

Mr. Nicholas Matz  
City of Bellevue  
PO Box 90012  
Bellevue, WA 98009-9012

September 11, 2020

**RE: 2019 Electric Service Reliability Report**

Dear Nicholas,

Enclosed find Puget Sound Energy's Bellevue Electric Reliability Report for calendar year 2019. For the 15<sup>th</sup> consecutive year, service reliability experienced by Bellevue customers in 2019 was well above that experienced by all PSE customers in the aggregate. Of the 96 distribution circuits serving Bellevue customers in 2019, 58 circuits had reliability numbers better than the system wide performance (27 circuits experienced no unplanned outages). 38 circuits had SAIDI or SAIFI figures that exceeded the 2019 PSE system wide performance values.

The report content for the 2019 report is the same as our 2018 report reorganized to present summary information up front:

- Preface summarizing performance 2019 reporting
- 2015 – 2019 System Average Interruption Duration Index (SAIDI) & System Average Interruption Frequency Index (SAIFI) Five Year History
- 2015 – 2019 SAIDI & SAIFI Five Year History Illustrated (graphed)
- 2019 Performance for Circuits Serving Bellevue
- 2019 Outages Summaries for Circuits Serving Bellevue
- 2019 Circuits Serving Bellevue Exceeding PSE SAIDI or SAIFI
- 2015 – 2019 Circuits That Exceeded PSE System SAIDI or SAIFI Five Year Overview
- 2019 Outage Events by Circuit list
- 2019 Report Codes Legend

We report PSE system-wide and Bellevue circuit SAIDI values consistent with reporting to the Washington State Utilities & Transportation Commission (WUTC). In response to requests we have restated SAIDI values for 2015 so that values for all years are calculated using the same methodology for consistent comparison over the five year reporting period.

Also included is our 2019 Service Quality Report Card available at PSE.com.

Please contact me at (425)462-3852 or e-mail at [andy.swayne@pse.com](mailto:andy.swayne@pse.com) to discuss any questions or concerns you may have about the report materials.

Sincerely,



Andy Swayne  
Senior Municipal Liaison Manager

CC:

Brian Rodan – City of Bellevue, Franchise Manager

RaeLynn Asah – PSE, Supervisor Municipal Relations

David Hoffman – PSE, Local Government Affairs & Public Policy Manager

Cathy Koch – PSE, Director Planning

Enclosures

## PREFACE TO BELLEVUE ELECTRIC RELIABILITY REPORT FOR 2019

This preface summarizes Bellevue performance reporting for the 2019 calendar year, consistent with reporting to the Washington Utilities and Transportation Commission (WUTC) using System Average Interruption Duration index (SAIDI) and System Average Interruption Frequency Index (SAIFI). All SAIDI values in the 2019 report, including restated values for performance years prior to 2016, were calculated using the IEEE 1366 methodology as summarized below. SAIFI values calculation has not changed from past years.

### **System Average Interruption Duration Index (SAIDI)**

Prior to 2010, PSE calculated and reported single year SAIDI values excluding Major Storm event (affecting 5% or more of total PSE electric customers) outages. During the period 2010 - 2015 PSE calculated and reported rolling five –year average SAIDI values (the current year and four preceding years) including Major Storm event outages. Eligible outages having durations longer than 1 minute were included in SAIDI calculations.

In consultation with the WUTC, in 2016 PSE began using the Institute of Electrical and Electronics Engineers (IEEE) Standard 1366 methodology for calculating SAIDI values reported to the WUTC. The IEEE Standard 1366 defines electric power reliability indices and factors that affect their calculations. The switch to the IEEE 1366 methodology returned calculation of single year SAIDI values excluding outage events occurring on *Major Event Days*. Eligible outages having durations longer than 5 minutes are included in SAIDI calculations. Detailed discussion of this methodology is contained in PSE’s 2016 Service Quality and Electric Reliability Report filed with the WUTC. In summary, the IEEE methodology takes this approach:

**Major Event** – An event, such as a storm, that causes serious reliability performance problems.

**Major Event Days**- Days when outage events can be excluded from the reliability performance calculation.

Types of Major Event Days include:

**SAIDI Exclusion Major Event Days**- Any day in which the daily system SAIDI exceeds the threshold value for the current year.

**5% Exclusion Major Event Days**- Days that five percent or more of electric customers are experiencing an electric outage during a 24-hour period and subsequent days when the service to those customers is being restored.

**SAIDI—System Average Interruption Duration Index**—This index is calculated based on the formula:

$$\text{SAIDI} = \frac{\Sigma \text{Customer Minute Interruptions}}{\text{Average Annual Electric Customer Count}}$$

SAIDI<sub>SQI</sub>\*: The SAIDI values used in this report are calculated with the numerator including customer interruption minutes for outage events longer than five occurring during non-Major Event Days events.

\*SQI- Service Quality Index

All SAIDI values in the 2019 report, including restated values for performance prior to 2016, were calculated using the IEEE Standard 1366 methodology.

### System Average Interruption Frequency Index (SAIFI)

Calculation of SAIFI values reported to the WUTC has not changed from past years. SAIFI values are calculated for single years excluding *5% Exclusion Major Event Day* outage events (see above). SAIFI is calculated based on the formula:

$$\text{SAIFI} = \frac{\Sigma \text{Number of Customer Interruptions}}{\text{Average Annual Electric Customer Count}}$$

**SAIFIs<sub>SQI</sub>\***: The SAIFI values used in this report are calculated with the numerator including customer interruptions for outage events longer than one minute occurring outside of 5% Exclusion Major Event Days.

\*SQI – Service Quality Index

SAIFI values calculation has not changed from past reports.

### Momentary & Sustained Interruptions

Interruptions to customer service fall into two designations:

**Momentary Interruption**— brief loss of power delivery to one or more customers caused by the opening and closing of an interrupting device:

**SAIDIs<sub>SQI</sub>**— any interruption five minutes or shorter

**SAIFIs<sub>SQI</sub>**— any interruption one minute or shorter

**Sustained Interruption**—any interruption not classified as Momentary (above):

**SAIDIs<sub>SQI</sub>**— Any interruption longer than five minutes

**SAIFIs<sub>SQI</sub>**— Any interruption longer than one minute

### Outage Event Codes

Before 2016, PSE used *Storm Codes* to indicate whether an outage occurred during normal conditions (NON), weather event conditions (WTH) or major storm conditions (MAJ). In 2016, Storm Codes were discontinued and replaced with *Event Codes* to incorporate the IEEE designation of Major Event Days:

MEJ – IEEE Major Event Day & Major Storm (5% of customers effected)

MEN – IEEE Major Event Day – non Major Storm

NMJ – Non IEEE Major Event Day, but Major Storm (5% of customers effected)

NON – Non IEEE Major Event Day & non Major Storm

## BELLEVUE ELECTRIC RELIABILITY REPORT FOR 2019

This report summarizes electric service reliability for customers within the City of Bellevue for calendar year 2019. For the 15th consecutive year, service reliability as measured by SAIDI & SAIFI for Bellevue customers well exceeded that experienced by all PSE customers in the aggregate. Of the 96 distribution circuits serving Bellevue customers in 2019, 58 circuits had reliability numbers better than the system wide performance (27 circuits experienced no unplanned outages). 38 circuits had SAIDI and/or SAIFI figures that exceeded 2019 system wide performance values.

### SYSTEM AVERAGE INTERRUPTION DURATION INDEX (SAIDI) SYSTEM AVERAGE INTERRUPTION FREQUENCY INDEX (SAIFI) FIVE YEAR HISTORY

PSE analyzes and reports on the performance of its distribution circuits using two standard benchmarks of the electric utility industry, SAIDI and SAIFI.

	SAIDI		SAIFI	
	BELLEVUE	PSE	BELLEVUE	PSE
<b>2015</b>	90.0	150.0	0.71	1.11
<b>2016</b>	107.0	148.0	0.74	1.06
<b>2017</b>	116.4	175.0	0.91	1.2
<b>2018</b>	111.3	145.0	0.71	1.02
<b>2019</b>	102.7	136.0	0.79	0.98

SAIDI figures in minutes per customer, calculated using the IEEE 1366 method  
(2015 SAIDI figures recalculated to IEEE 1366 figures)  
SAIFI figures in outage events per customer

**SAIDI<sub>IEEE</sub>:** The System Average Interruption Duration Index is a measure of how long the average customer is out of service during the year, and is determined as:

$$\frac{\text{Sum of the customer outage minutes}}{\text{Total number of customers served}}$$

*SAIDI figures are single year figures excluding outages that exceed the annual adjusted Major Event Day Threshold*

Some customers will experience more outage minutes than the average and some fewer.

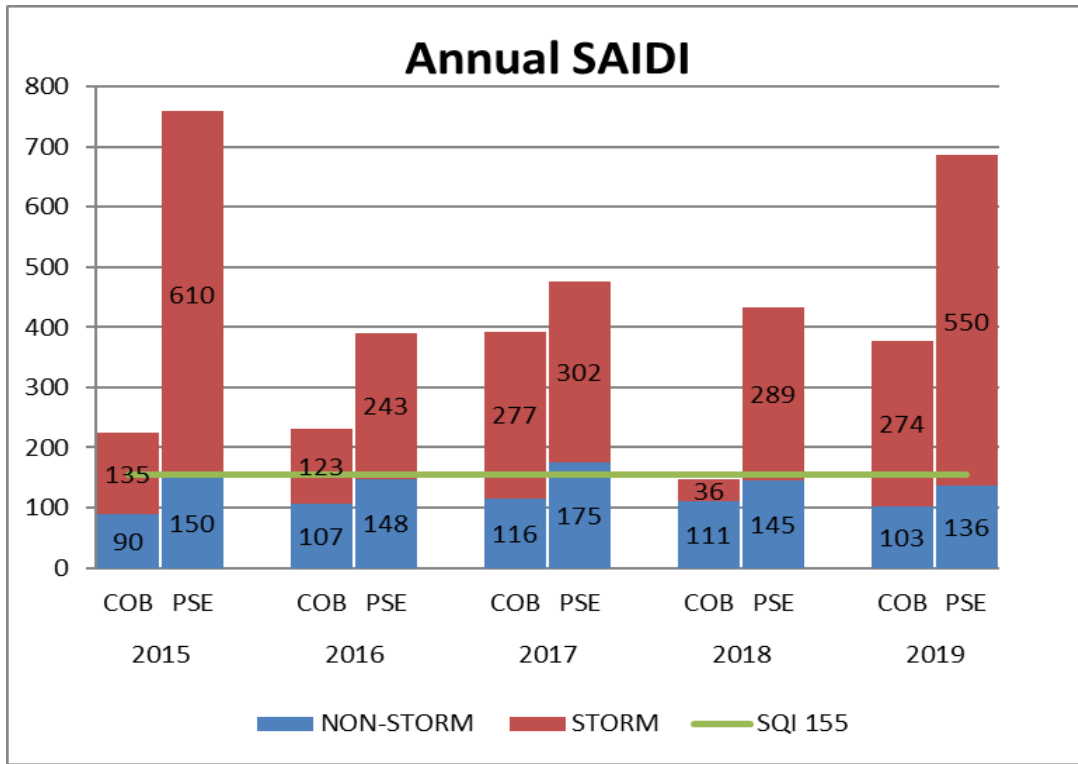
**SAIFI:** The System Average Interruption Frequency Index is a measure of how often the average customer in an area is out of service during a year, and is determined as:

$$\frac{\text{Sum of the number of customers affected by each outage}}{\text{Total number of customers served}}$$

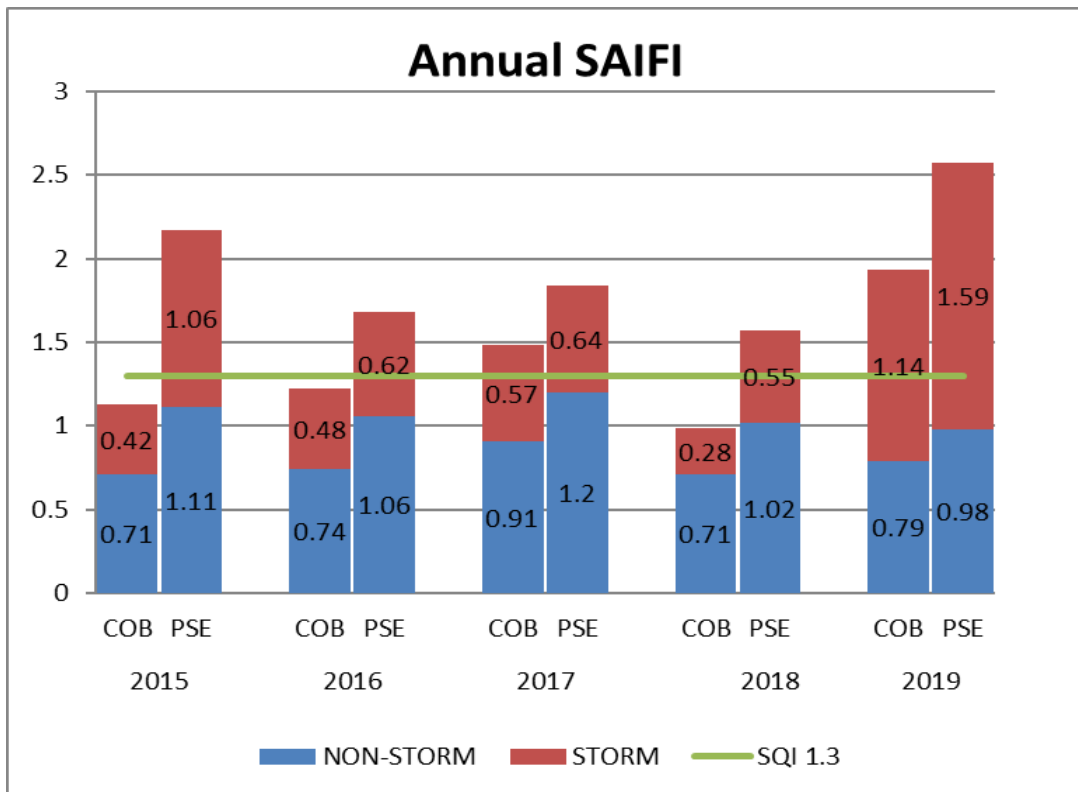
*SAIFI figures are single year figures excluding 5% Exclusion Major Event Day outage events*

Some customers will experience more outages than the average and some fewer.

