

RE 113 e-FILING REPORT COVER SHEET

REPORT NAME:

PGE 2016 Annual Reliability Report

COMPANY NAME:

Portland General Electric

DOES REPORT CONTAIN CONFIDENTIAL INFORMATION?

Yes, will provide a CD to the OPUC of the designated material.

If known, please select designation:

RE (Electric)

Report is required by:

OAR 860-023-0151

Is this report associated with a specific docket/case?

No

Key words:

2016 Annual Reliability Report

If known, please select the PUC Section to which the report should be directed:

Electric Rates and Planning



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

April 28, 2017

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

RE: PGE 2016 Annual Reliability Report

Pursuant to OAR 860-023-0151, PGE hereby submits the Company's 2016 Annual Reliability Report.

Attachment A provides Section III, Feeder Performance Summary and Section VIII 2016 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 written in a cursive, flowing style.

Karla Wenzel
Manager, Pricing and Tariffs

Enclosure
cc: Lori Koho, OPUC



Portland General Electric 2016 Annual Reliability Report



January 1, 2016 through December 31, 2016

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 information in this report is also used to inform the system performance values in the Service Quality Measure Report provided to the Oregon Public Utility Commission.

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 monthly basis and confirmed via a standardized review process.

PGE excluded the following dates from the 2016 distribution system performance indices as they met the IEEE 1366 Major Event Day (MED) exclusion criteria: January 1st, October 13th, October 15th, December 9th, and December 10th.

Planned outage events³ were also excluded from the 2016 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 2016 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 Planned outage events were not excluded from PGE's distribution system performance indices 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)
2016	7,496 ³	0.59	97	1.1
2015	6,613 ³	0.48	75	1.2
2014	5,832	0.70	95	1.3
2013	4,495	0.45	61	0.9

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)
2016	9,340 ³	0.79	169	1.1
2015	8,752 ³	0.78	175	1.2
2014	7,696	1.22	248	1.3
2013	5,069	0.57	97	0.9

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 and 2016 Reported Outages values do not directly correlate to customer outages and values reported in previous years.

⁴ MAIFle events for Major Event Days are not excluded.

2016 Corporate Annual Summary Without Major Event Days

Year	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	3,366	0.61	92	1.4
SOUTHERN	2,099	0.68	132	0.8
WESTERN	2,031	0.52	83	0.9
PGE:	7,496	0.59	97	1.1

2016 Corporate Annual Summary Including Major Event Days

Year	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	4,498	0.88	196	1.4
SOUTHERN	2,431	0.85	183	0.8
WESTERN	2,411	0.64	124	0.9
PGE:	9,340	0.79	169	1.1

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 2016 Reported Outages values do not directly correlate to customer outages and values reported in previous years.

Section II

Outage Analysis

This section provides graphical representation of 2016 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.

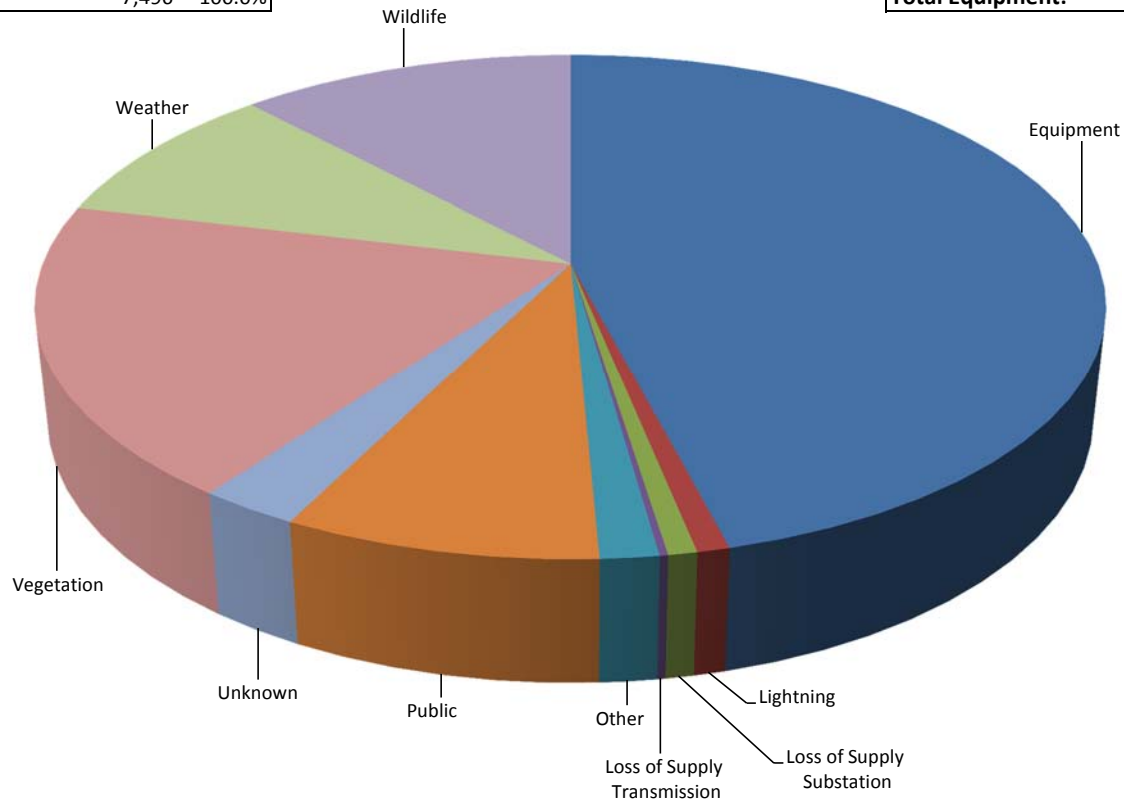
- Outage Causes by Events – Pie Chart
- Outage Causes by Events – 4 Year Comparison Bar Chart
- Outage Causes by Customer Hours – Pie Chart
- Outage Causes by Customer Hours – 4 Year Comparison Bar Chart

2016 Outages by Cause - Count

Equipment	3,446	46.0%
Lightning	63	0.8%
Loss of Supply - Substation	56	0.7%
Loss of Supply - Transmission	16	0.2%
Other	113	1.5%
Public	610	8.1%
Unknown	195	2.6%
Vegetation	1,410	18.8%
Weather	691	9.2%
Wildlife	896	12.0%
Total:	7,496	100.0%

Vegetation:		
Limb on Line	832	59.0%
Tree / Limb Burning	213	15.1%
Tree Uprooted	365	25.9%
Total Vegetation:	1,410	100.0%

Equipment:		
Cutout, Fuse, Arrestor	670	19.4%
Meter	42	1.2%
OH Conductor	566	16.4%
OH Hardware	710	20.6%
Pole / Structure	32	0.9%
Primary Device	22	0.6%
Transformer	391	11.3%
UG Accessory	255	7.4%
UG Conductor	758	22.0%
Total Equipment:	3,446	100.0%

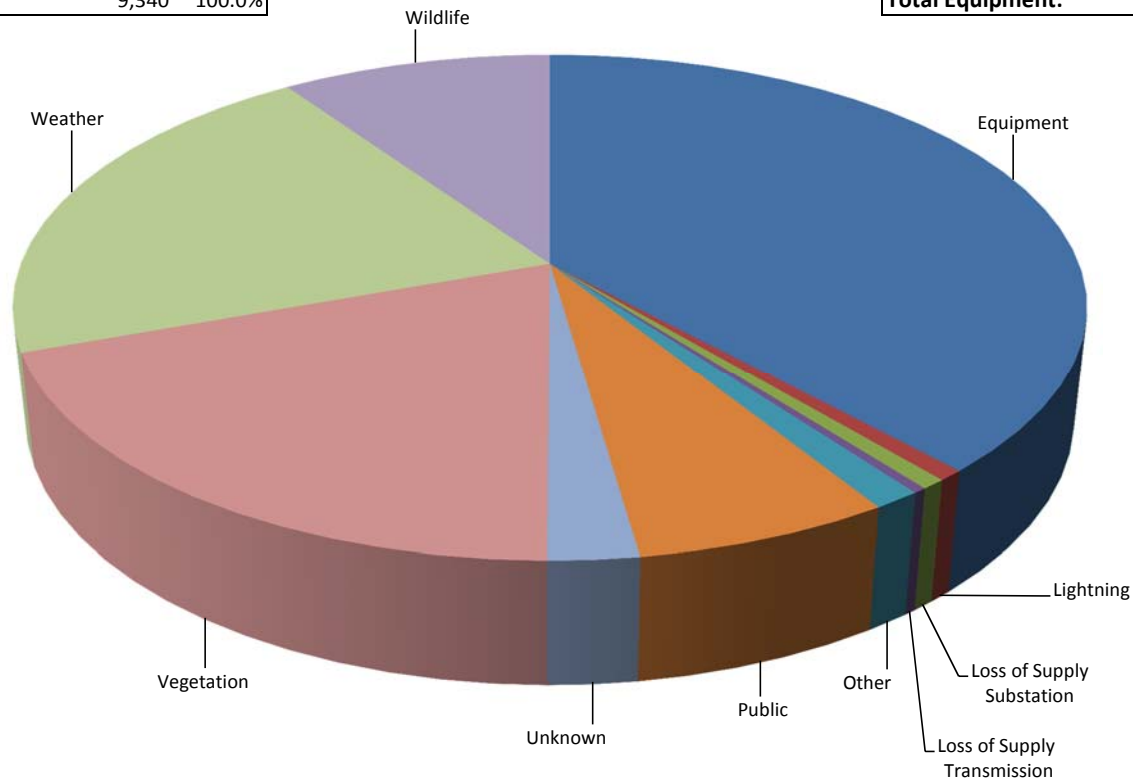


2016 Outages by Cause Including Major Event Days - Count

Equipment	3,570	38.2%
Lightning	63	0.7%
Loss of Supply - Substation	60	0.6%
Loss of Supply - Transmission	32	0.3%
Other	115	1.2%
Public	619	6.6%
Unknown	217	2.3%
Vegetation	1,810	19.4%
Weather	1,957	21.0%
Wildlife	897	9.6%
Total:	9,340	100.0%

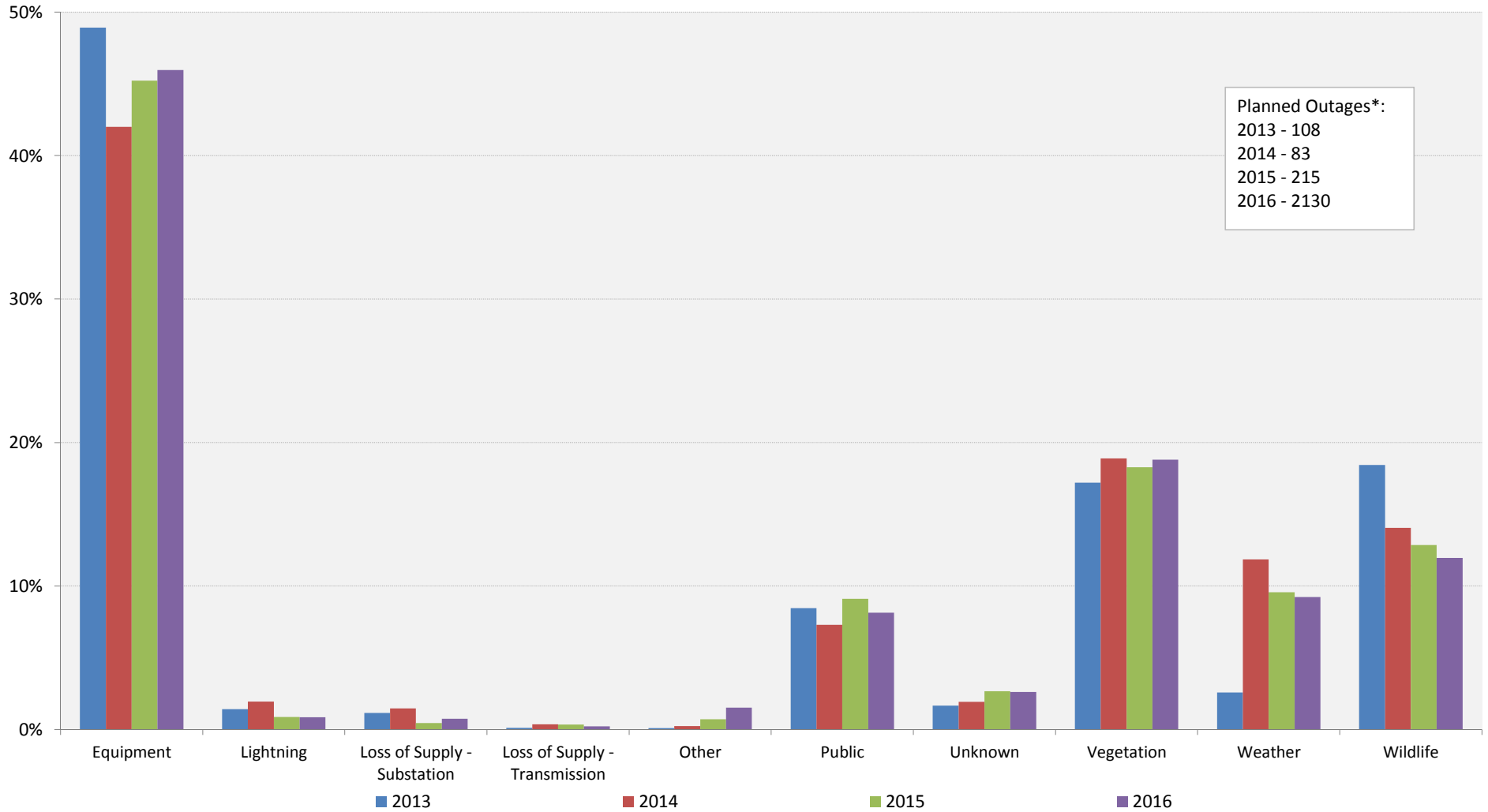
Vegetation:		
Limb on Line	1,083	59.8%
Tree / Limb Burning	254	14.0%
Tree Uprooted	473	26.1%
Total Vegetation:	1,810	100.0%

Equipment:		
Cutout, Fuse, Arrestor	712	19.9%
Meter	42	1.2%
OH Conductor	593	16.6%
OH Hardware	732	20.5%
Pole / Structure	33	0.9%
Primary Device	26	0.7%
Transformer	404	11.3%
UG Accessory	259	7.3%
UG Conductor	769	21.5%
Total Equipment:	3,570	100.0%



Outage Causes by Count

4 Year Comparison (2013-2016)



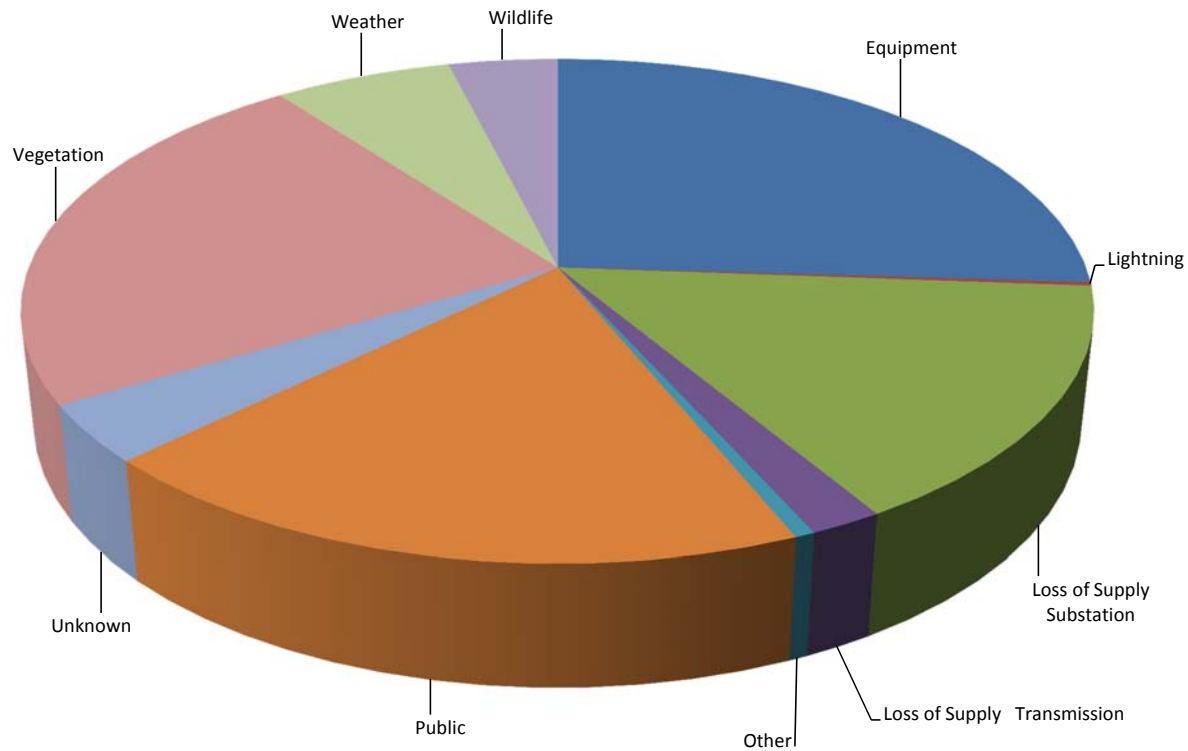
* Note: PGE's awareness and accuracy of Planned Outages has improved significantly with the implementation of a new OMS system and application of new processes and procedures for tracking of these events.

2016 Outages by Cause - Customer Hours

Equipment	355,249	26.0%
Lightning	2,967	0.2%
Loss of Supply - Substation	208,495	15.2%
Loss of Supply - Transmission	25,997	1.9%
Other	7,063	0.5%
Public	258,536	18.9%
Unknown	50,333	3.7%
Vegetation	320,015	23.4%
Weather	86,578	6.3%
Wildlife	53,125	3.9%
Total:	1,368,358	100.0%

Vegetation:		
Limb on Line	142,013	44.4%
Tree / Limb Burning	41,556	13.0%
Tree Uprooted	136,446	42.6%
Total Vegetation:	320,015	100.0%

Equipment:		
Cutout, Fuse, Arrestor	47,546	13.4%
Meter	242	0.1%
OH Conductor	72,429	20.4%
OH Hardware	39,359	11.1%
Pole / Structure	29,365	8.3%
Primary Device	22,634	6.4%
Transformer	28,110	7.9%
UG Accessory	18,889	5.3%
UG Conductor	96,676	27.2%
Total Equipment:	355,249	100.0%

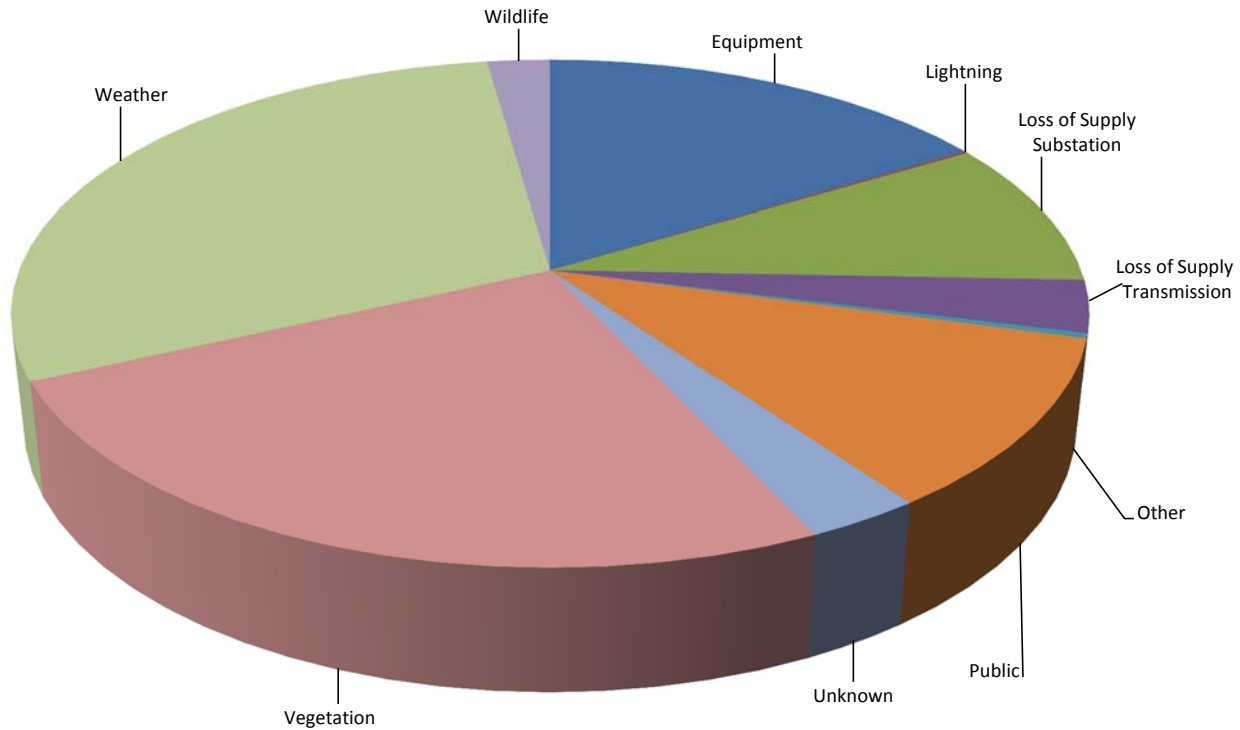


2016 Outages by Cause Including Major Event Days - Customer Hours

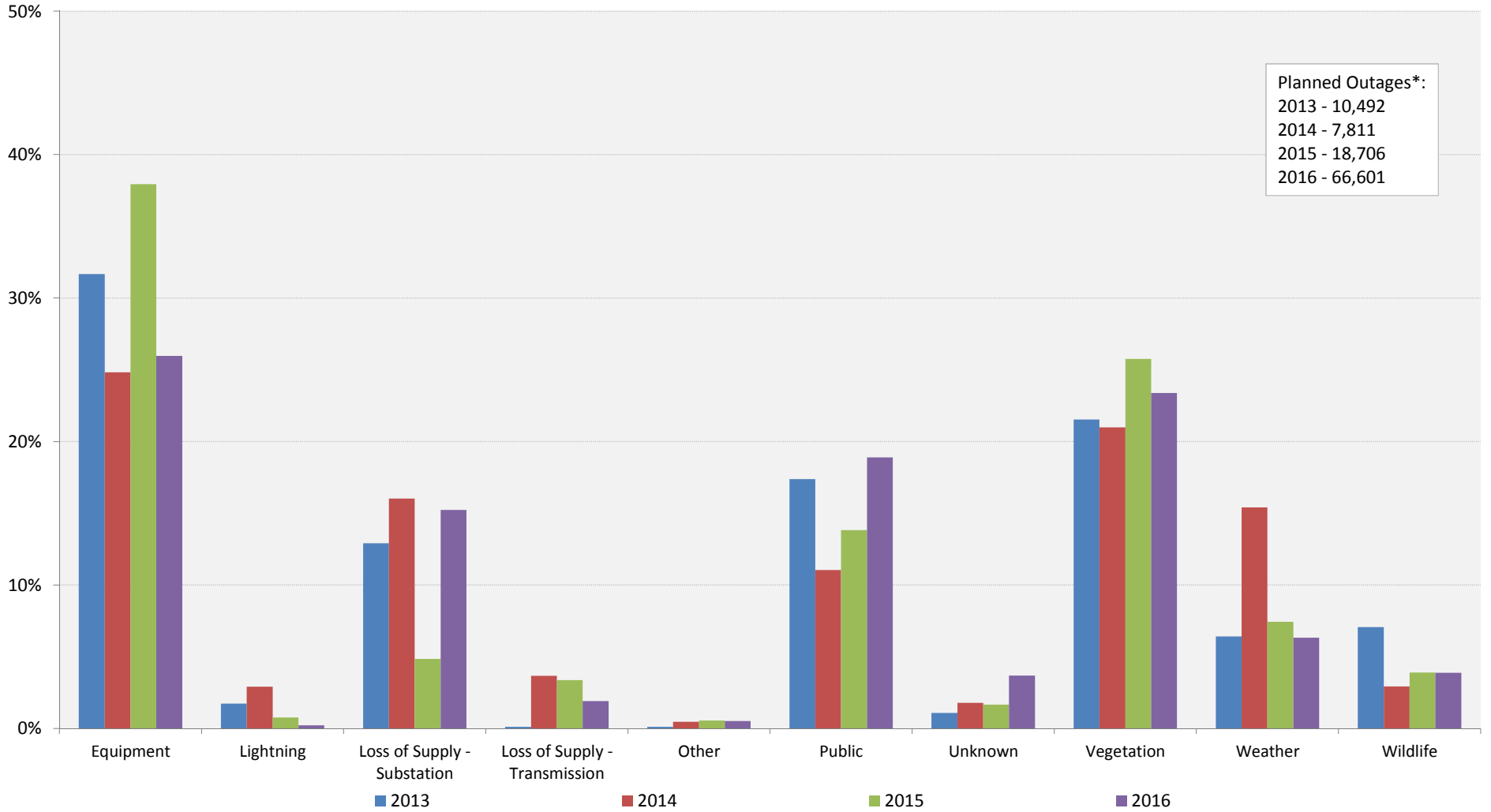
Equipment	388,066	16.3%
Lightning	2,967	0.1%
Loss of Supply - Substation	220,672	9.2%
Loss of Supply - Transmission	79,253	3.3%
Other	7,382	0.3%
Public	259,605	10.9%
Unknown	71,052	3.0%
Vegetation	597,149	25.0%
Weather	708,605	29.7%
Wildlife	53,126	2.2%
Total:	2,387,875	100.0%

