

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON
PCN-2**

In the Matter of the Petition of)
)
TILLAMOOK PEOPLE’S UTILITY)
DISTRICT)
)
PETITION FOR CERTIFICATE OF)
PUBLIC CONVENIENCE)
AND NECESSITY)
)
_____)

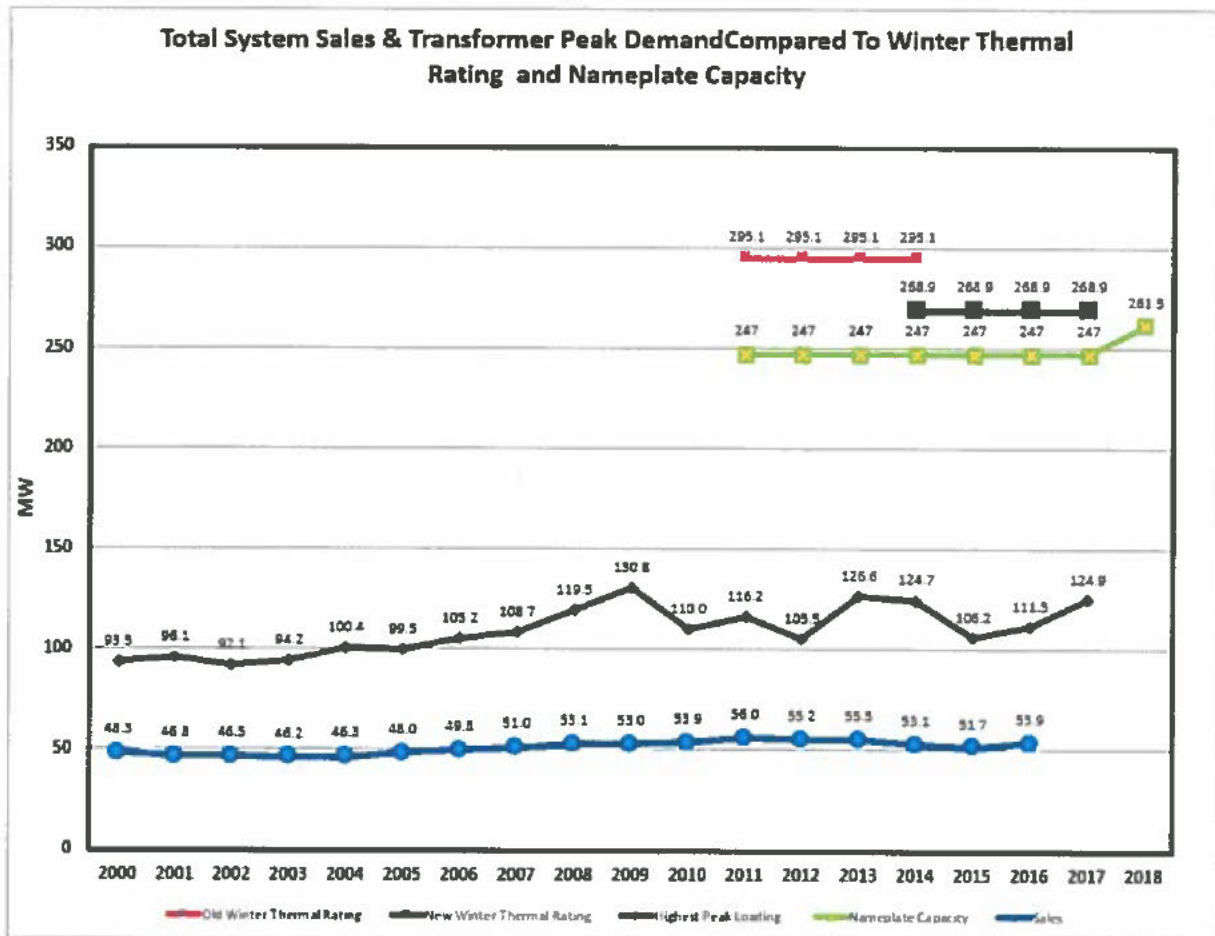
INTERVENOR TESTIMONY OF DAVID MAST

January 14, 2019

David Mast – Intervenor Testimony - Issues List

Purpose

TPUD states that the purpose of the project to build a transmission and substation to Oceanside – Netarts is to adequately provide service to existing and new loads in a portion of Tillamook PUD’s service territory, and to increase safety and reliability of TPUD’s existing system.¹ Below is a chart² of the total TPUD system comparing the actual sales and highest peak loading to the capacity of the system. TPUD’s sales are only 20% of the new nameplate capacity and the all-time maximum peak is only 50% of the new nameplate capacity of the system.



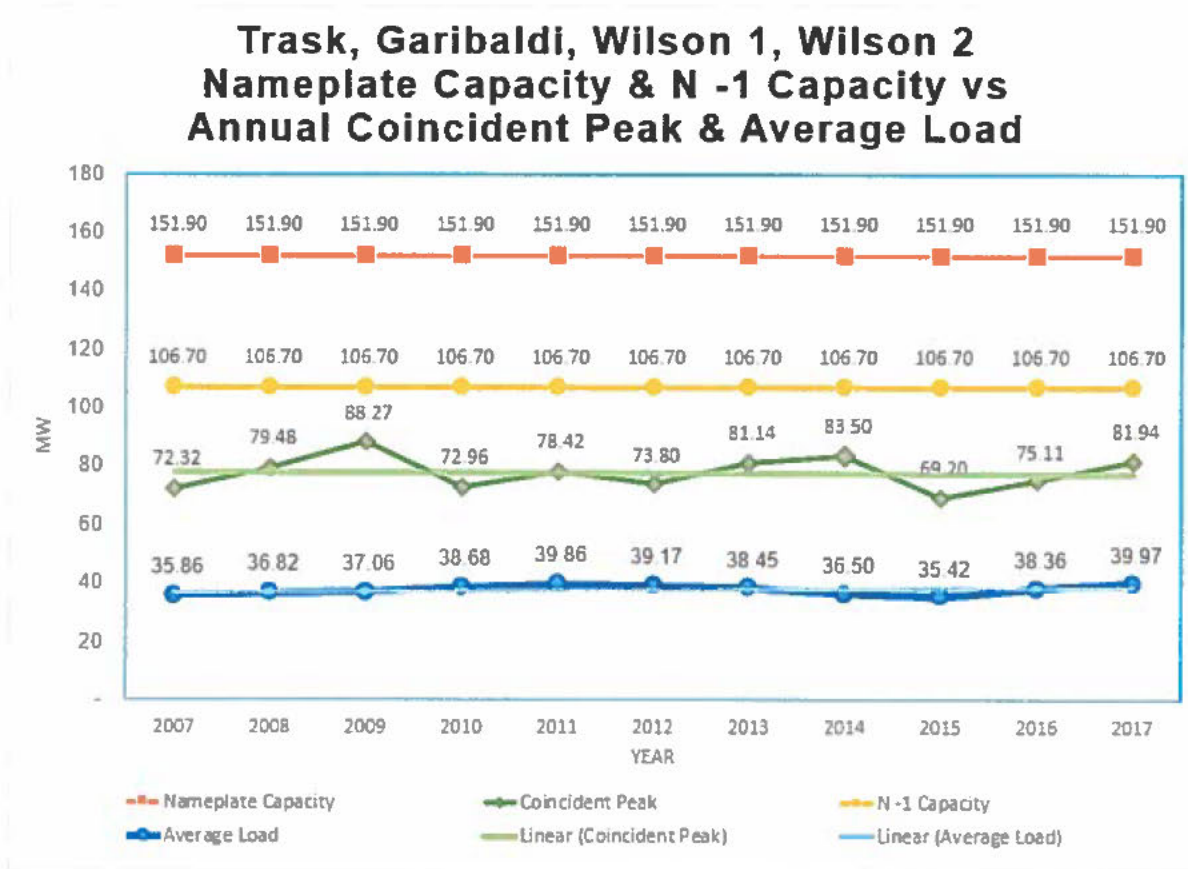
KC Fagen states that capacity concerns exist in the central Tillamook valley where electric power originates from the Wilson, Trask and Garibaldi substations³. To evaluate this statement, I went to TPUD Exhibit 403 W1-W2 Load. TPUD Exhibit 403 W1-W2 load has the Wilson 1 & 2, Trask, and

