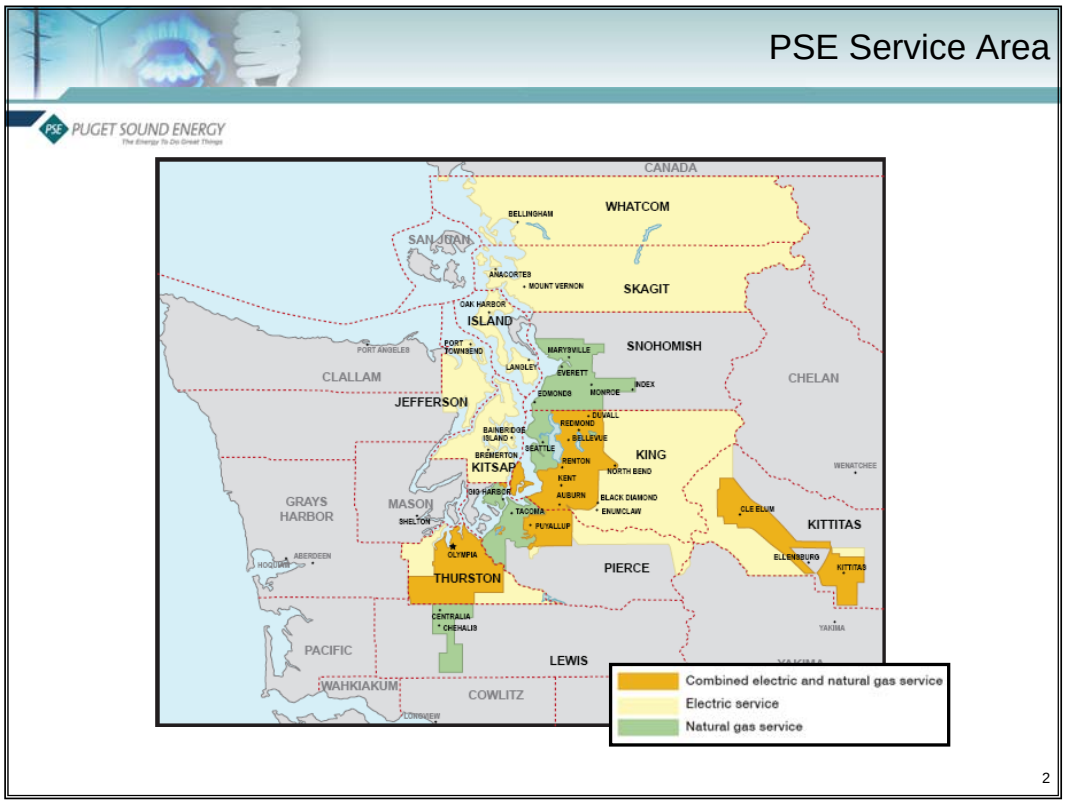

**Our purpose in presenting today is to:**

**> Focus on 3 specific utility issues**

**> Give you a 3-point takeaway message at the end**

NOTE: Some handouts were provided at this presentation. For the purpose of this document, several of these have been included or their URL noted. Furthermore, some additional reference documents were noted and URLs provided.




PSE Information: gas & electric distribution within 120 cities & 11 counties

> Your citizens are many of PSE's customers – together we serve over 1,000,000 of same people!

