

July 23, 2018

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

RE: 2017 Electric Service Reliability Report

Dear Nicholas,

Enclosed find Puget Sound Energy's Bellevue Electric Reliability Report for calendar year 2017. For the thirteenth consecutive year, service reliability experienced by Bellevue customers in 2017 was well above that experienced by all PSE customers in the aggregate. Of the 96 distribution circuits serving Bellevue customers in 2017, 63 circuits had reliability numbers better than the system wide performance (16 circuits experienced no unplanned outages). 33 circuits had SAIDI or SAIFI figures that exceeded the 2017 system wide performance values.

The report format is the same as our 2016 report and consists of:

- Preface discussing switch to IEEE 1366 methodology for SAIDI (see below)
- 2013 – 2017 System Average Interruption Duration Index (SAIDI) & System Average Interruption Frequency Index (SAIFI) Five Year History
- 2013 – 2017 Circuits That Exceeded PSE System SAIDI or SAIFI Five Year Review
- 2017 Circuits Exceeding PSE SAIDI or SAIFI
- 2017 Performance for Circuits Serving Bellevue
- 2017 Outages for Circuits Serving Bellevue
- 2017 Report Codes Legend

For 2017 we report PSE system-wide SAIDI and Bellevue circuit SAIDI consistent with our reporting to the Washington State Utilities & Transportation Commission (WUTC).

I have also included our 2017 Service Quality Report Card sent to PSE customers with their monthly billing statements and available at PSE.com.

Please contact me at (425)462-3852 or e-mail at 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

Enclosures

PREFACE TO 2017 BELLEVUE ELECTRIC RELIABILITY REPORT

This preface summarizes a change in reporting for the 2017 calendar year.

System Average Interruption Duration Index (SAIDI)

In consultation with the Washington Utilities and Transportation Commission, starting in 2016 (and going forward) PSE uses the IEEE Standard 1366-2003 methodology for calculating SAIDI reported to the WUTC. The IEEE Standard 1366-2003 is a guide approved and published by the Institute of Electrical and Electronics Engineers that defines electric power reliability indices and factors that affect their calculations.

Prior to 2010 PSE used SAIDI calculations that excluded *Major Storm* event outages (affecting 5% or more of total PSE electric customers) to calculate single year figures. During the period 2010 – 2015 PSE calculated SAIDI as rolling five year average figures (the current year and four preceding years) including *Major Storm* outage events. Prior to 2016, eligible outages having duration longer than 1 minute were included in SAIDI calculations.

The switch in 2016 to the IEEE 1366 methodology returned to calculation of single year SAIDI figures and replaced the *Major Storm* event designation with *Major Event Day* events which are excluded from the SAIDI calculation. Eligible outages having durations longer than 5 minutes are included in the SAIDI calculation. Detailed information about this methodology is contained in PSE’s 2016 Service Quality and Electric Service 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 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_{SQI}*: The SAIDI figures used in this report for 2016 are calculated with the numerator including customer minute interruptions during non-Major Event Days events. Outages that are longer than 5 minutes are included in this metric. *SQI – Service Quality Index

System Average Interruption Frequency Index (SAIFI)

Calculation of the System Average Interruption Frequency Index (SAIFI) reported to the Commission has not changed from past years. SAIFI figures remain calculated for a single calendar year and exclude **5% Exclusion Major Event Days** outage events (designated Major Storm events in past years). SAIFI is calculated based on the formula:

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

SAIFI_{SQI}*: The SAIFI figures used in this report are calculated with the numerator including customer interruptions during non-5% Exclusion Major Event Days (formerly called Major Storm events). Outages one minute and longer are included in this metric. *SQI – Service Quality Index

Momentary & Sustained Interruptions

Interruptions to customer service fall into two designations:

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

SAIDI_{SQI}— any interruption five minutes or shorter

SAIFI_{SQI}— any interruption one minute or shorter

Sustained Interruption—Any interruption not classified as momentary:

SAIDI_{SQI}— Any interruption longer than five minutes

SAIFI_{SQI}— Any interruption longer than one minute

Outage Event Codes

In prior years 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

2017 BELLEVUE ELECTRIC RELIABILITY REPORT

This report summarizes electric service reliability for customers within the City of Bellevue for calendar year 2017. For the 13th 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 2017, 63 circuits had reliability numbers better than the system wide performance (16 circuits experienced no unplanned outages). 33 circuits had SAIDI and/or SAIFI figures that exceeded 2017 system wide performance values.

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

SAIDI figures in minutes, all outages including storm
SAIFI figures in outage events, all non-storm outages

	SAIDI		SAIFI	
	BELLEVUE	PSE	BELLEVUE	PSE
2013	100.7	247.0	0.41	0.86
2014	160.2	312.0	0.60	1.04
2015	186.9	361.0	0.71	1.11
2016	107.0	148.0	0.74	1.06
2017	116.4	175.0	0.91	1.20

PSE SAIDI figures for 2013 - 2015 are five year rolling average figures.

The 2013 Bellevue SAIDI figure was calculated as a four year rolling average for years 2010 - 2013.

The 2014 - 2015 Bellevue SAIDI figures were calculated as a five year rolling average figures.

2016 -2017 SAIDI figures were calculated a single year IEEE 1366 method figures.

PSE analyzes the reliability of its circuits using two standard benchmarks of the electric utility industry, SAIDI and SAIFI.

SAIDI_{Total 5-year Average}: The System Average Interruption Duration Index is a measure of how long the average customer is out of service during a rolling five year period, and is determined as:

$$\frac{\text{Total customer outage minutes for the current and past four years}^*}{\text{Average electric customer count over the current and past four years}^*}$$

* Single year SAIDI figures are calculated for the five years then averaged

SAIDI_{IEEE}: is determined as:

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

Some customers will experience more outages 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 the course of 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.

**CIRCUITS THAT EXCEEDED PSE SYSTEM SAIDI OR SAIFI
BY YEAR 2013 - 2017**

During the 2013-2017 five year period 67 circuits serving customers in Bellevue performed below system wide performance in one or more years. Of these 67 circuits...

- 30 (45%) circuits performed below system wide performance once in five years
- 22 (33%) circuits performed below system wide performance twice in five years
- 10 (15%) circuits performed below system wide performance in three of the five years
- 5 (7%) circuit performed below system wide performance in four of the five years

Performance for year 2013 used four year average (2010 - 2013) SAIDI figures.
Performance for years 2014 & 2015 used five year average SAIDI figures.

CIRCUIT	Repeat Counts								
	2013	2014	2015	2016	2017	1	2	3	4
ARD-11					1		2		
ARD-15	1		1		1			3	
BTR-21					1	1			
BTR-22	1	1	1					3	
CEN-11	1	1		1	1				4
CEN-12	1					1			
CEN-13	1					1			
CEN-14	1	1					2		
CEN-22					1	1			
CLY-23			1	1			2		
CLY-27	1	1			1			3	
COL-22		1			1		2		
COL-23				1		1			
COL-24					1	1			
COL-25		1				1			
COL-26		1		1			2		
EGT-11			1		1		2		
EGT-12			1		1		2		
EGT-13	1		1		1			3	
EGT-15			1		1	1			
EGT-16			1		1		2		
EGT-25	1			1			2		
EGT-26				1		1			
EGT-27	1			1		1			
EGT-28	1			1	1			3	
EVE-23	1		1	1	1				4
FAC-12	1				1		2		
FAC-14		1				1			
FAC-24				1		1			
HAZ-12				1		1			
HOU-23			1		1		2		
HOU-25			1	1	1			3	
KWH-23					1	1			
KWH-25		1	1	1	1				4
KWH-26					1	1			

LHL-22											3
LHL-23						1					
LHL-25								2			
LHL-26						1					
LOC-22						1					
LOC-25						1					
LOC-32						1					
LOC-33						1					
MED-35											3
MED-36						1					
MLK-13						1					
MLK-15						1					
NOB-12						1					
NOB-22						1					
NOB-24								2			
NRU-23											3
NRU-25								2			
NRU-26						1					
NRU-27											4
OVE-12						1					
OVE-15											4
PHA-13								2			
PHA-15						1					
PHA-16								2			
PHA-17								2			
SBE-22								2			
SBE-23								2			
SBE-26						1					
SOM-13								2			
SOM-15								2			
SOM-16											3
SOM-17								2			
Totals	21	25	23	22	33	30	22	10	5		
	2013	2014	2015	2016	2017	45%	33%	15%	7%		

CIRCUITS THAT EXCEED 2017 PSE SYSTEM SAIDI AND/OR SAIFI
SQI: SAIDI = 155 SAIFI = 1.30
PSE: SAIDI = 175 SAIFI = 1.20
Bellevue: SAIDI = 116 SAIFI = 0.91

Notes: SAIDI figures reflect all non-med, scheduled & unscheduled; SAIFI figures reflect all non-storm outages, scheduled & unscheduled

