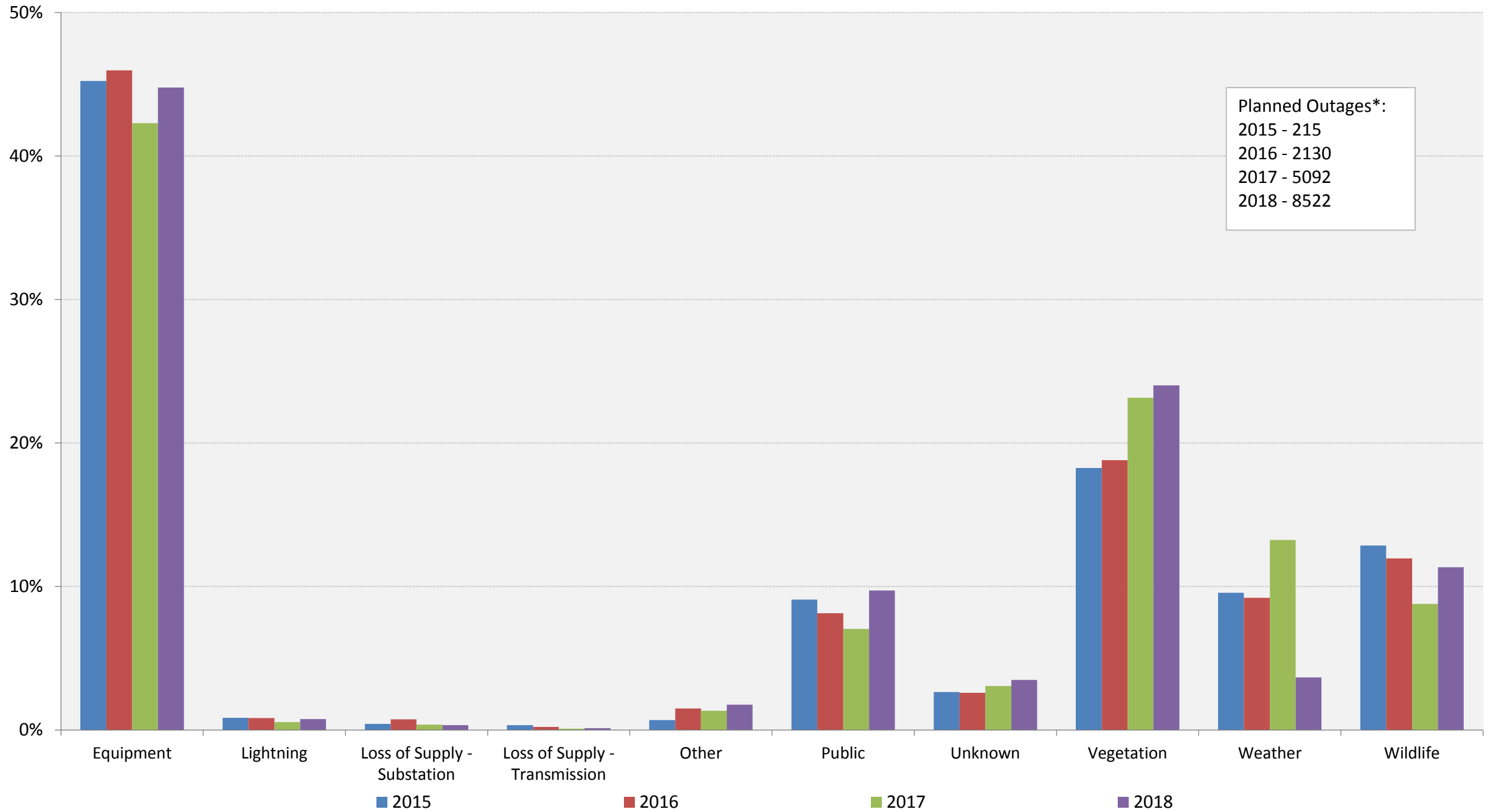
Vegetation:		
Limb on Line	852	51.5%
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UG Conductor	811	26.3%
Total Equipment:	3,082	100.0%



Outage Causes by Count

4 Year Comparison (2015-2018)



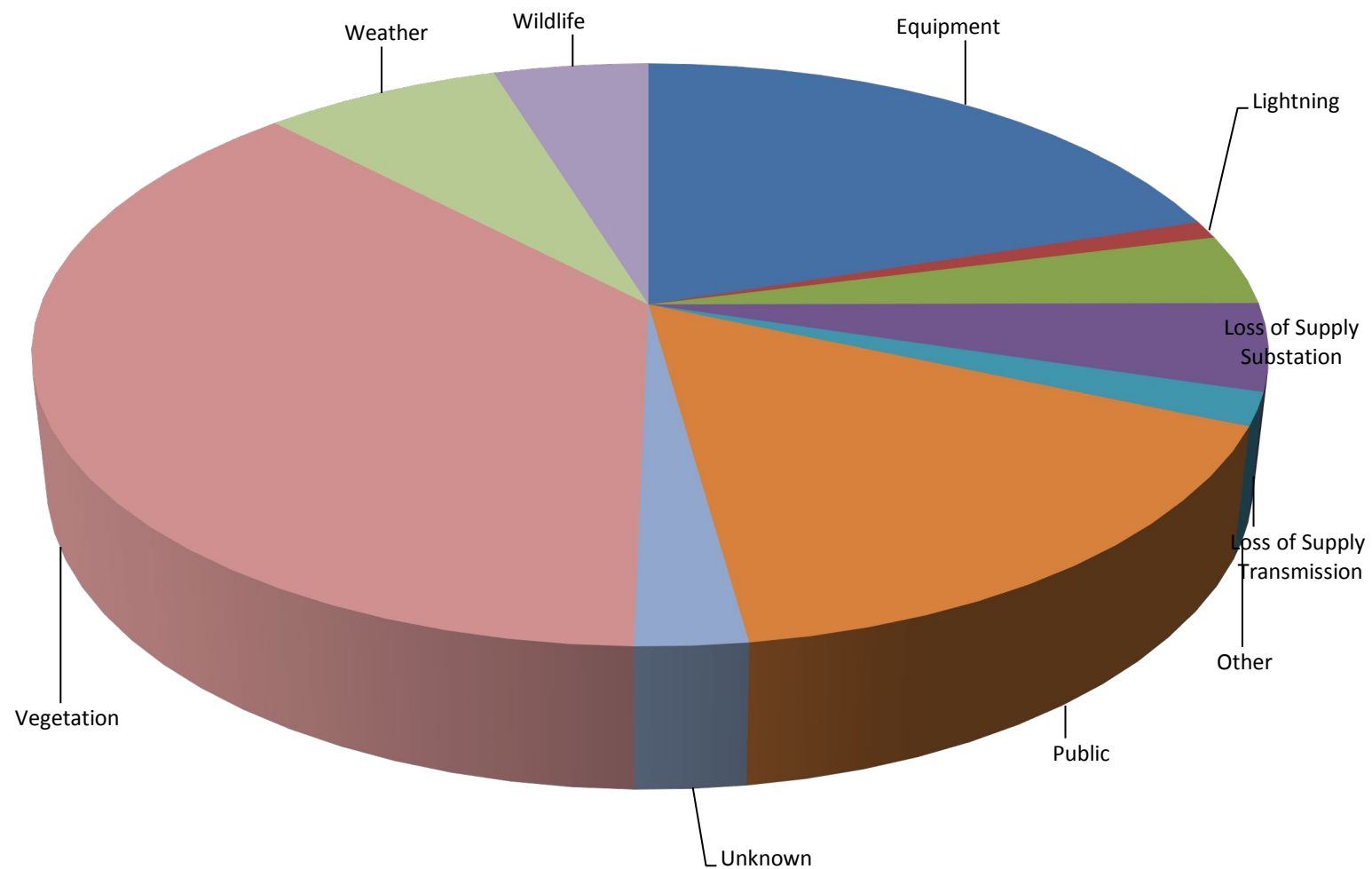
* Note: PGE's awareness and accuracy of Planned Outages has improved significantly with the implementation of a new OMS system and application of new processes and procedures for tracking of these events.

2018 Outages by Cause - Customer Hours

Equipment	258,642	20.0%
Lightning	12,699	1.0%
Loss of Supply - Substation	50,236	3.9%
Loss of Supply - Transmission	62,342	4.8%
Other	23,527	1.8%
Public	209,502	16.2%
Unknown	32,378	2.5%
Vegetation	484,221	37.5%
Weather	95,055	7.4%
Wildlife	61,932	4.8%
Total:	1,290,534	100.0%

Vegetation:			
Limb on Line	183,295	37.9%	
Tree / Limb Burning	42,656	8.8%	
Tree Uprooted	258,269	53.3%	
Total Vegetation:	484,221	100.0%	

Equipment:		
Cutout, Fuse, Arrestor	32,343	12.5%
Meter	72	0.0%
OH Conductor	37,485	14.5%
OH Hardware	46,713	18.1%
Pole / Structure	4,804	1.9%
Primary Device	14,675	5.7%
Transformer	15,384	5.9%
UG Accessory	33,398	12.9%
UG Conductor	73,768	28.5%
Total Equipment:	258,642	100.0%

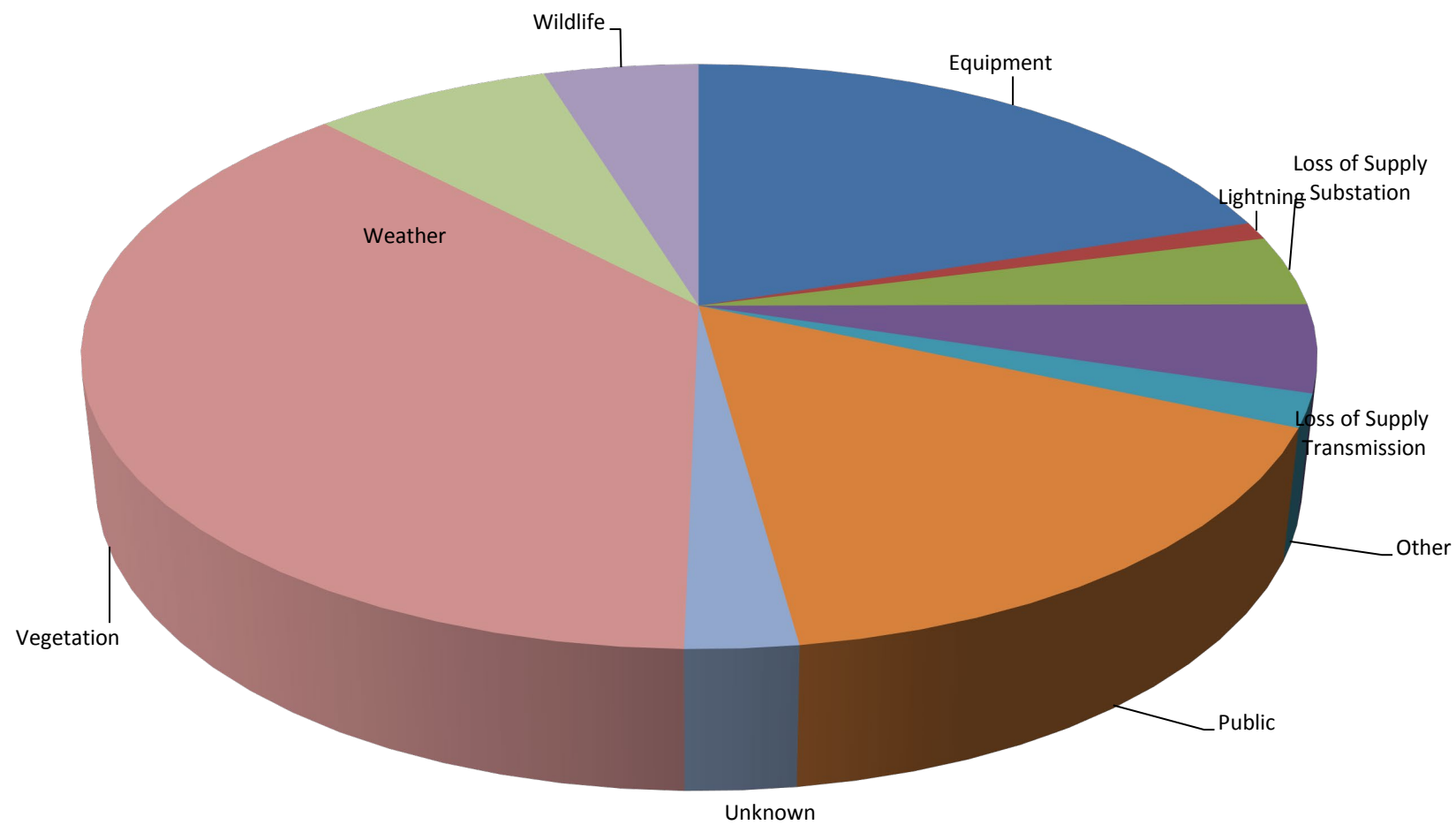


2018 Outages by Cause Including Major Event Days - Customer Hours

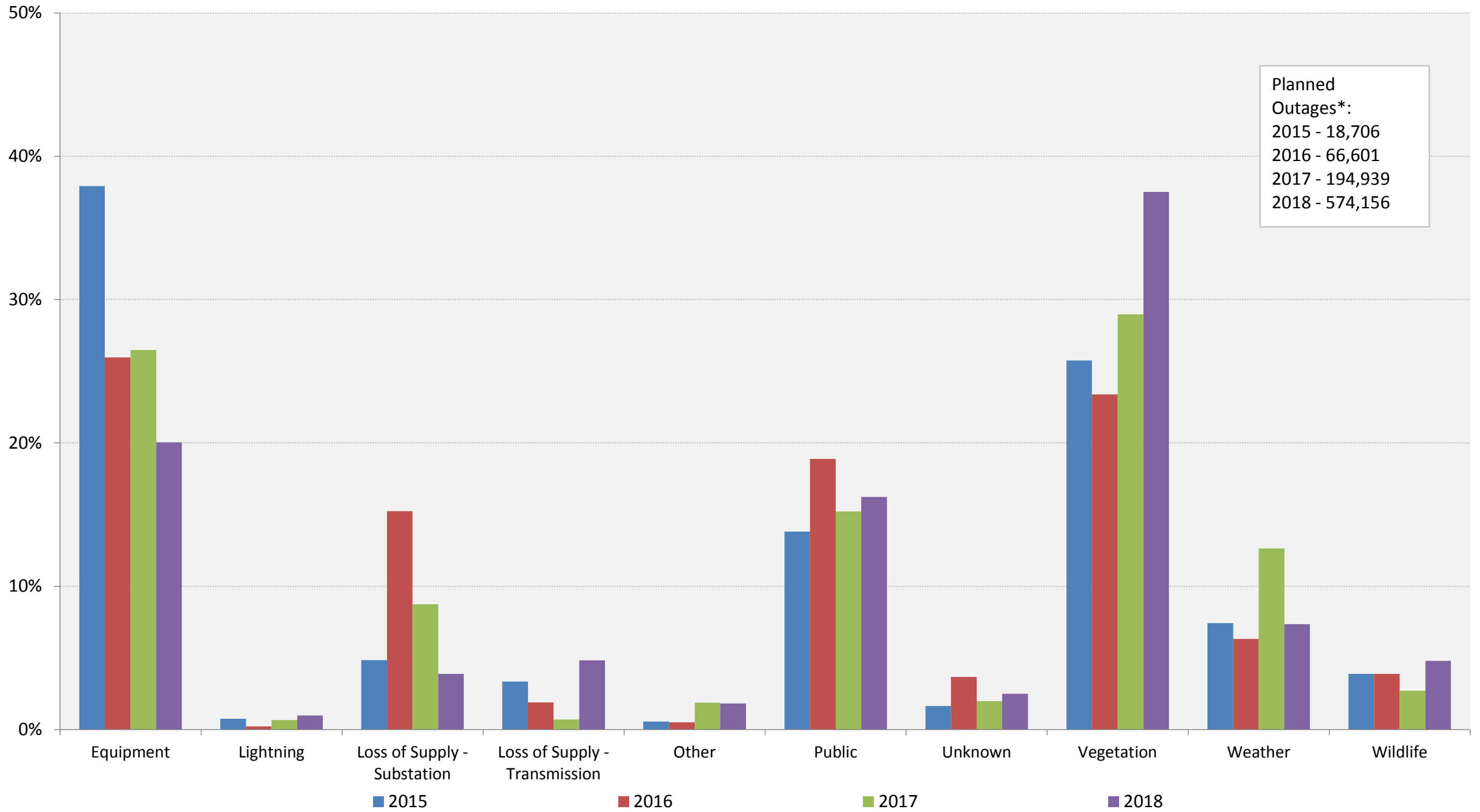
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Transformer	15,384	5.9%
UG Accessory	33,398	12.9%
UG Conductor	73,768	28.5%
Total Equipment:	258,642	100.0%



Outage Causes by Customer Hours 4 Year Comparison (2015-2018)



* Note: PGE's awareness and accuracy of Planned Outages has improved significantly with the implementation of a new OMS system and application of new processes and procedures for tracking of these events.

Section III

Feeder Performance Summary

This section provides a summary of reliability indices by Region and Feeder. The list is sorted in alphabetical order by Region and Feeder Name. Each feeder is classified as one of the following:

- Urban
- Rural
- Remote

Definition of Feeder Classifications

- A feeder is designated Urban if 50% or more of the load is inside the Urban Growth Boundary (UGB)
- A feeder is designated Rural if one or more of the following apply:
 - The load on a feeder is greater than 0.5 MVA per square mile.
 - A feeder has more than 100 customers per mile.
 - A feeder is serving load inside an incorporated city.
 - A feeder is directly adjacent to the UGB with feeder ties into
- A feeder is Remote if all conditions above do not apply.

The table below displays the individual feeder performance thresholds based on classification

Feeder Classification	SAIDI	SAIFI	MAIFI _e
Urban	2 hours (120 Minutes)	2.0 Occurrences	5 Occurrences
Rural	5 hours (300 Minutes)	2.6 Occurrences	10 Occurrences
Remote	7 hours (420 Minutes)	2.6 Occurrences	15 Occurrences

NOTE: Idle feeders are not included in this list. Feeders may be omitted if they are a part of an alternate/multiple feeder service.

Attachment A
PGE 2018 Annual Reliability Report

Confidential - Provided on CD Only
Section III, Feeder Performance Summary
Section VIII, 2018 Feeder Information

Section IV

Outages by Cause Natural

This section provides the number of customer outages (frequency) and customer outage hours (duration) caused by natural events. The information is presented by feeder and attributed to one of the following cause categories¹:

- Adverse Weather
- Lightning
- Animals
- Tree Contacts (Non-Preventable and Preventable)²
- Unknown

NOTES:

- Idle feeders are not included in this list
- Feeders may be omitted if they are a part of an alternate/multiple feeder service

¹ See Section IX – Cause Code Categories and Mapping for detailed causes for each category

² See section VII for detailed information

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
1	ABERNETHY-CLACKAMAS HEIGHTS	3	103					2	102	1	2				
2	ABERNETHY-OREGON CITY	20	4,301	1	12			4	164	12	3,939	1	49	2	136
3	ABERNETHY-TRANSIT	4	16	1	10			1	3	2	3				
4	ABERNETHY-WASHINGTON	3	79					2	76	1	2				
5	ALDER-ANKENY	3	9					1	5	1	2	1	2		
6	ALDER-IRVING	8	42	2	9			2	18	3	15			1	1
7	ALDER-LINCOLN	5	139							2	8	1	1	2	131
8	ALDER-STARK	1	47							1	47				
9	ALDER-TAYLOR	2	5							1	3	1	1		
10	ALDER-YAMHILL	2	245	1	10			1	236						
11	AMITY-AMITY 13	14	3,409	1	18	2	9	1	4	7	2,535	1	830	2	13
12	AMITY-BELLEVUE	8	930					1	3	6	926	1	1		
13	ARLETA-52ND	8	686					4	308	2	372	2	6		
14	ARLETA-FOSTER														
15	ARLETA-HAROLD	5	606					4	604	1	2				
16	ARLETA-POWELL	8	379	1	19			1	30	3	5	1	1	2	322
17	ARLETA-STEELE	3	190							2	17			1	174
18	BANKS-BANKS 13	8	319	1	3	1	4	1	2	4	86	1	225		
19	BANKS-CEDAR CANYON	24	3,631					2	167	20	3,449	1	7	1	6
20	BARNES-BATTLE CREEK	9	5,091					4	15	5	5,076				
21	BARNES-BOONE	2	12	1	3									1	9
22	BARNES-COMMERCIAL	8	2,409					2	42	4	2,264			2	104
23	BARNES-SUNNYSIDE	3	1,532	1	169			1	903	1	459				
24	BEAVER-KB PIPELINE														
25	BEAVERTON-ALLEN	9	16,180	1	15,507	1	441	5	111	1	93	1	27		
26	BEAVERTON-JAMIESON	2	10					2	10						
27	BEAVERTON-NORTHWEST	6	1,057			1	2	2	439	3	616				
28	BEAVERTON-WEST SLOPE	10	737			3	33	7	705						
29	BELL-BATTIN	1	7									1	7		
30	BELL-BRENTWOOD	2	45					2	45						

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
31	BELL-FLAVEL	2	50					2	50						
32	BELL-JOHNSON CREEK														
33	BELL-KENDALL	7	218					5	166	2	52				
34	BELL-KING	10	240					5	84			1	2	4	155
35	BELL-SOUTHGATE	3	111					1	11	1	97	1	3		
36	BELL-WICHITA	2	17	1	3					1	14				
37	BETHANY-BURTON	1	8					1	8						
38	BETHANY-GERMANTOWN	4	469							1	347	3	122		
39	BETHANY-KAISER														
40	BETHANY-LAIDLAW	1	9	1	9										
41	BETHANY-SPRINGVILLE	2	6					1	2					1	4
42	BETHANY-THOMPSON														
43	BETHEL-FRUITLAND	4	45					3	8	1	37				
44	BETHEL-GEER	12	1,343	2	196			2	18	8	1,128				
45	BETHEL-MACLEAY	2	26					1	22	1	4				
46	BLUE LAKE-BLUE LAKE 13	4	25					1	4	2	16			1	5
47	BLUE LAKE-SUNDIAL														
48	BLUE LAKE-TOYO TANSO														
49	BOISE CASCADE-BOISE #1														
50	BOONES FERRY-GOODALL	10	3,056	2	70					7	2,980	1	5		
51	BOONES FERRY-KRUSE	1	32					1	32						
52	BOONES FERRY-LAKE GROVE	7	5,189	1	468			2	398	4	4,324				
53	BOONES FERRY-MOUNTAIN PARK														
54	BOONES FERRY-WEMBLEY PARK	8	2,149	1	7			1	8	4	2,125	2	10		
55	BORING-282ND	9	6,783	2	5					4	6,445	1	24	2	309
56	BORING-CITY	12	434					4	218	3	163	2	3	3	49
57	BORING-TELFORD	13	1,846							10	1,833	3	13		
58	BRIGHTWOOD-BRIGHTWOOD 13	45	8,370	9	303			4	58	28	5,529			4	2,480
59	BRIGHTWOOD-NORTH BANK	23	5,481					1	1	21	5,479	1	2		
60	BROOKWOOD-BORWICK														

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
61	BROOKWOOD-BROOKWOOD 13														
62	BROOKWOOD-SUNRISE	3	35					3	35						
63	CANBY-13644	1	112							1	112				
64	CANBY-BUTTEVILLE	10	168					2	94	3	44	1	3	4	28
65	CANBY-FILBERT	1	2							1	2				
66	CANBY-ZIMMERMAN	12	565	1	458			3	11	2	4			6	92
67	CANYON-13114 NETWORK #1														
68	CANYON-13115 NETWORK #1														
69	CANYON-13116 NETWORK #1														
70	CANYON-13117 NETWORK #1														
71	CANYON-13118 PSU														
72	CANYON-13120														
73	CANYON-13121														
74	CANYON-13122 NETWORK #2														
75	CANYON-13123 NETWORK #2														
76	CANYON-13124 NETWORK #2														
77	CANYON-13125 NETWORK #2														
78	CANYON-13133 NETWORK #3														
79	CANYON-13134 NETWORK #3														
80	CANYON-13135 NETWORK #3														
81	CANYON-13136 NETWORK #3														
82	CANYON-21ST	1	3											1	3
83	CANYON-23RD	7	826					2	398	5	427				
84	CANYON-BURNSIDE	2	5					1	2			1	3		
85	CANYON-CANYON 13	6	563	1	30			1	22	3	509	1	1		
86	CARVER-ALMOND														
87	CARVER-CARVER 13	7	180					2	33	3	140	2	7		
88	CARVER-NORTH	2	2,398							2	2,398				
89	CARVER-RIVERBEND														
90	CARVER-SOUTH														