**SYSTEM AVERAGE INTERRUPTION DURATION INDEX (SAIDI)  
SYSTEM AVERAGE INTERRUPTION FREQUENCY INDEX (SAIFI)  
FIVE YEAR HISTORY**



Values in minutes for all years calculated using IEEE 1366 method



Values in outage events for all years

**2019 PERFORMANCE FOR CIRCUITS SERVING BELLEVUE  
EXCLUDING STORM OUTAGES**

CIRCUIT	CUSTOMERS (METERS)	UNPLANNED OUTAGES <sup>1</sup>	OUTAGE MINUTES <sup>1</sup>	SAIDI <sup>2</sup>	SAIFI <sup>2</sup>
	<i>2019 PSE Companywide performance figures</i>			136	0.98
ARD-11	220	0	0	0	0
ARD-13	745	0	0	0	0
ARD-14	139	2	6,752	48.58	0.20
ARD-15	1538	3	99,217	64.51	0.50
ARD-43	345	0	0	9.28	0.68
BTR-14	1132	3	7,001	10.80	0.14
BTR-21	1136	4	5,269	5.29	0.01
BTR-22	677	10	51,035	310.50	0.40
BTR-23	642	0	0	0	0
CEN-11	24	1	2,910	121.25	0.63
CEN-12	291	0	0	19.28	0.05
CEN-13	471	0	0	1.50	0.00
CEN-14	45	0	0	6.49	0.04
CEN-22	505	0	0	0.45	0.00
CEN-25	964	1	4,809	8.18	0.07
CLY-22	345	2	9,447	27.38	1.01
CLY-23	537	2	13,872	27.30	1.09
CLY-25	1541	6	66,108	42.90	1.15
CLY-26	1380	10	75,632	55.58	1.19
CLY-27	757	2	17,564	25.07	1.01
COL-22	1	0	0	0	0
COL-23	206	6	27,666	154.96	1.08
COL-24	26	0	0	0	0
COL-25	238	2	769	3.23	0.01
COL-26	1846	18	137,190	77.71	1.50
EGT-11	1218	7	126,948	83.15	1.02
EGT-12	2756	14	454,659	164.97	1.80
EGT-13	7	0	0	0	0
EGT-15	307	0	0	20.18	0.06
EGT-16	479	8	6,848	17.74	0.12
EGT-25	713	7	242,478	275.57	2.64
EGT-26	25	3	1,921	76.84	0.60
EGT-27	599	1	480	0.80	0.01
EGT-28	1766	18	90,648	52.71	0.31
EVE-23	2955	27	138,557	55.10	0.32
FAC-12	1,266	15	33,300	34.14	0.44
FAC-13	489	7	185,556	379.46	2.04
FAC-14	463	1	497	1.07	0.00
FAC-21	96	0	0	0	0
FAC-23	226	1	436	1.93	0.01
FAC-24	83	0	0	3.94	0.01
FAC-25	1485	9	16,061	12.21	0.08
GOO-13	2194	8	587,714	273.43	2.25
GOO-21	224	8	207,308	963.27	3.01
HAZ-12	2789	9	5,280	2.19	0.01
HAZ-13	1220	15	257,641	215.10	1.18
HOU-23	1314	5	36,865	28.06	1.03
HOU-25	499	2	12,452	28.73	1.02
KWH-22	1272	6	142,452	112.64	1.08
KWH-23	950	8	127,552	136.20	1.17
KWH-25	1625	14	695,166	438.94	2.03
KWH-26	268	6	43,828	165.12	1.28
LHL-22	1015	9	97,244	96.68	0.18
LHL-23	1316	2	2,855	32.08	0.13
LHL-25	2407	14	576,497	316.20	1.70
LHL-26	553	3	2,716	4.91	0.02

LOC-22	2460	5	10,880	15.98	0.10
LOC-23	1,959	0	0	0	0
LOC-24	47	0	0	0	0
LOC-25	153	0	0	1.56	0.05 <sup>5</sup>
LOC-32	228	0	0	0	0
LOC-33	337	0	0	0	0
LOC-34	308	0	0	0	0
LOC-35	22	0	0	0	0
MED-35	191	4	34,324	179.71	2.03 <sup>4</sup>
MED-36	672	8	50,158	82.18	1.35 <sup>4</sup>
MLK-12	424	4	6,467	15.25	0.07
MLK-13	1512	11	321,035	213.33	0.74
MLK-15	1614	21	571,825	357.63	3.62
MLK-16	1562	12	53,440	34.21	0.25
NOB-11	62	0	0	0	0
NOB-12	585	0	0	1.27	0.01 <sup>5</sup>
NOB-13	26	0	0	0	0
NOB-14	831	0	0	241.48	0.39 <sup>5</sup>
NOB-21	5	0	0	291.80	0.40 <sup>5</sup>
NOB-22	159	4	3,326	55.70	0.42
NOB-23	954	1	136	0.14	0.00
NOB-24	1013	4	5,199	5.57	0.04
NRU-23	772	5	3,810	5.23	0.03
NRU-25	845	13	31,624	37.42	0.17
NRU-26	374	1	20	141.46	0.29
NRU-27	524	15	93,422	301.70	1.80
OVE-12	570	15	113,757	203.61	2.63 <sup>4</sup>
OVE-15	761	9	69,096	93.20	1.73 <sup>4</sup>
PHA-13	1049	21	141,695	148.55	1.20 <sup>3</sup>
PHA-15	179	0	0	0	0
PHA-16	2082	8	316,096	153.86	0.71
PHA-17	703	4	60,375	93.25	0.31
ROS-17	1227	10	12,840	27.00	0.18
SBE-22	413	4	32,078	79.33	1.15
SBE-23	124	2	29,864	240.84	2.00
SBE-25	532	2	10,666	20.05	0.22
SBE-26	1748	11	31,030	26.98	0.10
SOM-13	1174	5	4,825	4.92	0.04
SOM-15	1745	8	6,858	3.93	0.03
SOM-16	2623	21	504,922	206.53	1.34
SOM-17	1709	18	438,906	256.82	1.92
Scheduled Outages		134	742,426		
Unscheduled Outages		393	6,835,448		
Totals	80,899	527	7,577,874		

Notes

- Figures exclude Major Event Day and Major Storm outages.
- SAIDI are 2019 single year figures calculated using the IEEE 1366 method which excludes Major Event Day outage events.  
SAIFI are 2019 single year figures which exclude 5% Exclusion Major Event Day outage events.
- Includes one circuit outage resulting from substation bank outage.
- Includes one circuit outage resulting from transmission line outage.
- SAIDI & SAIFI figures greater than zero reflect inclusion of scheduled outages (including customer requested outages).



**2019 OUTAGES FOR CIRCUITS SERVING BELLEVUE**  
**EXCLUDING STORM OUTAGES**

**BY CAUSE**

CAUSE CODE	CAUSE DESCRIPTION	OUTAGES		OUTAGE MINUTES	
		COUNT	PERCENT	COUNT	PERCENT
AC	ACCIDENT	14	8.0%	332,494	4.0%
BA	BIRD OR ANIMAL	93	17.2%	1,275,042	15.4%
CE	CUSTOMER EQUIPMENT	2	0.0%	328	0.0%
CP	CAR EQUIPMENT	10	1.1%	172,516	2.1%
DU	DIG UP UNDERGROUND	10	1.1%	247,380	3.0%
EF	EQUIPMENT FAILURE	288	23.3%	2,127,857	25.6%
FI	FAULTY INSTALLATION	3	0.0%	529	0.0%
LI	LIGHTNING	4	0.0%	4,658	0.1%
OD	OUTSIDE DISTURBANCE	3	0.1%	4,238	0.1%
OE	OUTAGE WHILE WORKING	3	7.6%	100,344	1.2%
SO	SCHEDULED OUTAGE	134	4.5%	723,177	8.7%
TV	TREE - RIGHT OF WAY UNKNOWN	55	15.2%	2,018,671	24.3%
UN	UNKNOWN CAUSE	60	22.0%	1,293,818	15.6%
Totals		679	100%	8,301,052	100%

**BY EQUIPMENT**

EQUIP CODE	EQUIPMENT DESCRIPTION	OUTAGES		OUTAGE MINUTES	
		COUNT	PERCENT	COUNT	PERCENT
ACE	ALL CUSTOMER EQUIPMENT	3	0.1%	3,924	0.1%
DNO	DID NOT OPERATE	1	0.0%	98	0.0%
OAR	OVERHEAD ARRESTER	1	0.4%	19,490	0.3%
OCN	OVERHEAD SECONDARY CONNECTOR	16	0.1%	4,636	0.1%
OCO	OVERHEAD CONDUCTOR	47	28.3%	2,819,112	37.2%
OCR	OVERHEAD CROSSARM	2	0.2%	54,235	0.7%
OFC	OVERHEAD CUT-OUT	20	0.9%	117,954	1.6%
OFU	OVERHEAD LINE FUSE / FUSE LINK	18	1.7%	153,522	2.0%
OGD	OVERHEAD DOWN GUY	1	0.0%	704	0.0%
OIN	OVERHEAD INSULATOR	12	13.9%	181,106	2.4%
OJU	OVERHEAD JUMPER WIRE	3	0.1%	9,666	0.1%
OMP	OVERHEAD METER POINT (EDOM100)	12	0.0%	1,131	0.0%
OPO	OVERHEAD POLE (EDOP100)	10	3.5%	496,765	6.6%
OSV	OVERHEAD SERVICE	15	0.1%	12,928	0.2%
OSW	OVERHEAD SWITCH (EDOS100)	1	0.0%	2,910	0.0%
OTF	OVERHEAD TRANSFORMER FUSE	60	0.7%	49,900	0.7%
OTR	OVERHEAD TRANSFORMER	19	0.4%	30,585	0.4%
PMF	PADMOUNT SWITCH FUSE	6	0.6%	38,914	0.5%
SCS	CIRCUIT SWITCHER	5	8.5%	541,348	7.1%
UEL	UNDERGROUND ELBOW	9	1.1%	217,891	2.9%
UFJ	UNDERGROUND J-BOX	9	2.3%	179,565	2.4%
UGF	UNDERGROUND SUBMERSIBLE FUSE	2	3.1%	343,910	4.5%
UHH	UNDERGROUND HANDHOLE - SECONDARY	10	0.1%	11,696	0.2%
UHM	UNDERGROUND HAMMERHEADS	1	0.3%	28,930	0.4%
UOT	UNDERGROUND OUTDOOR TERMINATION	20	13.4%	293,829	3.9%
UPC	UNDERGROUND PRIMARY CABLE	61	12.9%	1,393,511	18.4%
UPS	UNDERGROUND PADMOUNT SWITCH (EDUS100)	9	5.3%	325,637	4.3%
UPT	UNDERGROUND PADMOUNT TRANSFO	10	0.6%	41,928	0.6%
USC	UNDERGROUND SECONDARY CABLE	7	0.1%	7,058	0.1%
USV	UNDERGROUND SERVICE	127	0.5%	49,129	0.6%
UTC	UNDERGROUND TERMINAL FUSE	2	0.0%	187	0.0%
UTF	UNDERGROUND SUBMERSIBLE TRA	1	0.0%	1,813	0.0%
UTR	UNDERGROUND SUBMERSIBLE TRANSFORMER	25	1.0%	143,863	1.9%
Totals		545	100%	7,577,875	100%