CIRCUIT	SAIDI	SAIFI	2017 Events Comments	Actions Completed in 2017	Planned Actions & Projects
Circuits with planned actions or investigations					
NRU-27	621.4	3.87	Multiple planned and unplanned outages occurred during relocation of overhead feeder lines in coordination with the Sound Transit East Link project construction along NE Spring Blvd and 136th PL NE. One outage was caused by a contractor digging into underground cables. Another outage occurred when overhead lines sagged together during contractor excavation close to a distribution pole.	PSE responded to each situation and restored service. Relocation of PSE overhead lines is complete. PSE continues to coordinate ongoing construction in proximity to PSE facilities with Sound Transit and its contractor.	PSE is coordinating with City of Bellevue staff regarding future city roadway projects in the is area. Additional planned system construction in response to the East Link project will result in additional system improvements in this area.
EGT-28	424.0	1.41	A tree fell into the overhead feeder causing a circuit outage. A water main break damaged a pole resulting in an extended outage (the area had to be stabilized before PSE response could proceed).	The damaged distribution pole was replaced.	PSE has developed a project to install a sectionalizing recloser approximately midway along this circuit.
EGT-12	519.5	3.93	Wind blew a tree limb into Eastgate Bank 1 damaging the 12.5 KV bus causing causing the substation transformer to denegerize. Wind and snow caused trees and limbs to lean into overhead lines causing multiple outages.	Customers were picked up from surrounding circuits while the damage in the substation was being repaired, the transformer bank was tested and the substation was returned to service. A PSE tree crew performed a hot-spot assessment identifying problem trees which were trimmed back.	PSE has developed a tree wire project expected to be constructed in late 2018 which is expected to reduce the potential for future tree limb caused outages on this circuit.
FAC-12	238.0	2.43	A cable failure caused a large sustained outage in the Woodbridge area. Localized cable failures also played a role.	The faulted feeder cable was replaced and the local cables were repaired pending development of a cable replacement project.	A cable replacement project has been developed and is currently in the permitting process with construction anticipated to start in 2018.
NOB-24	223.7	1.22	A cable fault caused a circuit outage.	The faulted cable was repaired.	A Cable Replacement Project has been proposed in this area with the construction planned in 2019.
LHL-25	162.2	0.96	Three localized outages in the underground system occurred.	The failed equipment was replaced.	Multipl cable replacement projects have been developed in this area to replace aging cables and equipment.
Circuits with completed 2017 actions - no additional corrective action needed					
LOC-32	465.8	1.77	A transmission line operation on April 11th impacted Lochleven Substation and six other substations for 6 minutes. An equipment failure impacted residential customers at Lincoln Square - ongoing development construction limited access to facilities and extended restoration response and repair time.	Failed equipment was replaced.	
KWH-23	464.3	3.30	Cable faults caused outages in the underground feeder and a additional outage occurred when a tree impacted the overhead feeder.	The underground feeder cables were replaced.	
LOC-33	427.1	1.95	A transmission line operation on April 11th impacted Lochleven Substation and six other substations for 6 minutes. A scheduled overnight outage was taken to support development in the Bellevue CBD.		
COL-22	416.0	1.00	A customer requested a scheduled outage to allow their contractor to work on the customer owned electrical system safely.		
OVE-15	326.3	2.64	A difficult to located distribution cable failure caused a sustained outage. An equipment failure damaged a pole requiring a sustained outage to safely replace the pole and equipment.	Cables were replaced. Pole and equipment was replaced.	
EGT-11	284.2	1.36	Wind blew a tree limb into Eastgate Bank 1 damaging the 12.5 KV bus causing causing the substation transformer to denegerize.	Customers were picked up from surrounding circuits while the damage in the substation was being repaired, the transformer bank was tested and the substation was returned to service.	
EVE-23	238.4	1.20	A cable fault caused a circuit outage. A scheduled outage was required for a planned pole replacement.	The underground feeder work has been scoped and the design is in progress.	
KWH-26	236.0	1.24	There were two local outages in the underground system that required extended time to locate the problems, isolate them and restore service.	Repairs were made and the failed equipment replaced.	
EGT-16	224.7	1.33	Wind blew a tree limb into Eastgate Bank 1 damaging the 12.5 KV bus causing causing the substation transformer to denegerize.	Customers were picked up from surrounding circuits while the damage in the substation was being repaired, the transformer bank was tested and the substation was returned to service.	
CEN-22	221.5	0.42	A planned outage was scheduled to a mid-rise building so that it could be tied in to the new system being built for a new customer project.		
ARD-11	219.2	0.74	A planned outage was scheduled to four buildings along Bel Red Road so that PSE could extend new system for a new customer project.		
COL-24	217.1	1.00	An underground system equipment failure caused a sustained outage.	Failed equipment was replaced.	
EGT-13	192.9	1.00	Wind blew a tree limb into Eastgate Bank 1 damaging the 12.5 KV bus causing causing the substation transformer to denegerize.	Customers were picked up from surrounding circuits while the damage in the substation was being repaired, the transformer bank was tested and the substation was returned to service.	
ARD-15	187.1	0.47	An animal contact damaged equipment causing a 3.5 hour outage to a group of multi-family residences.	The damaged equipment was replaced.	
BTR-21	175.1	1.22	A feeder cable failure caused a circuit outage.	The failed cable was replaced.	
EGT-15	167.2	0.78	Wind blew a tree limb into Eastgate Bank 1 damaging the 12.5 KV bus causing causing the substation transformer to denegerize.	Customers were picked up from surrounding circuits while the damage in the substation was being repaired, the transformer bank was tested and the substation was returned to service.	
CEN-11	156.4	0.37	A cable failure and an equipment failure caused two outages. A customer requested restoration work be deferred to occur after buiness hours.	Failed cables and equipment were replaced.	
PHA-13	148.4	1.30	A tree fell through overhead feeder lines and damage equipment on a pole during a local weather event.	The system was restored through switching and the damaged equipment was repaired/replaced.	
KWH-25	142.4	1.36	A tree limb fell into overhead feeder causing a circuit outage (KWH-25 & KWH-23 were tied together and experienced the same outage event).		
SBE-23	140.1	4.58	A transmission line operation on April 11th impacted South Bellevue Substation and six other substations for 6 minutes. A pad mount switch failed causing a circuit outage. Construction of a reliability project required planned outages to customers.	The failed pad mount switch was replaced, and the reliability project for Surrey Downs neighborhood was completed.	
SBE-26	85.9	1.52	A transmission line operation on April 11th impacted South Bellevue Substation and six other substations for 6 minutes.		
LOC-22	84.9	1.46	A transmission line operation on April 11th impacted Lochleven Substation and six other substations for 6 minutes.		
CLY-27	75.4	2.05	A transmission line operation on April 11th impacted Clyde Hill Substation and six other substations for 6 minutes. A circuit outage occurred when a squirrel made contact with an energized cable termination.	The termination was rebuilt.	
HOU-23	74.6	1.20	A transmission line operation on April 11th impacted Houghton Substation and six other substations for 6 minutes.		
MED-35	67.7	1.27	A transmission line operation on April 11th impacted Medina Substation and six other substations for 6 minutes.		
SBE-22	39.9	1.29	A transmission line operation on April 11th impacted South Bellevue Substation and six other substations for 6 minutes.		
HOU-25	27.9	1.24	A transmission line operation on April 11th impacted Houghton Substation and six other substations for 6 minutes.		

- 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 transmission or substation outages

2017 PERFORMANCE FOR CIRCUITS SERVING BELLEVUE

CIRCUIT	CUSTOMERS (METERS)	UNPLANNED OUTAGES ¹	UNPLANNED DOUTAGE MINUTES ¹	SAIDI ²	SAIFI ²	
	<i>2017 PSE Companywide performance figures</i>			175	1.2	
ARD-11	216	0	0	219.16	0.74	⁴
ARD-13	634	1	782	9.44	0.02	
ARD-15	1,293	4	219,740	187.09	0.47	
ARD-43	10	0	0	0.00	0.00	
BTR-14	1,136	4	10,230	22.16	0.07	
BTR-21	1,135	6	194,060	175.08	1.22	
BTR-22	647	8	20,364	138.73	0.36	
BTR-23	643	0	0	0.00	0.00	
CEN-11	27	2	3,986	156.37	0.37	
CEN-12	16	0	0	0.00	0.00	
CEN-13	471	0	0	3.85	0.03	⁴
CEN-14	346	0	0	107.03	0.27	
CEN-22	432	0	0	221.51	0.42	
CEN-25	872	1	6,330	73.43	0.33	
CLY-22	345	1	2,032	5.89	1.00	
CLY-23	535	6	4,403	14.78	1.05	
CLY-25	1,517	2	9,009	6.09	1.01	
CLY-26	1,137	7	41,745	63.94	1.18	
CLY-27	723	6	53,777	75.44	2.05	³
COL-22	1	0	0	416.00	1.00	⁴
COL-23	201	3	2,911	14.48	0.12	
COL-24	30	1	6,512	217.06	1.00	
COL-25	239	1	721	3.02	0.00	
COL-26	1,831	8	28,729	30.18	0.19	
EGT-11	1,112	7	313,080	284.23	1.36	³
EGT-12	2,726	20	1,275,372	519.46	3.93	³
EGT-13	7	1	1,350	192.90	1.00	³
EGT-15	342	1	51,697	167.16	0.78	³
EGT-16	439	3	98,530	224.73	1.33	³
EGT-25	690	5	17,169	24.88	0.46	
EGT-26	117	2	6,035	81.84	0.44	
EGT-27	598	8	26,619	44.87	0.40	
EGT-28	1,762	17	622,036	424.00	1.41	
EVE-23	2,943	16	512,963	238.38	1.20	
FAC-12	1,266	21	274,735	238.00	2.43	
FAC-13	538	3	1,786	6.78	0.02	
FAC-14	453	0	0	0.00	0.00	
FAC-21	97	0	0	0.00	0.00	
FAC-23	227	1	2,067	87.62	0.07	
FAC-24	81	0	0	4.65	0.09	⁴
FAC-25	1,503	5	174,442	119.84	1.05	
GOO-13	1,801	5	2,057	1.14	0.00	
GOO-21	218	9	12,658	106.56	0.24	
HAZ-12	2,434	12	41,247	39.74	0.31	
HAZ-13	1,213	8	79,414	67.41	1.01	
HOU-23	1,318	8	98,094	74.62	1.20	³
HOU-25	496	5	11,164	27.87	1.24	³
KWH-22	1,021	8	27,204	29.12	0.28	
KWH-23	944	9	407,223	464.34	3.30	
KWH-25	1,620	18	229,032	142.41	1.36	
KWH-26	270	6	63,711	235.97	1.24	
LHL-22	1,013	1	446	0.44	0.12	
LHL-23	1,302	4	120,744	93.66	0.46	
LHL-25	2,129	14	293,935	162.23	0.96	
LHL-26	552	2	1,908	3.57	0.16	
LOC-22	2,375	11	148,457	84.91	1.46	³
LOC-23	1,928	2	12,622	22.05	1.08	³

LOC-24	50	1	309	6.18	1.00	³
LOC-25	153	1	946	6.18	1.00	³
LOC-32	198	2	91,219	465.75	1.77	³
LOC-33	324	3	61,601	427.11	1.95	³
LOC-34	308	1	1,848	6.18	1.00	³
LOC-35	22	2	1,067	48.50	1.05	³
MED-35	189	5	9,796	67.72	1.27	³
MED-36	669	7	6,601	12.77	1.05	³
MLK-12	420	3	25,434	60.56	0.35	
MLK-13	1,604	15	95,691	64.76	0.49	
MLK-15	1,618	5	18,408	20.19	0.32	
MLK-16	1,521	4	158,873	104.45	0.13	
NOB-11	62	0	0	0.00	0.00	
NOB-12	286	1	105	92.20	0.05	
NOB-13	31	0	0	0.00	0.00	
NOB-14	543	0	0	4.80	0.00	
NOB-21	5	0	0	0.00	0.00	
NOB-22	170	1	4,088	26.54	0.05	
NOB-23	1,180	2	1,001	0.85	0.02	
NOB-24	975	6	205,224	223.65	1.22	
NRU-23	817	12	13,193	20.45	0.15	
NRU-25	852	13	115,344	144.56	0.62	
NRU-26	344	1	3,361	9.77	0.10	
NRU-27	554	11	269,695	621.38	3.87	
OVE-12	550	3	6,128	11.44	1.04	³
OVE-15	714	14	221,418	326.28	2.64	³
PHA-13	1,047	20	151,148	148.40	1.30	
PHA-15	179	0	0	0.00	0.00	
PHA-16	2,078	10	12,745	9.40	0.08	
PHA-17	701	4	24,198	37.06	0.20	
ROS-17	1,227	4	29,697	46.21	0.22	
SBE-22	363	13	14,477	39.88	1.29	³
SBE-23	247	6	28,972	140.09	4.58	³
SBE-25	447	7	6,659	16.41	1.04	³
SBE-26	1,744	14	135,900	85.86	1.52	³
SOM-13	1,174	5	1,030	0.88	0.01	
SOM-15	1,744	9	32,565	48.03	0.15	
SOM-16	2,613	18	368,980	152.91	1.15	
SOM-17	1,709	11	26,063	16.68	0.10	
Totals	79,404	527	7,676,912			

Notes

- 1 Figures exclude Major Event Day & Major Storm outages.
- 2 SAIDI are 2017 single year figures calculated using the IEEE 1366 method which excludes Major Event Day outage events.
SAIFI are 2017 single year figures which exclude 5% Exclusion Major Event Day outage events.
- 3 Includes one circuit outage resulting from substation bank outage.
- 4 SAIDI & SAIFI figures greater than zero reflect inclusion of scheduled outages (including customer requested outages).