Vegetation:		
Limb on Line	297,469	49.8%
Tree / Limb Burning	514,449	8.6%
Tree Uprooted	248,235	41.6%
Total Vegetation:	597,149	100.0%

Equipment:		
Cutout, Fuse, Arrestor	55,134	14.2%
Meter	242	0.1%
OH Conductor	77,919	20.1%
OH Hardware	43,098	11.1%
Pole / Structure	31,431	8.1%
Primary Device	25,787	6.6%
Transformer	31,533	8.1%
UG Accessory	18,983	4.9%
UG Conductor	103,939	26.8%
Total Equipment:	388,066	100.0%



Outage Causes by Customer Hours 4 Year Comparison (2013-2016)



Planned Outages*:
 2013 - 10,492
 2014 - 7,811
 2015 - 18,706
 2016 - 66,601

* 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
Rural	5 hours (300 Minutes)	2.6 Occurrences	10
Remote	7 hours (420 Minutes)	2.6 Occurrences	15

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 2016 Annual Reliability Report

Confidential - Provided on CD Only
Section III, Feeder Performance Summary
Section VIII, 2016 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

2016 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														
2	ABERNETHY-OREGON CITY	11	1,246	1	9			2	21	5	24	2	18	1	1,174
3	ABERNETHY-TRANSIT	9	141					3	97	4	29	2	15		
4	ALDER-ANKENY	5	445	1	8			1	8	2	3	1	426		
5	ALDER-IRVING	4	83	1	7			2	70	1	5				
6	ALDER-LINCOLN	7	134	1	2			1	34	3	8	1	1	1	89
7	ALDER-STARK	3	128	1	40			1	4	1	85				
8	ALDER-TAYLOR	3	28	1	3					1	4	1	21		
9	ALDER-YAMHILL	1	2							1	2				
10	AMITY-AMITY 13	11	1,482	3	1,277			3	6	5	199				
11	AMITY-BELLEVUE	13	162	1	5			2	14	9	140			1	2
12	ARLETA-52ND	18	5,467	4	4,787			9	671	4	7	1	2		
13	ARLETA-FOSTER	2	21	1	2			1	19						
14	ARLETA-HAROLD	6	286					4	279	1	3			1	4
15	ARLETA-POWELL	12	3,716					5	389	4	11	2	2,345	1	972
16	ARLETA-STEELE	1	1									1	1		
17	BANKS-BANKS 13	10	619					2	8	6	606	1	3	1	2
18	BANKS-CEDAR CANYON	20	5,237	3	6			3	18	12	5,188	1	23	1	1
19	BARNES-BATTLE CREEK	3	47					2	2	1	44				
20	BARNES-BOONE	1	16					1	16						
21	BARNES-COMMERCIAL	6	314	2	17			1	19	3	279				
22	BARNES-SUNNYSIDE	2	11					1	1					1	10
23	BEAVER-KB PIPELINE														
24	BEAVERTON-ALLEN	14	1,775	4	219			5	110	2	85	1	61	2	1,300
25	BEAVERTON-JAMIESON	2	8	1	1			1	6						
26	BEAVERTON-NORTHWEST	3	257	1	183			2	75						
27	BEAVERTON-WEST SLOPE	4	964	1	841			3	123						
28	BELL-BATTIN	6	220	1	13			3	205	2	2				
29	BELL-BRENTWOOD														
30	BELL-FLAVEL	1	1							1	1				

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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-JOHNSON CREEK	1	30											1	30
32	BELL-KENDALL	7	231	2	4			3	224	2	3				
33	BELL-KING	17	1,557	1	55			10	1,392	6	111				
34	BELL-SOUTHGATE	5	376					3	31	1	316			1	29
35	BELL-WICHITA	8	6,194					1	12	6	6,181	1	1		
36	BETHANY-BURTON	3	63	1	58			1	1	1	4				
37	BETHANY-GERMANTOWN	19	497	6	24			6	55	6	417	1	2		
38	BETHANY-KAISER	4	6,093	2	109					2	5,984				
39	BETHANY-LAIDLAW	7	796	2	199					3	568	1	4	1	25
40	BETHANY-SPRINGVILLE	1	41					1	41						
41	BETHANY-THOMPSON														
42	BETHEL-FRUITLAND	6	109	1	3	3	74	2	31						
43	BETHEL-GEER	6	123					2	47	3	54			1	23
44	BETHEL-MACLEAY	7	567	1	63			1	6	5	498				
45	BLUE LAKE-BLUE LAKE 13	8	257	4	245			2	6	2	6				
46	BLUE LAKE-SUNDIAL														
47	BLUE LAKE-TOYO TANSO														
48	BOISE CASCADE-BOISE #1														
49	BOONES FERRY-GOODALL	5	4,484	1	40					3	4,442	1	2		
50	BOONES FERRY-KRUSE	2	28					2	28						
51	BOONES FERRY-LAKE GROVE	8	1,634					4	301	2	8	1	1,187	1	138
52	BOONES FERRY-MOUNTAIN PARK	2	432	1	429			1	3						
53	BOONES FERRY-WEMBLEY PARK	6	962	1	74			1	2	4	887				
54	BORING-282ND	7	110	2	29			2	37	2	3	1	40		
55	BORING-CITY	11	628	3	196			4	60	2	356	1	15	1	1
56	BORING-TELFORD	9	2,757					1	3	3	44	3	930	2	1,780
57	BRIGHTWOOD-BRIGHTWOOD 13	36	1,399	5	82	1	14	2	15	22	1,183	5	92	1	14
58	BRIGHTWOOD-NORTH BANK	10	2,026			2	263			6	1,755	2	9		
59	BROOKWOOD-BORWICK	2	4,325							2	4,325				
60	BROOKWOOD-BROOKWOOD 13														

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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-SUNRISE	3	36					3	36						
62	CANBY-13643	11	823	4	774			2	19	5	30				
63	CANBY-13644	13	261	7	48					3	15	1	2	2	196
64	CANBY-BUTTEVILLE	4	471							3	467	1	4		
65	CANBY-FILBERT	4	15	1	4			1	1	1	9	1	2		
66	CANBY-ZIMMERMAN														
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-13119 PSU														
73	CANYON-13120														
74	CANYON-13121														
75	CANYON-13122 NETWORK #2														
76	CANYON-13123 NETWORK #2														
77	CANYON-13124 NETWORK #2														
78	CANYON-13125 NETWORK #2														
79	CANYON-13133 NETWORK #3														
80	CANYON-13134 NETWORK #3														
81	CANYON-13135 NETWORK #3														
82	CANYON-13136 NETWORK #3														
83	CANYON-21ST	1	2					1	2						
84	CANYON-23RD	8	3,043	5	1,332			2	54	1	1,658				
85	CANYON-BURNSIDE														
86	CANYON-CANYON 13	6	359	4	108			1	137	1	115				
87	CARVER-ALMOND	1	3,497							1	3,497				
88	CARVER-CARVER 13	13	690	1	138			7	277	5	275				
89	CARVER-NORTH														
90	CARVER-RIVERBEND														

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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-SOUTH	1	16	1	16										
92	CARVER-WOODS														
93	CEDAR HILLS-CEDAR HILLS 13														
94	CEDAR HILLS-LEAHY	7	732					3	106	3	613	1	12		
95	CEDAR HILLS-SHOPPING CENTER	6	435	1	2			2	340	3	92				
96	CEDAR HILLS-SKYLINE														
97	CEDAR HILLS-ST VINCENT														
98	CEDAR HILLS-SYLVAN	14	3,033	2	2,797			2	65	7	112	2	5	1	53
99	CENTENNIAL-BARKER	7	282					3	239	4	43				
100	CENTENNIAL-BRAECROFT	9	317	2	15			5	297	1	2	1	3		
101	CENTENNIAL-CENTENNIAL 13	14	524					8	299	4	208	2	18		
102	CENTENNIAL-TREELAND	5	307	1	3	1	25	3	280						
103	CLACKAMAS-EVELYN	2	182	2	182										
104	CLACKAMAS-GLADSTONE	10	2,163	2	97			3	151	5	1,915				
105	CLACKAMAS-JENNIFER														
106	CLACKAMAS-TOLBERT	4	195					3	193	1	2				
107	CLAXTAR-CLAXTAR 13														
108	CLAXTAR-HAYESVILLE	1	2	1	2										
109	CLAXTAR-RIDGE	3	171					3	171						
110	COFFEE CREEK-FREEMAN	1	1					1	1						
111	COFFEE CREEK-HOLIDAY	1	4							1	4				
112	COLTON-DHOOGHE	5	156	4	155					1	2				
113	COLTON-GRAYS HILL	15	1,229	3	441					10	480			2	308
114	CORNELIUS-ADAIR	5	65	2	50			1	2	1	9	1	3		
115	CORNELIUS-CORNELIUS 13	12	1,582	3	340			3	118	2	1,106	2	9	2	9
116	CORNELIUS-VERBOORT	10	8,766	4	752			2	4	4	8,010				
117	CORNELL-BLUFFS	3	318	1	290					2	28				
118	CORNELL-SALTZMAN	2	2,029					1	30	1	1,999				
119	CORNELL-WESTLAWN	15	5,762	1	2,772			9	2,433	3	546	1	6	1	5
120	CULVER-SANYO #1														

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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-11077														
122 CURTIS-CURTIS 13	5	511	1	77			2	283	2	150				
123 DAYTON-EAST	12	236	1	3			5	188	4	38			2	7
124 DAYTON-LAFAYETTE	8	3,081	2	609			2	75	2	2,340	1	1	1	56
125 DAYTON-SOUTHWEST	11	694					2	15	7	668			2	11
126 DELAWARE-DENVER	9	427	1	34			3	269	3	11	2	113		
127 DELAWARE-INTERSTATE	6	466					6	466						
128 DELAWARE-LOMBARD	5	499	1	242			1	251	1	1	2	5		
129 DENNY-EAST	23	700	18	389			1	57	2	168	2	86		
130 DENNY-NORTH	1	75					1	75						
131 DENNY-SOUTH	4	73	2	2					1	16			1	54
132 DENNY-WEST	9	2,030	1	4			6	1,023	2	1,003				
133 DILLEY-DILLEY 13	16	1,510	1	13	2	53	1	81	9	1,342	2	11	1	10
134 DILLEY-SPRINGHILL														
135 DUNNS CORNER-DUNNS CORNER 13	32	5,486	7	655					21	4,156	2	18	2	657
136 DUNNS CORNER-KELSO	2	46							2	46				
137 DURHAM-BONITA	1	12					1	12						
138 DURHAM-BRIDGEPORT	3	76					2	63	1	13				
139 DURHAM-DURHAM 13	1	4	1	4										
140 DURHAM-POOPLANT														
141 DURHAM-SATTLER	2	30	1	24					1	6				
142 DURHAM-SOUTH	1	609					1	609						
143 E-11021														
144 E-11039														
145 E-11040														
146 E-11041														
147 E-11042														
148 E-11043														
149 E-11047														
150 E-11064														

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Outs = Outages
Hrs = # of customers * duration hrs

2016 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-13139														
152	E-13140	7	313					4	95	1	210	1	7	1	1
153	E-13141														
154	E-13142														
155	E-13144	6	282	2	191			2	87	2	4				
156	E-13145	1	21					1	21						
157	E-13148														
158	E-13149														
159	E-13150														
160	EAGLE CREEK-BARTON	10	974	2	746			1	7	5	161	1	21	1	39
161	EAGLE CREEK-RIVER MILL	15	2,655	5	674			1	28	6	73	3	1,879		
162	EASTPORT-76TH	6	118	4	91	2	26								
163	EASTPORT-PLAZA	4	77					3	76	1	1				
164	ELMA-ELMA 13	2	3,268					1	2			1	3,267		
165	ELMA-FOUR CORNERS	5	179					4	178	1	1				
166	ELMA-HUDSON	10	2,371	1	976			9	1,395						
167	ELMA-STATE														
168	ESTACADA-ESTACADA 13	20	14,764	3	1,077					9	1,918	2	6	6	11,763
169	ESTACADA-FARADAY	53	16,545	25	6,601	1	19	2	28	22	9,006	1	4	2	888
170	FAIRMOUNT-CANDALARIA	12	2,172	1	3			7	98	4	2,071				
171	FAIRMOUNT-MISSION	11	245	3	125			2	4	4	41	1	70	1	5
172	FAIRVIEW-CLEAR CREEK														
173	FAIRVIEW-FAIRVIEW 13	8	2,211	2	7			3	36	2	2,161	1	8		
174	FAIRVIEW-KENNEL CLUB	7	524	1	3			3	153	2	232	1	137		
175	FAIRVIEW-TROUTDALE	8	589	2	455			3	128	2	5			1	1
176	FAIRVIEW-WOOD VILLAGE	10	109	3	27			4	56	2	24	1	2		
177	FARGO-FARGO 13	13	936	3	127	1	7	4	153	3	642			2	7
178	GALES CREEK-GALES CREEK 13	19	629	2	92					16	533	1	4		
179	GARDEN HOME-MCKAY	7	823	4	130					2	676	1	17		
180	GARDEN HOME-METZGER	12	3,496	4	420			3	343	3	28	1	3	1	2,702

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Outs = Outages
Hrs = # of customers * duration hrs

2016 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	7	39					2	29	4	7	1	3		
182	GLENCOE-PROVIDENCE	3	24					3	24						
183	GLENCOE-SUNNYSIDE	9	5,749	1	3			1	333	6	108	1	5,305		
184	GLENCULLEN-BRIDLEMILE	25	4,073	6	632			5	1,004	11	2,385	3	53		
185	GLENCULLEN-SUNSET	7	319	1	68			3	234	3	17				
186	GLENDOVEER-13596	4	205	3	111			1	94						
187	GLENDOVEER-13597	4	18	2	11					2	7				
188	GLENDOVEER-13598	5	91	1	47			4	45						
189	GLENDOVEER-13599	17	154	4	23	1	39	1	7	7	62	3	7	1	16
190	GLENDOVEER-CLIFFGATE	12	3,755	5	2,788			3	81	3	881	1	7		
191	GLENDOVEER-NORTHEAST	4	14	3	4									1	10
192	GLISAN-FAB 2A														
193	GLISAN-UTILITY 1B														
194	GORMLEY-MCMINNVILLE WL	1	88							1	88				
195	GRAND RONDE-AGENCY	6	1,350	2	794					4	556				
196	GRAND RONDE-FORTHILL	4	182					1	2	2	178			1	2
197	HARBORTON-BURLINGTON	26	2,817	3	96			6	984	12	1,412	3	14	2	311
198	HARBORTON-HARBORTON 13														
199	HARBORTON-LINNTON	5	871							3	8	1	860	1	4
200	HARMONY-HARMONY 13														
201	HARMONY-INTERNATIONAL	2	30					1	23	1	8				
202	HARMONY-LAKE	2	321					1	2	1	319				
203	HARMONY-LINWOOD	1	3	1	3										
204	HARMONY-MILWAUKIE	7	1,928					4	372	3	1,556				
205	HARMONY-THIESSEN														
206	HARRISON-DAVIS	1	2					1	2						
207	HARRISON-HARRISON 13	1	52	1	52										
208	HARRISON-IVON														
209	HAYDEN ISLAND-MAINLAND	1	3											1	3
210	HAYDEN ISLAND-NORTH SHORE	2	10							2	10				

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Hrs = # of customers * duration hrs

2016 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	HAYDEN ISLAND-SOUTH SHORE	1	38					1	38						
212	HEMLOCK-FREMONT	5	329	1	9					3	319			1	2
213	HEMLOCK-HEMLOCK 13	1	23	1	23										
214	HEMLOCK-MASON	3	18	2	10					1	8				
215	HILLCREST-CASCADIA														
216	HILLCREST-HILLCREST 13	1	4							1	4				
217	HILLCREST-SOUTH														
218	HILLSBORO-DAIRY CREEK	20	2,208	2	94			13	761	2	994	2	355	1	5
219	HILLSBORO-DENNIS	1	7	1	7										
220	HILLSBORO-JACKSON	5	205					2	38	3	167				
221	HILLSBORO-LAUREL	29	555	6	271			8	37	13	241			2	6
222	HILLSBORO-SCHOLLS	3	645							3	645				
223	HOGAN NORTH-BRIGADOON														
224	HOGAN NORTH-HOGAN NORTH 13	4	22	2	9			1	7					1	6
225	HOGAN NORTH-LINKS	52	9,425	38	3,073			3	40	8	6,171	2	11	1	131
226	HOGAN NORTH-SALQUIST	3	48	1	8			1	37			1	2		
227	HOGAN SOUTH-CLEVELAND	7	328	4	19			3	310						
228	HOGAN SOUTH-LAWRENCE	12	1,624	2	954			3	26	7	643				
229	HOGAN SOUTH-MAIN	3	10	1	3			1	1	1	6				
230	HOGAN SOUTH-PAROPA	10	4,035	4	3,662			3	365	1	2	2	7		
231	HOGAN SOUTH-WALLULA	1	4	1	4										
232	HOLGATE-BYBEE	4	89	1	18			1	64	2	7				
233	HOLGATE-GIDEON	3	1,759							3	1,759				
234	HOLGATE-HOLGATE 13	3	256							2	7			1	249
235	HOLGATE-KENILWORTH	4	262	1	49			1	57	2	156				
236	HOLGATE-RHONE	5	87					4	82	1	6				
237	HUBER-BANY	2	1,139	1	3					1	1,136				
238	HUBER-FARMINGTON	3	85					1	65	2	20				
239	HUBER-HUBER 13	5	376					4	374	1	1				
240	HUBER-KINNAMAN	3	107	1	33					2	75				

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2016 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 HUBER-MARYVILLE	5	121					4	116	1	5				
242 INDIAN-KEIZER	9	120					3	34	3	10	1	6	2	70
243 INDIAN-LABISH	11	1,531	2	4			1	106	7	1,419			1	2
244 INDIAN-NORTH	8	90			1	3	3	21	3	55	1	11		
245 INDIAN-STATION	2	8							2	8				
246 INDIAN-WEST	7	72	3	15					3	57			1	1
247 ISLAND-13180	6	75					4	63	1	5			1	7
248 ISLAND-13187	8	2,776	1	1			3	133	4	2,641				
249 ISLAND-13188	6	2,049	2	925			2	1,079	1	3	1	41		
250 ISLAND-ISLAND 13														
251 JENNINGS LODGE-ADDIE	8	483			1	82			5	292	1	107	1	2
252 JENNINGS LODGE-JENNINGS 13	8	314	1	4	1	20	3	5	2	2	1	284		
253 JENNINGS LODGE-MELDRUM	6	596					4	165			1	429	1	2
254 JENNINGS LODGE-OAK GROVE	1	67					1	67						
255 JENNINGS LODGE-WEBSTER	3	175					2	172	1	3				
256 KELLEY POINT-KELLEY POINT 13														
257 KELLEY POINT-LEDBETTER														
258 KELLEY POINT-MARINE														
259 KELLEY POINT-SIMMONS														
260 KELLEY POINT-SOLAR #1														
261 KELLEY POINT-SOLAR #2														
262 KELLY BUTTE-BINNSMEAD	8	274	1	5			4	256	2	10	1	2		
263 KELLY BUTTE-FAIRLAWN	7	186	3	29			4	156						
264 KELLY BUTTE-MALL 205	11	691	3	227			4	415	4	48				
265 KELLY BUTTE-MCGREW	5	11							3	3	1	3	1	5
266 KING CITY-BULL MOUNTAIN														
267 KING CITY-FISCHER	5	1,100					2	1,066	2	6			1	27
268 KING CITY-HAZELBROOK	4	1,630	1	0			1	1	2	1,629				
269 KING CITY-NORTH	2	1,421					1	7					1	1,415
270 KING CITY-SUMMERFIELD	1	22	1	22										

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Hrs = # of customers * duration hrs

2016 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 LAKE LABISH-LAKE LABISH														
272 LELAND-BEAVERCREEK	12	335	2	6			7	128	2	198			1	3
273 LELAND-CARUS	26	3,544	2	36			6	20	14	2,667	1	18	3	803
274 LELAND-KELM	4	12	1	4			1	4	2	4				
275 LENTS-13101	7	2,154					1	190	5	1,963	1	0		
276 LENTS-HAPPY VALLEY	5	1,420							5	1,420				
277 LENTS-MT SCOTT	3	1,431					1	373	2	1,058				
278 LENTS-NORTH	7	529	2	63			3	437	1	25			1	4
279 LIBERAL-LIBERAL 13	5	12					1	2	2	4	1	3	1	3
280 LIBERAL-SAWMILL														
281 LIBERTY-BROWNING														
282 LIBERTY-LONE OAK	1	21					1	21						
283 LIBERTY-MORNINGSIDE	10	351					8	319	2	32				
284 LIBERTY-ROSEDALE	12	673	1	33			4	12	5	607	2	22		
285 LIBERTY-SKYLINE	11	18,161	1	328			2	87	6	17,712	1	23	1	10
286 LIBERTY-VISTA	6	1,816	1	1,732			2	54	2	7			1	23
287 MAIN-AIRPORT	6	2,465	1	4			5	2,461						
288 MAIN-BENTLEY	1	3					1	3						
289 MAIN-EXPRESS	8	161	1	2			7	160						
290 MAIN-JONES FARM														
291 MAIN-RIVER	5	25	2	13			2	9	1	3				
292 MARKET-ENGLEWOOD	6	7,127			2	40	1	66	3	7,021				
293 MARKET-FAIRGROUNDS	12	4,770	1	11	2	211	2	11	6	4,498			1	39
294 MARKET-HAWTHORNE	3	109	1	3	1	42	1	65						
295 MARKET-PARK	1	1					1	1						
296 MAXIM-MAXIM 13														
297 MCCLAIN-COTTAGE	11	681			8	356	2	324			1	1		
298 MCCLAIN-FRONT	3	37					2	35	1	2				
299 MCCLAIN-HOLLYWOOD	12	799	2	9	2	46	4	721	3	22			1	1
300 MCGILL-LSI AIR 1A														

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2016 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-65TH	1	1					1	1						
302	MERIDIAN-BORLAND	1	124					1	124						
303	MERIDIAN-CHILDS	2	166					1	19					1	147
304	MERIDIAN-LAKEVIEW	2	177					2	177						
305	MERIDIAN-MERIDIAN 13	5	269	1	2			1	14	3	253				
306	MERIDIAN-NYBERG														
307	MERIDIAN-PILKINGTON	10	1,782					3	11	5	28	1	1,696	1	47
308	MERIDIAN-SAGERT	1	43							1	43				
309	MIDDLE GROVE-BROWN	6	330			3	265	3	65						
310	MIDDLE GROVE-CHEMEKETA	4	116					2	11	2	105				
311	MIDDLE GROVE-CORDON	8	125	1	73	1	40	1	3	2	4			3	6
312	MIDDLE GROVE-SWEGLE	2	17	1	2			1	15						
313	MIDDLE GROVE-WEST	1	18					1	18						
314	MIDWAY-DIVISION	6	131	1	2			1	2	4	127				
315	MIDWAY-DOUGLAS	7	770	4	582			2	186	1	2				
316	MIDWAY-LYNCH	8	524	3	151			1	256	4	117				
317	MIDWAY-POWELLHURST	3	74					1	49	1	1	1	25		
318	MILL CREEK-EASTLAND	4	90					1	29	2	55	1	6		
319	MILL CREEK-KUEBLER														
320	MILL CREEK-MILL CREEK 13	1	6					1	6						
321	MOLALLA-BUCKAROO	1	14											1	14
322	MOLALLA-FOREST	14	103	1	7			1	4	10	90	1	1	1	2
323	MOLALLA-MARQUAM	23	2,968	7	89					13	1,468	1	1,345	2	66
324	MOLALLA-YODER	5	510					1	1	3	113			1	395
325	MT ANGEL-EAST	3	109					2	108					1	1
326	MT ANGEL-WEST	8	232	1	77			3	4	2	81			2	70
327	MT PLEASANT-CLAIRMONT	4	1,432					4	1,432						
328	MT PLEASANT-MT VIEW	4	94	1	8			1	22	2	65				
329	MT PLEASANT-RIVERCREST	5	1,129			1	37	1	3	3	1,090				
330	MT PLEASANT-SOUTH END	9	367					4	27	4	302	1	38		

