



DEPARTMENT OF JUSTICE
GENERAL COUNSEL DIVISION

March 2, 2018

Public Utility Commission of Oregon
Attn: Filing Center
201 High Street SE, Suite 100
Salem, OR 97301-1166
PUC.FilingCenter@state.or.us

Re: PCN 2 – Cross-Answering and Reply Testimony

Commission Staff hereby submits for filing the following Cross-Answering and Reply Testimony:

Staff Exhibits 300 - 305 Gibbens
Staff Exhibits 400 - 403 Hanhan
Staff Exhibits 404 - 411 Hanhan – electronic Excel spreadsheet attachments
Staff Exhibits 412 - 413 Hanhan

Thank you for your assistance.

Sincerely,

Johanna M. Riemenschneider
Sr. Assistant Attorney General
Business Activities Section

JLM:pjr/#8798194
Attachments

CERTIFICATE OF SERVICE

PCN 2

I certify that I have, this date, caused to be served Staff's Cross-Answering and Reply Testimony in Docket **PCN 2** upon the parties listed below via first class mail. Parties not on this list have waived paper service and will receive electronic service only.

DON AUFDERMAUER AUFDERMAUER FARMS 1655 WILSON RIVER LOOP TILLAMOOK, OR 97141	MARY ANNE COOPER PUBLIC POLICY COUNSEL OREGON FARM BUREAU FEDERATION 1320 CAPITOL STREET NE SUITE 200 SALEM, OR 97301
BEN HATHAWAY TILLAMOOK COASTAL PLAZA LLC P O BOX 635 TILLAMOOK, OR 97401	GREGORY S. HATHAWAY HATHAWAY LARSON LLP 1331 NW LOVEJOY STREET SUITE 950 PORTLAND, OR 97209
TODD A. JOSI NEW AGE CARWASH 4885 BOQUIST ROAD TILLAMOOK, OR 97401	TAMI KERR OREGON DAIRY FARMERS ASSOCIATION 1320 CAPITOL STREET NE, SUITE 160 SALEM, OR 97301
DAVID MAST 160 BAYOCEAN ROAD TILLAMOOK, OR 97141	DORIS MAST 160 BAYOCEAN ROAD TILLAMOOK, OR 97141
BART MIZEE TILLA-BAY FARMS INC. 620 FENK ROAD W TILLAMOOK, OR 97141	KURT MIZEE TILLA-BAY FARMS INC. 200 FENK ROAD W TILLAMOOK, OR 97141
OREGON FARM BUREAU FEDERATION 1320 CAPITOL STREET NE SUITE 200 SALEM, OR 97301	ERIC L. PETERSON ERIC AND LORETTA PETERSON FARM 140 BAYOCEAN ROAD TILLAMOOK, OR 97141

KRISTI SHERER
505 TOMLINSON ROAD
TILLAMOOK, OR 97141

BRYCE SMITH
955 GOODSPEED ROAD
TILLAMOOK, OR 97141

DATED this 2nd day of March, 2018.



Johanna Riemenschneider, OSB # 990083
Sr. Assistant Attorney General
Of Attorneys for Staff of the Public Utility
Commission

CASE: PCN 2
WITNESS: SCOTT GIBBENS

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 300

**Cross-Answering and
Reply Testimony**

March 2, 2018

1 **Q. Please state your name, occupation, and business address.**

2 A. My name is Scott Gibbens. I am a Senior Utility Analyst employed in the
3 Energy Rates, Finance and Audit Division of the Public Utility Commission of
4 Oregon (OPUC or Commission). My business address is 201 High Street SE,
5 Suite 100, Salem, Oregon 97301.

6 **Q. Have you previously provided testimony in this case?**

7 A. Yes. I sponsored Staff/100 filed on February 7, 2018, as well as Staff Exhibits
8 101 through 111.

9 **Q. What is the purpose of your testimony?**

10 A. In this testimony I will discuss the issues and concerns brought up by
11 Intervenors in their opening round of testimony and comments. I will focus on
12 the issues which involve the practicability, justification, and land use regulation
13 standards. Staff witness Hanhan will cover the issues associated with
14 necessity and safety in Staff/400.

15 **Q. Did you prepare any additional exhibits for this docket?**

16 A. Yes. I prepared the following exhibits, in addition to Exhibits 101-111 presented
17 with my opening testimony:

- 18 301. TPUD Response to Staff Data Request (DR) No. 13
- 19 302. TPUD Response to Staff DR Nos. 1 and 10
- 20 303. Excerpt from TPUD Response to Staff DR No. 39
- 21 304. Excerpt from TPUD Response to Staff DR No. 44
- 22 305. TPUD Response to Staff DR No. 46-1

23 **Q. How is your testimony organized?**

24 A. My testimony is organized as follows:

25 Issue 1, Practicability.....3

1	Issue 2, Justification	9
2	Issue 3, Land Use Compliance.....	15
3	Other Issues	19

ISSUE 1, PRACTICABILITY

1
2 **Q. Did any intervenors bring up concerns about the practicability of**
3 **TPUD's proposal?**

4 A. Yes. All of the following Intervenor had comments which in Staff's view
5 relate to the practicability concerns of TPUD's proposal.

6 1. Don Aufdermauer;

7 2. Tilla-Bay Farms, Inc.(Tilla-Bay Farms);

8 3. The Oregon Farm Bureau Federation (OFB) and Oregon Dairy Farmers
9 Association (ODFA);

10 4. The Oregon Coast Alliance (ORCA); and

11 5. Eric Peterson on behalf of Eric and Loretta Peterson Farm.

12 **Q. Please list the concerns raised by the Intervenor.**

13 A. Several Intervenor raised objections regarding the chosen route,
14 specifically Don Aufdermauer, Tilla-Bay Farms, OFB et al., and ORCA.
15 ORCA also stated that the TPUD had not demonstrated 1) that the cost to
16 the customers were within reason and that 2) the project is effective or
17 efficient. Eric and Loretta Peterson stated in testimony that the TPUD should
18 not issue the CPCN until easements have been negotiated successfully.

19 **Q. Please describe Don Aufdermauer's concern regarding the chosen**
20 **route.**

21 A. Don Aufdermauer summarily states that the preferred route changed several
22 times, including one change which altered the route in order to avoid one

1 land owner's property at the cost of \$500,000.¹ This consideration was not
2 offered to any other land owners.

3 **Q. What is Staff's response to this concern?**

4 A. Staff's understanding is that the route was changed to limit overall customer
5 impacts and when required by the City of Tillamook. Given that the line is
6 necessary, a limited number of options are available to achieve increased
7 reliability at a reasonable cost. As Staff noted in its opening testimony,
8 TPUD has chosen a reasonable route and taken steps within reason to limit
9 the impacts to land owners.

10 **Q. Please describe Tilla-Bay Farm's concern regarding the chosen route.**

11 A. Witness Kurt Mizee states that "two of the routes proposed already have
12 lines with existing transmission easements passing east-west, neither of
13 these are being utilized by [T]PUD, instead opting for an additional
14 easement."²

15 **Q. What is Staff's response to this concern?**

16 A. Staff asked the TPUD about Mr. Mizee's concern in Staff Data Request (DR)
17 No. 11. In response the TPUD stated:³

18 This [greater right-of-way utilization] route would have added on a
19 third of a mile to the overall transmission line route at a cost of about
20 \$200,000. More importantly, three farms would have had more poles
21 on their property, where some of the poles would have been in the

¹ Don Aufdermauer Testimony at 3 (January 11, 2018).

² Tilla-Bay Farms Inc. Testimony, Mizee/1.

³ Exhibit Staff/108, Gibbens (TPUD Response to DR No. 11).

1 middle of the farm property, including the Mizee property, as
2 compared to the final route selected.

3 Given a lower cost and impact to land owners, Staff finds the chosen route
4 reasonable.

5 **Q. Please describe OFB et al.'s concern regarding the chosen route.**

6 A. Witnesses Mary Anne Cooper and Tami Kerr summarily state that TPUD's
7 analysis of alternative routes is not as comprehensive as it should be. TPUD
8 has relied too heavily on cost as a determining factor and failed to account
9 for the true cost of acquiring easements on agricultural lands.

10 **Q. What is Staff's response to this concern?**

11 A. Given the many different and often competing factors on which the route
12 could be determined, Staff believes that TPUD approached the route
13 selection process with a sufficient mix. TPUD did not consider cost alone,
14 but sited the route based on several factors including: proximity to the
15 existing BPA Tillamook Substation and customers to be serviced by the
16 Oceanside Substation, co-location with existing rights-of-way, and
17 avoidance of biological and cultural resources.⁴ Staff found the easement
18 cost estimation reasonable, and even when considering cost overruns of 50
19 percent overall, as discussed in Staff's opening testimony, found the
20 proposed line feasible.

21 **Q. Please describe ORCA's concern regarding the chosen route.**

⁴ TPUD/106, Simmons/32.

1 A. ORCA summarily states that TPUD has not provided a reasonable review of
2 the potential alternative routes. They state that the decision to avoid
3 residential, then commercial, and finally agricultural land does not comply
4 with County code. As such, the evaluation of alternatives is biased and
5 unreasonable.⁵

6 **Q. What is Staff's response to this concern?**

7 A. Staff asked TPUD about its prioritization of residential and commercial over
8 agricultural land in Staff DR No. 13.⁶ Summarily, the utility noted that the
9 City of Tillamook rejected an overhead route that utilized residential and
10 commercial lands more heavily. Further, TPUD noted that this prioritization
11 scheme prioritizes limits on the impact to people over the impact to land.
12 Feedback from the CAG group corroborated this prioritization. There is no
13 potential route path which would not cross agricultural lands, so while a line
14 through the City would reduce the impact to agricultural lands, a large
15 portion of the line would still need to cross over agricultural lands.

16 **Q. Please describe ORCA's concern regarding reasonable cost**
17 **demonstration.**

18 A. ORCA states that the utility's cost estimate relies on assumptions and
19 speculation. The estimate is lacking in that it does not account for
20 "parameters of the easement agreement" on the impact to farming practices,

⁵ Oregon Coast Alliance testimony at 3-4 (December 5, 2017).

⁶ Exhibit Staff/301, Gibbens (TPUD Response to Staff DR No. 13).

1 and omits hidden costs such as the cost of prior failed attempts to site the
2 line.⁷

3 **Q. What is Staff's response to this concern?**

4 A. The Farm and Forrest Impact Assessment report notes that financial impact
5 on farming practices should be minimal. Staff finds the assumptions in the
6 cost estimation to be reasonable. Sunk costs from failed attempts to site the
7 line do not change the current evaluation of the cost/benefit analysis.

8 **Q. Please describe ORCA's concern regarding the effectiveness of the
9 project.**

10 A. ORCA states:⁸

11 The applicant has not demonstrated that the cost to customers is
12 within a reasonable range. As such, the applicant has not
13 demonstrated financial feasibility. The path for the proposed line is
14 not feasible.

15 **Q. What is Staff's response to this concern?**

16 A. Staff's review of the feasibility of the proposed line is provided in Exhibit
17 Staff/100, Gibbens/7.

18 **Q. Please describe Eric Peterson's concern regarding the appropriate
19 course of action for the Commission.**

20 A. Eric Peterson states that it would be inappropriate for the Commission to
21 grant a CPCN prior to the TPUD having completed the needed land
22 acquisition. Further, additional studies and work plans are needed to

⁷ Oregon Coast Alliance Testimony at 3.

⁸ Oregon Coast Alliance February 7, 2018 filing at 4-5.

1 adequately protect the land along the route before the route can be found
2 practicable.⁹

3 **Q. What is Staff's response to this concern?**

4 A. Staff does not believe a CPCN would be necessary if TPUD had secured all
5 of the easements needed for construction of the line. It is intended to be
6 used in the event condemnation proceedings are necessary to secure an
7 interest in land for the transmission line. As such, a CPCN must be
8 approved or denied prior to the acquisition of all required land rights. Staff
9 further believes that the regulatory process for siting the transmission line is
10 meant to ensure adequate protection of the affected lands.

⁹ Eric Peterson Testimony (February 5, 2018).

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ISSUE 2, JUSTIFICATION

Q. Did any Intervenors bring up concerns about the justification of TPUD's proposal?

A. Yes. All of the following parties filed testimony which in Staff's view relates to the justification concerns of TPUD's proposal.

- 1. Don Aufdermauer;
- 2. Tilla-Bay Farms;
- 3. Kristi Sherer; and
- 4. OFB et al.

Q. Please list the issues raised by the Intervenors.

A. All of the Intervenors listed above discussed the negative impact of the transmission line and a lack of justification for this cost. Further, all intervenors except for Kristi Sherer noted that public opinion seemed to be against the construction of the line.

Q. Please describe Don Aufdermauer's concern regarding negative impacts to the public.

A. In testimony, Don Aufdermauer notes that the transmission line will decrease property value, revoke landowner rights, limit land use, and inconvenience those along the route. He further argues that the line will give TPUD the means to engage in ocean energy opportunities.¹⁰

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¹⁰ Don Aufdermauer Testimony at 1-2.

1 **Q. What is Staff's response to this concern?**

2 A. Staff's view of the costs and benefits of the proposed line in which Staff
3 finds that the benefits outweigh the costs is discussed in Exhibit Staff/100,
4 Gibbens/13-14. In regards to wave energy being a primary purpose for the
5 line, Staff did not consider the potentiality of wave energy in its analysis of
6 the necessity of the line. Staff found the line to be necessary to improve the
7 reliability and safety of the electrical grid in the area. Further, Staff found
8 that the proposed transmission line was the alternative in the public interest.
9 As such, the potentiality of wave energy does not affect the determination of
10 a CPCN. However, in an effort of thoroughness, Staff asked the Company
11 several data requests regarding wave energy. In response, Staff found that
12 no board members have any financial relationship or incentive to encourage
13 wave energy, and further that the substation had not been designed to allow
14 for the addition of a wave energy farm.¹¹

15 **Q. Please describe Kristi Sherer's concern regarding negative impacts to**
16 **the public.**

17 A. Similar to Don Aufdermauer's comment, Ms. Sherer believes that the
18 proposed line is being built to facilitate ocean energy. She provides a
19 narrative explanation of the timeline of TPUD's involvement in wave energy
20 projects. Further she also notes that the Wilson substation has had new
21 power circuit breakers, bus work, and metering equipment already

¹¹ Staff Exhibit 302 (TPUD Response to Staff DR Nos. 1 and 10).

1 performed in preparation for the line, which in a sense, determined the
2 ending point of the project before the route was chosen.¹²

3 **Q. What is Staff's response to this concern?**

4 A. As Staff previously mentioned, the necessity and justification of the line spur
5 Staff to recommend approval of a CPCN regardless of wave energy
6 considerations. The end-point of the line at Wilson substation makes sense
7 given the desire to provide flexibility and increase reliability in the area.
8 Although prior investment in the substation before approval of the regulatory
9 process may be unwise, it has no effect on the outcome of the analysis for
10 the Commission. Staff found no evidence of extraneous costs resulting from
11 the utility's desire to facilitate wave energy with the transmission line. As
12 TPUD notes in Staff DR No. 10, "The Oceanside substation is not being
13 designed for additional transmission line connections. If such a project were
14 to materialize, it would likely have to include a significant expansion of the
15 Oceanside substation."¹³

16 **Q. Please describe Tilla-Bay Farms' and OFB et al.'s concern regarding**
17 **negative impacts to the public.**

18 A. Tilla-Bay Farms notes several short and long-term impacts to dairy farming
19 operations which were not mentioned by TPUD in its application. The short
20 term impacts are a result of the construction process on the dairy farm's
21 operations, while the long-term impacts include restrictions on aerial
22 spraying and drone monitoring. Further it alleges that TPUD has a history of

¹² Kristi Sherer filing at 1.

¹³ Exhibit Staff/302, Gibbens.

1 affecting productivity of dairy cattle in the county and raise the concern of
2 stray voltage. Lastly, Tilla-Bay Farms notes that its property is popular for
3 bird watching enthusiasts and close to wetlands. The concern is that the
4 transmission line will affect both the environment and the 700-plus bird
5 species in the area.¹⁴

6 Similar to Tilla-Bay Farms, OFB et al. notes that farming practices will
7 be impacted during construction. Further, aerial application of nutrients
8 could be impacted once the line has been built. Further they note concerns
9 about stray voltage.¹⁵

10 **Q. What is Staff's response to this concern?**

11 A. As Staff noted in its opening testimony, impacts to the land owner are
12 contemplated in condemnation proceedings with the goal of keeping the
13 property owner indifferent. In response to Staff DR No. 46, TPUD notes that
14 the farms will be able to use drones as close as 15 feet from the power line
15 conductors, meaning they will still have the ability to fly above, below, and
16 alongside the transmission line. TPUD also states that construction impacts
17 will be minimal, as each property only has a few poles to install, with large
18 equipment being utilized for a few weeks with smaller equipment during the
19 following few weeks. TPUD also states that aerial pest and weed control
20 measures will impact, on average, 7.6 percent of the total tax lot, and it is
21 common practice to avoid lines when "crop dusting".¹⁶

¹⁴ Tilla-Bay Farms Testimony, Mizsee/2-4.

¹⁵ Oregon Farm Bureau et al November 14, 2017 comments at 2 (February 7, 2018).

¹⁶ Exhibit Staff/401, Hanhan (TPUD Response to Staff DR No. 46).

1 The Farm and Forest Impact Assessment performed by CSA Planning
2 Ltd. notes that “the calculated level of the electric field is less than 0.7kV/m
3 under the line and reduces to less than 0.5kV/m at the edge of the right-of-
4 way. These values are less than other lines that exist throughout the County
5 and which pass through dairy farms.”¹⁷

6 The Utility is considering ways to reduce avian interaction with newly
7 constructed lines in its Avian Protection Plan. They list a greater separation
8 between energized conductors, conductor covers, and proximity to bird
9 landing and takeoff locations among other measures. Further, TPUD states
10 that the US Department of Fish and Wildlife is reviewing its plan to ensure
11 no other measures to protect avian species are viable.¹⁸

12 **Q. Please describe Intervenor’s concern regarding public support for this**
13 **line.**

14 A. Intervenor noted frustration with the CAG process and limited ability to
15 provide flexible input. They also noted that the majority of the affected land
16 owners do not support the project. As evidence, Intervenor provided letters
17 from the Tillamook County Creamery Association, Oregon Farm Bureau,
18 and Oregon Dairy Farmers Association as well as a signed petition from 14
19 affected landowners opposing the line.

20 **Q. What is Staff’s response to this concern?**

21 A. Staff’s opening testimony notes that a lack of support from affected property
22 owners can illustrate potential issues with public engagement and

¹⁷ Exhibit Staff/303, Gibbens/19-20 (Excerpt from TPUD Response to Staff DR No. 39).

¹⁸ Exhibit Staff/304, Gibbens (Excerpt from TPUD Response to Staff DR No. 44).

1 collaboration.¹⁹ It is admittedly difficult to determine the appropriate level of
2 engagement and due diligence in collaborating with the public on the
3 proposed line. TPUD notes that in discussions with potential land owners,
4 they all favored routes which did not cross their own property. As Staff noted
5 in its opening testimony, it believes that TPUD has done a reasonable job
6 engaging the public and attempting to listen to concerns. TPUD stated in
7 response to flexibility questions regarding the CAG process that:

8 TPUD acknowledges that the CAG process was not intended to
9 address the purpose and need of the transmission line.

10 Determination of the purpose and need is the responsibility of
11 TPUD's elected Board, as confirmed by the Public Utility
12 Commission in the case of proceedings such as this. The reason the
13 CAG was formed was that TPUD's Board determined the community
14 did not feel they were included in the original route selection
15 process. The CAG's sole purpose was to assist TPUD with
16 identifying a feasible route.

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¹⁹ Staff/100, Gibbens/15.

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ISSUE 3, LAND USE COMPLAINE

Q. Did any Intervenors bring up concerns about the land use compliance of TPUD’s proposal?

A. Yes. All of the following parties filed testimony or comments, which, in Staff’s view, relates to the land use compliance of TPUD’s proposal.

- 1. Tilla-Bay Farms;
- 2. OFB et al.; and
- 3. ORCA.

Q. Please list the issues raised by the intervenors.

A. Tilla-Bay Farms believes Statewide Land Use Planning Goal 11 has not been met. ORCA states that Goal 3 has not been met. OFB et al. argues that compliance with the statewide goals cannot be determined until Tillamook County has issued a conditional use permit.

Q. Please describe Tilla-Bay Farm’s concern regarding compliance with Goal 11.

A. Tilla-Bay Farms notes that Goal 11 states that utility lines and facilities must be located on or adjacent to existing public or private right-of-way. It is witness Kurt Mizsee’s belief that the utility’s proposal does not comply with this requirement.²⁰

Q. What is Staff’s response to this concern?

A. Certain segments of the line did have route alternatives which utilized more right-of-way but at a higher cost and greater impact to land owners.

²⁰ Tilla-Bay Farms Testimony, Mizsee/1-2.

1 Utilization of rights-of-way can limit impacts, however it is not the only
2 criteria by which a line should be sited. The guidelines for Goal 11 do not
3 require facilities to be located along existing right-of-way whenever possible,
4 instead it states that, in the context of public facilities planning, utility lines
5 and facilities should be located on or adjacent to public or private rights-of-
6 way to avoid dividing existing farm units.²¹ TPUD utilized rights-of-way as
7 appropriate. Staff's findings regarding compliance with Goal 11 are provided
8 in Staff's opening testimony.

9 **Q. Please describe ORCA's concern regarding compliance with Goal 3.**

10 A. Goal 3 is concerned with preserving and maintaining agricultural lands.
11 ORCA states that the TPUD has not determined "what types of farming
12 practices would be subject to the transmission line, what conflicts, what
13 mitigation and so forth." Further ORCA states that OAR 860-025-0030(a)-
14 (c) has not been met.²²

15 **Q. What is Staff's response to this concern?**

16 A. In response to Staff DR No. 13 TPUD notes:

17 As with other Statewide Planning Goals, Goal 3 relating to farm
18 lands seeks to strike a balance between preserving agricultural land
19 and accommodating non-farm uses that must utilize that same land.

20 The Goal 3 statutes and rules expressly contemplate that lands
21 zoned for farm use will have to accommodate utility facilities like
22 transmission lines. Indeed, utility facilities necessary for public use

²¹ Exhibit Staff/110, Gibbens/32.

²² Oregon Coast Alliance testimony at 1, February 7, 2018 filing at 5.