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
91	CARVER-WOODS	12	1,256	1	91	1	28			10	1,136				
92	CEDAR HILLS-CEDAR HILLS 13														
93	CEDAR HILLS-LEAHY	14	672					9	215	2	434	1	4	2	19
94	CEDAR HILLS-SHOPPING CENTER	13	1,334	1	297			5	200	7	837				
95	CEDAR HILLS-SKYLINE														
96	CEDAR HILLS-ST VINCENT														
97	CEDAR HILLS-SYLVAN	6	1,478					2	7	4	1,471				
98	CENTENNIAL-BARKER	10	1,501	1	16			2	32	4	1,316	3	137		
99	CENTENNIAL-BRAECROFT	4	528					1	456	1	2	1	1	1	70
100	CENTENNIAL-CENTENNIAL 13	9	268	2	28			4	217	1	7	2	16		
101	CENTENNIAL-TREELAND	4	306					2	299	2	6				
102	CLACKAMAS-EVELYN	1	7	1	7										
103	CLACKAMAS-GLADSTONE	7	192	1	174			4	15	2	3				
104	CLACKAMAS-JENNIFER	1	63					1	63						
105	CLACKAMAS-TOLBERT	2	62					2	62						
106	CLAXTAR-CLAXTAR 13	1	1					1	1						
107	CLAXTAR-HAYESVILLE	3	158	1	101			2	57						
108	CLAXTAR-RIDGE	5	8,516					4	8,364	1	151				
109	COFFEE CREEK-FREEMAN	1	469							1	469				
110	COFFEE CREEK-HOLIDAY														
111	COLTON-DHOOGHE	22	1,070	3	23	1	4	2	3	10	79			6	961
112	COLTON-GRAYS HILL	34	5,151	12	342	1	66	1	3	14	4,468	2	32	4	241
113	CORNELIUS-ADAIR	7	20					4	11	3	9				
114	CORNELIUS-CORNELIUS 13	11	5,146					6	2,651	5	2,495				
115	CORNELIUS-VERBOORT	8	1,107	1	653			4	237	2	215			1	1
116	CORNELL-BLUFFS	7	1,649					6	1,480					1	169
117	CORNELL-SALTZMAN														
118	CORNELL-WESTLAWN	13	1,689					7	167	4	719			2	802
119	CULVER-SANYO #1														
120	CURTIS-11077														

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
121	CURTIS-CURTIS 13	8	1,447					1	5	6	595	1	848		
122	DAYTON-EAST	17	767	2	215			4	224	9	177	1	148	1	4
123	DAYTON-LAFAYETTE	10	693					3	144	6	252			1	297
124	DAYTON-SOUTHWEST	8	41					3	7	4	29			1	5
125	DELAWARE-DENVER	1	2									1	2		
126	DELAWARE-INTERSTATE	2	368							2	368				
127	DELAWARE-LOMBARD	3	254					1	225	1	18			1	11
128	DENNY-EAST	6	301					2	92	3	141	1	67		
129	DENNY-NORTH	5	229	1	143	2	5	1	58	1	23				
130	DENNY-SOUTH	1	40											1	40
131	DENNY-WEST	15	912			2	66	10	316	3	531				
132	DILLEY-DILLEY 13	9	373					3	6	4	247			2	119
133	DILLEY-SPRINGHILL														
134	DUNNS CORNER-DUNNS CORNER 13	23	4,841	7	931			4	97	10	3,674	1	131	1	8
135	DUNNS CORNER-KELSO	6	464	1	59			2	39	2	276	1	90		
136	DURHAM-BONITA	1	240							1	240				
137	DURHAM-BRIDGEPORT														
138	DURHAM-DURHAM 13	1	6					1	6						
139	DURHAM-POOPLANT														
140	DURHAM-SATTLER	1	4							1	4				
141	DURHAM-SOUTH														
142	E-11021														
143	E-11039														
144	E-11040														
145	E-11041														
146	E-11042														
147	E-11043														
148	E-11047														
149	E-11064														
150	E-13139	1	3							1	3				

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Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
151	E-13140														
152	E-13141														
153	E-13142	2	7,052					2	7,052						
154	E-13144	4	23,546							2	23,538	1	2	1	5
155	E-13145														
156	E-13148														
157	E-13149														
158	E-13150														
159	EAGLE CREEK-BARTON	20	6,278	2	112			1	8	15	5,985	1	1	1	173
160	EAGLE CREEK-RIVER MILL	9	3,353					1	5	6	1,318			2	2,030
161	EASTPORT-76TH	4	261					2	251	2	10				
162	EASTPORT-PLAZA	2	18					1	14	1	3				
163	ELMA-ELMA 13														
164	ELMA-FOUR CORNERS	2	1,990	1	1,256									1	734
165	ELMA-HUDSON	4	50	1	7			3	43						
166	ELMA-STATE														
167	ESTACADA-ESTACADA 13	16	2,925	1	475			1	2	12	2,092	2	356		
168	ESTACADA-FARADAY	17	2,369	3	1,433	2	3			10	876	2	56		
169	ESTACADA-NORTH FORK	47	11,863	8	2,681	6	24	3	92	25	8,897	2	75	3	95
170	FAIRMOUNT-CANDALARIA	12	12,247					6	405	6	11,842				
171	FAIRMOUNT-MISSION	22	4,998					1	58	17	4,822	3	116	1	3
172	FAIRVIEW-CLEAR CREEK														
173	FAIRVIEW-FAIRVIEW 13	2	9					1	8			1	2		
174	FAIRVIEW-KENNEL CLUB	8	232					2	12	5	213			1	7
175	FAIRVIEW-TROUTDALE	5	89	1	1			2	78	2	11				
176	FAIRVIEW-WOOD VILLAGE														
177	FARGO-FARGO 13	22	7,082	3	4,321			4	1,815	8	367	2	113	5	466
178	GALES CREEK-GALES CREEK 13	40	2,295					1	2	31	1,830	5	303	3	160
179	GARDEN HOME-MCKAY	11	19,217	1	17,496	1	54	2	570	5	1,077	2	20		
180	GARDEN HOME-METZGER	5	89					2	17	3	73				

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2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
181	GLENCOE-GLISAN	11	416	2	2			6	325	3	88				
182	GLENCOE-PROVIDENCE	1	28									1	28		
183	GLENCOE-SUNNYSIDE	8	324							8	324				
184	GLENCULLEN-BRIDLEMILE	26	5,342					7	399	16	1,193	3	3,749		
185	GLENCULLEN-SUNSET	14	12,390					4	324	7	11,544	3	521		
186	GLENDOVEER-13596	1	14							1	14				
187	GLENDOVEER-13597	2	146					2	146						
188	GLENDOVEER-13598	3	36					3	36						
189	GLENDOVEER-13599	3	560	1	25			1	275	1	260				
190	GLENDOVEER-CLIFFGATE	5	225			1	184	1	19	2	14			1	7
191	GLENDOVEER-NORTHEAST	2	1,491					1	17	1	1,474				
192	GLISAN-FAB 2A														
193	GLISAN-UTILITY 1B														
194	GORMLEY-MCMINNVILLE WL														
195	GRAND RONDE-AGENCY	7	681							5	478			2	203
196	GRAND RONDE-FORTHILL	14	1,687					2	45	9	671	2	799	1	172
197	HARBORTON-BURLINGTON	27	5,122	1	17			4	140	20	4,962			2	4
198	HARBORTON-LINNTON	9	2,679							7	1,161			2	1,518
199	HARMONY-HARMONY 13	4	216	1	158			3	58						
200	HARMONY-INTERNATIONAL	1	37					1	37						
201	HARMONY-LAKE														
202	HARMONY-LINWOOD	6	1,152			1	1,068	3	80	1	2			1	2
203	HARMONY-MILWAUKIE	4	63					1	2	2	43	1	19		
204	HARMONY-THIESSEN														
205	HARRISON-DAVIS	1	2									1	2		
206	HARRISON-HARRISON 13														
207	HARRISON-IVON	2	61					2	61						
208	HAYDEN ISLAND-MAINLAND	3	606							3	606				
209	HAYDEN ISLAND-NORTH SHORE	1	49							1	49				
210	HAYDEN ISLAND-SOUTH SHORE	2	652							2	652				

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Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
211	HEMLOCK-FREMONT														
212	HEMLOCK-HEMLOCK 13														
213	HEMLOCK-MASON	1	1									1	1		
214	HILLCREST-CASCADIA														
215	HILLCREST-HILLCREST 13														
216	HILLCREST-SOUTH														
217	HILLSBORO-DAIRY CREEK	12	1,491					8	829	4	662				
218	HILLSBORO-DENNIS														
219	HILLSBORO-JACKSON	1	736							1	736				
220	HILLSBORO-LAUREL	18	1,748	1	19			5	29	12	1,700				
221	HILLSBORO-SCHOLLS	3	418	1	44			2	374						
222	HOGAN NORTH-BRIGADOON	1	66							1	66				
223	HOGAN NORTH-HOGAN NORTH 13	11	164					2	38	8	124			1	1
224	HOGAN NORTH-LINKS	22	14,721	9	1,122					10	12,013	1	1,582	2	4
225	HOGAN NORTH-SALQUIST	1	6							1	6				
226	HOGAN SOUTH-CLEVELAND	4	358					2	22	2	336				
227	HOGAN SOUTH-LAWRENCE	10	1,268	2	952			2	70	5	244			1	2
228	HOGAN SOUTH-MAIN														
229	HOGAN SOUTH-PAROPA	7	250					6	49	1	201				
230	HOGAN SOUTH-WALLULA	3	88					2	86	1	2				
231	HOLGATE-BYBEE	9	13,499	1	4,532					6	4,400	2	4,567		
232	HOLGATE-GIDEON	1	2											1	2
233	HOLGATE-HOLGATE 13	7	1,260					5	1,250	1	2	1	8		
234	HOLGATE-KENILWORTH	7	766					4	182	1	7	1	478	1	100
235	HOLGATE-RHONE	3	64					2	64			1	0		
236	HUBER-BANY	2	196			1	180							1	17
237	HUBER-FARMINGTON	7	776					4	215	3	560				
238	HUBER-HUBER 13	4	1,492					3	1,490	1	2				
239	HUBER-KINNAMAN	8	4,526			1	4,367	4	91					3	68
240	HUBER-MARYVILLE	2	785					1	763					1	22

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Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
241	INDIAN-KEIZER	7	537					3	104	3	425	1	8		
242	INDIAN-LABISH	1	5	1	5										
243	INDIAN-NORTH	9	41					5	18	2	1	1	2	1	19
244	INDIAN-STATION	1	120					1	120						
245	INDIAN-WEST	9	2,357	3	1,352			2	104	3	803	1	98		
246	ISLAND-13180	4	289					2	284			2	4		
247	ISLAND-13187	7	47					2	30	4	13			1	4
248	ISLAND-13188	8	8,804					2	227	5	8,439	1	138		
249	ISLAND-ISLAND 13														
250	JENNINGS LODGE-ADDIE	4	234					3	212			1	22		
251	JENNINGS LODGE-JENNINGS 13	8	144					3	36	5	108				
252	JENNINGS LODGE-MELDRUM	4	104					1	1	2	83	1	20		
253	JENNINGS LODGE-OAK GROVE	1	50							1	50				
254	JENNINGS LODGE-WEBSTER	5	641					3	49	2	592				
255	KELLEY POINT-KELLEY POINT 13	1	43											1	43
256	KELLEY POINT-MARINE	1	47											1	47
257	KELLEY POINT-SIMMONS														
258	KELLEY POINT-SOLAR #2														
259	KELLY BUTTE-BINNSMEAD	6	378					4	376	2	2				
260	KELLY BUTTE-FAIRLAWN	1	26											1	26
261	KELLY BUTTE-MALL 205	5	205					3	125	1	2			1	78
262	KELLY BUTTE-MCGREW	5	67					2	51	2	14	1	2		
263	KING CITY-BULL MOUNTAIN														
264	KING CITY-FISCHER	2	3,602							2	3,602				
265	KING CITY-HAZELBROOK														
266	KING CITY-NORTH	1	2					1	2						
267	KING CITY-SUMMERFIELD														
268	LAKE LABISH-LAKE LABISH														
269	LELAND-BEAVERCREEK	8	2,637	1	15			3	28	4	2,595				
270	LELAND-CARUS	22	20,196	2	215			5	125	11	19,298	2	432	2	127

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2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
271	LELAND-KELM	1	8					1	8						
272	LENTS-13101	5	456					4	452			1	5		
273	LENTS-HAPPY VALLEY														
274	LENTS-MT SCOTT	2	77							1	1	1	76		
275	LENTS-NORTH	8	129					1	1	4	99	2	9	1	20
276	LIBERAL-LIBERAL 13	7	631	1	23			1	13	3	589			2	5
277	LIBERAL-SAWMILL														
278	LIBERTY-BROWNING	3	55					2	44	1	11				
279	LIBERTY-LONE OAK														
280	LIBERTY-MORNINGSIDE	11	359	1	5			7	220	1	128	1	4	1	2
281	LIBERTY-ROSEDALE	4	506					2	15	2	490				
282	LIBERTY-SKYLINE	7	263					5	97	1	73			1	94
283	LIBERTY-VISTA	10	4,257					3	336	7	3,922				
284	MAIN-AIRPORT	2	84					2	84						
285	MAIN-BENTLEY	1	3					1	3						
286	MAIN-EXPRESS	8	1,525					6	1,521	2	4				
287	MAIN-JONES FARM														
288	MAIN-RIVER	8	246					4	60	3	130			1	56
289	MARKET-ENGLEWOOD	5	32					3	19	2	12				
290	MARKET-FAIRGROUNDS	5	41					5	41						
291	MARKET-HAWTHORNE	5	312	1	1			4	311						
292	MARKET-PARK	6	1,182					5	1,180	1	2				
293	MAXIM-MAXIM 13														
294	MCCLAIN-COTTAGE	6	39					4	35	1	2	1	3		
295	MCCLAIN-FRONT	3	60					2	52	1	8				
296	MCCLAIN-HOLLYWOOD	2	9					2	9						
297	MCGILL-LSI AIR 1A														
298	MERIDIAN-65TH	1	4					1	4						
299	MERIDIAN-BORLAND	2	17					1	7	1	9				
300	MERIDIAN-CHILDS														

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2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
301	MERIDIAN-LAKEVIEW	4	382							1	28			3	355
302	MERIDIAN-MERIDIAN 13	8	4,342			2	63	1	2	5	4,277				
303	MERIDIAN-NYBERG	1	17											1	17
304	MERIDIAN-PILKINGTON	5	7,744					1	14	4	7,731				
305	MERIDIAN-SAGERT	2	3							2	3				
306	MIDDLE GROVE-BROWN	1	9					1	9						
307	MIDDLE GROVE-CHEMEKETA	1	24					1	24						
308	MIDDLE GROVE-CORDON	8	56					1	1	7	55				
309	MIDDLE GROVE-SWEGLE	1	9					1	9						
310	MIDDLE GROVE-WEST	2	158					2	158						
311	MIDWAY-DIVISION	3	90					2	90	1	0				
312	MIDWAY-DOUGLAS	11	13,321	1	49			3	223	6	13,047	1	2		
313	MIDWAY-LYNCH	14	7,170					6	447	5	6,717	3	6		
314	MIDWAY-POWELLHURST	5	7,204	1	3			1	75	1	7,076	1	17	1	33
315	MILL CREEK-EASTLAND	8	176					1	31	7	145				
316	MILL CREEK-KUEBLER														
317	MILL CREEK-MILL CREEK 13	1	33									1	33		
318	MOLALLA-BUCKAROO	2	24							1	6			1	18
319	MOLALLA-FOREST	25	7,907	1	987			3	15	15	6,579	1	180	5	146
320	MOLALLA-MARQUAM	30	2,090	5	123	1	1,018	1	9	15	881	2	7	6	52
321	MOLALLA-YODER	10	6,709	3	21					4	6,603	2	82	1	2
322	MT ANGEL-EAST														
323	MT ANGEL-WEST	5	45					1	37	1	3			3	5
324	MT PLEASANT-CLAIRMONT	4	19					3	18	1	1				
325	MT PLEASANT-MT VIEW	2	1,231							1	1,212	1	19		
326	MT PLEASANT-RIVERCREST	5	2,178	1	2			1	13	2	1,005			1	1,157
327	MT PLEASANT-SOUTH END	4	202	1	123			1	9	1	2			1	69
328	MULINO-NORTH	2	47					1	25	1	22				
329	MULINO-SOUTH	12	385					2	4	8	360			2	22
330	MULTNOMAH-13176	9	3,457	1	16			2	6	5	3,378			1	57

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2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
331	MULTNOMAH-13177	14	1,011			1	202	3	216	7	254	1	5	2	334
332	MULTNOMAH-13181	6	1,191							5	872	1	319		
333	MULTNOMAH-MULTNOMAH 13	7	14,140							5	13,423	1	6	1	710
334	MURRAYHILL-KINTON														
335	MURRAYHILL-MURRAYHILL 13														
336	MURRAYHILL-REUSSER														
337	MURRAYHILL-TEAL	1	16							1	16				
338	NEWBERG-CHEHALEM	19	2,895	3	6			5	74	10	1,926			1	889
339	NEWBERG-DUNDEE	12	851	2	279			4	82	6	489				
340	NEWBERG-HOOVER PARK	5	350					1	8	4	342				
341	NEWBERG-NORTH COLLEGE	3	137							2	28			1	109
342	NORTH MARION-CROSBY	5	448	1	1			1	82	2	361			1	3
343	NORTH MARION-FRONT	1	1			1	1								
344	NORTH MARION-HUBBARD	5	453					2	104	2	347			1	2
345	NORTH MARION-MCLAREN	9	1,029					4	59	4	956			1	14
346	NORTH PLAINS-MASON HILL	23	1,770					6	70	15	1,587			2	113
347	NORTH PLAINS-NORTH PLAINS 13	19	3,484					1	5	18	3,480				
348	NORTHERN-11009	3	37					3	37						
349	NORTHERN-11016	1	0									1	0		
350	NORTHERN-11071	4	19							3	11	1	8		
351	OAK GROVE-LAKE HARRIET	3	79							3	79				
352	OAK GROVE-WHITE WATER														
353	OAK HILLS-FIVE OAKS	1	2					1	2						
354	OAK HILLS-GREENBRIER														
355	OAK HILLS-OAK HILLS 13	4	3					4	3						
356	OAK HILLS-SOMERSET														
357	OAK HILLS-WALKER	1	4					1	4						
358	OREGON STEEL-OREGON STEEL 13														
359	ORENCO-231ST	6	1	2	0			4	1						
360	ORENCO-AMBERGLEN														

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2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
361	ORENCO-BASELINE														
362	ORENCO-ORENCO 13	1	6					1	6						
363	ORENCO-PRIMATE	2	20	2	20										
364	ORENCO-WILKINS														
365	ORIENT-BARLOW	17	1,172	1	30			2	68	11	857	2	213	1	3
366	ORIENT-ORIENT 13	16	3,499	3	2,973			1	33	9	357	2	131	1	5
367	OSWEGO-IRON MOUNTAIN	7	3,858			1	3	1	6	1	92	4	3,757		
368	OSWEGO-MARYLHURST	18	8,426					6	217	9	4,474	2	3,726	1	9
369	OSWEGO-PALATINE	9	810					1	2	6	799			2	8
370	OSWEGO-STAFFORD	2	348					1	152	1	197				
371	OXFORD-FAIRVIEW	3	374					2	358			1	16		
372	OXFORD-LEE	7	501					6	415	1	87				
373	OXFORD-MADRONA														
374	OXFORD-OXFORD 13	1	16											1	16
375	OXFORD-RURAL														
376	OXFORD-SHELTON	8	131					6	72			1	2	1	56
377	PELTON-ROUND BUTTE														
378	PENINSULA PARK-OCKLEY GREEN	5	302					1	290	4	12				
379	PENINSULA PARK-PENINSULA PARK	8	283					1	41	5	67	1	1	1	173
380	PLEASANT VALLEY-BAXTER	5	8,833							4	8,812	1	21		
381	PLEASANT VALLEY-CLATSOP														
382	PLEASANT VALLEY-MOON	1	4							1	4				
383	PLEASANT VALLEY-PLEASANT 13	12	360					2	27	6	226	2	56	2	51
384	PLEASANT VALLEY-SUN	4	709							4	709				
385	PORTLAND WATER-PUMPING														
386	PORTSMOUTH-CARBIDE	9	484					6	466	1	5	1	3	1	10
387	PORTSMOUTH-DISPOSAL														
388	PORTSMOUTH-WILLIS	2	96									1	6	1	89
389	PROGRESS-GREENBURG	2	18					1	11	1	7				
390	PROGRESS-HALL														

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2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
391	PROGRESS-ROBINSON														
392	PROGRESS-SAWYER	4	98							3	87	1	11		
393	PROGRESS-WASHINGTON SQ #1														
394	PROGRESS-WASHINGTON SQ #2														
395	RALEIGH HILLS-DOGWOOD	8	456					4	87	4	369				
396	RALEIGH HILLS-MONTCLAIR	9	473			3	44	5	133	1	296				
397	RALEIGH HILLS-OLESON	11	1,493					8	688			1	373	2	432
398	RAMAPO-EMERALD	6	264			1	14	1	227	3	15			1	8
399	RAMAPO-GILBERT	2	46					1	16	1	30				
400	RAMAPO-RAMAPO 13	8	154	1	1			3	84	3	18			1	51
401	REDLAND-HENRICI	22	16,413	5	11,524			4	23	11	4,145	2	721		
402	REDLAND-REDLAND 13	22	3,128	2	9			1	4	17	2,953			2	162
403	REEDVILLE-AUGUSTA	2	435					2	435						
404	REEDVILLE-BLANTON	3	168					3	168						
405	REEDVILLE-HAZELDALE	5	128	1	43			1	1	1	63			2	20
406	REEDVILLE-INTEL #2														
407	REEDVILLE-INTEL #4														
408	REEDVILLE-INTEL #5														
409	REEDVILLE-TV	1	2											1	2
410	RIVERGATE SOUTH-11010														
411	RIVERGATE SOUTH-11011	5	3,542					1	4	4	3,538				
412	RIVERGATE SOUTH-PEARCY														
413	RIVERGATE SOUTH-SWIFT														
414	RIVERVIEW-FULTON	4	43							2	34	2	9		
415	RIVERVIEW-MACADAM	1	2							1	2				
416	RIVERVIEW-TERWILLIGER	5	495	1	131			2	10	2	353				
417	ROCKWOOD-AIRPORT														
418	ROCKWOOD-BOEING														
419	ROCKWOOD-INDUSTRIAL														
420	ROCKWOOD-REYNOLDS	1	128							1	128				

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
421	ROCKWOOD-ROCKWOOD 13	8	162					4	108	4	54				
422	ROCKWOOD-WILKES														
423	ROSEMONT-HIDDEN SPRINGS	5	1,646	1	3			1	2	3	1,641				
424	ROSEMONT-MOSSY BRAE	8	523							8	523				
425	ROSEMONT-OVERLOOK	6	357					2	12	2	62	1	280	1	3
426	ROSEWAY-ALEXANDER														
427	ROSEWAY-ESPLANADE	1	9							1	9				
428	ROSEWAY-ROSEWAY 13	3	34					2	12	1	22				
429	RUBY-CARLINE	2	37					2	37						
430	RUBY-JUNCTION	2	71					2	71						
431	SALEM-13260														
432	SALEM-13261														
433	SALEM-13262														
434	SALEM-13263														
435	SALEM-13264														
436	SALEM-UNION														
437	SANDY-362ND	19	13,188	2	62			1	2	12	10,337	2	447	2	2,339
438	SANDY-BLUFF	4	3,375					1	29	3	3,346				
439	SANDY-SANDY 13	35	5,768	5	1,654	1	6	3	14	21	2,203	2	21	3	1,869
440	SANDY-WILDCAT	17	7,133	3	238			1	2	13	6,894				
441	SCAPPOOSE-SAUVIE ISLAND	3	10					2	8					1	3
442	SCHOLLS FERRY-KEMMER	5	296			1	227	1	18	3	51				
443	SCHOLLS FERRY-RAINBOW	29	937	5	394			8	177	11	232	2	36	3	100
444	SCHOLLS FERRY-ROY ROGERS	6	4,919	1	21			1	22	3	4,839	1	37		
445	SCOGGINS-CHERRY GROVE	9	300	1	16			2	5	6	280				
446	SCOGGINS-LAURELWOOD	15	2,059	2	3			3	77	8	1,924			2	55
447	SCOTTS MILLS-SCOTTS MILLS 13	38	1,994	3	506	2	29	2	32	22	863	5	263	4	300
448	SELLWOOD-KELLOGG PARK	2	41							1	27	1	14		
449	SELLWOOD-SELLWOOD 13	9	304	1	17	1	94	3	174	3	14	1	5		
450	SELLWOOD-WAVERLY	1	7,684	1	7,684										

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
451	SHERIDAN-EAST	11	55					5	24	5	27			1	4
452	SHERIDAN-KADELL	10	464					1	174	7	253			2	37
453	SHUTE-LINDE 1 35KV														
454	SILVERTON-NORTH	10	2,114	2	730			3	11	4	1,371	1	1		
455	SILVERTON-SOUTH	32	3,416	2	10			1	1	20	1,547	4	1,425	5	433
456	SILVERTON-WEST	7	1,086					1	2	6	1,084				
457	SIX CORNERS-13359	4	181					1	46	2	133	1	1		
458	SIX CORNERS-13360	1	117	1	117										
459	SIX CORNERS-BORCHERS	15	1,721					3	195	11	1,201	1	324		
460	SIX CORNERS-CHAPMAN	8	328					5	217	3	111				
461	SIX CORNERS-SIX CORNERS 13														
462	SP NEWSPRINT-NEWBERG														
463	SPRING HILL-SPRING HILL														
464	SPRINGBROOK-FERNWOOD	10	915	1	48			5	77	3	778			1	13
465	SPRINGBROOK-ST PAUL	15	1,130	1	2					9	1,004	1	13	4	111
466	SPRINGBROOK-VILLA														
467	SPRINGBROOK-ZIMRI	11	3,397	2	7			1	742	6	1,615	1	1,029	1	4
468	ST HELENS-KASTER														
469	ST LOUIS-EAST	1	22											1	22
470	ST LOUIS-NORTH	7	2,366	1	9					5	2,355			1	2
471	ST LOUIS-WEST	12	133	1	4			1	3	7	114	2	10	1	2
472	ST MARYS EAST-BETHANY														
473	ST MARYS EAST-ELMONICA														
474	ST MARYS EAST-JENKINS														
475	ST MARYS EAST-MILLIKAN	1	4,270			1	4,270								
476	ST MARYS EAST-ST MARYS 13														
477	STEPHENS-11001	1	4	1	4										
478	STEPHENS-11020														
479	STEPHENS-11054 NETWORK														
480	STEPHENS-11055 NETWORK														