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2016 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 MULINO-NORTH	1	4					1	4						
332 MULINO-SOUTH	9	249	2	61					6	186			1	2
333 MULTNOMAH-13176	15	10,470	2	462			3	119	8	9,880	2	9		
334 MULTNOMAH-13177	11	1,586	1	384			5	924	4	135	1	143		
335 MULTNOMAH-13181	5	135					4	112	1	23				
336 MULTNOMAH-MULTNOMAH 13	9	15,446	2	434					7	15,012				
337 MURRAYHILL-KINTON	1	8							1	8				
338 MURRAYHILL-MURRAYHILL 13														
339 MURRAYHILL-REUSSER	1	218	1	218										
340 MURRAYHILL-TEAL	2	398					2	398						
341 NEWBERG-CHEHALEM	39	3,865	11	86	1	16	5	59	18	3,015			4	689
342 NEWBERG-DUNDEE	12	554	1	8			3	221	8	325				
343 NEWBERG-HOOVER PARK	5	3,480	1	3			2	42	1	2,587	1	848		
344 NEWBERG-NORTH COLLEGE	13	697	3	34			4	32	4	575			2	57
345 NORTH MARION-CROSBY	6	44			1	3	1	23	1	1			3	18
346 NORTH MARION-FRONT	2	7					2	7						
347 NORTH MARION-HUBBARD	2	40	1	6					1	33				
348 NORTH MARION-MCLAREN	14	11,720	2	2,560			1	7	6	3,456	2	53	3	5,644
349 NORTH PLAINS-MASON HILL	35	6,900	7	1,226			8	64	11	4,163	5	1,347	4	100
350 NORTH PLAINS-NORTH PLAINS 13	24	3,569	3	2,143			7	38	9	1,269	2	79	3	39
351 NORTHERN-11009	3	2,674					3	2,674						
352 NORTHERN-11016	1	3											1	3
353 NORTHERN-11071	1	1					1	1						
354 OAK GROVE-LAKE HARRIET	1	28	1	28										
355 OAK GROVE-WHITE WATER														
356 OAK HILLS-FIVE OAKS														
357 OAK HILLS-GREENBRIER	1	0	1	0										
358 OAK HILLS-OAK HILLS 13														
359 OAK HILLS-SOMERSET	1	5	1	5										
360 OAK HILLS-WALKER														

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2016 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	OREGON STEEL-OREGON STEEL 13														
362	ORENCO-231ST	1	7,668							1	7,668				
363	ORENCO-AMBERGLEN														
364	ORENCO-BASELINE	4	129	2	8			2	120						
365	ORENCO-ORENCO 13														
366	ORENCO-PRIMATE	3	11	3	11										
367	ORENCO-WILKINS														
368	ORIENT-BARLOW	36	2,568	12	1,233			2	9	16	779	5	199	1	348
369	ORIENT-ORIENT 13	29	1,835	6	234			4	13	16	756	2	826	1	6
370	OSWEGO-IRON MOUNTAIN	2	55	1	3					1	52				
371	OSWEGO-MARYLHURST	26	1,166	3	244			12	303	7	292	1	204	3	122
372	OSWEGO-PALATINE	11	7,956					2	12	9	7,944				
373	OSWEGO-STAFFORD	3	126	1	122					2	4				
374	OXFORD-FAIRVIEW	6	181			1	81	2	87	2	11			1	1
375	OXFORD-LEE	1	57					1	57						
376	OXFORD-MADRONA														
377	OXFORD-OXFORD 13	3	106					1	103	1	1	1	2		
378	OXFORD-RURAL														
379	OXFORD-SHELTON	1	2					1	2						
380	PELTON-ROUND BUTTE														
381	PENINSULA PARK-OCKLEY GREEN														
382	PENINSULA PARK-PENINSULA PARK	2	4					1	2	1	1				
383	PLEASANT VALLEY-BAXTER	3	35	1	7			1	4	1	24				
384	PLEASANT VALLEY-CLATSOP														
385	PLEASANT VALLEY-MOON														
386	PLEASANT VALLEY-PLEASANT 13	17	1,307	2	30			1	4	9	1,196	3	43	2	34
387	PLEASANT VALLEY-SUN	3	7					1	3	1	2	1	2		
388	PORTLAND WATER-PUMPING														
389	PORTSMOUTH-CARBIDE	8	1,829					2	37	6	1,792				
390	PORTSMOUTH-DISPOSAL														

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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	PORTSMOUTH-WILLIS	1	31					1	31						
392	PROGRESS-GREENBURG	8	95					8	95						
393	PROGRESS-HALL	1	18					1	18						
394	PROGRESS-ROBINSON														
395	PROGRESS-SAWYER	4	534					2	4	1	86	1	444		
396	PROGRESS-WASHINGTON SQ #1														
397	PROGRESS-WASHINGTON SQ #2														
398	RALEIGH HILLS-DOGWOOD	8	199					3	30	5	169				
399	RALEIGH HILLS-MONTCLAIR	9	1,159	3	595			4	90	1	472	1	2		
400	RALEIGH HILLS-OLESON	6	65					3	9	2	4	1	51		
401	RAMAPO-EMERALD	9	724					5	216	4	508				
402	RAMAPO-GILBERT	15	568	1	4			9	229	4	333	1	1		
403	RAMAPO-RAMAPO 13	8	145							6	137	2	8		
404	REDLAND-HENRICI	29	3,538	8	53			4	7	13	3,126	1	327	3	25
405	REDLAND-REDLAND 13	39	14,572	10	3,670			7	104	16	8,237	3	2,223	3	339
406	REEDVILLE-AUGUSTA	3	87	2	21			1	66						
407	REEDVILLE-BLANTON	4	1,165	1	1,158			2	5					1	2
408	REEDVILLE-HAZELDALE	10	391	4	312					5	77	1	2		
409	REEDVILLE-INTEL #4														
410	REEDVILLE-INTEL #5														
411	REEDVILLE-TV	6	2,781	3	2,526			2	248					1	7
412	RIVERGATE SOUTH-11010														
413	RIVERGATE SOUTH-11011	9	114					3	86	3	11	2	4	1	14
414	RIVERGATE SOUTH-PEARCY	3	279					3	279						
415	RIVERGATE SOUTH-SWIFT														
416	RIVERVIEW-FULTON	16	1,013					4	271	11	714	1	28		
417	RIVERVIEW-MACADAM														
418	RIVERVIEW-TERWILLIGER	5	608					1	421	3	32			1	155
419	ROCKWOOD-AIRPORT														
420	ROCKWOOD-BOEING														

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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-INDUSTRIAL	1	2	1	2										
422 ROCKWOOD-REYNOLDS	5	244	1	6			2	177	1	57	1	3		
423 ROCKWOOD-ROCKWOOD 13	22	5,247	4	46			11	433	1	45	5	4,715	1	8
424 ROCKWOOD-WILKES	2	21	1	7					1	15				
425 ROSEMONT-HIDDEN SPRINGS	6	1,443	1	851			2	25	1	1			2	566
426 ROSEMONT-MOSSY BRAE	6	142	1	12			1	10	4	120				
427 ROSEMONT-OVERLOOK	2	128					1	8	1	119				
428 ROSEWAY-ALEXANDER	2	64							2	64				
429 ROSEWAY-ESPLANADE	2	8					1	4	1	5				
430 ROSEWAY-ROSEWAY 13	1	43					1	43						
431 RUBY-CARLINE	4	406	2	8			2	398						
432 RUBY-JUNCTION	1	2	1	2										
433 SALEM-13260														
434 SALEM-13261														
435 SALEM-13262														
436 SALEM-13263														
437 SALEM-13264														
438 SALEM-UNION														
439 SANDY-362ND	9	335			2	179	2	3	2	121	2	31	1	2
440 SANDY-BLUFF	5	744	1	519			3	95	1	130				
441 SANDY-SANDY 13	39	4,324	4	1,368	1	2	15	85	11	2,119	6	743	2	8
442 SANDY-WILDCAT	24	2,289	2	240			5	51	12	860	5	1,138		
443 SCAPPOOSE-SAUVIE ISLAND	1	3							1	3				
444 SCHOLLS FERRY-KEMMER	9	3,410	4	41			4	124	1	3,246				
445 SCHOLLS FERRY-RAINBOW	34	1,331	9	142	1	274	11	244	10	395	1	4	2	273
446 SCHOLLS FERRY-ROY ROGERS	4	532	1	386					3	147				
447 SCOGGINS-CHERRY GROVE	9	215	1	25			3	73	4	113	1	4		
448 SCOGGINS-LAURELWOOD	23	1,648	5	520	1	334	8	177	8	404			1	212
449 SCOTTS MILLS-SCOTTS MILLS 13	27	4,880	11	34	2	77	1	22	10	4,490			3	257
450 SELLWOOD-KELLOGG PARK	8	1,961	1	3			1	35	4	335	2	1,588		

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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	SELLWOOD-SELLWOOD 13	4	632	1	211			2	395	1	26				
452	SELLWOOD-WAVERLY	3	68							1	65	2	3		
453	SHERIDAN-EAST	5	310	1	1			2	7	1	42			1	260
454	SHERIDAN-KADELL	8	2,209	1	1					5	2,066	2	141		
455	SHUTE-LINDE 1 35KV														
456	SILVERTON-NORTH	2	7					1	2	1	5				
457	SILVERTON-SOUTH	8	315	2	15					4	129	1	34	1	137
458	SILVERTON-WEST	17	1,469			4	10	5	25	7	1,434			1	1
459	SIX CORNERS-13359	12	945					7	208	4	638	1	99		
460	SIX CORNERS-13360														
461	SIX CORNERS-BORCHERS	10	1,987	4	1,709	1	13	2	6	3	258				
462	SIX CORNERS-CHAPMAN	3	258							3	258				
463	SIX CORNERS-SIX CORNERS 13	2	350					1	23	1	327				
464	SP NEWSPRINT-NEWBERG														
465	SPRING HILL-SPRING HILL														
466	SPRINGBROOK-FERNWOOD	13	478	9	184			3	293	1	1				
467	SPRINGBROOK-ST PAUL	13	1,053	4	478			3	24	5	538			1	12
468	SPRINGBROOK-VILLA	3	284	1	6			1	161			1	118		
469	SPRINGBROOK-ZIMRI	16	980	9	845			2	62	3	63	1	6	1	5
470	ST HELENS-KASTER														
471	ST LOUIS-EAST	4	17	1	0			2	14					1	2
472	ST LOUIS-NORTH	7	479	1	28			1	5	1	3	2	419	2	25
473	ST LOUIS-WEST	11	131	2	7					5	114	1	3	3	8
474	ST MARYS EAST-BETHANY														
475	ST MARYS EAST-BUTNER	14	1,682	3	424			6	636	3	329	1	293	1	1
476	ST MARYS EAST-ELMONICA	2	4,475	1	238									1	4,238
477	ST MARYS EAST-JENKINS														
478	ST MARYS EAST-MILLIKAN														
479	ST MARYS EAST-ST MARYS 13														
480	STEPHENS-11001														

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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-11020	1	2	1	2										
482 STEPHENS-11054 NETWORK														
483 STEPHENS-11055 NETWORK														
484 STEPHENS-11092 NETWORK														
485 STEPHENS-11093 NETWORK														
486 STEPHENS-11094 NETWORK														
487 STEPHENS-11095 NETWORK														
488 STEPHENS-11097 NETWORK														
489 STEPHENS-11098														
490 STEPHENS-11099 NETWORK														
491 STIMSON LUMBER-FORESTEX	1	4					1	4						
492 SULLIVAN-ROBINWOOD	13	1,695					5	80	6	1,089	2	525		
493 SULLIVAN-SALAMO	11	843	6	388	1	270	2	36	1	5			1	145
494 SULLIVAN-SUSSEX	7	71	1	0			2	31	3	24	1	15		
495 SULLIVAN-TANNER	3	73					2	70			1	4		
496 SULLIVAN-WILLAMETTE	10	317			1	6	8	306	1	5				
497 SULZER PUMPS-115B														
498 SUMMIT-GOVERNMENT CAMP	4	135					1	43	2	87	1	5		
499 SUMMIT-MEADOWS														
500 SUMMIT-SUMMIT 13	8	438	7	182					1	256				
501 SUNSET-BLANCHET														
502 SUNSET-COLFAX														
503 SUNSET-CORNELL														
504 SUNSET-DORION														
505 SUNSET-IDTB														
506 SUNSET-INTEL D1B1														
507 SUNSET-INTEL D1X1														
508 SUNSET-KOMATSU #1														
509 SUNSET-LANE														
510 SUNSET-MCCALL														

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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-MEEK														
512	SUNSET-PAULING														
513	SUNSET-SPALDING														
514	SUNSET-WHITMAN	1	633	1	633										
515	SUNSET-YOUNG														
516	SWAN ISLAND-BASIN														
517	SWAN ISLAND-DOLPHIN														
518	SWAN ISLAND-FREIGHTLINER														
519	SWAN ISLAND-GOING	1	1									1	1		
520	SWAN ISLAND-SHIPYARD														
521	SYLVAN-BARNES	32	3,616	10	370			1	1	18	3,043	1	196	2	6
522	SYLVAN-PATTON	34	3,430	12	880			8	222	10	1,605	2	7	2	716
523	TABOR-82ND	8	1,833	1	1			1	177	4	372	1	4	1	1,278
524	TABOR-HOSPITAL														
525	TABOR-TABOR 13	4	32	1	4			1	25	2	3				
526	TEKTRONIX-HOCKEN	2	433					2	433						
527	TEKTRONIX-NORTH														
528	TEKTRONIX-SHANNON	14	495	3	19			8	154	1	32			2	290
529	TEKTRONIX-SOUTH	1	88	1	88										
530	TEKTRONIX-TEKTRONIX 13	2	154					2	154						
531	TEKTRONIX-WEST														
532	TEMP B-NORTH														
533	TEMP B-SOUTH														
534	TIGARD-13336	1	14					1	14						
535	TIGARD-13337	2	1,545	1	4					1	1,541				
536	TIGARD-13361	1	177					1	177						
537	TIGARD-13362	2	57					2	57						
538	TIGARD-TIGARD 13	3	137					3	137						
539	TOWN CENTER-LAWNFIELD														
540	TOWN CENTER-MONTEREY	2	239	1	238					1	1				

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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-NORTH														
542 TOWN CENTER-PRECISION CASTPARTS														
543 TOWN CENTER-SOUTH														
544 TOWN CENTER-SUNNYBROOK	1	1					1	1						
545 TOWN CENTER-VALLEY VIEW														
546 TROJAN-EAST														
547 TUALATIN-AVERY	4	135	2	128			2	7						
548 TUALATIN-CIPOLE	2	25	1	16			1	10						
549 TUALATIN-HERMAN														
550 TUALATIN-IBACH	5	3,498					3	9	2	3,489				
551 TUALATIN-LEVETON														
552 TUALATIN-TUALATIN 13														
553 TURNER-CASCADE	5	49	1	4			1	1	3	44				
554 TURNER-TURNER 13	7	730	1	2			1	1	4	726	1	1		
555 TWILIGHT-BREMER	15	1,472					5	34	9	1,435			1	2
556 UNIONVALE-UNIONVALE 13	22	758	8	495			3	13	10	246	1	3		
557 UNIVERSITY-MILL	1	1					1	1						
558 UNIVERSITY-TRADE	5	4,557					1	22	4	4,535				
559 URBAN-BARBUR	4	72	1	12			3	60						
560 URBAN-CAMPUS														
561 URBAN-CORBETT	6	292	2	9			1	262	1	3	1	3	1	16
562 URBAN-GAINES	7	2,320	1	5			1	26	2	10	1	2	2	2,278
563 URBAN-GIBBS	2	95					2	95						
564 URBAN-KELLY	1	63	1	63										
565 URBAN-LANDING														
566 URBAN-MEDICAL														
567 URBAN-OHSU														
568 WACKER-WACKER 1														
569 WACONDA-NORPAC														
570 WACONDA-RIVER	14	222	9	86					4	133			1	3

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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-WACONDA 13	10	212	2	20	1	2	2	3			1	6	4	180
572	WALLACE-WALLACE 13	13	1,156	3	426					6	105	1	3	3	622
573	WALLACE-WILLOW LAKE	8	6,419	2	42			3	1,984					3	4,393
574	WELCHES-WELCHES 13	17	2,992	5	917			3	100	7	1,971	2	4		
575	WELCHES-ZIG ZAG	34	5,696	4	327	2	14	3	16	21	4,782	2	543	2	14
576	WEST PORTLAND-72ND	1	14					1	14						
577	WEST PORTLAND-NORTH	7	757	1	483			5	273	1	1				
578	WEST PORTLAND-PACIFIC	10	3,712	1	4			4	1,191	3	122	2	2,395		
579	WEST PORTLAND-WEST PORTLAND 13	10	1,513	3	84			5	1,422	1	4			1	2
580	WEST UNION-CORNELIUS PASS	20	3,957	9	1,088			3	6	8	2,862				
581	WEST UNION-WEST UNION 13	4	56	4	56										
582	WILLAMINA-BRIDGE	8	244					3	27	5	216				
583	WILLAMINA-BUELL	11	2,317	2	225			1	2	7	2,089			1	1
584	WILLAMINA-LUMBER														
585	WILLBRIDGE-WILLBRIDGE #1														
586	WILLBRIDGE-WILLBRIDGE #4														
587	WILSONVILLE-BOECKMAN	7	183			1	15	3	75	3	94				
588	WILSONVILLE-CHARBONNEAU	7	130	1	8			3	32	2	65			1	26
589	WILSONVILLE-CITY	1	5							1	5				
590	WILSONVILLE-MENTORTEK														
591	WILSONVILLE-PARKWAY														
592	WILSONVILLE-VILLEBOIS														
593	WILSONVILLE-WEST	8	574	2	189			3	11	2	372			1	2
594	WOODBURN-CANNERY	7	77					4	67			2	7	1	4
595	WOODBURN-EAST	3	1,101	1	637					1	3			1	460
596	WOODBURN-TOMLIN	3	1,979	1	118					2	1,861				
597	WOODBURN-WEST	7	207					3	71	2	101	1	33	1	3
598	YAMHILL-CARLTON	16	688	3	27	4	7	2	7	7	647				
599	YAMHILL-YAMHILL 13	12	1,672	3	1,552	1	4	2	15	4	95	1	2	1	3

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

Outs = Outages
Hrs = # of customers * duration hrs

2016 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:	3,255	513,018	691	86,578	63	2,967	896	53,125	1,197	278,459	213	41,556	195	50,333

*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.

2016 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	4	1,603	1	17			1	1,570	1	4			1	12		
2	ABERNETHY-OREGON CITY	11	251	7	232	1	6							4	19	4	89
3	ABERNETHY-TRANSIT	17	5,156	13	5,137	2	5							2	13	7	71
4	ALDER-ANKENY	9	226	9	226	3	10									2	12
5	ALDER-IRVING	4	194	3	151							1	43			11	199
6	ALDER-LINCOLN	5	31	5	31	2	12									19	341
7	ALDER-STARK	8	139	7	138	5	105									7	279
8	ALDER-TAYLOR	4	12	3	9											2	7
9	ALDER-YAMHILL	1	62											1	62	3	107
10	AMITY-AMITY 13	22	9,705	17	4,059	5	3,936	1	2,371	1	2,760	1	3	2	512	2	4
11	AMITY-BELLEVUE	28	4,775	20	1,676	7	66			1	1,257	1	3	6	1,840	5	29
12	ARLETA-52ND	15	393	12	384	4	256							3	9	21	107
13	ARLETA-FOSTER	11	189	9	99	2	53							1	8	12	1,066
14	ARLETA-HAROLD	8	120	6	56	1	44							2	63	25	574
15	ARLETA-POWELL	10	480	7	458	2	7	1	19					2	3	22	157
16	ARLETA-STEELE	8	821	6	583							1	2	1	235	18	240
17	BANKS-BANKS 13	18	2,900	12	287	1	4							6	2,612	1	2
18	BANKS-CEDAR CANYON	18	203	15	107	5	14							3	96	7	52
19	BARNES-BATTLE CREEK	6	779	4	765	1	8					1	4	1	10	3	16
20	BARNES-BOONE	12	7,018	10	1,214	1	3	1	5,801					1	3	2	5
21	BARNES-COMMERCIAL	16	11,795	14	3,806	1	0	1	7,849					1	140	5	102
22	BARNES-SUNNYSIDE	13	1,032	11	972	3	55							2	60	3	39
23	BEAVER-KB PIPELINE																
24	BEAVERTON-ALLEN	7	116	7	116	1	10									4	85
25	BEAVERTON-JAMIESON	2	10	2	10											3	47
26	BEAVERTON-NORTHWEST	2	26	2	26											11	111
27	BEAVERTON-WEST SLOPE	11	5,014	11	5,014	2	13									4	70
28	BELL-BATTIN	4	206	4	206											1	1
29	BELL-BRENTWOOD															1	4
30	BELL-FLAVEL	2	76	2	76											6	84
31	BELL-JOHNSON CREEK															1	21
32	BELL-KENDALL	5	386	3	56	1	12							2	331	10	361
33	BELL-KING	5	3,011	5	3,011	1	73									10	228
34	BELL-SOUTHGATE	9	269	9	269	2	64									4	12
35	BELL-WICHITA	5	451	4	439	1	18					1	12			8	182
36	BETHANY-BURTON	4	182	1	16									3	166	1	13

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

2016 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-GERMANTOWN	5	463	4	19							1	444			2	22
38 BETHANY-KAISER	5	9	4	8	1	1							1	1	5	69
39 BETHANY-LAIDLAW	6	8,760	3	315	1	191					1	1	2	8,444	5	68
40 BETHANY-SPRINGVILLE	2	4	2	4												
41 BETHANY-THOMPSON	1	3	1	3											21	313
42 BETHEL-FRUITLAND	27	8,197	24	7,310	3	380							3	888	4	84
43 BETHEL-GEER	14	700	14	700	5	11									2	38
44 BETHEL-MACLEAY	11	1,735	8	1,264	1	4							3	470	4	10
45 BLUE LAKE-BLUE LAKE 13	7	1,668	4	1,056	2	68							3	613	2	25
46 BLUE LAKE-SUNDIAL	3	60	3	60												
47 BLUE LAKE-TOYO TANSO																
48 BOISE CASCADE-BOISE #1	1	4					1	4								
49 BOONES FERRY-GOODALL	13	559	12	554									1	4	8	155
50 BOONES FERRY-KRUSE	4	434	4	434	1	64									9	1,067
51 BOONES FERRY-LAKE GROVE	12	387	12	387	2	28									13	419
52 BOONES FERRY-MOUNTAIN PARK	6	4,915	5	4,793	1	166							1	122	1	1
53 BOONES FERRY-WEMBLEY PARK	6	80	6	80											8	120
54 BORING-282ND	22	6,202	16	4,246	1	1,799							6	1,956	8	48
55 BORING-CITY	11	151	10	146	1	79					1	4			5	52
56 BORING-TELFORD	21	5,115	14	334	1	3					1	1,616	6	3,165	2	23
57 BRIGHTWOOD-BRIGHTWOOD 13	17	1,187	16	1,186	2	108							1	1	2	17
58 BRIGHTWOOD-NORTH BANK	9	534	8	529	3	49							1	5	3	23
59 BROOKWOOD-BORWICK	3	17	3	17											1	2
60 BROOKWOOD-BROOKWOOD 13	1	4											1	4	2	119
61 BROOKWOOD-SUNRISE	5	1,198	4	1,197	1	41							1	2		
62 CANBY-13643	20	9,956	14	72	1	1	1	5,081	1	1,610			4	3,193	11	19
63 CANBY-13644	14	1,664	8	292	1	2	1	732	1	505			4	135		
64 CANBY-BUTTEVILLE	6	174	6	174	1	3									1	1
65 CANBY-FILBERT	7	1,411	6	42	1	1			1	1,369					2	1
66 CANBY-ZIMMERMAN																
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-13119 PSU																

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2016 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-13120	1	4	1	4												
74 CANYON-13121																
75 CANYON-13122 NETWORK #2	1	2	1	2												
76 CANYON-13123 NETWORK #2																
77 CANYON-13124 NETWORK #2																
78 CANYON-13125 NETWORK #2																
79 CANYON-13133 NETWORK #3																
80 CANYON-13134 NETWORK #3																
81 CANYON-13135 NETWORK #3																
82 CANYON-13136 NETWORK #3																
83 CANYON-21ST	9	9,833	4	622							1	504	3	8,511	5	272
84 CANYON-23RD	7	574	6	456	1	5							1	118	8	329
85 CANYON-BURNSIDE	3	80	2	79	2	79									1	7
86 CANYON-CANYON 13	6	1,814	5	1,807											17	1,846
87 CARVER-ALMOND	2	63	1	3									1	61	1	0
88 CARVER-CARVER 13	20	608	15	589	1	27							5	20	9	118
89 CARVER-NORTH	4	1,420	3	1,418											4	140
90 CARVER-RIVERBEND	1	1	1	1												
91 CARVER-SOUTH	1	16	1	16												
92 CARVER-WOODS	8	145	6	28									2	117		
93 CEDAR HILLS-CEDAR HILLS 13																
94 CEDAR HILLS-LEAHY	10	883	6	700	1	57							4	183	4	51
95 CEDAR HILLS-SHOPPING CENTER	14	2,997	12	1,230									2	1,767	8	390
96 CEDAR HILLS-SKYLINE																
97 CEDAR HILLS-ST VINCENT															1	1
98 CEDAR HILLS-SYLVAN	3	393	1	372									2	21	3	5
99 CENTENNIAL-BARKER	19	581	17	575	1	6							2	5	1	27
100 CENTENNIAL-BRAECROFT	7	766	7	766												
101 CENTENNIAL-CENTENNIAL 13	17	3,769	13	1,950	5	40							4	1,819	2	9
102 CENTENNIAL-TREELAND	11	172	9	122	3	16							2	50	3	75
103 CLACKAMAS-EVELYN	3	238						1	233				2	5	1	20
104 CLACKAMAS-GLADSTONE	8	2,765	3	488	1	22	1	2,262					4	16	3	36
105 CLACKAMAS-JENNIFER	6	1,988	5	1,412			1	576							7	154
106 CLACKAMAS-TOLBERT	9	2,332	8	911	4	237	1	1,421							2	3
107 CLAXTAR-CLAXTAR 13	1	4	1	4	1	4										
108 CLAXTAR-HAYESVILLE	5	182	3	177							1	3	1	1	4	54