1 are authorized pursuant to ORS 215.283(1) as a permitted use, in
2 contrast to other non-farm uses authorized only as conditional uses
3 in ORS 215.283(2).²³

4 As stated earlier, Staff finds the prioritization of impact to agricultural land
5 below commercial and residential lands to be reasonable. Further any
6 possible route would be required to cross agricultural land. The utility has
7 attempted to limit the impacts to farming practices and the Farming and
8 Forrest Impact Assessment considers specifically such impacts.

9 **Q. Please describe OFB et al.'s concern regarding overall determination**
10 **of compliance.**

11 A. OFB et al. states that "until the required conditional use permit is approved
12 by Tillamook County, the PUC cannot determine compatibility with the
13 applicable Statewide Planning Goals or the Tillamook County
14 Comprehensive Plan." A similar sentiment is noted in ORCA's testimony.

15 **Q. What is Staff's response to this concern?**

16 A. The Commission is a state agency and must ensure that by approving a
17 CPCN the transmission line complies with the Statewide Planning Goals and
18 is compatible with the acknowledged comprehensive plans and land use
19 regulations of each affected local government. Under OAR 860-025-
20 0030(3)(a) – (d), the Commission has set out four different methods to make
21 that finding, at least one of which must be used. Intervenors are correct that
22 a conditional use permit will be required from Tillamook County for the

²³ Exhibit Staff/301, Gibbens.

1 transmission line, and that one has not issued. A copy of that permit, once
2 issued, would allow a finding under method (a). Without the permit, method
3 (c) and (d) may still be used to determine compatibility with the Statewide
4 planning goals and acknowledged comprehensive plan. Tillamook County's
5 Staff filed a report on February 1, 2018 which stated its consolidated review
6 of the Conditional Use permit application. The report states that a
7 conditional use permit may be issued subject to conditions, and provides a
8 list of the planning staff's recommended conditions.²⁴ If the Commission
9 should choose, it could delay the decision until the County has ruled on the
10 permit application, but such a delay is not necessary to make a finding of
11 compliance.

²⁴ Exhibit Staff/305, Gibbens (TPUD Response to Staff DR No. 46-1).

OTHER ISSUES

1
2 **Q. Did any Intervenors bring up other issues outside of the five categories**
3 **focused on by Staff?**

4 A. Yes. The ORCA stated that the Commission has failed to perform
5 independent analysis of the issues and that the application provides
6 insufficient detail to satisfy ORS 758.015(1). Eric Peterson summarily states
7 that TPUD has not performed due diligence prior to the application for the
8 CPCN.

9 **Q. Please describe the ORCA's concern regarding the TPUD's application**
10 **and Commission's analysis.**

11 A. ORCA states that the Commission cannot simply rely on the applicant's
12 statements but must perform its own independent analysis per ORS
13 758.015(2). Further, it states that TPUD has not included all costs as
14 previously mentioned, which results in a failure to comply with the
15 requirements of ORS 758.015(1).

16 **Q. What is Staff's response to this concern?**

17 A. Staff believes that an adequate cost analysis was performed and has
18 performed its independent analysis of the proposed line. I discuss Staff's
19 role in aiding the Commission as it makes a determination on a CPCN in
20 Staff/100, Gibbens/3-4. OAR 860-025-0030 lists all of the petition
21 requirements to request a CPCN. Staff finds that the filed petition is
22 complete. The investigation Staff performed was based on the petition and
23 subsequent discovery which included 52 data requests.

1 **Q. Please describe Eric Peterson's concern regarding due diligence.**

2 A. Mr. Peterson states that TPUD has not been sincere in its efforts to obtain
3 the required easements. He alleges the proposed easements have been
4 structured in a manner which harms the land owners which the Peterson's
5 note specific language in the proposed easement. Further, he believes the
6 easement documentation and project work plan lack adequate protection for
7 the environment and agricultural land.

8 **Q. What is Staff's response to this concern?**

9 A. While Staff would expect TPUD to seek to negotiate fairly before initiating
10 condemnation proceedings, such proceedings may be necessary. This
11 proceeding concerns whether a CPCN should be issued finding the project
12 to be in the public interest, while any terms of agreement or the value of any
13 specific interest in land are outside the scope of this docket.

14 **Q. Does this conclude your testimony?**

15 A. Yes.

16

CASE: PCN 2
WITNESS: SCOTT GIBBENS

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 301

**Exhibits in Support
Of Cross-Answering
and
Reply Testimony**

March 2, 2018

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
REQUESTS

STAFF DR TO TPUD NO. 13

Please see Tillamook PUD/200, Fagen/7, lines 4-12. Please explain:

- a. Why the avoidance of commercial areas was prioritized over the avoidance of farm/agricultural areas.
- b. Whether there was agreement among participants of the Citizens' Advisory Group (CAG) that this (prioritizing avoidance of commercial areas) should be the case.
- c. How the prioritizing of avoiding commercial areas over farm/agricultural areas is consistent with statewide land use planning goal three, to preserve and maintain agricultural lands for farm use.

TPUD RESPONSE

a) The Citizen Advisory Group developed a set of criteria for prioritizing the potential line routes, where item 14 below lists the need to be distant from existing structures, residences, etc. The following was considered in the early stages of the CAG proceedings (from meeting notes 1-27-15):

The following criteria should be minimized as often and occur to the least extent that can be reasonably obtained:

- 1) Visual impacts
- 2) Conflicts with existing land uses, structures and congestion
- 3) Environmental
- 4) Number of landowners and properties affected

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

- 5) Effects on existing vegetation
- 6) Need for special structures
- 7) Space requirements
- 8) Angle poles
- 9) Co-location of circuits serving same geographic area
- 10) Need for access roads

Additionally, the following criteria should be maximized as frequently as possible and occur to the greatest extent that can be reasonably obtained:

- 11) Co-location within existing linear corridors
- 12) Use existing right-of-ways (ROWs) and pole locations
- 13) Constructible and accessible for maintenance during poor weather conditions
- 14) Be distant from existing structures, residences, etc.
- 15) Have the ability to obtain desired ROW width
- 16) TOTL CAG / TOTL CAG Meeting Summary - 01-27-15 - final Page 10 of 11
- 17) Length of straight sections (straighter is better)

Avoiding impact to people was given higher priority than avoiding land and was listed in the following order of importance:

Minimize the number of landowners and properties affected in order of importance

- Residential
- Commercial
- Farm/Agriculture

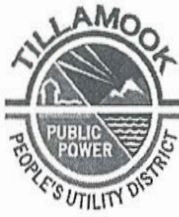
TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

The route selection criteria were formalized in the 2-24-15 document "TOTL CAG / Route Evaluation Proposed Criteria", see TPUD/205, Fagen/6 for the synopsis of the document. As well, the full document is attached as Exhibit TPUD-Staff-DR13a.

b) TPUD staff belief there was a general sense of agreement among the CAG members based on the fact the CAG members applied these criteria in the route selection process.

c) As with other Statewide Planning Goals, Goal 3 relating to farm lands seeks to strike a balance between preserving agricultural land and accommodating non-farm uses that must utilize that same land. The Goal 3 statutes and rules expressly contemplate that lands zoned for farm use will have to accommodate utility facilities like transmission lines. Indeed, utility facilities necessary for public use are authorized pursuant to ORS 215.283(1) as a permitted use, in contrast to other non-farm uses authorized only as conditional uses in ORS 215.283(2).

Given that the project must pass through some farm land – because there is no route between the City of Tillamook and the Oceanside Substation that does not include farm land – and in light of the City's earlier denial of a route that made more use of residential, commercial, and industrial areas, TPUD identified a route that would have very little impact on farm land. The placement of the transmission structures at the edge of farm properties and use of existing public right-of-way preserves and maintains nearly all of the agricultural lands for farm use, thereby promoting the policy objectives in Goal 3.



Route Evaluation Proposed Criteria

Tillamook - Oceanside Transmission Line

Must Have:

Criteria that **must** be met for a successful project

Maximize:

Opportunities that we would like to **happen as often** as possible (frequency) or the **greatest extent** (magnitude) to reduce impacts

Avoid or Minimize:

Impacts that we want to **avoid** from happening, **happen as little** as possible (frequency) or reduce to the **least extent** (magnitude)

Must Have: Criteria that **must** be met for a successful project

- Meet project purpose
 - Start at BPA's Tillamook substation and end at the proposed Oceanside substation
- Is siteable
 - Meets Local, State and Federal requirements
 - City of Tillamook and Tillamook County – permittable in zoning districts crossed, other development standards and review criteria can be met
 - State and Federal
 - Environmental Issues (e.g., impacts to waterbodies, wetlands, sensitive species and their habitat and cultural resources)
 - Other Regulatory Issues (e.g., Federal Aviation Administration)
- Can be obtained
 - Easements or permits can be obtained to establish necessary rights-of-way across lands crossed
- Is buildable
 - Be able to accomplish the required construction activities
- Must be able to operate and maintain in all but the most severe conditions
 - Critical infrastructure



Maximize: Opportunities that we would like to **happen as often** as possible (frequency) or the **greatest extent** (magnitude) to reduce impacts

- Co-location within existing linear corridors
 - Highway/road/railroad rights-of-way and utility corridors
- Use of existing rights-of-way and pole locations
 - Reduce the number of poles by placing more than one set of wires on a pole
 - Provided the two circuits do not serve the same geographical area
- Constructability and accessibility for maintenance during poor weather conditions
- Distance from existing structures, residences, etc.
- Ability to obtain desired rights-of-way width
 - Increases reliability
- Length of straight sections
 - Reduces visual impacts
 - Reduces space requirements
 - Reduces cost



Avoid or Minimize: Impacts that we want to **avoid** from happening, **happen as little** as possible (frequency) or reduce to the **least extent** (magnitude)

- Number of landowners and properties affected
- Visual impacts
 - Number of poles
 - Height of poles
 - Amount of equipment mounted to poles
 - Angles and curves in the route
- Conflicts with existing land uses, structures, congestion
 - Siting of rights-of-way over or in proximity to existing aboveground structures or areas of high use and activity (e.g., residences, multiple story buildings, truck loading/unloading, etc.)
- Environmental issues
 - Waterbody crossings and impacts (e.g., streams, sloughs, rivers, ponds, lakes)
 - Wetland impacts
 - Riparian vegetation impacts
 - Sensitive species and their habitat
 - Cultural resources
- Effects on existing vegetation
 - Site rights-of-way to avoid or minimize need for vegetation clearing (e.g., maximizing use of existing paved, developed and/or mowed areas)



Avoid or Minimize (cont.): Impacts that we want to **avoid** from happening, **happen as little** as possible (frequency) or reduce to the **least extent** (magnitude)

- Special structures
 - Higher visual impacts
 - Longer lead times to obtain
 - Increases cost
- Space requirements
 - Impacts to property and development
- Angle poles
 - Higher visual impacts
 - Additional space requirements
 - Increases cost
- Co-location of circuits serving same geographic area
 - Reduces reliability
 - Reduces operational flexibility
- Need for access roads
 - Increases environmental impacts
 - Increases space requirements
 - Increases costs



CASE: PCN 2
WITNESS: SCOTT GIBBENS

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 302

**Exhibits in Support
Of Cross-Answering
and
Reply Testimony**

March 2, 2018

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

STAFF DR TO TPUD NO. 1

Please provide the professional backgrounds of the Tillamook People's Utility District's (TPUD's) Board of Directors, including any past or current participation with respect to, or financial interest in, any energy generation technologies.

TPUD RESPONSE

Tillamook People's Utility District (TPUD) is governed by a five-member Board of Directors, elected by the voters within TPUD's political boundary. The Board sets rates and policies, with the goal of providing the most benefit to customers. TPUD Board holds regular local meetings open to the public. Below is a brief review of the professional background of TPUD's current Board members:

- a) Harry Hewitt - Hewitt began his first term in 1997, representing Subdivision #3 for the past 20 years. He retired from teaching government and economics at Tillamook High School after 44 years, and was the first teacher intern at TPUD in the summer of 1996. Currently, Harry teaches a Bible study at the local jail, at the prison camp and five more in town while holding the position of Chairman of the Elders at the First Christian Church. Harry is ordained and can officiate weddings and funerals. Harry has no dealings with or financial interest in any energy generation technologies now or in the past.
- b) Edwin L. Jenkins - Jenkins was appointed to the board in 1989 and subsequently elected in 1990 to represent Subdivision #2. He has served continuously since that time. After owning a dairy farm for more than 20 years, Jenkins now owns

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

and operates Elite Car Wash in Tillamook. He has served on numerous Boards over the years. Ed has no dealings with or financial interest in any energy generation technologies now or in the past.

- c) Doug Olson - Olson was appointed to the board in November 2008 to represent Subdivision #1 and is currently serving his third term on the Board. Mr. Olson holds a Bachelor of Science degree in Business Administration and has owned businesses in the hospitality industry. He currently owns a property rental company and an investment company. He has served on numerous volunteer committees, boards and organizations over his 37-year career. He has no dealings with or financial interest in any energy generation technologies now or in the past.
- d) Ken Phillips - Phillips was elected in 2002 to represent Subdivision #4. After 34 years in the shoe business, Phillips retired and closed The Bootery in the fall of 2009. Ken has no dealings with or financial interest in any energy generation technologies now or in the past.
- e) Barbara Trout - Trout was elected to represent Subdivision #5, north Tillamook County, in 1997. She was a well-known radio news director for many years at KTIL radio and is the second member of her family to serve on the Tillamook PUD board. She currently works for the Watseco-Barview Water District as the office manager and as a legislative Assistant to State Representative Deborah Boone. In addition, Barb serves on the Tillamook County Pioneer Museum Board, the Tillamook County Parks Advisory Board, and the Fisherman's Advisory Council for Tillamook County. Barb has no personal dealings with or any financial interest in any energy generation now or in the past.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
REQUESTS

STAFF DR TO TPUD NO. 10

Please see Tillamook PUD/103, Simmons/4, at which the TPUD board minutes state, "Olson has followed the wave ocean energy process carefully and doesn't believe that there will be ocean energy off Tillamook County in the foreseeable future." Please:

- a. State whether TPUD agrees with this statement and explain why or why not; and
- b. Explain whether the proposed transmission line would be available to provide transmission capacity in the event wave energy or ocean wind energy projects are developed in the area.

TPUD RESPONSE

a) The TPUD Board has not expressed specific agreement or disagreement with Mr. Olsen's statement. However, it is TPUD's view, expressed by Board members and management, that wave energy in Tillamook County will not be developed in the foreseeable future. Current state laws do not allow the development of wave generation off the coast of Tillamook County.

b) All TPUD facilities would be viable conduits for any electrical generation technology, whether it be TPUD's 26kV distribution lines or TPUD's 115kV transmission lines, such as the proposed Tillamook Oceanside transmission line. The Oceanside substation is not being designed for additional transmission line connections. If such a project were to materialize, it would likely have to include a significant expansion of the Oceanside substation.

CASE: PCN 2
WITNESS: SCOTT GIBBENS

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 303

**Exhibits in Support
Of Cross-Answering
and
Reply Testimony**

March 2, 2018



CSA Planning, Ltd

4497 Brownidge, Suite 101
Medford, OR 97504

Telephone 541.779.0569
Fax 541.779.0114

jay@CSAplanning.net

August 4, 2017

Tillamook County Planning Department

RE: Farm and Forest Use Impacts Assessment

Dear Tillamook People's Utility District,

This document constitutes the *Farm and Forest Impacts Assessment* required by Tillamook County for approval of the proposed Tillamook People's Utility District 115 Kv Transmission Line project. The Farm and Forest Impacts Assessment contains the following fundamental components:

- Introduction
- Surrounding Lands Determination
- Potential Farm Impacts Identification and Methodology
 - Farm Use Inventory
 - Farm Practice Characterization
 - Potential Impacts from Transmission Line Externalities
 - Farm Practices and GIS Inventory Data Synthesis
 - Analysis and Methods General Limitations
- Farm Impacts Assessment
 - Evaluation and Assessment for Farm Units as a Whole
 - Assessment for Site Specific Impacts 100 feet either side of the line
- Potential Forest Impacts Identification and Methodology
 - Forest Use Inventory
 - Forest Practice Characterization
 - Potential Impacts from Transmission Line Externalities
 - Forest Practices and GIS Inventory Data Synthesis
 - Analysis and Methods General Limitations
- Forest Impacts Assessment
 - Evaluation and Assessment for Forest Management Units as a Whole
 - Assessment for Site Specific Impacts 100 feet either side of the line
- Summary Assessment
- Recommended Mitigation Measures

This document includes data and analysis prepared by land use planners with demonstrated expertise in the State of Oregon. CSA specializes in rural land use planning outside. Input data for the analysis was collected from a variety of sources and our best efforts were made to utilize the best available information on farm and forest practices in Tillamook County.

Respectfully Submitted,

CSA Planning, Ltd.

A handwritten signature in blue ink, appearing to read 'Jay Harland', is written over a horizontal line.

Jay Harland
Principal

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1 INTRODUCTION

This Farm and Forest Impacts Assessment ("Impacts Assessment") supports Tillamook People's Utility District's ("Tillamook PUD") land use application for the construction of a new 115Kv Electric Transmission Line from the BPA Substation east of the City of Tillamook to a substation near the coast to serve the communities of Netarts and Oceanside. The Impacts Assessment refers to the proposed transmission line as the "115Kv Project". The Impacts Assessment relies upon the design and details provided in the land use application prepared by Tillamook PUD and the project staff at CH2M. The purpose of this Impacts Assessment is to identify the potential for the 115Kv Project to cause significant impacts to farm or forest practices.

1.1 115 Kv Project Description

Approximately 8.4 miles of the proposed 8.6-mile 115kv Project transmission line route are within the jurisdiction of Tillamook County ("County"), and the remaining 0.2 miles are within the jurisdiction of the City of Tillamook ("City"). The 115Kv Project crosses approximately 4 miles of land planned and zoned for agricultural use (including land designated Estuary Protection). This agricultural land is located in the bottomland north and west of the City. After crossing Bayocean Road, the 115 Kv Project crosses approximately 4.3 miles of land planned and zoned for forest use. The 115 Kv Project will be within a 50-foot easement east of Bayocean Road and will be within a 100-foot easement west of Bayocean road.

Tillamook PUD formed a Citizens Advisor Group (CAG) to review and recommend a corridor for the proposed transmission line. The proposed location for the Project was selected following a detailed analysis of potential alternative routes and substation locations reviewed by the CAG. This analysis incorporated a systematic rating system that was established for evaluating each alternative, including evaluations of potential impacts to resource lands. Tillamook PUD examined each alternative against a set of established criteria such as permitability, ease of obtaining corridor approval, access, constructability, and a series of other environmental, land use, and financial factors. The original transmission line corridor selected by the CAG was then adjusted based on feedback from public meetings and individual meetings with affected land owners. Adjustment included relocating the transmission line from the middle of farm land to adjacent public corridors including the Port of Tillamook Bay's railroad right-of-way and Wilson River Loop Road

Wherever possible, the Project has been routed adjacent to or collocated with existing linear developments within the County. These linear developments include the Port of Tillamook Bay's railroad right-of-way from the substation north to Wilson River Loop Highway, along Wilson River Loop Highway, Goodspeed Road, and along various existing access roads through private forest land in Tillamook County. Parallel construction or collocation with existing linear corridors (for example, highway and road rights-of-way, utility corridors, or previously developed areas) was one of the criteria used in evaluating routes.

Please see the land use application for more detailed project information related to Tillamook PUD's route selection for the 115 kV Project.

1.2 Farm and Forest Impacts Analysis Requirements

The County's requirement to analyze potential impacts to farm and forest practices is grounded in state law. Electric transmission lines qualify as "utility facilities necessary for



115Kv Transmission Line
Applicant: Tillamook People's Utility District

public service" and are allowed in the farm zone, but they are subject to ORS 215.275(5) which provides as follows:

The governing body of the county or its designee shall impose clear and objective conditions on an application for utility facility siting under ORS 215.213 (1)(c)(A) or 215.283 (1)(c)(A) to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on the surrounding farmlands.

Electric transmission lines are also allowed in a forest zone, but are subject to OAR 660-006-0025(5), which provides as follows:

(5) A use authorized by section (4) of this rule may be allowed provided the following requirements or their equivalent are met. These requirements are designed to make the use compatible with forest operations and agriculture and to conserve values found on forest lands:

- (a) The proposed use will not force a significant change in, or significantly increase the cost of, accepted farming or forest practices on agriculture or forest lands;
- (b) The proposed use will not significantly increase fire hazard or significantly increase fire suppression costs or significantly increase risks to fire suppression personnel;

To meet the above standards, it is first necessary to determine if a proposed facility has the potential to cause significant impacts¹ on surrounding lands devoted to farm or forest use, then to determine if such potential is sufficiently great that conditions of approval are appropriate to mitigate or minimize the impacts to a level that the conditions will prevent a significant change in accepted farm practices or a significant increase in the cost of such practices. This evaluation requires the following steps:

- Identify "surrounding lands"
- Identify lands devoted to farm or forest use within that area and inventory specific farm and forest uses on those lands
- Identify the accepted farm and forest practices associated with those farm and forest uses
- Identify any aspects of the proposed 115Kv Project that could reasonably be expected to have a potential impact on the identified accepted farm and forest practices
- Evaluate the specific potential for significant impacts in relation, spatially, to the individual farm and forest practices

2 SURROUNDING LANDS DETERMINATION

This section describes the geographic extent of the study area analyzed in the Impacts Assessment. CSA Planning Ltd. has over 30 years of professional land use planning experience in Oregon and the identified study area constitutes our expert opinion of an appropriate determination of surrounding lands. CSA's opinion is that this study area is adequate for

¹ This Impacts Assessment will refer to "impacts" to describe changes in accepted farm and forest practices or increases in costs of accepted farm and forest practices.



115Kv Transmission Line
Applicant: Tillamook People's Utility District

purposes of identifying potential changes to accepted farm and forest practices and potential cost increases to accepted farm and forest practices.

2.1 Immediate Vicinity Surrounding Lands

Immediate Vicinity Surrounding (IVS) Lands are located in the immediate vicinity of the 115Kv Project. All lands 100 feet on either side of the line are considered immediate vicinity surrounding lands. This distance is 75-feet wider on each side of the transmission line than the proposed 50-foot easement within which the 115Kv Project will be located east of Bayocean Road. This distance is 50-feet wider on each side of the transmission line than the proposed 100-foot easement within which the 115Kv Project will be located west of Bayocean Road. IVS Lands are those lands where there is more potential for acute impacts of some type that warrant further analysis because these are the areas in immediate proximity to the new transmission line. For example, these are the areas where support structures will be located and construction and maintenance activities will occur.