¹ TPUD Proposed Issues list

² Data is from DR49-C DR49C only went through 2016 and DR19 a b c e DR19a b c e went through 2017

³ TPUD/400 Fagen 1

Garibaldi substation loads for every hour of every day. I summarized the data from the TPUD Exhibit and developed the chart shown below.



The total capacity of the 4 substations that feed the central valley and Oceanside – Netarts is 151.9 MW. The N -1 capacity is 106.7 MW. The maximum peak which occurred in 2009 was only 58% of the capacity of the 4 substations and only 83% of the substations’ N -1 capacity. The average load on the substations was 37.83 MW. That is only 24.9% of the substations’ total capacity and only 35.4% of their N -1 capacity.

From the data, I see that TPUD is able to adequately provide service to existing and new loads without needing to build a transmission and substation to Oceanside – Netarts.

Necessity

TPUD has based their argument for necessity on load growth, both in the total system and specifically on Wilson River T1 & T2. When PUC staff asked how TPUD got their load growth numbers for the total system (Staff DR 49), TPUD states *“The 1.1 percent load trend is based on historic load data and used the trending tool in MS Excel. See Exhibit TPUD-Staff-DR49-c worksheet Sheet1, cell L61. Two time periods*

were reviewed, 1972 to 2016 and 1999 to 2016⁴. TPUD's analysis is faulty because TPUD staff did not take into consideration that during the trended period of 1999 to 2016, in 2009, Tillamook County Creamery came on line with an electric boiler which took an average of 4.2 MW per hour of the 54.2 MW total of the system. That was 7.75% of the total load on the entire TPUD system. The trend line falsely assumes that a 4.2 MW electric boiler is going to be added every 5 years. The TCCA boiler usage is so large that it is 80+% of the entire usage of the Oceanside-Netarts area.

DR49-C												
TCCA Boiler							Cents					
		<u>MWH Purch</u>	<u>& Whsl Purch</u>	<u>MWH Purch WO TCCA Boiler</u>	<u>Power Sply Exp</u>	<u>per kWh</u>	<u>Avg MW</u>	<u>Avg MW of TCCA Boiler</u>	<u>Avg MW WO TCCA Boiler</u>			
-1.46%	2000	424,552	425	8,591	415,961	13,408,317	3.10	48.33		47.35		
-3.51%	01	409,635	410	9,640	399,995	13,168,462	3.14	46.76		45.66		
-0.49%	02	407,607	408		407,607	14,355,253	3.52	46.53		46.53		
-0.66%	03	404,929	405		404,929	14,863,084	3.67	46.22		46.22		
0.39%	04	406,518	407		406,518	14,720,157	3.62	46.28		46.28		
3.51%	2005	420,797	421		420,797	14,860,191	3.53	48.04		48.04		
3.61%	06	435,999	436		435,999	15,078,891	3.46	49.77		49.77		
2.55%	07	447,117	447		447,117	14,275,549	3.19	51.04		51.04		
4.30%	08	466,357	466		466,357	11,635,767	2.50	53.09		53.09		
-0.35%	09	464,714	465	13,018	451,697	14,758,955	3.18	53.05		51.56		
1.60%	2010	472,147	472	35,575	436,572	15,042,643	3.19	53.90	4.06	49.84		
3.89%	11	490,504	491	38,750	451,753	14,938,953	3.05	55.99	4.42	51.57		
-1.07%	12	485,279	485	38,714	446,564	16,551,235	3.41	55.25	4.41	50.84		
0.20%	13	486,248	486	39,834	446,414	17,293,955	3.56	55.51	4.55	50.96		
-4.34%	14	465,149	465	37,812	427,337	17,785,638	3.82	53.10	4.32	48.78		
-2.70%	2015	452,591	453	30,530	422,061	17,192,295	3.80	51.67	3.49	48.18		
Est Jm 6/29/16	4.82%	16	473,482	473	36,388	437,094	18,801,600	3.97	53.90	4.14	49.76	
							Average 2010 - 2016		54.19		4.20	49.99
							Boiler as a % of total load		7.75%			

The TCCA boiler coming on line in 2009 has significantly distorted TPUD's trend line upward and has given TPUD a false assumption about the future growth of the TPUD system.

TPUD made a load forecast in 2012 and it is the most recent official load forecast. (Staff DR 49). TPUD noted that to the PUC in DR49. The 2012 forecast shows a growth rate of approximately 0.43 to 0.52 percent.⁵

To verify if 0.45% growth was a reasonable number, I compared the actual loads to projected loads and actual system peaks to projected system peaks from 2012 – 2017. I concluded 0.45% was a reasonable growth estimate because actual loads and system peaks were lower than the 2012 projections of 0.45%. The data is in a table titled Actuals vs Projected 2012 – 2017 and is located below.