**CIRCUITS THAT EXCEED 2019  
PSE SYSTEM SAIDI AND/OR SAIFI**  
**PSE SQI: SAIDI = 155 SAIFI = 1.30**  
**PSE Average: SAIDI = 136 SAIFI = 0.98**  
**Bellevue Average: SAIDI = 103 SAIFI = 0.79**

*Notes: SAIDI figures reflect all non-MED outages, scheduled & unscheduled  
SAIFI figures reflect all non-storm outages, scheduled & unscheduled*

CIRCUIT	SAIDI	SAIFI	2019 Events Comments	Actions Completed in 2019	Planned Actions & Projects
<b><i>Circuits with planned actions or investigations</i></b>					
BTR-22	310.5	0.40	On February 13th two outages occurred; a tree and some limbs fell through an overhead lateral lines along 132 AVE NE and tree limbs fell into overhead lines along NE 60 ST. These two outages accounted for 223 SAIDI minutes.	Repairs were made and power restored.	An underground feeder conversion project along private property between 132 AVE NE and 140 AVE NE is in design. An underground conversion proposal along 132 AVE NE is being evaluated.
SOM-17	256.8	1.92	On June 9th a padmount switch and feeder cable failed causing a circuit outage. On August 19th a problem in underground distribution caused an extended outage. These two outages accounted for 147 SAIDI minutes and a SAIFI value of 1.	The underground cable was repaired and power restored. A project to replace the padmount switch and feeder cable was developed, designed and permitted.	The switch and cable replacement project is being scheduled.
EGT-12	164.9	1.80	On May 7th the circuit the had a Hotline Work Switch/Non-Reclose at the breaker set on to protect the crew working on the circuit; during switching the beaker tripped causing a circuit outage. On June 12th a problem in overhead distribution caused an extended outage. These two outages accounted for 126 SAIDI minutes and a SAIFI value of 1.6.	The Hotline Work Switch operated as designed to protect the crew. Repairs were made and power restored.	A Distribution Automation scheme involving Eastgate 12, Hazelwood 12, and Somerset 13 has been developed to allow more rapid restoration of service to customers in the effected area. Impementation (including construction) is planned in 2021.
<b><i>Circuits with completed 2019 actions - no additional corrective action needed</i></b>					
GOO-21	963.3	3.01	A large tree fell into overhead distribution and transmission lines causing extensive damage and an extensive outage. Low hanging ditribution lines were denergized for public safety and repair.	Repairs were made and power restored.	
KWH-25	438.9	2.03	A tree brought down overhead distribution tree wire. A squirrel got into the distribution bus causing a substation outage.	Repairs were made and power restored.	
FAC-13	379.5	2.04	A tree in overhead lines and an equipment failure cause two circuit outages.	Repairs were made and power restored.	
MLK-15	357.6	3.62	An underground feeder cable failure caused a circuit outage.	Repairs were made and power restored.	
LHL-25	316.2	1.70	An underground cable failure caused a large outage. The transmission line to the substation briefly deenergized to remove mylar ballons entangled in the line.	Repairs were made, the balloons removed and power restored.	
NRU-27	301.7	1.80	A distribution cable elbow and junction box failure resulted in an extended outage.	Repairs were made and power restored.	
EGT-25	275.6	2.64	Trees damaged overhead lines in two instances causing large outages.	Repairs were made and power restored.	
GOO-13	273.4	2.25	A tree fell into overhead distribution lines causing a circuit outage.	Repairs were made and power restored.	

SBE-23	240.8	2.00	A tree fell into overhead distribution lines and broke a pole causing a circuit outage.	Repairs were made, pole replaced and power restored.	
HAZ-13	215.1	1.18	A failed overhead transformer cause a large outage.	Repairs were made and power restored.	
MLK-13	213.3	0.74	Two underground cable failures caused extended outages.	Repairs were made and power restored.	
SOM-16	206.5	1.34	On September 7th the circuit had a Hot Line Work Switch/Non-Reclose at the breaker set on for safety of a Seattle City Light crew working in the area. A squirrel shorted the a line that normally would cause an outage to 24 customers but tripped the circuit breaker causing a circuit outage. This outage contributed 178 SAIDI minutes and a SAIFI value of 1.	The Hotline Work Switch operated as designed to protect the crew. Repairs were made and power restored.	
OVE-12	203.6	2.63	A failed transmission line insulator caused a transmission line outage, deenergizing the substation and causing a circuit outage. A failed padmount switch caused a circuit outage.	Transmission switching restored power to the substation; repairs were made and power restored.	
MED-35	179.7	2.03	A failed transmission line insulator caused a transmission line outage, deenergizing the substation and causing a circuit outage. A failed feeder cable splice caused a circuit outage.	Transmission switching restored power to the substation; repairs were made and power restored.	
KWH-26	165.1	1.28	A squirrel got into the distribution bus causing a substation bank outage.	Repairs were made and power restored.	
COL-23	155.0	1.08	Underground cable failures caused large outages.	Repairs were made and power restored.	
PHA-16	153.9	0.71	A car-pole accident caused a large outage.	Repairs were made, pole replaced and power restored.	
PHA-13	148.6	1.20	This circuit was tied to a KWH circuit when a squirrel caused a KWH substation bank outage.	Repairs were made and power restored.	
NRU-26	141.5	0.29	An underground cable failure caused an extended outage.	Repairs were made and power restored.	
KWH-23	136.2	1.17	A squirrel got into the distribution bus causing a substation bank outage.	Repairs were made and power restored.	
KWH-22	112.6	1.08	A squirrel got into the distribution bus causing a substation bank outage.	Repairs were made and power restored.	
OVE-15	93.2	1.73	A failed transmission line insulator caused a transmission line outage, deenergizing the substation and causing a circuit outage.	Transmission switching restored power to the substation.	
EGT-11	83.1	1.02	A squirrel in an overhead cable termination caused a large outage.	Serviceman replaced fuses and restored power to customers.	
MED-36	82.2	1.35	A failed transmission line insulator caused a transmission line outage, deenergizing the substation and causing a circuit outage.	Transmission switching restored power to the substation.	
SBE-22	79.3	1.15	A tree in overhead lines caused a circuit outage.	Servicemen removed tree from line and restored power.	
COL-26	77.7	1.50	A car-pole accident caused a large outage.	Repairs were made, pole replaced and power restored.	
CLY-26	55.6	1.19	A failed transmission line insulator caused a transmission line outage, deenergizing the substation and causing a circuit outage.	Transmission switching restored power to the substation.	
CLY-25	42.9	1.15	A failed transmission line insulator caused a transmission line outage, deenergizing the substation and causing a circuit outage.	Transmission switching restored power to the substation.	
HOU-25	28.7	1.02	A failed transmission line insulator caused a transmission line outage, deenergizing the substation and causing a circuit outage.	Transmission switching restored power to the substation.	
HOU-23	28.1	1.03	A failed transmission line insulator caused a transmission line outage, deenergizing the substation and causing a circuit outage.	Transmission switching restored power to the substation.	

CLY-22	27.4	1.01	A failed transmission line insulator caused a transmission line outage, deenergizing the substation and causing a circuit outage.	Transmission switching restored power to the substation.	
CLY-23	27.3	1.09	A failed transmission line insulator caused a transmission line outage, deenergizing the substation and causing a circuit outage.	Transmission switching restored power to the substation.	
CLY-27	25.1	1.01	A failed transmission line insulator caused a transmission line outage, deenergizing the substation and causing a circuit outage.	Transmission switching restored power to the substation.	
<b><i>Circuits for which no corrective action is needed</i></b>					
NOB-21	291.8	0.40	A scheduled outage for customer work accounted for 98% of outage minutes on this circuit.		
NOB-14	241.5	0.39	A scheduled outage for customer work accounted for 98% of outage minutes on this circuit.		

- Figure exceeded PSE system wide average figure
- Figure exceeding system wide average and Service Quality Index
- SAIFI figure results in part from circuit outages due to 2019 transmission or substation outage

### CIRCUITS THAT EXCEEDED PSE SYSTEM SAIDI OR SAIFI BY YEAR 2015 - 2019

During the five year period 2015-2019 73 circuits serving customers in Bellevue performed below PSE's average system wide performance in one or more years. Of these 73 circuits...

- 31 (42%) circuits performed below system wide performance once in five years
- 23 (32%) circuits performed below system wide performance twice in five years
- 11 (15%) circuits performed below system wide performance in three of the five years
- 6 ( 8%) circuits performed below system wide performance in four of the five years
- 2 ( 3%) circuit performed below system wide performance in five of the five years

CIRCUIT	Repeat Counts					1	2	3	4	5
	2015	2016	2017	2018	2019					
ARD-11							2			
ARD-13				1		1				
ARD-15				1				3		
BTR-21						1				
BTR-22					1		2			
CEN-11							2			
CEN-22						1				
CLY-22						1				
CLY-23								3		
CLY-25						1				
CLY-26						1				
CLY-27							2			
COL-22						1				
COL-23							2			
COL-24						1				
COL-25						1				
COL-26							2			
EGT-11								3		
EGT-12				1	1				4	
EGT-13							2			
EGT-15						1				
EGT-16							2			
EGT-25							2			
EGT-26						1				
EGT-28							2			
EVE-23								3		
FAC-12						1				
FAC-13						1				
FAC-24						1				
GOO-13						1				
GOO-21						1				
HAZ-12						1				
HAZ-13						1				
HOU-23								3		
HOU-25				1	1					5
KWH-22				1	1		2			
KWH-23							2			
KWH-25									4	
KWH-26				1	1			3		
LHL-22						1				
LHL-23				1		1				
LHL-25				1	1			3		

LOC-22				1		2				
LOC-25	1									
LOC-32										
LOC-33										
MED-35	1				1			3		
MED-36		1			1				2	
MLK-13				1	1					
MLK-15				1	1					
NOB-11				1						
NOB-14					1					
NOB-12	1									
NOB-21					1					
NOB-24			1	1					2	
NRU-23	1	1								
NRU-25	1									
NRU-26					1					
NRU-27	1	1	1	1	1					5
OVE-12				1	1					
OVE-15	1	1	1		1					4
PHA-13			1	1	1					3
PHA-15				1					1	
PHA-16		1		1	1					3
PHA-17		1		1						2
ROS-17		1		1						2
SBE-22		1	1	1	1					4
SBE-23				1	1					3
SBE-26									1	
SOM-13				1					1	
SOM-15	1			1						2
SOM-16	1	1		1	1					4
SOM-17	1	1		1	1					4
Totals	23	23	33	26	39	31	23	11	6	2
	2015	2016	2017	2018	2019	42%	32%	15%	8%	3%

## 2019 OUTAGES FOR CIRCUITS SERVING BELLEVUE

DATE	CIRCUIT	CAUSE	EQUIPMENT	CUSTOMERS OUT	CUSTOMER MINUTES	STORM CODE
8/1/2019	ARD-14	EF	UPS	24	4939	NON
12/2/2019	ARD-14	EF	UTF	4	1813	NON
2/8/2019	ARD-15	SO	UHH	153	19249	MEN
6/15/2019	ARD-15	BA	PMF	206	24181	NON
7/4/2019	ARD-15	BA	UOT	206	41767	NON
7/12/2019	ARD-15	BA	UGF	206	33269	NON
11/16/2019	ARD-43	SO	ACE	236	3202	NON
2/8/2019	BTR-14	EF	UPT	117	21180	MEN
2/12/2019	BTR-14	TV	OCO	4	11219	MEJ
2/13/2019	BTR-14	TV	OCO	3	3497	NMJ
2/14/2019	BTR-14	EF	PTF	6	1732	NMJ
5/5/2019	BTR-14	EF	USV	4	428	NON
8/9/2019	BTR-14	BA	OFC	13	732	NON
9/15/2019	BTR-14	EF	UPC	22	5841	NON
2/11/2019	BTR-21	TV	OCO	13	19739	MEJ
2/12/2019	BTR-21	TV	OCO	42	9329	MEJ
2/12/2019	BTR-21	TV	OCO	3	7330	MEJ
2/14/2019	BTR-21	TV	OSV	1	262	NMJ
3/19/2019	BTR-21	SO	OFU	5	482	NON
5/20/2019	BTR-21	EF	USV	1	497	NON
6/14/2019	BTR-21	EF	UPC	5	2216	NON
8/2/2019	BTR-21	EF	USC	1	214	NON
8/10/2019	BTR-21	EF	UPC	5	2342	NON
1/6/2019	BTR-22	TV	OCO	118	126408	MEJ
2/11/2019	BTR-22	TV	OCO	118	276596	MEJ
2/12/2019	BTR-22	TV	OCO	0	31630	MEJ
2/13/2019	BTR-22	TV	OCO	225	80856	NMJ
2/13/2019	BTR-22	UN	OTF	2	3879	NMJ
2/13/2019	BTR-22	TV	OTF	1	579	NMJ
2/13/2019	BTR-22	TV	OCO	118	64646	NMJ
2/13/2019	BTR-22	TV	OCO	1	1379	NMJ
2/13/2019	BTR-22	TV	OSV	1	1295	NMJ
2/13/2019	BTR-22	TV	OTF	5	1589	NMJ
2/14/2019	BTR-22	TV	OSV	1	172	NMJ
2/20/2019	BTR-22	EF	OMP	1	72	NON
3/2/2019	BTR-22	EF	UEL	58	12792	NON
4/3/2019	BTR-22	TV	OFU	3	131	NON
4/4/2019	BTR-22	EF	UPC	22	6101	NON
4/24/2019	BTR-22	EF	UTR	70	9339	NON
5/30/2019	BTR-22	SO	UFJ	25	4779	NON
7/7/2019	BTR-22	EF	OFC	53	14804	NON
7/7/2019	BTR-22	BA	OTF	1	85	NON
7/18/2019	BTR-22	EF	OFU	18	2931	NON