> PSE Land Planners, primarily get land use & environmental permits

## ***PSE LAND PLANNING GROUP***

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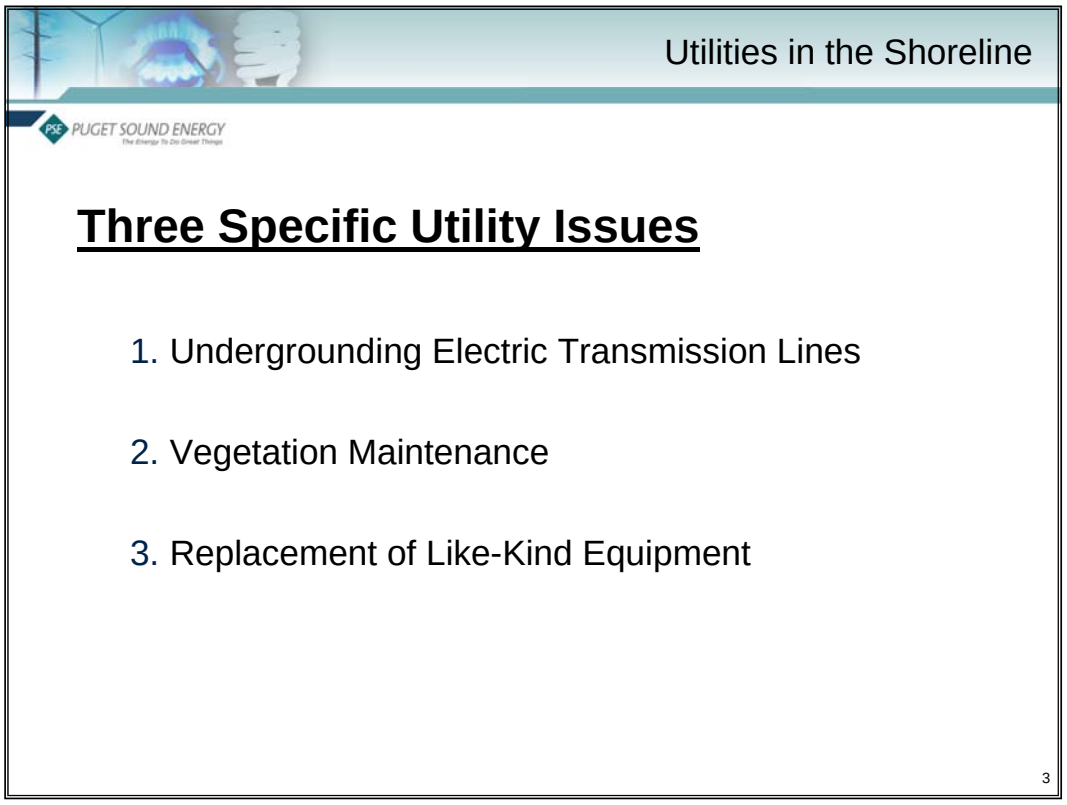
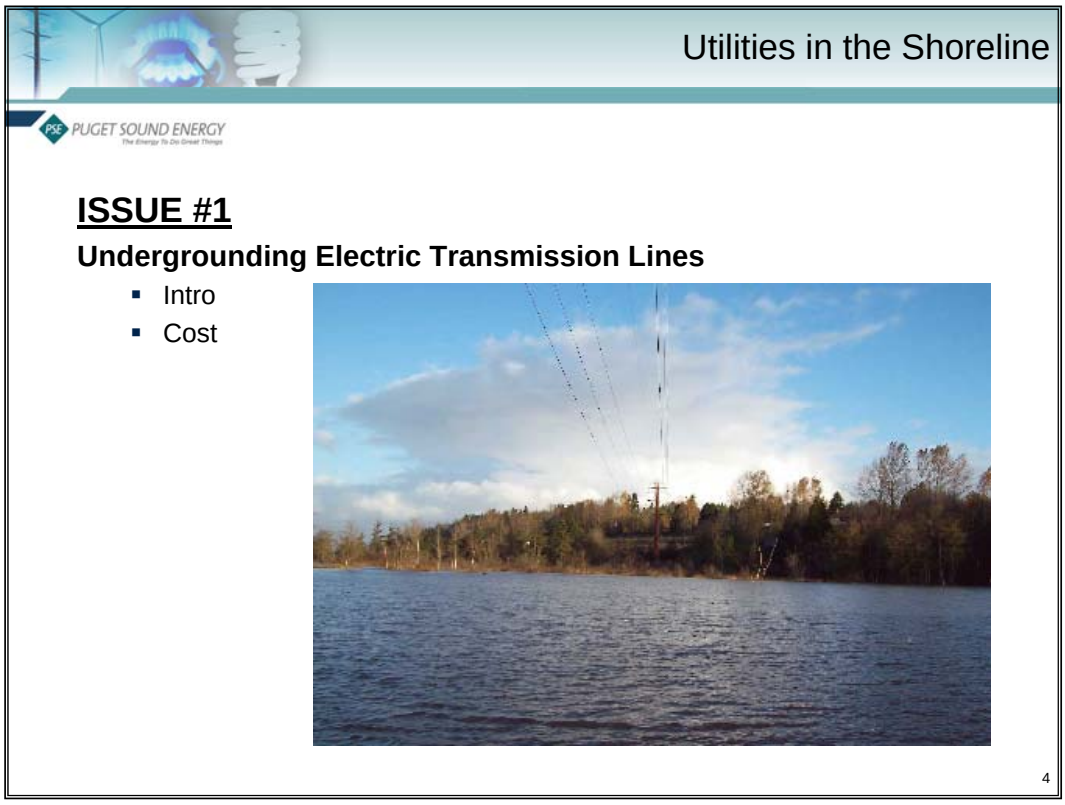