⁴ TPUD Response to Staff DR49

⁵ TPUD Response to Staff DR49

ACTUALS VS PROJECTED 2012 - 2017

TPUD 2012 Forecast

**Annual Electricity
Sales
MW**

**Actual Annual
Electricity Sales
MW**

Year	<u>.45% Growth</u>	<u>2012 - 2017 Actual</u>
2012	458,306	460,768
2013	459,581	468,865
2014	460,907	451,861
2015	462,897	434,204
2016	465,323	455,919
2017	467,367	484,381
Total	2,774,381	2,755,999

TPUD 2012 Forecast

**Peak Demand
MW**

Actual Peak

**Demand
MW**

Year	<u>.45% Growth</u>	<u>2012 - 2017 Actual</u>
2012	116	105
2013	117	127
2014	117	125
2015	118	106
2016	118	111
2017	119	125
Total	704	699

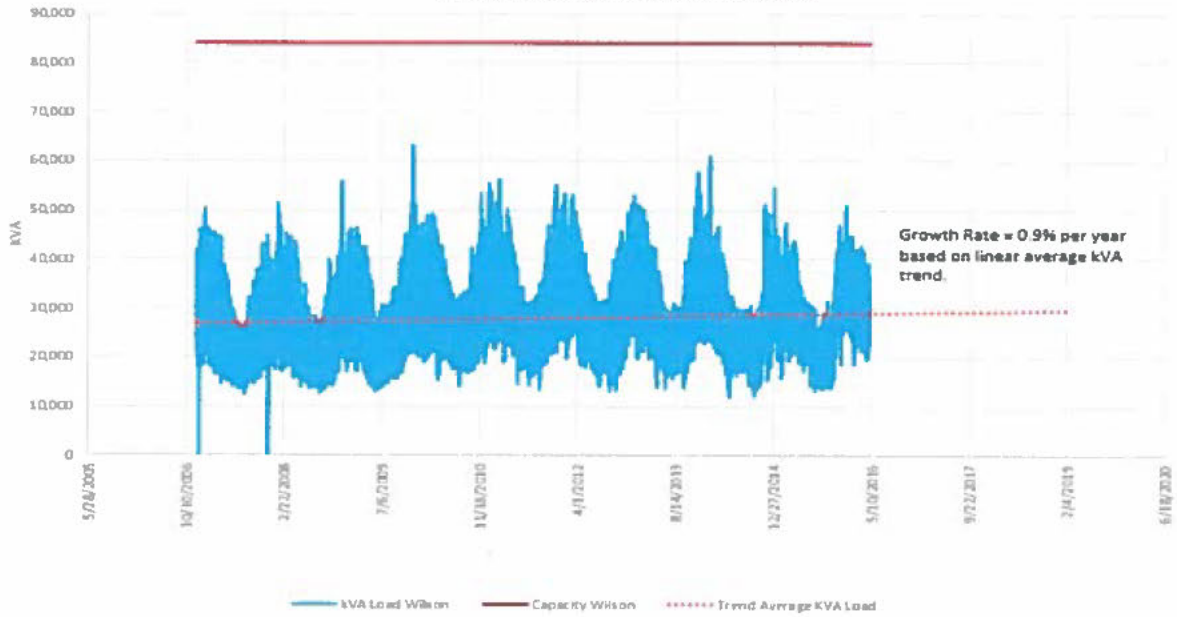
The 1.1% growth number is overstated because of the boiler and a 0.45% growth is a more accurate growth number.

In his follow up testimony, KC Fagen reports a growth of 0.9259% per year for Wilson 1 & 2⁶. KC Fagen's 0.9259% growth for Wilson T1 & T2 is based on the load trends of the Wilson River 1 & 2 from 2006 – 2016. His analysis has the same major error and is also significantly distorted upward because it also ignores the fact that in 2009 the TCCA boiler came on line. His chart gives a false assumption about the future growth of Wilson River 1 & 2.

I took TPUD's data that KC Fagen used for his trend line and developed a trend line from 2009 – 2016 to eliminate the load distortion that occurred when the boiler came on line in 2009. The trend line for 2009 – 2016 based on TPUD's data shows that growth on Wilson River 1 & 2 was flat, showing that all the growth KC Fagen is talking about, in fact, came from the TCCA boiler going on line. (Data is from Staff DR 19 a b c e)

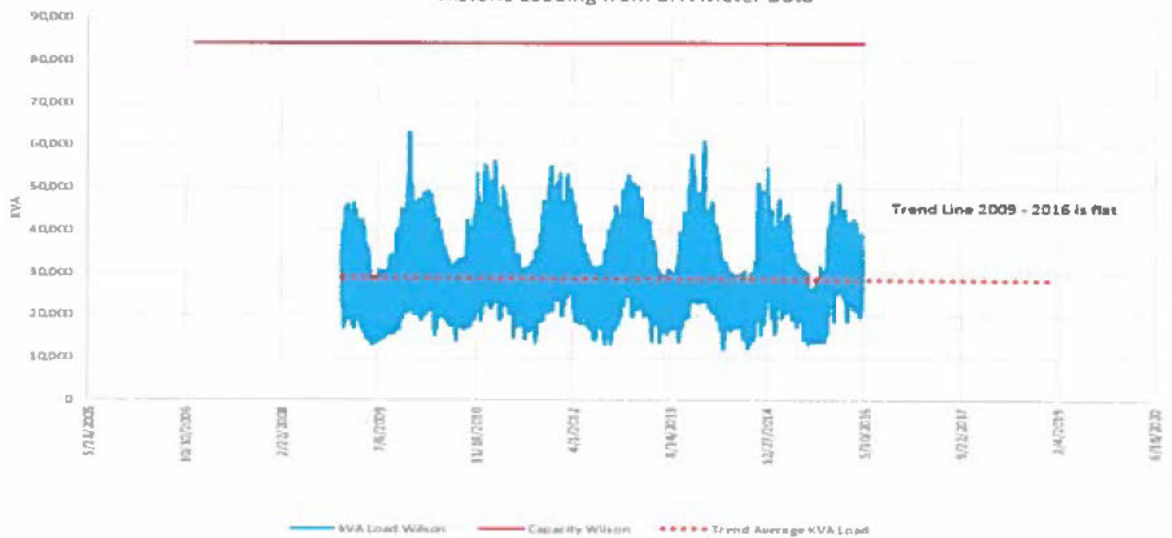
⁶ TPUD/400 Fagen/10

Wilson Substation (Serves Tillamook, Bay City, Netarts, Oceanside, Cape Meares)
Wilson Transformer 1 and 2
Historic Loading from BPA Meter Data



