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To: "Roger Kouchi" <rkouchi@wutc.wa.gov>

Cc:

Subject: Additional comments

I'd like to thank you for the opportunity to comment this morning. I do have a couple additional thoughts I'd like to share.

There is a lot of sentiment to "underground" the T&D systems. Although distribution and some lower voltage transmission lines can be undergrounded, that action alone does not necessarily mean better service. Reliability can approach 100% with above ground lines if the IOU aggressively clear their ROW of trees. Not popular with land owners, but this is achievable.

High Voltage transmission line, likewise can be undergrounded, but their reliability then goes down, not up. 230 KV lines have successfully been undergrounded for years using oil filled cables, but they are prone to failure due to moisture, heat, and age, 500 KV transmission has been removed from towers and placed in SF-6 containers. These "Busses" could easily be undergrounded for a cost, but again the reliability goes down, and the cost rises tremendously. SF-6 itself is a green house gas and must be closely monitored to prevent leaks. When SF-6 equipment does fault, it becomes a hazardous waste, and the clean up cost is very high. Above ground transmission can achieve very high reliability if the trees and brush is kept under control and off ROW trees are removed if they can reach the transmission line when the blow over, or otherwise fall.

If you'd check, you'd see that the BPA experienced very little loss of transmission during this storm. The outages along the Oregon coast were the worst hit due to trees blowing into transmission lines. They did lose a couple structures, but their system remained intact for the most part.

There was some talk about installing generators in communities. That should be a community problem, but any such installation should be by permit only so that safety of the public and utility workers is monitored. Several gasoline stations in the NW already have emergency plugs installed by BPA to allow portable generators to power their pumps for emergency vehicles. This would be a prudent action for all utilities to pursue.

Loggers like to leave fringe trees near the transmission lines as they are the hardest to cut due to the safety involved. WU&TC could increase reliability by getting the laws changed to prevent leaving fringe trees near power lines.. If they don't fall, the utility is forced to remove them for the safety of their lines.

Trees can be removed if a utility is willing to invest the necessary cost to remove them. Bonneville's historic worst performing transmission line has been the Raymond-Cosmopolis 115 kV line on the Washington Coast. The poor performance was due to a very narrow old 34.5 kV line purchased in the early 40's and converted to 115 kV. After reviewing it's outage history, Weyhauser was approached and all the trees along the corridor were purchased and removed. Weyhauser was then allowed to plant slower growing species of trees, and signed an agreement to log them when they reached a height that would endanger the line. The trees were sold to help offset the cost.