2017 OUTAGES FOR CIRCUITS SERVING BELLEVUE
EXCLUDING STORM & SCHEDULED OUTAGES

BY CAUSE

CAUSE CODE	CAUSE DESCRIPTION	OUTAGES		OUTAGE MINUTES	
		COUNT	PERCENT	COUNT	PERCENT
AC	ACCIDENT	14	2.7%	244,527	3.2%
BA	BIRD OR ANIMAL	85	16.1%	712,278	9.3%
CE	CUSTOMER EQUIPMENT	3	0.6%	1,061	0.0%
CP	CAR EQUIPMENT	5	0.9%	33,927	0.4%
DU	DIG UP UNDERGROUND	13	2.5%	14,428	0.2%
EF	EQUIPMENT FAILURE	223	42.3%	2,969,613	38.7%
FI	FAULTY INSTALLATION	11	2.1%	1,226	0.0%
LI	LIGHTNING	11	2.1%	1,015,172	13.2%
OD	OUTSIDE DISTURBANCE	2	0.4%	10,199	0.1%
OE	OUTAGE WHILE WORKING	1	0.2%	12,427	0.2%
TV	TREE - RIGHT OF WAY UNKNOWN	71	13.5%	2,043,920	26.6%
UN	UNKNOWN CAUSE	88	16.7%	618,134	8.1%
Totals		527	100%	7,676,912	100%

EQUIP CODE	EQUIPMENT DESCRIPTION	OUTAGES		OUTAGE MINUTES	
		COUNT	PERCENT	COUNT	PERCENT
OAR	OVERHEAD ARRESTER	2	0.4%	53,960	0.7%
OCE	CUSTOMER EQUIPMENT	2	0.4%	305	0.0%
OCN	OVERHEAD SECONDARY CONNECTOR	11	2.1%	3,275	0.0%
OCO	OVERHEAD CONDUCTOR	64	12.1%	2,067,183	26.9%
OCR	OVERHEAD CROSSARM	5	0.9%	29,613	0.4%
OFC	OVERHEAD CUT-OUT	5	0.9%	11,282	0.1%
OFU	OVERHEAD LINE FUSE / FUSE LINK	33	6.3%	101,237	1.3%
OIN	OVERHEAD INSULATOR	3	0.6%	3,790	0.0%
OMP	OVERHEAD METER POINT (EDOM100)	2	0.4%	136	0.0%
OPO	OVERHEAD POLE (EDOP100)	12	2.3%	263,747	3.4%
OSV	OVERHEAD SERVICE	25	4.7%	9,554	0.1%
OSW	OVERHEAD SWITCH (EDOS100)	2	0.4%	1,461	0.0%
OTF	OVERHEAD TRANSFORMER FUSE	44	8.3%	21,303	0.3%
OTR	OVERHEAD TRANSFORMER	23	4.4%	38,490	0.5%
PMF	PADMOUNT SWITCH FUSE	1	0.2%	901	0.0%
PTF	PADMOUNT TRANSFORMER FUSE	3	0.6%	2,710	0.0%
SCS	CIRCUIT SWITCHER	5	0.9%	962,574	12.5%
UEL	UNDERGROUND ELBOW	4	0.8%	66,583	0.9%
UFE	UNDERGROUND FUSED ELBOW	1	0.2%	2,065	0.0%
UFJ	UNDERGROUND J-BOX	13	2.5%	463,552	6.0%
UGF	UNDERGROUND SUBMERSIBLE FUSE	3	0.6%	47,355	0.6%
UHH	UNDERGROUND HANDHOLE - SECONDARY	7	1.3%	11,811	0.2%
UHM	UNDERGROUND HAMMERHEADS	2	0.4%	544,884	7.1%
UOT	UNDERGROUND OUTDOOR TERMINATION	3	0.6%	74,059	1.0%
UPC	UNDERGROUND PRIMARY CABLE	65	12.3%	1,728,715	22.5%
UPS	UNDERGROUND PADMOUNT SWITCH (EDUS100)	5	0.9%	301,867	3.9%
UPT	UNDERGROUND PADMOUNT TRANSFO	11	2.1%	65,034	0.8%
USC	UNDERGROUND SECONDARY CABLE	13	2.5%	12,012	0.2%
USE	UNDERGROUND SECONDARY CONNECT	6	1.1%	28,005	0.4%
USV	UNDERGROUND SERVICE	84	15.9%	26,007	0.3%
UTC	UNDERGROUND TERMINAL FUSE	31	5.9%	244,606	3.2%
UTF	UNDERGROUND SUBMERSIBLE TRA	2	0.4%	1,653	0.0%
UTR	UNDERGROUND SUBMERSIBLE TRANSFORMER	30	5.7%	462,060	6.0%
UNK	UNDERGROUND UNKNOWN	5	0.9%	25,123	0.3%
Totals		527	100%	7,676,912	100%

2017 OUTAGES FOR CIRCUITS SERVING BELLEVUE
EXCLUDING CUSTOMER REQUESTED & SCHEDULED OUTAGES
REVISED 10/3/2018

DATE	CIRCUIT	CAUSE	EQUIPMENT	CUSTOMERS OUT	CUSTOMER MINUTES	STORM CODE
12/22/2017	ARD-13	UPT	CP	2	782	NON
1/30/2017	ARD-15	UOT	BA	206	56,672	NON
7/26/2017	ARD-15	UTR	EF	4	1,238	NON
8/13/2017	ARD-15	UTR	EF	118	23,705	NON
8/24/2017	ARD-15	UTC	BA	207	138,125	NON
1/7/2017	BTR-14	UEL	EF	54	8,646	NON
1/24/2017	BTR-14	UPC	EF	18	41	NON
1/24/2017	BTR-14	UPC	EF	6	1,054	NON
5/27/2017	BTR-14	UGF	CE	2	489	NON
2/9/2017	BTR-21	OCO	TV	1	779	MEJ
3/10/2017	BTR-21	OCO	TV	13	3,126	NON
3/23/2017	BTR-21	UPC	EF	1,135	163,008	NON
3/24/2017	BTR-21	UPC	EF	171	22,743	NON
4/12/2017	BTR-21	OTF	BA	41	3,077	NON
7/4/2017	BTR-21	OFU	BA	15	1,780	NON
7/29/2017	BTR-21	UPC	EF	1	326	NON
11/15/2017	BTR-21	UTR	EF	5	2,918	NMJ
11/15/2017	BTR-21	UTR	EF	5	1,258	NMJ
1/8/2017	BTR-22	OTF	TV	3	729	NON
2/6/2017	BTR-22	OCO	TV	119	363,144	MEJ
2/6/2017	BTR-22	OCO	TV	40	120,029	MEJ
2/13/2017	BTR-22	OIN	TV	51	1,186	NON
5/4/2017	BTR-22	OTR	LI	3	1,285	MEN
5/22/2017	BTR-22	UTC	BA	2	166	NON
5/25/2017	BTR-22	UTC	BA	2	108	NON
8/19/2017	BTR-22	OFU	BA	53	5,334	NON
10/18/2017	BTR-22	UTC	TV	29	2,892	MEJ
11/13/2017	BTR-22	OCO	TV	226	234,573	MEJ
11/14/2017	BTR-22	OCO	TV	27	27,648	NMJ
11/21/2017	BTR-22	OFU	UN	14	1,274	NON
12/17/2017	BTR-22	UTR	EF	35	9,968	NON
12/17/2017	BTR-22	UTR	EF	34	1,599	NON
8/16/2017	CEN-11	UEL	EF	6	2,887	NON
8/26/2017	CEN-11	UPC	EF	2	1,099	NON
1/9/2017	CEN-25	UFJ	EF	16	6,330	NON
4/11/2017	CLY-22	¹ OCO	UN	345	2,032	NON
2/6/2017	CLY-23	OSV	TV	2	7,547	MEJ
2/7/2017	CLY-23	OSV	TV	1	1,665	NMJ
4/11/2017	CLY-23	¹ OCO	UN	535	3,151	NON
5/2/2017	CLY-23	OTF	BA	7	282	NON
5/30/2017	CLY-23	UPT	CP	1	553	NON
7/29/2017	CLY-23	OCN	TV	1	84	NON