KC Fagen's Chart – Wilson 1 & 2 Growth

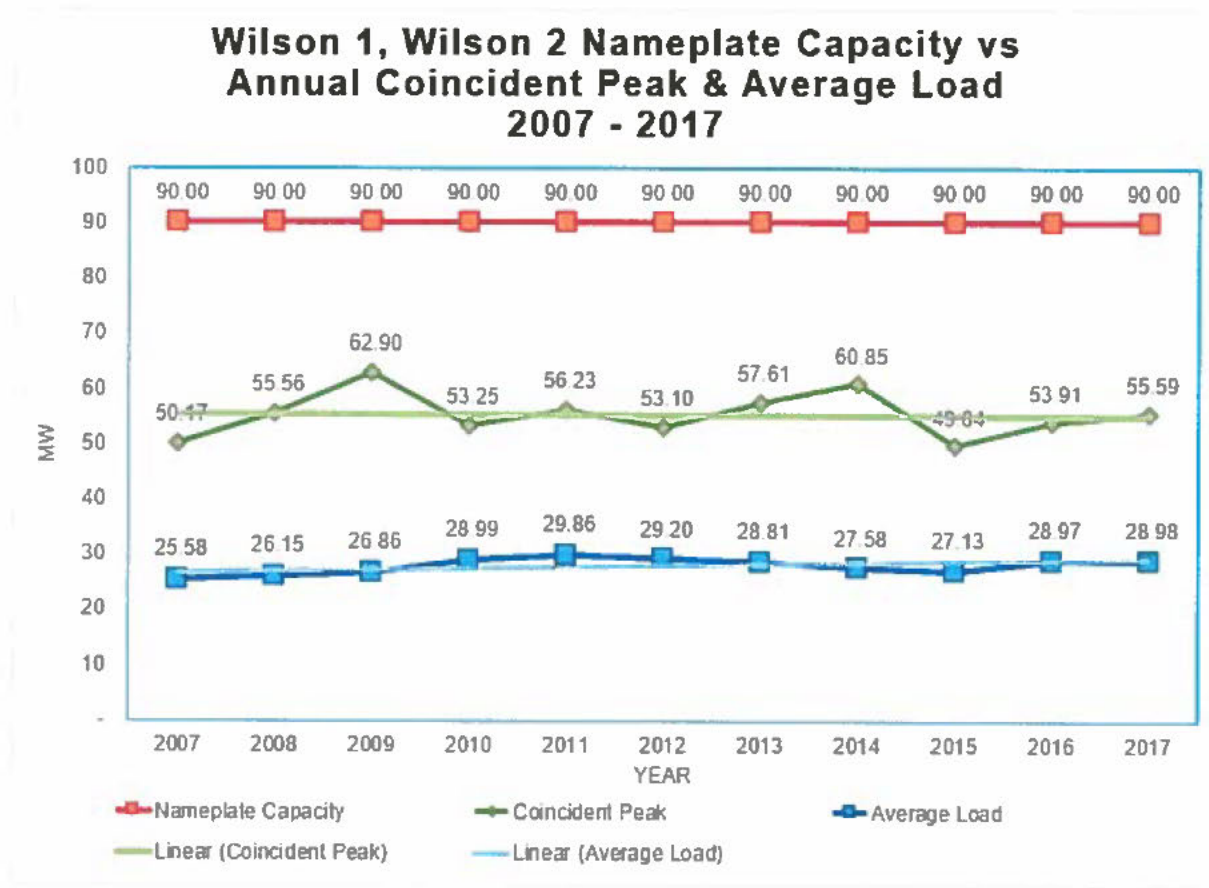
Wilson Substation (Serves Tillamook, Bay City, Netarts, Oceanside, Cape Meares)
Wilson Transformer 1 and 2
Historic Loading from BPA Meter Data



Same TPUD data as KC Fagen's just charted from 2009 - 2016

KC Fagen's 0.9259% load growth number is a significantly distorted number. The 2012 official forecast was for a total system growth of 0.45%. Actual growth from 2012 – 2017 in the total system was below 0.45%. Growth of the 4 substations that serve the central valley is only 0.20%. Wilson T1 & T2 show no growth in 2009 – 2016. The projected growth in the 2019 Budget is only 0.5%⁷. Nowhere do any of the growth numbers come close to the 0.9259% he is using to justify the need for the transmission line and substation.

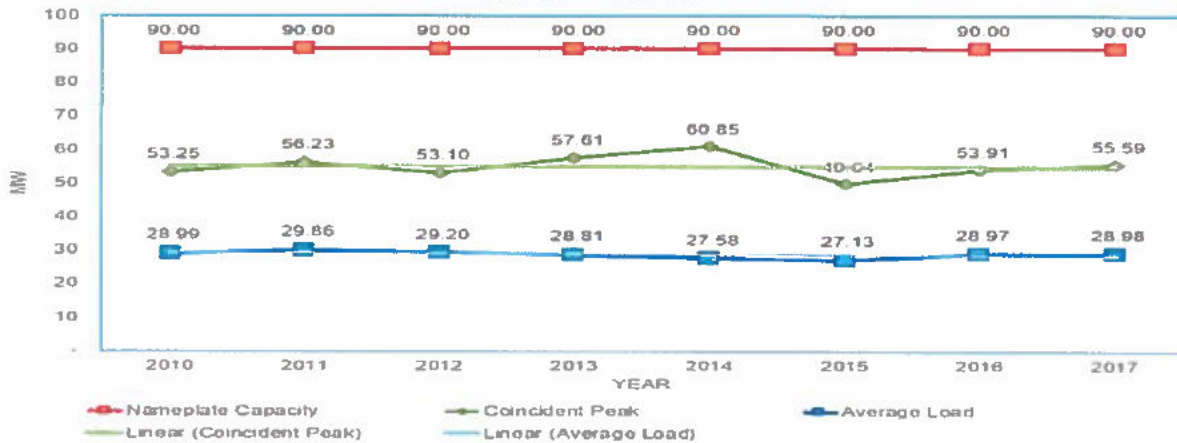
Below, I have graphed the average loads and coincident peaks for Wilson 1 & 2. This data is also from TPUD Exhibit 403 W1-W2 load. Notice the growth in the average load between 2008 and 2009 because of the addition of the TCCA boiler. You can see that the maximum load Wilson 1 & 2 is only 70% of capacity and average load is only 33% of capacity.



Below, I have graphed the average loads and coincident peaks for Wilson 1 & 2 starting in 2010 after the 4 MW TCCA electric boiler went on line. You can see that the coincident peaks and average loads of the Wilson 1 & 2 after 2009 are flat.

⁷ 2019 TPUD Budget Page 1

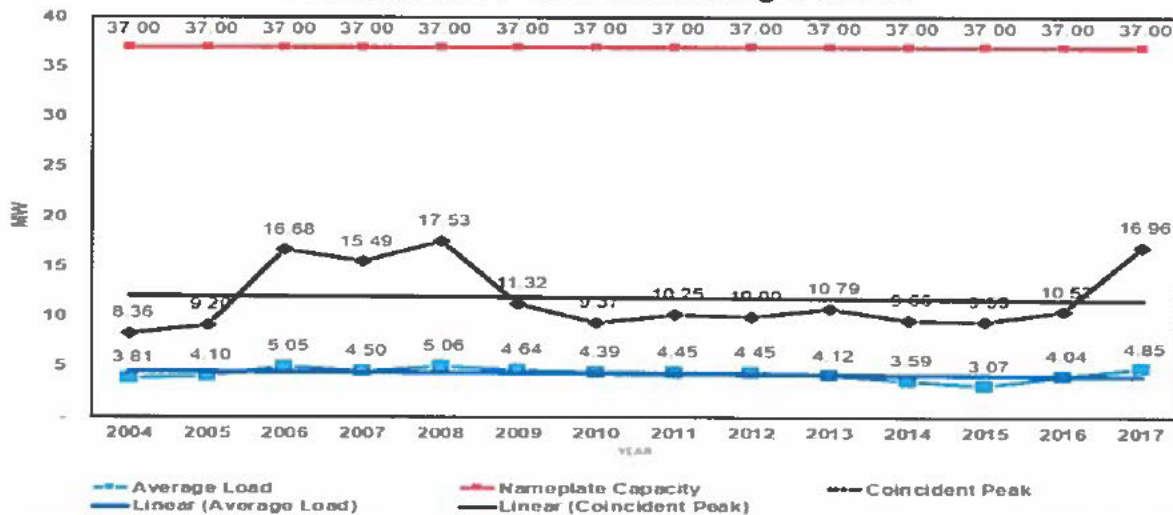
Wilson 1, Wilson 2 Nameplate Capacity vs Annual Coincident Peak and Average Load 2010 - 2017