**QUESTION: "Why these three issues?"**

A. Our experience is, these are not intuitive to those outside of a utility
B. Most land use regulations are for parcel development, not linear utilities
C. Regulations can bring unintended complexities and inefficiencies
D. Share nuances of utility business with you




Customers ask, “Why can’t you just bury all those wires?” I’m give you a better understanding of what it takes to bury electric transmission lines.

First, definition of terms…… **transmission** & **distribution** lines

**Distribution** = “capillaries,” these are routinely put underground

**Transmission** = “backbone,” these are on taller wood poles or steel towers. PSE has 115 kV and 230 kV, only one short segment of underground

While other utilities on the east coast and in Europe with higher density have a greater percentage of their systems underground, most utilities in the U.S. have not made the investment for one simple reason – COST. Even with technology, the cost to bury a transmission line is still much higher than the equivalent above-ground. Begs the question, “Who will pay the extra cost?”

I want to now focus on another aspect of buried transmission lines, and that’s the **environmental impact** to build them.

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## ISSUE #1

**Undergrounding Electric Transmission Lines**

- Environmental Impacts

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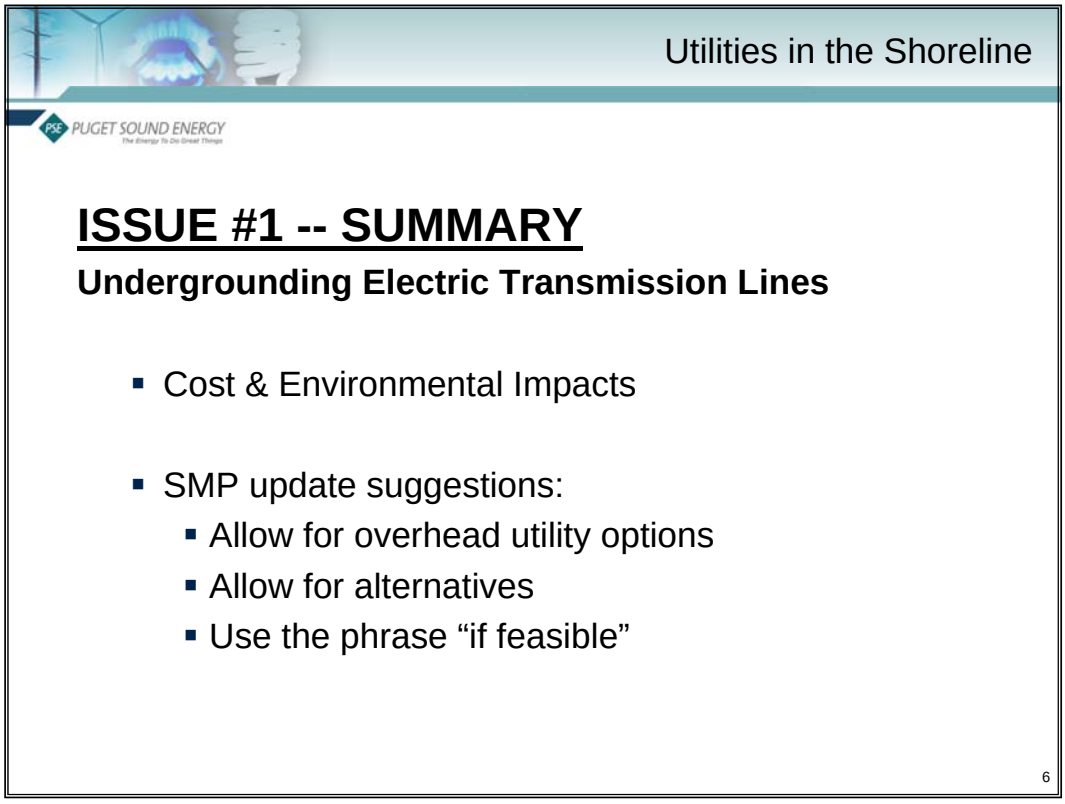
A typical buried transmission line system would have at least 3 to 6 cables. And since we never want to open up the trench again, spare conduit would probably be added, leading to a minimum trench width of 5 feet. Add to this spoils and slopes, and equipment access. Result is wide, with complete clearing of vegetation, probably topsoil too.