2.2 Farm Unit and Forest Unit Surrounding Lands

Farm Unit and Forest Unit Surrounding Lands are the units of land identified in Atlas Pages 10 to 12². These are larger "blocks of land" that are operated in conjunction with the smaller strips of land traversed by the 115Kv Project. These lands are analyzed to determine whether the "linear feature" of the transmission line has any impact on the rest of the resource land unit as a whole.

3 POTENTIAL FARM IMPACTS IDENTIFICATION AND METHODOLOGY

The rational assertion and deductions presented in this impacts analysis are the reasoning and opinion of CSA Planning Ltd., which is a professional land use planning firm with over 35 years' experience in Oregon Land Use Planning. The assertions and deductions are based upon field data collected directly by CSA Planning Ltd., other professionally collected data, Geographic Information System (GIS) analysis conducted by CSA Planning, and published data sources.

3.1 Farm Use Inventory

This section describes CSA's methods to identify and classify farm uses on surrounding lands.

3.1.1 Data Collection and Development Methodology

CSA Planning Ltd. obtained GIS base data through the other project consultants and from public sources such as the Natural Resources Conservation Service ("NRCS") and the County. Project design information was provided by the design engineers at TriAxis Engineering, from staff at CH2M, and from Tillamook PUD. Aerial Photos from Google Earth were geo-referenced and incorporated into the GIS layers for the project.

Current site-specific inventory data was collected through fieldwork conducted by CSA Planning Ltd, Principal Jay Harland (see Mr. Harland's resume in Appendix B). This

² CSA made their best efforts to identify logical units of farm and forest lands to evaluate the broader resource management unit context. However, the data that is readily available is relatively limited. The data is limited to aerial photo and site photo evaluation from which land interactions may appear (for example livestock paths to a barn) and ownership patterns. However, many aspects of land management are not readily obtainable - such as seasonal grazing leases etc. During any future open record period, CSA reserves the right to update farm unit and forest unit information to reflect any local information entered into the record that clarifies farm and forest management unit information.



115Kv Transmission Line
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data was collected using Garmin GPS data waypoints and a Nikon 5100. Pictures and field data were collected on the portion of the route that could be reached via the railroad right-of-way and where there was vehicle access.

The data was collected on June 12, 2017. June 12, 2017 was a calm to light wind day with a mix of low clouds, light drizzle and patches of sun (see Atlas Pages 17-52).

Additional data utilized in the farm use identification and classification includes historical aerial photos available on Google Earth (see Atlas Pages 1, 13-15).

The identification and classification of farm uses was conducted for each tax lot within the study area. This identification and classification process requires a certain degree of subjective judgment during the initial assessment and categorization process. The classification work was conducted by Michael Savage (see Mr. Savage's resume in Appendix B). The classification process is based upon the use that appears to be the primary farm use on each tax lot. In general, the farm use classification assumed more intensive cultivation when choosing between two or more use classifications appear to be present on the same site.

These classification judgments were based in significant part on CSA's understanding of major crops produced in Tillamook County, based upon the following data:

Table 1.
Tillamook County Summary Highlights (2012)

Commodity	Sales (in dollars)	Percent
Total Agricultural Products	\$117,141,000	100%
Crops	\$3,037,000	2.6%
Livestock, Poultry and Products	\$114,104,000	97.4%
Number of Farms by Size		
1-9 Acres	61	22%
10-49 Acres	66	24%
50-179 Acres	71	25%
180-499 Acres	73	26%
500-999 Acres	6	2%
1000+ Acres	3	1%
Government Payments	\$1,553,000	100%
Revenue/Harvested Acre	\$9,800	

Data from 2012³.

³ 2012 USDA Census of Agriculture



Table 2.
Tillamook County Harvested Acreage (2012)

Commodity	Acres	Percent
Corn for Silage and Greenchop	1,386	11.6%
Hays & Forage	10,567	88.4%
Total Acres	11,953	100%

Data from 2012⁴.

It is worth reiterating that the classification of farm uses was based upon the primary farm use present on the tax lot and that some of the fodder production areas are likely to be integrated with the dairy operations to which they are adjacent. Moreover, the use of such lands likely rotates over time between pasture and fodder production.

Table 3.
Farm Uses Identified on Surrounding Lands Farm Units by Acreage

Farm Use	Acres
Primarily Corn	86
Primarily Dairy Facilities	21
Primarily Hay	605
Primarily Pasture	743
Mix of Horses, Dairy and Beef	92
Totals	1,547

3.2 Farm Practice Characterization

This section provides an initial summary of accepted farm practices associated with farm uses identified on surrounding lands. CSA sought data and information on farm practices from published sources where such data was readily available. As indicated on aerial photos, fieldwork, and published data, the farm units in the surrounding lands is dominated by dairy operations. Dairy operations include the land devoted to the direct livestock operations as well as the land devoted to production of corn and hay, which appears to be primarily used as silage and greenchop for the dairy operations.

3.2.1 Farm Practices for Field Corn for Greenchop and Silage and Hay for Greenchop and Silage

Atlas Pages 11, 12, 14, 15 depicts the considerable extent of land devoted to the combination of dairy farming and corn/hay production for greenchop and silage to serve the dairy operations in the area. In some farm units, it is difficult to discern which fenced

⁴ 2012 USDA Census of Agriculture



115Kv Transmission Line
Applicant: Tillamook People's Utility District

fields are used for silage/greenchop production versus those that are regularly grazed directly by the dairy cattle in the area. Moreover, the lands for these uses are likely rotated seasonally and on an annual basis. Fields that do not appear to be fenced are most likely used primarily for Silage/Greenchop production. This is unsurprising given the dominance of the dairy farming in the County generally and the study area specifically.⁵ The analysis describes the practices separately, but recognizes that they are highly interconnected in this instance and that the forage production areas are often a subset of the dairy farm use⁶.

The below Table 8 describes practices excerpted from ryegrass plantings establishment publications developed by OSU Extension for seed production in the Willamette Valley. New ryegrass and other grass hayfields in Tillamook County would be expected to undergo similar establishment and production. However, some of the practices may be omitted where it is not necessary to undertake such careful and intensive practices for dairy cow feed as opposed to more stringent grass seed production.

⁵ See Tillamook County Comprehensive Plan, Agricultural Lands Element pg. 3-22.

⁶ The analysis treated hay and forage production as an accessory farm use to the dairy farming use. These relationships can be simple or complex and no readily available dataset exists to determine hay and silage that is used exclusively on-farm versus dairies that supplement from off-site. The hay production is fundamentally a crop production, and notwithstanding that 100% of it might be consumed on-site through the dairy operation, the farm practices associated with crop production are different from dairy livestock husbandry.



Table 5.
Perennial Ryegrass Farm Practices

Establishment	Production
▪ Soil Sample	▪ Fall Fertilizer
▪ Disk (multiple times)	○ 16-16-16 LB
▪ Rip	▪ Seedling Weed Control
▪ Plow	○ Spray Bug60 7 mph
▪ Harrow & Roll	○ Prowl H20
▪ Lime	○ AzimOZ
▪ Harrow & Roll	○ Surfactant--Induce
▪ Plant Seed	▪ Slug Control
○ Charcoal	▪ Fertilize - Spring
▪ Seedling Weed Control	○ 33-0-0-12 LB
○ Spray Bug60 7 mph	○ 46-0-0 Urea LB
○ GlyphosateGAL3	▪ Broadleaf Weed Control
○ Surfactant--Induce	○ Spray Bug60 7 mph
▪ Ditching	○ 2, 4-D
▪ Seedling Weed Control	○ Banvel
○ Spray Bug60 7 mph	○ Surfactant--Induce
▪ Nortron (pt)	▪ Rogue Weed Control
▪ Slug Control	▪ Plant Growth Reg.
▪ Fertilize - Spring	▪ Spray Bug60 7 mph
○ 33-0-0-12 LB	▪ Palisade (PGR)
○ 46-0-0 Urea LB	▪ Rust Control
▪ Rodent Control	○ Spray Bug60 7 mph
▪ Broadleaf Weed Control	○ Quilt/Fungicide
○ Spray Bug60 7 mph	○ Surfactant--Induce
○ 2, 4-D	▪ Swath
○ Banvel	▪ Custom Bale
▪ Rogue Weed Control	▪ Flail
▪ Border Spray	
▪ Plant Growth Reg.	
○ Spray Bug60 7 mph	
○ Apogee (PGR)	
▪ Rust Control	
○ Spray Bug60 7 mp	
○ Quilt/Fungicide	
○ Surfactant--Induce	
▪ Swath	
▪ Flail	

More generalized farm practices are associated with native hay production where hayfields substantially use native grasses and less intensive management for the variety of grasses and that occur natively in a hayfield.



Table 6.
Native Hay Farm Practices

Operations	Machine
▪ Farm Pickup	▪ Old Tractor
▪ Drag Meadows	▪ Loader Tractor
▪ Custom Ditch Maintenance	▪ Pull Swather
▪ Clean Ditches	▪ Ditcher
▪ Fertilizer (nitrogen)	▪ Drags/Harrow
▪ Flood Irrigate	▪ Hay Wagon
▪ Swath	▪ Baler (if not destine for silage)
▪ Rake	▪ Side Deliver Rake
▪ Bale	▪ Pickup
▪ Haul & Stack	▪

Information on Corn Silage practices were obtained from a publication from the Penn State University. In general, the identified practices are as follows:

- Seed Hybrid Selection
- Planting (Tractor disking, and seeding)
- Soil Management (fertilizing with tractor spread chemicals and manure spreading and crop rotations)
- Weed and Insect Management (tractor spread treatments directed at local weeds and pests)
- Harvesting (tractor or combine capable of chopping for silage- moisture content is critical)
- Ensiling (Placing in air tight storage for proper fermentation, site inspections indicated horizontal silos most common in the Tillamook area)

In addition to the above farm practices associated with hay production and silage production, dairy farms produce large quantities of manure. The dairy farming practice of designing and implementing systems to deliver manure waste back to fodder production fields is a common part of dairy farming. The manure is often spread as fertilizer back to the fields used to produce hay and silage fodder. Dairies typically have a lagoon which is where manure waste is stored. Various processes can be used to separate and compose manure solids, and to apply manure back at agronomic rates to the fields. Equipment used to spread liquid manure can include stationary or traveling "guns", which are large diameter irrigation sprinklers with specialized fertilizer equipment added to them. Traveling guns need to be moved and arranged to get the desired coverages (see Atlas Page 53 where a "big gun" is being used on a Google Earth imagery dated August 23, 2016 on the Tilla-Bay Farm unit).

Some farms use pivot sprinklers, although no fixed pivot systems were identified in the Tillamook area. Liquids can also be spread by a tractor with a tank spreader. There are also injection systems that deliver manure to the soil from a tank through tilling equipment attached to a tractor. Solids can be spread with manure spreader bucket trailers towed behind tractors.



3.2.2 Farm Practices for Dairies and Dairy Pastures

Available aerial photo data and site photographs are not definitive with respect to which fields are for pasture and which for fodder production used to feed dairy cattle. Moreover, some pasture rotation would be expected year to year and perhaps seasonally as well. The dairy farms contain a number of buildings and are complex farming systems. Most dairies use similar kinds of equipment but each one is laid out differently and so has slightly different operating characteristics. Generally, cattle dairy farming has the following practices:

- Calving and rearing calves: This may involve selling some stock to other ranches. De-horning, disbudding, extra teat removal, castrating males not selected for future bull stock, watering, treating with medications. Some farms use feeding equipment that feeds milk or milk replacers. Others use natural nursing or some combination. At the end of rearing, the calves are weaned.
- Administrative: There are various administrative farming practices like record keeping of the animals, coordinating veterinarian visits, milk handling record-keeping, lab testing as necessary, etc.
- Feeding, watering and manure handling is nearly constant.
- Breeding is necessary to replenish the herd and also to bring cows into lactation.
- All kinds of yard and equipment maintenance must occur such as fencing, tractor and other equipment repairs, milking equipment washing and maintenance, and repair and maintenance of the buildings themselves (including electrical systems design and maintenance).
- Controlling for rodents and other vermin in and around the dairy yard.
- Milking occurs on as regular a schedule as possible. Milking times depend on the size of the herd and the size of the milking parlor and amount of milk being produced by the herd at that time.
- Disease control is critical which includes medications and hygiene to prevent mastitis. The primary hygiene practice to prevent disease is controlling udder hair which can be done with electric clippers or be "flame clipped" using a propane torch. Lesions must be controlled through proper bedding and design of cattle space.
- Changing bedding and rotating the herd in and out of the barn to nearby pastures as weather and time allow. Different gates, trails and roads will be used as pasture locations are rotated over time.
- Pasture cultivation: Practices for pasture management are similar to the above practices for hay production except the cows do much of the cutting by grazing and distribute some of the fertilizer themselves. Harrowing in pastures is done to break up manure and increase nutrient reabsorption.

3.2.3 Farm Practices for Beef Cattle and Pastures

Available aerial photo data and site photographs are not definitive with respect to which sites may also include beef cattle. However, it appears there is at least one farm that has a beef cow operation. Generally, beef cattle farms have the following practices:



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- Calving and rearing calves: This may involve selling some stock to other ranches. De-horning, disbudding, castrating males not selected for future bull stock, watering, treating with medications. Some farms use feeding equipment that feeds milk or milk replacers. Others use natural nursing or some combination. At the end of rearing, the calves are weaned.
- Administrative: There are various administrative farming practices like record keeping of the animals, coordinating veterinarian visits, lab testing as necessary, etc.
- Feeding, watering and manure handling is nearly constant.
- Breeding is necessary to replenish the herd and produce stock for sale.
- All kinds of yard and equipment maintenance must occur such as fencing, tractor repair, repair and maintenance of farm buildings.
- Controlling for rodents and other vermin in pastures and barns.
- Changing bedding and rotating the herd in and out of the barn to nearby pastures as weather and time allow. Different gates, trails and roads will be used as pasture locations are rotated over time.
- Pasture cultivation: Practices for pasture management are similar to the above practices for hay production except the cows do much of the cutting by grazing and distribute some of the fertilizer themselves. Harrowing in pastures is done to break up manure and increase nutrient reabsorption.

3.3 Potential Impacts from 115Kv Project Externalities

This section identifies potential externalities from the 115Kv Project that must be analyzed for potential impacts to farm practices.

3.3.1 Externalities Identified with Logical Potential for Impacts

Identifying 115Kv Project externalities that have discernable potential to impact accepted farming practices involves a deductive process that compares the identified externalities⁷ to each accepted farm practice. A 115Kv Project externality need not be further analyzed if there is no discernable potential for that externality to change accepted farming practices or to increase the cost of accepted farming practices on surrounding lands. Based on the foregoing, there are two categories of potential externalities that are not analyzed in this initial Impacts Assessment:

- The analysis does not evaluate potential impacts from construction activities. Potential impacts caused by construction are not expected to last for a long enough period on any one farm that construction impacts represent a meaningful externality capable of causing a significant farm impact. Further, construction activities will take place within easements where Tillamook PUD will have

⁷ Powerlines generate Extremely Low Frequency Electro-Magnetic Fields. The project engineer's professional opinion provided to CSA Planning is that the intensity of the EMF radiation from 115Kv lines is too low to have any meaningful effects on humans or livestock. Based upon this expert opinion by IEEE professionals, CSA does not identify EMF radiation as an externality with any potential to change accepted farming practices.



obtained property rights (and provided compensation to the underlying landowner) allowing those activities as part of the permitted use.

- The analysis does not evaluate the potential for impacts from lost farm production within the easement area. The lost production in the easement area is part of the conversion of that land from solely an agricultural use to the new, permitted transmission line use. As such, the price paid for the easement and new use will reflect the lost production, and the direct loss in production from that area is not relevant to any impacts to the farm and forest practices on the remaining land.

Based upon the farm uses and associated farm practices on surrounding lands, the following 115Kv Project externalities have a discernable potential to impact accepted farming practices or to increase the cost of accepted farming practices and warrant further evaluation:

- Stray Voltage
- Physical barriers
- Access Road and Gate Management

3.3.2 Assessment of Externalities' Intensity and Scale

The next step in the inquiry is to determine if each of the above identified 115Kv Project externalities has sufficient potential from the standpoint of scale and intensity that could cause significant impacts. The scale and intensity of each of the above identified externalities is assessed below:

- **Stray Voltage** – In 2005, the Institute of Electrical and Electronics Engineers (IEEE) convened Working Group 1695 in an attempt to lay down definitions and guidelines for mitigating the various phenomena referred to as stray voltage. The working group attempted to distinguish between the terms *stray voltage* and *contact voltage* as follows⁸:

Stray voltage is defined as "A voltage resulting from the normal delivery and/or use of electricity (usually smaller than 10 volts) that may be present between two conductive surfaces that can be simultaneously contacted by members of the general public and/or their animals. Stray voltage is caused by primary and/or secondary return current, and power system induced currents, as these currents flow through the impedance of the intended return pathway, its parallel conductive pathways, and conductive loops in close proximity to the power system. Stray voltage is not related to power system faults, and is generally not considered hazardous."

Contact voltage is defined as "A voltage resulting from abnormal power system conditions that may be present between two conductive surfaces that can be simultaneously contacted by members of the general public

⁸ Wikipedia



and/or their animals. Contact voltage is caused by power system fault current as it flows through the impedance of available fault current pathways. Contact voltage is not related to normal system operation and can exist at levels that may be hazardous."

In practice, the term "stray voltage" has been applied to both conditions to refer to any unwanted excess electricity. In the context of a new 115Kv Project with new components, modern current engineering and installed to current standards will result in minimal potential for contact voltage as long as the facility is properly maintained going forward. As is stated in the IEEE definition, true "stray voltage" is possible with any distribution system and would be theoretically possible as a result of the 115Kv Project. This potential externality therefore warrants further analysis.

- *Physical Barrier within Farm Units:* The linear nature of the 115Kv Project within the easement has the potential to be a physical barrier to farm operations where the 115Kv Project transects farm units and farm operations must move from one side of the line to another. This potential externality therefore warrants further analysis.
- *Gate Management and Permanent Access Roads-* If the 115Kv Project resulted in numerous new permanent access roads and required frequent inspections, then potential gate management and access issues would arise. However, that is not the case for the project. According to TPUD engineering staff, the poles and equipment we are using in this area are maintenance free by industry standards. Tillamook PUD typically does visual inspections once a year – a person can walk to within 200 yards and use binoculars. Every ten years a detailed inspection would be conducted where a qualified person would visit each pole, which would still be a person only walking to the area. On the rare occasion (once every 15 to 20 years) a vehicle may have to reach the pole. Tillamook PUD has specialized vehicles, such as a kabota, with lug tracks that are designed for soft soils and would create only minor soil disturbances. Tillamook PUD always works with the land owner prior to accessing their property with specialized equipment to make sure any impact is avoided. Based upon the scheduled maintenance and business practices to coordinate with farmers on the rare occasions that on-site work is required, it is not expected that any gate management or maintenance access issues will rise to the level of a potential significant impact. As such, no further analysis on this issue appears warranted.

3.3.3 Specific Farm Practices vs. Specific Externalities with Potential to Cause Impacts

The next step in the analytic process is to "cross-tab" the specific farm practices identified to be occurring on surrounding lands with the specific transmission line externalities that warrant detailed evaluation. This is the last methodological step in the process to match which accepted farm practices need to be evaluated for potential impacts from specific potential 115Kv Project externalities. The below matrix depicts this cross-tab procedure. Potential for impact to a given farm practice from a given externality is assigned one of three categories – INA which stands for potential Impact Not Apparent, LP which stands for Limited Potential, HIP which stands for Heightened Potential.



Table 7.
Hay Fodder and Corn Silage Farm Practices
Level of Potential Impacts

Fodder Production (assumed to include similar farm practices for corn and hay production)	Generalized Farm Practice	Stray Voltage	Physical Barrier
	Planting and Establish	INA	LP
	Chemical Applications	INA	LP
	Crop Growth	INA	INA
	Manure Nutrient Applications	INA	LP
	Irrigate (for lands with irrigation rights)	INA	LP
	Rodent/Vermin Control	INA	INA
	Planting	INA	LP
	Weed Control	INA	LP
	Tilling/Disc	INA	LP
	Swathing for Harvest	INA	LP
	Bale (for hay)	INA	LP
	Ensilage (for silage)	INA	LP

Table 8.
Dairy Farm Practices – Dairies with associated Pasture
Level of Potential Impacts

Dairy and Pasture Operations	Generalized Farm Practice	Stray Voltage	Physical Barrier
	Chemical Applications to Pasture	INA	LP
	Pasture Harrow/Disc	INA	LP
	Pasture Irrigation	INA	LP
	Pasture Manure Application	INA	LP
	Animal Growth	INA	INA
	Birthing and Calf Rearing	INA	INA
	Medication	INA	INA
	Milking	LP	INA
	Rodent/Vermin Control	INA	INA
	Livestock Medical Treatment	INA	INA
	Movement of Stock (Pasture-Barn)	LP	LP
	Culling	INA	INA
	De-horning	INA	INA
	Feeding and Watering	LP	LP
Fence Maintenance	LP	INA	



Table 9.
Beef Cattle Farm Practices – with associated Pasture
Level of Potential Impacts

	Generalized Farm Practice	Stray Voltage	Physical Barrier
Dairy and Pasture Operations	Chemical Applications to Pasture	INA	LP
	Pasture Harrow/Disc	INA	LP
	Pasture Irrigation	INA	LP
	Pasture Manure Application	INA	LP
	Animal Growth	INA	INA
	Birthing and Calf Rearing	INA	INA
	Medication	INA	INA
	Rodent/Vermin Control	INA	INA
	Livestock Medical Treatment	INA	INA
	Movement of Stock (Pasture-Barn)	LP	LP
	Culling	INA	INA
	De-horning	INA	INA
	Feeding and Watering	LP	LP
	Fence Maintenance	LP	INA

3.3.4 Farm Practices and GIS Inventory Data Synthesis and Project Design

The final step in the analysis is evaluating potential impacts to farm practices with specific farm use geography taken into account. The geographic nature of each of the 115Kv Project externalities with potential for significant impacts to accepted farming practices is analyzed below:

- **Stray Voltage** – There are a number of factors that can contribute to the potential for stray voltage. Some of these are “on-farm” and others can come from the electrical transmission system. Potential for stray voltage can be localized or cover a wide area. As such, there are not necessarily specific geographic considerations that affect stray voltage potential.
- **Physical Barrier** – Potential for the linear transmission line feature to affect farm operations as a physical barrier is very geographic and also dependent on line height design. Generally, transmission line segments that are coincident or immediately parallel to existing linear features – like public roads or railroads – have very little potential to function as a physical barrier because the other existing linear feature already functions as a physical barrier. The only caveat to this general limitation for potential impact is if the lines are sufficiently low at road access points that farm equipment that uses the public road has the potential to contact the overhead lines.