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
481	STEPHENS-11092 NETWORK														
482	STEPHENS-11093 NETWORK														
483	STEPHENS-11094 NETWORK														
484	STEPHENS-11095 NETWORK														
485	STEPHENS-11097 NETWORK														
486	STEPHENS-11098														
487	STEPHENS-11099 NETWORK														
488	STIMSON LUMBER-FORESTEX														
489	SULLIVAN-ROBINWOOD	15	12,726					3	142	10	12,513	1	58	1	12
490	SULLIVAN-SALAMO	8	1,660					2	191	5	1,183			1	286
491	SULLIVAN-SUSSEX	4	43					1	24	2	16			1	3
492	SULLIVAN-TANNER	3	316					2	4	1	311				
493	SULLIVAN-WILLAMETTE	4	350	1	4					2	13	1	333		
494	SULZER PUMPS-115B														
495	SUMMIT-GOVERNMENT CAMP														
496	SUMMIT-MEADOWS														
497	SUMMIT-SUMMIT 13	1	20	1	20										
498	SUNSET-BLANCHET														
499	SUNSET-COLFAX														
500	SUNSET-CORNELL														
501	SUNSET-DORION														
502	SUNSET-IDTB														
503	SUNSET-IDTC														
504	SUNSET-INTEL D1B1														
505	SUNSET-INTEL D1X1														
506	SUNSET-KOMATSU #1														
507	SUNSET-LANE														
508	SUNSET-MCCALL														
509	SUNSET-MEEK														
510	SUNSET-NIXON														

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
511	SUNSET-PAULING														
512	SUNSET-SPALDING														
513	SUNSET-WHITMAN														
514	SUNSET-YOUNG														
515	SWAN ISLAND-BASIN	1	1							1	1				
516	SWAN ISLAND-DOLPHIN														
517	SWAN ISLAND-FREIGHTLINER														
518	SWAN ISLAND-GOING	1	165							1	165				
519	SWAN ISLAND-SHIPYARD														
520	SYLVAN-BARNES	14	1,493					1	15	12	1,407	1	71		
521	SYLVAN-PATTON	18	7,185	2	184			9	120	5	221	1	6,627	1	32
522	TABOR-82ND	4	22					1	16	2	5	1	2		
523	TABOR-HOSPITAL	1	2									1	2		
524	TABOR-TABOR 13	2	67	1	5									1	63
525	TEKTRONIX-DUCKS														
526	TEKTRONIX-HOCKEN														
527	TEKTRONIX-MEADOW	19	1,069	1	6			11	281	6	773	1	9		
528	TEKTRONIX-NORTH														
529	TEKTRONIX-SHANNON	10	379	1	4			5	209	4	166				
530	TEKTRONIX-SOUTH	7	364			5	173	1	133	1	57				
531	TEKTRONIX-TEKTRONIX 13	1	1			1	1								
532	TEKTRONIX-TERMAN														
533	TEKTRONIX-WEST														
534	TEMP B-NORTH	1	1									1	1		
535	TEMP B-SOUTH	1	26							1	26				
536	TIGARD-13336	2	24	1	6			1	19						
537	TIGARD-13337														
538	TIGARD-13361	1	1					1	1						
539	TIGARD-13362	2	20					2	20						
540	TIGARD-TIGARD 13	3	25					3	25						

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
541	TOWN CENTER-LAWNFIELD														
542	TOWN CENTER-MONTEREY	4	582	1	177					3	405				
543	TOWN CENTER-NORTH														
544	TOWN CENTER-PRECISION CASTPARTS														
545	TOWN CENTER-SOUTH														
546	TOWN CENTER-SUNNYBROOK														
547	TOWN CENTER-VALLEY VIEW														
548	TROJAN-EAST														
549	TUALATIN-AVERY	2	4,882							2	4,882				
550	TUALATIN-CIPOLE	3	9					1	1	2	8				
551	TUALATIN-HERMAN	1	2	1	2										
552	TUALATIN-IBACH	2	4							2	4				
553	TUALATIN-LEVETON														
554	TUALATIN-TUALATIN 13														
555	TURNER-CASCADE	7	510					3	52	4	459				
556	TURNER-TURNER 13	14	834	4	224					7	469	1	137	2	4
557	TWILIGHT-BREMER	9	3,956					1	1	7	3,953	1	2		
558	UNIONVALE-UNIONVALE 13	20	691	3	55	1	3	3	49	10	492	2	90	1	2
559	UNIVERSITY-MILL	5	146					5	146						
560	UNIVERSITY-TRADE	6	77					4	65	1	10	1	2		
561	URBAN-BARBUR	1	1					1	1						
562	URBAN-CAMPUS														
563	URBAN-CORBETT	6	416	1	4			1	367	3	37			1	8
564	URBAN-GAINES	2	123							1	120	1	2		
565	URBAN-GIBBS	1	21					1	21						
566	URBAN-KELLY	1	2					1	2						
567	URBAN-LANDING														
568	URBAN-MEDICAL	1	18					1	18						
569	URBAN-OHSU														
570	WACKER-WACKER 1														

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

	Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
571	WACONDA-NORPAC														
572	WACONDA-RIVER	6	779	1	55					5	724				
573	WACONDA-WACONDA 13	9	3,960					2	5	6	3,954			1	1
574	WALLACE-WALLACE 13	21	822	3	183			2	4	13	519	1	97	2	20
575	WALLACE-WILLOW LAKE	1	3					1	3						
576	WELCHES-WELCHES 13	26	1,662	5	37			3	72	16	1,331	2	221		
577	WELCHES-ZIG ZAG	80	23,401	24	3,931	1	9	1	2	44	14,073	5	4,384	5	1,002
578	WEST PORTLAND-72ND	3	54					2	35					1	19
579	WEST PORTLAND-NORTH	6	532					3	164	2	366			1	1
580	WEST PORTLAND-PACIFIC	4	945							4	945				
581	WEST PORTLAND-WEST PORTLAND 13	6	2,158					5	1,744	1	414				
582	WEST UNION-CORNELIUS PASS	16	952					4	39	11	697	1	216		
583	WEST UNION-JACOBSON														
584	WEST UNION-WEST UNION 13	2	251							2	251				
585	WILLAMINA-BRIDGE	7	2,163	1	1,665			2	10	2	167	1	307	1	15
586	WILLAMINA-BUELL	11	3,156					3	7	6	3,134	1	5	1	10
587	WILLAMINA-LUMBER														
588	WILLBRIDGE-WILLBRIDGE #1	1	200											1	200
589	WILLBRIDGE-WILLBRIDGE #4	1	12	1	12										
590	WILSONVILLE-BOECKMAN	4	457					2	52	2	404				
591	WILSONVILLE-CHARBONNEAU														
592	WILSONVILLE-CITY														
593	WILSONVILLE-MENTORTEK														
594	WILSONVILLE-PARKWAY														
595	WILSONVILLE-VILLEBOIS	12	697	4	90			4	93	4	515				
596	WILSONVILLE-WEST	2	5,373	1	3,829					1	1,545				
597	WOODBURN-CANNERY	3	364					2	363					1	2
598	WOODBURN-EAST	5	545							3	539			2	6
599	WOODBURN-TOMLIN	8	2,785			1	2	3	2,773	2	3			2	8
600	WOODBURN-WEST	16	787	1	6			9	397	2	255			4	129
601	YAMHILL-CARLTON	17	9,406	1	32			2	6	12	2,395			2	6,973
602	YAMHILL-YAMHILL 13	11	1,241					4	145	7	1,095				

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause Natural

Feeder Name	Total Natural		Adverse Environment		Lightning		Animal		Non-Preventable Tree Contacts*		Preventable Tree Contacts*		Unknown	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
Grand Totals:	2,979	686,284	252	95,055	53	12,699	781	61,932	1,457	441,565	196	42,656	240	32,378

*For detailed Tree Contacts, see Outages by Tree Contacts report

Outs = Outages
Hrs = # of customers * duration hrs

Section V

Outages by Cause System

This section provides the total number of customer outages (frequency) and customer outage hours (duration) caused by system (failure of equipment or loss of source) events. The information is presented by feeder and attributed to one of the following categories¹:

- PGE Equipment²
- Loss of Substation
- Loss of Transmission
- Human Element
- Public
- Planned³

NOTES:

- Idle feeders are not included in this list
- Feeders may be omitted if they are a part of an alternate/multiple feeder service

¹ See Section IX – Cause Code Categories and Mapping for detailed causes for each category

² The Cutout, Fuse, Arrestor category is included for reference. Outage events in this column are captured in the PGE Equipment column.

³ The Planned category is included for reference. Planned outages are not included as part of Total System values or sums.

2018 Outages by Cause System

Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
1 ABERNETHY-CLACKAMAS HEIGHTS	2	3	2	3											15	65
2 ABERNETHY-OREGON CITY	18	4,745	10	294	2	162							8	4,451	17	71
3 ABERNETHY-TRANSIT	6	64	4	32									2	32	9	44
4 ABERNETHY-WASHINGTON	6	1,199	4	14									2	1,185	6	36
5 ALDER-ANKENY	2	96	2	96											17	409
6 ALDER-IRVING	12	150	6	73	1	4					1	21	5	56	29	707
7 ALDER-LINCOLN	11	199	9	184	1	25					1	13	1	1	51	1,751
8 ALDER-STARK	6	67	3	58	1	2							3	8	12	41
9 ALDER-TAYLOR	5	361	5	361											20	687
10 ALDER-YAMHILL	2	2											2	2	6	27
11 AMITY-AMITY 13	17	128	13	56	5	21							4	72	9	106
12 AMITY-BELLEVUE	20	2,303	15	1,744	5	383							5	559	34	430
13 ARLETA-52ND	10	468	9	58	1	1							1	410	82	4,565
14 ARLETA-FOSTER	6	505	5	504	1	7					1	2			38	3,426
15 ARLETA-HAROLD	9	88	6	80							2	7	1	1	83	4,310
16 ARLETA-POWELL	12	397	10	359	5	70					1	27	1	11	102	5,226
17 ARLETA-STEELE	11	468	11	468	2	83									65	4,910
18 BANKS-BANKS 13	9	212	7	157	2	3							2	55	14	60
19 BANKS-CEDAR CANYON	13	50	12	48	4	21							1	2	30	56
20 BARNES-BATTLE CREEK	5	34	5	34											74	224
21 BARNES-BOONE	2	634	1	88									1	546	9	3,815
22 BARNES-COMMERCIAL	9	487	6	93							1	204	2	189	13	100
23 BARNES-SUNNYSIDE	11	1,707	11	1,707											24	569
24 BEAVER-KB PIPELINE																
25 BEAVERTON-ALLEN	17	1,953	15	1,939	2	28					1	1	1	14	6	54
26 BEAVERTON-JAMIESON	3	7	3	7												
27 BEAVERTON-NORTHWEST	5	2,791	3	12	1	3							2	2,778	4	13
28 BEAVERTON-WEST SLOPE	7	2,316	7	2,316											3	36
29 BELL-BATTIN	9	247	5	91	1	40							4	156	4	25
30 BELL-BRENTWOOD	2	31	2	31											2	15
31 BELL-FLAVEL	10	3,251	5	3,231	2	43							5	20	7	65
32 BELL-JOHNSON CREEK	1	10	1	10											1	22
33 BELL-KENDALL	8	1,551	8	1,551	3	48									3	8
34 BELL-KING	6	130	5	129	1	116							1	1	24	2,847
35 BELL-SOUTHGATE	10	141	9	140	1	81							1	1	13	205
36 BELL-WICHITA	2	2,436	1	262									1	2,174	22	1,718

¹ Values captured in the PGE Equipment total

² Planned is not included as part of Total System values

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause System

Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
37 BETHANY-BURTON	1	8	1	8											7	23
38 BETHANY-GERMANTOWN	10	8,330	2	21							6	7,515	2	795	59	652
39 BETHANY-KAISER	3	367	3	367	1	220									18	183
40 BETHANY-LAIDLAW	4	39	3	36									1	3	13	9
41 BETHANY-SPRINGVILLE	3	1,325	1	1									2	1,324	16	313
42 BETHANY-THOMPSON	2	20	1	16	1	16							1	3	34	574
43 BETHEL-FRUITLAND	9	702	7	695	1	1							2	7	21	714
44 BETHEL-GEER	13	173	12	165	3	39							1	9	7	15
45 BETHEL-MACLEAY	8	862	8	862											7	161
46 BLUE LAKE-BLUE LAKE 13	12	751	8	342									4	409	12	671
47 BLUE LAKE-SUNDIAL	1	46	1	46											16	52
48 BLUE LAKE-TOYO TANSO																
49 BOISE CASCADE-BOISE #1																
50 BOONES FERRY-GOODALL	8	402	8	402	3	249									23	305
51 BOONES FERRY-KRUSE	1	95	1	95											4	4
52 BOONES FERRY-LAKE GROVE	7	1,734	4	1,467									3	267	22	271
53 BOONES FERRY-MOUNTAIN PARK	6	439	6	439											13	101
54 BOONES FERRY-WEMBLEY PARK	8	685	8	685	3	195									24	745
55 BORING-282ND	19	197	17	191	5	128							2	6	18	94
56 BORING-CITY	21	2,789	16	345	2	12							5	2,444	56	166
57 BORING-TELFORD	22	2,696	10	1,712	1	8							12	984	50	92
58 BRIGHTWOOD-BRIGHTWOOD 13	16	890	16	890	2	10									24	67
59 BRIGHTWOOD-NORTH BANK	10	248	7	113	2	26							3	135	10	28
60 BROOKWOOD-BORWICK	2	10	1	8							1	2				
61 BROOKWOOD-BROOKWOOD 13															1	14
62 BROOKWOOD-SUNRISE	4	182	4	182											13	4,777
63 CANBY-13644	6	126	6	126	1	4									4	97
64 CANBY-BUTTEVILLE	11	6,185	7	70									4	6,115	18	46
65 CANBY-FILBERT	1	1	1	1	1	1										
66 CANBY-ZIMMERMAN	21	850	20	838	5	61					1	12			33	346
67 CANYON-13114 NETWORK #1																
68 CANYON-13115 NETWORK #1																
69 CANYON-13116 NETWORK #1																
70 CANYON-13117 NETWORK #1																
71 CANYON-13118 PSU																
72 CANYON-13120	1	88											1	88		

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2018 Outages by Cause System

Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²		
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	
73	CANYON-13121																
74	CANYON-13122 NETWORK #2																
75	CANYON-13123 NETWORK #2																
76	CANYON-13124 NETWORK #2																
77	CANYON-13125 NETWORK #2																
78	CANYON-13133 NETWORK #3																
79	CANYON-13134 NETWORK #3																
80	CANYON-13135 NETWORK #3																
81	CANYON-13136 NETWORK #3	1	19	1	19												
82	CANYON-21ST	6	708	6	708	1	2								15	505	
83	CANYON-23RD	5	932	4	931	1	730						1	1	9	7,968	
84	CANYON-BURNSIDE														5	15	
85	CANYON-CANYON 13	4	890	3	709	1	2						1	181	10	20	
86	CARVER-ALMOND	2	18,182	1	5,823					1	12,359				1	1	
87	CARVER-CARVER 13	14	18,210	7	187					1	12,582			6	5,441	18	1,527
88	CARVER-NORTH	4	13,336	2	7					1	13,239			1	90	6	8
89	CARVER-RIVERBEND	1	550							1	550						
90	CARVER-SOUTH	2	852	1	8	1	8			1	843				2	6	
91	CARVER-WOODS	20	21,039	12	408	2	21			1	20,419			7	213	60	165
92	CEDAR HILLS-CEDAR HILLS 13																
93	CEDAR HILLS-LEAHY	10	2,230	8	1,940	2	158						2	291	19	244	
94	CEDAR HILLS-SHOPPING CENTER	11	636	11	636	1	10								11	165	
95	CEDAR HILLS-SKYLINE																
96	CEDAR HILLS-ST VINCENT	3	780	3	780	1	5								1	55	
97	CEDAR HILLS-SYLVAN	10	4,350	10	4,350	1	282								15	84	
98	CENTENNIAL-BARKER	18	2,247	13	1,171	4	821						5	1,076	8	491	
99	CENTENNIAL-BRAECROFT	7	122	6	94	1	4						1	28	3	41	
100	CENTENNIAL-CENTENNIAL 13	26	1,294	23	1,172	1	26						3	122	14	46	
101	CENTENNIAL-TREELAND	10	1,898	7	33	2	17						3	1,865	5	12	
102	CLACKAMAS-EVELYN	1	5	1	5										1	7	
103	CLACKAMAS-GLADSTONE	9	138	6	91								3	47	17	129	
104	CLACKAMAS-JENNIFER	3	1,363	3	1,363	1	6								5	11	
105	CLACKAMAS-TOLBERT	6	782	4	764								2	18	8	23	
106	CLAXTAR-CLAXTAR 13														6	28	
107	CLAXTAR-HAYESVILLE	9	1,230	9	1,230										2	12	
108	CLAXTAR-RIDGE	12	839	10	833	3	186						2	6	14	66	

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2018 Outages by Cause System

Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
109	COFFEE CREEK-FREEMAN	4	813					1	489				3	324	1	2
110	COFFEE CREEK-HOLIDAY	4	1,780	3	836			1	945						3	12
111	COLTON-DHOOGHE	2	1,775								1	509	1	1,266	13	21
112	COLTON-GRAYS HILL	19	322	14	238	1	7				1	1	4	82	10	24
113	CORNELIUS-ADAIR	10	1,774	9	1,770	1	1						1	4	25	172
114	CORNELIUS-CORNELIUS 13	17	3,121	14	2,628						1	14	2	480	18	290
115	CORNELIUS-VERBOORT	9	867	7	861	1	383						2	6	16	201
116	CORNELL-BLUFFS	7	648	6	645	1	261						1	3	29	117
117	CORNELL-SALTZMAN	5	451	5	451										4	9
118	CORNELL-WESTLAWN	6	1,091	6	1,091	1	192								18	4,733
119	CULVER-SANYO #1														1	3
120	CURTIS-11077	2	422	1	4			1	418						1	3
121	CURTIS-CURTIS 13	5	3,575	3	9			1	3,564				1	2	32	262
122	DAYTON-EAST	15	134	14	130	7	44						1	3	35	84
123	DAYTON-LAFAYETTE	7	181	7	181	7	181								18	93
124	DAYTON-SOUTHWEST	9	42	9	42	7	30								5	12
125	DELAWARE-DENVER	3	32	3	32										6	117
126	DELAWARE-INTERSTATE	5	762	3	759								2	3	10	96
127	DELAWARE-LOMBARD	7	81	5	78	1	2				2	3			17	166
128	DENNY-EAST	18	1,168	18	1,168										8	433
129	DENNY-NORTH	7	2,158	6	1,547						1	611			1	1
130	DENNY-SOUTH	8	149	7	140								1	9	8	148
131	DENNY-WEST	13	2,377	12	2,375								1	2	41	540
132	DILLEY-DILLEY 13	16	780	14	92	4	42						2	688	7	36
133	DILLEY-SPRINGHILL															
134	DUNNS CORNER-DUNNS CORNER 13	20	9,275	17	4,784	4	2,101						3	4,491	20	25
135	DUNNS CORNER-KELSO	4	36	2	28								2	8	8	25
136	DURHAM-BONITA														1	1
137	DURHAM-BRIDGEPORT	6	307	6	307	1	1								7	15
138	DURHAM-DURHAM 13	1	1	1	1	1	1								8	11
139	DURHAM-POOPLANT															
140	DURHAM-SATTLER	10	1,940	7	1,127	1	3						3	813	4	25
141	DURHAM-SOUTH	2	4	1	3								1	1	1	1
142	E-11021	1	0										1	0		
143	E-11039															
144	E-11040	3	161	3	161	1	2								11	91

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2018 Outages by Cause System

	Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
145	E-11041															5	10
146	E-11042																
147	E-11043	1	25											1	25	1	1
148	E-11047	1	1	1	1											14	5,838
149	E-11064	1	31	1	31												
150	E-13139	1	7	1	7											13	316
151	E-13140	2	17	2	17											21	149
152	E-13141																
153	E-13142	1	10										1	10	1	1	
154	E-13144	1	4	1	4										38	436	
155	E-13145	1	1	1	1										8	159	
156	E-13148																
157	E-13149																
158	E-13150	3	14	2	13	1	10						1	1	15	401	
159	EAGLE CREEK-BARTON	9	286	7	273	3	145						2	13	17	35	
160	EAGLE CREEK-RIVER MILL	12	2,476	7	33	2	6						5	2,444	51	235	
161	EASTPORT-76TH	8	42	8	42	2	4								77	1,036	
162	EASTPORT-PLAZA	5	569	5	569										24	201	
163	ELMA-ELMA 13	5	376	5	376												
164	ELMA-FOUR CORNERS	4	10,561	2	276	2	276						2	10,285	25	581	
165	ELMA-HUDSON	20	1,150	19	1,131								1	20	24	1,520	
166	ELMA-STATE														2	22	
167	ESTACADA-ESTACADA 13	15	289	11	95	2	12					2	3	2	190	13	71
168	ESTACADA-FARADAY	13	5,645	9	93	2	4							4	5,552	8	33
169	ESTACADA-NORTH FORK	21	663	16	248	4	125							5	416	10	14
170	FAIRMOUNT-CANDALARIA	9	2,210	9	2,210	1	1,612								9	197	
171	FAIRMOUNT-MISSION	16	7,421	9	4,687	2	4,517							7	2,734	24	139
172	FAIRVIEW-CLEAR CREEK																
173	FAIRVIEW-FAIRVIEW 13	4	109	4	109										14	733	
174	FAIRVIEW-KENNEL CLUB	10	2,617	4	15									6	2,602	8	31
175	FAIRVIEW-TROUTDALE	5	161	5	161										9	104	
176	FAIRVIEW-WOOD VILLAGE	13	1,501	10	728									3	773		
177	FARGO-FARGO 13	17	1,202	12	516	1	2							5	687	53	311
178	GALES CREEK-GALES CREEK 13	12	1,627	9	170	3	95			1	1,454	1	2	1	1	8	682
179	GARDEN HOME-MCKAY	22	7,253	18	6,305	4	1,080							4	948	23	285
180	GARDEN HOME-METZGER	17	3,140	14	3,135									3	6	8	212

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2018 Outages by Cause System

	Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
181	GLENCOE-GLISAN	7	1,291	6	1,289	2	1,237							1	2	75	1,190
182	GLENCOE-PROVIDENCE															4	21
183	GLENCOE-SUNNYSIDE	6	30	6	30	2	17									50	596
184	GLENCULLEN-BRIDLEMILE	14	1,743	12	709	4	231							2	1,034	13	116
185	GLENCULLEN-SUNSET	8	744	6	569									2	174	29	205
186	GLENDOVEER-13596	3	25	2	22									1	3	17	404
187	GLENDOVEER-13597	7	2,709	6	2,701	1	2							1	8	13	325
188	GLENDOVEER-13598	14	477	10	352	1	3					1	1	3	124	20	151
189	GLENDOVEER-13599	10	377	2	180	1	180							8	197	10	35
190	GLENDOVEER-CLIFFGATE	10	627	9	625	1	32							1	2	87	1,545
191	GLENDOVEER-NORTHEAST	5	509	5	509											15	31
192	GLISAN-FAB 2A																
193	GLISAN-UTILITY 1B																
194	GORMLEY-MCMINNVILLE WL	1	338											1	338		
195	GRAND RONDE-AGENCY	4	19	4	19	2	4										
196	GRAND RONDE-FORTHILL	7	52	6	42	2	16							1	11	4	7
197	HARBORTON-BURLINGTON	23	3,438	20	3,363	5	248							3	76	58	143
198	HARBORTON-LINNTON	3	2,033	3	2,033											16	41
199	HARMONY-HARMONY 13	6	68	5	68	1	10							1	1	25	439
200	HARMONY-INTERNATIONAL	2	29	2	29											5	13
201	HARMONY-LAKE	3	9	3	9	1	5									3	27
202	HARMONY-LINWOOD	3	12	3	12											17	122
203	HARMONY-MILWAUKIE	11	1,310	9	553									2	757	12	56
204	HARMONY-THIESSEN	4	445	4	445											4	140
205	HARRISON-DAVIS	8	107	5	50									3	57	39	12,528
206	HARRISON-HARRISON 13	4	121	3	120	2	11							1	2	14	139
207	HARRISON-IVON	2	15	2	15	1	2									33	317
208	HAYDEN ISLAND-MAINLAND	5	65	4	55	1	9							1	10	7	7
209	HAYDEN ISLAND-NORTH SHORE	7	3,505	7	3,505											6	77
210	HAYDEN ISLAND-SOUTH SHORE	3	35	3	35	1	23									3	9,809
211	HEMLOCK-FREMONT	4	332	4	332											17	137
212	HEMLOCK-HEMLOCK 13	14	674	13	673	1	3							1	1	43	763
213	HEMLOCK-MASON	1	14	1	14	1	14									6	51
214	HILLCREST-CASCADIA																
215	HILLCREST-HILLCREST 13															1	1
216	HILLCREST-SOUTH																