KC Fagen states that with his growth factor and 2018 adjusted to the 2009 coincident peak, the 2018 peak demand would be 67 MW.⁸ A weather adjusted system peak for 2018 at 67 MW divided by the 90 MW transformer capacity of Wilson T1 & T2 gives a loading of 74%. This does not bolster the argument that more capacity is needed at Wilson T1 & T2. A better solution would be to reconfigure feeders and enlarging conductors and utilizing or adding transformer capacity at Garibaldi or Trask.

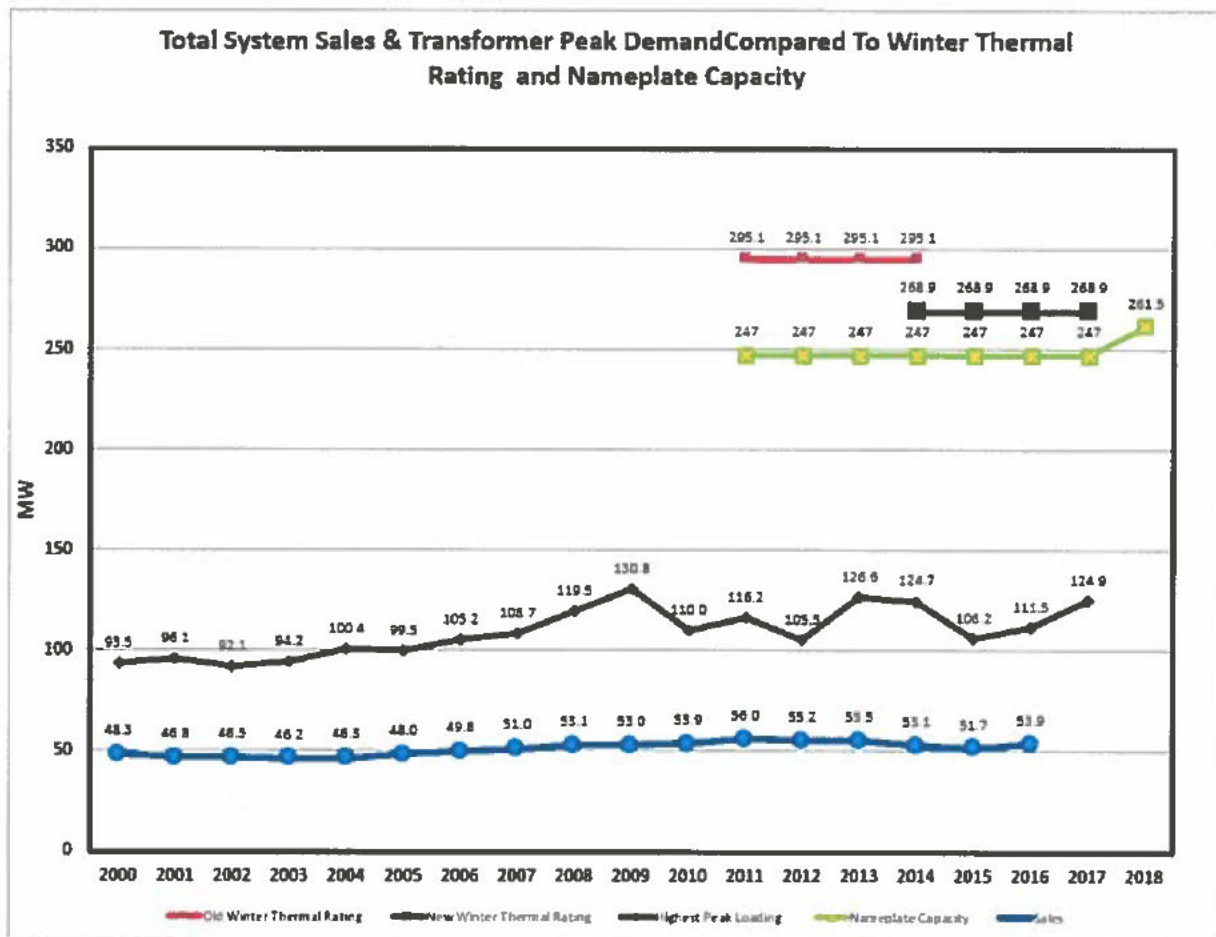
The Trask substation is only loaded at 12% of capacity and the highest coincident peak was only 47% of capacity. Moving feeder 51 to the Trask would relieve 5 – 12 MW from the Wilson River T1 & T2 and it would put the Task at a more efficient level. The \$16 transmission line/substation is planned to take load off the Wilson Rivers. Moving feeder 51 to the Trask accomplishes the same thing for a lot less cost.

Trask Substation Nameplate Capacity vs Annual Coincident Peak & Average Load



⁸ TPUD/400 Fagen/11

In TPUD/ 400 Fagen/8, he indicates if one were to trend out the 2009 peak at 1.06% to 2018 the 2018 peak would be 141 MW⁹. TPUD has stopped showing thermal capacity in the board reports. As of September 2018, only transformer nameplate capacity is shown. However, a system transformer nameplate capacity of 261.5 is only loaded at 54% with the 2018 system peak weather adjusted to 141 MW. Get wild and predict a new system peak of 200 MW. With current nameplate capacity of 261.5, this is still just a loading of 76.6% of the nameplate capacity. It is not in the customers best interest to add unneeded capacity.



