

FOCUS ON DISTRIBUTION

Business Planning 2018-2022

INFORMATIONAL ONLY – NO ACTION REQUIRED

September 18, 2017



CHELAN COUNTY



KEY MESSAGES

History of system reliability

Challenges ahead

- » Expected Growth
- » Reactive maintenance
- » Compliance requirements
- » Resource (staffing) constraints
- » Struggling to replace assets to maintain reliability

Preparing today for tomorrow

DISTRIBUTION GOALS

Continue Asset Management Maturity Compliance

- » Agency mandated and contractual obligations

Meet growth

- » Connect new customers
- » Don't exceed 100% system rating
- » Install 10-13MW of wires/stations annually

Maintain reliability

- » ASAI 99.98%
- » 51,000 customer - hours out annually

BOARD OVERVIEW

Status update

- » Distribution load growth
- » Aging infrastructure:
maintenance vs replacements

Customer Impact

- » Reliability with aging assets

Business planning impact

Board Guidance

LOAD GROWTH

Set new all-time peak load of 500MW
(1/2017)

Load growth occurring at higher
rate than previous from commercial,
industrial and high density loads

- » Loads in “chunks”
@ 25 – 30MW in queue
- » 10-13MW peak growth expected
annually

System capacity impacts:

- » Line extensions
- » Need for new substation capacity
- » Larger lines required to hold loads



GROWTH = NEW SUBSTATIONS NEEDED

13 of 34 substations exceed 80% capacity

- » North Shore Chelan – 2018/19 (88%)
- » Leavenworth/Chumstick – 2018/19 (93%)
- » Olds Station/Stemilt – 2018/19 (81%)
- » Wenatchee/Pybus – 2018/20 (100%)
- » Cashmere/Simmer – 2019/20 (81%)
- » Wenatchee/Castlerock – 2020/22 (99%)
- » South Shore Chelan – 2020/22 (88%)

One **new** 28MW substation every other year





AGING INFRASTRUCTURE

11 substations > 40 years old

250 miles of direct-buried underground cable

300 miles of overhead lines > 30 years old

Top 10 worst performing feeders require hardening to reduce outages

CUSTOMER IMPACTS

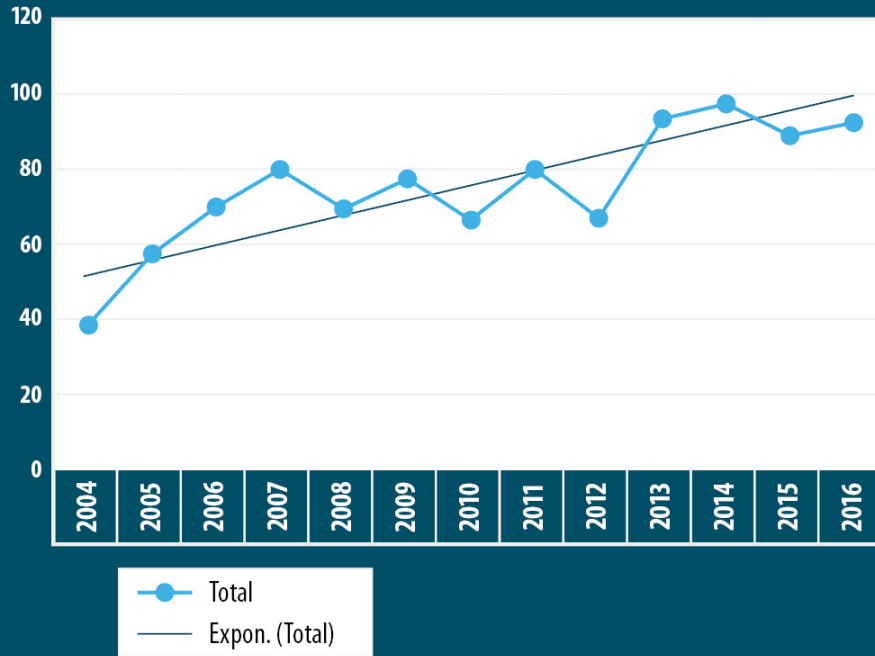
Distribution Outages

Outage analytics from 2014-2016 not including Major Event Days (Storms)