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In areas where the line transects farms, there is greater potential for the transmission lines to function as a physical barrier. However, the design of the project becomes very important in these locations. The higher the line clearance is from the ground, the lower the potential for the line to function as a barrier because there is greater clearance for farm operations.

3.4 Analysis and Methods General Limitations

Precise farm costs and farm practice data for each farm on surrounding lands cannot be obtained unless each of the individual farmers were to provide this data and the data would need to be structured in a usable format that could be compared across dairies. Farmers are under no obligation to provide such data to TPUD in any event. As such, the initial analysis must utilize generalities based upon the published data sources that are available and field data that could be readily collected. Notwithstanding these limitations, the data utilized in the analysis is the best available and is sufficient to constitute substantial evidence for Oregon Land Use Planning permit purposes.

4 FARM IMPACTS ASSESSMENT

This section assesses the likelihood that 115Kv Project will cause changes to accepted farm practices or to increase the cost of accepted farming practices. The assessment includes two dimensions (background data and analysis) to support the conclusions reached for each potential impact. This assessment is geographic and accounts for geographic differences between farm practices and their location in relation to the proposed 115Kv Project.

4.1 Immediate Vicinity Surrounding Lands

This section assesses the potential impacts to farm practices within the easement corridor for the 115Kv Project and an additional 75-feet on each side of the proposed easement (100-feet total on each side of the line).

4.1.1 Hay and Field Corn Production Farm Uses (generally to produce hay feed and silage as fodder for accompanying dairy operations)

The predominant farm use in the IVS lands is dairy production and related fields that produce fodder for dairy farms. Fields that are used for fodder production may be rotated over time to serve the dairy operation. This fodder production is a combination of hay farming (which may include non-grasses such as clover) and field corn for silage.

Stray Voltage – Stray voltage is not expected to have any meaningful potential to impact hay and field corn production in any way.

Physical Barrier - The 115Kv Project does not appear to be a significant physical barrier for hay and field corn production areas for geographic and design reasons. Farm uses that could be impacted include irrigation/manure spreading with big guns that have the potential height to strike the power lines. Tall farm equipment has the potential to be impacted if clearance line heights are not adequate. However, the potential impact appear to be minimal because of the height of the line at specific locations and the specific routing as follows:

Support Structures 1-15: Support structures 1-3 are located on TPUD property and no farming is occurring there. Structures 4-25 parallel the Port of Tillamook Bay railroad. Except at certain trestle locations, the railroad functions to prevent



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equipment movement east-west. Over this segment, the lowest line is at least 25 feet above ground elevation. At the trestle crossing locations for equipment, the clear height is well above the clearance of the trestle so any equipment that can cross under the trestle will easily clear under the 115Kv Project line. With respect to big gun irrigation/manure spreading barriers in this area, the railroad is about 8-10 feet above the adjacent farmland. As such, any irrigation gun trajectory layout is only stopped a short distance from where it otherwise would have stopped to reasonably avoid watering and spreading manure on the railroad⁹. As such, this segment of line will not create a physical barrier that does not already exist.

Support Structures 15-22: This segment parallels Wilson River Loop and there is a local distribution power line with a lower clear height. As such, this segment of line will not create a physical barrier that does not already exist.

Support Structures 22-24: This segment parallels the western boundary of TL 902 owned by David and Rita Hogan. The land to the west is in the City and owned by different parties and there appears to be a continuous fence creating an existing barrier to farm equipment movement. If a big gun sprinkler is used on the land to the east side of the 115Kv Project, any irrigation gun trajectory layout is only stopped a short distance from where it otherwise would have stopped to reasonably avoid watering and spreading manure on the adjacent property¹⁰.

Support Structures 27-39: This segment parallels Goodspeed Road and there is a local distribution power line with a lower clear height. As such, this segment of line will not create a physical barrier that does not already exist.

Support Structure 39-40: This segment flies over an ~270-foot strip of TL 700 owned by Bryce Smith. The lowest height of the line is approximately 33 feet where it crosses this strip. This is plenty of clear height for the movement of most any farm equipment. Because of the width of this strip and proximity to a waterway it is not likely to be appropriate for the highest pressure and angle of the big gun irrigation guns, because spays at these heights that would hit the lines would result in significant overspray into areas of the Southern Flow Corridor estuary. Smaller models have maximum spray heights of approximately 20-23 feet which gives a total height of 24-27 feet on top of a 4-foot high traveler carriage¹¹. This leaves ~6 feet of freeboard to operate a gun under the proposed power line that is appropriately sized for this strip of land that would both avoid the estuary and avoid conflicts with the lines.

Support Structures 40-43: This segment runs along the west boundary of TL 900 owned by Traskview Farm Incorporated. There is a strip of vegetation to the west and land on the other side owned by Tillamook County. There does not appear to be any historical movement of farm equipment across this property line. The river and property boundary represent a natural stop location for any big gun irrigation practices and any lost distance¹² would be minimal with a clear height over 25 feet throughout this segment.

Structures 43-45: 43 to 45 is a water body crossing with no farm conflict potential in this location. The segment from 44 to 45 has a clear height of 25 feet which is

⁹ This area would be entirely within the easement and compensated as part of acquisition.

¹⁰ This area would be entirely within the easement and compensated as part of acquisition.

¹¹ This data provided by Nelson Irrigation Technical Support information phone call with "Bob". Specs based upon a 100 Series gun with a small nozzle at 60 PSI and 24-degree standard trajectory up to a 0.8" larger nozzle at 60PSI.

¹² This area would be entirely within the easement and compensated as part of acquisition.



adequate for most all farm vehicles. The river location represents a significant restriction on big gun manure operations. This segment may require slightly modified irrigation patterns (if any have been occurring in this area) to avoid spraying the power line. However, this is not a "set it and forget it" type traveler carriage area to begin with. The remaining land north of the easement area is approximately 4 acres. This is a small enough area that a minor revision to the irrigation layout does not likely represent a major labor issue in the context of a dairy farm that is 83 acres in size being the Aufdermauer dairy farm.

Support Structures 45-49: This segment has clear heights that approach 50 feet throughout this length. This is sufficiently high that no physical barrier to farm equipment or interference with irrigation system layouts is anticipated.

Support Structure 49-50: The eastern half of this segment from 49 to the western edge of the drainage slew has clear heights over 40 feet throughout this length. This is sufficiently high that no physical barrier to farm equipment or interference with irrigation system layouts is anticipated in this area. West of the drainage slew on TL 1200 (part of the Peterson Dairy), clear heights are as low as approximately 32 feet. This is sufficiently high that no barrier to farm equipment movement will be created by the 115Kv Project. East of this drainage slew the clear height is reduced to as little as 32-feet. This is high enough that no barriers will be created for farm equipment movement. For big gun sprinkler systems there is adequate height for medium sized models with medium sized nozzles operating and 60 PSI.

Gate Management and Maintenance Access Gates- Tillamook PUD will not be installing any gates. For areas devoted to hay and field corn production, this not expected to result in any significant impacts. The main issue with gate management is stray livestock. Stray livestock is not a concern in hay and field corn production areas. This issue is dealt with below for pasture areas.

4.1.2 Dairy Farm Uses and Adjacent Pasture Lands

With the potential exception of stray voltage at a watering trough in a pasture area and gate management for maintenance access issues – both dealt with below – the remainder of potential impacts for pasture areas that are operated with the dairy are the same as for the hay and field corn production lands. As such, the analysis above for hay and field corn production is incorporated herein for pasture lands within 100 feet either side of the 115Kv Project; no potential for significant impacts were identified. The balance of this section addresses the two dairy barn and farm yards located within 100-feet on either side of the 115Kv Project. The dairy on TL 900 is owned by David and Rita Hogan and is approximately 100-feet from Support Structure #4. The dairy (and beef cattle operation) on TL 700 is owned by Bryce Smith and has a portion of its dairy structures within about 55-feet of the 115Kv Project; it appears the nearest structure is a roof over that dairy's lagoon facility. These are the two dairies analyzed herein as being in the immediate vicinity of the 115Kv Project.

Stray Voltage – There are a number of factors that can cause stray voltage- some of which come from the utility distribution system and others from on-farm conditions. Farm building maintenance, including associated electrical system maintenance, are accepted farm practices. Research indicates that almost all farms have some stray voltage present and therefore part of the accepted electrical system design and maintenance farm practices includes dealing with stray voltage if it becomes an issue to keep it to levels that

do not affect production¹³. As such, the 115Kv Project is not expected to significantly change any farm practices because diagnosing and dealing with stray voltage issues (if they arise) is an accepted farm practice of dairy farming.

Tillamook PUD has also indicated that there will be no increase in costs to accepted farm practices as a result of stray voltage. First, the voltage and distance from facilities of the proposed line is unlikely to create stray voltage issues. According to Tillamook PUD's engineer, the calculated level of the electric field is less than 0.7kV/m under the line and reduces to less than 0.5kV/m at the edge of the right-of-way. These values are less than other lines that exist throughout the County and which pass through dairy farms. Second, Tillamook PUD will take extra measures by grounding metal structures that exist in the right of way along the line. For example, Tillamook PUD will ground metal fences based on engineering studies that calculate the risk of stray voltage occurrences. No stray voltage is expected to occur outside of the right of way because the distance will be too great. Finally, in the event stray voltage is measured and determined to be caused by the transmission line, Tillamook PUD believes it has an obligation in applying prudent utility practices to take corrective measures. None of the above factors will be a burden to be borne by a dairy farm¹⁴.

Physical Barrier - The dairy on TL 900 has a farm road that leaves the barnyard area in the northeast portion of the dairy yard and goes *under the railroad trestle*. As such, the height clearance of the lines will be well above the low point under the trestle and no potential farm barrier to this access point will be created by the 115Kv Project; no farm impacts are expected for this reason. The dairy on TL 700 has access points to Goodspeed Road. These access points all run under an existing power line which is lower than the 115Kv Project so no new physical barrier will be created and no farm impacts are expected for this reason.

Gate Management and Maintenance Access Gates - Tillamook PUD will not be installing any gates. No specific maintenance access issues are expected at either of these farms. Support Structure 4 could be accessed from the railroad right-of-way if use of the existing farm access road became an issue for the dairy farm on TL 900. The Support Structures 31-39 by the dairy on TL 700 are along a Goodspeed Road (a County Road) and therefore access and maintenance to these structures is available via public right-of-way and no access/maintenance issues are anticipated. The remaining gate management and maintenance access gate issues are more "farm unit as a whole" type issues. Notwithstanding that some gate issues might actually be located within 100 feet of the 115Kv Project, the rest of the potential impacts are more "farm unit based" and are dealt with below in the farm unit analysis.

4.1.3 Beef Cattle Farm and Adjacent Pasture Lands

The only farm identified to also have a beef cattle operation is TL 700 above owned by Bryce Smith. The potential for impacts to the beef cattle operation is similar in nature but is at most no greater in intensity than the dairy portion of the operation analyzed above. Because no significant impact potential appears likely to the dairy operations, no

¹³ Studies have shown that stray voltage below 4 volts and 4 millamperes does not affect dairy cow production. Fick, R.J. and T.C. Surbrook. "A review of stray voltage research: Effects on livestock." Prepared by the Michigan Agricultural Electric Council.

¹⁴ See the attached Tech Memo from Tillamook PUD on stray voltage potential.



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additional potential significant impacts are identified for the beef cattle portion of that farm operation.

4.2 Farm Unit Analysis

This section assesses the potential impacts to accepted farm practices for farm units crossed by or immediately adjacent to the 115Kv Project. Atlas Maps 11-12 depicts CSA's best efforts to identify farm units.

The Farm Units are generally identified as follows:

Table 10.
Farm Units Identified Surrounding Lands Farm Units ^{1'}
(acreage does not include County owned land ~60 acres in farm production)

Farm Unit	Farm Related Acres
Aufdermauer, Barbara	83
Aufdermauer, Donald	132
Hogan, David and Rita ^{2'}	485
Hogan, Chelon	201
Keoch, Shirley Ann (Hogan Leased?)	20
Peterson, Roy et al	163
Rocha, Jody et al	94
Smith, Bryce	92
Tilla-Bay Farms Inc	106
Traskview Farm	66
Victory Dairy, George & Chad Allen	51
Totals	1,494

^{1'} based upon ownership and aerial photo patterns
^{2'} includes 10 acres owned by Matt * & Holly Hogan

4.2.1 Analysis of Power Transmission Lines in the General Area

Atlas Page 16 depicts the prevalence of power transmission lines in the bottomland dairy farming area around Tillamook. That map depicts existing power lines of various voltages all around the area. In performing background research on the project, CSA Planning did not identify any conflicts with power transmission facilities in Tillamook County in readily available public records or media sources.

Tillamook PUD staff did not identify any significant history of dairy farming conflicts with existing facilities of which they were aware when interviewed by CSA on the subject. Tillamook PUD was aware of rare instances concerning customer related stray voltage and outages caused from manure guns spraying power lines in the middle of farm fields. For this reason, both of these issues were given extensive consideration in the design and routing of the project. The project minimizes potential stray voltage as described in the Tillamook PUD memo on that topic. The routing of the project minimizes cross-farm transmission lines and where such lines exist they are located in



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areas where either the lines are really high and above any manure application gun spray patterns or are located in areas where small guns are already the only viable option due to environmental constraints in which case a minor potential alteration of any existing spray pattern of a small gun is all that would result from the project.

Dairy farming remains the predominant agricultural activity in the area as transmission lines have been constructed and operated in the region over many years. It does not appear that power transmission facilities have caused any decline in dairy farming activity in and around Tillamook.

4.2.2 Hay and Field Corn Production Farm Uses (generally to produce hay feed and silage as fodder for accompanying dairy operations)

Stray Voltage - Stray voltage is not expected to impact hay and field corn production in any way.

Physical Barrier - The immediate vicinity analysis in the prior section examined each segment of the 115Kv Project to identify locations where the linear feature has the potential to function as a physical barrier for accepted farm practices that need to be conducted on either side of the 115Kv Project. No physical barriers were identified in the above analysis to cause significant farm impacts. As such, there is no reason to expect any potential for farm-unit wide impacts will occur because the 115Kv Project has been designed in a manner that allows farm uses that need to move from one side of the project to the other to do so in a manner that is not expected to alter any accepted farm practices or increase the practices' costs.

Gate Management and Maintenance Access Gates - Tillamook PUD will not be installing any gates. For areas devoted to hay and field corn production, this not expected to result in any impacts. The main issue with gate management is stray livestock. Stray livestock is not a concern in hay and field corn production areas. This issue is dealt with below for pasture areas.

4.2.3 Dairy Farm uses and Adjacent Pasture Lands

Stray Voltage - Based upon the expert opinion of Tillamook PUD engineers, the potential for any stray voltage impacts in the immediate vicinity of the line is low and will diminish with distance from the line. Based upon this analysis, it is not expected that any stray voltage issues will cause farm impacts for farm units where the dairy farm yards are more than 100 feet from the proposed 115Kv Project.

Physical Barrier- The immediate vicinity analysis in the prior section examined each segment of the 115Kv Project to identify locations where the linear feature has the potential to function as a physical barrier for accepted farm practices that need to be conducted on either side of the 115Kv Project. No physical barriers were identified in the above analysis to cause significant farm impacts. As such, there is no reason to expect any potential for farm-unit wide impacts will occur because the 115Kv Project has been designed in a manner that allows farm uses that need to move from one side of the project to the other to do so in a manner that is not expected to significantly alter any accepted farm practices or increase the practices' costs.

4.2.4 Beef Cattle Farm and Adjacent Pasture Lands

The only farm identified to also have a beef cattle operation is Tax Lot 700 and specific impacts within 100 feet of the 115Kv Project were examined in detail above. Because



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the project will not increase potential for significant farm impacts for stray voltage, or create a physical barrier for farm operations or impact gate management and maintenance access gates there is no reason to expect any extended impacts to the beef cattle farm unit as a whole.

5 FARM USE ASSESSMENT SUMMARY

There are numerous dairy farms throughout the area that have power lines that cross them or are adjacent to them. The original electrification to these farms many years ago resulted in the automation of many dairy operations. There are now many power transmission facilities in the area and the dairy industry is still the dominant farm use in Tillamook County. Based upon our review of the project and examination of dairy farm practices, the likelihood of significant adverse impacts to accepted farm practices in the area appears nonexistent. Our professional opinion is that the proposed 115Kv Project will not significantly impact farm practices in the area nor is it likely to increase the cost of such practices.

6 POTENTIAL FOREST IMPACTS IDENTIFICATION AND METHODOLOGY

The rational assertion and deductions presented in this impacts analysis are the reasoning and opinion of CSA Planning Ltd., which is a professional land use planning firm with over 35 years' experience in Oregon Land Use Planning. The assertions and deductions are based upon field data collected directly by CSA Planning Ltd., other professionally collected data, Geographic Information System (GIS) analysis conducted by CSA Planning, and published data sources.

6.1 Forest Use Inventory and Practices

Forest uses can typically be categorized as either commercial forest operations where land is owned and managed by professional timber companies and small woodlots where smaller timber holdings are managed by landowners (often there is a house associated with the woodlot owner/manager). The 115Kv Project crosses two timberland holdings. Approximately 5,581 lineal feet is located on the Green Crow Corporation timberland and the remaining approximately 17,000 lineal feet is located on timberland owned by Stimson Lumber.

According to Bloomberg's company overview Green Crow Corporation is a private professional timber company that provides timberland investment services. Stimson Lumber is a private professional timber company with landholdings Oregon, Idaho and Montana with mills in Oregon and Idaho. In Tillamook County, Stimson owns and operates a dimension stud mill near the airport. The forest uses are corporate managed forestland.

The NRCS soils data in the area indicates productive forestlands with all the lands capable of producing at least 145 cubic feet of timber per acre per year.

Forest Practices consist of three main activities -- planting, management, and harvesting.

- Reforestation Phase- Seedlings are planted following a harvest. Seedlings are typically trucked in from a nursery and planted by hand or with small equipment. Chemical applications may occur via aerial spraying.
- Management Phase- Timber stands are actively managed. Thinning is a common practice after planting to pick out the best trees at the best locations to grow to



maturity. This involves slash removal and disposal including piling and chipping or burning thinned trees or such other methods as may be available. Second and third rounds of thinning may involve a selective harvest process as some trees become large enough to be merchantable but where thinning will still support future growth of the largest trees. Chemical applications may occur typically done via aerial spraying. Equipment used includes chainsaws, small dozers and trucks.

- Harvest Phase – Harvest methods vary by terrain and objectives. Some harvests are relatively complete (clear cutting). Other harvests are more selective. Aerial photos of the area indicate most areas have been harvested and used clear-cut methods. Flat to moderately sloped terrain allows for feller buncher to get trees down in addition to limbing and yarding. Most of the area is sleeper so a cable yarder system may be used. The yarder is set up upslope and trees are cabled up to the log deck (typically located on some sort of ridge or bench where a road can be constructed for log trucks). The yarder can be about 30 feet tall and cabling can run 25 to 60 feet from the ground. Trees are fallen by timber fallers using chainsaws in areas that are too steep for the feller buncher to access. An additional loader is often on site to load log trucks for transport to the mill. Disposal of slash is often done by burning or chipping.
- Road Building and Road Maintenance – Road building and maintenance of logging roads occurs in all phases of forest land management. This activity typically requires use of dozers and dump trucks. Excavators may be required as well. Culvert and bridge installations are required to get across streams where necessary.

6.2 Potential Impacts from 115Kv Externalities

This section identifies potential externalities from the 115Kv Project that must be analyzed for potential impacts to forest practices.

6.2.1 Externalities Identified with Logical Potential for Impacts

Identifying 115Kv Project externalities that have discernable potential to impact accepted forest practices involves a deductive process that compares the identified externalities to accepted forest practices. A 115Kv Project externality need not be further analyzed if there is no discernable potential for that externality to change accepted forest practices or to increase the cost of accepted forest practices on surrounding lands. Based on the foregoing, there are two categories of potential externalities that are not analyzed in this initial Impacts Assessment:

- The analysis does not evaluate potential impacts from construction activities. Potential impacts caused by construction are not expected to last for a long enough period on any one forest management area that construction impacts represent a meaningful externality capable of causing a significant forest impact. Construction can be coordinated with any harvests in the area so that intensive construction work does not occur in an area being harvested at the same time. Further, construction activities will take place within easements where Tillamook



115Kv Transmission Line
Applicant: Tillamook People's Utility District

PUD will have obtained property rights (and provided compensation to the underlying landowner) allowing those activities as part of the permitted use.

- The analysis does not evaluate the potential for impacts from lost forest production within the easement area. The lost production in the easement area is part of the conversion of that land from solely a forest use to the new, permitted transmission line use. As such, the price paid for the easement and new use will reflect the lost production, but it does not have a meaningful effect on accepted forest practices for the remainder of the land.

Based upon the forest uses and associated forest practices on surrounding lands, the following 115Kv Project externalities have a discernable potential to impact accepted forest practices or to increase the cost of accepted forest practices and warrant further evaluation:

- Physical barriers
- Access Road and Gate Management

6.2.2 Assessment of Externalities' Intensity and Scale

The next step in the inquiry is to determine if each of the above identified 115Kv Project externalities has sufficient potential from the standpoint of scale and intensity that could cause significant impacts. The scale and intensity of each of the above identified externalities is assessed below:

- *Physical Barrier within Forest Units:* The linear nature of the 115Kv Project within the easement has the potential to be a physical barrier to forest operations where the 115Kv Project transects forest units and forest operations must move from one side of the line to another. The essential source of potential forest impacts is where the line would prevent the movement of equipment from one side of the line to the other or with aerial spraying activities. This potential externality therefore warrants further analysis.
- *Gate Management and Permanent Access Roads-* If the 115Kv Project resulted in numerous new permanent access roads in previously undeveloped forestland areas and required frequent inspections, then potential gate management and access issues might arise. However, that is not the case for the 115Kv Project. According to Tillamook PUD engineering staff, Tillamook PUD typically does visual inspections once a year where a person can walk to within 200 yards and use binoculars. Every ten years a detailed inspection is performed where a qualified person would visit each pole, which involves a person walking in the area. Based upon the scheduled maintenance and the fact that most of the line is along existing logging roads, it is not expected that any gate management or maintenance access issues will rise to the level of a potential significant impact. Moreover, much of the line is parallel to existing logging roads and thus the 115Kv Project will support maintenance of these roads. As such, no further analysis on this issue appears warranted.