7/18/2019	BTR-22	EF	UOT	17	4190	NON
11/13/2019	BTR-22	EF	UPC	1	590	NON
5/10/2019	CEN-11	EF	OSW	15	2910	NON
6/26/2019	CEN-12	SO	ACE	4	1622	NON
6/26/2019	CEN-12	SO	ACE	4	532	NON
11/9/2019	CEN-12	SO	ACE	7	3457	NON
8/24/2019	CEN-13	SO		1	706	NON
11/27/2019	CEN-14	SO	ACE	2	292	NON
7/21/2019	CEN-22	SO	UEL	1	227	NON
1/2/2019	CEN-25	BA	UOT	59	4809	NON
7/31/2019	CEN-25	SO	OPO	8	2813	NON
10/26/2019	CEN-25	SO	OCO	1	263	NON
5/13/2019	CLY-22	<sup>2</sup> UN	OIN	345	7245	NON
7/18/2019	CLY-22	DU	UPC	5	2202	NON
2/11/2019	CLY-23	EF	OTF	2	279	MEJ
2/11/2019	CLY-23	TV	OTF	39	116524	MEJ
5/13/2019	CLY-23	<sup>2</sup> EF	OIN	537	11277	NON
11/2/2019	CLY-23	BA	OTF	47	2595	NON
12/27/2019	CLY-23	SO	OPO	3	789	NON
4/9/2019	CLY-25	UN	USV	1	151	NON
5/13/2019	CLY-25	<sup>2</sup> EF	OIN	1541	32361	NON
7/15/2019	CLY-25	EF	USV	1	166	NON
8/21/2019	CLY-25	EF	UTR	233	32873	NON
11/6/2019	CLY-25	OE	OMP	1	146	NON
12/23/2019	CLY-25	EF	OTF	1	411	NON
1/6/2019	CLY-26	TV	OCO	49	176238	MEJ
1/19/2019	CLY-26	UN	OTF	5	229	NON
3/28/2019	CLY-26	BA	OFU	75	3394	NON
4/9/2019	CLY-26	EF	UPC	139	39598	NON
5/13/2019	CLY-26	<sup>2</sup> EF	OIN	1380	28980	NON
5/13/2019	CLY-26	EF	USV	1	157	NON
6/3/2019	CLY-26	EF	OMP	1	61	NON
6/6/2019	CLY-26	SO	ACE	4	650	NON
6/18/2019	CLY-26	EF	USC	2	221	NON
8/2/2019	CLY-26	SO	ACE	5	218	NON
9/23/2019	CLY-26	TV	OCO	7	964	NON
9/23/2019	CLY-26	TV	OCO	2	270	NON
9/29/2019	CLY-26	BA	OFU	13	1758	NON
10/30/2019	CLY-26	SO	OPO	2	199	NON
1/6/2019	CLY-27	UN	OCO	4	8552	MEJ
2/9/2019	CLY-27	EF	USV	1	635	MEJ
5/13/2019	CLY-27	<sup>2</sup> UN	OIN	757	15897	NON
7/17/2019	CLY-27	TV	OCO	4	1667	NON
7/31/2019	CLY-27	SO	UPT	7	1417	NON
8/24/2019	COL-23	SO	UEL	5	456	NON
9/6/2019	COL-23	EF	UPC	144	17034	NON
10/14/2019	COL-23	EF	UPC	7	1452	NON



11/23/2019	COL-23	SO	USV	5	3800	NON
12/21/2019	COL-23	EF	UEL	21	4732	NON
12/22/2019	COL-23	EF	UEL	19	1295	NON
12/22/2019	COL-23	EF	UTR	0	105	NON
12/22/2019	COL-23	EF	UEL	21	3048	NON
1/14/2019	COL-25	EF	USV	1	666	NON
12/18/2019	COL-25	EF	USV	1	103	NON
1/6/2019	COL-26	TV	OCO	8	20833	MEJ
2/7/2019	COL-26	AC	ACE	7	1082	NON
2/19/2019	COL-26	BA	OTF	1	155	NON
5/6/2019	COL-26	EF	USV	1	157	NON
5/10/2019	COL-26	UN	OFC	59	18957	NON
5/17/2019	COL-26	EF	USV	1	161	NON
7/1/2019	COL-26	BA	OTF	6	321	NON
7/5/2019	COL-26	EF	OTR	7	1671	NON
7/14/2019	COL-26	AC	UOT	1843	2641	NON
7/14/2019	COL-26	CP	UOT	398	51167	NON
7/17/2019	COL-26	EF	UHH	3	647	NON
8/18/2019	COL-26	AC	OTR	24	3226	NON
8/19/2019	COL-26	BA	OTF	1	121	NON
8/30/2019	COL-26	EF	UPC	62	7510	NON
9/30/2019	COL-26	EF	OSV	1	189	NON
11/8/2019	COL-26	EF	UPC	226	32963	NON
11/13/2019	COL-26	SO	OPO	30	8912	NON
11/15/2019	COL-26	EF	USV	1	61	NON
12/8/2019	COL-26	EF	UPC	34	5641	NON
12/17/2019	COL-26	EF	UPC	62	10520	NON
1/31/2019	EGT-11	SO	UPC	10	1809	NON
4/29/2019	EGT-11	SO	USV	3	259	NON
5/8/2019	EGT-11	UN	USV	1	168	NON
5/10/2019	EGT-11	BA	OTF	1	105	NON
5/10/2019	EGT-11	SO	ACE	2	316	NON
5/13/2019	EGT-11	SO	ACE	12	350	NON
6/12/2019	EGT-11	SO	UPC	75	11496	NON
6/17/2019	EGT-11	EF	USV	1	172	NON
7/1/2019	EGT-11	EF	OTR	7	1800	NON
7/7/2019	EGT-11	BA	UOT	361	42038	NON
12/31/2019	EGT-11	TV	OCO	612	70565	NON
12/31/2019	EGT-11	TV	OCO	158	12100	NON
1/6/2019	EGT-12	TV	OPO	84	90433	MEJ
1/6/2019	EGT-12	TV	OCO	2856	658831	MEJ
1/6/2019	EGT-12	TV	OCO	27	110448	MEJ
1/6/2019	EGT-12	TV	OCO	3	13578	MEJ
1/10/2019	EGT-12	EF	USV	1	202	NON
1/24/2019	EGT-12	TV	OCO	132	5905	NON
2/5/2019	EGT-12	TV	OCO	122	70896	NON
2/11/2019	EGT-12	TV	OCO	1997	1472588	MEJ

2/12/2019	EGT-12	TV	OCO	8	22242	MEJ
3/10/2019	EGT-12	BA	OTF	1	94	NON
4/12/2019	EGT-12	EF	OCO	4	82	NON
4/18/2019	EGT-12	EF	USV	1	128	NON
4/19/2019	EGT-12	TV	OTF	43	5042	NON
5/7/2019	EGT-12	OE	UOT	2756	55900	NON
5/21/2019	EGT-12	BA	OTF	1	103	NON
6/12/2019	EGT-12	UN	OCO	1696	292846	NON
11/7/2019	EGT-12	BA	OTF	4	365	NON
11/26/2019	EGT-12	EF	UPT	209	22642	NON
12/3/2019	EGT-12	EF	USV	1	305	NON
12/24/2019	EGT-12	EF	OCN	1	150	NON
2/12/2019	EGT-13	EF	UPS	7	2138	MEJ
9/17/2019	EGT-15	SO	OTF	3	472	NON
9/19/2019	EGT-15	SO	OCO	14	5723	NON
3/25/2019	EGT-16	BA	OTF	8	717	NON
6/1/2019	EGT-16	BA	OTF	11	1302	NON
6/1/2019	EGT-16	UN	OTR	3	887	NON
6/10/2019	EGT-16	BA	OTF	5	513	NON
6/23/2019	EGT-16	EF	UPC	4	668	NON
7/8/2019	EGT-16	EF	OTR	3	719	NON
7/8/2019	EGT-16	BA	OFC	14	1460	NON
10/15/2019	EGT-16	SO	UPC	1	470	NON
10/16/2019	EGT-16	SO	UPC	2	777	NON
10/18/2019	EGT-16	SO	UPC	1	402	NON
11/12/2019	EGT-16	BA	OTF	6	582	NON
1/6/2019	EGT-25	TV	OCO	689	100123	MEJ
1/6/2019	EGT-25	TV	OCO	2	5035	MEJ
7/6/2019	EGT-25	BA	OTF	5	627	NON
8/5/2019	EGT-25	SO	OPO	3	489	NON
9/10/2019	EGT-25	BA	OTF	2	162	NON
9/26/2019	EGT-25	TV	OCO	432	37311	NON
9/26/2019	EGT-25	TV	OCO	713	120794	NON
10/21/2019	EGT-25	TV	OFC	14	953	NON
12/28/2019	EGT-25	EF	OSV	2	420	NON
12/31/2019	EGT-25	TV	OCO	713	82211	NON
3/20/2019	EGT-26	BA	OCO	8	731	NON
7/23/2019	EGT-26	BA	PMF	5	463	NON
11/2/2019	EGT-26	EF	UPC	2	727	NON
1/6/2019	EGT-27	TV	OFU	61	45052	MEJ
1/6/2019	EGT-27	TV	OCO	48	33935	MEJ
5/22/2019	EGT-27	BA	OTF	4	480	NON
1/2/2019	EGT-28	EF	USV	1	541	NON
1/6/2019	EGT-28	TV	OSV	3	5282	MEJ
2/12/2019	EGT-28	TV	OCO	2	6763	MEJ
2/12/2019	EGT-28	TV	OCO	7	13272	MEJ
2/22/2019	EGT-28	EF	USV	1	659	NON

3/9/2019	EGT-28	UN	USV	1	90	NON
3/16/2019	EGT-28	UN	USV	1	63	NON
3/17/2019	EGT-28	EF	UHH	4	770	NON
4/7/2019	EGT-28	UN	USC	2	834	NON
4/12/2019	EGT-28	UN	UTR	15	2567	NON
4/12/2019	EGT-28	EF	USV	1	73	NON
4/14/2019	EGT-28	EF	UHH	1	739	NON
6/7/2019	EGT-28	UN	USV	1	181	NON
6/11/2019	EGT-28	EF	OTR	1	408	NON
7/2/2019	EGT-28	EF	USV	1	214	NON
7/12/2019	EGT-28	SO	UPT	17	2436	NON
7/29/2019	EGT-28	EF	USV	1	469	NON
9/18/2019	EGT-28	EF	UPC	91	12318	NON
10/8/2019	EGT-28	TV	OCO	267	68891	NON
10/13/2019	EGT-28	EF	USV	1	224	NON
10/25/2019	EGT-28	EF	UFJ	132	1354	NON
12/16/2019	EGT-28	EF	USV	1	253	NON
1/3/2019	EVE-23	SO	UPC	3	67	NON
1/6/2019	EVE-23	TV	OTF	5	5278	MEJ
1/9/2019	EVE-23	TV	OFU	198	23638	NMJ
1/15/2019	EVE-23	EF	USV	1	112	NON
1/19/2019	EVE-23	EF	USV	1	157	NON
2/12/2019	EVE-23	TV	OCO	1	461	MEJ
3/4/2019	EVE-23	CP	OCO	198	18553	NON
3/22/2019	EVE-23	CP	UPT	25	560	NON
4/1/2019	EVE-23	EF	OAR	245	19490	NON
4/2/2019	EVE-23	EF	USV	1	150	NON
4/4/2019	EVE-23	EF	USV	1	283	NON
4/30/2019	EVE-23	EF	USV	1	281	NON
4/30/2019	EVE-23	EF	USV	1	164	NON
5/1/2019	EVE-23	EF	USV	1	383	NON
5/10/2019	EVE-23	EF	UPC	18	11062	NON
5/17/2019	EVE-23	EF	UPC	49	21445	NON
5/19/2019	EVE-23	EF	USV	1	318	NON
6/16/2019	EVE-23	EF	OTF	2	238	NON
7/10/2019	EVE-23	CP	UPT	38	8078	NON
7/15/2019	EVE-23	BA	OFC	6	450	NON
7/15/2019	EVE-23	BA	UPS	6	1108	NON
7/28/2019	EVE-23	EF	UPC	73	26271	NON
8/4/2019	EVE-23	BA	UOT	197	17588	NON
8/7/2019	EVE-23	EF	OFU	44	8470	NON
8/24/2019	EVE-23	BA	OTF	1	55	NON
9/6/2019	EVE-23	EF	USV	1	494	NON
9/8/2019	EVE-23	BA	UOT	9	2156	NON
10/7/2019	EVE-23	TV	OFC	1	97	NON
11/5/2019	EVE-23	TV	OCN	2	198	NON
12/3/2019	EVE-23	CP	UPT	3	312	NON

