

Distribution System Planning 2020-2024

June 17th, 2019

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Why we're here today

- Line work priorities
- Focus on National Electric Safety Code
- Substation priorities
- Key takeaways
- Questions

Informational – no action required



Distribution Goals

- Safety – Limit the public and employee impact of Distribution system failures
- Electric reliability – Strive for top quartile by 2024 in both system availability and customer response time
- Anticipate and prepare for growth – Having assets in place ahead of forecasted need
- Enhance the Customer Experience – focus on implementation of new technologies
- Support Fiber expansion through the appropriate make-ready

Increased Risk = New Priorities

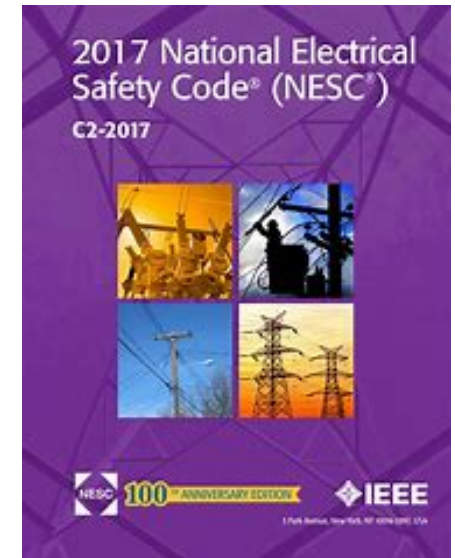
- Replacing end-of-life assets
- Fire ignition prevention & fire/weather resiliency
- National Electric Safety Code (NESC)