6.2.3 Forest Practices and GIS Inventory Data Synthesis and Project Design

The final step in the analysis is evaluating potential impacts to forest practices with specific forest use geography taken into account. The geographic nature of each of the 115Kv Project externalities with potential for significant impacts to accepted forest practices is analyzed below:

- *Physical Barrier within Forest Units*– Potential for the linear transmission line feature to affect forest operations as a physical barrier is geographic to a certain extent and also dependent on line height design. Generally, transmission line segments that are coincident or immediately parallel to the existing logging roads are going to have less potential for impact when compared to the sections that traverse “cross-country”; this is especially true where the line is uphill from the road because that will still allow yarding of logs from below up to the existing logging roads. Most of the segments parallel existing logging roads and most of those are located above the logging roads.

The project design provides approximately 25 feet of clear story height under the lines in all locations. This height will be adequate to move logging equipment from one side of the line to the other.

The physical barrier may require directional tree falling at the easement edge. If the casement edge is 50-feet away, and the trees are over 100-feet tall, harvest practices will require directional falling away from the line.

The physical barrier could affect aerial spraying.

7 FOREST IMPACTS ASSESSMENT

This section assesses the likelihood that 115Kv Project will cause changes to accepted forest practices or to increase the cost of accepted forest practices. The assessment includes two dimensions (background data and analysis) to support the conclusions reached for each potential impact. This assessment is geographic and accounts for geographic differences between forest practices and their location in relation to the proposed 115Kv Project.

7.1 Immediate Vicinity Surrounding Lands

This section assesses the potential impacts to forest practices within the easement corridor for the 115Kv Project and additional 50-feet on each side of the proposed easement (100-feet total on each side of the line). Because the line is sufficiently high to move equipment under the line where necessary, the only potential impact from the 115 Kv Project as a Physical Barrier relates to falling trees (whether naturally or during harvest) near the edge of the easement. Because the line is uphill of most of the roads and log decking will typically occur above the line for those trees, the trees must be felled uphill.

Directional tree falling is an accepted forest use harvest practice. Wedges and directional cuts are used all the time by professional fellers to direct falling trees to appropriate locations.



115Kv Transmission Line
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Because the forest uses in the project area are professional forestry companies, they harvest with professional timber fallers who deal with complicated directional falling on a daily basis. CSA did not identify anything in the analysis about the 115 Kv Project that is expected to be exceptionally difficult for the standard practice of directional falling. For this reason, it is not expected that any significant forest impacts will result for lands within 100 feet of the 115Kv Project.

The remaining matter is conflicts with aerial spraying. Most commercial forest management practices that use aerial spraying use helicopters which are much more maneuverable than planes. As such it is expected, that the new transmission facilities will not materially affect aerial spraying operations. Aerial spraying operations often have to content with overhead powerlines and accepted forest practice is to avoid power transmission lines as part of aerial spraying operations. No significant impact to aerial spraying is anticipated.

7.2 Forest Unit Analysis

On a unit basis, the relatively narrow strip of land adjacent to the easement where some directional felling would need to occur is an extremely narrow area relative to the total holdings of Green Crow and Stimson. Green Crow has over 550 acres and Stimson has over 2000 acres in this area. The need for some directional falling in this area is minor and insignificant when compared to the entire forest management units and will appreciably affect forest use and operations in the area.

8 FOREST USE ASSESSMENT SUMMARY

The potential for impacts to forest uses in the area is ultimately very small. Large timber holding companies often have energy transmission facilities that cross them. Managing harvests around these facilities is a common and accepted forest practice and there is nothing uniquely challenging about applying those standard practices here. For this reason, no significant forest impacts are anticipated.



APPENDIX C

TECHNICAL MEMORANDUM

Stray Voltage Potential

TPUD Engineering Staff





Tillamook People's Utility District

Directors

Edwin L. Jenkins
Doug Olson
Harry E. Hewitt
Barbara A. Trout
Ken R. Phillips

A Customer-Owned Electric Utility

Office: 503 842-2535 • Toll-free: 800 422-2535 • Fax: 503 842-4161 • www.tpud.org

Todd Simmons
GENERAL MANAGER

To: Jay Harland, CSA Planning, Ltd

From: KC Fagen, Engineering Manager

Subject: Stray Voltage Issues with Tillamook Oceanside 115kV Transmission Line

Date: August 22, 2017

Cc: Tommy Brooks, Cable Huston; Paul Scilo, CH2M

I reviewed the issue of "stray voltage" potential from the proposed Tillamook Oceanside 115kV Transmission Line. For the purpose of this conversation, stray voltage relates to unwanted voltage. Stray voltage can originate from power flowing through the conductors of an electric power line and can be induced on near-by metal objects that parallel the transmission line corridor for longer distances. Induction is considered a weak source for transmitting electricity. Contributing factors that can contribute to stray voltage include: grounding, amount and unbalanced loading of the transmission lines, proximity to the power line, length the object parallels the power line, and configuration of the conductors (physical geometry of how the conductor are positioned in space).

For the Tillamook Oceanside 115kV Transmission Line, these factors have been taken into consideration. First, the line is located at least 50 feet from any metal buildings; second the power flowing in the line will be balanced (our transmission lines are typically less than 5 percent unbalanced; there no metal object that parallel the line for more than a few hundred yards, which is considered a short distance; any fences will be grounded within the easement area with ground rods; and the peak power flow will be very small, less than 75 amps.

Regarding the impact on humans or animals, any stray voltage induced by the transmission line would be too weak to cause any impacts according the IEEE paper, *Impact of Transmission Lines on Stray Voltage*, the stray voltage will collapse due to the contact resistance of the earth.

No additional operational or maintenance will be needed by any property owners and what is currently being used. The PUD, BPA, and Pacific Power have transmission line in the area, and we are unaware of any property owners doing anything more than folks who own property, building or structures in areas where there are no transmission lines.

CASE: PCN 2
WITNESS: SCOTT GIBBENS

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 304

**Exhibits in Support
Of Cross-Answering
and
Reply Testimony**

March 2, 2018

REPORT

Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project

Prepared for

Tillamook People's Utility District

July 2017



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Table 5-4. Temporary Project Features Proposed in Riparian Buffers

6.3 Avian Impacts

Reconnaissance-level field studies were conducted on June 30, 2014, to assess existing conditions and habitats (Biological Resource Technical Memorandum, Appendix G of the Final EIS, CCPRS, 2015). The studies concluded that the area provided habitat for a number of terrestrial and aquatic animal species. Migratory and resident bird species use a variety of the habitats. These species include Western wood peewee (*Contopus sordidulus*), tree swallow (*Tachycineta bicolor*), red-tailed hawk (*Buteo jamaicensis*), great blue heron (*Ardea herodias*), American robin (*Turdus migratorius*), Swainson's thrush (*Catharus ustulatus*), cedar waxwing (*Bombycilla cedrorum*), turkey vulture (*Cathartes aura*), and purple martin (*Progne subis*). Although not exhaustive, the list indicates a rich diversity of birds. The study area and Tillamook Bay in general are important stop-over and wintering areas for migratory shorebirds, waterfowl, and wide-ranging sea birds as well as summer habitat for neotropical passerines and other migratory species (Audubon Society of Portland, 2014; Oregon Tourism Commission, 2014). Open water habitats, wetlands, pastures, and estuarine areas within the study area provide suitable foraging opportunities for bald eagle and the 2014 study identified one active nest near the SFC.

The recent Southern Flow Corridor baseline study (Brown et al., 2016) indicates that habitat changes will occur, including a shift to more saline-tolerant plant species after restoration tidal flows inundate the SFC site. Additionally, the baseline study states: "...because the SFC project is nested between the confluence of three rivers... resulting salinity, temperature and flow patterns make this area, relative to the full watershed, optimal habitat for juvenile salmonids as well as other estuarine dependent species." As the habitat restoration continues within the SFC, it is likely that more avian and other species will utilize the area.

TPUD's Avian Protection Plan (APP; Appendix D to this report), which was developed in accordance with well recognized publications for avian protection guidelines such as the Edison Electric Institute and the USFWS, suggests that when addressing risks posed to the migratory birds due to the proposed project, avian mortality can be best reduced by identifying the areas that pose the greatest risk to migratory birds. The project crosses two areas that will be designated as avian assessment zones. These zones will be used to address site-specific mortality issues associated with new construction. The two zones are:

- Tillamook River and major tributaries
- Trask River and major tributaries

In accordance with TPUD practices and the Avian Protection Plan, when new power lines are constructed in areas of known avian interaction, the two main risks to consider are electrocutions and collisions with a line. TPUD's Avian Protection Plan recognizes that bird interactions with power lines cause bird injuries and mortalities that may result in outages, violate bird protection laws, and cause grass and forest fires. Therefore, TPUD is committed to minimizing bird interaction with power lines to the greatest extent practicable.

Specifically, the project will exceed the 60-inch minimum spacing between energized conductors and from grounded surfaces (the poles), and will incorporate the use of aerial markers or balls, commonly known as bird diverters. The increased spacing will prevent birds from making contact with energized parts reducing any likelihood of electrocution. The addition of passive visual aids such as bird flappers, diverters, or aerial balls will make the conductors more visible and will reduce the likelihood of a bird colliding with the conductor. These techniques will be used from just west of

US Highway 101 to Oceanbay Road, which encompasses the sensitive avian habitat areas such as the Southern Flow Corridor.

6.4 TPUD Avian Protection Plan Standards

TPUD has updated its Avian Protection Plan and it is under review by the USFWS and ODFW. There are two main issues with power lines and birds - electrocution and collisions. TPUD has addressed both of these issues in its Avian Protection Plan by increasing spacing between energized components or insulating energized components, and by providing higher visibility devices on the lines such as bird diverters. All new construction must meet National Electrical Safety Code clearance and spacing requirements. The spacing requirements as required in the National Electrical Safety Code exceed the minimum spacing guidelines for avian protection. Avian-friendly construction, which provides a separation of 60 inches between energized conductors, and from grounded hardware, has been shown to reduce the number of electrocutions on overhead lines as noted on page 1 in the *Avian Protection Plan Guidelines, A Joint Document Prepared by The Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) and U.S. Fish and Wildlife Service (USFWS), April 2005*, which states "[a] utility that implements the principles contained in these APP guidelines will greatly reduce avian risk as well its own risk of enforcement under the Migratory Bird Treaty Act (MBTA)".

The avian-friendly construction standards used by TPUD are approved by the United States Department of Agriculture Rural Utility Services and follows the recommendation guidelines from the APP publication. The transmission line will incorporate adequate spacing between phases and grounded structures. In areas of potential bird collisions, passive visual aids such as bird flappers, bird diverters, or aerial balls will be used to prevent bird collisions with the power lines. These techniques will be used from just west of US Highway 101 to Oceanbay Road, which encompasses the sensitive avian habitat areas such as the Southern Flow Corridor.

These same techniques were successfully deployed in a recent similar transmission line project jointly constructed by TPUD and the Bonneville Power Administration (BPA) in a 2014 project along State Route 6 in Tillamook County. Studies have indicated that passive visual aid devices are as successful as active type devices and can reduce bird collisions by 50 to 80 percent (Crowder, 2000).

TPUD understands that the USFWS may have specific guidance on avian-friendly construction standards to implement at the proposed crossing of the SFC property. TPUD is committed to working with OWEB and the USFWS to ensure the crossing of the SFC occurs in a fashion consistent with the goals and objectives for the SFC project.

SECTION 7

Conclusions

CH2M biologists conducted evaluations for potential presence of rare plant and wildlife species within the project study area. The purpose of the surveys was to identify habitats with the potential to support any of the target special-status species and to determine whether proposed project activities will affect those populations.

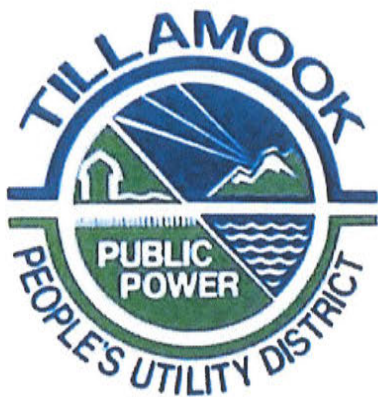
7.1 Conclusions

The surveys identified five habitat types and numerous plant and animal species. No state- or federally listed endangered or threatened species were observed in the study area during field investigations. The biologists drew the following conclusions:

- Three dominant habitat types are within the study area: Agriculture, Pasture, and Mixed Environs; Westside Lowlands Conifer-Hardwood Forest; and Open Water — Lakes, Rivers, and Streams. Two other types present are Herbaceous Wetlands and Westside Riparian-Wetlands.
 - Agriculture, Pasture, and Mixed Environs was located predominantly between MP 0.1 and MP 3.8 and primarily within the urban growth boundary of the City of Tillamook. The majority of nonnative species was found within this habitat. A large part of this area consists of farmed wetlands and does not provide native vegetation.
 - Westside Lowlands Conifer-Hardwood Forest habitat was identified between MP 4.4 and MP 8.6. These habitats within the study area have been disturbed and fragmented by commercial forest practices, which have resulted in forest habitat in various stages of succession from clear-cut to mid-succession. It does not provide suitable habitat for listed species located in the vicinity of the study area.
 - Suitable habitat for listed species occurs in the Open Water—Lakes, Rivers, and Streams habitat in the lower elevations of the study area. All impacts to this habitat from construction and operation of the project will be avoided by transmission lines spanning the rivers and streams.
 - Potential for suitable habitat for listed species in Herbaceous Wetlands and Westside Riparian-Wetlands is low. These habitats within the study area have been disturbed and fragmented by commercial forest practices and by residential development and agriculture in the surrounding area.
- No ODFW Category 1 habitat was identified in the project study area.
- Tillamook County has a riparian setback standard, which will be addressed during the land use approval process. The County's standard requires review and concurrence from ODFW.
- The proposed 300-foot aerial crossing of the SFC property will require review and approval by OWEB in coordination with the USFWS.

The proposed project is not expected to result in any significant impacts to special status species. No state or federally listed endangered or threatened species were observed in the study area during field investigations. However, potentially suitable habitat for three listed species was identified. An Avian Protection plan addresses avoidance for impacting all avian species (see Appendix D). All

AVIAN PROTECTION PLAN



DRAFT
Tillamook
People's
Utility
District

**1115 Pacific Avenue
Tillamook, Oregon 97141**

Office: 503.842.2535

FAX: 503.815.8648

Toll Free: 1.800.422.2535

June 2017

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Introduction

Tillamook County is located in the northwest corner of Oregon and has a population of 25,251 as of 2010. Tillamook County covers 1,225 square miles. The major physical features of the County consist of the rocky and irregular coast line that forms the county's western boundary, stretches of coastal low lands, and heavily timbered interior parts. Figure 1-1 shows Tillamook Peoples Utility District's (District) service area.

Tillamook County voters approved Oregon's first People's Utility District on July 23, 1933; however, the first customer was not connected until October of 1946. During the late 1940s and early 1950s, parts of Tillamook County had two utilities, Mountain States and the District. Mountain States merged with Pacific Power and Light in 1954 and on May 22, 1961, the District purchased PP&L at which time the people of Wheeler and Nehalem opted to join the District. The District has its headquarters in Tillamook, Oregon. It serves the needs of most of Tillamook County and minor parts of Clatsop and Yamhill counties.

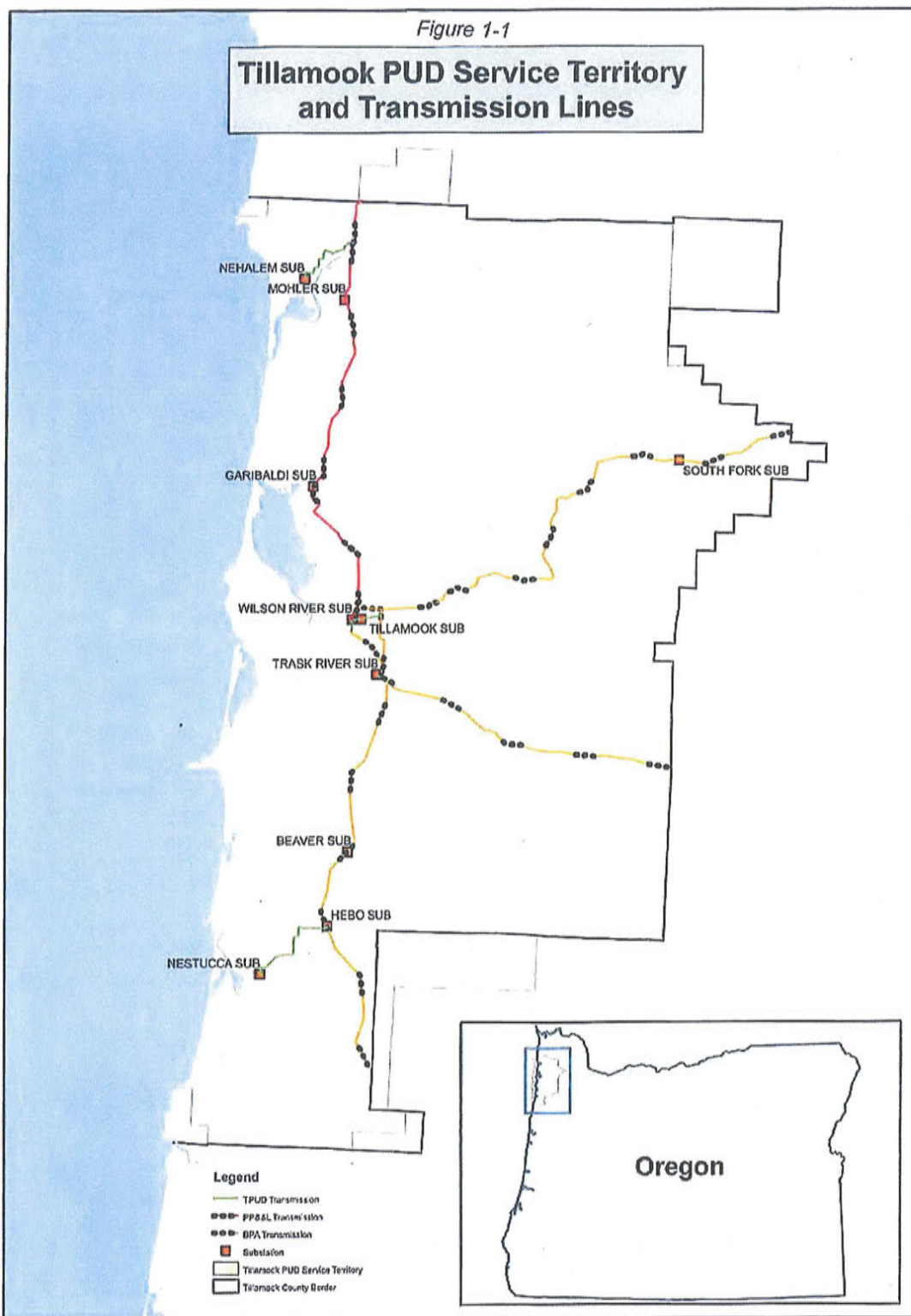
Purpose

The District is dedicated to working with the various agencies to develop a plan to reduce bird mortalities on its overhead lines. Although the District has had a limited number of bird contacts, any contact with an overhead line reduces the reliability of that service area. The District's primary goal is to provide safe and reliable power to all of its customers. Reducing the number of bird contacts will help to improve the reliability in this area.

In the 1970s, an investigation of reported shooting and poisonings of eagles in Wyoming and other western states led to evidence that eagles were also being electrocuted on power lines. Since then, the utility industry, wildlife resource agencies, conservation groups, and manufacturers of avian protection products have worked together to understand the causes of avian electrocutions and to develop ways of preventing them. The publication, *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* summarizes the history and achievements of this work (SPAP).

Over the last two decades, biologists have also monitored bird movements near power lines in order to assess the effects of disturbance and collision mortality on bird populations. The conclusions of these studies, as well as suggested practices are documented in *Mitigating Bird Collisions with Power Line: The State of the Art in 1994*.

The District Avian Protection Plan (APP) was developed to expand and formalize the District existing avian protection program in accordance with the SPAP guidelines, a joint guidance document prepared by the Edison Electric Institute's Avian Power Line Interaction Committee (APLIC) and the U.S. Fish and Wildlife Service (USFWS). The SPAP guidelines along with related APLIC documents (described below) are considered the most up-to-date and comprehensive guidance tools to reduce the potential for avian electrocution and collision mortality.



The SPAP guidelines (APLIC and USFWS 2005) define an APP as “a utility-specific document that delineates a program designed to reduce the operational and avian risks that result from avian interactions with electric utility facilities”. This document incorporates the principals of an APP as outlined in the SPAP guidelines and establishes a process for monitoring and evaluation, reporting and data collection, siting and design considerations, and implementation of remedial actions.

District Avian Protection Statement

Bird interactions with power lines may cause bird injuries and mortalities (which may result in outages), violation of bird protection laws, and grass and forest fires. The District management and employees are committed to reducing the detrimental effects of bird interactions with power lines.

This document is intended to ensure compliance with legal requirements while improving distribution system reliability. To fulfill this commitment, the District developed this APP to provide guidance in reducing avian mortalities due to collisions with and electrocutions from the District’s facilities. The District has and will:

1. Comply with Federal, State, and local laws.
2. Implement and comply with its comprehensive APP.
3. Document bird mortalities, problem poles and lines, and problem nests.
4. Provide information, resources and training to improve its employees’ knowledge and awareness of the APP.
5. Utilize avian-friendly framing approved by the United States Department of Agriculture Rural Utility Services (RUS) in areas known to have significant avian activities and any locations that involve collisions or mortalities.
6. Use covered jumper conductor at dead-end poles, transformer and capacitor bank installations, equipment jumpers, etc.
7. Use bushing, line and insulator covers on transformers, capacitors, cable terminations, and cutouts.
8. Look for methods to reduce migratory bird electrocutions and improved nest and egg handling techniques.
9. Proactively conduct corrective actions on high-risk poles that result in improved migratory bird protection.
10. Monitor the effectiveness of the corrective actions taken and improve techniques or equipment based on that experience.
11. Report to the USFWS Office of Law Enforcement (OLE) electrocutions of eagles or threatened or endangered species (TES) immediately, but within 48 hours or the next business day after learning of the occurrence.
12. Meet with USFWS representatives as deemed necessary, to discuss avian protection and the results of the program that has been implemented.