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2016 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 CLAXTAR-RIDGE	7	117	6	113	1	41							1	5	1	2
110 COFFEE CREEK-FREEMAN	2	8	1	5	1	5							1	3		
111 COFFEE CREEK-HOLIDAY																
112 COLTON-DHOOGHE	7	1,907	5	22									2	1,885	6	36
113 COLTON-GRAYS HILL	11	675	9	667	2	15					1	2	1	7		
114 CORNELIUS-ADAIR	12	248	11	240	1	26							1	7		
115 CORNELIUS-CORNELIUS 13	19	1,242	14	1,163	3	41							4	78		
116 CORNELIUS-VERBOORT	14	220	11	160	1	2							3	60	4	225
117 CORNELL-BLUFFS	12	688	10	654							2	33			8	156
118 CORNELL-SALTZMAN	3	202	2	201	1	67									3	357
119 CORNELL-WESTLAWN	6	1,831	6	1,831	1	403									1	8
120 CULVER-SANYO #1																
121 CURTIS-11077	15	2,274	11	198	3	10							4	2,076		
122 CURTIS-CURTIS 13	10	157	8	146	1	102							2	11	14	289
123 DAYTON-EAST	19	1,597	18	1,589	8	62							1	9	7	22
124 DAYTON-LAFAYETTE	16	823	11	804	5	775					1	3	4	16		
125 DAYTON-SOUTHWEST	16	127	16	127	5	38									1	1
126 DELAWARE-DENVER	9	32	5	14									3	14	21	312
127 DELAWARE-INTERSTATE	3	213	3	213	2	210									5	22
128 DELAWARE-LOMBARD	8	56	8	56	3	25									26	503
129 DENNY-EAST	10	1,456	7	1,132	1	23	1	5					2	320	3	105
130 DENNY-NORTH	1	1,090					1	1,090							4	338
131 DENNY-SOUTH	9	2,296	9	2,296											4	93
132 DENNY-WEST	11	11,611	9	2,990			1	8,617					1	3	3	119
133 DILLEY-DILLEY 13	15	166	14	163	2	13	1	3							5	29
134 DILLEY-SPRINGHILL																
135 DUNNS CORNER-DUNNS CORNER 13	14	1,853	12	1,790	2	52							2	63	5	30
136 DUNNS CORNER-KELSO	4	120	2	70									2	50		
137 DURHAM-BONITA	1	124	1	124	1	124									1	16
138 DURHAM-BRIDGEPORT	2	311	2	311												
139 DURHAM-DURHAM 13	4	189	4	189											2	30
140 DURHAM-POOPLANT																
141 DURHAM-SATTLER	6	418	3	382									3	36	4	102
142 DURHAM-SOUTH	1	14	1	14	1	14										
143 E-11021																
144 E-11039																

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2016 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-11040	6	159	6	159	1	1										
146	E-11041															1	4
147	E-11042															1	5
148	E-11043																
149	E-11047																
150	E-11064																
151	E-13139	2	142	2	142	1	140									4	206
152	E-13140	11	22,577	5	141								6	22,436		7	948
153	E-13141																
154	E-13142																
155	E-13144	8	70	7	36								1	33		3	9
156	E-13145	2	1,092	1	3								1	1,089			
157	E-13148	4	178	4	178												
158	E-13149	2	16,048	2	16,048											1	281
159	E-13150	6	209	3	12								1	166			
160	EAGLE CREEK-BARTON	8	228	5	18	1	3						3	210			
161	EAGLE CREEK-RIVER MILL	12	527	8	473	3	36						4	54	11	86	
162	EASTPORT-76TH	7	4,674	4	78	1	5						3	4,595	18	289	
163	EASTPORT-PLAZA	8	131	8	131	4	118								9	134	
164	ELMA-ELMA 13	12	1,017	9	817	1	218						2	197	2	98	
165	ELMA-FOUR CORNERS	18	3,781	17	3,775	3	47						1	6	1	1	
166	ELMA-HUDSON	11	324	10	323	2	158						1	1	2	4	
167	ELMA-STATE	1	4	1	4										1	24	
168	ESTACADA-ESTACADA 13	12	472	7	445	3	411	1	0				4	27	7	35	
169	ESTACADA-FARADAY	35	35,367	27	949			4	34,289				4	129	10	298	
170	FAIRMOUNT-CANDALARIA	11	250	11	250	1	2								3	18	
171	FAIRMOUNT-MISSION	14	4,820	11	268								3	4,553	7	18	
172	FAIRVIEW-CLEAR CREEK																
173	FAIRVIEW-FAIRVIEW 13	6	94	6	94	1	47								5	39	
174	FAIRVIEW-KENNEL CLUB	13	801	10	670	1	4						3	131	7	199	
175	FAIRVIEW-TROUTDALE	11	744	9	263								2	481	13	397	
176	FAIRVIEW-WOOD VILLAGE	9	298	7	210								2	88	22	752	
177	FARGO-FARGO 13	10	409	10	409	2	6								5	45	
178	GALES CREEK-GALES CREEK 13	12	4,242	9	1,903	3	5			1	2,312	1	19	1	8		
179	GARDEN HOME-MCKAY	13	2,146	8	1,989	2	1,727						5	158	10	116	
180	GARDEN HOME-METZGER	7	211	6	203								1	8	8	121	

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2016 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	6,462	5	37	1	2	1	6,424			1	1			15	102
182	GLENCOE-PROVIDENCE	4	735	3	12	1	9	1	723							1	7
183	GLENCOE-SUNNYSIDE	6	4,332	4	13	1	2	1	4,239					1	80	17	378
184	GLENCULLEN-BRIDLEMILE	14	6,427	11	435	2	193					1	1	2	5,991	10	253
185	GLENCULLEN-SUNSET	6	322	5	316									1	6	9	307
186	GLENDOVEER-13596	3	1,006	2	11			1	995							1	51
187	GLENDOVEER-13597	9	3,041	6	1,425	1	37	1	1,506	1	64			1	47		
188	GLENDOVEER-13598	5	70	5	70	1	16									2	23
189	GLENDOVEER-13599	14	3,419	12	652	1	10	1	2,708					1	59	3	11
190	GLENDOVEER-CLIFFGATE	15	2,903	14	2,594	2	42							1	308	1	14
191	GLENDOVEER-NORTHEAST	12	236	11	207	2	30							1	29	1	1
192	GLISAN-FAB 2A																
193	GLISAN-UTILITY 1B																
194	GORMLEY-MCMINNVILLE WL																
195	GRAND RONDE-AGENCY	6	197	6	197	3	164										
196	GRAND RONDE-FORTHILL	8	1,528	6	75	2	12							2	1,454	5	46
197	HARBORTON-BURLINGTON	25	2,557	22	1,618	5	62							3	939	10	129
198	HARBORTON-HARBORTON 13																
199	HARBORTON-LINNNTON	5	632	4	242									1	391		
200	HARMONY-HARMONY 13	3	74	3	74											3	20
201	HARMONY-INTERNATIONAL	7	1,238	5	1,235	1	41	1	2					1	1	4	542
202	HARMONY-LAKE	4	57	4	57	1	2									1	1
203	HARMONY-LINWOOD	7	406	7	406	1	3									2	24
204	HARMONY-MILWAUKIE	15	1,272	12	1,258	3	27							3	13	8	70
205	HARMONY-THIESSEN	8	473	7	472	2	3							1	1		
206	HARRISON-DAVIS	10	19	7	15	1	2					1	1			4	389
207	HARRISON-HARRISON 13	7	154	6	154							1	0			7	85
208	HARRISON-IVON	2	10	2	10											1	3
209	HAYDEN ISLAND-MAINLAND																
210	HAYDEN ISLAND-NORTH SHORE	11	336	11	336	1	9									2	22
211	HAYDEN ISLAND-SOUTH SHORE	5	827	4	389									1	438	2	3
212	HEMLOCK-FREMONT	8	2,395	5	73	2	9			1	1,972	1	57	1	293	1	48
213	HEMLOCK-HEMLOCK 13	6	3,431	5	632					1	2,800					1	7
214	HEMLOCK-MASON	1	864							1	864					3	30
215	HILLCREST-CASCADIA																
216	HILLCREST-HILLCREST 13	2	9											2	9		

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2016 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 HILLCREST-SOUTH	1	25	1	25											1	9
218 HILLSBORO-DAIRY CREEK	11	10,876	8	154	1	1							3	10,721	2	9
219 HILLSBORO-DENNIS	2	31	2	31												
220 HILLSBORO-JACKSON	9	138	8	76	1	2							1	62	1	2
221 HILLSBORO-LAUREL	26	3,455	21	971	2	2					1	2	4	2,482	6	25
222 HILLSBORO-SCHOLLS	2	2	1	0							1	2				
223 HOGAN NORTH-BRIGADOON	11	6,270	10	665	1	1							1	5,605	16	389
224 HOGAN NORTH-HOGAN NORTH 13	5	414	5	414	1	192									1	2
225 HOGAN NORTH-LINKS	29	4,563	25	784	4	61							4	3,779	13	45
226 HOGAN NORTH-SALQUIST	15	420	12	339	1	3							3	81	1	1
227 HOGAN SOUTH-CLEVELAND	13	2,612	6	2,595							3	3	2	8	7	487
228 HOGAN SOUTH-LAWRENCE	20	1,179	18	1,171	3	333							2	7	6	83
229 HOGAN SOUTH-MAIN	10	858	8	855									2	3	2	32
230 HOGAN SOUTH-PAROPA	9	1,446	8	956	2	5							1	490	66	870
231 HOGAN SOUTH-WALLULA	9	157	6	108	1	5							1	47	3	113
232 HOLGATE-BYBEE	10	1,596	9	1,565									1	31	8	70
233 HOLGATE-GIDEON	3	672	1	660									2	12	5	67
234 HOLGATE-HOLGATE 13	3	55	3	55											12	351
235 HOLGATE-KENILWORTH	10	778	10	778	4	217									5	16
236 HOLGATE-RHONE	9	66	7	16	1	8					1	9	1	41	16	142
237 HUBER-BANY	11	330	10	326									1	4	5	150
238 HUBER-FARMINGTON	13	1,660	11	1,642	1	41							2	18	2	6
239 HUBER-HUBER 13	11	3,016	9	2,524	3	324							2	491	16	2,859
240 HUBER-KINNAMAN	16	871	14	862	1	1					1	5	1	5	4	104
241 HUBER-MARYVILLE	15	1,019	15	1,019	2	407									10	179
242 INDIAN-KEIZER	5	4,882	5	4,882											3	60
243 INDIAN-LABISH	26	1,842	22	1,396	8	166					1	1	3	445	4	40
244 INDIAN-NORTH	18	19,880	12	6,870	2	246							5	13,007	1	0
245 INDIAN-STATION	6	4,552	6	4,552											2	18
246 INDIAN-WEST	20	2,538	19	2,534	7	791							1	4	4	28
247 ISLAND-13180	8	71	8	71	1	3									5	688
248 ISLAND-13187	12	512	10	392	2	36							1	96	4	27
249 ISLAND-13188	9	738	8	733	2	70							1	6		
250 ISLAND-ISLAND 13																
251 JENNINGS LODGE-ADDIE	10	2,518	8	424	2	122	1	2,091					1	3	5	71
252 JENNINGS LODGE-JENNINGS 13	8	5,033	4	114			1	4,872					2	45	2	39

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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
253 JENNINGS LODGE-MELDRUM	10	8,420	5	859	1	7	2	7,555					2	5	12	267
254 JENNINGS LODGE-OAK GROVE	8	7,940	8	7,940	2	7,875									9	693
255 JENNINGS LODGE-WEBSTER	5	28	4	27	1	4							1	2	4	289
256 KELLEY POINT-KELLEY POINT 13	1	63					1	63								
257 KELLEY POINT-LEDBETTER	1	233					1	233								
258 KELLEY POINT-MARINE																
259 KELLEY POINT-SIMMONS																
260 KELLEY POINT-SOLAR #1	1	4					1	4								
261 KELLEY POINT-SOLAR #2	1	6	1	6												
262 KELLY BUTTE-BINNSMEAD	15	16,804	8	653	2	267							5	16,119	9	74
263 KELLY BUTTE-FAIRLAWN	5	2,764	2	183	2	183					1	1	2	2,579	1	3
264 KELLY BUTTE-MALL 205	10	148	8	144	2	127							1	3	1	20
265 KELLY BUTTE-MCGREW	15	2,775	9	492									6	2,283	7	87
266 KING CITY-BULL MOUNTAIN	9	3,611	7	644	2	558	1	2,964					1	3	5	570
267 KING CITY-FISCHER	4	296	3	295											6	448
268 KING CITY-HAZELBROOK	6	2,284	5	333			1	1,950								
269 KING CITY-NORTH	11	1,947	11	1,947	1	164									3	73
270 KING CITY-SUMMERFIELD	5	1,337	2	1,320									3	17		
271 LAKE LABISH-LAKE LABISH																
272 LELAND-BEAVERCREEK	25	756	22	751	2	295							1	2	18	201
273 LELAND-CARUS	36	825	26	540	3	11					2	3	5	277	22	64
274 LELAND-KELM	3	68	3	68	1	53									2	23
275 LENTS-13101	12	593	9	477	2	365							3	115	8	84
276 LENTS-HAPPY VALLEY	12	200	9	175									3	24	2	47
277 LENTS-MT SCOTT	2	327	2	327											2	63
278 LENTS-NORTH	7	76	6	58											4	59
279 LIBERAL-LIBERAL 13	16	1,549	11	392	2	3							5	1,157	10	44
280 LIBERAL-SAWMILL																
281 LIBERTY-BROWNING	5	540	5	540	1	8										
282 LIBERTY-LONE OAK	3	508	2	507									1	2	1	11
283 LIBERTY-MORNINGSIDE	8	86	8	86	2	36									2	23
284 LIBERTY-ROSEDALE	22	351	20	262	5	43							2	89	17	203
285 LIBERTY-SKYLINE	8	375	6	350	3	16							2	25	3	341
286 LIBERTY-VISTA	3	2,339	2	26									1	2,313	1	11
287 MAIN-AIRPORT	10	946	10	946	2	184									2	2
288 MAIN-BENTLEY	12	570	9	471									3	100	2	8

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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
289 MAIN-EXPRESS	16	6,945	11	6,272	1	73					2	662	2	9	2	29
290 MAIN-JONES FARM																
291 MAIN-RIVER	13	2,427	12	2,423									1	3	2	94
292 MARKET-ENGLEWOOD															2	25
293 MARKET-FAIRGROUNDS	8	77	7	75	2	6							1	2	11	1,108
294 MARKET-HAWTHORNE	3	125	3	125	1	123									6	72
295 MARKET-PARK	7	3,066	6	3,064											1	7
296 MAXIM-MAXIM 13																
297 MCCLAIN-COTTAGE	7	1,346	7	1,346	1	1									3	9
298 MCCLAIN-FRONT	3	9	2	8												
299 MCCLAIN-HOLLYWOOD	3	551	3	551	1	540									1	8
300 MCGILL-LSI AIR 1A																
301 MERIDIAN-65TH															1	348
302 MERIDIAN-BORLAND	2	6	1	4									1	2	1	10
303 MERIDIAN-CHILDS															2	68
304 MERIDIAN-LAKEVIEW	3	117	3	117	1	1									1	19
305 MERIDIAN-MERIDIAN 13	29	6,163	25	332	9	56							4	5,831	7	21
306 MERIDIAN-NYBERG	2	6	1	6									1	0		
307 MERIDIAN-PILKINGTON	8	481	7	479									1	2	4	63
308 MERIDIAN-SAGERT	6	288	4	40									2	248	2	118
309 MIDDLE GROVE-BROWN	11	177	10	177	1	66									5	42
310 MIDDLE GROVE-CHEMEKETA	3	61	3	61											1	56
311 MIDDLE GROVE-CORDON	24	3,194	21	1,224	2	18							3	1,969	1	2
312 MIDDLE GROVE-SWEGLE	5	27	4	24	2	17							1	3	6	82
313 MIDDLE GROVE-WEST	3	35	3	35											2	32
314 MIDWAY-DIVISION	5	280	3	75						1	1	1	203	4	71	
315 MIDWAY-DOUGLAS	19	1,150	17	1,079									2	71	3	52
316 MIDWAY-LYNCH	18	467	15	461	4	106				1	1	2	5	1	1	
317 MIDWAY-POWELLHURST	7	249	7	249	1	48									1	9
318 MILL CREEK-EASTLAND	11	746	8	295									3	451	1	1
319 MILL CREEK-KUEBLER	5	169	5	169	1	1										
320 MILL CREEK-MILL CREEK 13	1	2	1	2	1	2										
321 MOLALLA-BUCKAROO	14	479	12	473	1	3							2	7	3	118
322 MOLALLA-FOREST	11	225	10	180	1	4							1	45	3	28
323 MOLALLA-MARQUAM	20	4,389	18	1,353	5	38							2	3,037	9	483
324 MOLALLA-YODER	16	1,287	11	29	6	14							5	1,258	2	4

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2016 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 ANGEL-EAST	3	16	3	16	1	1										
326 MT ANGEL-WEST	21	1,001	16	44	5	11							4	956	2	3
327 MT PLEASANT-CLAIRMONT	8	328	8	328	2	10									3	104
328 MT PLEASANT-MT VIEW	5	148	5	148	1	14									14	36
329 MT PLEASANT-RIVERCREST	4	8	3	6									1	2	1	38
330 MT PLEASANT-SOUTH END	8	595	7	592	1	36							1	3	3	6
331 MULINO-NORTH	1	3	1	3											1	2
332 MULINO-SOUTH	9	281	5	247	1	22							4	35	14	49
333 MULTNOMAH-13176	15	373	14	370	3	142							1	2	15	918
334 MULTNOMAH-13177	12	2,591	10	223	3	203							2	2,368	7	1,257
335 MULTNOMAH-13181	8	78	7	72	2	35							1	6	7	145
336 MULTNOMAH-MULTNOMAH 13	6	659	6	659	1	1									4	35
337 MURRAYHILL-KINTON	3	15	3	15											1	12
338 MURRAYHILL-MURRAYHILL 13	9	10,163	4	16			2	10,138			2	8	1	2		
339 MURRAYHILL-REUSSER	1	3	1	3												
340 MURRAYHILL-TEAL	8	6,130	4	22			2	5,229					2	879	9	486
341 NEWBERG-CHEHALEM	24	4,110	21	1,971	4	209							3	2,139	9	16
342 NEWBERG-DUNDEE	27	1,865	23	1,019	9	50							4	846	9	445
343 NEWBERG-HOOVER PARK	11	376	10	373	9	181							1	3	2	191
344 NEWBERG-NORTH COLLEGE	12	249	11	246	8	90									6	56
345 NORTH MARION-CROSBY	5	222	5	222											2	4
346 NORTH MARION-FRONT	4	595	4	595	1	558										
347 NORTH MARION-HUBBARD	11	3,017	9	1,076	5	810							1	1		
348 NORTH MARION-MCLAREN	22	1,925	20	1,915	6	36							1	4	4	20
349 NORTH PLAINS-MASON HILL	14	1,486	7	41	2	16							6	1,440	7	14,112
350 NORTH PLAINS-NORTH PLAINS 13	19	1,071	15	258	1	18					1	218	3	595	5	243
351 NORTHERN-11009	6	44	5	43	1	23							1	1	7	226
352 NORTHERN-11016	3	486	2	453									1	33	6	22
353 NORTHERN-11071	7	5,798	6	119	1	15							1	5,679	8	47
354 OAK GROVE-LAKE HARRIET	2	598	1	5	1	5			1	594						
355 OAK GROVE-WHITE WATER	1	139							1	139						
356 OAK HILLS-FIVE OAKS	3	214	1	4									1	205		
357 OAK HILLS-GREENBRIER	3	121									2	66	1	55	2	31
358 OAK HILLS-OAK HILLS 13	2	7	2	7												
359 OAK HILLS-SOMERSET	8	338	8	338											3	27
360 OAK HILLS-WALKER	4	1,083	4	1,083											2	56

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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 OREGON STEEL-OREGON STEEL 13																
362 ORENCO-231ST	1	478									1	478			1	42
363 ORENCO-AMBERGLEN															1	11
364 ORENCO-BASELINE	11	143	8	79							1	46	2	19	9	164
365 ORENCO-ORENCO 13															2	82
366 ORENCO-PRIMATE	7	2,853	6	2,691									1	162	5	272
367 ORENCO-WILKINS	2	22									2	22				
368 ORIENT-BARLOW	17	221	16	220	4	129							1	1	3	18
369 ORIENT-ORIENT 13	10	1,388	10	1,388	1	7									11	76
370 OSWEGO-IRON MOUNTAIN	2	25	2	25											2	10
371 OSWEGO-MARYLHURST	7	421	7	421	2	96										
372 OSWEGO-PALATINE	7	415	7	415	1	5									5	55
373 OSWEGO-STAFFORD	10	1,177	10	1,177	2	60									6	215
374 OXFORD-FAIRVIEW	10	8,738	10	8,738	2	49									1	9
375 OXFORD-LEE	6	157	6	157	3	141									4	34
376 OXFORD-MADRONA	2	284											2	284	8	54
377 OXFORD-OXFORD 13	3	35	3	35	1	5										
378 OXFORD-RURAL	1	19	1	19	1	19									1	29
379 OXFORD-SHELTON															2	9
380 PELTON-ROUND BUTTE																
381 PENINSULA PARK-OCKLEY GREEN																
382 PENINSULA PARK-PENINSULA PARK	6	32	6	32	2	11										
383 PLEASANT VALLEY-BAXTER	4	32	3	7									1	25		
384 PLEASANT VALLEY-CLATSOP	5	443	5	443	1	61									1	12
385 PLEASANT VALLEY-MOON	7	506	6	503	1	3							1	3	5	63
386 PLEASANT VALLEY-PLEASANT 13	21	822	14	601	2	19							7	221	4	22
387 PLEASANT VALLEY-SUN	8	1,586	3	145							1	3	4	1,437	3	12
388 PORTLAND WATER-PUMPING																
389 PORTSMOUTH-CARBIDE	19	871	10	111	2	54							9	760	11	78
390 PORTSMOUTH-DISPOSAL	1	32	1	32	1	32										
391 PORTSMOUTH-WILLIS	12	122	8	82							1	2	3	37	14	114
392 PROGRESS-GREENBURG	6	562	5	297									1	265		
393 PROGRESS-HALL	1	17	1	17											9	92
394 PROGRESS-ROBINSON	11	3,157	7	719							1	1	3	2,437	1	5
395 PROGRESS-SAWYER	2	11	2	11												
396 PROGRESS-WASHINGTON SQ #1																

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2016 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 PROGRESS-WASHINGTON SQ #2															1	42
398 RALEIGH HILLS-DOGWOOD	6	1,443	6	1,443	2	555									8	107
399 RALEIGH HILLS-MONTCLAIR	1	3	1	3											9	242
400 RALEIGH HILLS-OLESON	9	748	9	748	3	411									2	93
401 RAMAPO-EMERALD	18	27,143	14	1,727	2	723	3	25,389			1	27				
402 RAMAPO-GILBERT	15	6,524	9	731	1	28	1	5,620					5	173	5	23
403 RAMAPO-RAMAPO 13	14	9,664	10	1,451	2	896	1	7,636					3	576	2	5
404 REDLAND-HENRICI	18	4,958	17	4,956	1	5							1	2	14	246
405 REDLAND-REDLAND 13	38	4,242	31	1,392	7	256					1	2	6	2,848	5	44
406 REEDVILLE-AUGUSTA	5	154	5	154											1	3
407 REEDVILLE-BLANTON	21	22,432	16	2,594	1	21							5	19,838	36	916
408 REEDVILLE-HAZELDALE	7	1,374	7	1,374											19	112
409 REEDVILLE-INTEL #4																
410 REEDVILLE-INTEL #5																
411 REEDVILLE-TV	7	462	6	460	2	338							1	2	1	11
412 RIVERGATE SOUTH-11010																
413 RIVERGATE SOUTH-11011	3	1,664	3	1,664											12	154
414 RIVERGATE SOUTH-PEARCY	1	8	1	8												
415 RIVERGATE SOUTH-SWIFT																
416 RIVERVIEW-FULTON	14	160	13	158	2	17									12	54
417 RIVERVIEW-MACADAM	3	1,999	3	1,999	2	1,620									5	55
418 RIVERVIEW-TERWILLIGER	6	54	6	54											2	30
419 ROCKWOOD-AIRPORT															1	80
420 ROCKWOOD-BOEING																
421 ROCKWOOD-INDUSTRIAL	3	125	3	125	1	3										
422 ROCKWOOD-REYNOLDS	8	6,208	5	292	2	172							3	5,917		
423 ROCKWOOD-ROCKWOOD 13	10	405	7	310	1	16							2	95	6	238
424 ROCKWOOD-WILKES																
425 ROSEMONT-HIDDEN SPRINGS	5	1,313	3	1,259									2	53	4	158
426 ROSEMONT-MOSSY BRAE	3	17	2	15									1	2	5	42
427 ROSEMONT-OVERLOOK	6	61	3	41									2	11	7	56
428 ROSEWAY-ALEXANDER	3	1,621	1	1,604	1	1,604							1	12	4	49
429 ROSEWAY-ESPLANADE	14	958	12	919	2	711					1	15	1	23	2	8
430 ROSEWAY-ROSEWAY 13																
431 RUBY-CARLINE	7	135	5	132	1	3							2	3	3	87
432 RUBY-JUNCTION	11	412	11	412	1	5									2	29