12/18/2019	EVE-23	EF	USV	1	84	NON
12/23/2019	EVE-23	SO	ACE	11	554	NON
1/6/2019	FAC-12	TV	OCO	32	51861	MEJ
1/12/2019	FAC-12	UN	OCN	15	568	NON
1/17/2019	FAC-12	SO	UPC	9	2048	NON
1/21/2019	FAC-12	SO	UPC	13	7872	NON
1/31/2019	FAC-12	DU	USV	5	772	NON
2/11/2019	FAC-12	TV	OCO	15	4504	MEJ
3/1/2019	FAC-12	SO	UPC	93	302	NON
3/1/2019	FAC-12	SO	UPC	50	76	NON
3/1/2019	FAC-12	SO	UPC	89	119	NON
3/24/2019	FAC-12	UN	USV	1	189	NON
4/11/2019	FAC-12	EF	OTF	111	16847	NON
4/11/2019	FAC-12	EF	USV	3	372	NON
4/14/2019	FAC-12	UN	USV	122	9946	NON
5/14/2019	FAC-12	BA	OTF	10	220	NON
5/26/2019	FAC-12	EF	UHH	3	1202	NON
6/4/2019	FAC-12	UN	USV	1	145	NON
6/5/2019	FAC-12	UN	USV	1	415	NON
6/12/2019	FAC-12	AC	USV	1	169	NON
6/27/2019	FAC-12	BA	OTF	10	255	NON
7/5/2019	FAC-12	EF	USV	1	162	NON
8/19/2019	FAC-12	DU	USV	19	1952	NON
9/30/2019	FAC-12	EF	USV	1	86	NON
3/19/2019	FAC-13	EF	OFU	489	90554	NON
3/19/2019	FAC-13	EF	OFU	1	6689	NON
4/5/2019	FAC-13	TV	OPO	489	84704	NON
4/15/2019	FAC-13	EF	USC	1	396	NON
8/22/2019	FAC-13	EF	UPC	9	2036	NON
9/13/2019	FAC-13	LI	UPS	7	1070	NON
12/3/2019	FAC-13	EF	OCO	1	107	NON
5/23/2019	FAC-14	EF	UTR	1	497	NON
5/9/2019	FAC-23	BA	PMF	2	436	NON
1/19/2019	FAC-24	SO	ACE	1	327	NON
1/16/2019	FAC-25	UN	USV	1	124	NON
1/17/2019	FAC-25	SO	OPO	2	257	NON
2/1/2019	FAC-25	EF	UHH	19	2596	NON
3/16/2019	FAC-25	SO	UPT	3	1084	NON
4/12/2019	FAC-25	SO	OPO	4	737	NON
4/16/2019	FAC-25	UN	USV	1	192	NON
4/17/2019	FAC-25	EF	OIN	3	1199	NON
6/7/2019	FAC-25	EF	USV	1	128	NON
7/18/2019	FAC-25	EF	OFU	48	3882	NON
7/19/2019	FAC-25	EF	OFC	13	1644	NON
11/11/2019	FAC-25	EF	OPO	13	1406	NON
11/12/2019	FAC-25	EF	OPO	13	4890	NON
1/6/2019	GOO-13	TV	OCO	2194	408084	MEJ

1/6/2019	GOO-13	TV	OCO	1910	1689076	MEJ
4/30/2019	GOO-13	UN	USV	1	212	NON
5/7/2019	GOO-13	SO	OPO	55	11312	NON
5/7/2019	GOO-13	OE	UOT	2184	44298	NON
5/7/2019	GOO-13	SO	OPO	55	872	NON
5/13/2019	GOO-13	EF	OFU	17	997	NON
5/26/2019	GOO-13	EF	USV	1	658	NON
6/17/2019	GOO-13	TV	OCO	2211	349798	NON
8/1/2019	GOO-13	DU	UPC	411	191464	NON
10/22/2019	GOO-13	EF	OCN	2	43	NON
10/28/2019	GOO-13	EF	USV	1	244	NON
1/6/2019	GOO-21	TV	OPO	224	241155	MEJ
1/6/2019	GOO-21	TV	OCO	363	60621	MEJ
1/6/2019	GOO-21	TV	OCO	55	198692	MEJ
1/7/2019	GOO-21	TV	OCO	0	5570	NMJ
1/9/2019	GOO-21	TV	OCO	2	17	NMJ
1/23/2019	GOO-21	TV	OCO	129	22526	NON
1/24/2019	GOO-21	TV	OCO	224	10020	NON
2/5/2019	GOO-21	TV	OCO	224	130169	NON
2/8/2019	GOO-21	TV	OCO	55	11761	MEJ
2/11/2019	GOO-21	TV	OCO	6	38687	MEJ
2/12/2019	GOO-21	TV	OCO	148	60830	MEJ
2/12/2019	GOO-21	TV	OCO	6	3228	MEJ
6/18/2019	GOO-21	TV	OCO	7	541	NON
6/26/2019	GOO-21	BA	OFC	7	474	NON
8/6/2019	GOO-21	BA	OTF	3	367	NON
9/3/2019	GOO-21	SO	UPT	1	176	NON
9/11/2019	GOO-21	SO		21	2674	NON
10/17/2019	GOO-21	SO	USV	1	28	NON
10/20/2019	GOO-21	TV	OCO	55	42901	NON
10/20/2019	GOO-21	TV	OCO	2	310	NON
1/6/2019	HAZ-12	EF	OCO	5	12779	MEJ
1/6/2019	HAZ-12	TV	OCO	6	21276	MEJ
1/18/2019	HAZ-12	EF	OMP	1	120	NON
2/11/2019	HAZ-12	TV	OFU	9	3445	MEJ
2/16/2019	HAZ-12	FI	OMP	1	115	NON
2/16/2019	HAZ-12	EF	OMP	1	109	NON
2/19/2019	HAZ-12	UN	USV	1	326	NON
3/7/2019	HAZ-12	SO	UGV	2	555	NON
4/25/2019	HAZ-12	SO	ACE	2	259	NON
6/5/2019	HAZ-12	EF	OSV	1	100	NON
6/21/2019	HAZ-12	BA	OTF	4	209	NON
7/11/2019	HAZ-12	EF	USC	14	2688	NON
12/22/2019	HAZ-12	EF	OTF	4	363	NON
12/24/2019	HAZ-12	EF	OTR	4	1250	NON
1/7/2019	HAZ-13	TV	OCO	5	2567	NMJ
1/10/2019	HAZ-13	EF	USV	1	311	NON

1/30/2019	HAZ-13	UN	USV	1	68	NON
2/8/2019	HAZ-13	TV	OFU	19	1773	MEN
2/8/2019	HAZ-13	TV	OCO	19	5503	MEJ
2/9/2019	HAZ-13	UN	OFU	61	28106	MEJ
2/9/2019	HAZ-13	TV	OCO	45	30007	MEJ
2/19/2019	HAZ-13	EF	OTR	5	905	NON
3/16/2019	HAZ-13	EF	USV	1	86	NON
3/18/2019	HAZ-13	EF	USV	8	1208	NON
4/19/2019	HAZ-13	EF	OCN	1	123	NON
6/4/2019	HAZ-13	EF	UPC	6	1620	NON
6/6/2019	HAZ-13	SO	UPC	12	2016	NON
6/7/2019	HAZ-13	SO	UPC	2	194	NON
6/14/2019	HAZ-13	EF	OCR	56	6781	NON
7/7/2019	HAZ-13	BA	OTF	1	131	NON
7/17/2019	HAZ-13	TV	OTF	1	90	NON
9/11/2019	HAZ-13	EF	USV	1	266	NON
9/26/2019	HAZ-13	TV	OCR	44	47454	NON
10/20/2019	HAZ-13	EF	OCO	1216	180489	NON
10/22/2019	HAZ-13	TV	OCO	60	17634	NON
11/8/2019	HAZ-13	EF	USV	1	475	NON
4/1/2019	HOU-23	FI	OCN	4	362	NON
4/18/2019	HOU-23	EF	USV	1	117	NON
5/13/2019	HOU-23	<sup>2</sup> UN	OIN	1314	27594	NON
6/23/2019	HOU-23	UN	USV	1	474	NON
11/8/2019	HOU-23	EF	UPC	34	8318	NON
1/9/2019	HOU-25	TV	OCN	1	146	NMJ
1/9/2019	HOU-25	EF	UPC	7	1738	NMJ
2/8/2019	HOU-25	EF	UPC	5	1036	MEJ
5/13/2019	HOU-25	<sup>2</sup> UN	OIN	499	10479	NON
12/26/2019	HOU-25	EF	UPC	8	1973	NON
1/6/2019	KWH-22	ND	OCO	1357	99023	MEJ
2/9/2019	KWH-22	EF	USV	1	1078	MEJ
2/11/2019	KWH-22	TV	OCO	7	22180	MEJ
2/11/2019	KWH-22	TV	OCO	96	77600	MEJ
2/12/2019	KWH-22	TV	OCO	266	300363	MEJ
2/12/2019	KWH-22	TV	OTF	4	7241	MEJ
3/25/2019	KWH-22	SO	OPO	7	823	NON
4/26/2019	KWH-22	EF	USV	1	501	NON
5/10/2019	KWH-22	UN	UHH	1	583	NON
7/2/2019	KWH-22	BA	OTF	4	368	NON
7/10/2019	KWH-22	<sup>1</sup> BA	SCS	1357	140434	NON
10/9/2019	KWH-22	EF	USV	1	421	NON
11/13/2019	KWH-22	EF	OCN	1	145	NON
1/6/2019	KWH-23	ND	OCO	953	69543	MEJ
1/6/2019	KWH-23	TV	OCO	945	878928	MEJ
1/6/2019	KWH-23	TV	OCO	519	379086	MEJ
1/6/2019	KWH-23	TV	OCO	81	24381	MEJ

2/12/2019	KWH-23	TV	OTF	11	29737	MEJ
3/14/2019	KWH-23	EF	USV	1	145	NON
4/1/2019	KWH-23	EF	USV	1	491	NON
6/15/2019	KWH-23	UN	USV	1	129	NON
7/2/2019	KWH-23	SO	UPC	7	1553	NON
7/10/2019	KWH-23	<sup>1</sup> BA	SCS	953	98624	NON
7/18/2019	KWH-23	SO	USV	3	289	NON
11/14/2019	KWH-23	EF	UPC	81	6820	NON
12/8/2019	KWH-23	EF	UPC	45	15236	NON
12/21/2019	KWH-23	EF	UTR	7	2529	NON
12/21/2019	KWH-23	EF	UTR	17	3578	NON
1/6/2019	KWH-25	ND	OCO	1628	118799	MEJ
1/7/2019	KWH-25	TV	OCO	335	18107	NMJ
1/31/2019	KWH-25	TV	OCO	1623	517455	NON
2/24/2019	KWH-25	EF	USV	1	338	NON
3/14/2019	KWH-25	EF	USV	1	141	NON
4/17/2019	KWH-25	EF	USV	1	185	NON
6/14/2019	KWH-25	BA	OTF	5	426	NON
7/3/2019	KWH-25	UN	UOT	6	1151	NON
7/10/2019	KWH-25	<sup>1</sup> BA	SCS	1628	168479	NON
7/21/2019	KWH-25	BA	OTF	25	3969	NON
8/28/2019	KWH-25	EF	USV	1	143	NON
9/11/2019	KWH-25	EF	USV	1	228	NON
9/24/2019	KWH-25	EF	USV	1	136	NON
10/31/2019	KWH-25	EF	USV	1	165	NON
12/5/2019	KWH-25	EF	USV	1	115	NON
12/21/2019	KWH-25	EF	UPC	6	2235	NON
1/6/2019	KWH-26	ND	OCO	268	19557	MEJ
2/11/2019	KWH-26	UN	OTF	12	40983	MEJ
2/23/2019	KWH-26	UN	OSV	1	144	NON
3/23/2019	KWH-26	SO	ACE	1	424	NON
5/28/2019	KWH-26	EF	USV	3	1745	NON
7/10/2019	KWH-26	<sup>1</sup> BA	SCS	268	27735	NON
10/21/2019	KWH-26	TV	OCO	52	2097	NON
10/21/2019	KWH-26	TV	OCO	12	11909	NON
11/4/2019	KWH-26	BA	OTF	5	198	NON
1/6/2019	LHL-22	OD	OFU	7	25654	MEJ
2/12/2019	LHL-22	TV	OTF	4	4645	MEJ
2/14/2019	LHL-22	TV	OSV	1	522	NMJ
2/16/2019	LHL-22	TV	OTF	2	238	NON
3/18/2019	LHL-22	EF	OCN	1	157	NON
3/22/2019	LHL-22	EF	OTF	5	483	NON
4/29/2019	LHL-22	SO	OTR	4	361	NON
4/29/2019	LHL-22	EF	OTF	5	393	NON
8/16/2019	LHL-22	TV	OCO	7	415	NON
8/20/2019	LHL-22	UN	OFC	40	8735	NON
9/16/2019	LHL-22	BA	OTF	2	301	NON