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2018 Outages by Cause System

	Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
217	HILLSBORO-DAIRY CREEK	24	1,353	21	436	13	11							3	917	26	134
218	HILLSBORO-DENNIS	1	2	1	2											1	2
219	HILLSBORO-JACKSON	9	193	9	193	1	10									7	315
220	HILLSBORO-LAUREL	14	470	14	470	3	11									19	47
221	HILLSBORO-SCHOLLS	5	9	4	6	2	3							1	2	3	12
222	HOGAN NORTH-BRIGADOON	23	8,345	18	5,261									5	3,084	20	384
223	HOGAN NORTH-HOGAN NORTH 13	5	172	5	172											15	73
224	HOGAN NORTH-LINKS	27	749	22	495	1	4					1	1	4	252	38	276
225	HOGAN NORTH-SALQUIST	7	564	5	556									2	7	3	5
226	HOGAN SOUTH-CLEVELAND	10	3,794	6	242	1	3							4	3,552	27	436
227	HOGAN SOUTH-LAWRENCE	16	885	15	884	1	1							1	2	43	249
228	HOGAN SOUTH-MAIN	1	13	1	13											28	310
229	HOGAN SOUTH-PAROPA	8	1,041	7	1,035									1	6	6	9
230	HOGAN SOUTH-WALLULA	9	178	7	166									2	11	20	399
231	HOLGATE-BYBEE	6	2,081	6	2,081	1	1									22	4,009
232	HOLGATE-GIDEON	2	39	2	39											3	1,902
233	HOLGATE-HOLGATE 13	5	443	3	75							2	369			27	4,183
234	HOLGATE-KENILWORTH	8	818	7	815	4	643					1	3			26	2,907
235	HOLGATE-RHONE	7	158	5	22	1	14							2	136	23	10,688
236	HUBER-BANY	9	62	9	62											13	65
237	HUBER-FARMINGTON	8	604	7	196									1	408	13	82
238	HUBER-HUBER 13	7	52	5	22	2	10							2	30	12	82
239	HUBER-KINNAMAN	13	8,451	11	286	5	49							2	8,165	7	94
240	HUBER-MARYVILLE	12	664	12	664											4	14
241	INDIAN-KEIZER	3	837	3	837											2	5
242	INDIAN-LABISH	9	8,004	8	18	3	5							1	7,987	30	264
243	INDIAN-NORTH	16	1,330	14	1,281	3	882							2	49	7	1,304
244	INDIAN-STATION	10	997	10	997											14	15
245	INDIAN-WEST	9	1,421	9	1,421											9	37
246	ISLAND-13180	3	17	2	16	1	6					1	1			18	243
247	ISLAND-13187	12	390	10	380							1	7	1	3	68	636
248	ISLAND-13188	13	352	10	264	3	119							3	88	44	585
249	ISLAND-ISLAND 13	4	21	3	8									1	14	3	51
250	JENNINGS LODGE-ADDIE	9	673	8	671	3	155							1	2	7	31
251	JENNINGS LODGE-JENNINGS 13	15	782	14	775	2	21							1	8	21	95
252	JENNINGS LODGE-MELDRUM	5	327	5	327											19	101

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2018 Outages by Cause System

Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
253	JENNINGS LODGE-OAK GROVE	7	631	5	586	1	9						2	45	14	103
254	JENNINGS LODGE-WEBSTER	9	565	9	565	3	18								3	28
255	KELLEY POINT-KELLEY POINT 13														1	40
256	KELLEY POINT-MARINE	1	74	1	74										1	0
257	KELLEY POINT-SIMMONS															
258	KELLEY POINT-SOLAR #2														2	9,862
259	KELLY BUTTE-BINNSMEAD	9	127	7	123	1	3						2	4	38	1,242
260	KELLY BUTTE-FAIRLAWN	5	64	3	54	1	5						2	10	36	186
261	KELLY BUTTE-MALL 205	10	417	10	417	2	96								11	147
262	KELLY BUTTE-MCGREW	15	10,166	9	157								6	10,008	16	195
263	KING CITY-BULL MOUNTAIN	11	1,866	11	1,866										7	576
264	KING CITY-FISCHER	8	2,562	7	29			1	2,533						14	143
265	KING CITY-HAZELBROOK														13	121
266	KING CITY-NORTH	4	157	4	157										6	104
267	KING CITY-SUMMERFIELD	3	58	2	46								1	12		
268	LAKE LABISH-LAKE LABISH															
269	LELAND-BEAVERCREEK	19	557	13	445	2	14						6	112	3	24
270	LELAND-CARUS	26	1,994	18	1,155	6	52				1	1	7	837	35	113
271	LELAND-KELM	2	176										2	176	6	9
272	LENTS-13101	13	84	10	79								3	4	18	2,654
273	LENTS-HAPPY VALLEY	12	235	9	220	1	22						3	15	6	3,134
274	LENTS-MT SCOTT	2	6	2	6										10	850
275	LENTS-NORTH	10	209	7	180	3	59						3	30	5	1,906
276	LIBERAL-LIBERAL 13	20	4,443	11	1,081	5	12						9	3,362	16	54
277	LIBERAL-SAWMILL															
278	LIBERTY-BROWNING	5	115	4	114								1	1	31	361
279	LIBERTY-LONE OAK	14	810	14	810	1	26								50	355
280	LIBERTY-MORNINGSIDE	9	651	9	651	1	10								23	162
281	LIBERTY-ROSEDALE	12	305	9	279	2	10						3	26	35	124
282	LIBERTY-SKYLINE	16	2,598	11	1,503	1	17						5	1,095	135	323
283	LIBERTY-VISTA	4	17	3	10								1	6	43	634
284	MAIN-AIRPORT	4	19	2	14								2	5	12	33
285	MAIN-BENTLEY	10	381	10	381	2	202								9	2,166
286	MAIN-EXPRESS	10	1,366	9	1,364	1	1,328						1	2	12	295
287	MAIN-JONES FARM	1	24										1	24		
288	MAIN-RIVER	12	1,320	11	1,108								1	212	7	47

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2018 Outages by Cause System

	Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
		Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
289	MARKET-ENGLEWOOD	5	2,937	4	94							1	2,843			3	4
290	MARKET-FAIRGROUNDS	8	4,063	7	4,062									1	1	3	38
291	MARKET-HAWTHORNE	7	1,127	7	1,127	4	167									2	26
292	MARKET-PARK	2	426	1	21									1	405		
293	MAXIM-MAXIM 13																
294	MCCLAIN-COTTAGE	2	75	2	75											9	134
295	MCCLAIN-FRONT	2	4	2	4	1	3									7	7
296	MCCLAIN-HOLLYWOOD	2	2	1	1									1	1	2	57
297	MCGILL-LSI AIR 1A																
298	MERIDIAN-65TH																
299	MERIDIAN-BORLAND	1	1	1	1												
300	MERIDIAN-CHILDS															4	43
301	MERIDIAN-LAKEVIEW	3	24	2	6	1	4							1	17	7	42
302	MERIDIAN-MERIDIAN 13	17	3,785	11	1,420							1	2	5	2,363	42	209
303	MERIDIAN-NYBERG	1	463											1	463		
304	MERIDIAN-PILKINGTON	8	1,043	5	795							2	246	1	2	33	198
305	MERIDIAN-SAGERT	6	277	5	274							1	3			7	51
306	MIDDLE GROVE-BROWN	5	492	4	467	1	2							1	25	10	250
307	MIDDLE GROVE-CHEMEKETA	1	35	1	35	1	35									1	7
308	MIDDLE GROVE-CORDON	21	780	16	752	8	30							5	28	16	100
309	MIDDLE GROVE-SWEGLE	6	855	4	390	1	172							2	465	7	298
310	MIDDLE GROVE-WEST	5	172	4	161									1	11	3	6
311	MIDWAY-DIVISION	14	1,176	13	805	2	64							1	371	15	33
312	MIDWAY-DOUGLAS	13	5,451	11	1,142	2	42							2	4,309	10	46
313	MIDWAY-LYNCH	12	6,409	9	1,447			1	4,958					2	4	13	117
314	MIDWAY-POWELLHURST	15	15,291	10	144	3	28	1	6,754			1	3,640	3	4,754	3	12
315	MILL CREEK-EASTLAND	7	46	7	46	1	2									13	27
316	MILL CREEK-KUEBLER	1	1	1	1											1	2
317	MILL CREEK-MILL CREEK 13	1	17	1	17											9	74
318	MOLALLA-BUCKAROO	7	129	7	129	1	3									27	604
319	MOLALLA-FOREST	12	405	7	48	2	10							5	357	17	66
320	MOLALLA-MARQUAM	22	17,686	17	1,135	2	3							5	16,551	45	356
321	MOLALLA-YODER	15	2,299	9	1,693	1	15							6	606	6	8
322	MT ANGEL-EAST	3	5	3	5	1	3									7	32
323	MT ANGEL-WEST	26	1,197	24	525	10	225							2	672	33	92
324	MT PLEASANT-CLAIRMONT	6	1,148	3	54	1	1							3	1,094	9	28

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2018 Outages by Cause System

Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
325 MT PLEASANT-MT VIEW	2	2	1	2									1	0	6	11
326 MT PLEASANT-RIVERCREST	8	281	5	252									3	29		
327 MT PLEASANT-SOUTH END	7	104	5	53	1	7							2	51	4	11
328 MULINO-NORTH	4	21	3	20									1	1	3	43
329 MULINO-SOUTH	15	379	14	368	4	239							1	11	24	32
330 MULTNOMAH-13176	15	1,142	14	1,099	2	3							1	43	45	683
331 MULTNOMAH-13177	13	11,138	11	2,379	5	674	1	8,742					1	18	19	604
332 MULTNOMAH-13181	5	28	5	28	1	21									22	315
333 MULTNOMAH-MULTNOMAH 13	13	10,687	9	988	1	26	2	9,436					2	263	38	1,608
334 MURRAYHILL-KINTON	2	11	1	9									1	3	2	1
335 MURRAYHILL-MURRAYHILL 13	4	3,662	4	3,662											3	162
336 MURRAYHILL-REUSSER	3	52	2	39									1	14	2	11
337 MURRAYHILL-TEAL	7	999	6	996	1	172							1	3	2	123
338 NEWBERG-CHEHALEM	29	1,241	25	1,175	10	181							4	65	23	57
339 NEWBERG-DUNDEE	20	3,355	15	1,226	6	148							5	2,129	20	476
340 NEWBERG-HOOVER PARK	8	145	4	24	3	23					1	1	3	120	20	105
341 NEWBERG-NORTH COLLEGE	13	652	11	627	5	82							2	25	14	47
342 NORTH MARION-CROSBY	4	1,412	4	1,412	1	2									11	107
343 NORTH MARION-FRONT	3	1,761	2	176				1	1,585							
344 NORTH MARION-HUBBARD	7	348	6	330									1	18	37	185
345 NORTH MARION-MCLAREN	15	5,246	14	5,243	2	7							1	4	18	66
346 NORTH PLAINS-MASON HILL	27	15,553	16	2,687	2	3							11	12,866	69	599
347 NORTH PLAINS-NORTH PLAINS 13	15	4,271	12	132	2	46							3	4,139	19	86
348 NORTHERN-11009	7	748	6	747									1	1	27	575
349 NORTHERN-11016	1	33	1	33											13	47
350 NORTHERN-11071	5	66	4	62	1	14							1	4	24	257
351 OAK GROVE-LAKE HARRIET	5	1,678	1	2	1	2	2	117	1	733			1	827	141	81,825
352 OAK GROVE-WHITE WATER	3	189					2	26	1	163					16	237,754
353 OAK HILLS-FIVE OAKS	1	1											1	1	2	66
354 OAK HILLS-GREENBRIER	1	418									1	418			1	1
355 OAK HILLS-OAK HILLS 13	7	5,921	3	97									4	5,824	13	162
356 OAK HILLS-SOMERSET	4	2,876	4	2,876	1	20									3	67
357 OAK HILLS-WALKER	2	16	2	16											2	3
358 OREGON STEEL-OREGON STEEL 13																
359 ORENCO-231ST	1	40	1	40												
360 ORENCO-AMBERGLEN															1	3

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Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
361 ORENCO-BASELINE	4	580	1	0									3	580	3	13
362 ORENCO-ORENCO 13															7	11
363 ORENCO-PRIMATE	3	680	2	225							1	454			2	6
364 ORENCO-WILKINS															1	8
365 ORIENT-BARLOW	14	78	12	70	3	19							2	8	24	23
366 ORIENT-ORIENT 13	11	2,777	6	315	1	0	2	1,593					3	870	24	57
367 OSWEGO-IRON MOUNTAIN															14	69
368 OSWEGO-MARYLHURST	6	891	6	891	2	815									44	112
369 OSWEGO-PALATINE	6	196	6	196	1	186									40	170
370 OSWEGO-STAFFORD	7	4,681	5	81			1	4,598					1	2	27	1,188
371 OXFORD-FAIRVIEW	13	1,401	13	1,401	2	214									51	4,191
372 OXFORD-LEE	2	25	2	25	1	9									1	1
373 OXFORD-MADRONA	3	44	3	44	1	1									2	10
374 OXFORD-OXFORD 13	2	7	2	7											3	35
375 OXFORD-RURAL															3	3
376 OXFORD-SHELTON	1	21	1	21												
377 PELTON-ROUND BUTTE	1	26	1	26												
378 PENINSULA PARK-OCKLEY GREEN	5	75	2	11									3	64	13	141
379 PENINSULA PARK-PENINSULA PARK	5	44	4	41									1	3	5	169
380 PLEASANT VALLEY-BAXTER	4	52	2	25									2	27	15	21
381 PLEASANT VALLEY-CLATSOP	3	142											3	142	2	3
382 PLEASANT VALLEY-MOON	5	629	4	371	1	192				1	259				33	66
383 PLEASANT VALLEY-PLEASANT 13	16	3,875	9	127	3	27							7	3,747	20	19
384 PLEASANT VALLEY-SUN	12	501	8	385	1	19							4	116	42	448
385 PORTLAND WATER-PUMPING																
386 PORTSMOUTH-CARBIDE	17	477	12	454	1	1							5	23	28	206
387 PORTSMOUTH-DISPOSAL																
388 PORTSMOUTH-WILLIS	7	130	3	22									4	109	28	420
389 PROGRESS-GREENBURG	5	419	4	380									1	40	3	1
390 PROGRESS-HALL																
391 PROGRESS-ROBINSON	4	516	3	505							1	12			1	223
392 PROGRESS-SAWYER	3	9	2	3									1	5		
393 PROGRESS-WASHINGTON SQ #1															1	80
394 PROGRESS-WASHINGTON SQ #2																
395 RALEIGH HILLS-DOGWOOD	7	154	4	17	1	11					2	6	1	131	11	176
396 RALEIGH HILLS-MONTCLAIR	8	549	7	548	2	15					1	1			14	41

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2018 Outages by Cause System

Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
397	RALEIGH HILLS-OLESON	6	751	4	33	1	4						2	718	20	122
398	RAMAPO-EMERALD	10	4,983	7	887								3	4,096	10	68
399	RAMAPO-GILBERT	5	539	4	213								1	326	9	101
400	RAMAPO-RAMAPO 13	11	169	8	161								3	8	17	140
401	REDLAND-HENRICI	18	531	15	390	2	70						3	141	59	449
402	REDLAND-REDLAND 13	22	4,348	14	244	2	3				1	1	7	4,103	36	68
403	REEDVILLE-AUGUSTA	10	934	8	701	1	336				1	200	1	32	10	158
404	REEDVILLE-BLANTON	9	394	7	130	3	25						2	264	3	38
405	REEDVILLE-HAZELDALE	16	507	13	496	4	50						3	11	23	369
406	REEDVILLE-INTEL #2															
407	REEDVILLE-INTEL #4															
408	REEDVILLE-INTEL #5															
409	REEDVILLE-TV	7	101	6	99								1	2	6	128
410	RIVERGATE SOUTH-11010															
411	RIVERGATE SOUTH-11011	3	9	3	9										28	155
412	RIVERGATE SOUTH-PEARCY	1	46					1	46							
413	RIVERGATE SOUTH-SWIFT	1	55					1	55							
414	RIVERVIEW-FULTON	2	103	2	103										25	1,768
415	RIVERVIEW-MACADAM	5	547	5	547										16	264
416	RIVERVIEW-TERWILLIGER	7	27	6	23	1	3						1	4	11	85
417	ROCKWOOD-AIRPORT														1	38
418	ROCKWOOD-BOEING															
419	ROCKWOOD-INDUSTRIAL														1	1
420	ROCKWOOD-REYNOLDS	17	1,217	8	757								9	460	35	319
421	ROCKWOOD-ROCKWOOD 13	12	93	8	51								4	42	52	461
422	ROCKWOOD-WILKES															
423	ROSEMONT-HIDDEN SPRINGS	7	365	6	364								1	1	16	36
424	ROSEMONT-MOSSY BRAE	5	884	4	879								1	5	18	34
425	ROSEMONT-OVERLOOK	20	665	19	660	2	33						1	5	38	700
426	ROSEWAY-ALEXANDER	1	2										1	2	3	4
427	ROSEWAY-ESPLANADE	8	2,423	2	6						1	21	5	2,396	34	476
428	ROSEWAY-ROSEWAY 13	1	5	1	5	1	5								16	219
429	RUBY-CARLINE	7	306	7	306										55	647
430	RUBY-JUNCTION	10	476	5	327	2	32						5	150	80	929
431	SALEM-13260														5	167
432	SALEM-13261															

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2018 Outages by Cause System

Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
433 SALEM-13262	1	6	1	6											4	6,855
434 SALEM-13263																
435 SALEM-13264																
436 SALEM-UNION															1	9
437 SANDY-362ND	16	6,889	15	6,886	4	95					1	3			16	24
438 SANDY-BLUFF	9	2,307	9	2,307	2	647									13	34
439 SANDY-SANDY 13	17	660	15	656	3	333							2	4	51	2,461
440 SANDY-WILDCAT	16	1,338	13	1,287	5	1,055					1	39	2	11	16	11
441 SCAPPOOSE-SAUVIE ISLAND	1	5	1	5	1	5									8	43
442 SCHOLLS FERRY-KEMMER															6	17
443 SCHOLLS FERRY-RAINBOW	20	515	14	442	2	35							6	73	102	540
444 SCHOLLS FERRY-ROY ROGERS	16	196	14	186	3	83							2	10	19	104
445 SCOGGINS-CHERRY GROVE	6	50	3	17	1	10					1	3	2	30	1	0
446 SCOGGINS-LAURELWOOD	18	5,355	15	454	5	131							3	4,900	25	67
447 SCOTTS MILLS-SCOTTS MILLS 13	26	3,106	19	1,841	5	276							7	1,265	14	21
448 SELLWOOD-KELLOGG PARK	7	68	5	65							1	2	1	1	17	838
449 SELLWOOD-SELLWOOD 13	5	11	5	11											41	1,271
450 SELLWOOD-WAVERLY	3	1,965	2	1,904							1	61			21	3,023
451 SHERIDAN-EAST	8	191	8	191	3	48									31	78
452 SHERIDAN-KADELL	10	844	4	14	2	5							6	830	35	132
453 SHUTE-LINDE 1 35KV															1	1,127
454 SILVERTON-NORTH	19	336	15	88	3	14							4	248	12	14
455 SILVERTON-SOUTH	15	250	13	225	6	68							2	25	96	180
456 SILVERTON-WEST	28	4,837	21	3,301	10	34							7	1,537	19	486
457 SIX CORNERS-13359	10	3,588	9	3,582	2	283							1	6	25	316
458 SIX CORNERS-13360	2	24	2	24	1	3									3	27
459 SIX CORNERS-BORCHERS	12	243	9	207	2	23							3	36	122	2,749
460 SIX CORNERS-CHAPMAN	4	31	3	26									1	5	12	62
461 SIX CORNERS-SIX CORNERS 13	3	10	3	10	1	2									28	67
462 SP NEWSPRINT-NEWBERG																
463 SPRING HILL-SPRING HILL																
464 SPRINGBROOK-FERNWOOD	16	703	11	439	5	151					1	3	4	262	8	29
465 SPRINGBROOK-ST PAUL	13	178	11	172	4	108							2	6	12	51
466 SPRINGBROOK-VILLA	4	383	2	3									2	379	11	127
467 SPRINGBROOK-ZIMRI	13	802	9	179			1	370					3	253	34	626
468 ST HELENS-KASTER	1	10	1	10												

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
469 ST LOUIS-EAST	1	154	1	154											1	4
470 ST LOUIS-NORTH	15	166	13	159	4	109							2	8	18	62
471 ST LOUIS-WEST	20	906	17	68	4	10							3	838	3	8
472 ST MARYS EAST-BETHANY	1	4	1	4											15	682
473 ST MARYS EAST-ELMONICA	16	1,961	16	1,961											13	681
474 ST MARYS EAST-JENKINS															1	0
475 ST MARYS EAST-MILLIKAN	3	3	2	2									1	1	8	48
476 ST MARYS EAST-ST MARYS 13	1	1	1	1											3	3
477 STEPHENS-11001	3	11	3	11	1	6									11	29
478 STEPHENS-11020															9	25
479 STEPHENS-11054 NETWORK																
480 STEPHENS-11055 NETWORK																
481 STEPHENS-11092 NETWORK																
482 STEPHENS-11093 NETWORK																
483 STEPHENS-11094 NETWORK																
484 STEPHENS-11095 NETWORK																
485 STEPHENS-11097 NETWORK																
486 STEPHENS-11098																
487 STEPHENS-11099 NETWORK																
488 STIMSON LUMBER-FORESTEX																
489 SULLIVAN-ROBINWOOD	6	114	5	111							1	3			17	74
490 SULLIVAN-SALAMO	4	862	4	862											6	14
491 SULLIVAN-SUSSEX	6	280	4	157									2	123	10	1,769
492 SULLIVAN-TANNER	3	1,551	1	45									2	1,506	9	1,242
493 SULLIVAN-WILLAMETTE	9	248	7	128	1	18							2	121	9	511
494 SULZER PUMPS-115B																
495 SUMMIT-GOVERNMENT CAMP	4	16	3	13	1	3							1	3	6	32
496 SUMMIT-MEADOWS	2	27	2	27												
497 SUMMIT-SUMMIT 13	9	343	6	332									3	11	17	29
498 SUNSET-BLANCHET																
499 SUNSET-COLFAX															1	14
500 SUNSET-CORNELL																
501 SUNSET-DORION																
502 SUNSET-IDTB																
503 SUNSET-IDTC																
504 SUNSET-INTEL D1B1																

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
505	SUNSET-INTEL D1X1														1	2,784
506	SUNSET-KOMATSU #1														2	648
507	SUNSET-LANE															
508	SUNSET-MCCALL														2	8
509	SUNSET-MEEK														1	0
510	SUNSET-NIXON															
511	SUNSET-PAULING														2	2
512	SUNSET-SPALDING														1	0
513	SUNSET-WHITMAN	2	263	2	263										1	4
514	SUNSET-YOUNG															
515	SWAN ISLAND-BASIN	1	3	1	3	1	3								4	22
516	SWAN ISLAND-DOLPHIN															
517	SWAN ISLAND-FREIGHTLINER	1	4	1	4										4	6
518	SWAN ISLAND-GOING	3	27	2	15							1	11		4	670
519	SWAN ISLAND-SHIPYARD	1	28	1	28										3	2
520	SYLVAN-BARNES	15	1,098	10	437	1	4						5	660	9	21
521	SYLVAN-PATTON	16	746	14	703	4	266						2	44	19	216
522	TABOR-82ND	10	271	8	128								2	144	30	257
523	TABOR-HOSPITAL														11	133
524	TABOR-TABOR 13	7	99	7	99										108	2,140
525	TEKTRONIX-DUCKS														2	2
526	TEKTRONIX-HOCKEN	1	209	1	209											
527	TEKTRONIX-MEADOW	14	1,269	13	1,268								1	1	17	1,319
528	TEKTRONIX-NORTH															
529	TEKTRONIX-SHANNON	5	586	5	586										23	1,866
530	TEKTRONIX-SOUTH	23	1,230	23	1,230	2	28								11	133
531	TEKTRONIX-TEKTRONIX 13	2	54	1	37								1	17	8	328
532	TEKTRONIX-TERMAN														6	26
533	TEKTRONIX-WEST															
534	TEMP B-NORTH	1	1										1	1	4	5
535	TEMP B-SOUTH															
536	TIGARD-13336	8	620	7	603								1	16	6	21
537	TIGARD-13337	4	58	4	58										14	98
538	TIGARD-13361	3	205	2	203								1	2	3	72
539	TIGARD-13362	12	1,176	10	1,173						1	2	1	1	8	40
540	TIGARD-TIGARD 13	8	1,117	6	441								2	676	8	86

