

# Exhibit to Agenda Item #2

Board Policy Committee and Special SMUD Board of Directors Meeting  
Wednesday, June 5, 2019, scheduled to begin at 5:30 p.m.  
Customer Service Center, Rubicon Room

# Agenda

- 2018 SD-4 annual monitoring report
- Distribution system mitigation plan status
- 2019 year-to-date distribution system reliability

# SD-4, Reliability Policy

Meeting customer energy requirements is a core value of SMUD.

Therefore:

- a) SMUD will assure all customer energy requirements are met. This will be accomplished through the use of: (i) its generation resources and purchase power portfolio 100 percent of the time; and (ii) its transmission assets to assure an overall availability of at least 99.99 percent.
  
- b) SMUD will achieve distribution system reliability by:
  - Limiting the average frequency of outage per customer per year to:
    - With major event : 0.99 – 1.33
    - Excluding major event : 0.85 – 1.14
  - Limiting the average duration of outages per customer per year to:
    - With major event: 67.5 – 93.3 minutes
    - Excluding major event: 49.7 – 68.7 minutes

Ensuring that no individual circuits exceed these targets for more than two consecutive years. For circuits that exceed these targets for two consecutive years, a remedial action plan will be issued and completed within eighteen months.
  
- c) SMUD will maintain the electric system in good repair and make the necessary upgrades to maintain load serving capability and regulatory standards.

# SD-4, 2018 Reliability Results

- ***Generation and Transmission System***

Met customers' energy supply needs 100% of the time through a combination of SMUD generation and purchase power supplies

- **Generation Asset and Gas Pipeline Availability**

- *Thermal Generation – 87.06%*

- *Hydro Generation – 90.70%*

- *Thermal Generation June through September – 97.09%*

- *Hydro Generation June through September – 97.44%*

- *At system peak, 59% of the generation was provided by internal resources and 41% was provided by purchased power*

- **Overall availability of transmission system was 100%**

# SD-4, 2018 Reliability Results

- **SMUD was in compliance for both SAIDI and SAIFI for the distribution system reliability metrics in 2018.**

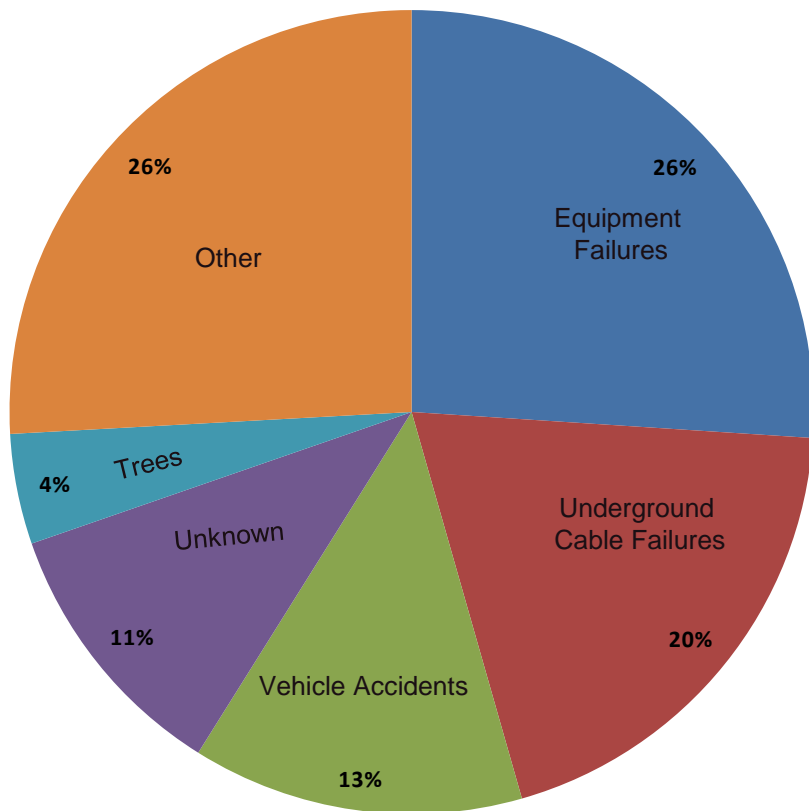
	Excluding Major Events	
Metric	SD-4 Limit	2018 Results
SAIFI	1.14	0.93
		(18% under limit)
SAIDI (minutes)	68.7	45.0
		(34% under limit)