11/4/2019	LHL-22	EF	USV	1	81	NON
12/19/2019	LHL-22	TV	OPO	118	86441	NON
4/17/2019	LHL-23	SO	UEL	115	25073	NON
4/27/2019	LHL-23	EF	UPC	17	2774	NON
10/3/2019	LHL-23	SO	OFU	37	12582	NON
10/18/2019	LHL-23	SO	OPO	5	1708	NON
11/21/2019	LHL-23	CE	OMP	1	81	NON
1/10/2019	LHL-25	TV	OCO	1	67	NON
2/11/2019	LHL-25	TV	OCO	50	57333	MEJ
2/11/2019	LHL-25	TV	OCO	103	178926	MEJ
2/11/2019	LHL-25	TV	OSV	1	4032	MEJ
2/13/2019	LHL-25	TV	OTF	6	7866	NMJ
2/15/2019	LHL-25	EF	OTF	12	1764	NMJ
3/14/2019	LHL-25	EF	OCN	1	389	NON
3/31/2019	LHL-25	UN	UGF	1698	310641	NON
3/31/2019	LHL-25	UN	UFJ	650	88671	NON
4/1/2019	LHL-25	EF	UFJ	239	32528	NON
5/16/2019	LHL-25	SO	UPC	224	111880	NON
5/20/2019	LHL-25	SO	UPC	224	58028	NON
6/6/2019	LHL-25	SO	ACE	12	4413	NON
6/24/2019	LHL-25	EF	UPT	17	3234	NON
6/26/2019	LHL-25	AC	OSV	6	518	NON
8/22/2019	LHL-25	BA	OTF	4	290	NON
8/29/2019	LHL-25	SO	UPC	1	25	NON
9/18/2019	LHL-25	EF	UHH	16	3074	NON
9/30/2019	LHL-25	SO	UPC	12	298	NON
10/10/2019	LHL-25	SO	UPC	2	324	NON
11/30/2019	LHL-25	EF	OTF	7	1453	NON
12/9/2019	LHL-25	EF	USV	1	261	NON
12/9/2019	LHL-25	EF	USV	1	819	NON
12/26/2019	LHL-25	EF	UPC	968	134500	NON
12/31/2019	LHL-25	FI	OMP	1	52	NON
4/1/2019	LHL-26	UN	USV	1	677	NON
8/14/2019	LHL-26	EF	USV	1	214	NON
11/3/2019	LHL-26	EF	UTR	7	1825	NON
1/22/2019	LOC-22	SO	UPC	38	13622	NON
1/22/2019	LOC-22	OD	ACE	40	2595	NON
2/11/2019	LOC-22	TV	OTF	5	11364	MEJ
2/27/2019	LOC-22	SO	ACE	21	11222	NON
3/14/2019	LOC-22	BA	OTF	1	41	NON
5/30/2019	LOC-22	SO	UPC	77	123	NON
5/30/2019	LOC-22	SO	UPC	24	3593	NON
7/17/2019	LOC-22	BA	OTF	5	315	NON
8/6/2019	LOC-22	UN	UTR	11	5897	NON
12/25/2019	LOC-22	EF	OSV	22	2032	NON
5/13/2019	LOC-25	SO	UCU	7	238	NON
2/24/2019	MED-35	EF	UHM	191	28930	NON



4/5/2019	MED-35	EF	USV	1	122	NON
4/25/2019	MED-35	EF	OCO	5	1261	NON
5/13/2019	MED-35	<sup>2</sup> UN	OIN	191	4011	NON
1/6/2019	MED-36	TV	OCO	672	429701	MEJ
1/7/2019	MED-36	TV	OSV	1	74	NMJ
1/19/2019	MED-36	BA	OTF	2	404	NON
3/20/2019	MED-36	UN	UTR	10	3316	NON
5/13/2019	MED-36	<sup>2</sup> UN	OIN	672	14112	NON
6/20/2019	MED-36	TV	OCO	50	5586	NON
6/28/2019	MED-36	EF	UPC	54	9856	NON
6/28/2019	MED-36	EF	UPC	73	12331	NON
6/28/2019	MED-36	SO	OCO	17	4995	NON
8/5/2019	MED-36	BA	OTF	4	656	NON
10/11/2019	MED-36	EF	UPC	24	3897	NON
1/24/2019	MLK-12	EF	USV	6	1246	NON
2/18/2019	MLK-12	UN	UFJ	19	4438	NON
10/22/2019	MLK-12	EF	OTR	5	685	NON
12/2/2019	MLK-12	CP	OSV	1	98	NON
1/14/2019	MLK-13	EF	UTR	29	7394	NON
2/15/2019	MLK-13	UN	OTF	11	1102	NMJ
4/10/2019	MLK-13	EF	UFJ	1	148	NON
5/31/2019	MLK-13	EF	UPC	193	41670	NON
6/1/2019	MLK-13	EF	OMP	1	80	NON
6/20/2019	MLK-13	EF	UPC	20	79165	NON
6/20/2019	MLK-13	EF	UPC	274	45063	NON
6/24/2019	MLK-13	EF	OMP	1	54	NON
6/27/2019	MLK-13	EF	UPC	152	59498	NON
8/1/2019	MLK-13	EF	UPS	420	86434	NON
8/12/2019	MLK-13	EF	UPS	18	1282	NON
10/1/2019	MLK-13	SO	UPT	2	214	NON
10/18/2019	MLK-13	SO	UPT	2	205	NON
11/19/2019	MLK-13	CE	ACE	1	247	NON
1/6/2019	MLK-15	TV	OSV	1	2315	MEJ
1/31/2019	MLK-15	SO	UPC	3	929	NON
2/27/2019	MLK-15	EF	USV	7	589	NON
3/5/2019	MLK-15	EF	UEL	1	45	NON
5/4/2019	MLK-15	UN	UPC	1651	238982	NON
5/5/2019	MLK-15	UN	UPC	1651	29114	NON
5/8/2019	MLK-15	EF	UHH	2	540	NON
6/6/2019	MLK-15	TV	OCO	311	53467	NON
6/22/2019	MLK-15	BA	OTF	5	300	NON
7/24/2019	MLK-15	EF	UPC	2	2	NON
8/19/2019	MLK-15	BA	OTF	4	455	NON
9/3/2019	MLK-15	BA	OFC	2	213	NON
9/3/2019	MLK-15	AC	OCO	1614	90142	NON
9/14/2019	MLK-15	EF	UTR	13	4217	NON
9/30/2019	MLK-15	SO	OPO	10	1259	NON

10/1/2019	MLK-15	SO	OPO	14	1443	NON
10/2/2019	MLK-15	SO	OPO	1	1760	NON
11/9/2019	MLK-15	EF	UPC	93	27368	NON
12/1/2019	MLK-15	BA	OTF	1	74	NON
12/4/2019	MLK-15	EF	UPC	261	70331	NON
12/16/2019	MLK-15	EF	UPC	72	24833	NON
12/16/2019	MLK-15	EF	UPC	14	588	NON
12/21/2019	MLK-15	EF	UTR	38	10862	NON
12/21/2019	MLK-15	EF	UPC	58	15613	NON
12/21/2019	MLK-15	EF	UTR	0	215	NON
12/21/2019	MLK-15	EF	UTR	7	3875	NON
1/17/2019	MLK-16	TV	OFU	121	4424	NON
5/14/2019	MLK-16	EF	OPO	21	1773	NON
6/24/2019	MLK-16	EF	USV	1	188	NON
7/3/2019	MLK-16	AC	OSV	1	159	NON
7/28/2019	MLK-16	TV	OCO	21	4013	NON
8/11/2019	MLK-16	EF	USV	1	573	NON
8/15/2019	MLK-16	EF	UPC	10	3015	NON
8/21/2019	MLK-16	EF	USV	1	391	NON
9/20/2019	MLK-16	TV	OSV	1	256	NON
9/22/2019	MLK-16	EF	UPC	207	37585	NON
9/22/2019	MLK-16	EF	USV	2	559	NON
10/13/2019	MLK-16	TV	OCO	2	504	NON
4/6/2019	NOB-12	SO	ACE	3	669	NON
7/25/2019	NOB-12	SO	UEL	1	76	NON
3/8/2019	NOB-14	SO	UPC	320	200245	NON
7/23/2019	NOB-14	SO	UEL	1	427	NON
11/10/2019	NOB-21	SO	UPS	2	1459	NON
2/2/2019	NOB-22	SO	UPC	2	539	NON
3/15/2019	NOB-22	BA	OTF	5	318	NON
3/19/2019	NOB-22	TV	OCO	2	212	NON
5/2/2019	NOB-22	SO	UGV	1	172	NON
6/18/2019	NOB-22	BA	OTF	5	609	NON
8/2/2019	NOB-22	SO	UPC	7	1714	NON
8/11/2019	NOB-22	EF	UOT	18	2187	NON
9/13/2019	NOB-22	SO	UEL	20	2858	NON
9/14/2019	NOB-22	SO	ACE	6	247	NON
5/28/2019	NOB-23	EF	OMP	1	136	NON
1/9/2019	NOB-24	TV	OCO	1	448	NMJ
2/9/2019	NOB-24	TV	OCO	1020	57732	MEJ
6/20/2019	NOB-24	BA	UTC	1	114	NON
7/7/2019	NOB-24	BA	OFC	37	4423	NON
7/16/2019	NOB-24	BA	OTF	4	255	NON
8/21/2019	NOB-24	BA	OFC	1	407	NON
1/6/2019	NRU-23	EF	USV	1	3050	MEJ
1/8/2019	NRU-23	TV	OCN	1	225	NMJ
2/11/2019	NRU-23	TV	OCO	3	11726	MEJ