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
541 TOWN CENTER-LAWNFIELD	1	1	1	1												
542 TOWN CENTER-MONTEREY	4	161	3	137							1	24			5	4
543 TOWN CENTER-NORTH	2	21											2	21		
544 TOWN CENTER-PRECISION CASTPARTS																
545 TOWN CENTER-SOUTH																
546 TOWN CENTER-SUNNYBROOK	2	129	1	124									1	5	6	3,991
547 TOWN CENTER-VALLEY VIEW																
548 TROJAN-EAST																
549 TUALATIN-AVERY	9	178	8	177									1	1	16	57
550 TUALATIN-CIPOLE	1	3											1	3	12	67
551 TUALATIN-HERMAN															5	21
552 TUALATIN-IBACH	6	65	4	41									2	23	11	60
553 TUALATIN-LEVETON	1	10											1	10	3	1
554 TUALATIN-TUALATIN 13															1	1
555 TURNER-CASCADE	6	390	5	371	2	321							1	18	7	14
556 TURNER-TURNER 13	12	1,005	11	996	2	3							1	9	4	10
557 TWILIGHT-BREMER	21	538	16	263	2	27							5	275	6	12
558 UNIONVALE-UNIONVALE 13	26	1,171	19	251	12	30					1	41	6	879	15	25
559 UNIVERSITY-MILL	4	44	4	44	1	28									4	97
560 UNIVERSITY-TRADE	9	582	9	582	1	9									6	51
561 URBAN-BARBUR	2	5	2	5											9	274
562 URBAN-CAMPUS	1	308	1	308												
563 URBAN-CORBETT	4	15	4	15											3	30
564 URBAN-GAINES															5	339
565 URBAN-GIBBS	2	6	1	0							1	6			5	5
566 URBAN-KELLY															9	8,155
567 URBAN-LANDING	2	12	2	12											6	121
568 URBAN-MEDICAL																
569 URBAN-OHSU																
570 WACKER-WACKER 1																
571 WACONDA-NORPAC															1	19
572 WACONDA-RIVER	11	35	8	20	4	9							3	15	17	38
573 WACONDA-WACONDA 13	20	3,220	15	3,155	2	3							5	65	132	502
574 WALLACE-WALLACE 13	21	383	15	325	6	85							6	58	27	59
575 WALLACE-WILLOW LAKE	1	51	1	51											2	6
576 WELCHES-WELCHES 13	4	56	4	56											22	194

¹ Values captured in the PGE Equipment total

² Planned is not included as part of Total System values

Outs = Outages
Hrs = # of customers * duration hrs

2018 Outages by Cause System

Feeder Name	Total System		PGE Equipment		Cutout, Fuse, Arrestor ¹		Loss of Substation		Loss of Transmission		Human Factor		Public		Planned ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
577 WELCHES-ZIG ZAG	21	152	20	150	2	16							1	3	35	1,238
578 WEST PORTLAND-72ND	3	23	3	23											3	5
579 WEST PORTLAND-NORTH	14	467	10	183									4	283	12	154
580 WEST PORTLAND-PACIFIC	4	82	3	78									1	4	18	100
581 WEST PORTLAND-WEST PORTLAND 13	5	392	4	24									1	368	2	459
582 WEST UNION-CORNELIUS PASS	12	1,896	5	175	1	2				1	1,568		6	153	51	3,452
583 WEST UNION-JACOBSON	1	59	1	59												
584 WEST UNION-WEST UNION 13	10	1,074	4	247						1	582		5	245	42	979
585 WILLAMINA-BRIDGE	10	1,774	10	1,774	3	14									12	4,787
586 WILLAMINA-BUELL	12	2,194	11	2,146	5	58							1	47	31	105
587 WILLAMINA-LUMBER																
588 WILLBRIDGE-WILLBRIDGE #1	2	9											2	9	8	47
589 WILLBRIDGE-WILLBRIDGE #4	3	597	2	594						1	3				7	8
590 WILSONVILLE-BOECKMAN	6	2,598	3	542									3	2,056	17	74
591 WILSONVILLE-CHARBONNEAU	14	3,471	12	3,440	1	5							2	31	3	8
592 WILSONVILLE-CITY	5	1,169	2	934						1	203		2	31	1	1
593 WILSONVILLE-MENTORTEK															2	1
594 WILSONVILLE-PARKWAY															2	2
595 WILSONVILLE-VILLEBOIS	4	62	3	58									1	4	9	16
596 WILSONVILLE-WEST	14	211	13	63	4	12							1	148	3	8
597 WOODBURN-CANNERY															7	48
598 WOODBURN-EAST	19	1,564	16	276	5	21	1	588					2	700	22	58
599 WOODBURN-TOMLIN	10	1,934	10	1,934	4	1,670									14	38
600 WOODBURN-WEST	9	6,165	5	81	1	61	1	3,419		1	2,659		2	6	20	87
601 YAMHILL-CARLTON	22	226	18	89	8	47							4	137	14	9
602 YAMHILL-YAMHILL 13	19	187	13	145	8	114							6	42	30	90
Grand Totals:	3,905	604,250	3,082	258,642	570	32,343	23	50,236	9	62,342	66	22,636	725	210,393	8,522	574,156

¹ Values captured in the PGE Equipment total

² Planned is not included as part of Total System values

Outs = Outages
Hrs = # of customers * duration hrs

Section VI

Outages by Cause PGE Equipment

This section provides the number of customer outages (frequency) and customer outage hours (duration) caused by PGE equipment events. The information is presented by feeder and attributed to one of the following causes:

- Total PGE Equipment – This category is the sum of the following categories¹:
 - Underground Conductor
 - Primary Device
 - Underground Accessory
 - Transformer
 - Overhead Conductor
 - Overhead Hardware
 - Cutout, Fuse, Arrestor
 - Meter
 - Pole
- Substation Equipment – This category is included for reference, but is not included in the Total PGE Equipment. Outages related to this category are included in the Loss of Substation column in Section V.

NOTES:

- Idle feeders are not included in this list
- Feeders may be omitted if they are a part of an alternate/multiple feeder service

¹ See Section IX – Cause Code Categories and Mapping for detailed causes for each category

2018 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
1	ABERNETHY-CLACKAMAS HEIGHTS	2	3								1	2	1	1								
2	ABERNETHY-OREGON CITY	10	294	1	3					3	112	2	16	2	1	2	162					
3	ABERNETHY-TRANSIT	4	32							2	23			2	9							
4	ABERNETHY-WASHINGTON	4	14							1	7			3	7							
5	ALDER-ANKENY	2	96											2	96							
6	ALDER-IRVING	6	73	1	8							1	6	3	54	1	4					
7	ALDER-LINCOLN	9	184							1	52	1	18	6	89	1	25					
8	ALDER-STARK	3	58									1	3	1	53	1	2					
9	ALDER-TAYLOR	5	361	1	3			1	321			2	35	1	1							
10	ALDER-YAMHILL																					
11	AMITY-AMITY 13	13	56	1	7			1	3	1	7	2	5	3	13	5	21					
12	AMITY-BELLEVUE	15	1,744	2	26					3	21	2	1,307	3	8	5	383					
13	ARLETA-52ND	9	58	2	13					1	2			5	42	1	1					
14	ARLETA-FOSTER	5	504	1	2							1	2	2	493	1	7					
15	ARLETA-HAROLD	6	80									2	3	4	77							
16	ARLETA-POWELL	10	359					1	208			1	3	3	79	5	70					
17	ARLETA-STEELE	11	468	1	2			1	300					7	83	2	83					
18	BANKS-BANKS 13	7	157											5	154	2	3					
19	BANKS-CEDAR CANYON	12	48	2	12					1	5	2	5	3	5	4	21					
20	BARNES-BATTLE CREEK	5	34	1	9			1	2	3	24											
21	BARNES-BOONE	1	88							1	88											
22	BARNES-COMMERCIAL	6	93					1	1	1	4	1	80	3	9							
23	BARNES-SUNNYSIDE	11	1,707	6	544			2	183	2	148			1	831							
24	BEAVER-KB PIPELINE																					
25	BEAVERTON-ALLEN	15	1,939	8	1,886					2	18	2	3	1	4	2	28					
26	BEAVERTON-JAMIESON	3	7									2	5	1	2							
27	BEAVERTON-NORTHWEST	3	12									1	8	1	2	1	3					
28	BEAVERTON-WEST SLOPE	7	2,316	3	864			2	61					1	1,389			1	1			
29	BELL-BATTIN	5	91							2	46			2	5	1	40					
30	BELL-BRENTWOOD	2	31							2	31											
31	BELL-FLAVEL	5	3,231											3	3,189	2	43					
32	BELL-JOHNSON CREEK	1	10			1	10															
33	BELL-KENDALL	8	1,551			2	1,492							3	10	3	48					
34	BELL-KING	5	129									1	2	3	11	1	116					
35	BELL-SOUTHGATE	9	140	2	10					2	22			3	24	1	81	1	2			
36	BELL-WICHITA	1	262											1	262							
37	BETHANY-BURTON	1	8											1	8							
38	BETHANY-GERMANTOWN	2	21					2	21													
39	BETHANY-KAISER	3	367	1	104					1	43					1	220					
40	BETHANY-LAIDLAW	3	36	1	3									2	33							

¹ See Section IX - Cause Code Categories for category definitions

² Substation Equipment failures are a part of the Loss of Substation System category; not included in Total PGE Equipment

Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
41	BETHANY-SPRINGVILLE	1	1					1	1													
42	BETHANY-THOMPSON	1	16												1	16						
43	BETHEL-FRUITLAND	7	695	2	241			3	452				1	1	1	1						
44	BETHEL-GEER	12	165	2	83			2	19	1	8	3	10	1	6	3	39					
45	BETHEL-MACLEAY	8	862	4	699			1	113	2	46			1	4							
46	BLUE LAKE-BLUE LAKE 13	8	342	2	21			1	6	4	51	1	265									
47	BLUE LAKE-SUNDIAL	1	46			1	46															
48	BLUE LAKE-TOYO TANSO																					
49	BOISE CASCADE-BOISE #1																					
50	BOONES FERRY-GOODALL	8	402	3	138								2	15	3	249						
51	BOONES FERRY-KRUSE	1	95	1	95																	
52	BOONES FERRY-LAKE GROVE	4	1,467									2	1,407	2	60							
53	BOONES FERRY-MOUNTAIN PARK	6	439	5	435									1	4							
54	BOONES FERRY-WEMBLEY PARK	8	685	2	83							1	30	2	378	3	195					
55	BORING-282ND	17	191	4	17			2	6	2	23	1	1	3	16	5	128					
56	BORING-CITY	16	345	5	189					6	132			3	12	2	12					
57	BORING-TELFORD	10	1,712	4	78			1	1,593	2	29			2	4	1	8					
58	BRIGHTWOOD-BRIGHTWOOD 13	16	890	2	12					5	51	3	770	4	48	2	10					
59	BRIGHTWOOD-NORTH BANK	7	113	3	80					1	5			1	2	2	26					
60	BROOKWOOD-BORWICK	1	8	1	8																	
61	BROOKWOOD-BROOKWOOD 13																					
62	BROOKWOOD-SUNRISE	4	182	1	114			1	3	1	35			1	30							
63	CANBY-13644	6	126	2	109			2	12					1	2	1	4					
64	CANBY-BUTTEVILLE	7	70	1	41					1	15	2	5	3	9							
65	CANBY-FILBERT	1	1													1	1					
66	CANBY-ZIMMERMAN	20	838	4	88	1	641			2	11	2	10	6	27	5	61					
67	CANYON-13114 NETWORK #1																					
68	CANYON-13115 NETWORK #1																					
69	CANYON-13116 NETWORK #1																					
70	CANYON-13117 NETWORK #1																					
71	CANYON-13118 PSU																					
72	CANYON-13120																					
73	CANYON-13121																					
74	CANYON-13122 NETWORK #2																					
75	CANYON-13123 NETWORK #2																					
76	CANYON-13124 NETWORK #2																					
77	CANYON-13125 NETWORK #2																					
78	CANYON-13133 NETWORK #3																					
79	CANYON-13134 NETWORK #3																					
80	CANYON-13135 NETWORK #3																					

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² Substation Equipment failures are a part of the Loss of Substation System category; not included in Total PGE Equipment

Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
81	CANYON-13136 NETWORK #3	1	19					1	19													
82	CANYON-21ST	6	708							1	697	1	2	3	8	1	2					
83	CANYON-23RD	4	931	1	187									2	14	1	730					
84	CANYON-BURNSIDE																					
85	CANYON-CANYON 13	3	709									1	578	1	128	1	2					
86	CARVER-ALMOND	1	5,823	1	5,823																	
87	CARVER-CARVER 13	7	187	2	116			2	10	2	48			1	14							
88	CARVER-NORTH	2	7	1	3			1	4													
89	CARVER-RIVERBEND																					
90	CARVER-SOUTH	1	8													1	8					
91	CARVER-WOODS	12	408	5	195			1	5	2	29			2	157	2	21					
92	CEDAR HILLS-CEDAR HILLS 13																					
93	CEDAR HILLS-LEAHY	8	1,940	2	192			1	232			2	6	1	1,351	2	158					
94	CEDAR HILLS-SHOPPING CENTER	11	636	6	604					1	2			2	18	1	10	1	1			
95	CEDAR HILLS-SKYLINE																					
96	CEDAR HILLS-ST VINCENT	3	780	1	404									1	371	1	5					
97	CEDAR HILLS-SYLVAN	10	4,350	3	194			2	2,431			2	41	2	1,403	1	282					
98	CENTENNIAL-BARKER	13	1,171	2	205					2	133	1	4	4	9	4	821					
99	CENTENNIAL-BRAECROFT	6	94	1	79			1	3			1	6	2	3	1	4					
100	CENTENNIAL-CENTENNIAL 13	23	1,172	8	509			1	4	5	25	2	26	5	380	1	26			1	202	
101	CENTENNIAL-TREELAND	7	33							1	13			3	3	2	17	1	0			
102	CLACKAMAS-EVELYN	1	5											1	5							
103	CLACKAMAS-GLADSTONE	6	91	3	85							2	4	1	1							
104	CLACKAMAS-JENNIFER	3	1,363					1	1,355							1	6			1	2	
105	CLACKAMAS-TOLBERT	4	764	2	298									2	466							
106	CLAXTAR-CLAXTAR 13																					
107	CLAXTAR-HAYESVILLE	9	1,230	1	480			2	142	3	143	2	463	1	2							
108	CLAXTAR-RIDGE	10	833	3	575					1	51	1	19	2	1	3	186					
109	COFFEE CREEK-FREEMAN																				1	489
110	COFFEE CREEK-HOLIDAY	3	836	2	551							1	285								1	945
111	COLTON-DHOOGHE																					
112	COLTON-GRAYS HILL	14	238	3	177					2	15	2	10	6	29	1	7					
113	CORNELIUS-ADAIR	9	1,770	7	1,726			1	43							1	1					
114	CORNELIUS-CORNELIUS 13	14	2,628	3	609			1	49	3	107	3	1,835	3	23			1	4			
115	CORNELIUS-VERBOORT	7	861							2	11	1	1	3	466	1	383					
116	CORNELL-BLUFFS	6	645	2	6							2	339	1	38	1	261					
117	CORNELL-SALTZMAN	5	451	4	439															1	12	
118	CORNELL-WESTLAWN	6	1,091							1	0	2	5			1	192			2	893	
119	CULVER-SANYO #1																					
120	CURTIS-11077	1	4											1	4							

¹ See Section IX - Cause Code Categories for category definitions

² Substation Equipment failures are a part of the Loss of Substation System category; not included in Total PGE Equipment

Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
121	CURTIS-CURTIS 13	3	9						1	5			2	3								
122	DAYTON-EAST	14	130					2	2			5	84			7	44					
123	DAYTON-LAFAYETTE	7	181												7	181						
124	DAYTON-SOUTHWEST	9	42	1	9								1	4	7	30						
125	DELAWARE-DENVER	3	32										3	32								
126	DELAWARE-INTERSTATE	3	759								2	697	1	62								
127	DELAWARE-LOMBARD	5	78						1	58	1	15	2	3	1	2						
128	DENNY-EAST	18	1,168	4	187			1	32	2	232	4	412	7	303							
129	DENNY-NORTH	6	1,547	3	290			1	1,116			1	2	1	138							
130	DENNY-SOUTH	7	140	6	117									1	23							
131	DENNY-WEST	12	2,375	6	739			2	133	2	1,485			1	17			1	1			
132	DILLEY-DILLEY 13	14	92	2	13			2	19	1	5			5	13	4	42					
133	DILLEY-SPRINGHILL																					
134	DUNNS CORNER-DUNNS CORNER 13	17	4,784	3	480			2	2	1	6	1	5	6	2,189	4	2,101					
135	DUNNS CORNER-KELSO	2	28					1	15	1	13											
136	DURHAM-BONITA																					
137	DURHAM-BRIDGEPORT	6	307	3	290									2	16	1	1					
138	DURHAM-DURHAM 13	1	1													1	1					
139	DURHAM-POOPLANT																					
140	DURHAM-SATTLER	7	1,127	4	369					2	755					1	3					
141	DURHAM-SOUTH	1	3											1	3							
142	E-11021																					
143	E-11039																					
144	E-11040	3	161									2	159			1	2					
145	E-11041																					
146	E-11042																					
147	E-11043																					
148	E-11047	1	1									1	1									
149	E-11064	1	31							1	31											
150	E-13139	1	7											1	7							
151	E-13140	2	17									1	2	1	15							
152	E-13141																					
153	E-13142																					
154	E-13144	1	4											1	4							
155	E-13145	1	1											1	1							
156	E-13148																					
157	E-13149																					
158	E-13150	2	13									1	3			1	10					
159	EAGLE CREEK-BARTON	7	273					1	3	1	3	1	1	1	120	3	145					
160	EAGLE CREEK-RIVER MILL	7	33							3	21	1	4	1	1	2	6					

¹ See Section IX - Cause Code Categories for category definitions

² Substation Equipment failures are a part of the Loss of Substation System category; not included in Total PGE Equipment

Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
161	EASTPORT-76TH	8	42						1	20	2	9	2	9	2	4	1	1				
162	EASTPORT-PLAZA	5	569	1	465			1	3			1	68	2	33							
163	ELMA-ELMA 13	5	376	2	93			1	228	1	40			1	15							
164	ELMA-FOUR CORNERS	2	276												2	276						
165	ELMA-HUDSON	19	1,131	11	916			1	130	2	43			5	42							
166	ELMA-STATE																					
167	ESTACADA-ESTACADA 13	11	95	1	47							4	16	4	21	2	12					
168	ESTACADA-FARADAY	9	93	1	11			2	52	1	4	1	5	2	18	2	4					
169	ESTACADA-NORTH FORK	16	248					1	2	5	71	2	21	4	29	4	125					
170	FAIRMOUNT-CANDALARIA	9	2,210	4	576							2	7	2	15	1	1,612					
171	FAIRMOUNT-MISSION	9	4,687	1	6			2	27			1	129	3	8	2	4,517					
172	FAIRVIEW-CLEAR CREEK																					
173	FAIRVIEW-FAIRVIEW 13	4	109	2	34					1	70	1	4									
174	FAIRVIEW-KENNEL CLUB	4	15	3	13			1	1													
175	FAIRVIEW-TROUTDALE	5	161	3	70					1	47			1	43							
176	FAIRVIEW-WOOD VILLAGE	10	728	4	174	1	432			2	97	1	2	2	23							
177	FARGO-FARGO 13	12	516	3	428			1	18	1	15	1	2	5	52	1	2					
178	GALES CREEK-GALES CREEK 13	9	170	1	43							1	8	3	22	3	95			1	3	
179	GARDEN HOME-MCKAY	18	6,305	9	1,812					1	100	1	71	3	3,243	4	1,080					
180	GARDEN HOME-METZGER	14	3,135	5	688			2	171	1	10	2	2,070	4	194							
181	GLENCOE-GLISAN	6	1,289					1	2	1	37	1	10	1	2	2	1,237					
182	GLENCOE-PROVIDENCE																					
183	GLENCOE-SUNNYSIDE	6	30											3	7	2	17	1	7			
184	GLENCULLEN-BRIDLEMILE	12	709							1	9	1	25	6	444	4	231					
185	GLENCULLEN-SUNSET	6	569	1	44			1	2			2	291	2	232							
186	GLENDOVEER-13596	2	22	1	3									1	19							
187	GLENDOVEER-13597	6	2,701	2	721							2	1,976	1	2	1	2					
188	GLENDOVEER-13598	10	352	3	327							4	17	2	5	1	3					
189	GLENDOVEER-13599	2	180									1	0			1	180					
190	GLENDOVEER-CLIFFGATE	9	625	2	231			1	81					5	281	1	32					
191	GLENDOVEER-NORTHEAST	5	509	1	270			1	60			1	1	2	178							
192	GLISAN-FAB 2A																					
193	GLISAN-UTILITY 1B																					
194	GORMLEY-MCMINNVILLE WL																					
195	GRAND RONDE-AGENCY	4	19							1	6	1	9			2	4					
196	GRAND RONDE-FORTHILL	6	42					1	17			1	5	2	4	2	16					
197	HARBORTON-BURLINGTON	20	3,363	6	400			1	5			2	2,415	6	294	5	248					
198	HARBORTON-LINNTON	3	2,033											2	3					1	2,030	
199	HARMONY-HARMONY 13	5	68	1	50									3	9	1	10					
200	HARMONY-INTERNATIONAL	2	29	2	29																	

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2018 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
201	HARMONY-LAKE	3	9	1	2								1	2	1	5						
202	HARMONY-LINWOOD	3	12	1	1								2	11								
203	HARMONY-MILWAUKIE	9	553	5	367			1	7	1	24		2	156								
204	HARMONY-THIESSEN	4	445	3	319			1	127													
205	HARRISON-DAVIS	5	50	1	30					2	18		2	3								
206	HARRISON-HARRISON 13	3	120							1	108				2	11						
207	HARRISON-IVON	2	15							1	13				1	2						
208	HAYDEN ISLAND-MAINLAND	4	55	2	32			1	14						1	9						
209	HAYDEN ISLAND-NORTH SHORE	7	3,505	7	3,505																	
210	HAYDEN ISLAND-SOUTH SHORE	3	35	1	5								1	7	1	23						
211	HEMLOCK-FREMONT	4	332	2	205							2	128									
212	HEMLOCK-HEMLOCK 13	13	673	8	526					1	90	1	2	2	52	1	3					
213	HEMLOCK-MASON	1	14												1	14						
214	HILLCREST-CASCADIA																					
215	HILLCREST-HILLCREST 13																					
216	HILLCREST-SOUTH																					
217	HILLSBORO-DAIRY CREEK	21	436	4	14							1	409	3	4	13	11					
218	HILLSBORO-DENNIS	1	2											1	2							
219	HILLSBORO-JACKSON	9	193	3	142									5	41	1	10					
220	HILLSBORO-LAUREL	14	470	2	60							3	371	6	28	3	11					
221	HILLSBORO-SCHOLLS	4	6					1	1			1	2			2	3					
222	HOGAN NORTH-BRIGADOON	18	5,261	9	3,587			3	1,497	5	171			1	7							
223	HOGAN NORTH-HOGAN NORTH 13	5	172	1	14			1	132	2	24	1	2									
224	HOGAN NORTH-LINKS	22	495	16	440			1	47			3	5	1	0	1	4					
225	HOGAN NORTH-SALQUIST	5	556	2	236					2	316			1	5							
226	HOGAN SOUTH-CLEVELAND	6	242	2	50			1	61	2	128					1	3					
227	HOGAN SOUTH-LAWRENCE	15	884	7	486					1	13	4	375	2	9	1	1					
228	HOGAN SOUTH-MAIN	1	13	1	13																	
229	HOGAN SOUTH-PAROPA	7	1,035	3	126			2	713	1	193			1	4							
230	HOGAN SOUTH-WALLULA	7	166	2	112	1	1	2	2					2	51							
231	HOLGATE-BYBEE	6	2,081	2	7					1	2,070			2	3	1	1					
232	HOLGATE-GIDEON	2	39							1	38			1	1							
233	HOLGATE-HOLGATE 13	3	75											3	75							
234	HOLGATE-KENILWORTH	7	815	2	106					1	67					4	643					
235	HOLGATE-RHONE	5	22	1	2			1	2					2	4	1	14					
236	HUBER-BANY	9	62	6	10			1	1	1	49			1	1							
237	HUBER-FARMINGTON	7	196	3	114					2	31			2	51							
238	HUBER-HUBER 13	5	22	1	0			1	2			1	10			2	10					
239	HUBER-KINNAMAN	11	286	4	212			1	24					1	1	5	49					
240	HUBER-MARYVILLE	12	664	8	542			2	73	1	40	1	9									