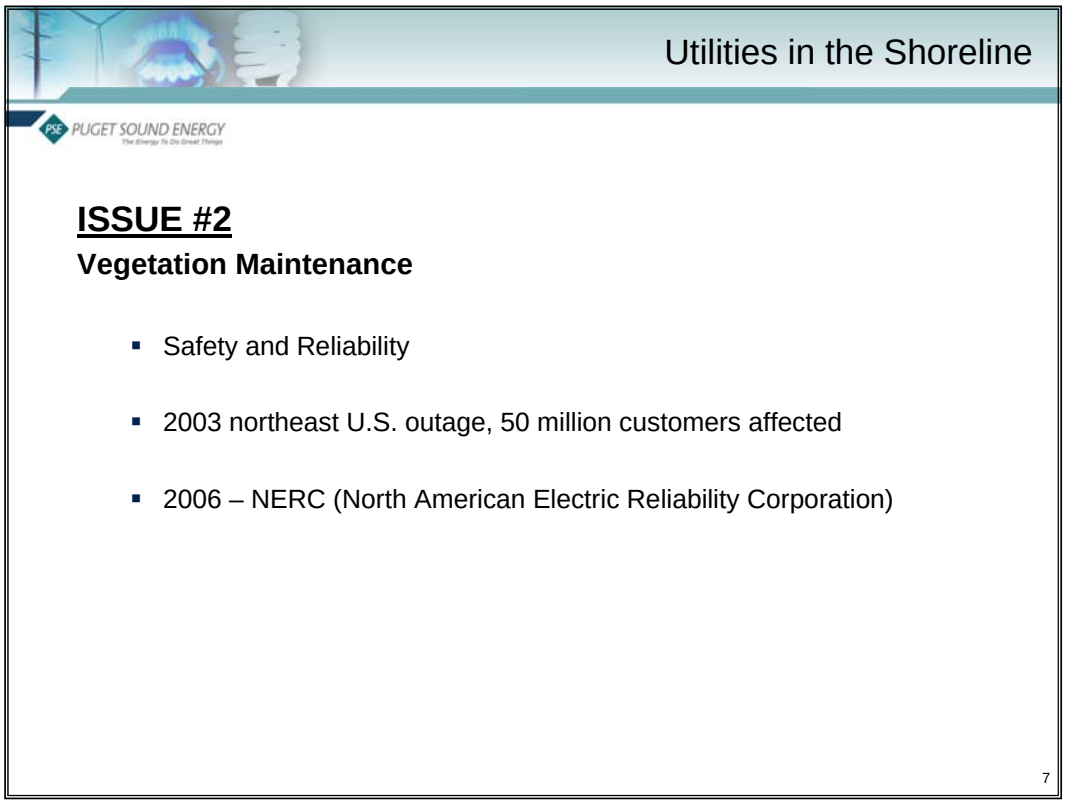
Conductor comes on spools in lengths of around 2,000 feet. The splices to connect these cable lengths require a utility vault. Not the garden variety vaults you see in the sidewalk. The typical size for a 115 kV line is **10 feet wide x 20 feet long**.