2/12/2019	NRU-23	TV	OCO	1	3268	MEJ
4/29/2019	NRU-23	BA	UOT	9	936	NON
5/22/2019	NRU-23	DU	USV	1	184	NON
5/27/2019	NRU-23	TV	UOT	3	372	NON
5/29/2019	NRU-23	BA	OFC	9	1320	NON
10/18/2019	NRU-23	EF	USV	4	998	NON
1/6/2019	NRU-25	TV	OCO	6	22577	MEJ
1/6/2019	NRU-25	ND	OCO	49	86397	MEJ
1/6/2019	NRU-25	TV	OFU	49	78294	MEJ
2/7/2019	NRU-25	EF	USV	1	174	NON
2/7/2019	NRU-25	EF	USV	1	408	NON
2/11/2019	NRU-25	TV	OFU	49	7905	MEJ
3/24/2019	NRU-25	EF	UPC	7	3297	NON
5/10/2019	NRU-25	EF	UPC	6	3581	NON
5/11/2019	NRU-25	EF	UPC	6	3492	NON
6/25/2019	NRU-25	BA	UOT	4	325	NON
7/6/2019	NRU-25	BA	UOT	4	217	NON
7/9/2019	NRU-25	DU	USV	1	117	NON
7/20/2019	NRU-25	UN	UPC	81	10240	NON
7/20/2019	NRU-25	UN	UPC	6	2286	NON
9/12/2019	NRU-25	EF	UPC	7	2913	NON
12/30/2019	NRU-25	EF	USV	1	198	NON
12/30/2019	NRU-25	EF	UTR	16	4376	NON
1/6/2019	NRU-26	TV	OFU	38	70972	MEJ
3/23/2019	NRU-26	SO	OCO	16	12790	NON
3/30/2019	NRU-26	SO	OCO	14	3672	NON
4/12/2019	NRU-26	UN	OFU	1	20	NON
8/3/2019	NRU-26	SO	UPC	1	242	NON
10/24/2019	NRU-26	SO		61	29078	NON
10/25/2019	NRU-26	SO		14	7105	NON
4/9/2019	NRU-27	SO	OPO	14	3740	NON
4/10/2019	NRU-27	SO	OPO	21	3996	NON
4/11/2019	NRU-27	SO	OPO	10	1830	NON
4/11/2019	NRU-27	SO	OPO	36	10003	NON
4/13/2019	NRU-27	SO	OPO	2	261	NON
4/13/2019	NRU-27	SO	OPO	1	90	NON
4/16/2019	NRU-27	SO	UPC	14	4253	NON
4/18/2019	NRU-27	SO	UGV	6	565	NON
4/21/2019	NRU-27	EF	UFJ	160	26589	NON
4/21/2019	NRU-27	EF	UFJ	69	12565	NON
4/22/2019	NRU-27	EF	UFJ	23	1148	NON
4/22/2019	NRU-27	EF	UFJ	102	12124	NON
5/3/2019	NRU-27	SO	OPO	8	2632	NON
5/31/2019	NRU-27	SO	ACE	6	895	NON
6/9/2019	NRU-27	BA	OTF	4	430	NON
6/10/2019	NRU-27	SO	UPS	21	6413	NON
6/11/2019	NRU-27	OD	DNO	1	98	NON

6/13/2019	NRU-27	SO	UPS	2	265	NON
6/20/2019	NRU-27	SO	UPS	17	6563	NON
6/25/2019	NRU-27	UN	OCN	1	90	NON
6/25/2019	NRU-27	EF	OCN	1	288	NON
6/25/2019	NRU-27	EF	OCN	1	147	NON
7/8/2019	NRU-27	BA	OTF	4	206	NON
7/24/2019	NRU-27	SO	UPS	21	3816	NON
9/3/2019	NRU-27	AC	OCO	146	8154	NON
9/21/2019	NRU-27	EF	UEL	139	29483	NON
9/21/2019	NRU-27	EF	UEL	9	1055	NON
10/8/2019	NRU-27	SO	UPS	28	10712	NON
10/26/2019	NRU-27	SO	UPC	2	367	NON
11/4/2019	NRU-27	SO	UPT	16	2154	NON
11/16/2019	NRU-27	SO	UPC	4	1286	NON
11/21/2019	NRU-27	SO	OPO	45	4830	NON
11/22/2019	NRU-27	CP	UPT	6	940	NON
12/18/2019	NRU-27	EF	OMP	1	105	NON
1/6/2019	OVE-12	TV	OCO	570	364479	MEJ
1/6/2019	OVE-12	TV	OCO	4	12243	MEJ
1/8/2019	OVE-12	TV	OSV	1	763	NMJ
1/16/2019	OVE-12	SO	ACE	4	729	NON
3/7/2019	OVE-12	EF	UPC	32	9073	NON
3/7/2019	OVE-12	EF	UPC	8	1784	NON
3/12/2019	OVE-12	UN	USV	1	106	NON
3/24/2019	OVE-12	EF	USV	1	202	NON
3/25/2019	OVE-12	EF	USC	10	2446	NON
3/26/2019	OVE-12	UN	UPS	570	53808	NON
4/7/2019	OVE-12	EF	UPS	76	2219	NON
5/13/2019	OVE-12	<sup>2</sup> UN	OIN	570	11970	NON
7/18/2019	OVE-12	AC	UPC	126	17808	NON
7/18/2019	OVE-12	EF	UPC	38	3712	NON
8/6/2019	OVE-12	SO	OCO	38	738	NON
8/6/2019	OVE-12	SO	OCO	4	72	NON
9/11/2019	OVE-12	EF	OTR	4	988	NON
9/23/2019	OVE-12	EF	USV	6	1805	NON
11/18/2019	OVE-12	EF	USV	1	121	NON
11/25/2019	OVE-12	DU	UTR	4	2818	NON
11/26/2019	OVE-12	EF	UTR	5	4897	NON
1/6/2019	OVE-15	TV	OCO	283	180961	MEJ
1/9/2019	OVE-15	TV	OTF	2	368	NMJ
2/9/2019	OVE-15	TV	OCO	44	8209	MEJ
3/19/2019	OVE-15	TV	OCO	6	453	NON
3/26/2019	OVE-15	UN	UPS	472	44557	NON
4/12/2019	OVE-15	EF	USV	1	101	NON
4/13/2019	OVE-15	UN	USV	1	427	NON
5/13/2019	OVE-15	<sup>2</sup> UN	OIN	761	15981	NON
8/15/2019	OVE-15	EF	USV	1	181	NON

9/12/2019	OVE-15	SO	OCO	4	200	NON
9/12/2019	OVE-15	SO	OCO	6	164	NON
9/12/2019	OVE-15	SO	OCO	16	200	NON
9/12/2019	OVE-15	SO	OCO	13	439	NON
9/12/2019	OVE-15	SO	OCO	12	163	NON
9/12/2019	OVE-15	SO	OCO	11	292	NON
9/16/2019	OVE-15	EF	OJU	11	6889	NON
10/8/2019	OVE-15	DU	USC	1	259	NON
10/21/2019	OVE-15	<sup>1</sup> EF	USV	1	248	NON
1/4/2019	PHA-13	<sup>1</sup> EF	USV	1	2	NON
1/6/2019	PHA-13	TV	OCO	77	142465	MEJ
1/6/2019	PHA-13	TV	OCO	216	745190	MEJ
1/8/2019	PHA-13	UN	OCO	0	4348	NMJ
1/8/2019	PHA-13	TV	OTR	4	7180	NMJ
1/9/2019	PHA-13	TV	OTF	11	1753	NMJ
1/10/2019	PHA-13	TV	OSV	7	3125	NON
1/16/2019	PHA-13	TV	UOT	11	1173	NON
1/20/2019	PHA-13	TV	OSV	1	241	NON
1/31/2019	PHA-13	<sup>1</sup> EF	UHH	11	1212	NON
2/22/2019	PHA-13	TV	OFU	40	7852	NON
3/19/2019	PHA-13	SO	UPC	8	758	NON
4/2/2019	PHA-13	BA	OFU	41	4054	NON
5/1/2019	PHA-13	UN	OJU	8	244	NON
5/11/2019	PHA-13	CP	OSV	6	2815	NON
5/16/2019	PHA-13	SO	UEL	3	93	NON
5/18/2019	PHA-13	BA	OTF	7	451	NON
5/29/2019	PHA-13	BA	OFU	49	4836	NON
7/3/2019	PHA-13	TV	OCO	1	484	NON
7/10/2019	PHA-13	<sup>1</sup> BA	SCS	1025	106076	NON
7/17/2019	PHA-13	TV	UTC	1	73	NON
8/29/2019	PHA-13	EF	USV	1	155	NON
9/6/2019	PHA-13	AC	UPT	4	2065	NON
9/6/2019	PHA-13	AC	UPT	4	302	NON
9/18/2019	PHA-13	UN	UPC	7	2809	NON
9/27/2019	PHA-13	BA	OTF	8	771	NON
10/8/2019	PHA-13	EF	OSV	12	2580	NON
11/1/2019	PHA-13	EF	USV	1	375	NON
1/6/2019	PHA-16	TV	OCO	57	105896	MEJ
2/1/2019	PHA-16	TV	OTR	1	302	NON
2/13/2019	PHA-16	TV	OSV	1	2154	NMJ
2/17/2019	PHA-16	AC	OPO	1376	205211	NON
2/17/2019	PHA-16	CP	OPO	0	73822	NON
3/25/2019	PHA-16	BA	OTF	3	433	NON
5/18/2019	PHA-16	UN	OCN	9	1028	NON
9/10/2019	PHA-16	EF	OTF	11	1094	NON
10/2/2019	PHA-16	SO	UEL	17	2094	NON
12/14/2019	PHA-16	EF	OTR	2	160	NON

12/31/2019	PHA-16	TV	OCO	64	34046	NON
1/6/2019	PHA-17	EF	OCO	36	81938	MEJ
1/6/2019	PHA-17	TV	OCO	97	84329	MEJ
1/23/2019	PHA-17	EF	OJU	36	2533	NON
2/12/2019	PHA-17	TV	OTF	11	12815	MEJ
2/14/2019	PHA-17	TV	OTF	6	5181	NMJ
9/24/2019	PHA-17	EF	UTR	18	4933	NON
11/18/2019	PHA-17	BA	OFU	10	653	NON
12/20/2019	PHA-17	TV	OFC	155	52256	NON
1/15/2019	ROS-17	EF	USV	1	135	NON
2/11/2019	ROS-17	TV	OCO	112	305432	MEJ
2/13/2019	ROS-17	TV	OCO	7	170	MEJ
2/14/2019	ROS-17	TV	OCO	23	4014	NMJ
2/14/2019	ROS-17	TV	OCO	23	1612	NMJ
2/14/2019	ROS-17	UN	OTF	18	14665	NMJ
3/29/2019	ROS-17	UN	OTF	10	1328	NON
4/5/2019	ROS-17	EF	USV	1	137	NON
5/9/2019	ROS-17	UN	OTF	5	329	NON
5/14/2019	ROS-17	EF	USV	1	156	NON
7/12/2019	ROS-17	BA	OTR	107	3639	NON
8/9/2019	ROS-17	BA	PMF	49	4410	NON
9/8/2019	ROS-17	EF	OCN	1	248	NON
10/30/2019	ROS-17	BA	PMF	49	2189	NON
11/7/2019	ROS-17	EF	USV	1	269	NON
1/6/2019	SBE-22	TV	OCO	75	251225	MEJ
1/7/2019	SBE-22	TV	OSV	1	342	NMJ
2/9/2019	SBE-22	TV	OCO	413	94930	MEJ
3/19/2019	SBE-22	TV	OCO	412	25551	NON
3/25/2019	SBE-22	BA	OFC	29	2789	NON
6/30/2019	SBE-22	BA	OFC	31	3431	NON
7/14/2019	SBE-22	BA	OTF	3	307	NON
11/21/2019	SBE-22	SO	UPC	1	342	NON
2/9/2019	SBE-23	TV	OCO	124	28502	MEJ
4/5/2019	SBE-23	TV	OPO	124	21479	NON
12/3/2019	SBE-23	EF	OCO	124	8385	NON
2/9/2019	SBE-25	TV	OCO	532	122283	MEJ
2/9/2019	SBE-25	TV	OFU	38	3891	MEJ
7/4/2019	SBE-25	BA	UOT	44	2397	NON
7/15/2019	SBE-25	BA	OTR	71	8269	NON
1/1/2019	SBE-26	EF	UTR	29	7937	NON
1/6/2019	SBE-26	TV	OCO	574	521020	MEJ
1/6/2019	SBE-26	TV	OCO	18	43292	MEJ
1/6/2019	SBE-26	TV	OCO	2	3200	MEJ
1/6/2019	SBE-26	EF	OSW	1130	58392	MEJ
1/6/2019	SBE-26	EF	OCO	675	143995	MEJ
1/6/2019	SBE-26	TV	OFU	329	29460	MEJ
1/7/2019	SBE-26	TV	OCO	8	2434	NMJ