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Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
241 INDIAN-KEIZER	3	837	3	837																		
242 INDIAN-LABISH	8	18	2	9							2	3	1	1	3	5						
243 INDIAN-NORTH	14	1,281	5	93			1	1	1	271	2	21	2	13	3	882						
244 INDIAN-STATION	10	997	10	997																		
245 INDIAN-WEST	9	1,421	3	1,215					2	71	1	10	3	125								
246 ISLAND-13180	2	16											1	10	1	6						
247 ISLAND-13187	10	380	2	30			3	93	3	253			2	3								
248 ISLAND-13188	10	264	2	129			1	2					4	14	3	119						
249 ISLAND-ISLAND 13	3	8									2	5	1	3								
250 JENNINGS LODGE-ADDIE	8	671	3	404							2	112			3	155						
251 JENNINGS LODGE-JENNINGS 13	14	775	7	537					1	192			4	25	2	21						
252 JENNINGS LODGE-MELDRUM	5	327	4	257			1	71														
253 JENNINGS LODGE-OAK GROVE	5	586					1	556					3	21	1	9						
254 JENNINGS LODGE-WEBSTER	9	565							2	152			4	395	3	18						
255 KELLEY POINT-KELLEY POINT 13																						
256 KELLEY POINT-MARINE	1	74					1	74														
257 KELLEY POINT-SIMMONS																						
258 KELLEY POINT-SOLAR #2																						
259 KELLY BUTTE-BINNSMEAD	7	123											6	121	1	3						
260 KELLY BUTTE-FAIRLAWN	3	54							1	1	1	48			1	5						
261 KELLY BUTTE-MALL 205	10	417	1	0			1	17			3	249	3	55	2	96						
262 KELLY BUTTE-MCGREW	9	157	1	3					2	42			6	113								
263 KING CITY-BULL MOUNTAIN	11	1,866	9	1,696							2	170										
264 KING CITY-FISCHER	7	29	4	11			2	17									1	1			1	2,533
265 KING CITY-HAZELBROOK																						
266 KING CITY-NORTH	4	157	2	29					2	128												
267 KING CITY-SUMMERFIELD	2	46	1	44													1	3				
268 LAKE LABISH-LAKE LABISH																						
269 LELAND-BEAVERCREEK	13	445	4	401			1	2	1	10			4	15	2	14	1	2				
270 LELAND-CARUS	18	1,155	2	10					2	15	5	1,070	3	8	6	52						
271 LELAND-KELM																						
272 LENTS-13101	10	79							1	8	1	2	8	69								
273 LENTS-HAPPY VALLEY	9	220	4	169					2	21	1	6	1	2	1	22						
274 LENTS-MT SCOTT	2	6									1	3	1	3								
275 LENTS-NORTH	7	180							1	111			2	9	3	59			1	0		
276 LIBERAL-LIBERAL 13	11	1,081							1	3	2	6	3	1,060	5	12						
277 LIBERAL-SAWMILL																						
278 LIBERTY-BROWNING	4	114	2	107									2	7								
279 LIBERTY-LONE OAK	14	810	6	239							2	24	4	502	1	26			1	19		
280 LIBERTY-MORNINGSIDE	9	651	3	519			1	6	3	115					1	10	1	1				

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Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
281	LIBERTY-ROSEDALE	9	279	2	11			1	3			2	251	2	6	2	10					
282	LIBERTY-SKYLINE	11	1,503	7	915			1	510	1	4			1	57	1	17					
283	LIBERTY-VISTA	3	10			2	5							1	5							
284	MAIN-AIRPORT	2	14					1	1					1	13							
285	MAIN-BENTLEY	10	381	7	177									1	1	2	202					
286	MAIN-EXPRESS	9	1,364							1	3	3	20	4	12	1	1,328					
287	MAIN-JONES FARM																					
288	MAIN-RIVER	11	1,108	10	1,099									1	9							
289	MARKET-ENGLEWOOD	4	94					1	18			1	7	2	68							
290	MARKET-FAIRGROUNDS	7	4,062	1	8			1	4,044			2	4	3	6							
291	MARKET-HAWTHORNE	7	1,127	1	232									2	728	4	167					
292	MARKET-PARK	1	21									1	21									
293	MAXIM-MAXIM 13																					
294	MCCLAIN-COTTAGE	2	75	1	5					1	69											
295	MCCLAIN-FRONT	2	4											1	2	1	3					
296	MCCLAIN-HOLLYWOOD	1	1											1	1							
297	MCGILL-LSI AIR 1A																					
298	MERIDIAN-65TH																					
299	MERIDIAN-BORLAND	1	1	1	1																	
300	MERIDIAN-CHILDS																					
301	MERIDIAN-LAKEVIEW	2	6											1	3	1	4					
302	MERIDIAN-MERIDIAN 13	11	1,420	5	44					1	11			5	1,366							
303	MERIDIAN-NYBERG																					
304	MERIDIAN-PILKINGTON	5	795	3	84					1	6	1	706									
305	MERIDIAN-SAGERT	5	274	2	6					1	260			2	8							
306	MIDDLE GROVE-BROWN	4	467	2	460					1	5					1	2					
307	MIDDLE GROVE-CHEMEKETA	1	35													1	35					
308	MIDDLE GROVE-CORDON	16	752	2	672			1	18	2	24			3	8	8	30					
309	MIDDLE GROVE-SWEGLE	4	390					2	218			1	1			1	172					
310	MIDDLE GROVE-WEST	4	161	2	98			2	63													
311	MIDWAY-DIVISION	13	805	5	304			2	145			1	5	3	287	2	64					
312	MIDWAY-DOUGLAS	11	1,142	3	611			2	476					4	13	2	42					
313	MIDWAY-LYNCH	9	1,447	2	162					2	90	3	5	1	1,189			1	1			
314	MIDWAY-POWELLHURST	10	144	3	65					1	45	1	2	2	4	3	28					
315	MILL CREEK-EASTLAND	7	46	1	11			2	24	1	7			2	3	1	2					
316	MILL CREEK-KUEBLER	1	1					1	1													
317	MILL CREEK-MILL CREEK 13	1	17							1	17											
318	MOLALLA-BUCKAROO	7	129	2	34			1	2			1	9	2	80	1	3					
319	MOLALLA-FOREST	7	48							1	6	1	8	3	25	2	10					
320	MOLALLA-MARQUAM	17	1,135	6	615							5	328	4	189	2	3					

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
321	MOLALLA-YODER	9	1,693					1	2	1	6			6	1,670	1	15					
322	MT ANGEL-EAST	3	5					1	1			1	1			1	3					
323	MT ANGEL-WEST	24	525	6	272			2	11	1	5	1	3	4	9	10	225					
324	MT PLEASANT-CLAIRMONT	3	54					1	53			1	1			1	1					
325	MT PLEASANT-MT VIEW	1	2	1	2																	
326	MT PLEASANT-RIVERCREST	5	252	1	206			1	4	2	32			1	11							
327	MT PLEASANT-SOUTH END	5	53	1	32					1	10	2	4			1	7					
328	MULINO-NORTH	3	20					1	14	1	4			1	2							
329	MULINO-SOUTH	14	368							1	7	4	93	5	30	4	239					
330	MULTNOMAH-13176	14	1,099	10	1,056									1	37	2	3	1	3			
331	MULTNOMAH-13177	11	2,379	3	24							1	3	2	1,677	5	674				1	8,742
332	MULTNOMAH-13181	5	28	1	0			1	5					2	2	1	21					
333	MULTNOMAH-MULTNOMAH 13	9	988	3	147					2	144	1	662	2	8	1	26				2	9,436
334	MURRAYHILL-KINTON	1	9	1	9																	
335	MURRAYHILL-MURRAYHILL 13	4	3,662					4	3,662													
336	MURRAYHILL-REUSSER	2	39					1	31	1	8											
337	MURRAYHILL-TEAL	6	996	4	641			1	183							1	172					
338	NEWBERG-CHEHALEM	25	1,175	1	6	1	142	1	7	8	82	2	754	2	3	10	181					
339	NEWBERG-DUNDEE	15	1,226	4	402			2	81	1	4	1	12	1	578	6	148					
340	NEWBERG-HOOVER PARK	4	24													3	23	1	1			
341	NEWBERG-NORTH COLLEGE	11	627	2	30					2	493			1	22	5	82	1	1			
342	NORTH MARION-CROSBY	4	1,412					1	4			1	1,292	1	114	1	2					
343	NORTH MARION-FRONT	2	176	1	172					1	4										1	1,585
344	NORTH MARION-HUBBARD	6	330	3	322			2	6			1	2									
345	NORTH MARION-MCLAREN	14	5,243	1	6			2	2,362	1	8	2	2,676	5	40	2	7			1	143	
346	NORTH PLAINS-MASON HILL	16	2,687					1	2	1	9	3	2,274	9	399	2	3					
347	NORTH PLAINS-NORTH PLAINS 13	12	132							1	29	4	42	4	12	2	46	1	2			
348	NORTHERN-11009	6	747	1	96					1	9	1	633	3	9							
349	NORTHERN-11016	1	33							1	33											
350	NORTHERN-11071	4	62	1	1									2	47	1	14					
351	OAK GROVE-LAKE HARRIET	1	2													1	2					
352	OAK GROVE-WHITE WATER																					
353	OAK HILLS-FIVE OAKS																					
354	OAK HILLS-GREENBRIER																					
355	OAK HILLS-OAK HILLS 13	3	97	1	3			1	9	1	84											
356	OAK HILLS-SOMERSET	4	2,876	1	2	1	2,846							1	7	1	20					
357	OAK HILLS-WALKER	2	16	1	5					1	11											
358	OREGON STEEL-OREGON STEEL 13																					
359	ORENCO-231ST	1	40					1	40													
360	ORENCO-AMBERGLEN																					

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
361	ORENCO-BASELINE	1	0	1	0																	
362	ORENCO-ORENCO 13																					
363	ORENCO-PRIMATE	2	225	1	0				1	225												
364	ORENCO-WILKINS																					
365	ORIENT-BARLOW	12	70	2	2				3	34	2	7	2	8	3	19						
366	ORIENT-ORIENT 13	6	315	2	301						3	13			1	0				2	1,593	
367	OSWEGO-IRON MOUNTAIN																					
368	OSWEGO-MARYLHURST	6	891	3	63								1	13	2	815						
369	OSWEGO-PALATINE	6	196										5	10	1	186						
370	OSWEGO-STAFFORD	5	81	2	11								3	70						1	4,598	
371	OXFORD-FAIRVIEW	13	1,401	6	1,143			2	15			2	24	1	6	2	214					
372	OXFORD-LEE	2	25							1	16					1	9					
373	OXFORD-MADRONA	3	44					1	37	1	6					1	1					
374	OXFORD-OXFORD 13	2	7									1	5	1	3							
375	OXFORD-RURAL																					
376	OXFORD-SHELTON	1	21										1	21								
377	PELTON-ROUND BUTTE	1	26										1	26								
378	PENINSULA PARK-OCKLEY GREEN	2	11										2	11								
379	PENINSULA PARK-PENINSULA PARK	4	41									2	17	2	25							
380	PLEASANT VALLEY-BAXTER	2	25	1	1					1	24											
381	PLEASANT VALLEY-CLATSOP																					
382	PLEASANT VALLEY-MOON	4	371	3	179										1	192						
383	PLEASANT VALLEY-PLEASANT 13	9	127	1	73					3	16			2	12	3	27					
384	PLEASANT VALLEY-SUN	8	385					1	3	1	10	4	346	1	6	1	19					
385	PORTLAND WATER-PUMPING																					
386	PORTSMOUTH-CARBIDE	12	454	4	33			1	342			1	4	5	74	1	1					
387	PORTSMOUTH-DISPOSAL																					
388	PORTSMOUTH-WILLIS	3	22							1	14	1	6	1	2							
389	PROGRESS-GREENBURG	4	380	2	104					1	275	1	1									
390	PROGRESS-HALL																					
391	PROGRESS-ROBINSON	3	505	2	466			1	38													
392	PROGRESS-SAWYER	2	3	2	3																	
393	PROGRESS-WASHINGTON SQ #1																					
394	PROGRESS-WASHINGTON SQ #2																					
395	RALEIGH HILLS-DOGWOOD	4	17									1	4	2	3	1	11					
396	RALEIGH HILLS-MONTCLAIR	7	548	1	52			1	417	2	62			1	1	2	15					
397	RALEIGH HILLS-OLESON	4	33									2	7	1	22	1	4					
398	RAMAPO-EMERALD	7	887	1	809							2	45	3	7					1	25	
399	RAMAPO-GILBERT	4	213	1	206									3	7							
400	RAMAPO-RAMAPO 13	8	161	1	4					4	134	1	4	1	16			1	3			

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
401	REDLAND-HENRICI	15	390	6	222			2	55	1	31	1	1	3	10	2	70					
402	REDLAND-REDLAND 13	14	244	2	38					2	29			8	173	2	3					
403	REEDVILLE-AUGUSTA	8	701	5	236			1	119			1	10			1	336					
404	REEDVILLE-BLANTON	7	130	2	35					1	51			1	19	3	25					
405	REEDVILLE-HAZELDALE	13	496	5	408							2	34	2	2	4	50					
406	REEDVILLE-INTEL #2																					
407	REEDVILLE-INTEL #4																					
408	REEDVILLE-INTEL #5																					
409	REEDVILLE-TV	6	99	3	81					1	13	1	2	1	3							
410	RIVERGATE SOUTH-11010																					
411	RIVERGATE SOUTH-11011	3	9											3	9							
412	RIVERGATE SOUTH-PEARCY																					
413	RIVERGATE SOUTH-SWIFT																					
414	RIVERVIEW-FULTON	2	103							1	53			1	50							
415	RIVERVIEW-MACADAM	5	547	4	540							1	7									
416	RIVERVIEW-TERWILLIGER	6	23	1	6									4	13	1	3					
417	ROCKWOOD-AIRPORT																					
418	ROCKWOOD-BOEING																					
419	ROCKWOOD-INDUSTRIAL																					
420	ROCKWOOD-REYNOLDS	8	757	4	409					2	61			2	287							
421	ROCKWOOD-ROCKWOOD 13	8	51	5	44			1	4			1	2	1	1							
422	ROCKWOOD-WILKES																					
423	ROSEMONT-HIDDEN SPRINGS	6	364	2	134					1	9	2	214	1	6							
424	ROSEMONT-MOSSY BRAE	4	879	2	44			1	538	1	297											
425	ROSEMONT-OVERLOOK	19	660	7	335					8	287			2	5	2	33					
426	ROSEWAY-ALEXANDER																					
427	ROSEWAY-ESPLANADE	2	6							1	5	1	1									
428	ROSEWAY-ROSEWAY 13	1	5													1	5					
429	RUBY-CARLINE	7	306	3	40			2	208			1	4	1	53							
430	RUBY-JUNCTION	5	327	2	41			1	253							2	32					
431	SALEM-13260																					
432	SALEM-13261																					
433	SALEM-13262	1	6							1	6											
434	SALEM-13263																					
435	SALEM-13264																					
436	SALEM-UNION																					
437	SANDY-362ND	15	6,886	4	578	1	2,347			1	4	1	591	4	3,270	4	95					
438	SANDY-BLUFF	9	2,307	3	121	1	1,525	1	3	1	7			1	5	2	647					
439	SANDY-SANDY 13	15	656	2	234			2	19	4	43	3	12	1	16	3	333					
440	SANDY-WILDCAT	13	1,287	2	101			1	101	3	22			2	7	5	1,055					

¹ See Section IX - Cause Code Categories for category definitions

² Substation Equipment failures are a part of the Loss of Substation System category; not included in Total PGE Equipment

Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
441	SCAPPOOSE-SAUVIE ISLAND	1	5												1	5						
442	SCHOLLS FERRY-KEMMER																					
443	SCHOLLS FERRY-RAINBOW	14	442	3	24			2	29	2	27			5	326	2	35					
444	SCHOLLS FERRY-ROY ROGERS	14	186	5	42			1	0	2	44	1	2	2	15	3	83					
445	SCOGGINS-CHERRY GROVE	3	17					1	2					1	5	1	10					
446	SCOGGINS-LAURELWOOD	15	454					1	5			2	293	7	25	5	131					
447	SCOTTS MILLS-SCOTTS MILLS 13	19	1,841	3	12					6	44	2	111	2	94	5	276			1	1,304	
448	SELLWOOD-KELLOGG PARK	5	65							1	46	2	15	2	4							
449	SELLWOOD-SELLWOOD 13	5	11							1	1	1	2	3	9							
450	SELLWOOD-WAVERLY	2	1,904	1	8	1	1,897															
451	SHERIDAN-EAST	8	191	2	137							2	4	1	1	3	48					
452	SHERIDAN-KADELL	4	14	1	2							1	8			2	5					
453	SHUTE-LINDE 1 35KV																					
454	SILVERTON-NORTH	15	88	1	7			1	7	3	36	4	10	3	15	3	14					
455	SILVERTON-SOUTH	13	225	1	113							3	36	3	8	6	68					
456	SILVERTON-WEST	21	3,301	4	64			1	3	1	15	3	3,182	2	2	10	34					
457	SIX CORNERS-13359	9	3,582	2	15	3	3,280							2	3	2	283					
458	SIX CORNERS-13360	2	24									1	21			1	3					
459	SIX CORNERS-BORCHERS	9	207	1	9					1	11	1	2	3	10	2	23			1	151	
460	SIX CORNERS-CHAPMAN	3	26	1	10			1	13					1	3							
461	SIX CORNERS-SIX CORNERS 13	3	10									1	4	1	4	1	2					
462	SP NEWSPRINT-NEWBERG																					
463	SPRING HILL-SPRING HILL																					
464	SPRINGBROOK-FERNWOOD	11	439	3	7					1	7	1	272			5	151	1	1			
465	SPRINGBROOK-ST PAUL	11	172	2	31					3	27	1	2	1	4	4	108					
466	SPRINGBROOK-VILLA	2	3	2	3																	
467	SPRINGBROOK-ZIMRI	9	179	5	29					1	34	2	114	1	2							
468	ST HELENS-KASTER	1	10											1	10							
469	ST LOUIS-EAST	1	154									1	154									
470	ST LOUIS-NORTH	13	159	2	29	1	1							6	20	4	109					
471	ST LOUIS-WEST	17	68	1	15			1	10					10	31	4	10	1	2			
472	ST MARYS EAST-BETHANY	1	4	1	4																	
473	ST MARYS EAST-ELMONICA	16	1,961	11	1,774			2	6	2	181			1	1							
474	ST MARYS EAST-JENKINS																					
475	ST MARYS EAST-MILLIKAN	2	2									1	1	1	1							
476	ST MARYS EAST-ST MARYS 13	1	1					1	1													
477	STEPHENS-11001	3	11							1	3			1	3	1	6					
478	STEPHENS-11020																					
479	STEPHENS-11054 NETWORK																					
480	STEPHENS-11055 NETWORK																					

¹ See Section IX - Cause Code Categories for category definitions

² Substation Equipment failures are a part of the Loss of Substation System category; not included in Total PGE Equipment

Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
481	STEPHENS-11092 NETWORK																					
482	STEPHENS-11093 NETWORK																					
483	STEPHENS-11094 NETWORK																					
484	STEPHENS-11095 NETWORK																					
485	STEPHENS-11097 NETWORK																					
486	STEPHENS-11098																					
487	STEPHENS-11099 NETWORK																					
488	STIMSON LUMBER-FORESTEX																					
489	SULLIVAN-ROBINWOOD	5	111	1	44			1	41			1	1	2	24							
490	SULLIVAN-SALAMO	4	862	1	31			2	821					1	10							
491	SULLIVAN-SUSSEX	4	157	1	19							1	126	2	13							
492	SULLIVAN-TANNER	1	45	1	45																	
493	SULLIVAN-WILLAMETTE	7	128					1	7			2	27	3	75	1	18					
494	SULZER PUMPS-115B																					
495	SUMMIT-GOVERNMENT CAMP	3	13							1	7			1	3	1	3					
496	SUMMIT-MEADOWS	2	27							1	22			1	5							
497	SUMMIT-SUMMIT 13	6	332	3	325			1	3			1	4	1	0							
498	SUNSET-BLANCHET																					
499	SUNSET-COLFAX																					
500	SUNSET-CORNELL																					
501	SUNSET-DORION																					
502	SUNSET-IDTB																					
503	SUNSET-IDTC																					
504	SUNSET-INTEL D1B1																					
505	SUNSET-INTEL D1X1																					
506	SUNSET-KOMATSU #1																					
507	SUNSET-LANE																					
508	SUNSET-MCCALL																					
509	SUNSET-MEEK																					
510	SUNSET-NIXON																					
511	SUNSET-PAULING																					
512	SUNSET-SPALDING																					
513	SUNSET-WHITMAN	2	263	1	11			1	252													
514	SUNSET-YOUNG																					
515	SWAN ISLAND-BASIN	1	3												1	3						
516	SWAN ISLAND-DOLPHIN																					
517	SWAN ISLAND-FREIGHTLINER	1	4	1	4																	
518	SWAN ISLAND-GOING	2	15																	2	15	
519	SWAN ISLAND-SHIPYARD	1	28	1	28																	
520	SYLVAN-BARNES	10	437	2	345							3	47	4	41	1	4					

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² Substation Equipment failures are a part of the Loss of Substation System category; not included in Total PGE Equipment

Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
521 SYLVAN-PATTON	14	703	6	49					2	346			2	42	4	266						
522 TABOR-82ND	8	128	1	2					2	49	2	35	3	42								
523 TABOR-HOSPITAL																						
524 TABOR-TABOR 13	7	99							1	31	1	1	5	67								
525 TEKTRONIX-DUCKS																						
526 TEKTRONIX-HOCKEN	1	209	1	209																		
527 TEKTRONIX-MEADOW	13	1,268	4	1,069			1	1	1	59	2	59	3	49			2	31				
528 TEKTRONIX-NORTH																						
529 TEKTRONIX-SHANNON	5	586									1	1	4	585								
530 TEKTRONIX-SOUTH	23	1,230	11	998			3	5	1	8	1	2	5	190	2	28						
531 TEKTRONIX-TEKTRONIX 13	1	37							1	37												
532 TEKTRONIX-TERMAN																						
533 TEKTRONIX-WEST																						
534 TEMP B-NORTH																						
535 TEMP B-SOUTH																						
536 TIGARD-13336	7	603	3	372			1	121			1	106	2	4								
537 TIGARD-13337	4	58	4	58																		
538 TIGARD-13361	2	203	2	203																		
539 TIGARD-13362	10	1,173	9	1,171			1	2														
540 TIGARD-TIGARD 13	6	441	1	213					2	72			3	155								
541 TOWN CENTER-LAWNFIELD	1	1											1	1								
542 TOWN CENTER-MONTEREY	3	137	1	127							1	8	1	2								
543 TOWN CENTER-NORTH																						
544 TOWN CENTER-PRECISION CASTPARTS																						
545 TOWN CENTER-SOUTH																						
546 TOWN CENTER-SUNNYBROOK	1	124							1	124												
547 TOWN CENTER-VALLEY VIEW																						
548 TROJAN-EAST																						
549 TUALATIN-AVERY	8	177	6	154			1	21			1	2										
550 TUALATIN-CIPOLE																						
551 TUALATIN-HERMAN																						
552 TUALATIN-IBACH	4	41	3	39							1	3										
553 TUALATIN-LEVETON																						
554 TUALATIN-TUALATIN 13																						
555 TURNER-CASCADE	5	371					1	43	1	6			1	2	2	321						
556 TURNER-TURNER 13	11	996							1	8	2	838	6	146	2	3						
557 TWILIGHT-BREMER	16	263	7	157					1	3	2	7	4	68	2	27						
558 UNIONVALE-UNIONVALE 13	19	251	2	8					1	4	1	199	3	9	12	30						
559 UNIVERSITY-MILL	4	44			1	8					1	1	1	7	1	28						
560 UNIVERSITY-TRADE	9	582					1	11					7	563	1	9						

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Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
561	URBAN-BARBUR	2	5					1	3					1	2							
562	URBAN-CAMPUS	1	308	1	308																	
563	URBAN-CORBETT	4	15	3	15									1	0							
564	URBAN-GAINES																					
565	URBAN-GIBBS	1	0											1	0							
566	URBAN-KELLY																					
567	URBAN-LANDING	2	12	1	6									1	6							
568	URBAN-MEDICAL																					
569	URBAN-OHSU																					
570	WACKER-WACKER 1																					
571	WACONDA-NORPAC																					
572	WACONDA-RIVER	8	20										4	11	4	9						
573	WACONDA-WACONDA 13	15	3,155	3	35					1	5	1	1	8	3,111	2	3					
574	WALLACE-WALLACE 13	15	325	3	208					2	20	1	1	3	11	6	85					
575	WALLACE-WILLOW LAKE	1	51	1	51																	
576	WELCHES-WELCHES 13	4	56	1	14					2	35			1	8							
577	WELCHES-ZIG ZAG	20	150	1	11					3	32	7	57	6	31	2	16	1	2			
578	WEST PORTLAND-72ND	3	23					1	13	1	8			1	2							
579	WEST PORTLAND-NORTH	10	183	1	53			1	4	1	15	1	2	6	109							
580	WEST PORTLAND-PACIFIC	3	78	1	4			1	33					1	41							
581	WEST PORTLAND-WEST PORTLAND 13	4	24	1	1									3	22							
582	WEST UNION-CORNELIUS PASS	5	175							1	1	1	170	2	2	1	2					
583	WEST UNION-JACOBSON	1	59							1	59											
584	WEST UNION-WEST UNION 13	4	247	3	190					1	57											
585	WILLAMINA-BRIDGE	10	1,774					2	151	1	9	2	12	2	1,588	3	14					
586	WILLAMINA-BUELL	11	2,146	4	173									2	1,915	5	58					
587	WILLAMINA-LUMBER																					
588	WILLBRIDGE-WILLBRIDGE #1																					
589	WILLBRIDGE-WILLBRIDGE #4	2	594									1	588	1	6							
590	WILSONVILLE-BOECKMAN	3	542					1	8	1	4	1	530									
591	WILSONVILLE-CHARBONNEAU	12	3,440	3	18			8	3,416							1	5					
592	WILSONVILLE-CITY	2	934					1	737	1	198											
593	WILSONVILLE-MENTORTEK																					
594	WILSONVILLE-PARKWAY																					
595	WILSONVILLE-VILLEBOIS	3	58							2	55			1	3							
596	WILSONVILLE-WEST	13	63	1	5			1	5	2	18			5	23	4	12					
597	WOODBURN-CANNERY																					
598	WOODBURN-EAST	16	276					1	30			1	20	9	205	5	21					
599	WOODBURN-TOMLIN	10	1,934	2	56			2	176					2	32	4	1,670					
600	WOODBURN-WEST	5	81							1	15			3	5	1	61					
601	YAMHILL-CARLTON	18	89	3	21			1	2	2	10	2	5			8	47			2	3	
602	YAMHILL-YAMHILL 13	13	145							3	25	2	6			8	114					

¹ See Section IX - Cause Code Categories for category definitions

² Substation Equipment failures are a part of the Loss of Substation System category; not included in Total PGE Equipment

Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrestor		Meter		Pole		Substation ²	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
Grand Totals:	3,082	258,642	811	73,768	19	14,675	214	33,398	329	15,384	330	37,485	570	32,343	17	4,804	10	29,921	17	4,804	10	29,921

¹ See Section IX - Cause Code Categories for category definitions

² Substation Equipment failures are a part of the Loss of Substation System category; not included in Total PGE Equipment

Outs = Outages
Hrs = # of customers * duration hrs

Section VII

Outages by Cause Vegetation

This section provides the number of customer outages (frequency) and customer outage hours (duration) caused by vegetation events. The information is presented by feeder and attributed to one of three primary categories and one of three subcategories, if applicable, of vegetation related events. Definitions for the primary and sub-categories are shown below:

- Total Trees: Total number of vegetation (i.e. tree) related outages. This category is the sum of Non-Preventable and Preventable outages.
- Total Non-Preventable: Total number uprooted trees, tree limbs, and broken/felled trees that resulted in an outage.
 - Tree Uprooted: Outages caused by a whole tree uprooting. This does not include broken tree parts (e.g. limb or tree top)
 - Limb on Line: Outages caused by broken tree tops or limbs
- Total Preventable (Tree / Limb Burning): Total number of outages caused by a tree growing into the conductor. This also includes tree burning events.
- Felled Tree/Limb: This category is included for reference, but is not included in Total Trees. Outages related to this category are included in the Public column in section V.