Butte County, California

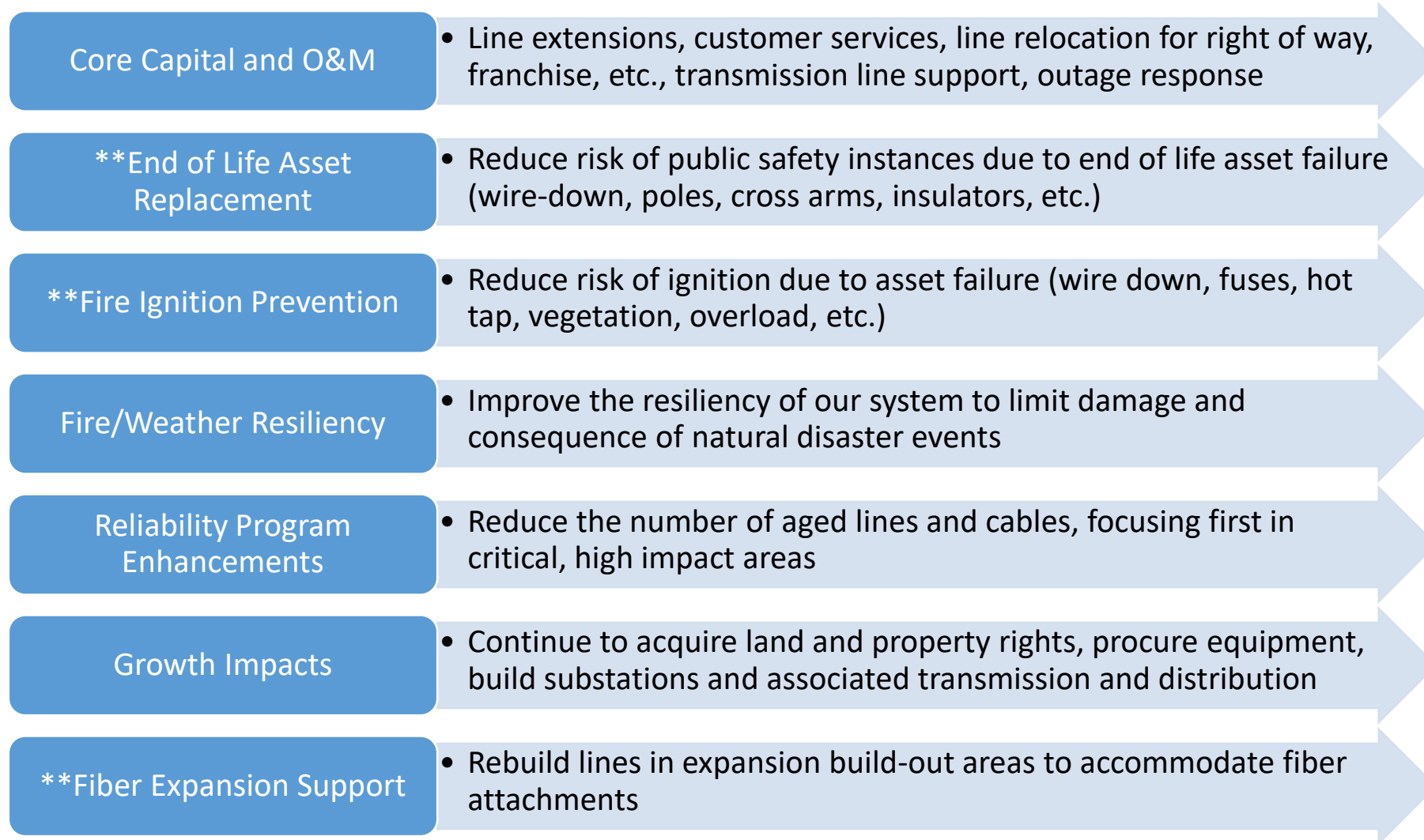


East Marginal Way, Seattle



NESC Compliance

2020-2024 Priorities



** Activities help support the goal of reaching NESC compliance

Reliability Priorities – 2020/24 Business Plan

Initial focus on:

- Replacing end-of-life large equipment (i.e. transformers)
- Adding contingency support – mobile substation capability
- Prioritizing on critical, high impact underground cable replacements
- Enhancing Distribution system fire resiliency

Asset Management will inform secondary reliability investments

BRINGING NESC COMPLIANCE INTO FOCUS

Over past three years the District has invested in increasing our knowledge surrounding NESC requirements and implemented tools to aid in achieving compliance



NESC SURVEY SCOPE

OBJECTIVE 1

IDENTIFY VIOLATIONS OF THE NESC AND/OR DISTRICT STANDARDS

IKE 4

THE EVOLUTION OF POLE MEASUREMENTS

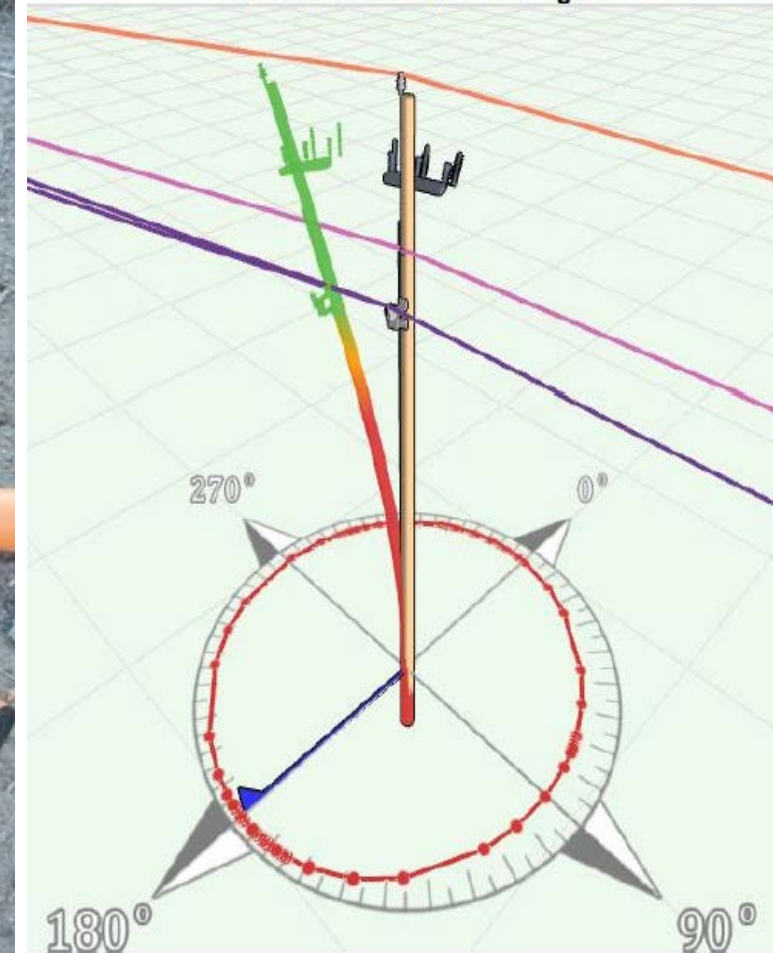


OBJECTIVE 2

INSPECT, MODEL AND PERFORM STRUCTURAL ANALYSIS ON POLES IN UPCOMING FIBER EXPANSION AREAS.