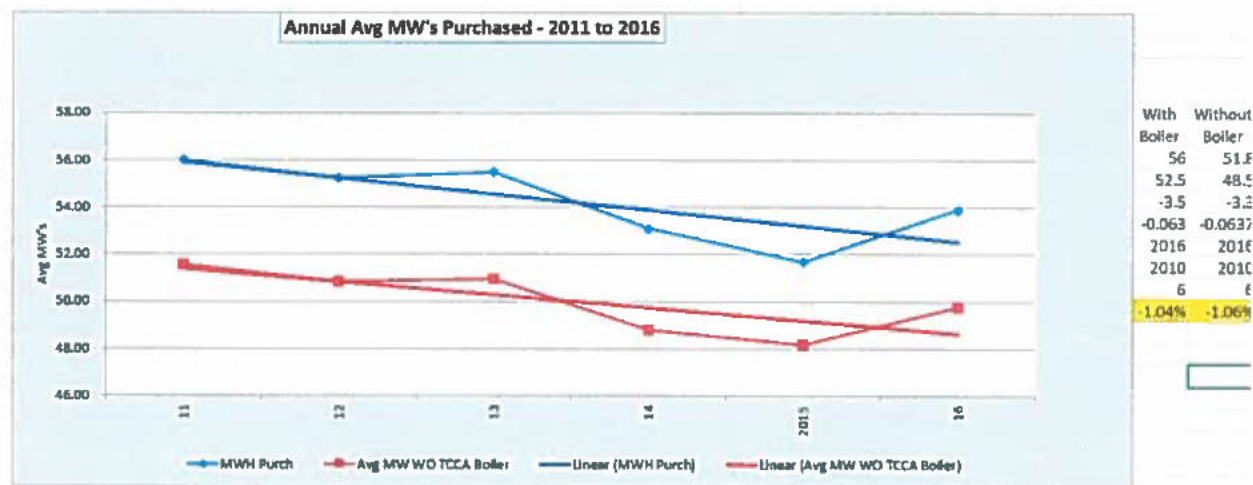
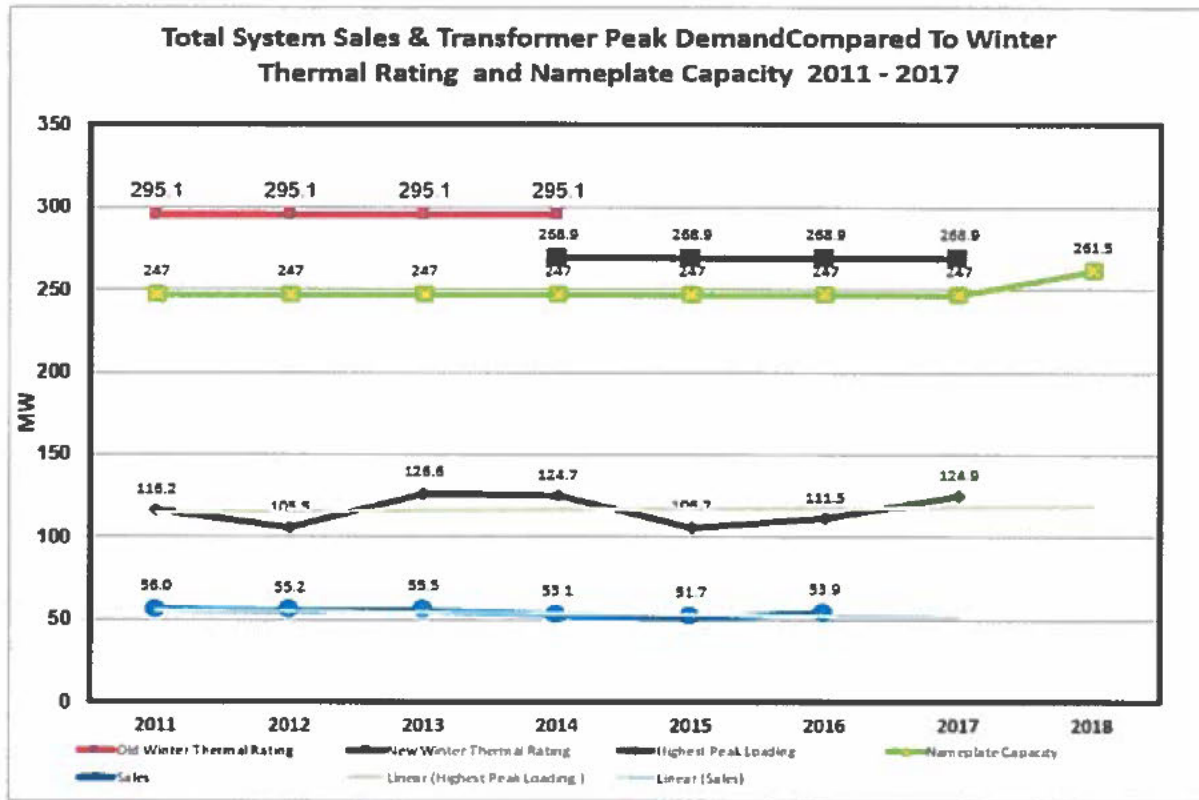
TPUD has based their argument for necessity on load growth. Over the last 44 years the sales growth was only 20 MW.¹⁰ During this period at least 3 new substations were added to the system, increasing the capacity by 105.9 MW's.¹¹

⁹ TPUD/400 Fagen 8

¹⁰ DR49-C

¹¹ TPUD/204 Fagen/1

In PCN-1, Umatilla Electric Cooperative has experienced a 70% growth in the last 5 years, with 17% occurring in the last year.¹² During the last 5 years, TPUD is showing a 1% decrease in average system purchases. With the 105 MW TPUD has already added to the system, TPUD already has the capacity to adequately provide service to existing and new loads in a portion of Tillamook PUD's service territory without the need to build an additional substation and transmission line. We do not feel TPUD has made the case for a Certificate of Convenience and Necessity.



¹² Page 5 – UEC's POST-HEARING BRIEF

From DR49-C

Safety

The transmission line goes through 36 acres of forest which are buffeted by high winds that routinely peak at over 70 mph. These winds are cross winds to the transmission line making it more vulnerable to being susceptible to being blown down and starting a fire as happened in California.

California electric utility could face murder charges for wildfires, AG says

By Dakin Andone and Marlena Baldacci, CNN

Pacific Gas & Electric Co., or PG&E, could potentially face a range of criminal offenses if any of the wildfires broke out as a result of the utility failing to properly operate and maintain power lines, per an amicus brief filed in US District Court Friday by California Attorney General Xavier Becerra.

California authorities are investigating PG&E equipment as a possible cause of the Camp fire, the deadliest blaze in state history, burning about 150 miles (240 kilometers) northeast of San Francisco. It has killed at least 48 people, destroyed 130,000 acres and wiped out the town of Paradise.¹³

"The utility could be subject to significant liability in excess of insurance coverage," PG&E said in its filing Tuesday.

The distribution line options will be safer because they are on road rights of ways and does not go through 36 acres of forest.

Practicability

In PCN 1, *"In its response to Staff DR 10, UEC indicates that the entire proposed route—with the exception of a single road crossing—utilizes existing transmission corridors."*¹⁴

In PCN 2, TPUD's focus has always been on a transmission line and substation and there was never any discussion of need or other options that were more practicable. TPUD's proposed route is not a straight path along an existing corridor. It also goes through the center of farm and forest properties severely hampering the efficient use of the properties it crosses. Distribution line options, such as Option 3 along Ekloff, already have existing distribution lines for all but 2 miles and are along a road right of way.