- 97.9% of all distribution circuits (729 circuits) met the reliability criteria

# 2018 Distribution System Reliability Performance

## Excluding Major Events

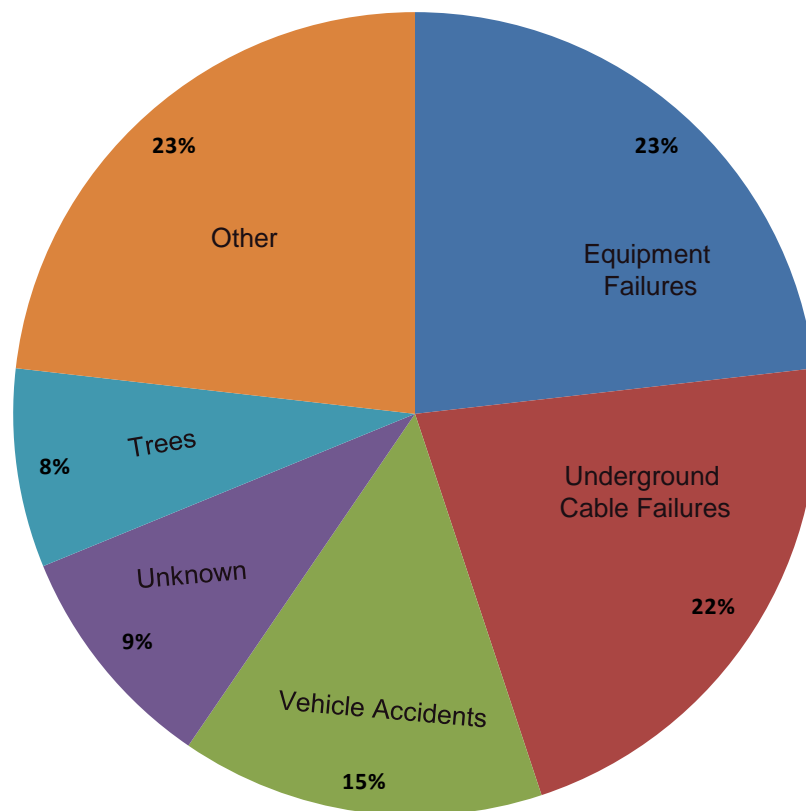
Year End Results = 0.93 (18% under SD-4 limit)  
SD-4 Limit = 1.14



Average Outage Frequency (SAIFI)