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2016 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-13260																
434 SALEM-13261																
435 SALEM-13262															1	4
436 SALEM-13263																
437 SALEM-13264																
438 SALEM-UNION																
439 SANDY-362ND	19	1,939	14	792	2	128							5	1,147	3	5
440 SANDY-BLUFF	8	3,187	6	328			1	2,614					1	245		
441 SANDY-SANDY 13	24	5,761	16	3,458	3	5							8	2,304	6	31
442 SANDY-WILDCAT	12	1,578	9	1,556	4	105							3	22		
443 SCAPPOOSE-SAUVIE ISLAND															8	43
444 SCHOLLS FERRY-KEMMER	4	31	4	31	1	11									2	4
445 SCHOLLS FERRY-RAINBOW	26	2,292	20	872	5	72							6	1,420	11	43
446 SCHOLLS FERRY-ROY ROGERS	7	218	6	211									1	7	3	18
447 SCOGGINS-CHERRY GROVE	7	144	6	143	1	4							1	2	3	10
448 SCOGGINS-LAURELWOOD	22	2,019	21	1,940	6	23							1	79	6	111
449 SCOTTS MILLS-SCOTTS MILLS 13	23	2,882	21	573	7	181							2	2,309	5	27
450 SELLWOOD-KELLOGG PARK	5	71	5	71	1	25										
451 SELLWOOD-SELLWOOD 13	3	12	3	12											13	319
452 SELLWOOD-WAVERLY	8	829	5	769	1	33							3	60	3	130
453 SHERIDAN-EAST	20	10,885	16	678	3	283	1	10,041					3	166	4	13
454 SHERIDAN-KADELL	18	14,278	13	370	7	327	1	13,358					4	550	2	78
455 SHUTE-LINDE 1 35KV																
456 SILVERTON-NORTH	7	5,054	5	111	2	2							2	4,943	2	46
457 SILVERTON-SOUTH	12	1,840	10	1,807	1	4							2	32	1	3
458 SILVERTON-WEST	32	4,154	19	315	5	35							12	3,838	2	38
459 SIX CORNERS-13359	13	11,546	11	1,146	1	4	1	10,322					1	78	19	173
460 SIX CORNERS-13360	2	2,589	1	26			1	2,563							1	5
461 SIX CORNERS-BORCHERS	10	1,041	10	1,041	2	384									9	88
462 SIX CORNERS-CHAPMAN	7	1,123	5	1,119									2	5	1	8
463 SIX CORNERS-SIX CORNERS 13	3	263	2	261									1	2	2	24
464 SP NEWSPRINT-NEWBERG																
465 SPRING HILL-SPRING HILL																
466 SPRINGBROOK-FERNWOOD	8	1,099	7	1,093	2	485							1	6	6	17
467 SPRINGBROOK-ST PAUL	21	4,896	17	937	6	62							4	3,959	2	4
468 SPRINGBROOK-VILLA	4	133	4	133	2	111									1	42

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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
469 SPRINGBROOK-ZIMRI	15	673	14	667	6	573							1	6	2	6
470 ST HELENS-KASTER																
471 ST LOUIS-EAST	7	13,749	7	13,749	1	1									3	7
472 ST LOUIS-NORTH	16	3,834	15	3,828	5	1,033							1	7	2	4
473 ST LOUIS-WEST	21	2,892	20	2,888	5	12							1	4	7	10
474 ST MARYS EAST-BETHANY	1	5	1	5												
475 ST MARYS EAST-BUTNER	11	228	9	219	1	6							2	9	2	4
476 ST MARYS EAST-ELMONICA	24	2,438	19	2,314	1	219							5	124	2	73
477 ST MARYS EAST-JENKINS																
478 ST MARYS EAST-MILLIKAN	2	202	2	202											1	32
479 ST MARYS EAST-ST MARYS 13	1	21	1	21												
480 STEPHENS-11001															4	31
481 STEPHENS-11020	3	413	3	413	2	407									1	8
482 STEPHENS-11054 NETWORK																
483 STEPHENS-11055 NETWORK																
484 STEPHENS-11092 NETWORK																
485 STEPHENS-11093 NETWORK	1	2									1	2				
486 STEPHENS-11094 NETWORK																
487 STEPHENS-11095 NETWORK																
488 STEPHENS-11097 NETWORK																
489 STEPHENS-11098	2	15	2	15	1	4									1	2
490 STEPHENS-11099 NETWORK	1	4	1	4	1	4										
491 STIMSON LUMBER-FORESTEX																
492 SULLIVAN-ROBINWOOD	5	45	5	45											3	16
493 SULLIVAN-SALAMO	5	11	4	11	1	2							1	0	3	56
494 SULLIVAN-SUSSEX	2	61	1	57									1	4		
495 SULLIVAN-TANNER	3	713	3	713											2	2
496 SULLIVAN-WILLAMETTE	11	349	8	318	3	9							3	30	4	15
497 SULZER PUMPS-115B																
498 SUMMIT-GOVERNMENT CAMP	2	8	2	8	1	4									1	32
499 SUMMIT-MEADOWS	1	433	1	433											1	68
500 SUMMIT-SUMMIT 13	3	59	3	59											1	6
501 SUNSET-BLANCHET																
502 SUNSET-COLFAX																
503 SUNSET-CORNELL																
504 SUNSET-DORION																

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2016 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
505 SUNSET-IDTB																
506 SUNSET-INTEL D1B1															1	13
507 SUNSET-INTEL D1X1																
508 SUNSET-KOMATSU #1																
509 SUNSET-LANE																
510 SUNSET-MCCALL																
511 SUNSET-MEEK	1	4	1	4												
512 SUNSET-PAULING																
513 SUNSET-SPALDING	1	8											1	8		
514 SUNSET-WHITMAN															1	5
515 SUNSET-YOUNG																
516 SWAN ISLAND-BASIN	1	40	1	40												
517 SWAN ISLAND-DOLPHIN																
518 SWAN ISLAND-FREIGHTLINER	2	67	2	67	1	3										
519 SWAN ISLAND-GOING																
520 SWAN ISLAND-SHIPYARD	1	1	1	1												
521 SYLVAN-BARNES	6	229	5	220									1	8	6	56
522 SYLVAN-PATTON	14	774	11	710	2	109							3	64	20	768
523 TABOR-82ND	11	1,224	8	276	3	109							2	946	13	68
524 TABOR-HOSPITAL	2	25	2	25	1	21									4	33
525 TABOR-TABOR 13	5	2,560	5	2,560	1	32									21	414
526 TEKTRONIX-HOCKEN	5	881	4	541	1	4	1	340							1	3
527 TEKTRONIX-NORTH	1	9						1	9							
528 TEKTRONIX-SHANNON	9	504	9	504	2	9									3	27
529 TEKTRONIX-SOUTH	20	13,154	17	7,021	1	2	1	5,735					2	398	15	4,554
530 TEKTRONIX-TEKTRONIX 13	6	140	6	140	5	33										
531 TEKTRONIX-WEST																
532 TEMP B-NORTH	1	1,219						1	1,219						1	8
533 TEMP B-SOUTH	1	30						1	30							
534 TIGARD-13336	3	225	3	225											2	38
535 TIGARD-13337	3	3,518	2	3									1	3,515	2	44
536 TIGARD-13361	7	384	5	69									1	306		
537 TIGARD-13362	5	790	3	777	1	768							2	13	3	61
538 TIGARD-TIGARD 13	6	793	6	793	1	183									3	27
539 TOWN CENTER-LAWNFIELD	1	2	1	2												
540 TOWN CENTER-MONTEREY	3	152	2	12									1	141	1	1

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
541 TOWN CENTER-NORTH																
542 TOWN CENTER-PRECISION CASTPARTS																
543 TOWN CENTER-SOUTH																
544 TOWN CENTER-SUNNYBROOK	1	4	1	4											3	3
545 TOWN CENTER-VALLEY VIEW																
546 TROJAN-EAST																
547 TUALATIN-AVERY	7	992	7	992	1	4									2	46
548 TUALATIN-CIPOLE																
549 TUALATIN-HERMAN	1	69	1	69											1	12
550 TUALATIN-IBACH	10	159	6	49								4	111		1	19
551 TUALATIN-LEVETON															1	6
552 TUALATIN-TUALATIN 13																
553 TURNER-CASCADE	12	688	10	113	5	31							2	575	4	33
554 TURNER-TURNER 13	15	328	14	111	5	9							1	218	2	6
555 TWILIGHT-BREMER	26	1,461	23	1,431	3	25							3	30	5	23
556 UNIONVALE-UNIONVALE 13	32	3,202	27	467	11	41			1	2,467			3	264	12	64
557 UNIVERSITY-MILL	4	18	3	17												
558 UNIVERSITY-TRADE	10	1,512	8	1,509	3	338							2	3	4	107
559 URBAN-BARBUR	4	634	3	114	1	104							1	520	1	98
560 URBAN-CAMPUS	1	2	1	2												
561 URBAN-CORBETT	2	2,578	1	2,392											3	239
562 URBAN-GAINES	2	218	2	218	1	19									2	37
563 URBAN-GIBBS																
564 URBAN-KELLY	2	655	1	20	1	20							1	635	1	2
565 URBAN-LANDING	2	19	1	11									1	8	1	4
566 URBAN-MEDICAL	1	4	1	4												
567 URBAN-OHSU																
568 WACKER-WACKER 1																
569 WACONDA-NORPAC																
570 WACONDA-RIVER	19	268	17	262	4	16							2	6	2	18
571 WACONDA-WACONDA 13	13	69	13	69	6	9									3	7
572 WALLACE-WALLACE 13	17	9,380	15	3,994	3	7							2	5,386	5	166
573 WALLACE-WILLOW LAKE	5	410	4	409									1	2	2	9
574 WELCHES-WELCHES 13	9	255	8	236									1	19	4	35
575 WELCHES-ZIG ZAG	12	353	11	349	1	6							1	4	1	5
576 WEST PORTLAND-72ND	1	69	1	69	1	69									1	20
577 WEST PORTLAND-NORTH	10	750	9	547	1	2							1	202	7	174
578 WEST PORTLAND-PACIFIC	12	1,130	12	1,130	2	258									4	28
579 WEST PORTLAND-WEST PORTLAND 13	4	167	4	167	1	10									4	101
580 WEST UNION-CORNELIUS PASS	18	6,662	15	2,818	1	6			1	3,107			2	737	2	17

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

2016 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
581 WEST UNION-WEST UNION 13	24	7,764	23	3,589					1	4,175					2	169
582 WILLAMINA-BRIDGE	16	1,617	13	264	6	163							3	1,353	4	63
583 WILLAMINA-BUELL	11	197	9	96	2	7							2	102	5	20
584 WILLAMINA-LUMBER																
585 WILLBRIDGE-WILLBRIDGE #1	3	94	2	4							1	90			4	32
586 WILLBRIDGE-WILLBRIDGE #4																
587 WILSONVILLE-BOECKMAN	8	86	6	62	1	1							2	24	3	62
588 WILSONVILLE-CHARBONNEAU	9	500	7	492	2	89					1	4	1	4	5	53
589 WILSONVILLE-CITY	4	1,552	2	1,550							1	1	1	1		
590 WILSONVILLE-MENTORTEK																
591 WILSONVILLE-PARKWAY															1	15
592 WILSONVILLE-VILLEBOIS	5	54	3	47	1	44					1	3	1	3	3	18
593 WILSONVILLE-WEST	2	6	2	6											7	19
594 WOODBURN-CANNERY	9	229	9	229	2	110									1	2
595 WOODBURN-EAST	6	622	6	622	3	599										
596 WOODBURN-TOMLIN	9	3,068	8	349	1	21							1	2,719	3	32
597 WOODBURN-WEST	19	2,112	16	631	4	186							3	1,481	1	1
598 YAMHILL-CARLTON	22	4,338	14	156	8	80					1	2	7	4,180	1	8
599 YAMHILL-YAMHILL 13	20	1,553	17	1,529	9	603							3	24		
Grand Totals:	4,241	855,340	3,446	355,249	670	47,546	56	208,495	16	25,997	58	4,439	610	258,536	2,130	66,601

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

2016 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	1	17									1	17										
2 ABERNETHY-OREGON CITY	7	232					1	144			2	44	3	38	1	6						
3 ABERNETHY-TRANSIT	13	5,137			1	42	1	8	1	32	5	17	3	5,033	2	5						
4 ALDER-ANKENY	9	226	1	8							1	165	4	43	3	10						
5 ALDER-IRVING	3	151							1	148	2	3										
6 ALDER-LINCOLN	5	31							1	15			2	4	2	12						
7 ALDER-STARK	7	138							2	33					5	105						
8 ALDER-TAYLOR	3	9									1	5	2	5								
9 ALDER-YAMHILL																						
10 AMITY-AMITY 13	17	4,059	2	17					3	20	6	53	1	34	5	3,936						
11 AMITY-BELLEVUE	20	1,676	1	13					3	33	4	436	2	26	7	66	1	2	2	1,099		
12 ARLETA-52ND	12	384					1	4	1	2	1	3	5	120	4	256						
13 ARLETA-FOSTER	9	99					1	3	2	32	2	2	2	9	2	53						
14 ARLETA-HAROLD	6	56							2	6	1	2	2	4	1	44						
15 ARLETA-POWELL	7	458	2	438									3	12	2	7					1	19
16 ARLETA-STEELE	6	583	2	528							3	24	1	30								
17 BANKS-BANKS 13	12	287	1	43			1	39			3	5	5	193	1	4	1	3				
18 BANKS-CEDAR CANYON	15	107	4	60			1	6	2	16			3	11	5	14						
19 BARNES-BATTLE CREEK	4	765	1	90					1	665	1	1			1	8						
20 BARNES-BOONE	10	1,214	6	580							2	610			1	3	1	22			1	5,801
21 BARNES-COMMERCIAL	14	3,806	7	750					2	52	2	2,960	1	43	1	0	1	1			1	7,849
22 BARNES-SUNNYSIDE	11	972	3	548			1	2	1	107	1	224	1	36	3	55	1	1				
23 BEAVER-KB PIPELINE																						
24 BEAVERTON-ALLEN	7	116	2	41					2	62			2	3	1	10						
25 BEAVERTON-JAMIESON	2	10	1	9							1	1										
26 BEAVERTON-NORTHWEST	2	26											2	26								
27 BEAVERTON-WEST SLOPE	11	5,014	2	12					1	127	2	4,848	2	10	2	13	2	3				
28 BELL-BATTIN	4	206	2	23			1	2					1	181								
29 BELL-BRENTWOOD																						
30 BELL-FLAVEL	2	76					1	1	1	74												
31 BELL-JOHNSON CREEK																						
32 BELL-KENDALL	3	56							1	36			1	8	1	12						
33 BELL-KING	5	3,011									2	6	1	11	1	73			1	2,922		
34 BELL-SOUTHGATE	9	269							2	35	2	125	3	46	2	64						
35 BELL-WICHITA	4	439									3	421			1	18						
36 BETHANY-BURTON	1	16							1	16												
37 BETHANY-GERMANTOWN	4	19					1	1			1	2	2	16								
38 BETHANY-KAISER	4	8					1	4			1	2			1	1	1	1				
39 BETHANY-LAIDLAW	3	315	1	16					1	109					1	191						
40 BETHANY-SPRINGVILLE	2	4											2	4								

¹ See Section IX - Cause Code Categories for category definitions

Outs = Outages

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

Hrs = # of customers * duration hrs

2016 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-THOMPSON	1	3											1	3								
42 BETHEL-FRUITLAND	24	7,310	10	1,745	1	398	2	2,573	1	7	1	7	5	2,195	3	380			1	6		
43 BETHEL-GEER	14	700	2	12			3	25	1	11			3	640	5	11						
44 BETHEL-MACLEAY	8	1,264	4	293			1	21	2	946					1	4						
45 BLUE LAKE-BLUE LAKE 13	4	1,056	1	162					1	826					2	68						
46 BLUE LAKE-SUNDIAL	3	60	1	23			1	12					1	25								
47 BLUE LAKE-TOYO TANSO																						
48 BOISE CASCADE-BOISE #1																					1	4
49 BOONES FERRY-GOODALL	12	554	5	412			1	3	1	6			4	35			1	98				
50 BOONES FERRY-KRUSE	4	434	1	2			1	347			1	21			1	64						
51 BOONES FERRY-LAKE GROVE	12	387	2	214					2	41	3	43	3	62	2	28						
52 BOONES FERRY-MOUNTAIN PARK	5	4,793	1	16	1	4,431	1	3			1	177			1	166						
53 BOONES FERRY-WEMBLEY PARK	6	80							1	17	5	62										
54 BORING-282ND	16	4,246	4	92			1	17	7	158	1	2,178	1	2	1	1,799	1	1				
55 BORING-CITY	10	146	2	47			1	3					6	18	1	79						
56 BORING-TELFORD	14	334	6	114			5	173	2	44					1	3						
57 BRIGHTWOOD-BRIGHTWOOD 13	16	1,186	2	6	1	917			7	83			4	72	2	108						
58 BRIGHTWOOD-NORTH BANK	8	529	4	444									1	36	3	49						
59 BROOKWOOD-BORWICK	3	17	3	17																		
60 BROOKWOOD-BROOKWOOD 13																						
61 BROOKWOOD-SUNRISE	4	1,197					1	2			1	111			1	41			1	1,043		
62 CANBY-13643	14	72	3	20			2	5	2	24	4	14	2	7	1	1					1	5,081
63 CANBY-13644	8	292							2	16	2	11	2	180	1	2			1	84	1	732
64 CANBY-BUTTEVILLE	6	174							2	160			3	11	1	3						
65 CANBY-FILBERT	6	42							2	29	1	5	2	7	1	1						
66 CANBY-ZIMMERMAN																						
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-13119 PSU																						
73 CANYON-13120	1	4															1	4				
74 CANYON-13121																						
75 CANYON-13122 NETWORK #2	1	2	1	2																		
76 CANYON-13123 NETWORK #2																						
77 CANYON-13124 NETWORK #2																						
78 CANYON-13125 NETWORK #2																						
79 CANYON-13133 NETWORK #3																						
80 CANYON-13134 NETWORK #3																						

¹ See Section IX - Cause Code Categories for category definitions

Outs = Outages

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

Hrs = # of customers * duration hrs

2016 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-13135 NETWORK #3																						
82	CANYON-13136 NETWORK #3																						
83	CANYON-21ST	4	622						1	4	1	113	2	506									
84	CANYON-23RD	6	456	1	10						3	436	1	5	1	5							
85	CANYON-BURNSIDE	2	79												2	79							
86	CANYON-CANYON 13	5	1,807	2	1,753						2	46	1	8									
87	CARVER-ALMOND	1	3	1	3																		
88	CARVER-CARVER 13	15	589	4	100			4	335	2	58	1	4	3	64	1	27						
89	CARVER-NORTH	3	1,418					1	1,401			1	6	1	11								
90	CARVER-RIVERBEND	1	1									1	1										
91	CARVER-SOUTH	1	16											1	16								
92	CARVER-WOODS	6	28	1	17			1	1			1	2	3	9								
93	CEDAR HILLS-CEDAR HILLS 13																						
94	CEDAR HILLS-LEAHY	6	700	4	620			1	24						1	57							
95	CEDAR HILLS-SHOPPING CENTER	12	1,230	5	777							2	35	5	419								
96	CEDAR HILLS-SKYLINE																						
97	CEDAR HILLS-ST VINCENT																						
98	CEDAR HILLS-SYLVAN	1	372											1	372								
99	CENTENNIAL-BARKER	17	575	6	285						3	186	7	99	1	6							
100	CENTENNIAL-BRAECROFT	7	766	1	22			2	179	1	286			3	279								
101	CENTENNIAL-CENTENNIAL 13	13	1,950	2	34			1	9	1	1,064	1	777	3	26	5	40						
102	CENTENNIAL-TREELAND	9	122	2	13					2	53			2	40	3	16						
103	CLACKAMAS-EVELYN																						
104	CLACKAMAS-GLADSTONE	3	488	1	222					1	243				1	22							
105	CLACKAMAS-JENNIFER	5	1,412	2	1,382			2	23			1	8										
106	CLACKAMAS-TOLBERT	8	911	2	139					1	532	1	2		4	237							
107	CLAXTAR-CLAXTAR 13	1	4												1	4							
108	CLAXTAR-HAYESVILLE	3	177							1	41	1	15	1	122								
109	CLAXTAR-RIDGE	6	113	4	34					1	37				1	41							
110	COFFEE CREEK-FREEMAN	1	5												1	5							
111	COFFEE CREEK-HOLIDAY																						
112	COLTON-DHOOGHE	5	22	2	9							2	4	1	10								
113	COLTON-GRAYS HILL	9	667							3	592	3	52	1	8	2	15						
114	CORNELIUS-ADAIR	11	240	4	68			2	55	3	87	1	4		1	26							
115	CORNELIUS-CORNELIUS 13	14	1,163	6	200					2	11	1	2	2	910	3	41						
116	CORNELIUS-VERBOORT	11	160							4	25	3	85	2	32	1	2			1	15		
117	CORNELL-BLUFFS	10	654	7	645			1	1	1	4	1	4										
118	CORNELL-SALTZMAN	2	201					1	134						1	67							
119	CORNELL-WESTLAWN	6	1,831	2	76					1	339			2	1,013	1	403						
120	CULVER-SANYO #1																						

¹ See Section IX - Cause Code Categories for category definitions

Outs = Outages

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

Hrs = # of customers * duration hrs

2016 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrester		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-11077	11	198							2	165	1	3	5	19	3	10						
122	CURTIS-CURTIS 13	8	146							1	9	2	24	4	12	1	102						
123	DAYTON-EAST	18	1,589	2	68					1	14	5	11	2	1,434	8	62						
124	DAYTON-LAFAYETTE	11	804	1	8							3	16	2	6	5	775						
125	DAYTON-SOUTHWEST	16	127	4	32							3	34	4	24	5	38						
126	DELAWARE-DENVER	5	14	1	5							3	7	1	2								
127	DELAWARE-INTERSTATE	3	213											1	3	2	210						
128	DELAWARE-LOMBARD	8	56							1	2			4	29	3	25						
129	DENNY-EAST	7	1,132	1	724			1	257	1	29	1	74	1	24	1	23	1	0				
130	DENNY-NORTH																				1	1,090	
131	DENNY-SOUTH	9	2,296	4	1,806			2	312			2	162	1	15								
132	DENNY-WEST	9	2,990	7	2,910					2	80												
133	DILLEY-DILLEY 13	14	163	2	76			1	16	5	44	2	4	1	3	2	13			1	7	1	3
134	DILLEY-SPRINGHILL																						
135	DUNNS CORNER-DUNNS CORNER 13	12	1,790	1	1					2	99	2	1,622	3	13	2	52	1	2	1	2		
136	DUNNS CORNER-KELSO	2	70	1	49									1	21								
137	DURHAM-BONITA	1	124													1	124						
138	DURHAM-BRIDGEPORT	2	311	1	150					1	162												
139	DURHAM-DURHAM 13	4	189	3	110			1	79														
140	DURHAM-POOPLANT																						
141	DURHAM-SATTLER	3	382	2	377							1	5										
142	DURHAM-SOUTH	1	14													1	14						
143	E-11021																						
144	E-11039																						
145	E-11040	6	159							1	7			3	23	1	1			1	129		
146	E-11041																						
147	E-11042																						
148	E-11043																						
149	E-11047																						
150	E-11064																						
151	E-13139	2	142											1	2	1	140						
152	E-13140	5	141							2	133			3	8								
153	E-13141																						
154	E-13142																						
155	E-13144	7	36	1	3			1	5	2	21	3	8										
156	E-13145	1	3															1	3				
157	E-13148	4	178	4	178																		
158	E-13149	2	16,048	2	16,048																		
159	E-13150	3	12							1	6	1	4	1	2								
160	EAGLE CREEK-BARTON	5	18					1	5	1	3	1	1	1	5	1	3						