9/16/2017	CLY-23	OTF	BA	3	264	NON
11/9/2017	CLY-23	OTF	UN	1	69	NON
4/11/2017	CLY-25	¹ OCO	UN	1,517	8,935	NON
10/27/2017	CLY-25	PTF	OD	1	74	NON
2/7/2017	CLY-26	UPC	EF	5	6,129	NMJ
4/11/2017	CLY-26	¹ OCO	UN	1,137	6,697	NON
4/24/2017	CLY-26	OTF	EF	1	90	NON
5/16/2017	CLY-26	USV	DU	4	1,370	NON
8/3/2017	CLY-26	OSV	EF	2	680	NON
11/13/2017	CLY-26	OCO	TV	48	48,217	MEJ
12/3/2017	CLY-26	UTC	EF	26	1,677	NON
12/4/2017	CLY-26	UTR	EF	26	12,628	NON
12/4/2017	CLY-26	UTR	EF	41	18,603	NON
1/9/2017	CLY-27	USV	UN	1	431	NON
2/6/2017	CLY-27	OCO	TV	4	7,351	MEJ
4/7/2017	CLY-27	OFU	TV	4	1,101	MEN
4/11/2017	CLY-27	¹ OCO	UN	723	4,259	NON
5/4/2017	CLY-27	OTF	LI	4	325	MEN
5/9/2017	CLY-27	OTR	EF	4	1,235	NON
7/6/2017	CLY-27	OCN	UN	1	116	NON
8/6/2017	CLY-27	OAR	BA	720	47,580	NON
11/13/2017	CLY-27	OCO	TV	4	7,064	MEJ
12/11/2017	CLY-27	USV	EF	1	156	NON
4/15/2017	COL-23	USE	EF	8	1,036	NON
4/15/2017	COL-23	USE	UN	9	974	NON
10/15/2017	COL-23	PMF	BA	7	901	NON
10/4/2017	COL-24	UFJ	EF	30	6,512	NON
5/26/2017	COL-25	USC	UN	1	721	NON
1/17/2017	COL-26	USC	EF	1	218	NON
2/5/2017	COL-26	OCO	TV	7	422	MEJ
2/6/2017	COL-26	OCN	TV	3	6,398	MEJ
2/6/2017	COL-26	OCO	TV	29	106,883	MEJ
2/6/2017	COL-26	OCO	TV	80	145,968	MEJ
2/9/2017	COL-26	OSV	UN	1	143	MEJ
6/2/2017	COL-26	OTF	BA	1	72	NON
7/16/2017	COL-26	UEL	EF	211	22,655	NON
8/9/2017	COL-26	OFU	BA	5	707	NON
8/15/2017	COL-26	OTF	BA	1	85	NON
8/25/2017	COL-26	OCO	TV	29	3,113	NON
10/27/2017	COL-26	UPC	EF	18	1,605	NON
11/15/2017	COL-26	OTF	TV	6	1,863	NMJ
12/7/2017	COL-26	OTR	UN	1	274	NON
2/5/2017	EGT-11	USV	EF	1	41	MEJ
5/1/2017	EGT-11	OPO	EF	15	5,930	NON
5/28/2017	EGT-11	UPC	EF	112	16,633	NON
6/25/2017	EGT-11	UTR	UN	41	7,750	NON
7/15/2017	EGT-11	USV	AC	4	124	NON

9/10/2017	EGT-11	UPC	EF	89	49,604	NON
10/6/2017	EGT-11	² SCS	OD	1,207	232,831	NON
11/1/2017	EGT-11	OSV	TV	1	208	NON
2/5/2017	EGT-12	OCO	TV	73	14,456	MEJ
2/6/2017	EGT-12	OCO	TV	2	2,125	MEJ
2/15/2017	EGT-12	OCO	TV	6	905	NON
2/15/2017	EGT-12	OIN	TV	2	105	NON
3/22/2017	EGT-12	USV	EF	1	193	NON
4/7/2017	EGT-12	OCO	TV	8	5,158	MEN
5/27/2017	EGT-12	OTF	BA	1	102	NON
7/12/2017	EGT-12	UTC	BA	17	1,958	NON
7/13/2017	EGT-12	USV	EF	1	177	NON
8/7/2017	EGT-12	OCN	EF	8	970	NON
8/16/2017	EGT-12	UTR	EF	6	2,345	NON
8/28/2017	EGT-12	UTR	UN	108	14,132	NON
10/6/2017	EGT-12	² SCS	OD	3,011	580,824	NON
10/17/2017	EGT-12	OCO	TV	9	469	NON
10/18/2017	EGT-12	OTR	TV	2	861	MEJ
10/22/2017	EGT-12	OFU	UN	8	1,003	NON
11/3/2017	EGT-12	OTF	TV	1	109	NON
11/5/2017	EGT-12	OCO	TV	1,959	217,286	NON
11/5/2017	EGT-12	OCO	TV	73	68,663	NON
11/5/2017	EGT-12	OCO	TV	1,886	183,696	NON
11/6/2017	EGT-12	OCO	TV	4	365	NON
11/8/2017	EGT-12	OFU	AC	327	8,687	NON
11/10/2017	EGT-12	UPC	EF	19	3,880	NON
11/13/2017	EGT-12	OCO	TV	3,267	1,406,934	MEJ
11/14/2017	EGT-12	OCO	TV	16	21,273	NMJ
11/14/2017	EGT-12	OCO	TV	7	10,974	NMJ
11/14/2017	EGT-12	OTF	TV	0	14,400	NMJ
11/14/2017	EGT-12	OSV	TV	43	69,960	NMJ
11/14/2017	EGT-12	OCO	TV	8	15,332	NMJ
11/14/2017	EGT-12	OCO	TV	5	1,527	NMJ
11/15/2017	EGT-12	OCO	TV	1	364	NMJ
11/15/2017	EGT-12	OCO	TV	16	1,165	NMJ
11/15/2017	EGT-12	OTF	TV	8	5,168	NMJ
11/15/2017	EGT-12	OFU	TV	2	506	NMJ
12/19/2017	EGT-12	OCO	TV	2,726	189,503	NON
10/6/2017	EGT-13	² SCS	OD	7	1,350	NON
2/6/2017	EGT-15	OPO	TV	304	299,694	MEJ
2/7/2017	EGT-15	OCN	TV	1	1,361	NMJ
10/6/2017	EGT-15	² SCS	OD	268	51,697	NON
12/29/2017	EGT-15	OCO	TV	269	50,316	MEJ
12/30/2017	EGT-15	OTF	TV	12	4,110	NMJ
2/6/2017	EGT-16	OSV	TV	1	3,568	MEJ
2/9/2017	EGT-16	OSV	TV	1	487	MEJ
5/12/2017	EGT-16	OFU	BA	84	2,324	NON

10/6/2017	EGT-16	² SCS	OD	497	95,872	NON
11/15/2017	EGT-16	OSV	EF	11	126	NMJ
12/17/2017	EGT-16	OTF	UN	3	334	NON
2/6/2017	EGT-25	OCR	TV	302	410,013	MEJ
2/6/2017	EGT-25	OCO	TV	38	113,733	MEJ
5/4/2017	EGT-25	OTF	LI	2	170	MEN
6/5/2017	EGT-25	USV	EF	1	165	NON
8/22/2017	EGT-25	OCO	TV	302	14,924	NON
9/20/2017	EGT-25	OTF	BA	1	125	NON
10/25/2017	EGT-25	OTR	EF	5	1,332	NON
11/3/2017	EGT-25	OTR	EF	3	623	NON
11/13/2017	EGT-25	OTR	EF	1	2,565	MEJ
8/21/2017	EGT-26	UPS	BA	24	2,128	NON
10/4/2017	EGT-26	UFJ	EF	18	3,907	NON
2/6/2017	EGT-27	OCO	EF	51	82,085	MEJ
2/8/2017	EGT-27	OCO	TV	10	212	NMJ
3/19/2017	EGT-27	OCO	EF	28	6,961	NON
4/15/2017	EGT-27	OCN	EF	1	95	NON
5/22/2017	EGT-27	OCN	BA	5	1,070	NON
7/2/2017	EGT-27	OFU	BA	61	4,766	NON
7/14/2017	EGT-27	OCO	TV	128	11,305	NON
8/16/2017	EGT-27	OTF	BA	6	769	NON
9/22/2017	EGT-27	OCN	EF	1	186	NON
10/21/2017	EGT-27	OSV	TV	7	1,467	NON
11/13/2017	EGT-27	OCO	TV	106	132,288	MEJ
1/4/2017	EGT-28	USV	DU	1	353	NON
2/7/2017	EGT-28	OCO	TV	25	28,274	NMJ
4/1/2017	EGT-28	USV	EF	1	107	NON
5/4/2017	EGT-28	UFJ	EF	102	23,902	MEN
5/24/2017	EGT-28	USV	EF	1	319	NON
6/16/2017	EGT-28	USV	EF	1	192	NON
6/26/2017	EGT-28	OSV	TV	1	74	NON
6/29/2017	EGT-28	UPC	EF	17	3,229	NON
7/7/2017	EGT-28	USV	EF	1	184	NON
7/12/2017	EGT-28	OFU	BA	12	1,432	NON
8/16/2017	EGT-28	OSV	EF	1	240	NON
9/10/2017	EGT-28	UPC	EF	65	16,356	NON
9/17/2017	EGT-28	OCO	TV	163	144,934	NON
9/22/2017	EGT-28	OTR	EF	3	915	NON
10/6/2017	EGT-28	OSW	TV	9	1,257	NON
10/16/2017	EGT-28	OSV	EF	7	842	NON
11/5/2017	EGT-28	OCO	TV	1,726	434,210	NON
11/13/2017	EGT-28	OCO	TV	528	310,742	MEJ
11/14/2017	EGT-28	OCO	TV	47	46,626	NMJ
11/15/2017	EGT-28	OSV	TV	3	1,546	NMJ
12/9/2017	EGT-28	UTR	UN	152	17,324	NON
12/16/2017	EGT-28	OMP	EF	1	68	NON

1/30/2017	EVE-23	USV	EF	1	192	NON
2/7/2017	EVE-23	OCO	TV	3	5,580	NMJ
2/18/2017	EVE-23	USC	EF	4	2,032	NON
4/20/2017	EVE-23	UHM	EF	2,943	454,579	NON
4/24/2017	EVE-23	UHH	EF	4	1,937	NON
4/27/2017	EVE-23	UTR	UN	40	9,407	NON
5/5/2017	EVE-23	USE	EF	24	25,657	NON
5/21/2017	EVE-23	OSV	TV	1	647	NON
5/24/2017	EVE-23	USV	EF	1	604	NON
6/18/2017	EVE-23	OTR	BA	3	123	NON
6/18/2017	EVE-23	OTR	BA	3	873	NON
8/27/2017	EVE-23	OTF	UN	3	399	NON
9/19/2017	EVE-23	UTC	UN	9	1,833	NON
9/27/2017	EVE-23	OCE	CE	9	49	NON
10/7/2017	EVE-23	UPC	EF	18	7,259	NON
10/13/2017	EVE-23	UTR	EF	9	4,866	NON
10/18/2017	EVE-23	OCO	TV	198	95,792	MEJ
11/2/2017	EVE-23	UPT	EF	24	2,506	NON
1/2/2017	FAC-12	USV	EF	1	244	NON
1/6/2017	FAC-12	UTR	EF	9	2,901	NON
1/31/2017	FAC-12	USV	EF	1	202	NON
3/4/2017	FAC-12	OFU	BA	52	3,680	NON
3/11/2017	FAC-12	OFC	TV	52	3,977	NON
3/11/2017	FAC-12	UTC	UN	52	4,659	NON
3/29/2017	FAC-12	USV	DU	1	154	NON
4/19/2017	FAC-12	USV	FI	1	140	NON
4/23/2017	FAC-12	USV	UN	1	380	NON
5/15/2017	FAC-12	OTF	BA	10	849	NON
5/23/2017	FAC-12	UPC	EF	1,267	283,159	MEN
5/23/2017	FAC-12	UPC	EF	231	91,064	MEN
7/4/2017	FAC-12	UPC	EF	104	11,580	NON
7/9/2017	FAC-12	UPC	EF	184	32,614	NON
7/13/2017	FAC-12	UPC	EF	52	10,848	NON
8/15/2017	FAC-12	UPC	EF	95	23,855	NON
8/28/2017	FAC-12	UPC	EF	2	2,929	NON
9/11/2017	FAC-12	UPC	EF	2	2,479	NON
9/18/2017	FAC-12	UPC	EF	760	141,372	NON
9/25/2017	FAC-12	UPC	EF	95	31,092	NON
9/26/2017	FAC-12	USV	EF	1	87	NON
12/8/2017	FAC-12	USV	EF	1	277	NON
12/13/2017	FAC-12	USC	DU	1	416	NON
1/7/2017	FAC-13	UPT	UN	3	1,003	NON
1/31/2017	FAC-13	USV	EF	1	396	NON
9/20/2017	FAC-13	OSV	TV	1	387	NON
2/6/2017	FAC-23	OCR	TV	4	13,417	MEJ
2/8/2017	FAC-23	OCO	TV	223	15,967	NMJ
2/10/2017	FAC-23	OPO	TV	4	710	NMJ