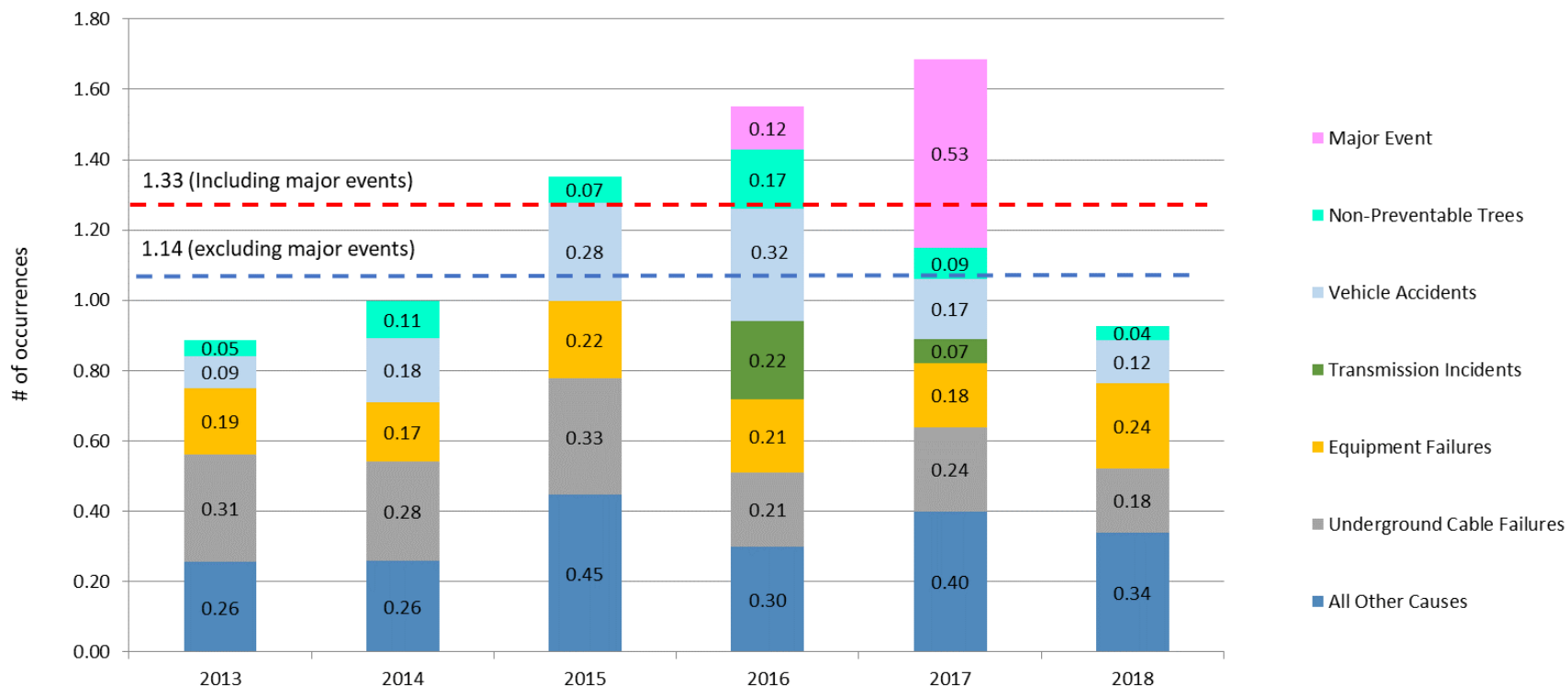
## Excluding Major Events

Year End Results = 45.0 min. (34% under SD-4 limit)  
SD-4 Limit = 68.7 minutes



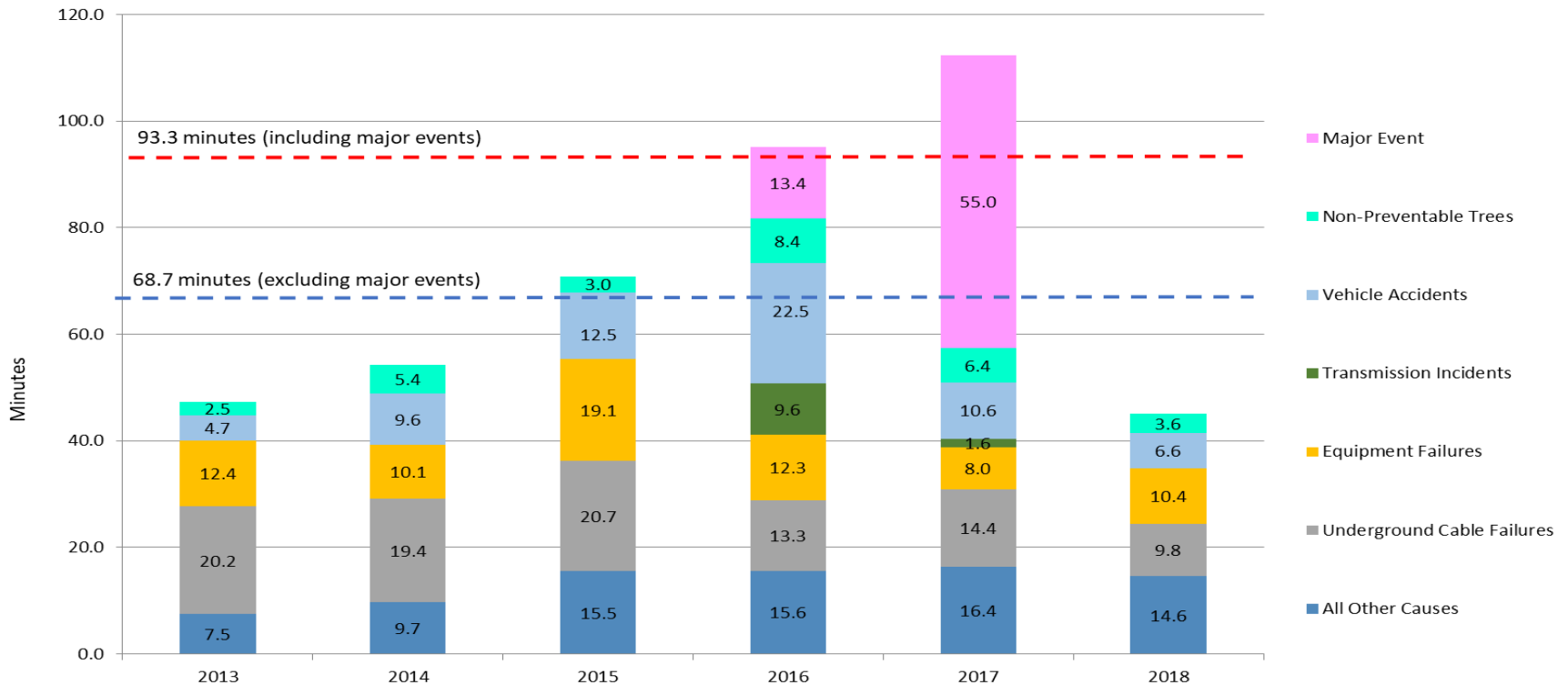
Average Outage Duration (SAIDI)

# Outage Frequency (SAIFI) Performance Drivers Multi-Year Comparison



- SAIFI contribution from underground cable failures decreased by 26% from 2017
- SAIFI contribution from equipment failures increased by 38% from 2017
- SAIFI contribution from vehicle accidents decreased by 29% from 2017
- SAIFI contribution from non-preventable tree outages decreased by 53% from 2017

# Outage Duration (SAIDI) Performance Drivers Multi-Year Comparison



- SAIDI contribution from underground cable failures decreased by 32% from 2017
- SAIDI contribution from equipment failures increased by 33% from 2017
- SAIDI contribution from vehicle accidents decreased by 38% from 2017
- SAIDI contribution from non-preventable tree outages decreased by 39% from 2017



# 2018 Worst Performing Circuits

- Six circuits (0.8% of the total number of circuits) exceeded the reliability limits for more than two consecutive years.
- Ten additional circuits exceeded the reliability limits for two consecutive years (1.3% of the total number of circuits).
- A total of thirty-two projects were issued to improve the reliability of these sixteen circuits.
- Twenty-three projects were completed prior to 2019, while the remaining projects are in progress.