¹ See Section IX - Cause Code Categories for category definitions

Outs = Outages

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

Hrs = # of customers * duration hrs

2016 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrester		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 EAGLE CREEK-RIVER MILL	8	473	2	82					2	10			1	346	3	36						
162 EASTPORT-76TH	4	78	1	58							1	12	1	3	1	5						
163 EASTPORT-PLAZA	8	131	2	7			1	6			1	1			4	118						
164 ELMA-ELMA 13	9	817	3	257			2	243	2	38	1	61			1	218						
165 ELMA-FOUR CORNERS	17	3,775	7	2,799			1	491	1	4	4	400	1	34	3	47						
166 ELMA-HUDSON	10	323	3	10			1	135					4	19	2	158						
167 ELMA-STATE	1	4											1	4								
168 ESTACADA-ESTACADA 13	7	445							2	16	1	6	1	13	3	411					1	0
169 ESTACADA-FARADAY	27	949	7	688			1	8	6	114	3	71	9	55					1	13	1	22,568
170 FAIRMOUNT-CANDALARIA	11	250							2	19	3	4	5	225	1	2						
171 FAIRMOUNT-MISSION	11	268					1	2			5	128	3	134					2	4		
172 FAIRVIEW-CLEAR CREEK																						
173 FAIRVIEW-FAIRVIEW 13	6	94					1	2	1	23	3	22			1	47						
174 FAIRVIEW-KENNEL CLUB	10	670	3	272			1	219			3	168	2	6	1	4						
175 FAIRVIEW-TROUTDALE	9	263	4	220					2	8	1	1	2	34								
176 FAIRVIEW-WOOD VILLAGE	7	210	2	102			2	11	1	89			2	8								
177 FARGO-FARGO 13	10	409	3	102					1	259			4	43	2	6						
178 GALES CREEK-GALES CREEK 13	9	1,903			1	8					5	1,890			3	5						
179 GARDEN HOME-MCKAY	8	1,989	1	219					2	28			2	14	2	1,727	1	1				
180 GARDEN HOME-METZGER	6	203	1	8					2	153			2	39			1	3				
181 GLENCOE-GLISAN	5	37											4	35	1	2						
182 GLENCOE-PROVIDENCE	3	12									1	1	1	2	1	9						
183 GLENCOE-SUNNYSIDE	4	13									1	3	2	8	1	2						
184 GLENCULLEN-BRIDLEMILE	11	435	1	1			2	9	1	18	2	62	3	152	2	193						
185 GLENCULLEN-SUNSET	5	316	2	30			1	279			1	3	1	4								
186 GLENDOVEER-13596	2	11					1	9					1	2								
187 GLENDOVEER-13597	6	1,425	2	960			1	412					2	15	1	37						
188 GLENDOVEER-13598	5	70							1	14	1	32	2	7	1	16						
189 GLENDOVEER-13599	12	652	1	96			1	285	1	222	2	7	4	28	1	10	2	5				
190 GLENDOVEER-CLIFFGATE	14	2,594	3	1,044					2	114	5	1,377	2	18	2	42						
191 GLENDOVEER-NORTHEAST	11	207							2	149	3	13	4	15	2	30						
192 GLISAN-FAB 2A																						
193 GLISAN-UTILITY 1B																						
194 GORMLEY-MCMINNVILLE WL																						
195 GRAND RONDE-AGENCY	6	197					1	12	1	11			1	10	3	164						
196 GRAND RONDE-FORTHILL	6	75							3	58	1	5			2	12						
197 HARBORTON-BURLINGTON	22	1,618	4	56			2	31	2	22	4	1,415	5	33	5	62						
198 HARBORTON-HARBORTON 13																						
199 HARBORTON-LINNTON	4	242									1	211	3	31								
200 HARMONY-HARMONY 13	3	74	1	70									2	5								

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Hrs = # of customers * duration hrs

2016 Outages by Cause PGE Equipment ¹

Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrester		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-INTERNATIONAL	5	1,235	2	1,076					1	43			1	76	1	41					1	2
202 HARMONY-LAKE	4	57					2	18	1	37					1	2						
203 HARMONY-LINWOOD	7	406	2	158			1	6					3	240	1	3						
204 HARMONY-MILWAUKIE	12	1,258	3	1,100			2	35	1	90			3	7	3	27						
205 HARMONY-THIESSEN	7	472	2	290			1	1	1	61	1	117			2	3						
206 HARRISON-DAVIS	7	15											6	13	1	2						
207 HARRISON-HARRISON 13	6	154	1	141					1	5	2	5	1	2			1	2				
208 HARRISON-IVON	2	10										1	5	1	6							
209 HAYDEN ISLAND-MAINLAND																						
210 HAYDEN ISLAND-NORTH SHORE	11	336	4	230			1	12			1	3	4	82	1	9						
211 HAYDEN ISLAND-SOUTH SHORE	4	389	2	251			1	7			1	131										
212 HEMLOCK-FREMONT	5	73					2	57			1	7			2	9						
213 HEMLOCK-HEMLOCK 13	5	632	4	629									1	3								
214 HEMLOCK-MASON																						
215 HILLCREST-CASCADIA																						
216 HILLCREST-HILLCREST 13																						
217 HILLCREST-SOUTH	1	25							1	25												
218 HILLSBORO-DAIRY CREEK	8	154	1	1					1	3	4	145	1	3	1	1						
219 HILLSBORO-DENNIS	2	31							1	25			1	6								
220 HILLSBORO-JACKSON	8	76	3	10			1	12			1	2	2	50	1	2						
221 HILLSBORO-LAUREL	21	971	2	13			1	2	5	70	2	12	8	871	2	2	1	1				
222 HILLSBORO-SCHOLLS	1	0											1	0								
223 HOGAN NORTH-BRIGADOON	10	665	4	75			1	64	1	519	2	6	1	1	1	1						
224 HOGAN NORTH-HOGAN NORTH 13	5	414	4	221											1	192						
225 HOGAN NORTH-LINKS	25	784	9	420	1	25	5	36	3	203	3	39			4	61						
226 HOGAN NORTH-SALQUIST	12	339	2	81			1	1	3	244			5	10	1	3						
227 HOGAN SOUTH-CLEVELAND	6	2,595	3	130									2	6					1	2,460		
228 HOGAN SOUTH-LAWRENCE	18	1,171	9	577			1	2	1	234			3	22	3	333			1	3		
229 HOGAN SOUTH-MAIN	8	855	5	783			1	2	1	61			1	9								
230 HOGAN SOUTH-PAROPA	8	956	4	774	1	122			1	55					2	5						
231 HOGAN SOUTH-WALLULA	6	108	2	90									3	12	1	5						
232 HOLGATE-BYBEE	9	1,565	2	608			2	950					4	6			1	1				
233 HOLGATE-GIDEON	1	660																	1	660		
234 HOLGATE-HOLGATE 13	3	55							1	42			2	13								
235 HOLGATE-KENILWORTH	10	778	1	182			1	145			3	147	1	87	4	217						
236 HOLGATE-RHONE	7	16									2	3	3	4	1	8	1	1				
237 HUBER-BANY	10	326	5	139			2	153	2	28			1	6								
238 HUBER-FARMINGTON	11	1,642	7	1,449			1	15	2	137					1	41						
239 HUBER-HUBER 13	9	2,524							2	633	3	1,558	1	9	3	324						
240 HUBER-KINNAMAN	14	862	9	692							2	9	2	160	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
241 HUBER-MARYVILLE	15	1,019	10	536					2	73	1	2			2	407						
242 INDIAN-KEIZER	5	4,882	2	55	1	4,818							2	9								
243 INDIAN-LABISH	22	1,396	3	1,045				3	78			4	11	2	2	8	166	1	0	1	92	
244 INDIAN-NORTH	12	6,870	2	7				1	1			4	6	2	5	2	246			1	6,605	
245 INDIAN-STATION	6	4,552	5	179	1	4,372																
246 INDIAN-WEST	19	2,534	5	1,462					1	245	2	12	4	24	7	791						
247 ISLAND-13180	8	71						2	58			3	7	2	4	1	3					
248 ISLAND-13187	10	392	3	250					1	90	1	8	2	7	2	36			1	1		
249 ISLAND-13188	8	733	2	136							2	516	2	11	2	70						
250 ISLAND-ISLAND 13																						
251 JENNINGS LODGE-ADDIE	8	424	2	274				1	6				3	21	2	122						
252 JENNINGS LODGE-JENNINGS 13	4	114	1	51				1	55				2	8								
253 JENNINGS LODGE-MELDRUM	5	859	1	3							2	820	1	30	1	7						
254 JENNINGS LODGE-OAK GROVE	8	7,940	2	8				1	46	1	7		2	4	2	7,875						
255 JENNINGS LODGE-WEBSTER	4	27	2	17					1	5					1	4						
256 KELLEY POINT-KELLEY POINT 13																					1	63
257 KELLEY POINT-LEDBETTER																					1	233
258 KELLEY POINT-MARINE																						
259 KELLEY POINT-SIMMONS																						
260 KELLEY POINT-SOLAR #1																					1	4
261 KELLEY POINT-SOLAR #2	1	6			1	6																
262 KELLY BUTTE-BINNSMEAD	8	653							1	8	1	3	4	375	2	267						
263 KELLY BUTTE-FAIRLAWN	2	183													2	183						
264 KELLY BUTTE-MALL 205	8	144									1	1	4	13	2	127	1	3				
265 KELLY BUTTE-MCGREW	9	492	2	122					1	37	1	18	5	315								
266 KING CITY-BULL MOUNTAIN	7	644	2	6				2	34						2	558	1	46				
267 KING CITY-FISCHER	3	295	1	197				1	3	1	95											
268 KING CITY-HAZELBROOK	5	333	3	207									2	126								
269 KING CITY-NORTH	11	1,947	3	409				2	365	2	316	2	629	1	64	1	164					
270 KING CITY-SUMMERFIELD	2	1,320	1	21				1	1,299													
271 LAKE LABISH-LAKE LABISH																						
272 LELAND-BEAVERCREEK	22	751	7	383					3	33	1	12	9	28	2	295						
273 LELAND-CARUS	26	540	1	193					5	72	5	179	12	86	3	11						
274 LELAND-KELM	3	68											2	15	1	53						
275 LENTS-13101	9	477	1	2					2	101	1	1	3	8	2	365						
276 LENTS-HAPPY VALLEY	9	175	4	125				1	11	1	7	1	5	2	28							
277 LENTS-MT SCOTT	2	327							1	280	1	47										
278 LENTS-NORTH	6	58										1	41	5	17							
279 LIBERAL-LIBERAL 13	11	392	1	3				1	8			1	2	6	376	2	3					
280 LIBERAL-SAWMILL																						

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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-BROWNING	5	540	2	232			2	300						1	8						
282	LIBERTY-LONE OAK	2	507	1	353			1	153													
283	LIBERTY-MORNINGSIDE	8	86	1	33					1	8	1	2	3	7	2	36					
284	LIBERTY-ROSEDALE	20	262	7	158			3	36	3	21			2	5	5	43					
285	LIBERTY-SKYLINE	6	350							2	332	1	2			3	16					
286	LIBERTY-VISTA	2	26									1	25					1	1			
287	MAIN-AIRPORT	10	946	4	605							1	3	3	153	2	184					
288	MAIN-BENTLEY	9	471	5	100			1	133	2	233			1	4							
289	MAIN-EXPRESS	11	6,272	6	5,516			2	131	1	529			1	23	1	73					
290	MAIN-JONES FARM																					
291	MAIN-RIVER	12	2,423	7	1,925			1	2	2	26	2	470									
292	MARKET-ENGLEWOOD																					
293	MARKET-FAIRGROUNDS	7	75	1	54			1	8	1	5	1	1	1	1	2	6					
294	MARKET-HAWTHORNE	3	125											1	1	1	123	1	1			
295	MARKET-PARK	6	3,064							1	4	5	3,061									
296	MAXIM-MAXIM 13																					
297	MCCLAIN-COTTAGE	7	1,346							4	1,335	2	9			1	1					
298	MCCLAIN-FRONT	2	8									1	3	1	5							
299	MCCLAIN-HOLLYWOOD	3	551									2	11			1	540					
300	MCGILL-LSI AIR 1A																					
301	MERIDIAN-65TH																					
302	MERIDIAN-BORLAND	1	4											1	4							
303	MERIDIAN-CHILDS																					
304	MERIDIAN-LAKEVIEW	3	117	1	114									1	2	1	1					
305	MERIDIAN-MERIDIAN 13	25	332	3	15							2	192	9	45	9	56	1	1	1	23	
306	MERIDIAN-NYBERG	1	6					1	6													
307	MERIDIAN-PILKINGTON	7	479	2	162			2	3	2	312	1	2									
308	MERIDIAN-SAGERT	4	40	3	38									1	2							
309	MIDDLE GROVE-BROWN	10	177	4	15			1	67			1	2	3	26	1	66					
310	MIDDLE GROVE-CHEMEKETA	3	61	1	2							1	1	1	59							
311	MIDDLE GROVE-CORDON	21	1,224	7	169			1	1	2	34	7	994	2	8	2	18					
312	MIDDLE GROVE-SWEGLE	4	24									1	2			2	17	1	5			
313	MIDDLE GROVE-WEST	3	35	3	35																	
314	MIDWAY-DIVISION	3	75	2	70			1	5													
315	MIDWAY-DOUGLAS	17	1,079	6	712			2	199	1	34	2	5	5	125			1	3			
316	MIDWAY-LYNCH	15	461	1	211			1	3	1	34	5	13	3	94	4	106					
317	MIDWAY-POWELLHURST	7	249	3	183							1	2	2	16	1	48					
318	MILL CREEK-EASTLAND	8	295	2	144			1	14			2	92	3	45							
319	MILL CREEK-KUEBLER	5	169	3	163							1	5			1	1					
320	MILL CREEK-MILL CREEK 13	1	2													1	2					

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Feeder Name	Total PGE Equipment		UG Conductor		Primary Device		UG Accessory		Transformer		OH Conductor		OH Hardware		Cutout, Fuse, Arrester		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
321	MOLALLA-BUCKAROO	12	473	1	133			5	323	1	0	4	14			1	3					
322	MOLALLA-FOREST	10	180					2	14	1	7	5	149	1	6	1	4					
323	MOLALLA-MARQUAM	18	1,353	1	44			2	23	1	3	2	12	6	1,231	5	38	1	1			
324	MOLALLA-YODER	11	29							1	5	2	7	2	3	6	14					
325	MT ANGEL-EAST	3	16			1	6			1	8					1	1					
326	MT ANGEL-WEST	16	44	2	9							6	18	3	4	5	11					
327	MT PLEASANT-CLAIRMONT	8	328	1	2			2	5					3	311	2	10					
328	MT PLEASANT-MT VIEW	5	148			1	106					1	8	2	20	1	14					
329	MT PLEASANT-RIVERCREST	3	6											2	4					1	2	
330	MT PLEASANT-SOUTH END	7	592	4	500									2	56	1	36					
331	MULINO-NORTH	1	3											1	3							
332	MULINO-SOUTH	5	247	2	221									2	4	1	22					
333	MULTNOMAH-13176	14	370	4	162			1	2	3	33	1	17	2	15	3	142					
334	MULTNOMAH-13177	10	223							1	6	4	8	2	6	3	203					
335	MULTNOMAH-13181	7	72							1	26	1	7	3	4	2	35					
336	MULTNOMAH-MULTNOMAH 13	6	659	3	651							1	4	1	3	1	1					
337	MURRAYHILL-KINTON	3	15	2	9			1	6													
338	MURRAYHILL-MURRAYHILL 13	4	16	4	16																	
339	MURRAYHILL-REUSSER	1	3	1	3																	
340	MURRAYHILL-TEAL	4	22	2	10							1	4	1	8							
341	NEWBERG-CHEHALEM	21	1,971	3	527			3	17	2	50	6	1,136	3	32	4	209					
342	NEWBERG-DUNDEE	23	1,019	4	131					2	142	3	311	4	380	9	50	1	5			
343	NEWBERG-HOOVER PARK	10	373							1	192					9	181					
344	NEWBERG-NORTH COLLEGE	11	246					1	3	1	10			1	143	8	90					
345	NORTH MARION-CROSBY	5	222	1	12					1	10	2	35	1	166							
346	NORTH MARION-FRONT	4	595	1	5			1	24					1	8	1	558					
347	NORTH MARION-HUBBARD	9	1,076									3	264	1	2	5	810					
348	NORTH MARION-MCLAREN	20	1,915	1	83	1	1,708	3	48	1	6	4	8	4	26	6	36					
349	NORTH PLAINS-MASON HILL	7	41	1	6					1	6	1	2	2	11	2	16					
350	NORTH PLAINS-NORTH PLAINS 13	15	258	3	119					4	106	4	7	3	8	1	18					
351	NORTHERN-11009	5	43							1	7	3	13			1	23					
352	NORTHERN-11016	2	453	2	453																	
353	NORTHERN-11071	6	119			1	3			1	65	1	1	2	34	1	15					
354	OAK GROVE-LAKE HARRIET	1	5													1	5					
355	OAK GROVE-WHITE WATER																					
356	OAK HILLS-FIVE OAKS	1	4	1	4																	
357	OAK HILLS-GREENBRIER																					
358	OAK HILLS-OAK HILLS 13	2	7	1	5			1	2													
359	OAK HILLS-SOMERSET	8	338	4	162					2	174	2	2									
360	OAK HILLS-WALKER	4	1,083	2	940			1	98			1	46									

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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 OREGON STEEL-OREGON STEEL 13																						
362 ORENCO-231ST																						
363 ORENCO-AMBERGLEN																						
364 ORENCO-BASELINE	8	79	2	3							4	71	2	5								
365 ORENCO-ORENCO 13																						
366 ORENCO-PRIMATE	6	2,691	6	2,691																		
367 ORENCO-WILKINS																						
368 ORIENT-BARLOW	16	220	1	3					3	12			8	76	4	129						
369 ORIENT-ORIENT 13	10	1,388	2	217					1	6	3	949	3	208	1	7						
370 OSWEGO-IRON MOUNTAIN	2	25						1	9				1	16								
371 OSWEGO-MARYLHURST	7	421	3	12									2	313	2	96						
372 OSWEGO-PALATINE	7	415	1	65				1	117	1	5	1	2	2	222	1	5					
373 OSWEGO-STAFFORD	10	1,177	3	438				4	316			1	363			2	60					
374 OXFORD-FAIRVIEW	10	8,738	3	82				1	331	1	8	3	8,267			2	49					
375 OXFORD-LEE	6	157						1	2	2	13					3	141					
376 OXFORD-MADRONA																						
377 OXFORD-OXFORD 13	3	35											1	29	1	5	1	1				
378 OXFORD-RURAL	1	19													1	19						
379 OXFORD-SHELTON																						
380 PELTON-ROUND BUTTE																						
381 PENINSULA PARK-OCKLEY GREEN																						
382 PENINSULA PARK-PENINSULA PARK	6	32								1	5	1	14	2	2	2	11					
383 PLEASANT VALLEY-BAXTER	3	7	2	5									1	2								
384 PLEASANT VALLEY-CLATSOP	5	443	1	2				1	376			1	2	1	3	1	61					
385 PLEASANT VALLEY-MOON	6	503	2	291				1	12	2	197					1	3					
386 PLEASANT VALLEY-PLEASANT 13	14	601	3	256						3	98	4	220	2	8	2	19					
387 PLEASANT VALLEY-SUN	3	145								1	136	1	7	1	2							
388 PORTLAND WATER-PUMPING																						
389 PORTSMOUTH-CARBIDE	10	111	2	16				1	1			3	9	2	30	2	54					
390 PORTSMOUTH-DISPOSAL	1	32														1	32					
391 PORTSMOUTH-WILLIS	8	82				1	1	1	6	1	48			5	28							
392 PROGRESS-GREENBURG	5	297	3	175				1	119			1	2									
393 PROGRESS-HALL	1	17							1	17												
394 PROGRESS-ROBINSON	7	719	4	237				3	482													
395 PROGRESS-SAWYER	2	11								1	11			1	1							
396 PROGRESS-WASHINGTON SQ #1																						
397 PROGRESS-WASHINGTON SQ #2																						
398 RALEIGH HILLS-DOGWOOD	6	1,443	1	14						1	36	1	7	1	831	2	555					
399 RALEIGH HILLS-MONTCLAIR	1	3	1	3																		
400 RALEIGH HILLS-OLESON	9	748	1	4						1	211			3	122	3	411	1	1			

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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 RAMAPO-EMERALD	14	1,727	1	263			1	35	5	537	2	140	3	28	2	723					1	49
402 RAMAPO-GILBERT	9	731					2	62	1	7	3	29	2	605	1	28						
403 RAMAPO-RAMAPO 13	10	1,451							1	6	3	489	4	61	2	896						
404 REDLAND-HENRICI	17	4,956	2	16			2	15	2	10	4	4,871	6	39	1	5						
405 REDLAND-REDLAND 13	31	1,392	7	81	1	1	1	53	5	44	6	774	4	182	7	256						
406 REEDVILLE-AUGUSTA	5	154	3	122			2	32														
407 REEDVILLE-BLANTON	16	2,594	9	1,285			2	118	1	312			3	858	1	21						
408 REEDVILLE-HAZELDALE	7	1,374	3	8	1	1,019	1	342	1	4			1	1								
409 REEDVILLE-INTEL #4																						
410 REEDVILLE-INTEL #5																						
411 REEDVILLE-TV	6	460					1	87	2	33			1	1	2	338						
412 RIVERGATE SOUTH-11010																						
413 RIVERGATE SOUTH-11011	3	1,664							1	1,662			2	2								
414 RIVERGATE SOUTH-PEARCY	1	8			1	8																
415 RIVERGATE SOUTH-SWIFT																						
416 RIVERVIEW-FULTON	13	158					1	3	2	41	4	72	4	25	2	17						
417 RIVERVIEW-MACADAM	3	1,999	1	379											2	1,620						
418 RIVERVIEW-TERWILLIGER	6	54	2	44							1	1	3	9								
419 ROCKWOOD-AIRPORT																						
420 ROCKWOOD-BOEING																						
421 ROCKWOOD-INDUSTRIAL	3	125	1	117							1	4			1	3						
422 ROCKWOOD-REYNOLDS	5	292	3	119											2	172						
423 ROCKWOOD-ROCKWOOD 13	7	310	3	55					1	22			2	217	1	16						
424 ROCKWOOD-WILKES																						
425 ROSEMONT-HIDDEN SPRINGS	3	1,259	2	1,256							1	3										
426 ROSEMONT-MOSSY BRAE	2	15	1	6					1	10												
427 ROSEMONT-OVERLOOK	3	41	1	14					1	21			1	6								
428 ROSEWAY-ALEXANDER	1	1,604													1	1,604						
429 ROSEWAY-ESPLANADE	12	919	2	6			3	46	1	6	2	25	1	12	2	711			1	112		
430 ROSEWAY-ROSEWAY 13																						
431 RUBY-CARLINE	5	132	1	78					1	48			1	2	1	3	1	1				
432 RUBY-JUNCTION	11	412	3	159					2	11	2	94	3	143	1	5						
433 SALEM-13260																						
434 SALEM-13261																						
435 SALEM-13262																						
436 SALEM-13263																						
437 SALEM-13264																						
438 SALEM-UNION																						
439 SANDY-362ND	14	792	1	411			3	10	5	236	1	3	2	4	2	128						
440 SANDY-BLUFF	6	328	2	125			1	34	1	10	2	158										