NOTES:

- Idle feeders are not included in this list
- Feeders may be omitted if they are a part of an alternate/multiple feeder service

2018 Outages by Cause Vegetation

Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
1 ABERNETHY-CLACKAMAS HEIGHTS	1	2			1	2			1	2		
2 ABERNETHY-OREGON CITY	13	3,989	1	49	12	3,939	5	1,780	7	2,159	3	857
3 ABERNETHY-TRANSIT	2	3			2	3			2	3		
4 ABERNETHY-WASHINGTON	1	2			1	2			1	2		
5 ALDER-ANKENY	2	4	1	2	1	2	1	2				
6 ALDER-IRVING	3	15			3	15			3	15	2	50
7 ALDER-LINCOLN	3	9	1	1	2	8	1	4	1	4		
8 ALDER-STARK	1	47			1	47			1	47		
9 ALDER-TAYLOR	2	5	1	1	1	3	1	3				
10 ALDER-YAMHILL												
11 AMITY-AMITY 13	8	3,365	1	830	7	2,535	2	1,619	5	916	1	28
12 AMITY-BELLEVUE	7	927	1	1	6	926	2	9	4	917		
13 ARLETA-52ND	4	377	2	6	2	372			2	372		
14 ARLETA-FOSTER												
15 ARLETA-HAROLD	1	2			1	2			1	2		
16 ARLETA-POWELL	4	7	1	1	3	5	1	2	2	3		
17 ARLETA-STEELE	2	17			2	17			2	17		
18 BANKS-BANKS 13	5	311	1	225	4	86	2	73	2	13		
19 BANKS-CEDAR CANYON	21	3,457	1	7	20	3,449	13	3,335	7	114		
20 BARNES-BATTLE CREEK	5	5,076			5	5,076	3	4,981	2	95		
21 BARNES-BOONE												
22 BARNES-COMMERCIAL	4	2,264			4	2,264	2	2,261	2	3	1	2
23 BARNES-SUNNYSIDE	1	459			1	459	1	459				
24 BEAVER-KB PIPELINE												
25 BEAVERTON-ALLEN	2	120	1	27	1	93			1	93		
26 BEAVERTON-JAMIESON												
27 BEAVERTON-NORTHWEST	3	616			3	616			3	616		
28 BEAVERTON-WEST SLOPE												
29 BELL-BATTIN	1	7	1	7							1	2
30 BELL-BRENTWOOD												
31 BELL-FLAVEL											1	10
32 BELL-JOHNSON CREEK												
33 BELL-KENDALL	2	52			2	52			2	52		
34 BELL-KING	1	2	1	2								
35 BELL-SOUTHGATE	2	100	1	3	1	97			1	97		
36 BELL-WICHITA	1	14			1	14			1	14	1	2,174
37 BETHANY-BURTON												
38 BETHANY-GERMANTOWN	4	469	3	122	1	347			1	347		
39 BETHANY-KAISER												
40 BETHANY-LAIDLAW												

1-Total Trees = Total Prev. + Total Non-Prev.

2-Total Non-Prev. = Tree Uprooted + Limb on Line

3-Felled Tree/Limb events are included in the Public System category; not included in Total Trees

Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause Vegetation

Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
41 BETHANY-SPRINGVILLE												
42 BETHANY-THOMPSON												
43 BETHEL-FRUITLAND	1	37			1	37			1	37		
44 BETHEL-GEER	8	1,128			8	1,128	4	129	4	999		
45 BETHEL-MACLEAY	1	4			1	4			1	4		
46 BLUE LAKE-BLUE LAKE 13	2	16			2	16	1	2	1	14		
47 BLUE LAKE-SUNDIAL												
48 BLUE LAKE-TOYO TANSO												
49 BOISE CASCADE-BOISE #1												
50 BOONES FERRY-GOODALL	8	2,986	1	5	7	2,980	2	204	5	2,776		
51 BOONES FERRY-KRUSE												
52 BOONES FERRY-LAKE GROVE	4	4,324			4	4,324	1	48	3	4,276		
53 BOONES FERRY-MOUNTAIN PARK												
54 BOONES FERRY-WEMBLEY PARK	6	2,135	2	10	4	2,125	2	2,116	2	9		
55 BORING-282ND	5	6,469	1	24	4	6,445	2	367	2	6,079		
56 BORING-CITY	5	166	2	3	3	163			3	163		
57 BORING-TELFORD	13	1,846	3	13	10	1,833	5	1,631	5	202		
58 BRIGHTWOOD-BRIGHTWOOD 13	28	5,529			28	5,529	16	3,737	12	1,792		
59 BRIGHTWOOD-NORTH BANK	22	5,480	1	2	21	5,479	14	5,318	7	160	1	8
60 BROOKWOOD-BORWICK												
61 BROOKWOOD-BROOKWOOD 13												
62 BROOKWOOD-SUNRISE												
63 CANBY-13644	1	112			1	112	1	112				
64 CANBY-BUTTEVILLE	4	46	1	3	3	44	1	2	2	42		
65 CANBY-FILBERT	1	2			1	2			1	2		
66 CANBY-ZIMMERMAN	2	4			2	4	1	1	1	2		
67 CANYON-13114 NETWORK #1												
68 CANYON-13115 NETWORK #1												
69 CANYON-13116 NETWORK #1												
70 CANYON-13117 NETWORK #1												
71 CANYON-13118 PSU												
72 CANYON-13120												
73 CANYON-13121												
74 CANYON-13122 NETWORK #2												
75 CANYON-13123 NETWORK #2												
76 CANYON-13124 NETWORK #2												
77 CANYON-13125 NETWORK #2												
78 CANYON-13133 NETWORK #3												
79 CANYON-13134 NETWORK #3												
80 CANYON-13135 NETWORK #3												

1-Total Trees = Total Prev. + Total Non-Prev.

2-Total Non-Prev. = Tree Uprooted + Limb on Line

3-Felled Tree/Limb events are included in the Public System category; not included in Total Trees

Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause Vegetation

Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
81 CANYON-13136 NETWORK #3												
82 CANYON-21ST												
83 CANYON-23RD	5	427			5	427	3	152	2	275		
84 CANYON-BURNSIDE	1	3	1	3								
85 CANYON-CANYON 13	4	511	1	1	3	509	2	417	1	93	1	181
86 CARVER-ALMOND												
87 CARVER-CARVER 13	5	146	2	7	3	140			3	140		
88 CARVER-NORTH	2	2,398			2	2,398	1	4	1	2,394		
89 CARVER-RIVERBEND												
90 CARVER-SOUTH												
91 CARVER-WOODS	10	1,136			10	1,136	6	950	4	187		
92 CEDAR HILLS-CEDAR HILLS 13												
93 CEDAR HILLS-LEAHY	3	438	1	4	2	434			2	434	1	285
94 CEDAR HILLS-SHOPPING CENTER	7	837			7	837			7	837		
95 CEDAR HILLS-SKYLINE												
96 CEDAR HILLS-ST VINCENT												
97 CEDAR HILLS-SYLVAN	4	1,471			4	1,471	2	1,067	2	404		
98 CENTENNIAL-BARKER	7	1,453	3	137	4	1,316	1	1,291	3	26	1	454
99 CENTENNIAL-BRAECROFT	2	3	1	1	1	2			1	2		
100 CENTENNIAL-CENTENNIAL 13	3	23	2	16	1	7	1	7				
101 CENTENNIAL-TREELAND	2	6			2	6			2	6		
102 CLACKAMAS-EVELYN												
103 CLACKAMAS-GLADSTONE	2	3			2	3			2	3		
104 CLACKAMAS-JENNIFER												
105 CLACKAMAS-TOLBERT												
106 CLAXTAR-CLAXTAR 13												
107 CLAXTAR-HAYESVILLE												
108 CLAXTAR-RIDGE	1	151			1	151	1	151				
109 COFFEE CREEK-FREEMAN	1	469			1	469	1	469				
110 COFFEE CREEK-HOLIDAY												
111 COLTON-DHOOGHE	10	79			10	79	4	13	6	66		
112 COLTON-GRAYS HILL	16	4,500	2	32	14	4,468	6	4,227	8	241		
113 CORNELIUS-ADAIR	3	9			3	9	1	2	2	7		
114 CORNELIUS-CORNELIUS 13	5	2,495			5	2,495	2	2,457	3	38		
115 CORNELIUS-VERBOORT	2	215			2	215	1	12	1	203		
116 CORNELL-BLUFFS												
117 CORNELL-SALTZMAN												
118 CORNELL-WESTLAWN	4	719			4	719	4	719				
119 CULVER-SANYO #1												
120 CURTIS-11077												

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2018 Outages by Cause Vegetation

Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
121 CURTIS-CURTIS 13	7	1,442	1	848	6	595	2	60	4	535		
122 DAYTON-EAST	10	324	1	148	9	177	3	31	6	145		
123 DAYTON-LAFAYETTE	6	252			6	252	1	56	5	196		
124 DAYTON-SOUTHWEST	4	29			4	29	1	25	3	4		
125 DELAWARE-DENVER	1	2	1	2								
126 DELAWARE-INTERSTATE	2	368			2	368			2	368		
127 DELAWARE-LOMBARD	1	18			1	18			1	18		
128 DENNY-EAST	4	208	1	67	3	141			3	141		
129 DENNY-NORTH	1	23			1	23			1	23		
130 DENNY-SOUTH												
131 DENNY-WEST	3	531			3	531			3	531		
132 DILLEY-DILLEY 13	4	247			4	247	2	114	2	133		
133 DILLEY-SPRINGHILL												
134 DUNNS CORNER-DUNNS CORNER 13	11	3,804	1	131	10	3,674	6	1,122	4	2,552		
135 DUNNS CORNER-KELSO	3	366	1	90	2	276	1	244	1	32		
136 DURHAM-BONITA	1	240			1	240			1	240		
137 DURHAM-BRIDGEPORT												
138 DURHAM-DURHAM 13												
139 DURHAM-POOPLANT												
140 DURHAM-SATTLER	1	4			1	4			1	4	1	509
141 DURHAM-SOUTH												
142 E-11021												
143 E-11039												
144 E-11040												
145 E-11041												
146 E-11042												
147 E-11043												
148 E-11047												
149 E-11064												
150 E-13139	1	3			1	3			1	3		
151 E-13140												
152 E-13141												
153 E-13142												
154 E-13144	3	23,541	1	2	2	23,538	2	23,538				
155 E-13145												
156 E-13148												
157 E-13149												
158 E-13150												
159 EAGLE CREEK-BARTON	16	5,985	1	1	15	5,985	11	5,425	4	559		
160 EAGLE CREEK-RIVER MILL	6	1,318			6	1,318	4	1,072	2	246		

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Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
161 EASTPORT-76TH	2	10			2	10	1	1	1	9		
162 EASTPORT-PLAZA	1	3			1	3			1	3		
163 ELMA-ELMA 13												
164 ELMA-FOUR CORNERS												
165 ELMA-HUDSON												
166 ELMA-STATE												
167 ESTACADA-ESTACADA 13	14	2,448	2	356	12	2,092	4	1,821	8	271		
168 ESTACADA-FARADAY	12	932	2	56	10	876	9	630	1	246	1	8
169 ESTACADA-NORTH FORK	27	8,972	2	75	25	8,897	10	5,757	15	3,140	1	105
170 FAIRMOUNT-CANDALARIA	6	11,842			6	11,842	3	11,708	3	135		
171 FAIRMOUNT-MISSION	20	4,938	3	116	17	4,822	3	73	14	4,749		
172 FAIRVIEW-CLEAR CREEK												
173 FAIRVIEW-FAIRVIEW 13	1	2	1	2								
174 FAIRVIEW-KENNEL CLUB	5	213			5	213	3	207	2	6		
175 FAIRVIEW-TROUTDALE	2	11			2	11	1	7	1	4		
176 FAIRVIEW-WOOD VILLAGE												
177 FARGO-FARGO 13	10	480	2	113	8	367	3	35	5	332		
178 GALES CREEK-GALES CREEK 13	36	2,133	5	303	31	1,830	14	737	17	1,092		
179 GARDEN HOME-MCKAY	7	1,097	2	20	5	1,077	1	454	4	623		
180 GARDEN HOME-METZGER	3	73			3	73			3	73		
181 GLENCOE-GLISAN	3	88			3	88			3	88		
182 GLENCOE-PROVIDENCE	1	28	1	28								
183 GLENCOE-SUNNYSIDE	8	324			8	324	3	315	5	9		
184 GLENCULLEN-BRIDLEMILE	19	4,943	3	3,749	16	1,193	5	240	11	954		
185 GLENCULLEN-SUNSET	10	12,065	3	521	7	11,544	3	10,542	4	1,003		
186 GLENDOVEER-13596	1	14			1	14			1	14		
187 GLENDOVEER-13597												
188 GLENDOVEER-13598												
189 GLENDOVEER-13599	1	260			1	260			1	260		
190 GLENDOVEER-CLIFFGATE	2	14			2	14	1	9	1	5		
191 GLENDOVEER-NORTHEAST	1	1,474			1	1,474			1	1,474		
192 GLISAN-FAB 2A												
193 GLISAN-UTILITY 1B												
194 GORMLEY-MCMINNVILLE WL												
195 GRAND RONDE-AGENCY	5	478			5	478	5	478				
196 GRAND RONDE-FORTHILL	11	1,470	2	799	9	671	2	318	7	353		
197 HARBORTON-BURLINGTON	20	4,962			20	4,962	9	4,399	11	563		
198 HARBORTON-LINNTON	7	1,161			7	1,161	2	314	5	847		
199 HARMONY-HARMONY 13												
200 HARMONY-INTERNATIONAL												

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Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
201 HARMONY-LAKE												
202 HARMONY-LINWOOD	1	2			1	2			1	2		
203 HARMONY-MILWAUKIE	3	62	1	19	2	43	1	41	1	2	1	5
204 HARMONY-THIESSEN												
205 HARRISON-DAVIS	1	2	1	2								
206 HARRISON-HARRISON 13												
207 HARRISON-IVON												
208 HAYDEN ISLAND-MAINLAND	3	606			3	606	3	606				
209 HAYDEN ISLAND-NORTH SHORE	1	49			1	49	1	49				
210 HAYDEN ISLAND-SOUTH SHORE	2	652			2	652			2	652		
211 HEMLOCK-FREMONT												
212 HEMLOCK-HEMLOCK 13												
213 HEMLOCK-MASON	1	1	1	1								
214 HILLCREST-CASCADIA												
215 HILLCREST-HILLCREST 13												
216 HILLCREST-SOUTH												
217 HILLSBORO-DAIRY CREEK	4	662			4	662	1	570	3	92		
218 HILLSBORO-DENNIS												
219 HILLSBORO-JACKSON	1	736			1	736			1	736		
220 HILLSBORO-LAUREL	12	1,700			12	1,700	4	1,141	8	560		
221 HILLSBORO-SCHOLLS												
222 HOGAN NORTH-BRIGADOON	1	66			1	66	1	66				
223 HOGAN NORTH-HOGAN NORTH 13	8	124			8	124	6	119	2	5		
224 HOGAN NORTH-LINKS	11	13,596	1	1,582	10	12,013	5	10,155	5	1,858		
225 HOGAN NORTH-SALQUIST	1	6			1	6	1	6				
226 HOGAN SOUTH-CLEVELAND	2	336			2	336			2	336		
227 HOGAN SOUTH-LAWRENCE	5	244			5	244	2	41	3	203	1	2
228 HOGAN SOUTH-MAIN												
229 HOGAN SOUTH-PAROPA	1	201			1	201			1	201		
230 HOGAN SOUTH-WALLULA	1	2			1	2			1	2		
231 HOLGATE-BYBEE	8	8,967	2	4,567	6	4,400	3	4,309	3	91		
232 HOLGATE-GIDEON												
233 HOLGATE-HOLGATE 13	2	10	1	8	1	2			1	2		
234 HOLGATE-KENILWORTH	2	485	1	478	1	7	1	7				
235 HOLGATE-RHONE	1	0	1	0								
236 HUBER-BANY												
237 HUBER-FARMINGTON	3	560			3	560	1	45	2	515		
238 HUBER-HUBER 13	1	2			1	2			1	2		
239 HUBER-KINNAMAN												
240 HUBER-MARYVILLE												

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Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
241 INDIAN-KEIZER	4	433	1	8	3	425	2	4	1	421		
242 INDIAN-LABISH												
243 INDIAN-NORTH	3	3	1	2	2	1			2	1		
244 INDIAN-STATION												
245 INDIAN-WEST	4	901	1	98	3	803	2	682	1	121		
246 ISLAND-13180	2	4	2	4								
247 ISLAND-13187	4	13			4	13	3	7	1	6		
248 ISLAND-13188	6	8,577	1	138	5	8,439	4	8,395	1	44		
249 ISLAND-ISLAND 13												
250 JENNINGS LODGE-ADDIE	1	22	1	22								
251 JENNINGS LODGE-JENNINGS 13	5	108			5	108	3	87	2	21		
252 JENNINGS LODGE-MELDRUM	3	103	1	20	2	83	1	78	1	4		
253 JENNINGS LODGE-OAK GROVE	1	50			1	50			1	50		
254 JENNINGS LODGE-WEBSTER	2	592			2	592	1	582	1	10		
255 KELLEY POINT-KELLEY POINT 13												
256 KELLEY POINT-MARINE												
257 KELLEY POINT-SIMMONS												
258 KELLEY POINT-SOLAR #2												
259 KELLY BUTTE-BINNSMEAD	2	2			2	2			2	2		
260 KELLY BUTTE-FAIRLAWN												
261 KELLY BUTTE-MALL 205	1	2			1	2			1	2		
262 KELLY BUTTE-MCGREW	3	15	1	2	2	14	1	1	1	13		
263 KING CITY-BULL MOUNTAIN												
264 KING CITY-FISCHER	2	3,602			2	3,602			2	3,602		
265 KING CITY-HAZELBROOK												
266 KING CITY-NORTH												
267 KING CITY-SUMMERFIELD												
268 LAKE LABISH-LAKE LABISH												
269 LELAND-BEAVERCREEK	4	2,595			4	2,595	1	1,013	3	1,582		
270 LELAND-CARUS	13	19,729	2	432	11	19,298	8	19,231	3	67		
271 LELAND-KELM												
272 LENTS-13101	1	5	1	5								
273 LENTS-HAPPY VALLEY												
274 LENTS-MT SCOTT	2	77	1	76	1	1			1	1		
275 LENTS-NORTH	6	108	2	9	4	99	2	3	2	96		
276 LIBERAL-LIBERAL 13	3	589			3	589	1	548	2	41		
277 LIBERAL-SAWMILL												
278 LIBERTY-BROWNING	1	11			1	11			1	11		
279 LIBERTY-LONE OAK												
280 LIBERTY-MORNINGSIDE	2	132	1	4	1	128			1	128		

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	
281	LIBERTY-ROSEDALE	2	490			2	490	1	489	1	1		
282	LIBERTY-SKYLINE	1	73			1	73			1	73	2	850
283	LIBERTY-VISTA	7	3,922			7	3,922	2	65	5	3,856		
284	MAIN-AIRPORT												
285	MAIN-BENTLEY												
286	MAIN-EXPRESS	2	4			2	4	1	2	1	3	1	2
287	MAIN-JONES FARM												
288	MAIN-RIVER	3	130			3	130			3	130		
289	MARKET-ENGLEWOOD	2	12			2	12			2	12		
290	MARKET-FAIRGROUNDS												
291	MARKET-HAWTHORNE												
292	MARKET-PARK	1	2			1	2			1	2		
293	MAXIM-MAXIM 13												
294	MCCLAIN-COTTAGE	2	4	1	3	1	2			1	2		
295	MCCLAIN-FRONT	1	8			1	8	1	8				
296	MCCLAIN-HOLLYWOOD												
297	MCGILL-LSI AIR 1A												
298	MERIDIAN-65TH												
299	MERIDIAN-BORLAND	1	9			1	9	1	9				
300	MERIDIAN-CHILDS												
301	MERIDIAN-LAKEVIEW	1	28			1	28			1	28	1	17
302	MERIDIAN-MERIDIAN 13	5	4,277			5	4,277	2	590	3	3,687		
303	MERIDIAN-NYBERG												
304	MERIDIAN-PILKINGTON	4	7,731			4	7,731	1	42	3	7,688		
305	MERIDIAN-SAGERT	2	3			2	3	1	1	1	2		
306	MIDDLE GROVE-BROWN												
307	MIDDLE GROVE-CHEMEKETA												
308	MIDDLE GROVE-CORDON	7	55			7	55			7	55		
309	MIDDLE GROVE-SWEGLE												
310	MIDDLE GROVE-WEST												
311	MIDWAY-DIVISION	1	0			1	0			1	0		
312	MIDWAY-DOUGLAS	7	13,049	1	2	6	13,047	2	12,816	4	231		
313	MIDWAY-LYNCH	8	6,723	3	6	5	6,717			5	6,717		
314	MIDWAY-POWELLHURST	2	7,093	1	17	1	7,076			1	7,076	1	4,333
315	MILL CREEK-EASTLAND	7	145			7	145	4	109	3	36		
316	MILL CREEK-KUEBLER												
317	MILL CREEK-MILL CREEK 13	1	33	1	33								
318	MOLALLA-BUCKAROO	1	6			1	6			1	6		
319	MOLALLA-FOREST	16	6,759	1	180	15	6,579	1	2,394	14	4,185	1	121
320	MOLALLA-MARQUAM	17	888	2	7	15	881	7	586	8	295		

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
321	MOLALLA-YODER	6	6,686	2	82	4	6,603	1	3,295	3	3,308	
322	MT ANGEL-EAST											
323	MT ANGEL-WEST	1	3			1	3			1	3	
324	MT PLEASANT-CLAIRMONT	1	1			1	1			1	1	
325	MT PLEASANT-MT VIEW	2	1,231	1	19	1	1,212			1	1,212	
326	MT PLEASANT-RIVERCREST	2	1,005			2	1,005	1	16	1	989	
327	MT PLEASANT-SOUTH END	1	2			1	2			1	2	
328	MULINO-NORTH	1	22			1	22			1	22	
329	MULINO-SOUTH	8	360			8	360	4	328	4	31	
330	MULTNOMAH-13176	5	3,378			5	3,378			5	3,378	
331	MULTNOMAH-13177	8	259	1	5	7	254	2	5	5	249	
332	MULTNOMAH-13181	6	1,191	1	319	5	872	2	837	3	35	
333	MULTNOMAH-MULTNOMAH 13	6	13,430	1	6	5	13,423	3	12,057	2	1,366	
334	MURRAYHILL-KINTON											
335	MURRAYHILL-MURRAYHILL 13											
336	MURRAYHILL-REUSSER											
337	MURRAYHILL-TEAL	1	16			1	16			1	16	
338	NEWBERG-CHEHALEM	10	1,926			10	1,926	8	856	2	1,070	
339	NEWBERG-DUNDEE	6	489			6	489	2	390	4	99	
340	NEWBERG-HOOVER PARK	4	342			4	342	2	325	2	17	
341	NEWBERG-NORTH COLLEGE	2	28			2	28			2	28	
342	NORTH MARION-CROSBY	2	361			2	361	2	361			
343	NORTH MARION-FRONT											
344	NORTH MARION-HUBBARD	2	347			2	347	2	347			
345	NORTH MARION-MCLAREN	4	956			4	956			4	956	
346	NORTH PLAINS-MASON HILL	15	1,587			15	1,587	7	533	8	1,053	
347	NORTH PLAINS-NORTH PLAINS 13	18	3,480			18	3,480	10	936	8	2,544	
348	NORTHERN-11009											
349	NORTHERN-11016	1	0	1	0							
350	NORTHERN-11071	4	19	1	8	3	11	1	3	2	8	
351	OAK GROVE-LAKE HARRIET	3	79			3	79	1	6	2	73	
352	OAK GROVE-WHITE WATER											
353	OAK HILLS-FIVE OAKS											
354	OAK HILLS-GREENBRIER											
355	OAK HILLS-OAK HILLS 13											
356	OAK HILLS-SOMERSET											
357	OAK HILLS-WALKER											
358	OREGON STEEL-OREGON STEEL 13											
359	ORENCO-231ST											
360	ORENCO-AMBERGLEN											

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
361 ORENCO-BASELINE												
362 ORENCO-ORENCO 13												
363 ORENCO-PRIMATE												
364 ORENCO-WILKINS												
365 ORIENT-BARLOW	13	1,070	2	213	11	857	6	693	5	164		
366 ORIENT-ORIENT 13	11	488	2	131	9	357	3	177	6	180		
367 OSWEGO-IRON MOUNTAIN	5	3,849	4	3,757	1	92			1	92		
368 OSWEGO-MARYLHURST	11	8,199	2	3,726	9	4,474	2	329	7	4,145		
369 OSWEGO-PALATINE	6	799			6	799	2	17	4	782		
370 OSWEGO-STAFFORD	1	197			1	197			1	197		
371 OXFORD-FAIRVIEW	1	16	1	16								
372 OXFORD-LEE	1	87			1	87			1	87		
373 OXFORD-MADRONA												
374 OXFORD-OXFORD 13												
375 OXFORD-RURAL												
376 OXFORD-SHELTON	1	2	1	2								
377 PELTON-ROUND BUTTE												
378 PENINSULA PARK-OCKLEY GREEN	4	12			4	12	3	11	1	1		
379 PENINSULA PARK-PENINSULA PARK	6	69	1	1	5	67	2	37	3	31		
380 PLEASANT VALLEY-BAXTER	5	8,833	1	21	4	8,812	1	27	3	8,785		
381 PLEASANT VALLEY-CLATSOP												
382 PLEASANT VALLEY-MOON	1	4			1	4			1	4		
383 PLEASANT VALLEY-PLEASANT 13	8	282	2	56	6	226	4	224	2	2		
384 PLEASANT VALLEY-SUN	4	709			4	709	1	516	3	193	1	81
385 PORTLAND WATER-PUMPING												
386 PORTSMOUTH-CARBIDE	2	8	1	3	1	5	1	5				
387 PORTSMOUTH-DISPOSAL												
388 PORTSMOUTH-WILLIS	1	6	1	6								
389 PROGRESS-GREENBURG	1	7			1	7			1	7		
390 PROGRESS-HALL												
391 PROGRESS-ROBINSON												
392 PROGRESS-SAWYER	4	98	1	11	3	87	1	7	2	81		
393 PROGRESS-WASHINGTON SQ #1												
394 PROGRESS-WASHINGTON SQ #2												
395 RALEIGH HILLS-DOGWOOD	4	369			4	369	2	314	2	55	1	131
396 RALEIGH HILLS-MONTCLAIR	1	296			1	296			1	296		
397 RALEIGH HILLS-OLESON	1	373	1	373								
398 RAMAPO-EMERALD	3	15			3	15			3	15		
399 RAMAPO-GILBERT	1	30			1	30			1	30		
400 RAMAPO-RAMAPO 13	3	18			3	18	3	18				

1-Total Trees = Total Prev. + Total Non-Prev.