A permanent access road is needed along the right-of-way so that access is available to all parts of the system. Road surface must be all-weather for heavy equipment, but not necessarily paved.

YES! There are obvious visual benefits of burying utilities. But **Environmental impacts**, **cost** considerations, and **lifespan** of the system should ALSO be taken into account when designing a new utility system.




By retaining the **OPTION** in your SMP to make **SITE** specific utility design decisions, we’ll have greater flexibility to accommodate environmental considerations into our projects.




Utilities have always maintained vegetation under powerlines – safety & reliability

Massive outage on August 14, 2003 put focus on numerous reliability improvements

> http://www.nerc.com/news_pr.php?npr=142; "*…**the goal is to correct issues that may arise long before any customers are affected**.*"

"Game Changer" in 2006 -- NERC issued new reliability regulations (tree trimming comment near bottom)

> NERC FAQ http://www.nerc.com/page.php?cid=1%7C7%7C114

> NERC Standard FAC-003-1 --- Transmission Vegetation Management Program
http://www.nerc.com/files/FAC-003-1.pdf

Violations by utilities can bring fines up to $1 million a day, several large fines have already happened to other utilities around the country

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**> PSE brochure**: "Tree Removal: New Requirements"
http://www.pse.com/SiteCollectionDocuments/safetyReliability/nerc_low_res1.pdf

**> PSE info sheet** with more details on NERC, email request to
andy.padvorac@pse.com

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## ISSUE #2

**Vegetation Maintenance**

- Utilities patrol lines to trim or remove on cycles

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Options for vegetation maintenance

- •Removal
- •Topping
- •Side trimming
- •Directional pruning

This is an issue for both:

- •Maintaining existing utility corridors (road-side and cross-country)
- •Constructing new powerlines

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## ISSUE #2

**Vegetation Maintenance**

- Directional trimming, to avoid topping

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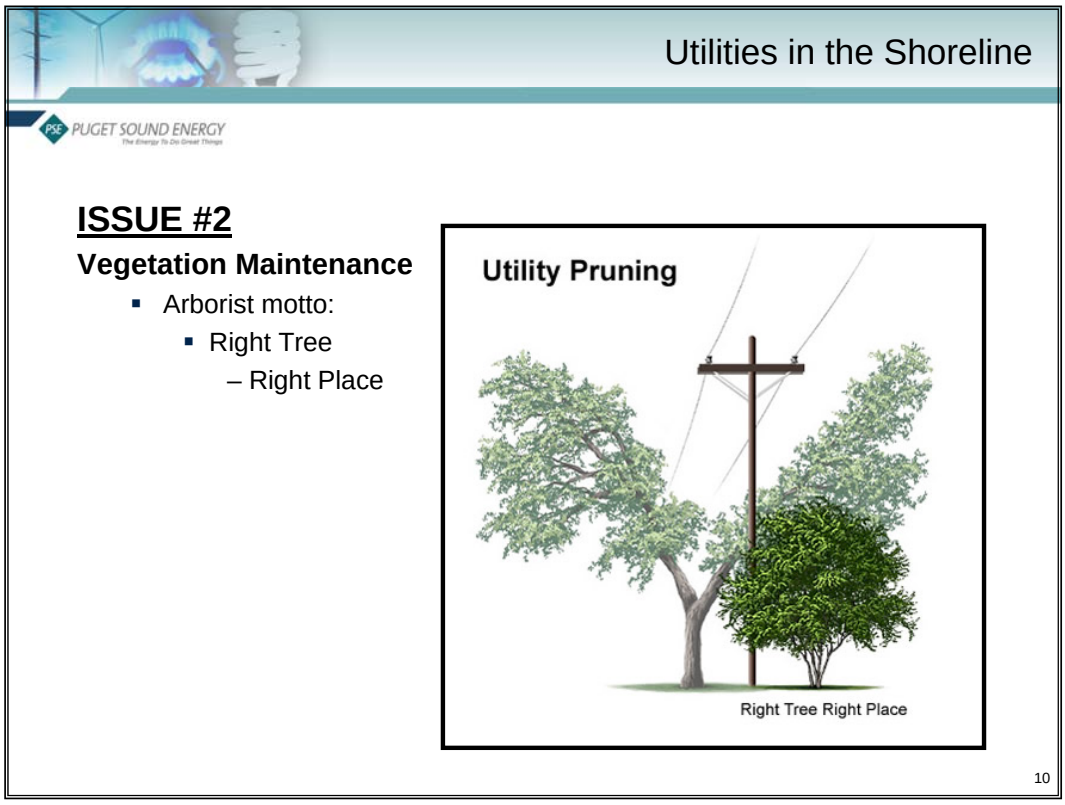
Example of directional pruning:

> Horticultural process is correct – if tree must stay

> Aesthetic compromise

Best option – “Right Tree – Right Place!”

> Remove tree under the lines, replant with appropriate species




If a conflict between a tree and powerline is unavoidable, best to remove trees that will mature too tall

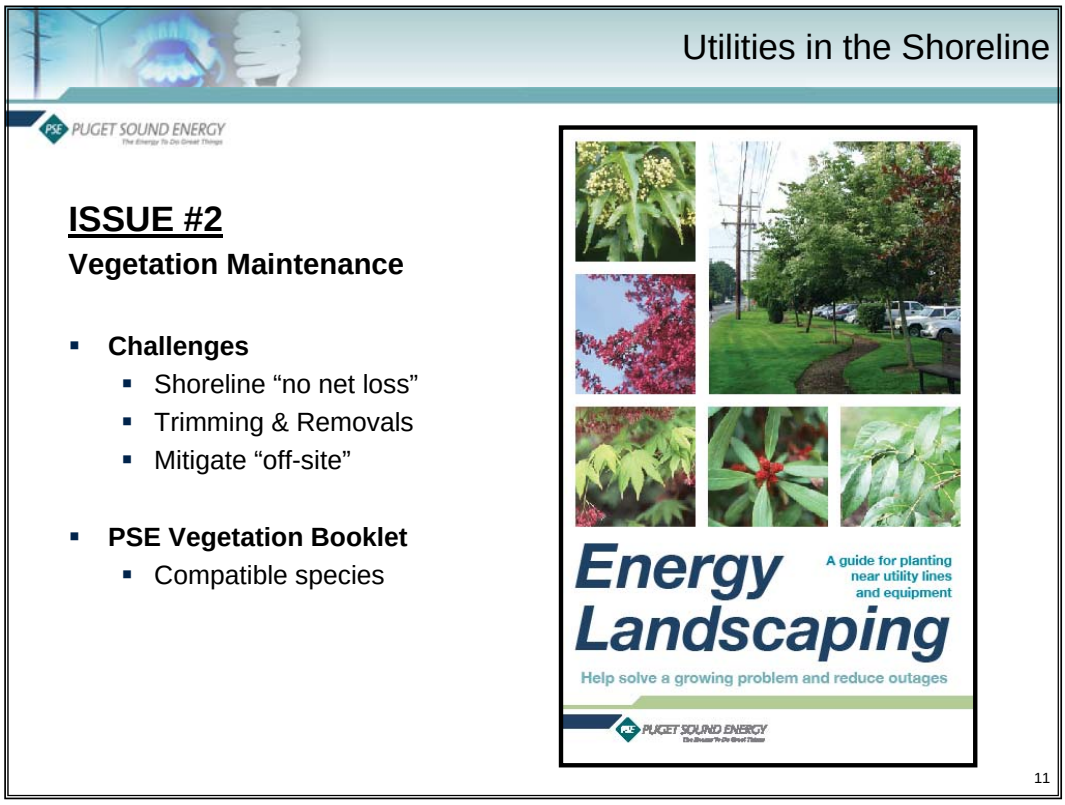
> Avoids impact of repetitive vegetation work

> Deals with the inevitable, tree will die sooner

> Replace with low growing tree or shrub

> Create stable plant communities

Plant tall growing replacement trees off-site - away from the overhead lines!