1/7/2019	SBE-26	TV	OSV	6	1401	NMJ
1/8/2019	SBE-26	TV	OSV	1	373	NMJ
1/9/2019	SBE-26	TV	OCO	26	3810	NMJ
1/9/2019	SBE-26	TV	OTF	2	746	NMJ
2/3/2019	SBE-26	EF	USV	1	253	NON
2/9/2019	SBE-26	TV	OCO	1748	401786	MEJ
2/10/2019	SBE-26	TV	OCO	39	2932	NMJ
2/18/2019	SBE-26	EF	UPC	11	3474	NON
4/8/2019	SBE-26	BA	OTF	1	122	NON
4/18/2019	SBE-26	EF	USV	1	315	NON
4/18/2019	SBE-26	EF	USV	1	78	NON
4/24/2019	SBE-26	SO	OFC	70	3934	NON
4/26/2019	SBE-26	EF	UTR	7	855	NON
5/7/2019	SBE-26	EF	OSV	1	134	NON
5/30/2019	SBE-26	SO	OCO	15	508	NON
8/5/2019	SBE-26	EF	OCN	4	587	NON
9/11/2019	SBE-26	EF	OTR	4	1104	NON
11/15/2019	SBE-26	CP	OPO	22	16171	NON
2/22/2019	SOM-13	EF	USV	1	151	NON
6/2/2019	SOM-13	UN	USV	1	120	NON
6/5/2019	SOM-13	EF	USV	1	100	NON
10/1/2019	SOM-13	EF	UPC	29	4427	NON
10/8/2019	SOM-13	SO	UPT	5	27	NON
10/8/2019	SOM-13	SO	UPT	5	921	NON
12/13/2019	SOM-13	EF	USV	1	27	NON
2/6/2019	SOM-15	AC	UPT	16	592	NON
5/22/2019	SOM-15	EF	UPC	30	4667	NON
6/12/2019	SOM-15	EF	USV	1	112	NON
9/18/2019	SOM-15	EF	USV	1	232	NON
9/18/2019	SOM-15	EF	USV	1	134	NON
11/2/2019	SOM-15	EF	USV	1	196	NON
12/26/2019	SOM-15	EF	USV	1	161	NON
12/27/2019	SOM-15	EF	UTR	1	764	NON
1/6/2019	SOM-16	TV	OCO	2572	676307	MEJ
1/6/2019	SOM-16	UN	OCO	6	11776	MEJ
1/31/2019	SOM-16	SO	OPO	94	32356	NON
2/9/2019	SOM-16	TV	OCO	5	3406	MEJ
2/11/2019	SOM-16	OD	OCO	456	165026	MEJ
2/11/2019	SOM-16	EF	UTR	3	13657	MEJ
2/19/2019	SOM-16	UN	UTR	1	430	NON
3/11/2019	SOM-16	DU	UPC	238	47560	NON
4/20/2019	SOM-16	EF	USV	1	541	NON
5/3/2019	SOM-16	SO	ACE	32	984	NON
5/3/2019	SOM-16	SO	ACE	32	631	NON
5/6/2019	SOM-16	EF	USV	1	425	NON
5/8/2019	SOM-16	SO	OTR	4	609	NON
5/15/2019	SOM-16	SO	UEL	4	1499	NON

6/4/2019	SOM-16	EF	UPT	25	3203	NON
6/10/2019	SOM-16	UN	OCO	260	46484	NON
6/10/2019	SOM-16	BA	OTF	1	99	NON
7/5/2019	SOM-16	DU	USV	1	52	NON
7/15/2019	SOM-16	AC	OFC	6	425	NON
7/30/2019	SOM-16	BA	PMF	45	7235	NON
8/3/2019	SOM-16	BA	OFC	5	377	NON
8/20/2019	SOM-16	EF	USV	1	160	NON
8/28/2019	SOM-16	EF	UEL	76	19259	NON
9/7/2019	SOM-16	BA	OCO	2623	347023	NON
9/7/2019	SOM-16	LI	OTR	4	1091	NON
9/8/2019	SOM-16	LI	OTR	3	967	NON
9/8/2019	SOM-16	LI	OTR	3	1530	NON
9/12/2019	SOM-16	EF	UTR	4	1541	NON
10/4/2019	SOM-16	EF	OSV	1	117	NON
10/14/2019	SOM-16	SO	UPC	7	732	NON
10/18/2019	SOM-16	EF	UTR	54	26223	NON
11/26/2019	SOM-16	EF	USV	1	180	NON
1/28/2019	SOM-17	EF	USV	1	266	NON
2/17/2019	SOM-17	OD	OFU	12	1545	NON
2/27/2019	SOM-17	EF	UHH	3	333	NON
3/25/2019	SOM-17	BA	OFC	46	4007	NON
3/31/2019	SOM-17	UN	OCN	1	113	NON
4/24/2019	SOM-17	EF	OCO	23	2201	NON
6/9/2019	SOM-17	EF	UPS	1705	130220	NON
6/21/2019	SOM-17	EF	OPO	5	868	NON
6/30/2019	SOM-17	EF	OTR	3	984	NON
7/5/2019	SOM-17	EF	OGD	9	704	NON
7/17/2019	SOM-17	EF	USV	1	144	NON
7/29/2019	SOM-17	BA	OFU	74	11280	NON
7/29/2019	SOM-17	BA	OFU	1	52	NON
8/13/2019	SOM-17	TV	UOT	3	38	NON
8/19/2019	SOM-17	EF	UEL	313	146182	NON
9/7/2019	SOM-17	BA	OCO	914	120922	NON
10/24/2019	SOM-17	EF	USV	1	568	NON
12/20/2019	SOM-17	EF	UOT	170	18479	NON

Totals	95,942	22,623,086
Substation and transmission outages	13,798	2,424,166
Totals excluding substation & transmission outages	82,144	20,198,920
Scheduled Outages	3,098	742,426

Notes:

- 1 Squirrel caused substation outage
- 2 Broken Insulator caused Transmission Outage

Storm Codes:

- MEJ Not included in SAIDI or SAIFI calculations
- MEN Not included in SAIDI calculation, included in SAIFI calculation
- NMJ Included in SAIDI calculation, not included in SAIFI calculation
- NON Included in SAIDI & SAIFI calculations



## 2019 RELIABILITY REPORT CODES LEGEND

DISTRIBUTION SUBSTATION CODES	OUTAGE CAUSE CODES
ARD ARDMORE (REDMOND)	AC ACCIDENT
BTR BRIDLE TRAILS	BA BIRD OR ANIMAL
CEN CENTER	CE CUSTOMER EQUIPMENT
CLY CLYDE HILL	CP CAR POLE
COL COLLEGE	DU DIG UP UNDERGROUND
EGT EASTGATE	EF EQUIPMENT FAILURE
EVE EVERGREEN (REDMOND)	EO ELECTRICAL OVERLOAD
FAC FACTORIA	EQ EARTHQUAKE
GOO GOODES CORNER (ISSAQUAH)	FI FAULTY INSTALLATION
HAZ HAZELWOOD (NEWCASTLE)	LI LIGHTNING
HOU HOUGHTON (KIRKLAND)	OD OUTSIDE DISTURBANCE
KWH KENILWORTH (REDMOND)	OE OPERATING ERROR
LHL LAKE HILLS	PO PARTIAL OUTAGE
LOC LOCHLEVEN	SO SCHEDULED OUTAGE
MED MEDINA (MEDINA)	TF TREE - OFF RIGHT OF WAY
MLK MIDLAKES	TO TREE - ON RIGHT OF WAY
NOB NORTH BELLEVUE	TV TREE - RIGHT OF WAY UNKNOWN
NRU NORTHRUP	UII USER - IMPROPER INSTALLATION
OVE OVERLAKE (MEDINA)	UN UNKNOWN CAUSE
PHA PHANTOM LAKE	VA VANDALISM
ROS ROSE HILL (REDMOND)	
SBE SOUTH BELLEVUE	<b>STORM CODES</b>
SOM SOMERSET	MEJ IEEE MED & MAJOR STORM
	MEN IEEE MED but NON STORM
	NMJ NON IEEE MED but MAJOR STORM
	NON NON IEEE MED & NON STORM
<b>EQUIPMENT CODES</b>	
ACE ALL CUSTOMER EQUIPMENT	OTR OVERHEAD TRANSFORMER
ARR SURGE ARRESTER	OTS OVERHEAD TRAFFIC CONTROL SIGNAL
CC CAPACITOR CAN	OUP OVERHEAD TO UNDERGROUND
CDH CONDUCTOR DOWN & HOT	OUS HOT OUS OVERHEAD TO
CFD CAPACITOR BANK FUSED DISCONNECT	PED DISCONNECT PEDESTAL
CHG CHARGER	PFT PADMOUNT FAST TRANSFORMER (EDUT130)
CON CONNECTIONS	PMF PADMOUNT SWITCH FUSE
CTX TRANSFORMER INSTRUMENT (CURRENT)	PMJ PADMOUNT J-BOX
DNO DID NOT OPERATE	PMP PADMOUNT METER POINT (EDUM100)
ELT ELBOW - TRANSFORMER	PST PADMOUNT STEP TRNSFORMER (EDUT120)
ERC RECLOSER CONTROLLER	PTF PADMOUNT TRANSFORMER FUSE
FCC FUSE - CAPACITOR CAN	PTX PADMOUNT TRANSFORMER INSTRUMENT
FHV FUSE - HIGH VOLTAGE (POWER)	RLE RELAY - ELECTROMECHANICAL
FLV FUSE - LOW VOLTAGE (CONTROL)	RLM RELAY - MICROPROCESSOR
GAR GUY ANCHOR ROD	RLS RELAY - SOLID STATE
GCB GAS CIRCUIT BREAKER (POWER)	SCB POWER CIRCUIT BREAKER
INS INSULATOR	SCS CIRCUIT SWITCHER
LTC LOAD TAP CHANGER	SPT STATION POWER TRANSFORMER
MAN MANUAL OPERATION	SRG STATION REGULATOR
MOT MOTOR OPERATOR	SWC SWITCH - CAPACITOR BANK
MTR METER	SWD SWITCH - DISTRIBUTION DISCONNECT
OAL OVERHEAD AREA LIGHT	SWT SWITCH - TRANSMISSION
OAN OVERHEAD ANCHOR	TER TERMINATION (POWER CABLE)
OAR OVERHEAD ARRESTER	UCU UNDERGROUND COMMUNICATION CABLE
OAT OVERHEAD AUTO TRANSFORMER (EDOT110)	UDC UNDERGROUND DUST CAP
OCA OVERHEAD CAPACITOR (EDOC100)	UEL UNDERGROUND ELBOW
OCB CIRCUIT BREAKER (POWER) - OIL	UFE UNDERGROUND FUSED ELBOW
OCE CUSTOMER EQUIPMENT	UFI UNDERGROUND FAULT INDICATOR
OCN OVERHEAD SECONDARY CONNECTOR	UFJ UNDERGROUND J-BOX
OCO OVERHEAD CONDUCTOR	UFO UNDERGROUND FIBER OPTICS
OCR OVERHEAD CROSSARM	UFS UNDERGROUND FIRE SIGNAL
OFC OVERHEAD CUT-OUT	UGF UNDERGROUND SUBMERSIBLE FUSE
OFI OVERHEAD FAULT INDICATOR	UGV UNDERGROUND VAULT
OFL OVERHEAD FLOOD LIGHT	UHH UNDERGROUND HANDHOLE - SECONDARY
OFS OVERHEAD FIRE SIGNAL	UHM UNDERGROUND HAMMERHEADS
OFU OVERHEAD LINE FUSE / FUSE LINK	UIC UNDERGROUND INDOOR STRESS CONE
OGD OVERHEAD DOWN GUY	UJU UNDERGROUND PRIMARY JUMPER
OGS OVERHEAD SPAN GUY	UMP UNDERGROUND SUBMERSIBLE METER POINT
OHR OVERHEAD RECLOSER (EDOR100)	UNK UNDERGROUND UNKNOWN
OHS OVERHEAD SECTIONALIZER (EDOX100)	UOT UNDERGROUND OUTDOOR TERMINATION
OIN OVERHEAD INSULATOR	UPC UNDERGROUND PRIMARY CABLE
OJU OVERHEAD JUMPER WIRE	UPH UNDERGROUND PADMOUNT PHASE SHIFTER
OMP OVERHEAD METER POINT (EDOM100)	UPS UNDERGROUND PADMOUNT SWITCH (EDUS100)
ONI OVERHEAD NEUTRAL ISOLATOR	UPT UNDERGROUND PADMOUNT TRANSFORMER
OPB OVERHEAD POLE BRACE (EDOP110)	USC UNDERGROUND SECONDARY CABLE
OPI OVERHEAD INSULATOR PIN	USE UNDERGROUND SECONDARY CONNECT
OPO OVERHEAD POLE (EDOP100)	USP UNDERGROUND PRIMARY SPLICE
OPS OVERHEAD POLE STUB (EDOP120)	USS UNDERGROUND SCHOOL SIGNAL
ORE OVERHEAD REGULATOR (EDOG100)	USV UNDERGROUND SERVICE
OSL OVERHEAD STREET LIGHT (EDOL100)	UTC UNDERGROUND TERMINAL FUSE
OSP OVERHEAD SPLICE PRIMARY	UTF UNDERGROUND SUBMERSIBLE TRA
OSS OVERHEAD SCHOOL SIGNAL	UTR UNDERGROUND SUBMERSIBLE TRANSFORMER
OST OVERHEAD STEP TRANSFORMER (EDOT110)	UTS UNDERGROUND TRAFFIC CONTROL SIGNAL
OSV OVERHEAD SERVICE	UUS UNDERGROUND SUBMERSIBLE
OSW OVERHEAD SWITCH (EDOS100)	VCB VACUUM CIRCUIT BREAKER (POWER)
OTF OVERHEAD TRANSFORMER FUSE	XFR TRANSFORMER - UNKNOWN TYPE
OTH OVERHEAD OTHER	XRT NEUTRAL REACTOR
	XSS TRANSFORMER - STATION SERVICE