¹ See Section IX - Cause Code Categories for category definitions

Outs = Outages

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

Hrs = # of customers * duration hrs

2016 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 SANDY-SANDY 13	16	3,458	1	4			1	3	2	21	2	1,061	7	2,365	3	5						
442 SANDY-WILDCAT	9	1,556	1	49					1	75	3	1,327			4	105						
443 SCAPPOOSE-SAUVIE ISLAND																						
444 SCHOLLS FERRY-KEMMER	4	31	2	10			1	10							1	11						
445 SCHOLLS FERRY-RAINBOW	20	872	1	5			1	13	4	54	4	153	5	575	5	72						
446 SCHOLLS FERRY-ROY ROGERS	6	211	4	20							1	8	1	182								
447 SCOGGINS-CHERRY GROVE	6	143					1	43	1	10	2	85	1	1	1	4						
448 SCOGGINS-LAURELWOOD	21	1,940	2	165			2	27	2	47	4	233	4	28	6	23			1	1,419		
449 SCOTTS MILLS-SCOTTS MILLS 13	21	573	1	158			1	9			11	223	1	3	7	181						
450 SELLWOOD-KELLOGG PARK	5	71							1	41	2	2	1	2	1	25						
451 SELLWOOD-SELLWOOD 13	3	12							1	9	2	3										
452 SELLWOOD-WAVERLY	5	769	2	529									2	207	1	33						
453 SHERIDAN-EAST	16	678	6	273			1	63			3	9	3	50	3	283					1	10,041
454 SHERIDAN-KADELL	13	370	2	36			1	1			2	3	1	2	7	327					1	13,358
455 SHUTE-LINDE 1 35KV																						
456 SILVERTON-NORTH	5	111									2	104	1	4	2	2						
457 SILVERTON-SOUTH	10	1,807	1	2			1	65	1	4	5	1,727	1	5	1	4						
458 SILVERTON-WEST	19	315	2	9			1	8	3	9	4	206	4	48	5	35						
459 SIX CORNERS-13359	11	1,146	4	685			4	27			2	430			1	4					1	10,322
460 SIX CORNERS-13360	1	26									1	26									1	2,563
461 SIX CORNERS-BORCHERS	10	1,041	1	5					2	36	2	7	3	609	2	384						
462 SIX CORNERS-CHAPMAN	5	1,119	2	11			1	1	1	1,102			1	4								
463 SIX CORNERS-SIX CORNERS 13	2	261					1	245					1	16								
464 SP NEWSPRINT-NEWBERG																						
465 SPRING HILL-SPRING HILL																						
466 SPRINGBROOK-FERNWOOD	7	1,093	1	2					1	5	1	595	1	2	2	485	1	4				
467 SPRINGBROOK-ST PAUL	17	937	5	40			1	6			3	814	2	15	6	62						
468 SPRINGBROOK-VILLA	4	133	1	16							1	6			2	111						
469 SPRINGBROOK-ZIMRI	14	667	2	48			1	13	1	6	2	12	1	12	6	573			1	2		
470 ST HELENS-KASTER																						
471 ST LOUIS-EAST	7	13,749	1	16			1	589	2	1,180					1	1			2	11,963		
472 ST LOUIS-NORTH	15	3,828	1	21			1	5			6	2,738	2	31	5	1,033						
473 ST LOUIS-WEST	20	2,888	1	5	1	2	2	12	1	2	4	2,823	6	32	5	12						
474 ST MARYS EAST-BETHANY	1	5					1	5														
475 ST MARYS EAST-BUTNER	9	219	1	88	1	83					3	36	2	5	1	6	1	2				
476 ST MARYS EAST-ELMONICA	19	2,314	9	1,725			2	5	3	357	3	5	1	2	1	219						
477 ST MARYS EAST-JENKINS																						
478 ST MARYS EAST-MILLIKAN	2	202	1	202							1	0										
479 ST MARYS EAST-ST MARYS 13	1	21											1	21								
480 STEPHENS-11001																						

¹ See Section IX - Cause Code Categories for category definitions

Outs = Outages

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

Hrs = # of customers * duration hrs

2016 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-11020	3	413											1	6	2	407						
482 STEPHENS-11054 NETWORK																						
483 STEPHENS-11055 NETWORK																						
484 STEPHENS-11092 NETWORK																						
485 STEPHENS-11093 NETWORK																						
486 STEPHENS-11094 NETWORK																						
487 STEPHENS-11095 NETWORK																						
488 STEPHENS-11097 NETWORK																						
489 STEPHENS-11098	2	15									1	11			1	4						
490 STEPHENS-11099 NETWORK	1	4													1	4						
491 STIMSON LUMBER-FORESTEX																						
492 SULLIVAN-ROBINWOOD	5	45	2	11							1	1	2	33								
493 SULLIVAN-SALAMO	4	11	3	9											1	2						
494 SULLIVAN-SUSSEX	1	57							1	57												
495 SULLIVAN-TANNER	3	713	1	4					2	709												
496 SULLIVAN-WILLAMETTE	8	318	2	14									3	295	3	9						
497 SULZER PUMPS-115B																						
498 SUMMIT-GOVERNMENT CAMP	2	8											1	5	1	4						
499 SUMMIT-MEADOWS	1	433											1	433								
500 SUMMIT-SUMMIT 13	3	59	1	1							1	3	1	55								
501 SUNSET-BLANCHET																						
502 SUNSET-COLFAX																						
503 SUNSET-CORNELL																						
504 SUNSET-DORION																						
505 SUNSET-IDTB																						
506 SUNSET-INTEL D1B1																						
507 SUNSET-INTEL D1X1																						
508 SUNSET-KOMATSU #1																						
509 SUNSET-LANE																						
510 SUNSET-MCCALL																						
511 SUNSET-MEEK	1	4						1	4													
512 SUNSET-PAULING																						
513 SUNSET-SPALDING																						
514 SUNSET-WHITMAN																						
515 SUNSET-YOUNG																						
516 SWAN ISLAND-BASIN	1	40	1	40																		
517 SWAN ISLAND-DOLPHIN																						
518 SWAN ISLAND-FREIGHTLINER	2	67							1	64					1	3						
519 SWAN ISLAND-GOING																						
520 SWAN ISLAND-SHIPYARD	1	1	1	1																		

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Outs = Outages

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

Hrs = # of customers * duration hrs

2016 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-BARNES	5	220									3	147	2	74								
522 SYLVAN-PATTON	11	710	3	299			1	46	1	90	3	162	1	4	2	109						
523 TABOR-82ND	8	276					1	159			1	3	3	5	3	109						
524 TABOR-HOSPITAL	2	25											1	4	1	21						
525 TABOR-TABOR 13	5	2,560			1	2,392			1	3			2	133	1	32						
526 TEKTRONIX-HOCKEN	4	541	1	49					1	486					1	4	1	1			1	340
527 TEKTRONIX-NORTH																					1	9
528 TEKTRONIX-SHANNON	9	504	1	88			1	2	2	283	2	120			2	9	1	2				
529 TEKTRONIX-SOUTH	17	7,021	9	1,699	1	2,165	3	206	1	45	1	1	1	2,903	1	2						
530 TEKTRONIX-TEKTRONIX 13	6	140					1	107							5	33						
531 TEKTRONIX-WEST																						
532 TEMP B-NORTH																						
533 TEMP B-SOUTH																						
534 TIGARD-13336	3	225	2	224									1	1								
535 TIGARD-13337	2	3									1	2							1	1		
536 TIGARD-13361	5	69	1	2							4	67										
537 TIGARD-13362	3	777									2	9			1	768						
538 TIGARD-TIGARD 13	6	793	1	593			2	10	1	2			1	5	1	183						
539 TOWN CENTER-LAWNFIELD	1	2									1	2										
540 TOWN CENTER-MONTEREY	2	12					1	4					1	7								
541 TOWN CENTER-NORTH																						
542 TOWN CENTER-PRECISION CASTPARTS																						
543 TOWN CENTER-SOUTH																						
544 TOWN CENTER-SUNNYBROOK	1	4	1	4																		
545 TOWN CENTER-VALLEY VIEW																						
546 TROJAN-EAST																						
547 TUALATIN-AVERY	7	992	5	676					1	312					1	4						
548 TUALATIN-CIPOLE																						
549 TUALATIN-HERMAN	1	69	1	69																		
550 TUALATIN-IBACH	6	49					1	21	1	6	2	6	1	10			1	5				
551 TUALATIN-LEVETON																						
552 TUALATIN-TUALATIN 13																						
553 TURNER-CASCADE	10	113	1	3					2	74	2	5			5	31						
554 TURNER-TURNER 13	14	111	2	83			1	3	2	9	2	3	2	4	5	9						
555 TWILIGHT-BREMER	23	1,431							3	52	7	1,310	10	45	3	25						
556 UNIONVALE-UNIONVALE 13	27	467	1	6			1	35	2	10	8	106	4	268	11	41						
557 UNIVERSITY-MILL	3	17	1	2			1	13			1	2										
558 UNIVERSITY-TRADE	8	1,509	2	722					1	39	1	408	1	2	3	338						
559 URBAN-BARBUR	3	114	1	9									1	2	1	104						
560 URBAN-CAMPUS	1	2					1	2														

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Outs = Outages

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Hrs = # of customers * duration hrs

2016 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-CORBETT	1	2,392											1	2,392							
562	URBAN-GAINES	2	218						1	199					1	19						
563	URBAN-GIBBS																					
564	URBAN-KELLY	1	20												1	20						
565	URBAN-LANDING	1	11						1	11												
566	URBAN-MEDICAL	1	4										1	4								
567	URBAN-OHSU																					
568	WACKER-WACKER 1																					
569	WACONDA-NORPAC																					
570	WACONDA-RIVER	17	262	1	21				2	14	6	200	4	11	4	16						
571	WACONDA-WACONDA 13	13	69	2	18						4	33			6	9			1	9		
572	WALLACE-WALLACE 13	15	3,994	2	86				3	26	6	3,871	1	4	3	7						
573	WALLACE-WILLOW LAKE	4	409					1	229	2	50			1	130							
574	WELCHES-WELCHES 13	8	236	1	87				2	9	4	139	1	2								
575	WELCHES-ZIG ZAG	11	349					1	285	1	7	3	14	4	30	1	6			1	7	
576	WEST PORTLAND-72ND	1	69												1	69						
577	WEST PORTLAND-NORTH	9	547	5	530			1	2					2	14	1	2					
578	WEST PORTLAND-PACIFIC	12	1,130	4	340			1	127	2	116			3	290	2	258					
579	WEST PORTLAND-WEST PORTLAND 13	4	167						2	17					1	10				1	140	
580	WEST UNION-CORNELIUS PASS	15	2,818	3	24			1	8	3	206	3	2,163	3	11	1	6			1	400	
581	WEST UNION-WEST UNION 13	23	3,589	11	1,866			2	162	8	1,042	1	518	1	1							
582	WILLAMINA-BRIDGE	13	264	1	16				1	5	2	4	2	74	6	163	1	2				
583	WILLAMINA-BUELL	9	96	3	70				1	9				3	10	2	7					
584	WILLAMINA-LUMBER																					
585	WILLBRIDGE-WILLBRIDGE #1	2	4											2	4							
586	WILLBRIDGE-WILLBRIDGE #4																					
587	WILSONVILLE-BOECKMAN	6	62	2	13				1	3	2	44			1	1						
588	WILSONVILLE-CHARBONNEAU	7	492	2	352			1	2	1	47			1	3	2	89					
589	WILSONVILLE-CITY	2	1,550	2	1,550																	
590	WILSONVILLE-MENTORTEK																					
591	WILSONVILLE-PARKWAY																					
592	WILSONVILLE-VILLEBOIS	3	47						1	3				1	1	1	44					
593	WILSONVILLE-WEST	2	6					1	5					1	1							
594	WOODBURN-CANNERY	9	229	1	3				1	63	5	54			2	110						
595	WOODBURN-EAST	6	622	2	21									1	2	3	599					
596	WOODBURN-TOMLIN	8	349	1	5			1	95	1	79	2	7		1	21	1	1	1	143		
597	WOODBURN-WEST	16	631	1	4					1	46	4	16	6	379	4	186					
598	YAMHILL-CARLTON	14	156	1	8			2	10	1	5	1	52	1	1	8	80					
599	YAMHILL-YAMHILL 13	17	1,529	2	19			2	80			1	6	3	821	9	603					

¹ See Section IX - Cause Code Categories for category definitions

Outs = Outages

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

Hrs = # of customers * duration hrs

2016 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:	3,446	355,249	758	96,676	22	22,634	255	18,889	391	28,110	566	72,429	670	47,546	32	29,365	21	80,130	32	29,365	21	80,130

¹ See Section IX - Cause Code Categories for category definitions

Outs = Outages

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

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

2016 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												
2 ABERNETHY-OREGON CITY	7	42	2	18	5	24	3	18	2	6		
3 ABERNETHY-TRANSIT	6	44	2	15	4	29	1	16	3	13		
4 ALDER-ANKENY	3	429	1	426	2	3			2	3		
5 ALDER-IRVING	1	5			1	5	1	5				
6 ALDER-LINCOLN	4	9	1	1	3	8			3	8		
7 ALDER-STARK	1	85			1	85			1	85		
8 ALDER-TAYLOR	2	26	1	21	1	4			1	4		
9 ALDER-YAMHILL	1	2			1	2			1	2		
10 AMITY-AMITY 13	5	199			5	199	1	9	4	189		
11 AMITY-BELLEVUE	9	140			9	140	3	43	6	98		
12 ARLETA-52ND	5	9	1	2	4	7			4	7		
13 ARLETA-FOSTER												
14 ARLETA-HAROLD	1	3			1	3	1	3			1	1
15 ARLETA-POWELL	6	2,356	2	2,345	4	11	2	4	2	6		
16 ARLETA-STEELE	1	1	1	1								
17 BANKS-BANKS 13	7	609	1	3	6	606	3	587	3	19		
18 BANKS-CEDAR CANYON	13	5,212	1	23	12	5,188	9	1,326	3	3,862		
19 BARNES-BATTLE CREEK	1	44			1	44			1	44		
20 BARNES-BOONE												
21 BARNES-COMMERCIAL	3	279			3	279	1	222	2	56		
22 BARNES-SUNNYSIDE												
23 BEAVER-KB PIPELINE												
24 BEAVERTON-ALLEN	3	146	1	61	2	85			2	85		
25 BEAVERTON-JAMIESON												
26 BEAVERTON-NORTHWEST												
27 BEAVERTON-WEST SLOPE												
28 BELL-BATTIN	2	2			2	2			2	2		
29 BELL-BRENTWOOD												
30 BELL-FLAVEL	1	1			1	1			1	1		
31 BELL-JOHNSON CREEK												
32 BELL-KENDALL	2	3			2	3			2	3		
33 BELL-KING	6	111			6	111			6	111		
34 BELL-SOUTHGATE	1	316			1	316	1	316				
35 BELL-WICHITA	7	6,182	1	1	6	6,181	3	4,088	3	2,093		
36 BETHANY-BURTON	1	4			1	4	1	4				
37 BETHANY-GERMANTOWN	7	418	1	2	6	417	3	261	3	155		
38 BETHANY-KAISER	2	5,984			2	5,984	2	5,984				
39 BETHANY-LAIDLAW	4	572	1	4	3	568	1	304	2	264		
40 BETHANY-SPRINGVILLE												

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

2016 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-THOMPSON												
42 BETHEL-FRUITLAND												
43 BETHEL-GEER	3	54			3	54	2	45	1	9		
44 BETHEL-MACLEAY	5	498			5	498	4	418	1	81		
45 BLUE LAKE-BLUE LAKE 13	2	6			2	6			2	6		
46 BLUE LAKE-SUNDIAL												
47 BLUE LAKE-TOYO TANSO												
48 BOISE CASCADE-BOISE #1												
49 BOONES FERRY-GOODALL	4	4,444	1	2	3	4,442			3	4,442		
50 BOONES FERRY-KRUSE												
51 BOONES FERRY-LAKE GROVE	3	1,195	1	1,187	2	8			2	8		
52 BOONES FERRY-MOUNTAIN PARK												
53 BOONES FERRY-WEMBLEY PARK	4	887			4	887	1	28	3	859		
54 BORING-282ND	3	44	1	40	2	3	1	2	1	1		
55 BORING-CITY	3	371	1	15	2	356	1	136	1	220		
56 BORING-TELFORD	6	974	3	930	3	44	1	17	2	28		
57 BRIGHTWOOD-BRIGHTWOOD 13	27	1,275	5	92	22	1,183	10	377	12	806		
58 BRIGHTWOOD-NORTH BANK	8	1,764	2	9	6	1,755	4	1,719	2	36		
59 BROOKWOOD-BORWICK	2	4,325			2	4,325	1	3,475	1	849		
60 BROOKWOOD-BROOKWOOD 13												
61 BROOKWOOD-SUNRISE												
62 CANBY-13643	5	30			5	30			5	30		
63 CANBY-13644	4	17	1	2	3	15			3	15		
64 CANBY-BUTTEVILLE	4	471	1	4	3	467			3	467		
65 CANBY-FILBERT	2	10	1	2	1	9			1	9		
66 CANBY-ZIMMERMAN												
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-13119 PSU												
73 CANYON-13120												
74 CANYON-13121												
75 CANYON-13122 NETWORK #2												
76 CANYON-13123 NETWORK #2												
77 CANYON-13124 NETWORK #2												
78 CANYON-13125 NETWORK #2												
79 CANYON-13133 NETWORK #3												
80 CANYON-13134 NETWORK #3												

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2016 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-13135 NETWORK #3											
82	CANYON-13136 NETWORK #3											
83	CANYON-21ST											
84	CANYON-23RD	1	1,658			1	1,658	1	1,658			
85	CANYON-BURNSIDE											
86	CANYON-CANYON 13	1	115			1	115			1	115	
87	CARVER-ALMOND	1	3,497			1	3,497	1	3,497			
88	CARVER-CARVER 13	5	275			5	275			5	275	
89	CARVER-NORTH											
90	CARVER-RIVERBEND											
91	CARVER-SOUTH											
92	CARVER-WOODS											
93	CEDAR HILLS-CEDAR HILLS 13											
94	CEDAR HILLS-LEAHY	4	625	1	12	3	613	1	113	2	501	2 177
95	CEDAR HILLS-SHOPPING CENTER	3	92			3	92	1	4	2	88	
96	CEDAR HILLS-SKYLINE											
97	CEDAR HILLS-ST VINCENT											
98	CEDAR HILLS-SYLVAN	9	117	2	5	7	112	1	5	6	107	
99	CENTENNIAL-BARKER	4	43			4	43			4	43	
100	CENTENNIAL-BRAECROFT	2	5	1	3	1	2	1	2			
101	CENTENNIAL-CENTENNIAL 13	6	226	2	18	4	208	1	10	3	198	1 1,033
102	CENTENNIAL-TREELAND											
103	CLACKAMAS-EVELYN											
104	CLACKAMAS-GLADSTONE	5	1,915			5	1,915			5	1,915	
105	CLACKAMAS-JENNIFER											
106	CLACKAMAS-TOLBERT	1	2			1	2			1	2	
107	CLAXTAR-CLAXTAR 13											
108	CLAXTAR-HAYESVILLE											
109	CLAXTAR-RIDGE											
110	COFFEE CREEK-FREEMAN											
111	COFFEE CREEK-HOLIDAY	1	4			1	4			1	4	
112	COLTON-DHOOGHE	1	2			1	2	1	2			
113	COLTON-GRAYS HILL	10	480			10	480	6	332	4	149	
114	CORNELIUS-ADAIR	2	12	1	3	1	9			1	9	
115	CORNELIUS-CORNELIUS 13	4	1,114	2	9	2	1,106	1	1,104	1	2	
116	CORNELIUS-VERBOORT	4	8,010			4	8,010	3	7,923	1	86	
117	CORNELL-BLUFFS	2	28			2	28	1	1	1	27	
118	CORNELL-SALTZMAN	1	1,999			1	1,999			1	1,999	
119	CORNELL-WESTLAWN	4	552	1	6	3	546	1	536	2	11	
120	CULVER-SANYO #1											

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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
121	CURTIS-11077											
122	CURTIS-CURTIS 13	2	150			2	150			2	150	
123	DAYTON-EAST	4	38			4	38			4	38	
124	DAYTON-LAFAYETTE	3	2,341	1	1	2	2,340	1	96	1	2,244	1 6
125	DAYTON-SOUTHWEST	7	668			7	668	3	345	4	323	
126	DELAWARE-DENVER	5	124	2	113	3	11			3	11	
127	DELAWARE-INTERSTATE											
128	DELAWARE-LOMBARD	3	6	2	5	1	1			1	1	
129	DENNY-EAST	4	254	2	86	2	168	1	148	1	20	
130	DENNY-NORTH											
131	DENNY-SOUTH	1	16			1	16	1	16			
132	DENNY-WEST	2	1,003			2	1,003			2	1,003	
133	DILLEY-DILLEY 13	11	1,353	2	11	9	1,342	1	622	8	721	
134	DILLEY-SPRINGHILL											
135	DUNNS CORNER-DUNNS CORNER 13	23	4,174	2	18	21	4,156	9	1,057	12	3,099	
136	DUNNS CORNER-KELSO	2	46			2	46	1	40	1	6	
137	DURHAM-BONITA											
138	DURHAM-BRIDGEPORT	1	13			1	13			1	13	
139	DURHAM-DURHAM 13											
140	DURHAM-POOPLANT											
141	DURHAM-SATTLER	1	6			1	6	1	6			
142	DURHAM-SOUTH											
143	E-11021											
144	E-11039											
145	E-11040											
146	E-11041											
147	E-11042											
148	E-11043											
149	E-11047											
150	E-11064											
151	E-13139											
152	E-13140	2	217	1	7	1	210			1	210	
153	E-13141											
154	E-13142											
155	E-13144	2	4			2	4			2	4	
156	E-13145											
157	E-13148											
158	E-13149											
159	E-13150											
160	EAGLE CREEK-BARTON	6	182	1	21	5	161	1	30	4	130	3 210

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2016 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
161 EAGLE CREEK-RIVER MILL	9	1,952	3	1,879	6	73	2	32	4	42		
162 EASTPORT-76TH												
163 EASTPORT-PLAZA	1	1			1	1			1	1		
164 ELMA-ELMA 13	1	3,267	1	3,267							1	194
165 ELMA-FOUR CORNERS	1	1			1	1			1	1		
166 ELMA-HUDSON												
167 ELMA-STATE												
168 ESTACADA-ESTACADA 13	11	1,924	2	6	9	1,918			9	1,918		
169 ESTACADA-FARADAY	23	9,010	1	4	22	9,006	7	5,271	15	3,735		
170 FAIRMOUNT-CANDALARIA	4	2,071			4	2,071	1	307	3	1,764		
171 FAIRMOUNT-MISSION	5	111	1	70	4	41	1	2	3	39		
172 FAIRVIEW-CLEAR CREEK												
173 FAIRVIEW-FAIRVIEW 13	3	2,169	1	8	2	2,161	1	2,058	1	103		
174 FAIRVIEW-KENNEL CLUB	3	369	1	137	2	232			2	232	1	125
175 FAIRVIEW-TROUTDALE	2	5			2	5			2	5		
176 FAIRVIEW-WOOD VILLAGE	3	26	1	2	2	24			2	24		
177 FARGO-FARGO 13	3	642			3	642	3	642				
178 GALES CREEK-GALES CREEK 13	17	537	1	4	16	533	6	299	10	234		
179 GARDEN HOME-MCKAY	3	693	1	17	2	676	1	657	1	20		
180 GARDEN HOME-METZGER	4	31	1	3	3	28	3	28				
181 GLENCOE-GLISAN	5	10	1	3	4	7			4	7		
182 GLENCOE-PROVIDENCE												
183 GLENCOE-SUNNYSIDE	7	5,413	1	5,305	6	108	3	13	3	94		
184 GLENCULLEN-BRIDLEMILE	14	2,438	3	53	11	2,385	5	256	6	2,129	1	36
185 GLENCULLEN-SUNSET	3	17			3	17	1	2	2	15		
186 GLENDOVEER-13596												
187 GLENDOVEER-13597	2	7			2	7			2	7		
188 GLENDOVEER-13598												
189 GLENDOVEER-13599	10	69	3	7	7	62	1	11	6	51		
190 GLENDOVEER-CLIFFGATE	4	887	1	7	3	881			3	881		
191 GLENDOVEER-NORTHEAST												
192 GLISAN-FAB 2A												
193 GLISAN-UTILITY 1B												
194 GORMLEY-MCMINNVILLE WL	1	88			1	88	1	88				
195 GRAND RONDE-AGENCY	4	556			4	556			4	556		
196 GRAND RONDE-FORTHILL	2	178			2	178			2	178		
197 HARBORTON-BURLINGTON	15	1,426	3	14	12	1,412	5	1,368	7	44		
198 HARBORTON-HARBORTON 13												
199 HARBORTON-LINNTON	4	868	1	860	3	8	2	6	1	2		
200 HARMONY-HARMONY 13												

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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-INTERNATIONAL	1	8			1	8			1	8		
202 HARMONY-LAKE	1	319			1	319			1	319		
203 HARMONY-LINWOOD												
204 HARMONY-MILWAUKIE	3	1,556			3	1,556	1	6	2	1,551	1	3
205 HARMONY-THIESSEN												
206 HARRISON-DAVIS												
207 HARRISON-HARRISON 13												
208 HARRISON-IVON												
209 HAYDEN ISLAND-MAINLAND												
210 HAYDEN ISLAND-NORTH SHORE	2	10			2	10	1	7	1	3		
211 HAYDEN ISLAND-SOUTH SHORE												
212 HEMLOCK-FREMONT	3	319			3	319			3	319		
213 HEMLOCK-HEMLOCK 13												
214 HEMLOCK-MASON	1	8			1	8			1	8		
215 HILLCREST-CASCADIA												
216 HILLCREST-HILLCREST 13	1	4			1	4			1	4		
217 HILLCREST-SOUTH												
218 HILLSBORO-DAIRY CREEK	4	1,349	2	355	2	994			2	994		
219 HILLSBORO-DENNIS												
220 HILLSBORO-JACKSON	3	167			3	167	2	165	1	2		
221 HILLSBORO-LAUREL	13	241			13	241	2	27	11	213		
222 HILLSBORO-SCHOLLS	3	645			3	645			3	645		
223 HOGAN NORTH-BRIGADOON												
224 HOGAN NORTH-HOGAN NORTH 13												
225 HOGAN NORTH-LINKS	10	6,182	2	11	8	6,171	1	2	7	6,169		
226 HOGAN NORTH-SALQUIST	1	2	1	2								
227 HOGAN SOUTH-CLEVELAND												
228 HOGAN SOUTH-LAWRENCE	7	643			7	643			7	643		
229 HOGAN SOUTH-MAIN	1	6			1	6	1	6				
230 HOGAN SOUTH-PAROPA	3	9	2	7	1	2			1	2		
231 HOGAN SOUTH-WALLULA												
232 HOLGATE-BYBEE	2	7			2	7			2	7		
233 HOLGATE-GIDEON	3	1,759			3	1,759			3	1,759	2	12
234 HOLGATE-HOLGATE 13	2	7			2	7			2	7		
235 HOLGATE-KENILWORTH	2	156			2	156			2	156		
236 HOLGATE-RHONE	1	6			1	6			1	6		
237 HUBER-BANY	1	1,136			1	1,136	1	1,136				
238 HUBER-FARMINGTON	2	20			2	20			2	20		
239 HUBER-HUBER 13	1	1			1	1			1	1		
240 HUBER-KINNAMAN	2	75			2	75			2	75		