7/13/2017	FAC-23	OCR	EF	12	2,067	NON
2/6/2017	FAC-25	OCO	TV	48	176,750	MEJ
4/24/2017	FAC-25	OTF	BA	4	254	NON
6/7/2017	FAC-25	UTR	UN	9	2,663	NON
7/11/2017	FAC-25	UPC	EF	46	11,693	NON
11/3/2017	FAC-25	UFJ	TV	1,503	159,457	NON
11/3/2017	FAC-25	UFJ	TV	1	375	NON
11/13/2017	FAC-25	OCO	TV	159	250,012	MEJ
11/14/2017	FAC-25	OCO	TV	2	1,997	NMJ
2/5/2017	GOO-13	OFU	TV	180	38,193	MEJ
2/6/2017	GOO-13	OFC	TV	1	3,487	MEJ
4/19/2017	GOO-13	OCO	TV	2	111	NON
5/6/2017	GOO-13	OCO	TV	1	1,213	NON
7/25/2017	GOO-13	USV	CE	1	523	NON
11/2/2017	GOO-13	USV	EF	1	153	NON
11/13/2017	GOO-13	OCO	TV	1,801	781,470	MEJ
11/30/2017	GOO-13	USE	FI	1	57	NON
2/6/2017	GOO-21	OCO	TV	51	169,656	MEJ
2/8/2017	GOO-21	OCO	TV	1	533	NMJ
2/8/2017	GOO-21	OCO	TV	11	25	MEJ
2/8/2017	GOO-21	OCO	TV	20	1,924	MEJ
2/8/2017	GOO-21	OCN	TV	2	920	NMJ
6/25/2017	GOO-21	OTR	UN	1	547	NON
9/18/2017	GOO-21	UPC	EF	5	611	NON
9/18/2017	GOO-21	OIN	TV	5	2,499	NON
9/20/2017	GOO-21	USV	UN	1	1,123	NON
11/3/2017	GOO-21	UTC	TV	9	2,093	NON
11/5/2017	GOO-21	UTC	TV	9	3,835	NON
11/5/2017	GOO-21	UTC	TV	9	146	NON
11/6/2017	GOO-21	OCO	TV	8	1,267	NON
11/13/2017	GOO-21	OCO	TV	220	110,082	MEJ
11/14/2017	GOO-21	UTC	EF	8	8,742	NMJ
11/16/2017	GOO-21	OCO	TV	2	537	NON
1/7/2017	HAZ-12	USV	EF	1	183	NON
1/12/2017	HAZ-12	USV	EF	1	481	NON
1/16/2017	HAZ-12	USV	EF	1	380	NON
1/21/2017	HAZ-12	USV	EF	1	128	NON
2/6/2017	HAZ-12	OCO	TV	157	117,560	MEJ
2/6/2017	HAZ-12	OTF	TV	10	18,440	MEJ
2/6/2017	HAZ-12	OCO	TV	5	5,792	MEJ
2/6/2017	HAZ-12		UN	0	8,141	MEJ
3/27/2017	HAZ-12	OFU	FI	4	190	NON
3/31/2017	HAZ-12	OSV	UN	1	90	NON
6/12/2017	HAZ-12	USV	EF	1	249	NON
9/4/2017	HAZ-12	OTF	BA	4	966	NON
9/25/2017	HAZ-12	USV	UN	1	147	NON
11/30/2017	HAZ-12	USV	EF	1	196	NON

12/14/2017	HAZ-12	USV	EF	1	628	NON
12/19/2017	HAZ-12	OCO	TV	541	37,609	NON
2/4/2017	HAZ-13	OTF	UN	2	128	NMJ
2/6/2017	HAZ-13	SCB	TV	1,206	485,756	MEJ
2/6/2017	HAZ-13	OCO	TV	30	49,281	MEJ
2/6/2017	HAZ-13	OCO	TV	19	34,431	MEJ
2/8/2017	HAZ-13	OSV	TV	1	391	NMJ
2/9/2017	HAZ-13	OCO	TV	19	3,084	MEJ
2/16/2017	HAZ-13	USV	AC	1	195	NON
3/15/2017	HAZ-13	OCO	TV	1,205	75,734	NON
3/17/2017	HAZ-13	USV	EF	1	127	NON
3/18/2017	HAZ-13	OPO	EF	2	1,072	NON
3/18/2017	HAZ-13	OTR	EF	1	493	NON
4/14/2017	HAZ-13	USV	UN	8	1,565	NON
9/26/2017	HAZ-13	USV	EF	1	59	NON
11/13/2017	HAZ-13	OCO	TV	1,261	564,918	MEJ
11/25/2017	HAZ-13	OCN	FI	1	169	NON
2/6/2017	HOU-23	OSV	TV	3	12,261	MEJ
2/9/2017	HOU-23	OFU	TV	3	13	MEJ
2/26/2017	HOU-23	UPC	FI	4	92	NON
4/11/2017	HOU-23	OCO	UN	1,318	8,406	NON
4/22/2017	HOU-23	OCO	TV	3	949	NON
6/13/2017	HOU-23	USV	EF	1	152	NON
10/21/2017	HOU-23	UTR	EF	95	33,410	NON
10/23/2017	HOU-23	UTR	EF	83	41,591	NON
10/23/2017	HOU-23	UTR	EF	1	191	NON
11/13/2017	HOU-23	OCO	TV	7	18,360	MEJ
11/28/2017	HOU-23	UPC	UN	76	13,303	NON
1/27/2017	HOU-25	UPC	DU	1	58	NON
2/5/2017	HOU-25	OCR	TV	33	136,067	MEJ
2/6/2017	HOU-25	OCR	TV	1	4,048	MEJ
2/6/2017	HOU-25	OCO	TV	26	94,079	MEJ
3/11/2017	HOU-25	OFU	UN	92	7,301	NON
4/11/2017	HOU-25	OCO	UN	496	3,163	NON
8/10/2017	HOU-25	OFC	UN	3	328	NON
9/12/2017	HOU-25	USV	UN	1	314	NON
10/18/2017	HOU-25	OTR	EF	3	222	MEJ
10/18/2017	HOU-25	OCO	TV	27	7,325	MEJ
2/5/2017	KWH-22	OCO	TV	273	719,709	MEJ
2/6/2017	KWH-22	OPO	EF	123	153,840	MEJ
2/6/2017	KWH-22	OCO	TV	123	70,174	MEJ
2/7/2017	KWH-22	OCO	TV	98	73,903	MEJ
2/8/2017	KWH-22	OSV	TV	1	1,139	NMJ
4/11/2017	KWH-22	OAR	TV	48	6,380	NON
8/10/2017	KWH-22	OSV	UN	1	227	NON
8/22/2017	KWH-22	OTF	UN	6	352	NON
10/1/2017	KWH-22	USV	EF	1	103	NON

11/8/2017	KWH-22	OFU	TF	121	12,427	NON
11/9/2017	KWH-22	OCN	FI	1	101	NON
11/10/2017	KWH-22	OFU	BA	106	6,814	NON
11/13/2017	KWH-22	OCO	TV	152	133,962	MEJ
11/13/2017	KWH-22	OCR	TV	0	2,683	MEJ
12/15/2017	KWH-22	USV	EF	1	800	NON
1/8/2017	KWH-23	OFU	TV	11	5,006	NON
1/8/2017	KWH-23	OPO	TV	179	48,789	NON
1/21/2017	KWH-23	UPC	EF	944	179,848	NON
2/6/2017	KWH-23	OCN	UN	6	11,238	MEJ
5/4/2017	KWH-23	USV	EF	1	213	MEN
7/8/2017	KWH-23	UHM	EF	941	90,305	NON
7/29/2017	KWH-23	OTF	BA	5	429	NON
8/14/2017	KWH-23	UPC	EF	6	2,946	NON
8/25/2017	KWH-23	OTF	BA	8	956	NON
10/14/2017	KWH-23	UPC	UN	6	2,483	NON
10/19/2017	KWH-23	UFJ	EF	82	29,208	NMJ
10/22/2017	KWH-23	OCO	TV	1,015	76,461	NON
11/13/2017	KWH-23	OCO	TV	79	104,513	MEJ
11/13/2017	KWH-23	OCO	TV	142	115,408	MEJ
1/20/2017	KWH-25	USV	EF	1	85	NON
2/3/2017	KWH-25	USV	EF	14	905	NON
2/6/2017	KWH-25	OCO	TV	25	70,692	MEJ
2/16/2017	KWH-25	USV	EF	1	147	NON
3/31/2017	KWH-25	UHH	EF	3	505	NON
4/2/2017	KWH-25	USV	UN	1	325	NON
5/15/2017	KWH-25	UTC	BA	14	806	NON
5/19/2017	KWH-25	UHH	EF	1	199	NON
5/28/2017	KWH-25	UPC	EF	6	2,197	NON
6/1/2017	KWH-25	USC	EF	3	1,785	NON
6/14/2017	KWH-25	OFC	EF	5	414	NON
8/2/2017	KWH-25	OPO	CP	56	30,740	NON
8/3/2017	KWH-25	OPO	CP	42	1,812	NON
8/15/2017	KWH-25	USV	EF	1	199	NON
8/25/2017	KWH-25	OFU	BA	6	563	NON
9/7/2017	KWH-25	USV	EF	1	128	NON
10/18/2017	KWH-25	OCO	EF	34	8,624	MEN
10/22/2017	KWH-25	OCO	TV	1,743	131,216	NON
11/13/2017	KWH-25	USC	OD	1	3,247	MEJ
11/16/2017	KWH-25	UTR	EF	212	56,808	NON
11/19/2017	KWH-25	USC	EF	1	198	NON
1/9/2017	KWH-26	UPT	FI	1	96	NON
2/6/2017	KWH-26	OSV	TV	1	3,129	MEJ
4/9/2017	KWH-26	USC	DU	2	959	NON
4/9/2017	KWH-26	USV	DU	2	147	NON
8/5/2017	KWH-26	PST	EF	2	774	NON
8/23/2017	KWH-26	UTR	EF	225	42,749	NON