13. Keep records of avian incidents.

Training

Successful implementation of this APP requires a thorough understanding of the issues and corresponding protocols. To accomplish this, the District has developed a training program focusing on staff with direct and indirect implementation responsibilities including managers, supervisors, field crews, engineers, and dispatch staff. The District has regular monthly training meetings, for all personnel. These meetings will be used to review the issues, procedures and protocols included in this APP. These include:

- Identification of bird-related issues – electrocution and collision mechanisms
- Discussion of state and federal regulations that protect birds, legal implications, and the need for compliance
- Construction and design standards and retrofitting standards designed to reduce avian mortality and collisions
- Protocols of plan implementation including assessing problems, proactive approaches, and recording/reporting data
- Protocols for dead or injured birds
- Responsibilities of staff to implement the APP

Permit Compliance

The District receives a Special Purpose Federal Fish and Wildlife Permit issued by the USFWS, which is renewed annually. A copy of this permit is included in Appendices A of this APP. It is the District's intention to maintain an active permit as a part of this APP.

This permit provides the following conditions and authorizations to the District:

- **Possession and transport**
 1. Collect, transport and temporarily possess carcasses of migratory birds.
 2. For Bald and Golden Eagles (Eagles) and listed Threatened or Endangered Species (TES), you must call a U.S. Fish and Wildlife Services Office of Law Enforcement (OLE) (503-682-6131) for instructions and approval BEFORE collecting or moving.
 3. For all other migratory birds, gather data as required.
- **Active Nest Relocation. Except for Eagles and TES**

In emergency situations, you can relocate active (containing eggs or nestlings) migratory bird nests from transformers and conductors when the threat of fire hazard and power outages is present at the current nest location. The office issuing this permit shall be notified within 72 hours of active nest relocation, giving the location and details on relocation (i.e., nest moved to platform built adjacent to power pole.)

- **Active Nest Relocation for Eagles and TES**

To conduct activities involving nests of Eagles or TES, additional permits must be obtained.

- **Injured/orphaned birds**

Must immediately contact a federally permitted migratory bird rehabilitator or licensed veterinarian for instructions.

- **Reporting**

Eagles and TES incidents must be immediately reported, but no later than 48 hours or the next business day.

Other migratory bird incidents must be reported within 7 days from the date of discovery and collection.

Significant mortality events must be reported to PermitsR1MB@fws.gov immediately, but not later than 48 hours or the next business day.

Annual reports are to be submitted by January 31.

- The Standard Conditions Migratory Bird Special Purpose Utility Permits 50 CFR 21.27 is a part of the permit.
- Records shall be maintained at Tillamook People's Utility District, 1115 Pacific Avenue, Tillamook, OR.

Construction Design Standards

There are two types of construction to consider, new construction and retrofitting existing structures.

New Construction

When new lines are being constructed in areas of known avian interaction, the two items to consider are electrocutions and collisions with a line. All new construction must meet National Electric Safety Code (NESC) requirements. Avian-friendly construction, which provides a separation of 60 inches between energized conductors and grounded hardware, has been shown to reduce the number of electrocutions on overhead lines. Where this separation is not possible, a conductor cover will be installed. Industry evidence has shown that perch style diverters are not as successful as covering. The avian-friendly construction standards will include the use of covered jumper wires at such locations such as transformer banks, corner and double dead-end structures, risers, capacitor banks, and voltage regulators.

Another consideration for new construction is bird collisions with the power lines. Line placement, orientation, and configuration can potentially affect collisions, and should be considered during pre-construction planning. The following factors are important considerations in line placement:

Proximity - In local flights, the proximity of power lines to locations where birds are landing and taking off is critical. Brown et al. (1984, 1987) found that no

Sandhill Crane or waterfowl collisions occurred where distances from power lines to birds use areas exceeded one mile.

Vegetation - Vegetation near power lines can sometimes minimize the probability of collision. For example, lines that are at or below the height of nearby trees rarely present a problem because small tree-dwelling birds have greater maneuverability and large birds will gain altitude to clear the highly-visible tree line, consequently avoiding the powerline.

Topography - Topographical features affect local and migratory movement of birds. Features such as mountain passes, river valleys, and shorelines that are traditional flight corridors should be considered when planning powerline routes to avoid primary flight paths (Colson and Yeoman 1978, Faanes 1987). Topographical features can also influence the visibility of powerline in local situations; this can be used to the advantage during the route planning phase of power line construction.

The topography of Tillamook County, which consists of wooded valleys and canyons as well as the coastal regions, does not allow many alternatives to the line routes. However, these wooded areas do aid in reducing the number of collisions due to their proximity to the trees. Much of the line routing will be dictated by the topography and or local conditions. For example, a line extending up one of the canyons will be located near the road to avoid having to clear cut a right-of-way and also to maintain acceptable distance from the river which a road is most likely paralleling.

Consideration must also be given to flooding issues when locating lines on the valley floor around Tillamook. These lines also have a higher probability of having line collisions. In general, these lines will be located in the road right-of-way, and could possibly have a potential of bird collisions due to the fact that these lines may be located next to feeding areas. In these areas the addition of aerial balls or bird diverters to the line could be used to prevent line collisions. However, a neighboring utility, which used the bird diverters, had issues with them corroding due to the corrosive nature of the coastal climate. Aerial balls present loading issues that need to be taken into account as part of the design of the line. The District will monitor areas through the use of outage reports to determine if line collisions have occurred in areas where a new line is being constructed. Appropriate line construction will be utilized in these areas.

Construction Retrofitting

Retrofitting of the existing facilities will be required when electrocutions are noted at specific structures, or line collisions have happened in a certain area. The type of retrofitting will be dependent upon the type of incident that has occurred. If a phase-to-phase or phase-to-ground contact has occurred, then an increase in phase separation will be needed or a cover installed to prevent contact between phases or phase to ground. An electrocution occurring where jumper wires are used would require the existing jumper wires to be replaced with covered wires.

For the District, the most common cause of electrocutions have been crows and seagulls on service transformers. The number of electrocutions has decreased since

the District has started using higher rated (35 kV) insulated bushings on equipment and the insulators used for framing construction, along with the use of covered jumper wire. The District has tested the use of several different types of bushing covers for added protection on transformers, but to date has not been able to find one that will stay on the transformers during the coastal storms. The covers have also had tracking (electric arcing across the surface) as a result of the salt environment, which cause them to burn up. The District will continue to evaluate products to find a protective bushing covers that will withstand both the harsh saltwater environment as well as the high winds.

The bare copper wire jumpers will be replaced with covered wire in areas that are identified as a problem for bird electrocutions. Other installations such as fuse cutouts or jumper wires at dead ends will also be changed to covered wire as these areas are identified.

In the case of line collisions, the line will be retrofitted with aerial balls or bird diverters as noted in the new construction section.

A review of the area will be conducted and the District will determine if similar conditions exist on neighboring structures or spans. These similar structures will also be retrofitted to a more avian-friendly design.

Nest Management

All active nests (eggs or young chicks) are protected by the Migratory Bird Treaty Act. Raptors, and occasionally other species, benefit from the presence of power lines by utilizing distribution poles and transmission structures for nesting. Although electrocution of birds that nest on power lines is infrequent, bird nests can cause operational problems. Removal of nest generally does not solve the problem because most species are site tenacious and rebuild shortly after nest material is removed. There are also regulatory and public relations problems with nest removal. Furthermore, the District has realized public relations benefits by providing safe nesting locations for the species.

The District has received a permit issued by the USFWS allowing crews to manage an active nest for all species except for Bald and Golden Eagles (Eagles) and threatened or endangered species (TES). In the case of "imminent danger", (which should be considered extremely rare), the District crews may take immediate appropriate action (including trimming of nesting materials, moving conductors, or nest removal). However, the dispatcher (Operations Supervisor) must be contacted to receive permission prior to any action. The District has had one Osprey nest on a distribution pole that was relocated by the District crews to a nearby nesting platform constructed by the District outside the breeding season, in accordance with our permit and in concert with the Oregon Department of Fish and Wildlife (ODFW).

The procedures included here apply only to problem nests. Nests not interfering with power operations should be left in place. If a problem with the specific nest is anticipated in the future, permit requirements may be avoided by taking appropriate action during the non-breeding season before the nest is active. Breeding season and

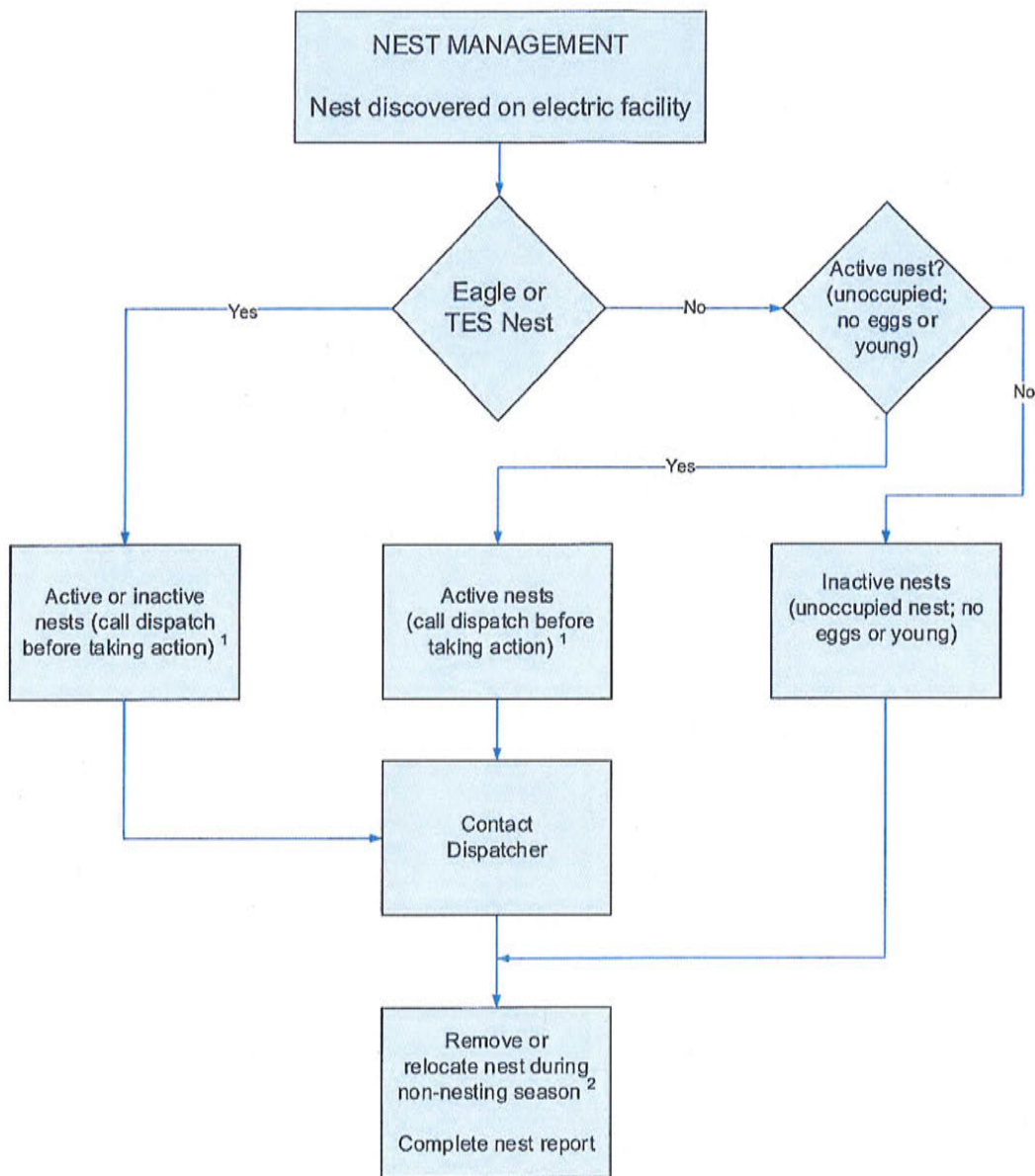
when nests may be active for most raptors fall between February 1 and August 31. However, an active nest is only when eggs or young are present.

If there are any questions whether a problem nest is active or inactive, contact the Operations Supervisor. All identified problem nests and any actions taken should be reported using the outage report form.

The following items should be completed when a problem nest is encountered:

- Call the Dispatch, who will contact the Operations Supervisor.
- If imminent danger exists, trim nest material or cover/move conductors.
- In the case of a non-Eagle/TES bird, relocate nest during non-nesting activities.
- In the case of Eagle/TES birds requiring relocation of an active nest (containing eggs or checks):
 - Document the event.
 - Notify USFWS within 72 hours of incident.
 - Submit information on USFWS annual report.
- In the case of Eagle/TES species requiring nest relocation, contact the state and federal personnel listed in the contact list for the area of incident. Document and coordinate transfer of nest.
- The following flowcharts show the actions to be taken by District Field crews when a problem nest is encountered.

Avian Nesting Management Flow Chart



¹ If imminent danger exists, conduct necessary action immediately.

² Dispatch will contact U.S. Fish and Wildlife Service or Oregon Department of Fish and Wildlife, North Coast District Office to request necessary permit(s) for active nest or eagle nest removal/relocation.

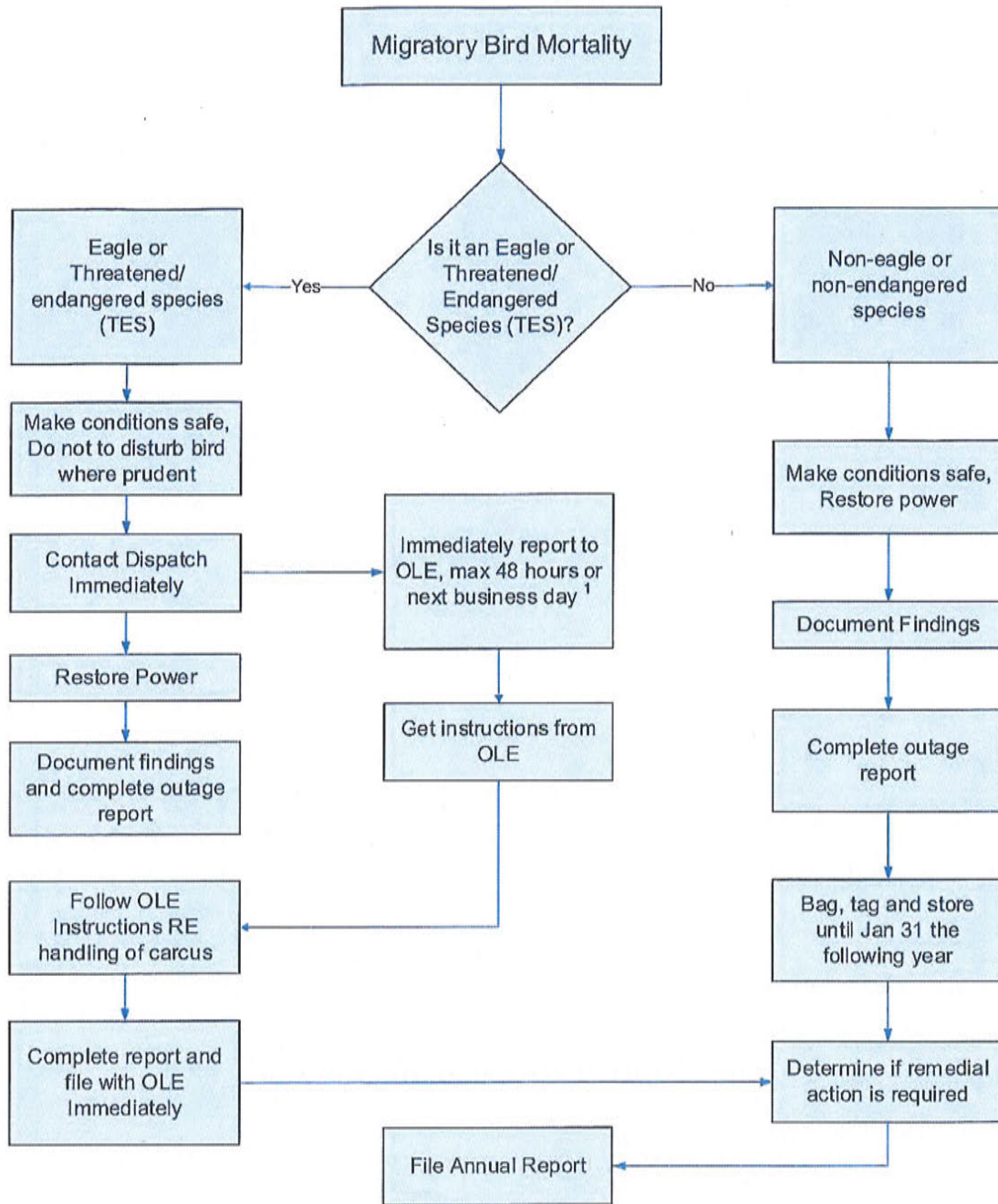
Fatality and Injured Bird Protocols

When a bird fatality or injured bird is encountered, the following actions should be taken:

1. If a non-Eagle/TES bird is taken by electrocutions or collisions, document the event using an outage report, which will be logged in the USFWS annual report. Bag and store the bird in a freezer, until the USFWS annual report is submitted. Submit information on USFWS annual report.
2. In case of an Eagle/TES bird taken by electrocution or collision, call the US Fish and Wildlife Office of Law Enforcement (OLE) immediately and document the event. Do not move the bird until getting instructions from the OLE. Submit information on USFWS annual report.
3. If a non-Eagle/TES bird is injured, document and transfer the bird to a rehabilitation center for the area. Document the event and submit information on USFWS annual report.
4. In the case of an injured Eagle or TES bird, call a wildlife rehabilitation center immediately. Document the event and submit information on USFWS annual report.

The following flowcharts shows the actions that should be taken if a dead or injured bird is encountered. Contact numbers are listed in the Key Resources section.

Avian Mortality Flow Chart



¹ Dispatch will contact U.S. Fish and Wildlife Office of Law Enforcement (OLE). Injured birds should be reported to Dispatch, who will contact Oregon Department of Fish and Wildlife North Coast District Office or Wildlife Center of the North Coast.

The following steps should be taken for disposal of a non-eagle bird:

1. Make area safe
2. Document event.
3. Pick up the birds using disposable gloves.
4. Tag and store bird in freezer
5. After January 31 of the following year, release to authorized agency or for birds not released, bury or incinerate.

The following steps must be taken for disposal of the eagle:

1. Contact the U.S. Fish and Wildlife Service Office of Law Enforcement (OLE).
2. If these entities cannot be reached then
 - a. Pickup bird using disposable gloves.
 - b. Tag and transport eagle to freezer until USFWS staff can be reached
3. OLE Special agent will advise if they will recover or if need to ship to the Service. This needs to be in writing from OLE
4. Eagle carcasses must be turned over to USFWS so they can be forwarded to the National Eagle Repository in Colorado.

When a live eagle or other migratory bird is found injured:

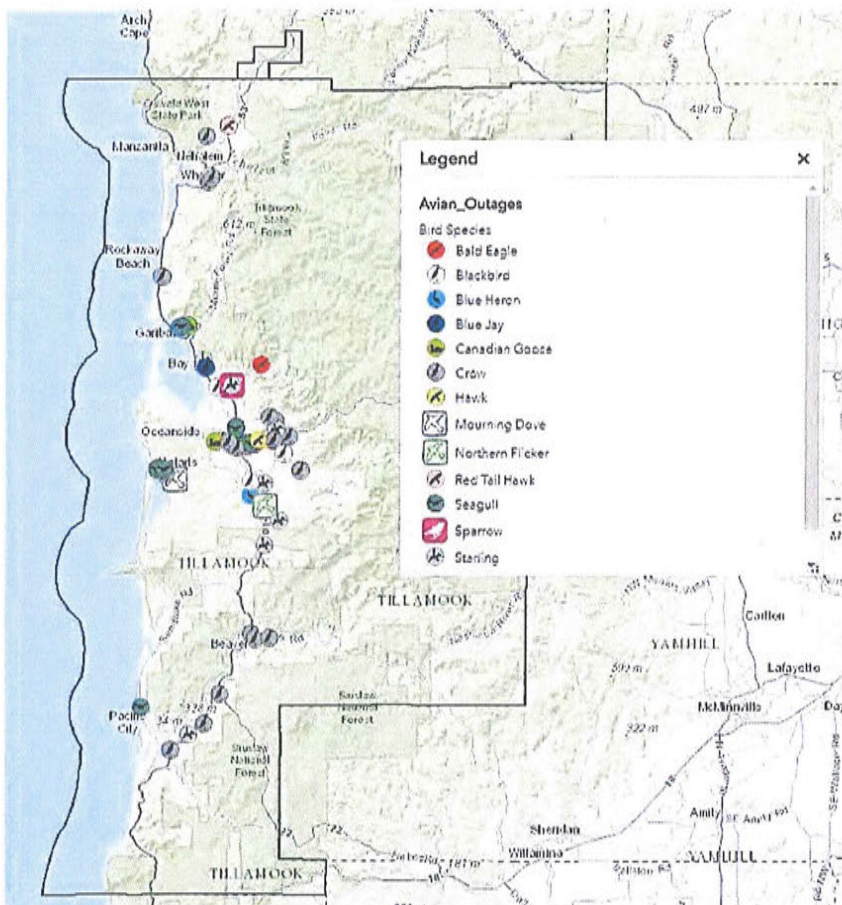
1. Immediately contact a federally permitted migratory bird rehabilitator or a licensed veterinarian for instructions.
2. Do not handle any wild animal if doing so will risk your safety or the safety of others.
3. Never handle a large bird of prey that appears alert and responsive.
4. When waiting for authorized assistance, keep a safe distance from the animal and do what you can to protect it from harassment by pets or other people.
5. Approach raptors from low to the ground and at a slow quiet pace.
6. Contain raptor if possible.
7. Do **not** feed or water raptor.
8. If instructed by authority, pick up large raptors (excluding eagles) with welding-type gloves.
9. If instructed by authority, pick up smaller raptors with work gloves.
10. Arrange for transportation of birds to the rehabilitation center for the area.

Avian Reporting System

The District's Avian Reporting System is the process by which all avian incidents, nest sites, and monitoring data are recorded and cataloged into the data base. It includes the following components:

- Detection
- Investigation
- Mitigation
- Reporting

The District maintains information on avian incidents in our GIS database for the past two decades, see the figure below. The data is organized in searchable database that includes date and time, year, species, facilities, and outage data. This provides the District another tool in helping to determine patterns for identifying potential avian assessment zones that may require upgrading construction configurations to avian-friendly construction framing.