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3-Felled Tree/Limb events are included in the Public System category; not included in Total Trees

Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause Vegetation

Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
401 REDLAND-HENRICI	13	4,866	2	721	11	4,145	3	2,555	8	1,589		
402 REDLAND-REDLAND 13	17	2,953			17	2,953	12	2,725	5	228		
403 REEDVILLE-AUGUSTA												
404 REEDVILLE-BLANTON												
405 REEDVILLE-HAZELDALE	1	63			1	63	1	63				
406 REEDVILLE-INTEL #2												
407 REEDVILLE-INTEL #4												
408 REEDVILLE-INTEL #5												
409 REEDVILLE-TV												
410 RIVERGATE SOUTH-11010												
411 RIVERGATE SOUTH-11011	4	3,538			4	3,538	1	3,258	3	280		
412 RIVERGATE SOUTH-PEARCY												
413 RIVERGATE SOUTH-SWIFT												
414 RIVERVIEW-FULTON	4	43	2	9	2	34			2	34		
415 RIVERVIEW-MACADAM	1	2			1	2			1	2		
416 RIVERVIEW-TERWILLIGER	2	353			2	353			2	353		
417 ROCKWOOD-AIRPORT												
418 ROCKWOOD-BOEING												
419 ROCKWOOD-INDUSTRIAL												
420 ROCKWOOD-REYNOLDS	1	128			1	128			1	128		
421 ROCKWOOD-ROCKWOOD 13	4	54			4	54			4	54		
422 ROCKWOOD-WILKES												
423 ROSEMONT-HIDDEN SPRINGS	3	1,641			3	1,641	2	120	1	1,521		
424 ROSEMONT-MOSSY BRAE	8	523			8	523	2	193	6	329		
425 ROSEMONT-OVERLOOK	3	342	1	280	2	62	1	42	1	20		
426 ROSEWAY-ALEXANDER												
427 ROSEWAY-ESPLANADE	1	9			1	9			1	9		
428 ROSEWAY-ROSEWAY 13	1	22			1	22			1	22		
429 RUBY-CARLINE												
430 RUBY-JUNCTION												
431 SALEM-13260												
432 SALEM-13261												
433 SALEM-13262												
434 SALEM-13263												
435 SALEM-13264												
436 SALEM-UNION												
437 SANDY-362ND	14	10,785	2	447	12	10,337	5	6,262	7	4,075		
438 SANDY-BLUFF	3	3,346			3	3,346			3	3,346		
439 SANDY-SANDY 13	23	2,224	2	21	21	2,203	9	723	12	1,479		
440 SANDY-WILDCAT	13	6,894			13	6,894	5	3,230	8	3,664		

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Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause Vegetation

Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
441 SCAPPOOSE-SAUVIE ISLAND												
442 SCHOLLS FERRY-KEMMER	3	51			3	51	2	49	1	2		
443 SCHOLLS FERRY-RAINBOW	13	268	2	36	11	232	3	159	8	72		
444 SCHOLLS FERRY-ROY ROGERS	4	4,876	1	37	3	4,839	1	4	2	4,835		
445 SCOGGINS-CHERRY GROVE	6	280			6	280	1	1	5	279		
446 SCOGGINS-LAURELWOOD	8	1,924			8	1,924	4	151	4	1,773	1	41
447 SCOTTS MILLS-SCOTTS MILLS 13	27	1,127	5	263	22	863	9	511	13	353	1	790
448 SELLWOOD-KELLOGG PARK	2	41	1	14	1	27			1	27		
449 SELLWOOD-SELLWOOD 13	4	19	1	5	3	14			3	14		
450 SELLWOOD-WAVERLY												
451 SHERIDAN-EAST	5	27			5	27	4	25	1	2		
452 SHERIDAN-KADELL	7	253			7	253	5	209	2	44		
453 SHUTE-LINDE 1 35KV												
454 SILVERTON-NORTH	5	1,372	1	1	4	1,371	1	63	3	1,308	2	244
455 SILVERTON-SOUTH	24	2,972	4	1,425	20	1,547	9	728	11	820		
456 SILVERTON-WEST	6	1,084			6	1,084	2	9	4	1,075		
457 SIX CORNERS-13359	3	134	1	1	2	133	1	71	1	61		
458 SIX CORNERS-13360												
459 SIX CORNERS-BORCHERS	12	1,525	1	324	11	1,201	8	485	3	716		
460 SIX CORNERS-CHAPMAN	3	111			3	111	2	108	1	2		
461 SIX CORNERS-SIX CORNERS 13												
462 SP NEWSPRINT-NEWBERG												
463 SPRING HILL-SPRING HILL												
464 SPRINGBROOK-FERNWOOD	3	778			3	778	1	46	2	732	1	9
465 SPRINGBROOK-ST PAUL	10	1,017	1	13	9	1,004	1	9	8	995		
466 SPRINGBROOK-VILLA												
467 SPRINGBROOK-ZIMRI	7	2,644	1	1,029	6	1,615	3	601	3	1,014		
468 ST HELENS-KASTER												
469 ST LOUIS-EAST												
470 ST LOUIS-NORTH	5	2,355			5	2,355	1	171	4	2,184		
471 ST LOUIS-WEST	9	124	2	10	7	114	2	12	5	101		
472 ST MARYS EAST-BETHANY												
473 ST MARYS EAST-ELMONICA												
474 ST MARYS EAST-JENKINS												
475 ST MARYS EAST-MILLIKAN												
476 ST MARYS EAST-ST MARYS 13												
477 STEPHENS-11001												
478 STEPHENS-11020												
479 STEPHENS-11054 NETWORK												
480 STEPHENS-11055 NETWORK												

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Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause Vegetation

Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
481	STEPHENS-11092 NETWORK											
482	STEPHENS-11093 NETWORK											
483	STEPHENS-11094 NETWORK											
484	STEPHENS-11095 NETWORK											
485	STEPHENS-11097 NETWORK											
486	STEPHENS-11098											
487	STEPHENS-11099 NETWORK											
488	STIMSON LUMBER-FORESTEX											
489	SULLIVAN-ROBINWOOD	11	12,571	1	58	10	12,513	4	10,951	6	1,563	
490	SULLIVAN-SALAMO	5	1,183			5	1,183	2	1,176	3	7	
491	SULLIVAN-SUSSEX	2	16			2	16	2	16			
492	SULLIVAN-TANNER	1	311			1	311			1	311	
493	SULLIVAN-WILLAMETTE	3	347	1	333	2	13			2	13	
494	SULZER PUMPS-115B											
495	SUMMIT-GOVERNMENT CAMP											
496	SUMMIT-MEADOWS											
497	SUMMIT-SUMMIT 13											
498	SUNSET-BLANCHET											
499	SUNSET-COLFAX											
500	SUNSET-CORNELL											
501	SUNSET-DORION											
502	SUNSET-IDTB											
503	SUNSET-IDTC											
504	SUNSET-INTEL D1B1											
505	SUNSET-INTEL D1X1											
506	SUNSET-KOMATSU #1											
507	SUNSET-LANE											
508	SUNSET-MCCALL											
509	SUNSET-MEEK											
510	SUNSET-NIXON											
511	SUNSET-PAULING											
512	SUNSET-SPALDING											
513	SUNSET-WHITMAN											
514	SUNSET-YOUNG											
515	SWAN ISLAND-BASIN	1	1			1	1			1	1	
516	SWAN ISLAND-DOLPHIN											
517	SWAN ISLAND-FREIGHTLINER											
518	SWAN ISLAND-GOING	1	165			1	165	1	165			
519	SWAN ISLAND-SHIPYARD											
520	SYLVAN-BARNES	13	1,479	1	71	12	1,407	4	186	8	1,222	

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Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause Vegetation

Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
521 SYLVAN-PATTON	6	6,849	1	6,627	5	221	2	209	3	13		
522 TABOR-82ND	3	6	1	2	2	5			2	5		
523 TABOR-HOSPITAL	1	2	1	2								
524 TABOR-TABOR 13												
525 TEKTRONIX-DUCKS												
526 TEKTRONIX-HOCKEN												
527 TEKTRONIX-MEADOW	7	782	1	9	6	773			6	773		
528 TEKTRONIX-NORTH												
529 TEKTRONIX-SHANNON	4	166			4	166	1	6	3	160		
530 TEKTRONIX-SOUTH	1	57			1	57			1	57		
531 TEKTRONIX-TEKTRONIX 13												
532 TEKTRONIX-TERMAN												
533 TEKTRONIX-WEST												
534 TEMP B-NORTH	1	1	1	1								
535 TEMP B-SOUTH	1	26			1	26			1	26		
536 TIGARD-13336												
537 TIGARD-13337												
538 TIGARD-13361												
539 TIGARD-13362												
540 TIGARD-TIGARD 13												
541 TOWN CENTER-LAWNFIELD												
542 TOWN CENTER-MONTEREY	3	405			3	405	1	15	2	390		
543 TOWN CENTER-NORTH												
544 TOWN CENTER-PRECISION CASTPARTS												
545 TOWN CENTER-SOUTH												
546 TOWN CENTER-SUNNYBROOK												
547 TOWN CENTER-VALLEY VIEW												
548 TROJAN-EAST												
549 TUALATIN-AVERY	2	4,882			2	4,882			2	4,882		
550 TUALATIN-CIPOLE	2	8			2	8			2	8		
551 TUALATIN-HERMAN												
552 TUALATIN-IBACH	2	4			2	4			2	4		
553 TUALATIN-LEVETON												
554 TUALATIN-TUALATIN 13												
555 TURNER-CASCADE	4	459			4	459	2	47	2	412		
556 TURNER-TURNER 13	8	606	1	137	7	469	1	40	6	428		
557 TWILIGHT-BREMER	8	3,955	1	2	7	3,953			7	3,953		
558 UNIONVALE-UNIONVALE 13	12	582	2	90	10	492	2	77	8	415		
559 UNIVERSITY-MILL												
560 UNIVERSITY-TRADE	2	12	1	2	1	10			1	10		

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Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause Vegetation

Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
561	URBAN-BARBUR											
562	URBAN-CAMPUS											
563	URBAN-CORBETT	3	37			3	37	2	35	1	2	
564	URBAN-GAINES	2	123	1	2	1	120	1	120			
565	URBAN-GIBBS											
566	URBAN-KELLY											
567	URBAN-LANDING											
568	URBAN-MEDICAL											
569	URBAN-OHSU											
570	WACKER-WACKER 1											
571	WACONDA-NORPAC											
572	WACONDA-RIVER	5	724			5	724	2	653	3	71	1 2
573	WACONDA-WACONDA 13	6	3,954			6	3,954	2	976	4	2,978	2 43
574	WALLACE-WALLACE 13	14	616	1	97	13	519	6	366	7	152	
575	WALLACE-WILLOW LAKE											
576	WELCHES-WELCHES 13	18	1,553	2	221	16	1,331	8	740	8	591	
577	WELCHES-ZIG ZAG	49	18,457	5	4,384	44	14,073	30	12,645	14	1,428	
578	WEST PORTLAND-72ND											
579	WEST PORTLAND-NORTH	2	366			2	366			2	366	
580	WEST PORTLAND-PACIFIC	4	945			4	945	3	943	1	2	
581	WEST PORTLAND-WEST PORTLAND 13	1	414			1	414			1	414	
582	WEST UNION-CORNELIUS PASS	12	913	1	216	11	697	4	364	7	333	
583	WEST UNION-JACOBSON											
584	WEST UNION-WEST UNION 13	2	251			2	251	2	251			
585	WILLAMINA-BRIDGE	3	474	1	307	2	167	1	12	1	155	
586	WILLAMINA-BUELL	7	3,139	1	5	6	3,134	5	3,133	1	1	
587	WILLAMINA-LUMBER											
588	WILLBRIDGE-WILLBRIDGE #1											
589	WILLBRIDGE-WILLBRIDGE #4											
590	WILSONVILLE-BOECKMAN	2	404			2	404	1	4	1	401	
591	WILSONVILLE-CHARBONNEAU											
592	WILSONVILLE-CITY											
593	WILSONVILLE-MENTORTEK											
594	WILSONVILLE-PARKWAY											
595	WILSONVILLE-VILLEBOIS	4	515			4	515	2	90	2	425	
596	WILSONVILLE-WEST	1	1,545			1	1,545	1	1,545			
597	WOODBURN-CANNERY											
598	WOODBURN-EAST	3	539			3	539	2	22	1	517	
599	WOODBURN-TOMLIN	2	3			2	3			2	3	
600	WOODBURN-WEST	2	255			2	255			2	255	
601	YAMHILL-CARLTON	12	2,395			12	2,395	7	2,368	5	27	
602	YAMHILL-YAMHILL 13	7	1,095			7	1,095	6	1,093	1	2	

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Outs = Outages

Hrs = # of customers * duration hrs

2018 Outages by Cause Vegetation

Feeder Name	Total Trees ¹		Total Preventable (Tree/Limb Burning)		Total Non-Preventable ²		Tree Uprooted		Limb on Line		Felled Tree/Limb ³	
	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
Grand Totals:	1,653	484,221	196	42,656	1,457	441,565	605	258,269	852	183,295	35	11,342

1-Total Trees = Total Prev. + Total Non-Prev.

2-Total Non-Prev. = Tree Uprooted + Limb on Line

3-Felled Tree/Limb events are included in the Public System category; not included in Total Trees

Outs = Outages

Hrs = # of customers * duration hrs

Section VIII

2018 Feeder Information

The Feeder Information list consists of the following categories for each feeder:

- Code
- Name
- Region
- Number of Customers
- Class

NOTE:

- This list INCLUDES idle and alternate feeder services.

Attachment A
PGE 2018 Annual Reliability Report

Confidential - Provided on CD Only
Section III, Feeder Performance Summary
Section VIII, 2018 Feeder Information

Section IX

Appendix

- Reliability Measure Definitions
- IEEE 1366 TMED Definition and Classification
- Cause Code Categories and Mapping
- PGE Service Territory Map

Reliability Measure Definitions

1. Reliability The degree to which electric service is supplied without interruptions.

2. SAIDI The system average interruption duration index. This is the sustained interruption duration time (in minutes) that an average customer experiences during the year. It is determined by dividing the annual sum of all customer sustained interruption durations by the total number of customers served.

$$\text{SAIDI} = \frac{\text{Sum of customer sustained interruption durations}}{\text{Total number of PGE customers served}}$$

3. SAIFI The system average sustained interruption frequency index. This index is the number of times that an average customer experiences a sustained interruption during a year. It is determined by dividing the total annual number of customer sustained interruptions by the total number of customers served

$$\text{SAIFI} = \frac{\text{Total number of customer sustained interruptions}}{\text{Total number of PGE customers served}}$$

4. MAIFI_e Momentary average interruption frequency index of events for the system. This index is the number of times that an average customer experiences momentary interruption events during a year. It is determined by dividing the total annual number of customer momentary interruption events by the total number of customers served. Note that this index does not include the events immediately preceding a sustained interruption.

$$\text{MAIFI}_e = \frac{\text{Total number of customer momentary interruption events}}{\text{Total number of PGE customers served on Feeders with MV90 or SCADA}}$$

Major Event Day (MED) Definition and Classification¹

A MED is a day in which the daily system SAIDI exceeds a threshold value, TMED. The SAIDI index is used as the basis of this definition since it leads to consistent results regardless of utility size, and because SAIDI is a good indicator of operational and design stress. Even though SAIDI is used to determine the MEDs, all indices should be calculated based on removal of the identified days.

In calculating daily system SAIDI, any interruption that spans multiple days is accrued to the day on which the interruption begins. The MED identification TMED value is calculated at the end of each reporting period (typically one year) for use during the next reporting period, as follows:

- a) Collect values of daily SAIDI for five sequential years, ending on the last day of the last complete reporting period. If fewer than five years of historical data are available, use all available historical data until five years of historical data are available.
- b) Only those days that have a SAIDI/Day value will be used to calculate TMED (do not include days that did not have any interruptions).
- c) Take the natural logarithm (ln) of each daily SAIDI value in the dataset.
- d) Find α (Alpha), the average of the logarithms (also known as the log-average) of the data set.
- e) Find β (Beta), the standard deviation of the logarithms (also known as the log-standard deviation) of the data set.
- f) Compute the MED threshold, TMED, using:

$$T_{MED} = e^{(\alpha + 2.5\beta)}$$

- g) Any day with daily SAIDI greater than the threshold value TMED that occurs during the subsequent reporting period is classified as a MED.

Activities that occur on days classified as MEDs should be separately analyzed and reported.

¹ Per IEEE Standard 1366-2012: IEEE Guide for Electric Power Distribution Reliability Indices

Cause Code Categories and Mapping

Due to implementation of a new OMS system, a more detailed list of cause codes have been created and mapped to performance categories

Cause Code Category Mapping - Natural		Cause Code Category Mapping - System			
Category	Cause	Category	Cause	Category	Cause
Adverse Weather	Earthquake	Cutout, Fuse, Arrestor	Arrestor	PGE Equipment	Primary Splice
Adverse Weather	Flooding	Cutout, Fuse, Arrestor	Fuse / Cutout	PGE Equipment	Recloser / Sectionalizer
Adverse Weather	Forest Fire	Human Factor	Design Error	PGE Equipment	Regulator
Adverse Weather	High Winds	Human Factor	Installation Error - Improper Install	PGE Equipment	Secondary Cable
Adverse Weather	Severe Heat	Human Factor	Installation Error - Wrong Equipment	PGE Equipment	Secondary Conductor
Adverse Weather	Snow / Ice	Human Factor	Operational Error	PGE Equipment	Secondary Deadend
Animal	Other - Animal	Human Factor	Utility Made Contact	PGE Equipment	Secondary Splice
Animal	Reportable Bird	PGE Equipment	Anchor / Guying	PGE Equipment	Sleeve
Animal	Squirrel	PGE Equipment	Arrestor	PGE Equipment	Stress Cone
Lightning	Lightning	PGE Equipment	Capacitor	PGE Equipment	Submersible Transformer
Unknown	Other - Environment / Weather	PGE Equipment	Cross Arm	PGE Equipment	Switch
Unknown	Pole Fire	PGE Equipment	Elbow	PGE Equipment	UG Connector / Clamp / Jumper
Non-Preventable Tree	Limb on Line	PGE Equipment	Fuse / Cutout	Public	Car Hit Equipment
Non-Preventable Tree	Tree Uprooted	PGE Equipment	Insulator	Public	Electrical Contact
Preventable Tree	Tree / Limb Burning	PGE Equipment	Lateral	Public	Felled Tree / Limb
		PGE Equipment	Meter	Public	Non Residential Fire
		PGE Equipment	Network Protector	Public	Object Contact
		PGE Equipment	OH Connector / Clamp / Jumper	Public	Other - PGE Intentional Outage
		PGE Equipment	Other - Pole Hardware Failure	Public	Other - Public
		PGE Equipment	Other - Underground Hardware Failure	Public	Residential Fire
		PGE Equipment	Overhead Transformer	Public	Underground Dig In
		PGE Equipment	Padmount Transformer	Public	Unplanned - Safety
		PGE Equipment	Pole / Structure	Public	Vandalism / Theft
		PGE Equipment	Primary Cable		
		PGE Equipment	Primary Conductor		

NOTE: Outages where the System is Substation are grouped into Loss of Supply - Substation and outages where the System is Transmission are grouped into Loss of Supply - Transmission

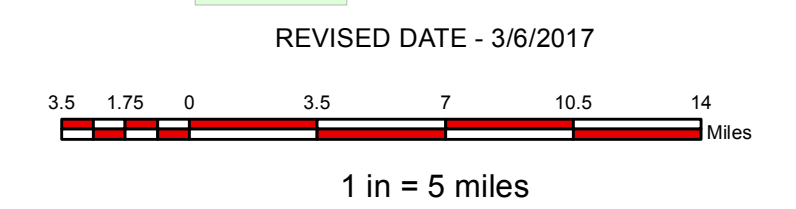
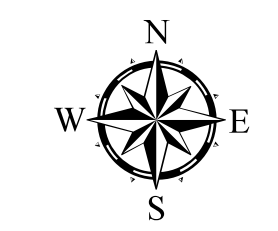
Cause Code Categories and Mapping

Cause Code Category Mapping - Equipment			
Category	Cause	Category	Cause
Cutout, Fuse, Arrestor	Arrestor	Pole	Pole / Structure
Cutout, Fuse, Arrestor	Fuse / Cutout	Substation	Other - Substation Equipment Failure
Meter	Meter	Substation	Protection System
OH Conductor	Primary Conductor	Substation	Terminal Equipment
OH Conductor	Secondary Conductor	Transformer	Overhead Transformer
OH Conductor	Secondary Deadend	Transformer	Padmount Transformer
OH Conductor	Sleeve	Transformer	Submersible Transformer
Primary Device	Capacitor	UG Accessory	Elbow
Primary Device	Network Protector	UG Accessory	Lateral
Primary Device	Recloser / Sectionalizer	UG Accessory	Other - Underground Hardware Failure
Primary Device	Regulator	UG Accessory	Primary Splice
Primary Device	Switch	UG Accessory	Secondary Splice
OH Hardware	Anchor / Guying	UG Accessory	Stress Cone
OH Hardware	Cross Arm	UG Accessory	UG Connector / Clamp / Jumper
OH Hardware	Insulator	UG Conductor	Primary Cable
OH Hardware	OH Connector / Clamp / Jumper	UG Conductor	Secondary Cable
OH Hardware	Other - Pole Hardware Failure		

Cause Code Category Mapping - Tree	
Category	Cause
Non-Preventable Tree	Limb on Line
Non-Preventable Tree	Tree Uprooted
Preventable Tree	Tree / Limb Burning

PGE SERVICE TERRITORY

- Non-PGE
- EASTERN
- SOUTHERN
- WESTERN



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