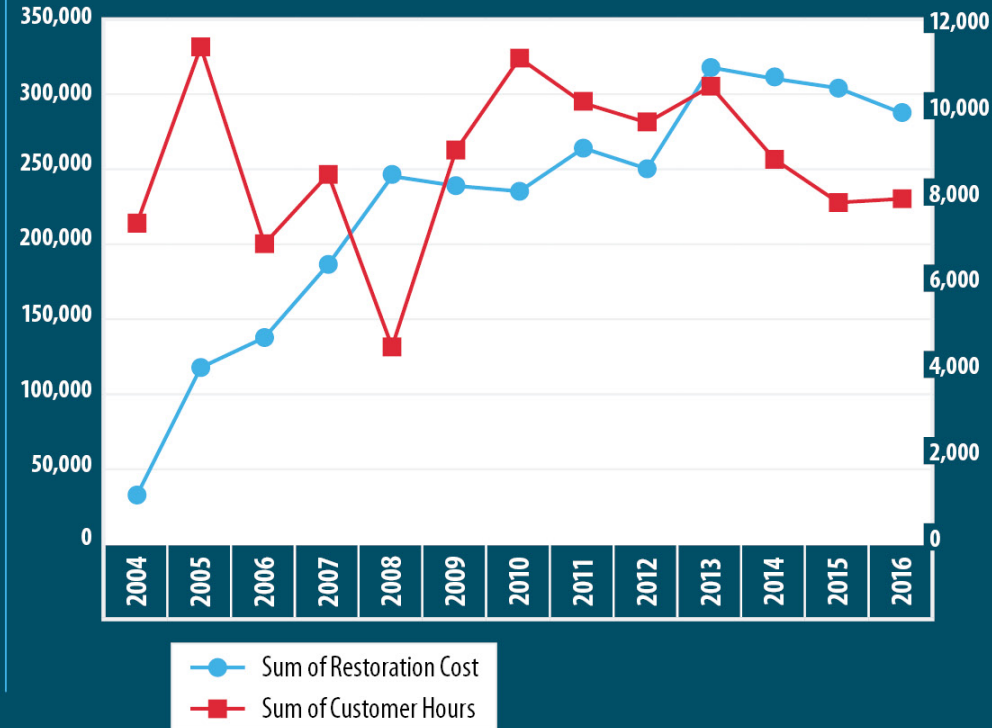
VALUES			
Strategy Group	Outages	Customer Hours	Restoration Cost
Feeder Devices	343	35,293.8	\$ 494,657
Weather	96	26,283.5	\$ 145,841
Vegetation Mgmt	109	24,557.9	\$ 227,552
Cables	277	24,261.8	\$ 908,043
3rd Party	151	12,351.0	\$ 363,945
Avian Protection	402	10,454.5	\$ 147,943
Other	98	7,426.5	\$ 64,840
Transformers	106	2,424.7	\$ 219,674
Poles	3	1,225.0	\$ 10,677
Redosers	2	1,086.1	\$ 3,182
Secondary Lines, Dev	222	959.2	\$ 289,765
Operations	4	175.5	\$ 19,692