Justification

TPUD's states the "transmission Line will provide many benefits to Tillamook PUD and its customers and will allow Tillamook PUD to continue to meet its obligation to provide safe and reliable service to all of its existing members and future members."¹⁵ TPUD uses the aging feeders as justification for the transmission line and substation. In their petition TPUD states *"The existing 24.9 kV line is aging, has limited capacity and poor reliability, and has subjected Tillamook PUD customers to long outages of*

¹³ PG&E plunges after draining credit facilities amid fire costs

Jim Efstathiou Jr. and Molly Smith - Bloomberg - Wednesday, November 14, 2018

¹⁴ Page 9 – UEC's POST-HEARING BRIEF

¹⁵ Proposed Issues List

increased frequency.”¹⁶ The problem is not one of capacity but one of overloaded conductors. The system can handle a peak of 141 MW but can the conductors? There are other alternatives to solving the reliability issue such as rebuilding the 50 year old feeders with new more robust conductors. Option 3 adds capacity to the Wilson River by utilizing the lightly used Trask substation and more efficiently uses the capacity TPUD already has. Option 3 increases reliability for coastal communities without increasing outage to Tillamook as the transmission line does. Since Option 3 provides similar benefits at a lower cost, the transmission line cannot be justified.

Spatial Information

TPUD has never provided information on feeders as to where they go, could they and how can they be switched from one substation to another. Would it not be better to switch feeder 51 from the Wilson to the Trask or provide redundant service to Oceanside – Netarts from another feeder from the Trask. KC Fagen states “The way TPUD’s system was constructed, there is no direct connection between the central Tillamook valley or the Oceanside/Netarts areas and the Neskowin or other areas if the Districts service territory.”¹⁷ So the focus has been on the 4 substations for the N -1 calculations. However, the January Ruarlite points out other substations are available as alternate power sources.

the Beaver Substation was more than 70 years old and showed signs of power transformer failure.

The new substation features updated power transformers and modernized equipment in the control building. Improvements include an increased reliability of electric service in the Beaver and Blaine areas, and the availability of an alternate power source for the Hebo and Trask service areas.

PUD Projects

Beaver Substation

The project to rebuild the Beaver Substation in south Tillamook County has been completed. As you may recall,

TPUD/205
Fagen/50

- Transferred 4 MVA to South Fork and Mohler substations to reduce loads on Garibaldi and Wilson T1
- There are areas that have poor voltage and overloaded conductors

¹⁶ Page 3 – TILLAMOOK PEOPLE’S UTILITY DISTRICT PETITION FOR CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY

¹⁷ TPUD/400 Fagen/2

Also TPUD/205 Fagen/50 points out that other transformers are available but the conductors are overloaded. The weak areas are the conductors not the substation capacity. It would be more effective to upgrade the conductors and more effectively link them to other little used substations.

Cost Information

TPUD is said to have chosen the transmission line because it would have the lowest per unit cost of capacity and possess a longer useful life. I disagree. Why is paying for capacity that doesn't get used a better purchase? Using KC Fagen's own growth number, it would take 38 years before you have used up the current Wilson 1 & Wilson 2 capacity.¹⁸ Option 3 provides similar benefits at a lower cost; therefore, the transmission line cannot be justified.

Financial Feasibility

The initial project cost was \$10 million on a revenue stream of \$40 million. The current project costs is \$16 million with a revenue stream of \$38 million. The rate payers will need to absorb basic rate increases now for something that will not be used for 38 years. TPUD's revenues are down because sales are down¹⁹ so the revenues to pay for the project are not there. In addition, in August 2018, the TPUD board approved incurring a bond debt of \$46 million.²⁰ The 2018 Construction Work Plan includes projects totaling \$63.9 million.²¹

Consent of landowners

TPUD has received many letters in opposition the transmission line and substation.

The Tillamook County Creamery Association:

We urge the PUD Board of Directors to:

- Continue the public process—rather than exercising eminent domain—to find a route that minimizes impact on agricultural land as well as community infrastructure.
- Demonstrate the impact to PUD members and the payback schedule for the TOTL investment.
- Consider whether a demand response partnership with TCCA would reduce the need for the added redundancy provided by the TOTL.
- Consider alternative infrastructure development that minimizes the need to run the TOTL through farm land. We would like to see the PUD share a detailed feasibility analysis of upgrades to the Wilson River sub-station and the existing lines compared to the proposed route.
- If it becomes necessary to site a route through farm land, compensate land owners fairly for the easement as well as the cost to their business, using a formula that reflects a competitive price for the land and loss of business.

Mizee February 5 p17.

TPUD has not done any of this

¹⁸ Doris Mast/302 Mast/1

¹⁹ Doris Mast/306 Mast/1

²⁰ TPUD August 2018 Board Minutes published in the September 2018 Board Report

²¹ TPUD 2018 Construction Work Plan Table 2-1-1

Oregon Farm Bureau & Oregon Dairy Farmers Association:

We urge the Tillamook PUD Board of Directors to withdraw its application to the Public Utility Commission, continue to engage with the public on an alternative route that will not impact agricultural land, and construct its route to utilize existing utility corridors. We also request that any easements acquired from agricultural land be negotiated with impacted landowners and be based upon market rates for commercial/industrial land.

Mizee February 5 p20.

Comments from Stimpson Lumber Company to Tillamook Board of Commissioners May 7, 2018.

Dear Board of Commissioners,

The proposed route W2 over Stimson Lumber Company's Property is unacceptable to Stimson Lumber Company for the following reasons:

1. The initial footprint removes 36 acres of high-quality timber producing ground.
2. The shadow effects of a transmission line are difficult to measure but can impact the surrounding forest acres in many negative ways.
 - a. Logistics of forest operations from harvesting to herbicide applications become very difficult and in some cases impossible. Cable logging systems and transmission lines are very incompatible from a safety standpoint and logistics of harvest operations. All of which add to increased costs to operations.
 - b. Increased vandalism runs hand in hand with the introduction of power line corridors with increased events of garbage dumping, off road use and environmental impacts. Stimson can provide a tour of such negative impact upon request.
3. There are other reasonable alternatives that help to mitigate the conflicts in land use.
 - a. Hwy 131 transmission line with a larger R/W along the roadway. Redundancy, safety and dependability can be enhanced and impacts to forestlands are minimized and consolidated.
 - b. Option 3 along Eckloff Road which utilizes existing County Road R/W therefor consolidating impacts to forest lands.

Tillamook PUD has been arrogant and has not had any public meetings to discuss other alternatives. In fact, Ed Jenkins a TPUD board member summed TPUD's attitude well when he replied to the Oregon

Farm Bureau & The Oregon Dairy Farmers Association.

TPUD and I know far better than you do the value of the agricultural and forestry industry and its impact on the economy of Tillamook County. How many cows do you think would get milked, how many pounds of cheese would be made or logs processed if it were not for the reliable, affordable electric power supplied by TPUD? If you had done your homework you would have realized that the primary purpose of the TOTL is to reduce the electricity load on the Wilson River Substation which supplies power to the Tillamook County Creamery Association and to Hampton Lumber; two of the county's largest employers. The Wilson River Substation is approaching its maximum capacity. Maybe TPUD should "throw in the towel" and when the power to TCCA is interrupted for a period of time and the farmers county wide have to dump their milk, the few farmers opposing the TOTL will be tarred and feathered and run out of the county.