Detection

The detection of avian fatalities occurs through the investigation of avian-caused power outages and incidental observations. The detection of nest sites occurs through incidental observations and through regular monthly and annual monitoring efforts.

Investigation

Once detected, field staff will report the circumstances associated with dead or injured birds to the District dispatcher. The dispatcher will record the data on the Outage Report form. A site assessment will be conducted in response to all power outages to determine the cause and circumstances involved. If the cause is bird-related, the assessment will include a determination of bird species, the specific cause of the fatality if possible; and other relevant data. To enhance the probability of incidental detections, all field staff will be directed to be alert for dead or injured birds in the vicinity of all the District facilities.

Once detected, field staff will report the circumstances associated with nest built in or on structures to the District dispatcher. The dispatcher will notify the Operations Supervisor. The Operations Supervisor will conduct a site assessment to make a determination regarding the potential risk posed by the presence of the nest to system function and hazard to the nesting birds. The Operations Supervisor will utilize the nest management procedures to determine the appropriate course of action and notify the appropriate agencies of the proposed or taken action. Information on all bird nests will also be recorded as described under Reporting

Reporting

Once a fatality or injury has been detected and investigated, the incident will be reported utilizing the District's Outage Report form regardless whether an outage occurred or not. Information will be entered into the Outage Management System data base and then forwarded to Operations Supervisor for making decisions regarding remedial actions.

Since very few nests have been reported on the District structures, all nest reporting will be accomplished by the Operations Supervisor. The Operations Supervisor shall prepare a Nest Management Report documenting the location, species, agencies notified, actions taken with their associated dates, and photographs before and after corrective actions are taken. Nest relocation activities will also be reported on the Annual Report as required by the USFWS.

Risk Assessment Methodology

With over 655 miles of overhead distribution and transmission lines in our service territory, it is neither economically prudent nor biologically necessary to consider all areas for remedial actions. Thus, this risk assessment process under the APP is limited to new project routes and reconstruction efforts along existing routes.

Risk Assessment Process

The risk assessment process draws upon the available information on important avian use areas, habitats, and avian flight corridors to establish potential avian assessment zones. These zones can be then be used to address site-specific potential mortality issues associated with new construction and retrofitting of existing facilities having recorded avian mortality based on proximity to key habitats or bird use areas within the zone.

The following areas are designated as avian assessment zones:

Areas immediately adjacent to the:

- Nestucca River and major tributaries
- Tillamook River and major tributaries
- Trask River and major tributaries
- Wilson River and major tributaries
- Kilchis River and major tributaries
- Miami River and major tributaries
- Nehalem River and major tributaries
- Nestucca Bays
- Netarts Bays
- Tillamook Bays
- Nehalem Bays
- Pacific Ocean coastline
- Pasture lands that are seasonally flood

Mortality Reduction Measures

This section describes the mortality reduction actions that have been implemented based on an assessment of reported incidents and the results of the Predictive Analysis and Risk Assessment procedures.

Mortality incidents reported as a result of power outages or through incidental observations are immediately reviewed. If the review indicates the cause is related to an unprotected power pole or conductor visibility issues, mortality reduction actions (i.e., retrofitting poles or installation of flight diverters) will be implemented accordingly.

Adjacent pole retrofits will be considered on a case-by-case basis. The District evaluates each incident and reviews adjacent structures for similar conditions.

The Risk Assessment has and will be used to inform, strategize, and direct mortality reduction actions. This is a proactive strategy designed to minimize risk by targeting remedial actions into areas identified as having the greatest risk.

Actions may include:

- Alternative siting of new facilities to avoid sensitive or high use areas
- Avian-friendly pole configurations (increase spacing between wires or covering of wires)

- Retrofitting distribution poles to reduce electrocution hazard
- Installing flight diverters to reduce collision hazard

Alternative Siting of New Facilities

Data derived from the risk assessment process within avian assessment zones has and will be used when selecting routes for future power lines. When alternative routes are available, staff will consider routes that minimize the potential for electrocution or collision mortality. When alternative routes are not available, avian-friendly construction standards will be implemented in areas where avian habitat or important movement corridors creates contact potential.

Avian-Safe Pole Configurations

The structural design of new power pole configurations will also be analyzed during or prior to the environmental review process to assess the effects of operation on electrocution and collision hazard. As previously discussed, configurations that do not provide sufficient separation between energized equipment can result in electrocution.

The SPAP guidelines (APLIC and USFWS 2005) provide several examples of alternative configurations that will be considered to reduce electrocution potential. In addition, the District uses the avian-friendly configurations that are approved for use by the Department of Agriculture Rural Utility Service, which were developed to follow the APLIC and USFWS guidelines.

Retrofitting Power Poles

At sites with recorded electrocution fatalities of raptors or other large birds detected either through power outages or incidentally by field staff or others, the District will retrofit utility poles with protection devices as described below under Construction Design and Standards. Retrofitting includes installation of protective coverings including cutout covers, conductor insulators, conductor covers, jumper covers, and bushing covers. In addition, wood pole caps and flight diverter may be installed. Installation of these protection devices is consistent with standard practices according to the APLIC's Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006.

Installing Flight Diverters to Reduce Collision Hazard

Where the results of the risk assessment indicate a potential collision hazard, the District may install flight diverters. Installation of these protection devices is consistent with the standard practices and guidance in the Edison Institute's Mitigating Bird Collisions with Power Lines: The State of the Art in 1994.

Avian Enhancement Options

The District has and will continue to promote natural resource protection and actions that benefit local and regional bird populations and other wildlife. The District commits to a continuing partnership with local agencies and state and federal resource agencies to explore and participate in activities that enhance and restore habitat. Possible enhancement measures include:

- Installing artificial nest platforms and perches. Artificial perches can be installed near existing utility poles. In other areas where nesting sites and perches are limited (and where utility poles are avian-friendly), installation of artificial structures can enhance use.
- Restoring riparian and wetland vegetation. The District will continue to coordinate with local jurisdictions in efforts to maintain, create, and enhance habitat for wildlife and associated public access and partner with ODF&W and USFWS regarding bird protection issues and habitat enhancement opportunities.
- Relocate existing lines in high impact areas. The District will continue to work with Estuary Committees and other agencies to cooperatively relocate existing overhead lines to areas of reduced impact or underground the existing facilities to improve and enhance regional bird populations.

Quality Control

The District periodically updates construction techniques and standards in a continuing effort to provide a safe and reliable electric grid. New products are tested in order to determine the best solutions for reducing avian mortalities, improving reliability and keeping costs low. District staff attend training seminars and conferences to keep pace with technologies and innovative solutions for providing avian-friendly facilities.

Reviews are conducted annually, during the reporting period, to determine the effectiveness of applied solutions. Particular attention is given for similar incidents within close proximity of each other. Also, locations that have similar framing configurations are assessed and appropriate solution are applied as deemed necessary.

Public Awareness

The District informs the public about the avian electrocution issue, our Avian Protection Program, as well as our successes in avian protection through the use of our web page and printed materials such as The Ruralite, a monthly magazine sent to all the District consumers, newspaper information advertisements or bill inserts.

Key Resources

U.S. Fish and Wildlife Service

Paul Montuori
U.S. Fish and Wildlife Service
Office of Law Enforcement
9025 SW Hillman Court, Suite 3134
Wilsonville, OR 97070
Telephone: 503-682-6131 (Extension 226)
Cell: 503-705-2989
Fax: 503-682-6171
Email: Paul_Montuori@fws.gov

Sheila O'Connor
U.S. Fish and Wildlife Service
Office of Law Enforcement
9025 SW Hillman Court, Suite 3134
Wilsonville, OR 97070
Telephone: 503-682-6131 (Extension 225)
Cell: 503-250-4718
Fax: 503-682-6171
Email: sheila_Oconnor@fws.gov

Oregon Department of Fish and Wildlife

North Coast Watershed District Office
5005 Third Street
Tillamook, OR 97141
Telephone: 503-842-2741

Wildlife Center of the North Coast

Wildlife Center of the North Coast
PO Box 1232
Astoria, OR 97103
Telephone: 503-338-0331
Pager: 503-338-3954
Email: director@coastwildlife.org

Chintimini Wildlife Rehabilitation Center

Jeff Picton
Chintimini Wildlife Rehabilitation Center
311 NW Lewisburg Ave
Corvallis, OR 97330
Telephone: 541-745-5324
Email: rehab@chintiminiwildlife.org; chintimini_wildlife@comcast.net

Appendices

Appendix A – USFWS Avian Permit

Most states also require
a permit to salvage
birds. I recommend
contacting OPFW at
503-947-6315. If
they require you to
obtain a permit please
send a copy to our
office

Thank you!
Mandy

(See condition B of
permit



DEPARTMENT OF THE INTERIOR
U.S. FISH AND WILDLIFE SERVICE
Migratory Bird Permit Office
911 NE 11th Ave. - Portland, OR 97232
Tel: 503-872-2715 Fax: 503-231-2019
Email: permitsR1MB@fws.gov

FEDERAL FISH AND WILDLIFE PERMIT

1. PERMITTEE

TILLAMOOK PEOPLES UTILITY DISTRICT
PO BOX 433
TILLAMOOK, OR 97141
U.S.A.

2. AUTHORITY-STATUTES
16 USC 703-712

REGULATIONS
50 CFR Part 13
50 CFR 21.27

3. NUMBER
MB158340-0

4. RENEWABLE
 YES
 NO

5. MAY COPY
 YES
 NO

6. EFFECTIVE
04/01/2016

7. EXPIRES
03/31/2019

8. NAME AND TITLE OF PRINCIPAL OFFICER (If + is a business)
RAYMON SEILER
GENERAL MANAGER

9. TYPE OF PERMIT
MIGRATORY BIRD SPECIAL PURPOSE UTILITY PERMIT -
ELECTRIC

10. LOCATION WHERE AUTHORIZED ACTIVITY MAY BE CONDUCTED
Activities Conducted: Company property and rights-of-way
Records Kept: 1115 Pacific Ave, Tillamook, OR 97141
TILLAMOOK COUNTY

11. CONDITIONS AND AUTHORIZATIONS.

A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED IN BLOCK #2 ABOVE, ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.

B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW.

C. VALID FOR USE BY PERMITTEE NAMED ABOVE.

D. Possession and transport.

- (1) You and subpermittees are authorized to collect, transport and temporarily possess carcasses and partial remains of migratory birds found at the location/property specified in Block 10 for migratory bird mortality monitoring purposes or for human health and safety purposes.
- (2) For Bald and Golden Eagles (Eagles) and federally listed Threatened or Endangered Species under the U.S. Endangered Species Act (see 50 CFR 17.11) you must call a U.S. Fish and Wildlife Service (Service), Office of Law Enforcement (OLE) special agent for instructions and approval BEFORE collecting or moving the carcass(es) or parts, unless you are working under a specific alternative protocol established by you and OLE. It may be necessary to preserve the carcass(es) or parts onsite until an agent or other Service or State representative arrives to collect them. Your OLE contact phone number is 503-682-6131.
- (3) For all other migratory birds, gather data required by Condition F below PRIOR to collecting or moving the carcass or its parts.

E. Active Nest Relocation. Except for Eagles and federally listed Threatened or Endangered Species, in emergency situations you are authorized to relocate active migratory bird nests, including eggs or nestlings, found on the utility structures when (1) the safety of the migratory birds, nests or eggs is at risk, or (2) the migratory birds, nests, or eggs pose a threat of serious bodily injury or a risk to human life, including a threat of fire hazard, mechanical failure or power outage. You may not use this authority for situations in which migratory birds are merely causing a nuisance or inconvenience. Nests must be relocated to a site and structure (natural or artificial) appropriate to the species' requirements. (If extenuating circumstances warrant, destruction of an active nest may be authorized by contacting your permit issuing office prior to destruction.) To conduct activities involving nests of Eagles or federally listed Threatened or Endangered Species, you must obtain additional appropriate permit(s).

ADDITIONAL CONDITIONS AND AUTHORIZATIONS ALSO APPLY

12. REPORTING REQUIREMENTS

Annual Report Due 1/31
Annual Report Form: <http://www.fws.gov/forms/3-202-17.xlsm>
Submit To: PermitsR1MB@fws.gov and MigBirdReports@fws.gov

ISSUED BY

Mandy Lawrence

TITLE

PERMIT SPECIALIST, MIGRATORY BIRD PERMIT OFFICE - REGION I

DATE

07/15/2016

F. Data Collection.

- (1) All relevant data associated with each carcass/part(s)/injured bird discovered or collected, must be recorded, including the information below.
- (a) discovery date
 - (b) collection date
 - (c) species, or if unknown, either the type of bird (e.g., gull, raptor), or "unknown"
 - (d) sex and age (hatchling, juvenile, adult), if known
 - (e) how carcass was located (during standardized carcass search or opportunistic or incidental find?)
 - (f) condition (alive or dead?)
 - (g) description of bird or carcass (If alive, indicate if sick or injured. If dead, indicate if intact; freshly killed (eyes moist); semi-fresh (stiff, eyes desiccated); partially decomposed feathers and/or bones; other)
 - (h) the GPS coordinates in decimal degrees using clearly identified datum (the standard position or level that measurements are taken from such as WGS 84) for the location where found OR nearest pole/structure ID number and city or county
 - (i) suspected cause of mortality/injury (collision with wire, collision with other structure, electrocution, shot, other)
 - (j) disposition (freezer onsite, left in place, buried, incinerated, rehabilitator, OLE, nest relocated, other)
 - (k) any special notes or additional information (e.g., mortality events involving unusually high numbers of birds or species groups; weather conditions at likely time of death, if known).
- (2) All carcasses and partial remains you collect and transport must be bagged and labeled with a unique specimen identification number and the collector's name PRIOR to transport unless you are working under a specific alternative protocol established by you and OLE. The data sheet with the information listed in Condition E.2. must be attached to or included in the bag.

G. **Injured/orphaned birds.** In the event migratory birds, including Eagles and federally listed Threatened or Endangered Species, are injured or orphaned, you must immediately contact a federally permitted migratory bird rehabilitator or a licensed veterinarian for instructions. Rehabilitation and/or veterinary costs for birds that may have been injured or orphaned by utility operations or infrastructure are the utility's responsibility. See Condition I for reporting instructions.

H. Except as authorized by Condition E, take and collection of live, non-injured migratory birds, eggs, or nests is not authorized by this permit. In addition, this permit does not authorize the take, capture, harassment or disturbance of Eagles and federally listed Endangered or Threatened Species.

I. Reporting.

(1) How to report.

- (a) Immediate (written follow-up) reports. Until a new on-line reporting system is completed, you have three options for submitting reports:
- (i) If you have an account with the Service's Bird Injury and Mortality Reporting System (BIMRS) for reporting injury and mortality incidents, you may report incidents in BIMRS at: <https://birdreport.fws.gov/>.
 - (ii) You may report the incident using the Avian Injury/Mortality Reporting System (AIMRS) database (form 3-202-17). Download the database at <http://www.fws.gov/forms/3-202-17.xlsm>.
 - (iii) You may submit an Excel spreadsheet from your own database in lieu of using AIMRS to your migratory bird permit issuing office at Permits R1MB@fws.gov provided all of the "required" information in AIMRS (in exact AIMRS format) is included.
- (b) Annual report. Submit your annual report using the AIMRS database or you may submit an Excel spreadsheet from your own database in lieu of using the AIMRS database, provided all of the "required" information in AIMRS (in exact AIMRS format) is included. If your company holds a BIMRS account, you may generate your annual report in Excel from BIMRS.

(2) Immediate reports.

- (a) Eagles and T&E species. You must report any Eagles and federally listed Threatened or Endangered Species found dead or injured to your OLE special agent (see Condition D for contact information) or the general OLE phone number 503-682-6131 immediately if possible, but no later than 48 hours from discovery of the bird, or at the beginning of the next business day. Your report must include as much of the information from Condition F(1) as possible.

A written injury/mortality report, including information not available at the time of your initial report, must be submitted to your migratory bird permit issuing office to include the data in Condition F(1) and/or as directed by your OLE special agent no later than 7 days from the date of discovery and collection of the carcass.

A list of Threatened and Endangered species by State may be found in the Service's Threatened and Endangered Species System (TESS) database at: <http://www.fws.gov/angered>.

- (b) Significant mortality events. Report mortality events involving unusually high numbers of birds or unusual species groups to your migratory bird permit issuing office at PermitsR1MB@fws.gov immediately if possible but not later than 48 hours from discovery of the birds, or at the beginning of the next business day.

- (3) **Annual report.** You must submit a cumulative annual report of all dead and injured birds, including Eagles and federally listed Threatened or Endangered Species, discovered or collected and any active nests relocated, to your migratory bird permit issuing office by January 31 following each calendar year in which the permit is in effect. Your report must include at a minimum the information required in Condition F(1). For active nests, please indicate the species and date relocated.

J. Disposition of Carcasses and Parts.

- (1) In accordance with Condition D(1) above, the Service will advise you on disposition of Eagles and federally listed Threatened or Endangered Species specimens. The special agent will advise if they will recover an eagle carcass or if you need to ship the carcass to the Service. With PRIOR written authorization from an OLE special agent, you may contact the U.S. Fish and Wildlife Service, National Eagle and Wildlife Property Repository (NER) at (303) 287-2110 for shipping instructions. The written authorization from the special agent must accompany the Eagle if it is shipped to the NER. Disposition must be reported in your annual report to your migratory bird permit issuing office.
- (2) Carcasses of migratory birds, other than Eagles and federally listed Threatened or Endangered Species, may be necropsied to determine cause of death PROVIDED necropsy is authorized in writing by OLE.
- (3) Unless otherwise specified in this permit, Migratory Bird carcasses and parts (other than Eagles and federally listed Threatened or Endangered Species) collected during the calendar year (ending Dec 31) that have been documented in your records must be stored in the freezer at the facilities at the location specified in Block 10 until January 15 of the following year in which they were collected. Unless otherwise specified by your migratory bird permit issuing office or OLE, after January 15 and after your annual report has been submitted to the migratory bird permit issuing office (due January 31), carcasses and parts may be:
- (a) turned over to the State wildlife agency for official purposes, or,
 - (b) donated to a public scientific or educational institution, or to an individual or entity authorized by Federal permit to acquire and possess migratory bird specimens.

After all permit requirements have been met, carcasses and parts (except Eagles and federally listed Threatened or Endangered species) that you do not transfer to another authorized party must be disposed of by burial or incineration.

K. Renewal. Any renewal request for this permit must include information on any modifications made to your operations or infrastructure to avoid or minimize migratory bird mortalities, and if you have made modifications, any preliminary results of those modifications.

L. Subpermittees. Any person who is employed by or under contract to the permittee for the activities specified in this permit, or any person who is otherwise designated as a subpermittee in writing by the permittee may exercise the authority of this permit.

M. Standard Conditions. You and any subpermittees must comply with the attached Standard Conditions for Migratory Bird Special Purpose Utility Permits. These standard conditions are a continuation of your permit conditions and must remain with your permit.

For suspected illegal activity immediately contact the USFWS Law Enforcement at: 503-682-6131.

This permit does not, nor shall it be construed to, authorize lethal take or injury of migratory birds or limit or preclude the U.S. Fish and Wildlife Service from exercising its authority under any law, statute, or regulation, or from taking enforcement action against any individual, company, or agency. This permit is not intended to relieve any individual, company, or agency of its obligations to comply with any applicable Federal, State, Tribal, or local law, statute, or regulation. We strongly encourage you to develop/update and implement a proactive Avian Protection Plan (APP) per current U.S. Fish and Wildlife Service/Avian Power Line Interaction Committee (APLIC) guidelines found at: www.aplic.org.



Standard Conditions Migratory Bird Special Purpose Utility Permits 50 CFR 21.27

All of the provisions and conditions of the governing regulations at 50 CFR part 13 and 50 CFR 21.27 are conditions of your permit. Failure to comply with the conditions of your permit could be cause for suspension of the permit. The standard conditions below are a continuation of your permit conditions and must remain with your permit. If you have any questions regarding these conditions, refer to the regulations or, if necessary, contact your migratory bird permit issuing office. For copies of the regulations and forms, or to obtain contact information for your issuing office, visit: <http://www.fws.gov/migratorybirds/mbpermits.html>.

- 1. Personal use.** This permit does not authorize personal use of any migratory birds, parts, nests or eggs salvaged, transported, or temporarily possessed under the authority of this permit.
- 2. Banded Birds** (carcasses collected and injured birds) must be reported to the U.S. Geological Survey Bird Banding Laboratory at 1-800-327-2263 or <http://www.reportband.gov>. Information provided must include, as accurately as possible, species of bird, band number, date recovered, recovery location, and name and contact information of the person who recovered the carcass or bird.
- 3. Subpermittees.** A subpermittee is an individual to whom you have provided written authorization to conduct some or all of the permitted activities in your absence. Subpermittees must be at least 18 years of age. As the permittee, you are legally responsible for ensuring that anyone conducting activities under your permit is adequately trained and adheres to the terms of your permit. You are responsible for maintaining current records of who you have designated as a subpermittee, including copies of designation letters you have provided.
- 4. Carrying your permit.** You and any subpermittees must carry a legible copy of this permit and display it upon request of any duly authorized federal, state or tribal officer whenever exercising its authority. Subpermittees must also carry your written subpermittee designation letter.
- 5. Records.** You must maintain complete and accurate records of the activities conducted and the data collected under this permit. You must keep all required records and collected wildlife parts relating to permitted activities at the location you identified in writing to the migratory bird permit issuing office. (50 CFR 13.46 and 21.27)
- 6. Site inspections.** Acceptance of this permit authorizes the Director's agent to enter the utility property at any reasonable hour as necessary to inspect the wildlife, records, facilities, property, and associated infrastructure for wildlife impacted by the utility, and for compliance with the terms of this permit and governing regulations. (50 CFR 13.47)
- 7. Applicable laws.** You may not conduct the activities authorized by this permit if doing so would violate the laws of the applicable State, county, municipal or tribal government or any other applicable law.
- 8. Other permissions.** This permit does not authorize salvage of specimens on Federal, State, tribal, or other public or private property without additional prior written permits or permission from the agency/landowner/custodian.