DISTRIBUTION CABLE HISTORY

Outages

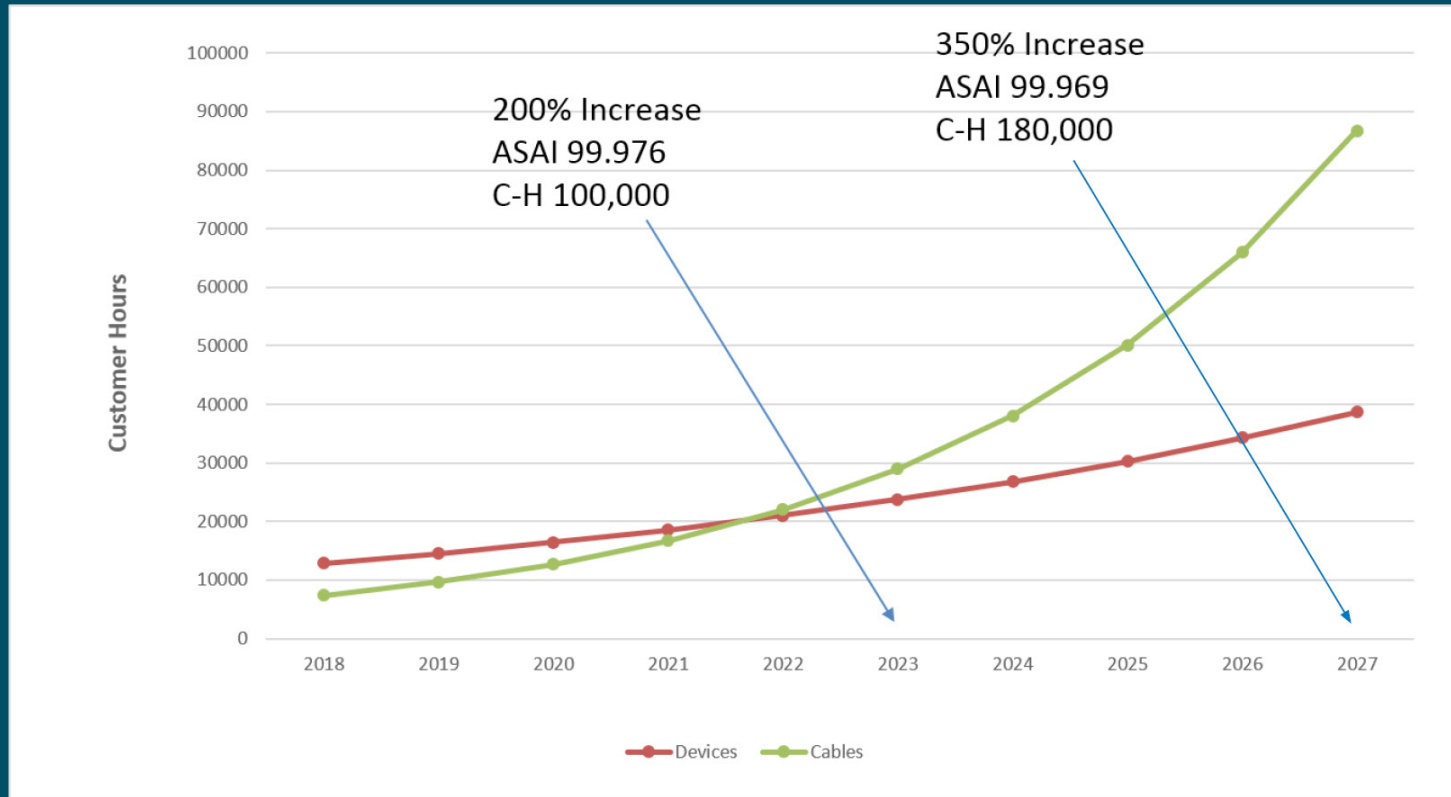


Costs and Customer-Hours



FORECASTED RELIABILITY

Goals: ASAI 99.98 and 51,000 customer hours



ASSET MANAGEMENT & SYSTEM PLANNING

Asset Management

» Complete picture of key elements:

- Substation (reliability impact forecasting)
- Overhead lines
- Underground cable

System Replacement/Growth Planning

- » 1 substation biennial growth
- » 1 substation replacement annually
- » 3-6 miles of underground cable replacement annually
- » 1 circuit feeder hardening annually

2018 – 2022 **PLAN**

- Evaluate financial resource requirements & mature asset management
- Optimize planned replacements
 - » Underground cables
 - » Feeder hardening
 - » New substations & substation equipment replacements
- Maintain compliance rigor
- Increase capability to contract now @ 50/50
- Ensure reliability & reduce customer impacts e.g. AMI and Outage Management
- Meet anticipated system capacity needs for new and existing customer growth

An aerial photograph of a city at sunset. The sun is low on the horizon, creating a warm, golden glow over the entire scene. In the foreground, three people are standing on a grassy hillside, looking out over the city. The city below is densely packed with buildings and streets, with a river or canal winding through it. The overall mood is serene and contemplative.

QUESTIONS?