Speaking for myself as a TPUD Director, I would not support any motion to withdraw our application to the Public Utility Commission and I will continue to fight for what is best for the majority and try and reconcile with a few.

Upon approval from the PUC, TPUD will try to bulldoze all opposition into submission even though the transmission line and substation are not necessary to adequately provide service to existing and new loads in a portion of Tillamook PUD's service territory.

Alternatives

Rebuild Feeder 51 to increase reliability and provide for growth in Netarts-Oceanside area. Install a larger transformer at the Wilson River Substation—a project that TPUD has already planned for Fall 2018. Add a redundant source of power by either connecting an existing distribution line from: (1) Trask substation to Tillamook River Road, then to Eckloff Road (existing distribution along both would be upgraded, new line would be installed where needed) which connects to Hwy 131 where it would connect to Feeder 51 and/or (2) connecting a distribution line from Cape Meares to Netarts-Oceanside area along Bayocean Rd (existing line would be upgraded) and Cape Meares Loop Road—a new distribution line and connection that PUD already has planned.

Installation of a transformer that is 12 MW's larger than the current aged one is slated by TPUD for the Fall of 2018 at the Wilson River substation. As a result, the existing distribution route/line from the Trask could carry half of the load needed for the Netarts-Oceanside area (upgrades where needed), which reduces loading on the Wilson River Substation and increases longevity.

Reliability on Feeder 51 will improve when the aged infrastructure that is causing many of the outages is rebuilt. The redundant source of power allows the outage site to be isolated with fewer customers being without power. TPUD reports that the vast majority of outages associated with Feeder 51 are tree and car/pole incidences. Improved pole placement, pole guarding and vegetation management will greatly increase reliability. Stimson Timber has indicated it will facilitate this effort. Additionally, undergrounding of problem areas is an option. While cost prohibitive on transmission lines, it is much more feasible on distribution lines and can be done.

Rebuilding Feeder 51, cannot be used to provide service back to Tillamook. However, Tillamook can already receive service from Trask and Garibaldi, which can both be upgraded to better serve central

Tillamook--an option which keeps power supplies in Tillamook close to where the large commercial users are. In contrast, Option 4 ties up all extra capacity from a new substation on what TPUD states is the most unreliable feeder in the system. The proposed scenario has a transmission line carrying the extra capacity Tillamook needs all the way to Oceanside, then back to Tillamook on rebuilt Feeder 51.

Both the Eckloff route and the Bayocean/Cape Meares Loop route would provide for the upgrade of Feeder 51 in its entirety. This rebuild when constructed with new materials would increase capacity of the Netarts-Oceanside area dramatically. The Eckloff Route used in conjunction with the Bayocean/Cape Meares route would provide 3 feeders which is what the transmission line project is planned to provide. The Bayocean/Cape Meares route would provide redundancy to Cape Meares which has none now and the Bayocean/Cape Meares redundancy is not in the transmission line project.

Both the redundant Eckloff and Bayocean/Cape Meares Loop routes would provide for the upgrade without extended outages in the Netarts-Oceanside and Whiskey Creek areas with minimal interruptions to customers. Additionally, if just Feeder 51 was replaced (without redundancy) this can be accomplished with the TPUD proposed plan of using a large generator to supply power to customers while construction is under way. Also, if the line was rebuilt farther off the road, as Stimson proposed, the line could be built out while existing Feeder 51 was still in use.

All of TPUD's service objectives can be met with the use of distribution lines sited along existing public right of way and by adding capacity at the existing Wilson River substation. Choosing routes that do not require new easements on farm land make them an alternative to the proposed transmission line. The TPUD service objectives can be met without a transmission line and substation in Oceanside and does not need to be located on farm land to meet the need.

Additional Information

In 2007, when this project was started, TPUD forecasted sales to grow 2.0%.²² In 2012, the last official TPUD forecast, sales were projected to grow 0.45%. Actual sales have been below 0.45% and growth on the Wilson River 1 & 2 substations is flat. In spite of the drop in sales and TPUD's excess capacity, TPUD continues to pursue this project.

The Bonneville Power Administration has canceled a costly and controversial transmission line that would have run 80 miles from Troutdale through southwest Washington. . . . As it turns out, after seven years of study, capped by an independent review panel, experts decided the project would have increased the reliability of electricity but would have added far more capacity than the region needed.²³ TPUD's project will also add far more capacity than is needed and less costly alternative projects can increase solve the reliability. This project should be cancelled. Why eminent domain farms and forest lands for a project that cannot be justified.

²² David Mast Testimony page 1 and Exhibit David 1 on 1/12/2018

²³ The Oregonian – Oregon Business News BPA nixes costly and controversial I-5 power line proposal Posted May 18, 2017 Updated May 23, 2017

In PCN 1, the entire proposed route – with the exception of a single road crossing – utilizes existing transmission corridors. The alternative routes considered are less feasible, as they each require several miles of corridor that are not in existing transmission corridors.²⁴

In PCN 2, TPUD's transmission line option requires several miles of corridor that are not in existing transmission corridors. In fact, over 3 miles goes through the center of a forest seriously effecting Stimson's ability to harvest. The Eckloff option 3 corridor that is already in existing transmission corridors and is in a road right of way.

Land Use Information

The route in PCN1 is a direct route through non-EFU land and along an area already utilized as a transmission line

In PCN2, TPUD's proposed route develops a new corridor more Farm Zone F-1, Forest Zone F, Estuary Natural Zone EN, Estuary Conversation Zone EC – 1, Rural Commercial Zone RC, and Rural Residential 2 Acre Zone RR-2 than any of the alternatives and disrupts the scenic area of the bay more than any of the alternatives.

Energy Conservation

The route in PCN1 "from a construction standpoint, conserves energy. It does so by utilizing a straight path along an existing corridor, thereby limiting the amount of line that has to be constructed. The route also avoids the significant parcelization of land thereby retaining the efficient use of the properties it crosses. ²⁵

PCN 2 TPUD - TPUD's proposed route is not a straight path along an existing corridor and goes through the center of farmer and forest properties severely hampering the efficient use of the properties it crosses.

Agricultural Lands

PCN 1 UEC - The route in PCN1 is a direct route through non-EFU land and along an area already utilized as a transmission line²⁶

PCN 2 TPUD - The transmission line route requires several miles of corridor that are not in existing transmission corridors. The transmission line also goes through Farm Zone F-1, Forest Zone F, Estuary Natural Zone EN, Estuary Conversation Zone EC – 1, Rural Commercial Zone RC, and Rural Residential 2 Acre Zone RR-2. The proposed transmission crosses through county overlay zones: flood hazard shoreline and fresh water wetlands.

²⁴ Page 9 – UEC's POST-HEARING BRIEF

²⁵ Page 19 – UEC's POST-HEARING BRIEF

²⁶ Page 17 – UEC's POST-HEARING BRIEF