**PSE booklet, “Energy Landscaping,” on compatible species near utilities**

http://www.pse.com/SiteCollectionDocuments/safetyReliability/1225_energy_landscaping_web_2.pdf

**PSE brochure: “Tree Removal: New Requirements”**

http://www.pse.com/SiteCollectionDocuments/safetyReliability/nerc_low_res1.pdf

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# ISSUE #2 -- SUMMARY

**Vegetation Maintenance**

- Reliability, vegetation and NERC
- Right Tree – Right Place
- SMP update suggestions:
  - Allow for tree removal to avoid future hazards
  - Install only low growing species under powerlines

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## ISSUE #3

**Like-Kind Replacement**

- Wood Powerline Poles in water



This is unusual, but some are located in standing water.

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## ISSUE #3

**Like-Kind Replacement**

- Wood Powerline Poles along “waterfront” street, within 200’ of OHW


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Very common, upland but within Shoreline jurisdiction

The slide above shows common scenario, a distribution system along a lake (Sammamish in this case), 180 feet from water. Work on the system is within jurisdiction: pole, service line to home, pole-to-pole wires, transformer, streetlight and telecom wires below the powerlines.

PSE’s 2010 annual pole replacement program:

> Inspected over 10,000

> Replacing over 1,000

Utilities in the Shoreline

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**ISSUE #3**

**Like-Kind Replacement**

- Gas mains


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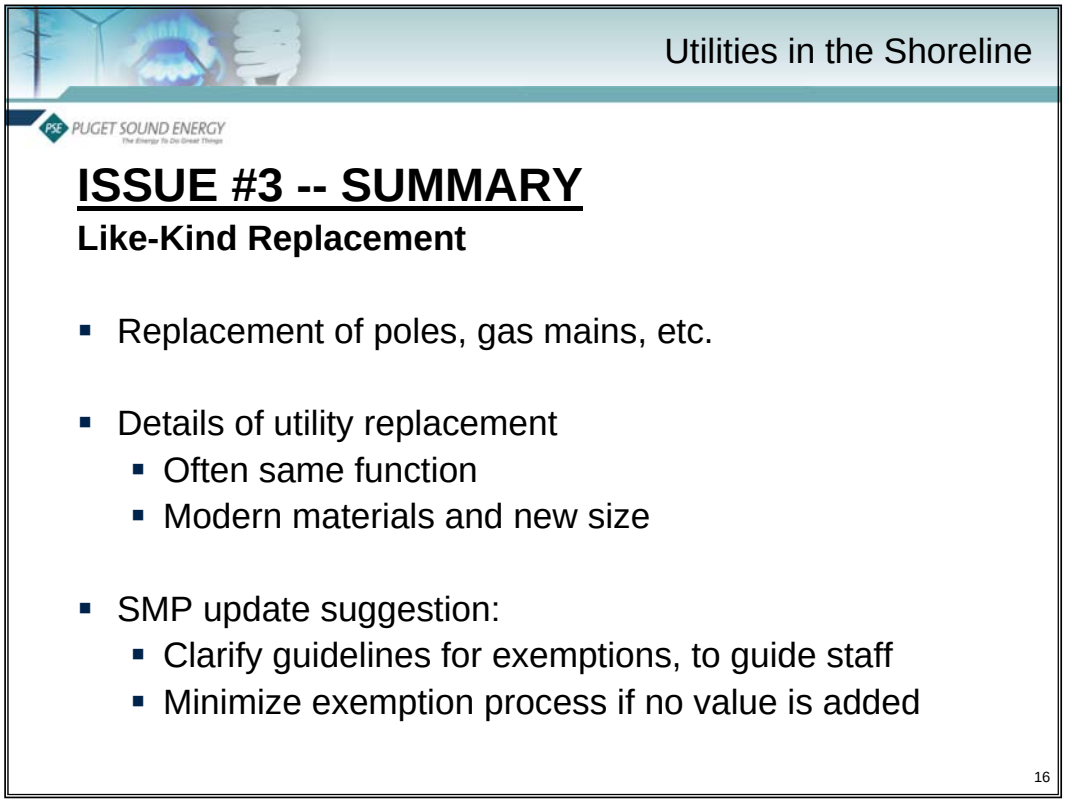
Example of gas main suspended on bridge