11/10/2017	KWH-26	UPC	EF	104	18,986	NON
2/6/2017	LHL-22	OCO	TV	98	147,860	MEJ
2/6/2017	LHL-22	OSV	TV	3	11,276	MEJ
5/4/2017	LHL-22	OCO	TV	112	9,248	MEN
6/8/2017	LHL-22	OTF	BA	8	446	NON
11/13/2017	LHL-22	OSV	TV	1	2,879	MEJ
5/4/2017	LHL-23	UFJ	EF	66	9,637	MEN
5/5/2017	LHL-23	UFJ	EF	63	183	MEN
7/24/2017	LHL-23	UGF	BA	96	12,365	NON
8/17/2017	LHL-23	UTC	BA	96	40,576	NON
9/16/2017	LHL-23	UTR	AC	12	4,030	NON
12/11/2017	LHL-23	UTR	EF	260	63,773	NON
1/8/2017	LHL-25	OCO	TV	104	16,371	NON
1/8/2017	LHL-25	OCO	TV	63	9,571	NON
1/12/2017	LHL-25	OFU	TV	1	112	NON
2/6/2017	LHL-25	OTF	UN	8	27,123	MEJ
2/17/2017	LHL-25	OCO	TV	1	113	NON
4/15/2017	LHL-25	UFE	UN	20	2,065	NON
6/20/2017	LHL-25	OTF	UN	6	357	NON
6/26/2017	LHL-25	OTF	BA	5	298	NON
7/10/2017	LHL-25	UPC	UN	474	76,001	NON
7/22/2017	LHL-25	UTR	EF	475	58,175	NON
8/2/2017	LHL-25	UPT	EF	475	54,633	NON
8/2/2017	LHL-25	UPT	EF	13	3,218	NON
10/18/2017	LHL-25	UEL	EF	162	49,213	MEJ
11/13/2017	LHL-25	OCO	UN	220	294,331	MEJ
12/21/2017	LHL-25	PTF	OD	14	1,967	NON
12/22/2017	LHL-25	UPT	EF	3	115	NON
12/23/2017	LHL-25	UPC	EF	200	70,939	NON
1/10/2017	LHL-26	OCR	EF	86	1,812	NON
4/22/2017	LHL-26	OSV	TV	1	96	NON
11/13/2017	LHL-26	OCO	TV	13	28,748	MEJ
1/20/2017	LOC-22	USV	EF	1	435	NON
2/6/2017	LOC-22	OCO	TV	4	19,200	MEJ
2/6/2017	LOC-22	OPO	TV	647	638,918	MEJ
4/11/2017	LOC-22	OCO	UN	2,375	14,680	NON
4/23/2017	LOC-22	UPC	EF	70	13,509	NON
4/23/2017	LOC-22	UPC	EF	181	34,891	NON
4/23/2017	LOC-22	UPC	OD	302	48,610	NON
5/25/2017	LOC-22	OFU	BA	15	2,667	NON
8/24/2017	LOC-22	UTC	BA	128	18,897	NON
8/24/2017	LOC-22	OFU	UN	6	707	NON
8/30/2017	LOC-22	OFU	UN	79	2,573	NON
9/17/2017	LOC-22	OCO	AC	12	2,171	NON
11/13/2017	LOC-22	OCO	TV	12	6,543	MEJ
11/13/2017	LOC-22	OCO	TV	0	532	MEJ
12/14/2017	LOC-22	OCO	TV	127	9,317	NON

2/6/2017	LOC-23		OCO	TV	37	107,161	MEJ
2/28/2017	LOC-23		OTF	UN	10	705	NON
4/11/2017	LOC-23	1	OCO	UN	1,928	11,917	NON
4/11/2017	LOC-24	1	OCO	UN	50	309	NON
4/11/2017	LOC-25	1	OCO	UN	153	946	NON
2/3/2017	LOC-32		UFJ	EF	150	90,031	NON
4/11/2017	LOC-32	1	OCO	UN	198	1,188	NON
4/11/2017	LOC-33	1	OCO	UN	324	1,944	NON
6/30/2017	LOC-33		OTR	EF	2	692	NON
8/8/2017	LOC-33		UPC	UN	42	58,965	NON
4/11/2017	LOC-34	1	OCO	UN	308	1,848	NON
4/11/2017	LOC-35	1	OCO	UN	22	132	NON
8/25/2017	LOC-35		UTR	UN	1	935	NON
3/7/2017	MED-35		UTR	EF	1	428	NON
3/23/2017	MED-35		USV	UN	1	354	NON
4/11/2017	MED-35	1	OCO	UN	189	1,132	NON
6/1/2017	MED-35		USC	DU	18	4,323	NON
6/24/2017	MED-35		OCR	TV	5	3,559	NON
11/13/2017	MED-35		OFU	TV	5	12,626	MEJ
1/26/2017	MED-36		USV	EF	1	139	NON
2/6/2017	MED-36		OCR	TV	49	133,280	MEJ
2/6/2017	MED-36		OCO	TV	34	78,831	MEJ
2/6/2017	MED-36		OSV	TV	1	5,667	MEJ
2/6/2017	MED-36		OCO	TV	19	61,983	MEJ
2/9/2017	MED-36		USV	UN	1	298	MEJ
3/9/2017	MED-36		USV	EF	1	116	NON
4/11/2017	MED-36	1	OCO	UN	669	4,006	NON
4/21/2017	MED-36		UPC	DU	10	1,433	NON
4/26/2017	MED-36		USV	UN	1	235	NON
5/11/2017	MED-36		OTF	EF	4	266	NON
11/9/2017	MED-36		OSV	TV	1	406	NON
3/17/2017	MLK-12		USV	EF	1	171	NON
5/27/2017	MLK-12		UFJ	EF	108	22,192	NON
11/9/2017	MLK-12		UFJ	EF	40	3,071	NON
1/14/2017	MLK-13		USE	UN	1	142	NON
3/28/2017	MLK-13		USV	EF	1	362	NON
4/5/2017	MLK-13		UEL	EF	110	32,395	NON
5/28/2017	MLK-13		UFJ	EF	79	11,608	NON
6/7/2017	MLK-13		UFJ	EF	58	6,553	NON
7/6/2017	MLK-13		UPC	AC	6	2,293	NON
8/1/2017	MLK-13		OTR	EF	8	2,096	NON
8/26/2017	MLK-13		UPC	EF	6	1,803	NON
8/27/2017	MLK-13		UPC	EF	5	1,295	NON
9/13/2017	MLK-13		UFJ	EF	87	20,458	NON
11/7/2017	MLK-13		USV	EF	1	425	NON
11/21/2017	MLK-13		OTF	BA	9	623	NON
12/8/2017	MLK-13		UPC	EF	290	14,407	NON

12/8/2017	MLK-13	UPC	EF	12	120	NON
12/8/2017	MLK-13	UPC	EF	79	1,111	NON
1/15/2017	MLK-15	OFU	BA	4	353	NON
4/7/2017	MLK-15	OCO	TV	24	3,884	MEN
5/23/2017	MLK-15	OTF	BA	1	87	MEN
7/14/2017	MLK-15	OTR	BA	1	237	NON
9/2/2017	MLK-15		UN	3	431	NON
10/6/2017	MLK-15	UOT	TV	108	11,502	NON
10/6/2017	MLK-15	UOT	TV	300	5,885	NON
10/18/2017	MLK-15	OCO	TV	16	1,216	MEJ
11/13/2017	MLK-15	OCO	TV	10	16,807	MEJ
2/6/2017	MLK-16	OCO	TV	21	78,824	MEJ
4/1/2017	MLK-16	UPC	EF	60	31,384	NON
5/10/2017	MLK-16	UFJ	EF	127	126,220	NON
12/17/2017	MLK-16	USV	EF	2	965	NON
12/27/2017	MLK-16	OCN	EF	2	304	NON
2/10/2017	NOB-12	OCO	TV	1	15	NMJ
3/10/2017	NOB-12	OCO	FI	2	105	NON
11/14/2017	NOB-14	UTR	EF	1	2,525	NMJ
5/12/2017	NOB-22	UPC	EF	7	4,088	NON
10/27/2017	NOB-23	UTC	UN	0	332	NON
10/27/2017	NOB-23	PTF	UN	24	669	NON
2/6/2017	NOB-24	OTR	TV	129	281,835	MEJ
2/6/2017	NOB-24	OCO	TV	24	44,424	MEJ
2/7/2017	NOB-24	OCR	TV	4	120	NMJ
6/9/2017	NOB-24	UTR	EF	6	1,690	NON
7/9/2017	NOB-24	OTR	EF	152	17,612	NON
8/24/2017	NOB-24	UPC	EF	3	1,221	NON
8/28/2017	NOB-24	UPC	EF	3	3,270	NON
9/18/2017	NOB-24	UPC	EF	975	181,366	NON
11/7/2017	NOB-24	USV	EF	1	65	NON
11/13/2017	NOB-24	OCO	TV	311	355,307	MEJ
2/6/2017	NRU-23	OCO	TV	1	2,881	MEJ
2/6/2017	NRU-23	OCO	TV	649	1,273,601	MEJ
2/6/2017	NRU-23	OCO	TV	0	4,841	MEJ
2/8/2017	NRU-23	OCO	TV	3	2,251	NMJ
2/8/2017	NRU-23	OCO	TV	9	188	NMJ
2/9/2017	NRU-23	OCO	TV	5	1,141	MEJ
2/25/2017	NRU-23	UPC	EF	68	7,091	NON
3/23/2017	NRU-23	OTR	UN	2	264	NON
4/30/2017	NRU-23	UPT	EF	3	1,086	NON
5/7/2017	NRU-23	UTC	BA	4	425	NON
6/10/2017	NRU-23	UTC	BA	4	177	NON
6/30/2017	NRU-23	UTC	BA	4	280	NON
8/12/2017	NRU-23	OTF	BA	5	244	NON
8/15/2017	NRU-23	UTC	EF	3	312	NON
9/1/2017	NRU-23	OFU	BA	9	823	NON