Non-destructive Ultrasonic Pole Inspections



Structural Modeling and Loading Analysis

NESC SURVEY RESULTS TO DATE

- Early survey efforts were primarily focused on fielding, inspecting, modeling and performing structural analysis on upcoming fiber expansion areas to enable efficient make-ready design & construction. These areas included:

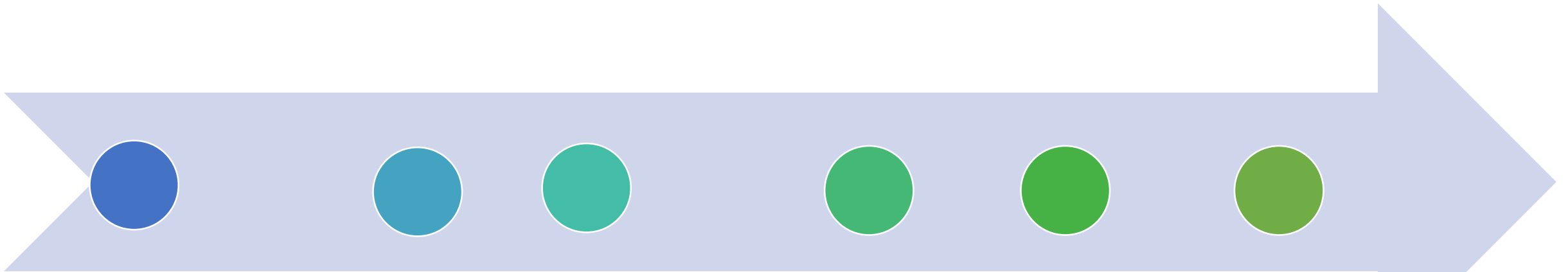
Eagle Creek / Upper Chumstick Highway / Lower Merry Canyon

- Survey results thus far have indicated there are many opportunities to improve upon our standards and processes in working towards NESC compliance across the electric system.
- Full understanding of the state of our system as it relates to NESC compliance allows the District to prioritize where improvements should be focused first based on criticality.
- Moving forward staff is putting in place new tools and processes to help manage our NESC compliance



- **9,382 of 17,138 poles surveyed to date**
- **Survey completion slated for September 2019**

Substation work plan



2019

- Two new and fully rated mobiles ordered
- Diamond Foundry Hawley St station construction
- Ohme station construction

2020 - 2021

- Mobiles deployed
- Diamond Foundry Hawley St station energized
- Ohme station energized
- North Shore station construct and energize
- Wenatchee station expansion construct and energize
- Bavarian station construct and energize

2022

- College I refurbishment and expansion construct and energize

2023

- Cashmere station construct and energize

2024

- South Shore

Substation work plan

- Augmented plan uses multi-year engineering, labor and equipment contracts
- Results from recommended build strategy:
 - Move from seven stations loaded at or over 100%, to zero stations
 - Eliminate low condition College I
 - Move medium and high-growth area substations to under 80%
 - 185MVA of station capacity added

Factors affecting achievement of overall plans

- External municipality work plans causing unexpected asset relocation requirements on short timeline
- Large load customers accelerating growth/redirecting efforts
- Organic growth in excess of historic trend
- Fiber expansion schedule changes
- New third-party attachment contracts
- Impact of other District initiatives such as Asset Management Strategies, AMI Implementation, etc. redirecting efforts
- Capacity of existing staff within Distribution as well as other support functions – lands, procurement, legal, project management, tech shop, etc.
- Capability of increasing staff levels
- Impacts of extreme weather and fire activity

2020-2024 Priorities – How to Balance?

- Targeted overtime where it makes sense – not recommended as a sustainable option
- Refine and defer projects based on priority – will continue to work on this
- Seek further use of contractors – already planning greater use, but aware of the overhead, administration and cost of contracting
- Hire more line resources – will be part of the business planning evaluation

Balance will be influenced by extreme weather, fire activity and unexpected walk-in customer work

Distribution Priorities – Key Takeaways

- New risks have significantly added to the work-plan
- The District is committed to maintaining public safety and improving reliability
- We are expanding use of contracted resources and recognize this has an impact on other groups
- Enabling Fiber to be less dependent on traditional Distribution resources via contracted engineering and construction support
- Implementing new technologies will transform or impact all Distribution functions as well as the customer experience
- As part of the 2020-2024 business planning hard choices ahead to balance and manage an increasing workload

Questions ?