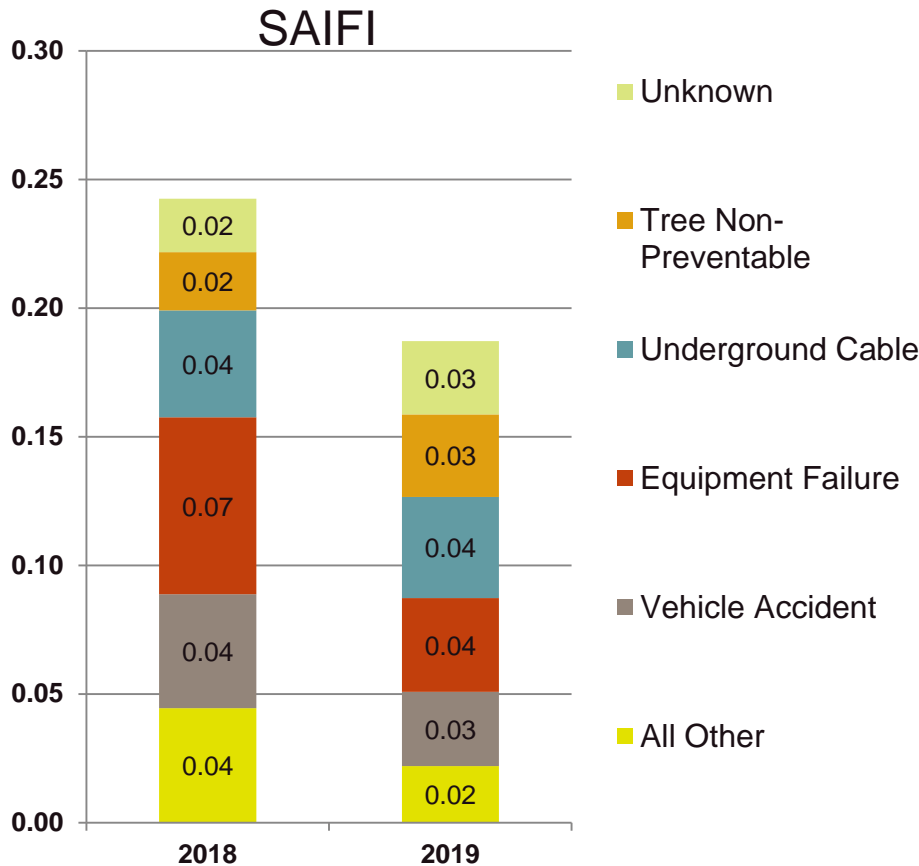
# Reliability Investments

	Baseline Year	Planned Amount	Comparison Year	Planned Amount	Increase
Cable Replacement	2012	\$10.5M	2019	\$16M	\$3.5M
Vegetation Management	2016	\$13.2M	2019	\$14M	\$800k
69kV Motor Operators	2016	\$0.00	2017-2018	\$10.8M	\$10.8M*
Vehicle vs. Asset	2016	\$0.00	2019	\$250k	\$250k
Substation Transformer & Circuit Breaker Replacement (AHI)	2016	\$0.00	2019	\$12M	\$12M
Pole Reframing (bird outages)	2015	\$0.00	2019	\$250k	\$250k
Total annual increase					<u>\$16.8M</u>

*\*Not included in total annual increase. This was total project cost.*

# 2019 Distribution Reliability Update

## Comparison to 2018 – YTD Thru April 30<sup>th</sup>



	With Major Events			Excluding Major Events		
	SD-4 Limit	Jan.1 – April 30, 2019	2019 YE Projection	SD-4 Limit	Jan.1 – April 30, 2019	2019 YE Projection
<b>SAIFI</b>	1.33	0.48	1.27	1.14	0.19	0.98
<b>SAIDI (minutes)</b>	93.3	60.7	105.5	68.7	12.2	57.0

# Reliability Metrics Update: Momentary Outage Change

- To obtain a more accurate measure of system reliability, outages less than five minutes in duration are now considered momentary whereas previously, momentary outages comprised of outages less than one minute in duration.
- This change to five minutes allows SMUD to measure reliability metrics according to industry standards as the CPUC and other utilities define momentary outages to be less than five minutes in duration.

Jan.1 – April 30, 2019				
	Without ME		With ME	
	SAIFI	SAIDI Minutes	SAIFI	SAIDI Minutes
<b>1 Min</b>	0.19	12.3	0.52	60.8
<b>5 Min</b>	0.19	12.3	0.48	60.7

# Questions?