Avoids trenching through or boring under stream




The SMP update process is an opportunity to more clearly distinguish what is exempt, giving direction for what is to be deemed a replacement utility facility versus a new installation. This is also an opportunity to streamline the process for replacement in upland (non-sensitive areas) and developed areas that are within Shoreline jurisdiction.

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## Summary of Utility Issues

- **Undergrounding Electric Transmission Lines**
- **Vegetation Maintenance**
- **Replacement of Like-Kind Equipment**

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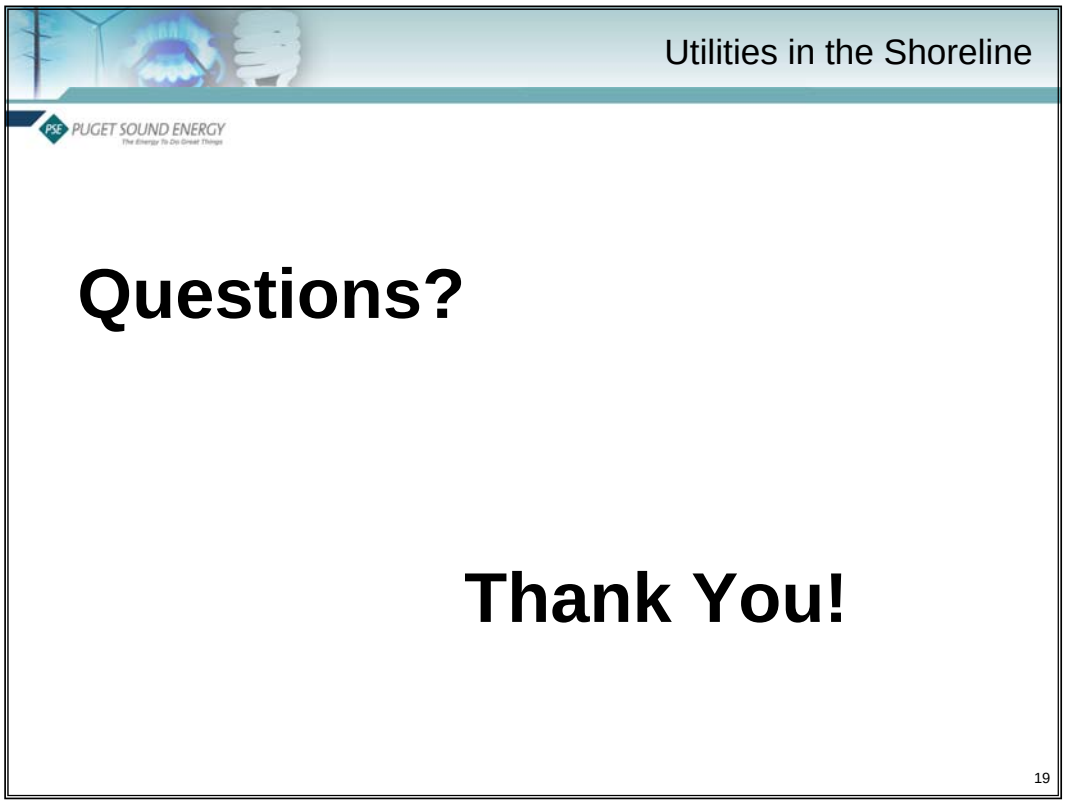
# 3-Point Take-Away

- **Flexibility**
  Write this into your SMP policies and regulations
- "**When Feasible**"
  Add to phrases like, "Underground electric transmission lines, when feasible."
- **Participation**
  Alert your local utility when it is time for their input on your draft SMP update




**Please contact your utilities to discuss SMP updates**

**Let us help you write about utilities to clarify your SMP**