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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 HUBER-MARYVILLE	1	5			1	5			1	5		
242 INDIAN-KEIZER	4	16	1	6	3	10			3	10		
243 INDIAN-LABISH	7	1,419			7	1,419	2	1,108	5	311		
244 INDIAN-NORTH	4	66	1	11	3	55	1	2	2	53		
245 INDIAN-STATION	2	8			2	8			2	8		
246 INDIAN-WEST	3	57			3	57	2	8	1	49		
247 ISLAND-13180	1	5			1	5			1	5		
248 ISLAND-13187	4	2,641			4	2,641			4	2,641	1	96
249 ISLAND-13188	2	45	1	41	1	3			1	3		
250 ISLAND-ISLAND 13												
251 JENNINGS LODGE-ADDIE	6	399	1	107	5	292	3	125	2	167		
252 JENNINGS LODGE-JENNINGS 13	3	286	1	284	2	2			2	2	1	2
253 JENNINGS LODGE-MELDRUM	1	429	1	429								
254 JENNINGS LODGE-OAK GROVE												
255 JENNINGS LODGE-WEBSTER	1	3			1	3	1	3				
256 KELLEY POINT-KELLEY POINT 13												
257 KELLEY POINT-LEDBETTER												
258 KELLEY POINT-MARINE												
259 KELLEY POINT-SIMMONS												
260 KELLEY POINT-SOLAR #1												
261 KELLEY POINT-SOLAR #2												
262 KELLY BUTTE-BINNSMEAD	3	12	1	2	2	10	1	7	1	3		
263 KELLY BUTTE-FAIRLAWN												
264 KELLY BUTTE-MALL 205	4	48			4	48			4	48		
265 KELLY BUTTE-MCGREW	4	6	1	3	3	3			3	3		
266 KING CITY-BULL MOUNTAIN												
267 KING CITY-FISCHER	2	6			2	6			2	6		
268 KING CITY-HAZELBROOK	2	1,629			2	1,629			2	1,629		
269 KING CITY-NORTH												
270 KING CITY-SUMMERFIELD												
271 LAKE LABISH-LAKE LABISH												
272 LELAND-BEAVERCREEK	2	198			2	198			2	198		
273 LELAND-CARUS	15	2,684	1	18	14	2,667	3	593	11	2,074		
274 LELAND-KELM	2	4			2	4			2	4		
275 LENTS-13101	6	1,964	1	0	5	1,963			5	1,963		
276 LENTS-HAPPY VALLEY	5	1,420			5	1,420	2	7	3	1,413		
277 LENTS-MT SCOTT	2	1,058			2	1,058			2	1,058		
278 LENTS-NORTH	1	25			1	25	1	25				
279 LIBERAL-LIBERAL 13	3	7	1	3	2	4			2	4		
280 LIBERAL-SAWMILL												

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
281	LIBERTY-BROWNING											
282	LIBERTY-LONE OAK											
283	LIBERTY-MORNINGSIDE	2	32			2	32			2	32	
284	LIBERTY-ROSEDALE	7	628	2	22	5	607	3	483	2	123	
285	LIBERTY-SKYLINE	7	17,736	1	23	6	17,712	1	17,239	5	473	
286	LIBERTY-VISTA	2	7			2	7			2	7	
287	MAIN-AIRPORT											
288	MAIN-BENTLEY											
289	MAIN-EXPRESS											1 8
290	MAIN-JONES FARM											
291	MAIN-RIVER	1	3			1	3			1	3	
292	MARKET-ENGLEWOOD	3	7,021			3	7,021			3	7,021	
293	MARKET-FAIRGROUNDS	6	4,498			6	4,498	2	4,461	4	38	
294	MARKET-HAWTHORNE											
295	MARKET-PARK											
296	MAXIM-MAXIM 13											
297	MCCLAIN-COTTAGE	1	1	1	1							
298	MCCLAIN-FRONT	1	2			1	2			1	2	
299	MCCLAIN-HOLLYWOOD	3	22			3	22			3	22	
300	MCGILL-LSI AIR 1A											
301	MERIDIAN-65TH											
302	MERIDIAN-BORLAND											
303	MERIDIAN-CHILDS											
304	MERIDIAN-LAKEVIEW											
305	MERIDIAN-MERIDIAN 13	3	253			3	253			3	253	
306	MERIDIAN-NYBERG											
307	MERIDIAN-PILKINGTON	6	1,724	1	1,696	5	28	1	6	4	22	
308	MERIDIAN-SAGERT	1	43			1	43			1	43	
309	MIDDLE GROVE-BROWN											
310	MIDDLE GROVE-CHEMEKETA	2	105			2	105	2	105			
311	MIDDLE GROVE-CORDON	2	4			2	4			2	4	
312	MIDDLE GROVE-SWEGLE											
313	MIDDLE GROVE-WEST											
314	MIDWAY-DIVISION	4	127			4	127			4	127	
315	MIDWAY-DOUGLAS	1	2			1	2			1	2	
316	MIDWAY-LYNCH	4	117			4	117			4	117	
317	MIDWAY-POWELLHURST	2	26	1	25	1	1			1	1	
318	MILL CREEK-EASTLAND	3	60	1	6	2	55	1	47	1	8	
319	MILL CREEK-KUEBLER											
320	MILL CREEK-MILL CREEK 13											

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs
321	MOLALLA-BUCKAROO											
322	MOLALLA-FOREST	11	91	1	1	10	90	3	18	7	72	
323	MOLALLA-MARQUAM	14	2,813	1	1,345	13	1,468	6	1,359	7	109	
324	MOLALLA-YODER	3	113			3	113			3	113	
325	MT ANGEL-EAST											
326	MT ANGEL-WEST	2	81			2	81			2	81	
327	MT PLEASANT-CLAIRMONT											
328	MT PLEASANT-MT VIEW	2	65			2	65			2	65	
329	MT PLEASANT-RIVERCREST	3	1,090			3	1,090	3	1,090			
330	MT PLEASANT-SOUTH END	5	341	1	38	4	302			4	302	
331	MULINO-NORTH											
332	MULINO-SOUTH	6	186			6	186	2	68	4	118	
333	MULTNOMAH-13176	10	9,888	2	9	8	9,880	4	9,859	4	21	
334	MULTNOMAH-13177	5	278	1	143	4	135			4	135	
335	MULTNOMAH-13181	1	23			1	23			1	23	
336	MULTNOMAH-MULTNOMAH 13	7	15,012			7	15,012	3	14,862	4	150	
337	MURRAYHILL-KINTON	1	8			1	8			1	8	
338	MURRAYHILL-MURRAYHILL 13											
339	MURRAYHILL-REUSSER											
340	MURRAYHILL-TEAL											
341	NEWBERG-CHEHALEM	18	3,015			18	3,015	6	2,538	12	477	
342	NEWBERG-DUNDEE	8	325			8	325	3	138	5	187	
343	NEWBERG-HOOVER PARK	2	3,436	1	848	1	2,587			1	2,587	
344	NEWBERG-NORTH COLLEGE	4	575			4	575	1	3	3	572	
345	NORTH MARION-CROSBY	1	1			1	1			1	1	
346	NORTH MARION-FRONT											
347	NORTH MARION-HUBBARD	1	33			1	33			1	33	
348	NORTH MARION-MCLAREN	8	3,509	2	53	6	3,456			6	3,456	
349	NORTH PLAINS-MASON HILL	16	5,510	5	1,347	11	4,163	8	4,066	3	97	
350	NORTH PLAINS-NORTH PLAINS 13	11	1,348	2	79	9	1,269	2	551	7	718	1 578
351	NORTHERN-11009											
352	NORTHERN-11016											
353	NORTHERN-11071											
354	OAK GROVE-LAKE HARRIET											
355	OAK GROVE-WHITE WATER											
356	OAK HILLS-FIVE OAKS											
357	OAK HILLS-GREENBRIER											
358	OAK HILLS-OAK HILLS 13											
359	OAK HILLS-SOMERSET											
360	OAK HILLS-WALKER											

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	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	Outs	Hrs	
361	OREGON STEEL-OREGON STEEL 13												
362	ORENCO-231ST	1	7,668			1	7,668			1	7,668		
363	ORENCO-AMBERGLEN												
364	ORENCO-BASELINE												
365	ORENCO-ORENCO 13												
366	ORENCO-PRIMATE												
367	ORENCO-WILKINS												
368	ORIENT-BARLOW	21	978	5	199	16	779	5	554	11	225	1	1
369	ORIENT-ORIENT 13	18	1,582	2	826	16	756	9	671	7	86		
370	OSWEGO-IRON MOUNTAIN	1	52			1	52			1	52		
371	OSWEGO-MARYLHURST	8	496	1	204	7	292	1	6	6	286		
372	OSWEGO-PALATINE	9	7,944			9	7,944	3	170	6	7,774		
373	OSWEGO-STAFFORD	2	4			2	4			2	4		
374	OXFORD-FAIRVIEW	2	11			2	11			2	11		
375	OXFORD-LEE												
376	OXFORD-MADRONA												
377	OXFORD-OXFORD 13	2	2	1	2	1	1			1	1		
378	OXFORD-RURAL												
379	OXFORD-SHELTON												
380	PELTON-ROUND BUTTE												
381	PENINSULA PARK-OCKLEY GREEN												
382	PENINSULA PARK-PENINSULA PARK	1	1			1	1	1	1				
383	PLEASANT VALLEY-BAXTER	1	24			1	24			1	24		
384	PLEASANT VALLEY-CLATSOP												
385	PLEASANT VALLEY-MOON												
386	PLEASANT VALLEY-PLEASANT 13	12	1,239	3	43	9	1,196	3	144	6	1,052	1	6
387	PLEASANT VALLEY-SUN	2	3	1	2	1	2			1	2		
388	PORTLAND WATER-PUMPING												
389	PORTSMOUTH-CARBIDE	6	1,792			6	1,792	3	1,567	3	225		
390	PORTSMOUTH-DISPOSAL												
391	PORTSMOUTH-WILLIS												
392	PROGRESS-GREENBURG												
393	PROGRESS-HALL												
394	PROGRESS-ROBINSON												
395	PROGRESS-SAWYER	2	530	1	444	1	86	1	86				
396	PROGRESS-WASHINGTON SQ #1												
397	PROGRESS-WASHINGTON SQ #2												
398	RALEIGH HILLS-DOGWOOD	5	169			5	169	2	14	3	155		
399	RALEIGH HILLS-MONTCLAIR	2	474	1	2	1	472	1	472				
400	RALEIGH HILLS-OLESON	3	55	1	51	2	4			2	4		

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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

2016 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 RAMAPO-EMERALD	4	508			4	508	1	2	3	506		
402 RAMAPO-GILBERT	5	334	1	1	4	333			4	333		
403 RAMAPO-RAMAPO 13	8	145	2	8	6	137	3	128	3	9		
404 REDLAND-HENRICI	14	3,452	1	327	13	3,126	3	110	10	3,016		
405 REDLAND-REDLAND 13	19	10,460	3	2,223	16	8,237	4	67	12	8,170		
406 REEDVILLE-AUGUSTA												
407 REEDVILLE-BLANTON												
408 REEDVILLE-HAZELDALE	6	79	1	2	5	77	1	31	4	46		
409 REEDVILLE-INTEL #4												
410 REEDVILLE-INTEL #5												
411 REEDVILLE-TV												
412 RIVERGATE SOUTH-11010												
413 RIVERGATE SOUTH-11011	5	15	2	4	3	11	1	4	2	6		
414 RIVERGATE SOUTH-PEARCY												
415 RIVERGATE SOUTH-SWIFT												
416 RIVERVIEW-FULTON	12	742	1	28	11	714	2	12	9	702		
417 RIVERVIEW-MACADAM												
418 RIVERVIEW-TERWILLIGER	3	32			3	32	1	5	2	26		
419 ROCKWOOD-AIRPORT												
420 ROCKWOOD-BOEING												
421 ROCKWOOD-INDUSTRIAL												
422 ROCKWOOD-REYNOLDS	2	60	1	3	1	57			1	57		
423 ROCKWOOD-ROCKWOOD 13	6	4,760	5	4,715	1	45			1	45	1	6
424 ROCKWOOD-WILKES	1	15			1	15			1	15		
425 ROSEMONT-HIDDEN SPRINGS	1	1			1	1	1	1				
426 ROSEMONT-MOSSY BRAE	4	120			4	120	1	6	3	114		
427 ROSEMONT-OVERLOOK	1	119			1	119	1	119			1	2
428 ROSEWAY-ALEXANDER	2	64			2	64			2	64		
429 ROSEWAY-ESPLANADE	1	5			1	5			1	5		
430 ROSEWAY-ROSEWAY 13												
431 RUBY-CARLINE											1	1
432 RUBY-JUNCTION												
433 SALEM-13260												
434 SALEM-13261												
435 SALEM-13262												
436 SALEM-13263												
437 SALEM-13264												
438 SALEM-UNION												
439 SANDY-362ND	4	152	2	31	2	121	2	121				
440 SANDY-BLUFF	1	130			1	130			1	130		

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Outs = Outages

Hrs = # of customers * duration hrs

2016 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 SANDY-SANDY 13	17	2,862	6	743	11	2,119	4	295	7	1,824		
442 SANDY-WILDCAT	17	1,998	5	1,138	12	860	4	434	8	425		
443 SCAPPOOSE-SAUVIE ISLAND	1	3			1	3			1	3		
444 SCHOLLS FERRY-KEMMER	1	3,246			1	3,246	1	3,246				
445 SCHOLLS FERRY-RAINBOW	11	399	1	4	10	395	4	149	6	245		
446 SCHOLLS FERRY-ROY ROGERS	3	147			3	147	3	147				
447 SCOGGINS-CHERRY GROVE	5	117	1	4	4	113	1	1	3	111		
448 SCOGGINS-LAURELWOOD	8	404			8	404	2	153	6	251		
449 SCOTTS MILLS-SCOTTS MILLS 13	10	4,490			10	4,490	4	3,988	6	502	1	2,302
450 SELLWOOD-KELLOGG PARK	6	1,923	2	1,588	4	335	3	330	1	5		
451 SELLWOOD-SELLWOOD 13	1	26			1	26			1	26		
452 SELLWOOD-WAVERLY	3	68	2	3	1	65	1	65			1	4
453 SHERIDAN-EAST	1	42			1	42			1	42		
454 SHERIDAN-KADELL	7	2,207	2	141	5	2,066	2	571	3	1,495		
455 SHUTE-LINDE 1 35KV												
456 SILVERTON-NORTH	1	5			1	5			1	5		
457 SILVERTON-SOUTH	5	163	1	34	4	129			4	129		
458 SILVERTON-WEST	7	1,434			7	1,434	1	1,300	6	134	1	21
459 SIX CORNERS-13359	5	737	1	99	4	638	2	611	2	27		
460 SIX CORNERS-13360												
461 SIX CORNERS-BORCHERS	3	258			3	258			3	258		
462 SIX CORNERS-CHAPMAN	3	258			3	258	2	255	1	3		
463 SIX CORNERS-SIX CORNERS 13	1	327			1	327			1	327		
464 SP NEWSPRINT-NEWBERG												
465 SPRING HILL-SPRING HILL												
466 SPRINGBROOK-FERNWOOD	1	1			1	1			1	1		
467 SPRINGBROOK-ST PAUL	5	538			5	538	3	353	2	186	1	6
468 SPRINGBROOK-VILLA	1	118	1	118								
469 SPRINGBROOK-ZIMRI	4	69	1	6	3	63			3	63		
470 ST HELENS-KASTER												
471 ST LOUIS-EAST												
472 ST LOUIS-NORTH	3	421	2	419	1	3	1	3				
473 ST LOUIS-WEST	6	117	1	3	5	114	1	7	4	107		
474 ST MARYS EAST-BETHANY												
475 ST MARYS EAST-BUTNER	4	622	1	293	3	329	1	110	2	218		
476 ST MARYS EAST-ELMONICA												
477 ST MARYS EAST-JENKINS												
478 ST MARYS EAST-MILLIKAN												
479 ST MARYS EAST-ST MARYS 13												
480 STEPHENS-11001												

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Outs = Outages

Hrs = # of customers * duration hrs

2016 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-11020											
482	STEPHENS-11054 NETWORK											
483	STEPHENS-11055 NETWORK											
484	STEPHENS-11092 NETWORK											
485	STEPHENS-11093 NETWORK											
486	STEPHENS-11094 NETWORK											
487	STEPHENS-11095 NETWORK											
488	STEPHENS-11097 NETWORK											
489	STEPHENS-11098											
490	STEPHENS-11099 NETWORK											
491	STIMSON LUMBER-FORESTEX											
492	SULLIVAN-ROBINWOOD	8	1,615	2	525	6	1,089	3	315	3	774	
493	SULLIVAN-SALAMO	1	5			1	5			1	5	
494	SULLIVAN-SUSSEX	4	40	1	15	3	24			3	24	
495	SULLIVAN-TANNER	1	4	1	4							
496	SULLIVAN-WILLAMETTE	1	5			1	5			1	5	
497	SULZER PUMPS-115B											
498	SUMMIT-GOVERNMENT CAMP	3	92	1	5	2	87	1	2	1	86	
499	SUMMIT-MEADOWS											
500	SUMMIT-SUMMIT 13	1	256			1	256	1	256			
501	SUNSET-BLANCHET											
502	SUNSET-COLFAX											
503	SUNSET-CORNELL											
504	SUNSET-DORION											
505	SUNSET-IDTB											
506	SUNSET-INTEL D1B1											
507	SUNSET-INTEL D1X1											
508	SUNSET-KOMATSU #1											
509	SUNSET-LANE											
510	SUNSET-MCCALL											
511	SUNSET-MEEK											
512	SUNSET-PAULING											
513	SUNSET-SPALDING											
514	SUNSET-WHITMAN											
515	SUNSET-YOUNG											
516	SWAN ISLAND-BASIN											
517	SWAN ISLAND-DOLPHIN											
518	SWAN ISLAND-FREIGHTLINER											
519	SWAN ISLAND-GOING	1	1	1	1							
520	SWAN ISLAND-SHIPYARD											

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2016 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-BARNES	19	3,239	1	196	18	3,043	4	2,755	14	288		
522 SYLVAN-PATTON	12	1,612	2	7	10	1,605			10	1,605		
523 TABOR-82ND	5	377	1	4	4	372			4	372		
524 TABOR-HOSPITAL												
525 TABOR-TABOR 13	2	3			2	3			2	3		
526 TEKTRONIX-HOCKEN												
527 TEKTRONIX-NORTH												
528 TEKTRONIX-SHANNON	1	32			1	32			1	32		
529 TEKTRONIX-SOUTH												
530 TEKTRONIX-TEKTRONIX 13												
531 TEKTRONIX-WEST												
532 TEMP B-NORTH												
533 TEMP B-SOUTH												
534 TIGARD-13336												
535 TIGARD-13337	1	1,541			1	1,541	1	1,541				
536 TIGARD-13361												
537 TIGARD-13362												
538 TIGARD-TIGARD 13												
539 TOWN CENTER-LAWNFIELD												
540 TOWN CENTER-MONTEREY	1	1			1	1			1	1		
541 TOWN CENTER-NORTH												
542 TOWN CENTER-PRECISION CASTPARTS												
543 TOWN CENTER-SOUTH												
544 TOWN CENTER-SUNNYBROOK												
545 TOWN CENTER-VALLEY VIEW												
546 TROJAN-EAST												
547 TUALATIN-AVERY												
548 TUALATIN-CIPOLE												
549 TUALATIN-HERMAN												
550 TUALATIN-IBACH	2	3,489			2	3,489			2	3,489		
551 TUALATIN-LEVETON												
552 TUALATIN-TUALATIN 13												
553 TURNER-CASCADE	3	44			3	44			3	44		
554 TURNER-TURNER 13	5	727	1	1	4	726	1	94	3	631		
555 TWILIGHT-BREMER	9	1,435			9	1,435	3	1,301	6	134		
556 UNIONVALE-UNIONVALE 13	11	250	1	3	10	246	3	78	7	168	1	7
557 UNIVERSITY-MILL												
558 UNIVERSITY-TRADE	4	4,535			4	4,535			4	4,535	1	2
559 URBAN-BARBUR												
560 URBAN-CAMPUS												

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2016 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-CORBETT	2	6	1	3	1	3			1	3		
562 URBAN-GAINES	3	11	1	2	2	10			2	10		
563 URBAN-GIBBS												
564 URBAN-KELLY												
565 URBAN-LANDING												
566 URBAN-MEDICAL												
567 URBAN-OHSU												
568 WACKER-WACKER 1												
569 WACONDA-NORPAC												
570 WACONDA-RIVER	4	133			4	133	2	91	2	43		
571 WACONDA-WACONDA 13	1	6	1	6								
572 WALLACE-WALLACE 13	7	108	1	3	6	105	1	2	5	103		
573 WALLACE-WILLOW LAKE												
574 WELCHES-WELCHES 13	9	1,975	2	4	7	1,971	1	1,694	6	278		
575 WELCHES-ZIG ZAG	23	5,324	2	543	21	4,782	11	115	10	4,667		
576 WEST PORTLAND-72ND												
577 WEST PORTLAND-NORTH	1	1			1	1			1	1		
578 WEST PORTLAND-PACIFIC	5	2,517	2	2,395	3	122	1	8	2	114		
579 WEST PORTLAND-WEST PORTLAND 13	1	4			1	4	1	4				
580 WEST UNION-CORNELIUS PASS	8	2,862			8	2,862	5	1,087	3	1,775		
581 WEST UNION-WEST UNION 13												
582 WILLAMINA-BRIDGE	5	216			5	216	3	86	2	130		
583 WILLAMINA-BUELL	7	2,089			7	2,089	3	1,969	4	120		
584 WILLAMINA-LUMBER												
585 WILLBRIDGE-WILLBRIDGE #1												
586 WILLBRIDGE-WILLBRIDGE #4												
587 WILSONVILLE-BOECKMAN	3	94			3	94	1	6	2	88		
588 WILSONVILLE-CHARBONNEAU	2	65			2	65	2	65				
589 WILSONVILLE-CITY	1	5			1	5			1	5		
590 WILSONVILLE-MENTORTEK												
591 WILSONVILLE-PARKWAY												
592 WILSONVILLE-VILLEBOIS												
593 WILSONVILLE-WEST	2	372			2	372	2	372				
594 WOODBURN-CANNERY	2	7	2	7								
595 WOODBURN-EAST	1	3			1	3	1	3				
596 WOODBURN-TOMLIN	2	1,861			2	1,861			2	1,861		
597 WOODBURN-WEST	3	134	1	33	2	101			2	101		
598 YAMHILL-CARLTON	7	647			7	647	3	104	4	542		
599 YAMHILL-YAMHILL 13	5	97	1	2	4	95	2	76	2	19		
Grand Totals:	1,410	320,015	213	41,556	1,197	278,459	365	136,446	832	142,013	29	4,839

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

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Hrs = # of customers * duration hrs

Section VIII

2016 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 2016 Annual Reliability Report

Confidential - Provided on CD Only
Section III, Feeder Performance Summary
Section VIII, 2016 Feeder Information

SECTION IX
Appendix

- Reliability Measure Definitions
- IEEE 1366 TMED Definition and Classification
- Cause Code Category
- 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:

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

- 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

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 - Public
		PGE Equipment	Other - Pole Hardware Failure	Public	Residential Fire
		PGE Equipment	Other - Underground Hardware Failure	Public	Underground Dig In
		PGE Equipment	Overhead Transformer	Public	Vandalism / Theft
		PGE Equipment	Padmount Transformer		
		PGE Equipment	Pole / Structure		
		PGE Equipment	Primary Cable		
		PGE Equipment	Primary Conductor		

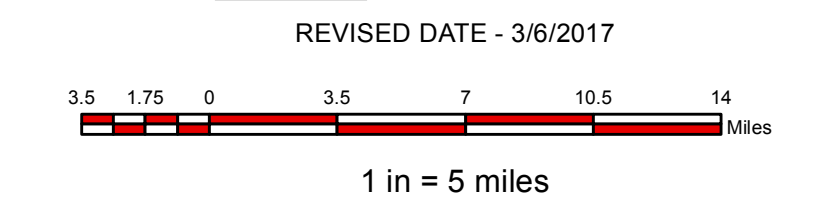
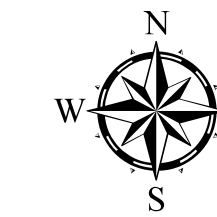
NOTE: Outages where the System is Substation are grouped into Loss of Supply - Substation and outages where the System is Transmission are grouped into Loss of Supply - Transmission

Cause Code 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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