10/1/2017	NRU-23	UPC	EF	5	1,318	NON
10/3/2017	NRU-23	UTC	UN	4	655	NON
10/8/2017	NRU-23	UTC	BA	4	518	NON
11/13/2017	NRU-23	OCO	TV	4	9,959	MEJ
11/13/2017	NRU-23	OCO	TV	1	2,265	MEJ
2/6/2017	NRU-25	OTF	TV	0	3,213	MEJ
2/6/2017	NRU-25	OCO	TV	131	235,188	MEJ
2/8/2017	NRU-25	OSV	TV	2	1,292	NMJ
2/18/2017	NRU-25	UTC	UN	7	1,644	NON
2/23/2017	NRU-25	UHH	EF	5	6,284	NON
4/7/2017	NRU-25	OCO	TV	10	2,433	MEN
5/1/2017	NRU-25	OTF	BA	2	90	NON
5/2/2017	NRU-25	UPC	EF	205	31,295	NON
5/29/2017	NRU-25	UPT	EF	7	893	NON
6/17/2017	NRU-25	OFU	BA	2	207	NON
6/29/2017	NRU-25	UPC	EF	152	56,154	NON
11/23/2017	NRU-25	UTF	EF	7	113	NON
11/23/2017	NRU-25	UTR	EF	70	2,001	NON
11/23/2017	NRU-25	UTF	OD	7	1,540	NON
11/24/2017	NRU-25	USV	EF	1	941	NON
12/17/2017	NRU-25	USV	EF	1	477	NON
12/24/2017	NRU-25	UPC	EF	32	13,705	NON
5/28/2017	NRU-26	UTC	BA	36	3,361	NON
1/6/2017	NRU-27	UTC	BA	21	2,265	NON
2/17/2017	NRU-27	UTR	EF	139	26,883	NON
4/29/2017	NRU-27	UGF	BA	145	34,501	NON
5/3/2017	NRU-27	UTR	EF	14	4,582	NON
5/3/2017	NRU-27	UPT	OD	1	149	NON
6/8/2017	NRU-27	OFC	TV	20	1,309	NON
8/4/2017	NRU-27	UPC	AC	492	53,907	NON
8/13/2017	NRU-27	UPC	EF	63	14,097	NON
8/28/2017	NRU-27	UTC	OE	480	10,096	NON
8/28/2017	NRU-27	UFJ	TV	26	4,047	NON
10/6/2017	NRU-27	OCO	UN	521	117,859	NON
10/18/2017	NRU-27	OCO	AC	522	101,703	MEJ
4/11/2017	OVE-12	1 OCO	UN	550	3,477	NON
4/22/2017	OVE-12	OTF	BA	17	2,512	NON
6/9/2017	OVE-12	USE	EF	1	139	NON
11/13/2017	OVE-12	OCO	EF	860	970,004	MEJ
11/13/2017	OVE-12	OCO	TV	860	57,420	MEJ
2/15/2017	OVE-15	OCO	TV	4	34	NON
3/3/2017	OVE-15	OFU	TV	52	3,084	NON
4/7/2017	OVE-15	OTF	FI	2	600	MEN
4/11/2017	OVE-15	1 OCO	UN	714	4,514	NON
4/13/2017	OVE-15	OTF	BA	1	149	NON
5/4/2017	OVE-15	OCO	LI	102	17,901	MEN
5/24/2017	OVE-15	OCO	TV	4	1,293	NON

6/8/2017	OVE-15	OPO	AC	762	114,303	NON
6/8/2017	OVE-15	OPO	AC	0	56,321	NON
6/8/2017	OVE-15	OPO	EF	1	162	NON
7/30/2017	OVE-15	OFU	BA	2	181	NON
8/11/2017	OVE-15	OFU	BA	5	507	NON
8/23/2017	OVE-15	UPC	EF	209	38,089	NON
9/15/2017	OVE-15	OFU	UN	16	2,293	NON
9/22/2017	OVE-15	OFU	BA	2	282	NON
11/14/2017	OVE-15	UTF	TV	6	9,840	NMJ
11/20/2017	OVE-15	USC	EF	1	206	NON
1/8/2017	PHA-13	OPO	EF	3	1,682	NON
1/8/2017	PHA-13	OCO	TV	853	42,824	NON
1/9/2017	PHA-13	OTF	BA	3	454	NON
1/9/2017	PHA-13	OTF	BA	3	207	NON
1/21/2017	PHA-13	UPC	EF	216	41,152	NON
2/3/2017	PHA-13	OSV	EF	1	119	NON
2/6/2017	PHA-13	UOT	TV	1	4,550	MEJ
2/8/2017	PHA-13	OFU	TV	5	2,033	NMJ
5/5/2017	PHA-13	OSV	AC	1	96	NON
5/11/2017	PHA-13	OTR	BA	8	3,027	NON
5/11/2017	PHA-13	OCR	UN	66	17,394	NON
6/3/2017	PHA-13	OTF	BA	4	204	NON
6/7/2017	PHA-13	OCO	EF	144	33,859	NON
6/18/2017	PHA-13	USV	EF	1	126	NON
7/9/2017	PHA-13	OMP	FI	1	68	NON
7/30/2017	PHA-13	UPC	UN	6	2,307	NON
8/16/2017	PHA-13	OCE	EF	2	256	NON
8/19/2017	PHA-13	OTR	TV	4	1,521	NON
8/24/2017	PHA-13	OTF	BA	3	160	NON
9/22/2017	PHA-13	USV	OE	1	103	NON
10/25/2017	PHA-13	UPC	UN	6	2,643	NON
11/27/2017	PHA-13	UPC	EF	6	2,946	NON
2/6/2017	PHA-15	OSV	TV	1	1,724	MEJ
1/30/2017	PHA-16	OSV	EF	1	192	NON
2/6/2017	PHA-16	OFC	TV	3	7,078	MEJ
2/6/2017	PHA-16	OCO	TV	44	92,334	MEJ
2/6/2017	PHA-16	OSV	TV	1	2,063	MEJ
2/6/2017	PHA-16	OTF	TV	6	12,321	MEJ
2/6/2017	PHA-16	OSV	TV	1	1,893	MEJ
2/8/2017	PHA-16	OSV	TV	1	1,017	NMJ
2/10/2017	PHA-16	OCO	OD	45	2,255	NMJ
2/10/2017	PHA-16	OCO	TV	3	451	NMJ
3/9/2017	PHA-16	UHH	EF	1	216	NON
3/22/2017	PHA-16	OTF	BA	5	236	NON
6/4/2017	PHA-16	OTR	EF	3	640	NON
7/2/2017	PHA-16	OTR	BA	4	1,189	NON
7/2/2017	PHA-16	OFU	UN	121	9,160	NON

7/6/2017	PHA-16	OTF	BA	3	195	NON
7/28/2017	PHA-16	OTF	BA	5	341	NON
10/3/2017	PHA-16	OSV	TV	1	212	NON
11/14/2017	PHA-16	OCO	TV	2	1,394	NMJ
11/14/2017	PHA-16	OSV	TV	1	864	NMJ
11/14/2017	PHA-16	OTF	TV	5	106	NMJ
12/26/2017	PHA-16	OTR	EF	6	364	NON
1/8/2017	PHA-17	OCO	EF	96	23,475	NON
2/2/2017	PHA-17	OSV	EF	1	154	NON
2/6/2017	PHA-17	OCO	TV	4	9,261	MEJ
6/12/2017	PHA-17	OSV	UN	1	78	NON
10/18/2017	PHA-17	OCO	TV	36	18,334	MEN
11/2/2017	PHA-17	OCO	TV	5	491	NON
11/13/2017	PHA-17	OCO	TV	701	372,126	MEJ
2/6/2017	ROS-17	OCO	TV	1	4,814	MEJ
2/10/2017	ROS-17	USV	EF	1	452	NMJ
2/10/2017	ROS-17	USV	UN	1	452	NMJ
5/20/2017	ROS-17	UPS	BA	263	28,047	NON
7/10/2017	ROS-17	OTF	BA	4	253	NON
10/8/2017	ROS-17	OTR	EF	4	1,311	NON
10/19/2017	ROS-17	UFJ	EF	160	26,099	NMJ
12/21/2017	ROS-17	OSV	FI	1	86	NON
2/6/2017	SBE-22	OSV	CE	1	2,906	MEJ
2/26/2017	SBE-22	OTR	UN	3	889	NON
3/16/2017	SBE-22	OCN	TV	1	67	NON
3/22/2017	SBE-22	OSV	CP	1	40	NON
4/11/2017	SBE-22	¹ OCO	UN	363	2,204	NON
5/5/2017	SBE-22	USV	EF	1	550	NON
6/15/2017	SBE-22	OSV	TV	1	271	NON
7/18/2017	SBE-22	OTF	BA	5	388	NON
8/8/2017	SBE-22	OSV	AC	5	104	NON
8/19/2017	SBE-22	UTC	OD	3	258	NON
9/10/2017	SBE-22	OFU	BA	29	380	NON
9/19/2017	SBE-22	OFU	UN	29	4,374	NON
10/25/2017	SBE-22	OCR	BA	28	4,781	NON
11/3/2017	SBE-22	USC	UN	1	171	NON
2/12/2017	SBE-23	UPS	EF	358	26,117	NON
4/11/2017	SBE-23	¹ OCO	UN	247	1,500	NON
8/2/2017	SBE-23	OTF	BA	5	478	NON
12/4/2017	SBE-23	USC	EF	1	224	NON
12/27/2017	SBE-23	UTR	EF	9	633	NON
12/27/2017	SBE-23	USV	EF	1	20	NON
4/11/2017	SBE-25	¹ OCO	UN	447	2,715	NON
7/7/2017	SBE-25	OTR	EF	3	986	NON
7/7/2017	SBE-25	OTR	EF	1	263	NON
10/18/2017	SBE-25	UTC	UN	89	41,655	MEJ
10/26/2017	SBE-25	OSV	TV	1	212	NON

10/27/2017	SBE-25	OPO	TV	3	1,648	NON
11/7/2017	SBE-25	OCN	UN	1	113	NON
11/16/2017	SBE-25	OSV	TV	4	722	NON
2/1/2017	SBE-26	OCO	EF	33	5,754	NON
2/1/2017	SBE-26	OPO	EF	15	710	NON
2/6/2017	SBE-26	OCO	TV	27	59,458	MEJ
2/6/2017	SBE-26	OCO	TV	42	148,937	MEJ
2/6/2017	SBE-26	OCO	TV	4	11,042	MEJ
2/6/2017	SBE-26	OCO	UN	27	84,917	MEJ
2/7/2017	SBE-26	OSV	TV	1	1,449	NMJ
2/15/2017	SBE-26	OCO	AC	5	82	NON
3/18/2017	SBE-26	UTC	UN	12	2,357	NON
4/7/2017	SBE-26	OFU	TV	188	32,067	MEN
4/11/2017	SBE-26	OCO	UN	1,744	10,591	NON
4/17/2017	SBE-26	OPO	EF	3	578	NON
5/16/2017	SBE-26	OCO	TV	208	91,844	NON
6/10/2017	SBE-26	UTC	BA	12	1,329	NON
7/14/2017	SBE-26	OFU	BA	4	463	NON
7/15/2017	SBE-26	OTF	BA	3	669	NON
7/24/2017	SBE-26	OTF	BA	3	108	NON
9/12/2017	SBE-26	UPC	EF	82	13,439	NON
11/8/2017	SBE-26	UTC	TV	1	306	NON
11/13/2017	SBE-26	OCO	TV	249	331,046	MEJ
12/28/2017	SBE-26	OCO	EF	272	7,670	NON
12/29/2017	SBE-26	OCO	TV	70	31,978	MEJ
1/27/2017	SOM-13	USC	EF	1	71	NON
2/6/2017	SOM-13	SCB	TV	1,174	788,693	MEJ
5/4/2017	SOM-13	USV	UN	1	303	MEN
5/7/2017	SOM-13	USV	EF	1	339	NON
5/8/2017	SOM-13	USV	EF	1	106	NON
6/25/2017	SOM-13	USV	AC	1	310	NON
10/6/2017	SOM-13	OSW	TV	1	204	NON
2/6/2017	SOM-15	SCB	TV	1,744	1,174,642	MEJ
2/15/2017	SOM-15	USV	EF	1	468	NON
2/20/2017	SOM-15	USV	EF	1	115	NON
3/24/2017	SOM-15	USV	EF	1	89	NON
4/9/2017	SOM-15	USV	EF	1	54	NON
4/19/2017	SOM-15	USV	DU	1	107	NON
5/8/2017	SOM-15	UPC	DU	16	4,838	NON
5/19/2017	SOM-15	UFJ	EF	52	9,121	NON
6/4/2017	SOM-15	UPC	EF	65	17,638	NON
10/5/2017	SOM-15	USV	DU	1	135	NON
10/19/2017	SOM-15	UPT	EF	73	27,162	NMJ
1/15/2017	SOM-16	OTR	EF	4	1,248	NON
2/6/2017	SOM-16	UTC	EF	53	118,461	MEJ
2/6/2017	SOM-16	OCO	TV	0	910,048	MEJ
2/6/2017	SOM-16	OCO	TV	2,452	532,451	MEJ

2/7/2017	SOM-16	OSV	TV	4	2,869	NMJ
2/22/2017	SOM-16	USV	EF	1	525	NON
3/25/2017	SOM-16	OTF	BA	3	253	NON
4/4/2017	SOM-16	USV	FI	2	122	NON
4/5/2017	SOM-16	USV	EF	8	669	NON
5/27/2017	SOM-16	UHH	TV	1	493	NON
6/3/2017	SOM-16	UPS	BA	2,613	219,884	NON
6/3/2017	SOM-16	UPS	BA	86	25,691	NON
6/25/2017	SOM-16	USV	DU	1	135	NON
7/2/2017	SOM-16	OFU	BA	82	9,783	NON
7/14/2017	SOM-16	USV	EF	1	164	NON
7/21/2017	SOM-16	UTC	UN	16	2,133	NON
7/31/2017	SOM-16	UPC	UN	156	105,567	NON
8/22/2017	SOM-16	OCO	EF	1	47	NON
9/6/2017	SOM-16	USV	EF	1	119	NON
9/6/2017	SOM-16	USV	EF	1	276	NON
10/18/2017	SOM-16	OTR	TV	3	45	MEJ
10/31/2017	SOM-16	UTR	EF	4	1,355	NON
11/15/2017	SOM-16	OCO	TF	127	23,535	NMJ
12/8/2017	SOM-16	USV	EF	3	516	NON
1/1/2017	SOM-17	USV	UN	1	144	NON
1/2/2017	SOM-17	UHH	EF	13	2,177	NON
2/6/2017	SOM-17	OIN	EF	49	3,623	MEJ
2/6/2017	SOM-17	OIN	TV	1,835	1,343,730	MEJ
4/9/2017	SOM-17	OSV	AC	11	1,904	NON
4/25/2017	SOM-17	UTR	UN	37	11,021	NON
7/6/2017	SOM-17	UTC	BA	12	1,171	NON
7/6/2017	SOM-17	UTC	BA	25	2,108	NON
9/5/2017	SOM-17	USV	EF	1	83	NON
9/6/2017	SOM-17	USV	EF	1	158	NON
9/8/2017	SOM-17	USC	EF	5	688	NON
9/11/2017	SOM-17	OTF	BA	11	1,355	NON
10/16/2017	SOM-17	OFC	EF	25	5,254	NON
10/18/2017	SOM-17	OCO	TV	2,856	493,088	MEJ
11/13/2017	SOM-17	OSW	EF	2,855	1,171,680	MEJ
10/18/2017	TLN-0033	OCO	TV	5454	1,014,755	MEJ
11/13/2017	TLN-0033	OCO	TV	5456	308,810	MEJ
2/6/2017	TLN-0122	OCO	TV	8,735	213,719	MEJ
2/6/2017	TLN-0122	OCO	TV	0	22,690	MEJ
2/6/2017	TLN-0122	OCO	TV	0	412,495	MEJ
2/6/2017	TLN-0145	CDH	TV	1,825	83,054	MEJ
11/13/2017	TLN-0262	OCO	TV	2,253	103,487	MEJ
11/13/2017	TLN-0262	OCO	TV	4,317	119,438	MEJ
Totals				127,923	32,269,191	
Substation and transmission outages				32,252	2,385,885	

- 1 Damage to transmission switch
- 2 Tree in Substation

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

2017 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	TF TREE - OFF RIGHT OF WAY
MED MEDINA (MEDINA)	TO TREE - ON RIGHT OF WAY
MLK MIDLAKES	TV TREE - RIGHT OF WAY UNKNOWN
NOB NORTH BELLEVUE	UII USER - IMPROPER INSTALLATION
NRU NORTHRUP	UN UNKNOWN CAUSE
OVE OVERLAKE (MEDINA)	VA VANDALISM
PHA PHANTOM LAKE	
ROS ROSE HILL (REDMOND)	
SBE SOUTH BELLEVUE	
SOM SOMERSET	
	STORM CODES
	MEJ IEEE MAJOR EVENT DAY & MAJOR STORM
	MEN IEEE MAJOR EVENT DAY but NON STORM
	NMJ NON IEEE MAJOR EVENT DAY but MAJOR STORM
	NON NON IEEE MAJOR EVENT DAY & NON STORM

EQUIPMENT CODES	
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 TRANSFORMER (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	SPT STATION POWER TRANSFORMER
LTC LOAD TAP CHANGER	SRG STATION REGULATOR
MAN MANUAL OPERATION	SWC SWITCH - CAPACITOR BANK
MOT MOTOR OPERATOR	SWD SWITCH - DISTRIBUTION DISCONNECT
MTR METER	SWT SWITCH - TRANSMISSION
OAL OVERHEAD AREA LIGHT	TER TERMINATION (POWER CABLE)
OAN OVERHEAD ANCHOR	UCU UNDERGROUND COMMUNICATION CABLE
OAR OVERHEAD ARRESTER	UDC UNDERGROUND DUST CAP
OAT OVERHEAD AUTO TRANSFORMER (EDOT110)	UEL UNDERGROUND ELBOW
OCA OVERHEAD CAPACITOR (EDOC100)	UFE UNDERGROUND FUSED ELBOW
OCB CIRCUIT BREAKER (POWER) - OIL	UFI UNDERGROUND FAULT INDICATOR
OCE CUSTOMER EQUIPMENT	UFJ UNDERGROUND J-BOX
OCN OVERHEAD SECONDARY CONNECTOR	UFO UNDERGROUND FIBER OPTICS
OCO OVERHEAD CONDUCTOR	UFS UNDERGROUND FIRE SIGNAL
OCR OVERHEAD CROSSARM	UGF UNDERGROUND SUBMERSIBLE FUSE
OFC OVERHEAD CUT-OUT	UGV UNDERGROUND VAULT
OFI OVERHEAD FAULT INDICATOR	UHH UNDERGROUND HANDHOLE - SECONDARY
OFL OVERHEAD FLOOD LIGHT	UHM UNDERGROUND HAMMERHEADS
OFS OVERHEAD FIRE SIGNAL	UIC UNDERGROUND INDOOR STRESS CONE
OFU OVERHEAD LINE FUSE / FUSE LINK	UJU UNDERGROUND PRIMARY JUMPER
OGD OVERHEAD DOWN GUY	UMP UNDERGROUND SUBMERSIBLE METER POINT
OGS OVERHEAD SPAN GUY	UNK UNDERGROUND UNKNOWN
OHR OVERHEAD RECLOSER (EDOR100)	UOT UNDERGROUND OUTDOOR TERMINATION
OHS OVERHEAD SECTIONALIZER (EDOX100)	UPC UNDERGROUND PRIMARY CABLE
OIN OVERHEAD INSULATOR	UPH UNDERGROUND PADMOUNT PHASE SHIFTER
OJU OVERHEAD JUMPER WIRE	UPS UNDERGROUND PADMOUNT SWITCH (EDUS100)
OMP OVERHEAD METER POINT (EDOM100)	UPT UNDERGROUND PADMOUNT TRANSFORMER
ONI OVERHEAD NEUTRAL ISOLATOR	USC UNDERGROUND SECONDARY CABLE
OPB OVERHEAD POLE BRACE (EDOP110)	USE UNDERGROUND SECONDARY CONNECT
OPI OVERHEAD INSULATOR PIN	USP UNDERGROUND PRIMARY SPLICE
OPO OVERHEAD POLE (EDOP100)	USS UNDERGROUND SCHOOL SIGNAL
OPS OVERHEAD POLE STUB (EDOP120)	USV UNDERGROUND SERVICE
ORE OVERHEAD REGULATOR (EDOG100)	UTC UNDERGROUND TERMINAL FUSE
OSL OVERHEAD STREET LIGHT (EDOL100)	UTF UNDERGROUND SUBMERSIBLE TRA
OSP OVERHEAD SPLICE PRIMARY	UTR UNDERGROUND SUBMERSIBLE TRANSFORMER
OSS OVERHEAD SCHOOL SIGNAL	UTS UNDERGROUND TRAFFIC CONTROL SIGNAL
OST OVERHEAD STEP TRANSFORMER (EDOT110)	UUS UNDERGROUND SUBMERSIBLE
OSV OVERHEAD SERVICE	VCB VACUUM CIRCUIT BREAKER (POWER)
OSW OVERHEAD SWITCH (EDOS100)	XFR TRANSFORMER - UNKNOWN TYPE
OTF OVERHEAD TRANSFORMER FUSE	XRT NEUTRAL REACTOR
OTH OVERHEAD OTHER	XSS TRANSFORMER - STATION SERVICE