Appendix B – Annual Reports

CASE: PCN 2
WITNESS: SCOTT GIBBENS

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 305

**Exhibits in Support
Of Cross-Answering
and
Reply Testimony**

March 2, 2018

Tillamook County



DEPARTMENT OF COMMUNITY DEVELOPMENT
BUILDING, PLANNING & ON-SITE SANITATION SECTIONS

1510 – B Third Street
Tillamook, Oregon 97141
www.tillamook.or.us

Building (503) 842-3407
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On-Site Sanitation (503) 842-3409
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**CONSOLIDATED REVIEW OF CONDITIONAL USE REQUEST (851-17-000448-PLNG-01),
FLOODWAY/ESTUARY/FLOODPLAIN DEVELOPMENT PERMIT REQUEST(851-17-000448-PLNG),
and ADMINISTRATIVE REVIEW REQUEST (851-17-000448-PLNG-02):
TILLAMOOK-OCEANSIDE 115kV TRANSMISSION LINE**

STAFF REPORT
Date: February 1, 2018

(This is not Building or Placement Permit Approval)

Report Prepared by: Hilary Foote, Planner and Sarah Absher, CFM, Director

I. GENERAL INFORMATION:

- Request:** The Consolidated Review of Conditional Use (851-17-000448-PLNG-01), Floodway/Estuary/Floodplain Development Permit (851-17-000448-PLNG), and Administrative Review (851-17-000448-PLNG-02) requests for the proposed Tillamook-Oceanside 115kV Transmission Line Project (Exhibit B).
- Location:** The proposed project spans multiple properties within Township 1 South, Range 9 West and Township 1 South, Range 10 West of the Willamette Meridian, Tillamook County, Oregon. Exhibit A to the Staff Report contains a map and a list of impacted properties.
- Zone:** Segments of the proposed transmission line project are located within the Farm (F-1) zone, the Forest (F) zone, the Estuary Natural (EN) zone, the Estuary Conservation (EC1) zone, the Rural Residential 2-Acre (RR-2) zone and the Rural Commercial (RC) zone.
- Applicant:** The Tillamook People's Utility District,
- Property Owner:** Exhibit A to the Staff Report contains a map and a list of impacted properties and ownership information.

Proposal Description: The Tillamook People's Utility District (Applicant) is proposing to develop approximately 8.4 miles of new 115-kilovolt (kV) aboveground transmission line between the Bonneville Power Administration's Tillamook Substation, located to the east of the City of Tillamook on Oregon Route 6 and a new substation (Oceanside Substation) near the community of Oceanside (Exhibit B). Applicant has provided a detailed submittal which includes detailed description of the proposed use and development during construction and operational phases, a variety of map sets and reports including a Farm and Forest Impact Assessment⁵, a Floodway No-Rise Analysis, A Geologic Hazards Technical Memorandum, and a Biological Resources Report (Exhibit B).

The Project spans several underlying zones (Farm (F-1) zone, the Forest (F) zone, the Estuary Natural (EN) zone, the Estuary Conservation (EC1) zone, the Rural Residential 2-Acre (RR-2) zone and the Rural Commercial (RC) zone) as well as several overlay zones (Flood Hazard Overlay, Shorelands Overlay, Freshwater Wetlands Overlay). The proposed use is allowed conditionally or outright subject to standards depending on what zone certain segments of the proposed transmission line are located in. Applicant has requested consolidated review of the Conditional Use Request, Administrative Review and Flowway/Estuary/Floodplain Development Permit applications required to support the proposed development. The criteria and standards for each of these reviews are addressed below in this Staff Report.

II. APPLICABLE ORDINANCE AND COMPREHENSIVE PLAN PROVISIONS:

The desired use is governed through the following Sections of the Tillamook County Land Use Ordinance (TCLUO). The suitability of the proposed use, in light of these criteria, is discussed in Section III of this report:

III. CONDITIONAL USE REQUEST 851-17-000448-PLNG-01

- A. TCLUO Section 3.020, 'Rural Commercial (RC) Zone'
- B. TCLUO Section 3.010, 'Rural Residential 2 Acre (RR-2) Zone'
- C. TCLUO Section 1.060, 'Ordinance Interpretations'
- D. TCLUO Section 3.102, 'Estuary Natural (EN) Zone'
- E. TCLUO Section 3.120, 'Review of Regulated Activities'
- F. TCLUO Section 3.140, 'Estuary Development Standards'
- G. TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'
- H. TCLUO Section 3.545, 'Shoreland Overlay'
- I. TCLUO Section 3.550, 'Freshwater Wetlands Overlay'
- J. TCLUO Section 4.130, 'Development Requirements for Geologic Hazard Areas'
- K. TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization'
- L. TCLUO Section 4.160, 'Protection of Archaeological Sites'
- M. TCLUO Section 3.004, 'Forest (F) Zone'
- N. TCLUO Article VI, 'Conditional Use Procedures and Criteria'

IV. FLOODWAY/ESTUARY/FLOODPLAIN DEVELOPMENT PERMIT 851-17-000448-PLNG

- A. TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'

V. ADMINISTRATIVE REVIEW REQUEST 851-17-000448-PLNG-02

- A. TCLUO Section 3.002, 'Farm (F-1) Zone'
- B. TCLUO Section 1.060, 'Ordinance Interpretations'
- C. TCLUO Section 3.106, 'Estuary Conservation 1 (EC-1) Zone'
- D. TCLUO Section 3.120, 'Review of Regulated Activities'
- E. TCLUO Section 3.140, 'Estuary Development Standards'
- F. TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'

- G. TCLUO Section 3.545, 'Shoreland Overlay'
- H. TCLUO Section 3.550, 'Freshwater Wetlands Overlay'
- I. TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization'
- J. TCLUO Section 4.160, 'Protection of Archaeological Sites'

III. ANALYSIS FOR CONDITIONAL USE REQUEST 851-17-000448-PLNG-01:

A. TCLUO Section 3.020, 'Rural Commercial (RC) Zone'

TCLUO Section 3.020(1) PURPOSE: *The purpose of the RC zone is to permit a moderate level of commercial activities to serve the commercial needs of rural areas, and tourist areas. Commercial uses in the RC zone typically provide goods and services that would be required by most households in the area, and they have relatively few impacts on neighboring areas. ...*

TCLUO Section 3.020(3)(n), 'Uses Permitted Conditionally', lists 'Utility substations and power transmission lines' as a use permitted conditionally in the Rural Commercial zone subject to the provisions of Article IV and the requirements of all applicable supplementary regulations contained in ordinance.

Findings: Applicant is proposing to develop a 115kV transmission line (Exhibit B). Staff finds that the proposed use is allowed conditionally in the Rural Commercial zone subject to satisfaction of the conditional use review criteria set forth in TCLUO Article 6 which are addressed below and conformance with applicable development standards.

TCLUO Section 3.020 (4) STANDARDS: Land divisions and development in the RC zone shall conform to the following standards, unless more restrictive supplemental regulations apply:

...
(b) Minimum yards for any structure on a lot or parcel adjacent to a residential zone shall be 5 feet on the side adjacent to the residential zone, and 10 feet in the front yard. No rear yard is required.
...

Findings: Applicant states that two poles will be located in the Rural Commercial zone and both locations comply with the required yard setback (Exhibit B). Staff finds that the proposed pole locations conform with the development standards of the zone.

B. TCLUO Section 3.010, 'Rural Residential 2 Acre (RR-2) Zone'

TCLUO Section 3.010(1) PURPOSE: *The purpose of the RR zone is to provide for the creation and use of smallacreage residential homesites. Land that is suitable for Rural Residential use has limited value for farm or forest use; it is physically capable of having homesites on parcels of five acres or less; and it can be utilized for residential purposes without constraining the use of surrounding resource-zoned properties for resource-production purposes...*

TCLUO Section 3.010(3)(n), 'Uses Permitted Conditionally', lists 'Public utility facilities, including substations and transmission lines' as a use permitted conditionally in the Rural Commercial zone subject to the provisions of Article IV and the requirements of all applicable supplementary regulations contained in ordinance.

Findings: Applicant is proposing to develop a 115kV transmission line (Exhibit B). Staff finds that the proposed use is allowed conditionally in the Rural Residential 2 Acre zone subject to satisfaction of the conditional use review criteria set forth in TCLUO Article 6 which are addressed below and conformance with applicable development standards.

TCLUO Section 3.010 (4) STANDARDS: Land divisions and development in the RR-2 and RR-10 zone shall conform to the following standards, unless more restrictive supplemental regulations apply:

- ...
- (f) The minimum front yard shall be 20 feet.*
 - (g) The minimum side yard shall be 5 feet; on the street side of a corner lot, it shall be no less than 15 feet.*
 - (h) The minimum rear yard shall be 20 feet; on a corner lot, it shall be no less than 5 feet...*

Findings: Applicant states that the one pole located in the RR-2 zone is located within the County's right-of-way on Wilson River Loop Road over 50 feet from the nearest lot zoned RR-2 which is located north of Wilson River Loop Road from the proposed pole location (Exhibit B). Applicant states that they maintain a utility placement agreement with the Tillamook County Public Works Department for use of County right-of-way and have received a County permit for Utility Facilities within a Public Right-of-way for the proposed transmission line and structures located within the County right-of-way along Wilson River Loop Road, permit number UP#5251.

C. TCLUO Section 1.060, 'Ordinance Interpretations'

(1) Authorization of Similar Uses. Where a proposed use is not specifically identified by this Ordinance, or the Ordinance is unclear as to whether the use is allowed in a particular zone, the Director may find the use is similar to another use that is permitted, allowed conditionally, or prohibited in the subject zone and apply the Ordinance accordingly. However, uses and activities that this Ordinance specifically prohibits in the subject zone, and uses and activities that the Director finds are similar to those that are prohibited, are not allowed. Similar use rulings that require discretion on the part of County officials shall be processed following the Type II procedure of Article 10. The Director may refer a request for a similar use determination to the Planning Commission for its review and decision.

(2) Ordinance Interpretation Procedure. Requests for Ordinance interpretations, including but not limited to similar use determinations, shall be made in writing to the Director and shall be processed as follows:

- (a) The Director, within 10 days of the inquiry, shall advise the person making the inquiry in writing as to whether the County will make a formal interpretation.*
- (b) Where an interpretation does not involve the exercise of discretion, the Director shall advise the person making the inquiry of his or her decision within a reasonable timeframe and without public notice.*

Director Findings & Determination: In review of the United States Department of Labor, Occupational Health and Safety Labor website: https://www.osha.gov/SLTC/etools/electric_power/transmission_dist.html, Clarification of the Electric Power Generation, Transmission, And Distribution Standard, 29 (CFR) 1910.269 does not make a distinction between transmission and distribution systems, however the language recognizes that important potential safety differences do exist between them. ...Transmission conductors are normally large to carry the high power and are installed on taller structures than distribution lines and equipment. Substations are considered to be both transmission and distribution facilities in CFR 1910.269.

It is fair to note that in addition to the higher voltage carried through transmission lines (important potential safety differences) and that the structures supporting the transmission lines are taller than those structures supporting distribution lines, the footprint of a transmission line structure is also generally larger.

In review of the uses permitted with standards and conditionally contained in each estuarine zones identified in the Tillamook County Land Use Ordinance (TCLUO), electrical distribution lines and electrical support structures are listed as uses permitted with standards or as a use listed conditionally in all estuary zones with exception to the Estuary Conservation Aquaculture Zone, subject to the procedures of Section 3.120: Regulated Activities and Impact Assessments, Section 3.140: Estuary Development Standards and Article 6: Conditional Use Procedures And Criteria as applicable. While transmission lines are not specifically stated in the underlying estuarine zone language, TCLUO Section 3.140: Estuary Development Standards, Subsection (6)(b) under standards for energy facilities and utilities identifies electrical distribution lines and electrical support structures as "*electrical or communication transmission lines*" with no other language or guidance that would separately identify or differentiate types of energy facilities and utilities.

Because Section 3.140 provides standards for *electrical transmission lines*, the Director finds that the proposed transmission line is of the same general character of electrical distribution lines and that this determination is consistent with the clarification outlined in CFR 1910.269. The proposed use remains subject to the development standards outlined in TCLUO Section 3.120, Section 3.140 and Article 6.

For the reasons outlined above, it was also determined by the Director that this interpretation did not involve the exercise of discretion and the applicant was advised of this determination during the pre-application meeting, within the required reasonable timeframe and without public notice as per TCLUO Section 1.060(2)(b).

D. TCLUO Section 3.102, 'Estuary Natural (EN) Zone'

(1) PURPOSE AND AREAS INCLUDED: The purpose of the EN Zone is to provide for preservation and protection of significant fish and wildlife habitats and other areas which make an essential contribution to estuarine productivity or fulfill scientific, research or educational needs.

Except where a goal exception has been taken in the Tillamook County Comprehensive Plan, the EN Zone includes the following areas:

(a) Development and Conservation Estuaries: Major tracts of tidal marsh, intertidal flats and seagrass and algae beds. The "major tract" determination is made through a consideration of all of the following four criteria: Size; habitat value; scarcity and degree of alteration.

(b) Natural Estuaries: The EN Zone includes all estuarine waters, intertidal areas, submerged or submersible lands and tidal wetland areas.

(3) USES PERMITTED CONDITIONALLY: The following uses may be permitted subject to the procedures of Section 3.120 and Article 6 and the standards in Section 3.140.

(d) Electrical distribution lines and line support structures.

Findings: A similar use determination is outlined in this report. The proposed route for the transmission line spans across the Estuary Natural (EN) zone as depicted in "Exhibit B". The proposed use in the EN zone is subject to the procedures of Section 3.120, the standards in Section 3.140 and Article 6: Conditional Use Procedures and Criteria outlined in the TCLUO. These sections are addressed in the staff report.

TCLUO 3.102(3)(d), 'Estuary Natural (EN) Zone' identifies '*Electrical distribution lines and line support structures*' as a use allowed conditionally in the EN zone. The Director has made a Similar Use Determination in accordance with TCLUO Section 2.040 that the proposed 115kV transmission line is similar in character and impact to '*electrical distribution lines and line support structures*'.

E. TCLUO Section 3.120, 'Review of regulated Activities'

1) *PURPOSE: The purpose of this Section is to provide an assessment process and criteria for local review and comment on State and Federal permit applications which could potentially alter the integrity of the estuarine ecosystem.*

2) *REGULATED ACTIVITIES: Regulated activities are those actions which require State and/or Federal permits and include the following:*

(a) Fill (either fill in excess of 50 c.y. or fill of less than 50 c.y., which requires a Section 10 or Section 404 permit from the U.S. Army Corps of Engineers).

(d) Piling/dolphin installation.

Findings: Significant degradations or reductions of estuarine natural values as defined in the Estuarine Element (Goal 16) of the Tillamook County Comprehensive Plan include dredging, fill, in-water structures, riprap, log storage, application of pesticides and herbicides, flow-lane disposal of dredged material, water-intake or withdrawal and effluent discharge and other activities which will cause significant offsite impacts as determined by an impact assessment.

As depicted in the applicant's submittal, the proposed transmission line will span across areas zoned Estuary Natural (EN) and Estuary Conservation 1 (EC1). Procedures for review of the regulated activities identified above include review of the proposal according to the requirements of the zone(s) in which the proposed use/activity are to be located, the relevant standards outlined in TCLUO Section 3.140, an impact assessment, consideration of requirements for degradations or reductions of estuarine natural values where applicable and consideration of comments from State and Federal agencies having responsibility for permit review.

Included in the applicant's submittal are documentation of both state and federal permits (Exhibit B). The proposed use is allowed permitted with standards in the Estuary Conservation 1 (EC1) zone and allowed as a use permitted Conditionally in the Estuary Natural (EN) zone. The proposed transmission line in relation to the standards outlined in the Shoreland Overlay zone are also addressed in this report.

With the assistance of affected State and Federal agencies, and in conjunction with review of state and federal permits required for this proposal, the following considerations are required to be addressed:

(a) The type and extent of alterations expected.

(b) The type of resource(s) affected including, but not limited to aquatic life and habitats, riparian vegetation, water quality and hydraulic characteristics.

(c) The expected extent of impacts of the proposed alteration on water quality and other physical characteristics of the estuary, living resources, recreation and aesthetic use, navigation and other existing and potential uses of the estuary.

(d) The methods which could be employed to avoid or minimize adverse impacts.

The Applicant has provided a 'Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project' as part of their submittal which describes the 12 locations where the proposed transmission line route crosses perennial water bodies with riparian buffers regulated by TCLUO 4.140. While the proposed development will require the placement of six poles and the removal of some existing trees within the riparian buffers, all improvements associated with this project will span across the estuary zoned areas with no ground disturbance including fill or grading activities will take place within estuarine areas. All ground disturbance for development of the transmission line and associated structures/improvements are located outside of estuarine zoned areas (Exhibit B).

The Applicant has reviewed the scope of their proposed development and vegetation management activities required for the proposed development within riparian buffer areas with the Oregon

Department of Fish and Wildlife (ODFW) and ODFW has provided documentation confirming that the proposed permanent pole locations meet the exception criteria outlined above in TCLUO 4.140(2)(c) or (d) and that proposed mitigation for riparian buffer crossings is sufficient for proposed tree removal (Exhibit B). As stated elsewhere in this report, Staff recommends that should the request be approved, a Condition of Approval be imposed requiring documentation of satisfaction of the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District be provided to the Department.

Requirements for resource capability determinations is required by TCLUO Section 3.140 and the proposed activity must be found to be consistent with the resource capabilities of a management unit (as described in Section 2 of the Estuarine Resources Element of the Tillamook County Comprehensive Plan) when either the impacts of the use on estuarine species, habitats, biological productivity and water quality are not significant; or that the resources of the area are able to assimilate the use and activity and their effects and continue to function in a manner that is consistent with the purposes of the zone. The resource capability determination shall be based on information generated by the impact assessment.

The Estuarine Resources Element in Section 2 of the Tillamook County Comprehensive Plan lists by management unit those resource areas of the Tillamook Bay estuary where the transmission line is proposed to traverse. Copies of the management unit descriptions and the Management Unit Designation map are included as "Exhibit G". Categories include areas needed for maintenance or enhancement of biological productivity, major tract of saltmarsh, area needed for recreational and aesthetic uses (tracts of significant habitat are smaller or of less biological importance than those in natural management units, and area needed for recreational use. Placement of fill and diking is identified as a historical alteration in each of the identified management units. Fish, birds and nesting areas are identified as those animals present in the identified management units. Significant biological functions include bird use/nesting in conjunction with adjacent riparian/marsh areas, fish feeding, and salmonid passage.

While some of the estuary management units categorize area needed for aesthetic uses, review of Tillamook County Comprehensive Plan Goal Elements 5, 16 and 17 confirm the proposed route of the transmission line is not located within an identified area inventoried in the Comprehensive Plan as an aesthetic resource area or an area identified as a significant shoreland.

The *Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project* located in "Exhibit B" addresses the resource capabilities of this area and includes an avian protection plan. Agencies that provided comments regarding these estuarine management units included the Oregon Department of Fish and Wildlife (ODFW) and the Oregon Department of State Lands (DSL). Comments from DSL are limited to the confirmation that a state application has been received and is in review. Comments from ODFW were focused primarily on fish passage requirements. No comments were received from the US Fish & Wildlife Service, the US Army Corps of Engineers, National Marine Fisheries, the Environmental Protection Agency and the Oregon Department of Land Conservation and Development.

The Applicant has stated there is a need (substantial public benefit) and the proposed transmission line does not unreasonably interfere with public trust rights, that there are no feasible alternative upland locations, and adverse impacts are minimized by spanning the transmission line improvements across the estuarine areas and avoiding any ground disturbance. Specifically, the Applicant states that, "The Project will not unreasonably interfere with public trust rights to the County's estuarine areas within the EC1 and EN zones. The Project will be entirely aboveground and landward of the Line of Ordinary High Water except for the aerial conductor, and only the 50-foot wide permanent easement will need to remain free from certain types of vegetation and development consistent with NESC, RUS and

Applicant standards for clearances and use for the operation and maintenance of a transmission line. The Project was specifically routed to avoid existing and planned public access areas and will not preclude the public from using estuarine areas within the EC1 and EN zones. The presence of the Project will not interfere with public use and access to Tillamook Bay estuary in general..."

F. TCLUO Section 3.140, 'Estuary Development Standards'

(6) ENERGY FACILITIES AND UTILITIES: Siting, design, construction, maintenance or expansion of energy facilities and utilities in estuary zones, shall be subject to the following standards:

(a) When new energy facilities and utilities are proposed within estuarine waters, intertidal areas or tidal wetlands, evidence shall be provided by the applicant and findings made by the County that:

(1) A need (i.e. a substantial public benefit) exists and the use or alteration does not unreasonably interfere with public trust rights.

(2) Alternative non-aquatic locations are unavailable or impractical.

(3) Dredging, fill and other adverse impacts are avoided or minimized.

(b) Electrical or communication transmission lines shall be located underground or along existing rights-of-way unless economically infeasible.

(c) Above-ground utilities shall be located to have the least adverse effect on visual and other aesthetic characteristics of the area. Interference with public use and public access to the estuary shall be minimized.

(d) Whenever practicable, new utility lines and crossings within estuarine waters, intertidal areas or tidal wetlands shall follow the same corridors as existing lines and crossings.

(e) Water discharge into estuarine waters, intertidal areas and tidal wetlands from an energy facility or utility shall meet EPA and DEQ standards, and shall not produce increases in temperature in the receiving waters which would have adverse impacts on aquatic life. Water Quality policies shall apply.

(f) When new energy facilities and utilities are proposed in EN zones, evidence shall be provided by the applicant and findings made by the County that the proposed use is consistent with the resource capabilities of the area and the preservation of areas needed for scientific, research or educational needs.

(g) When storm water and sewer outfalls are proposed in EC2 and EC1 zones, evidence shall be provided by the applicant and findings made by the County that the proposed use is consistent with the resource capabilities of the area and the long-term use of renewable resources, and does not cause a major alteration of the estuary.

(h) When new energy facilities and utilities are proposed in Estuary Development (ED) zones, evidence shall be provided by the applicant and findings made by the County that the proposed facility will not preclude the provision or maintenance of navigation and other public, commercial and industrial water dependent uses.

(i) Storm water and sewer outfalls shall go out to channels or areas where flushing will be adequate and shall not empty onto tideflats or intertidal wetlands. Effluent from outfalls must meet DEQ and EPA water quality standards. Water Quality policies shall apply.

(j) Dredge, fill, shoreline stabilization or other activities in conjunction with construction of energy facilities or utilities shall be subject to the respective standards for these activities.

(k) Energy facilities and utilities shall be sited so that they do not and will not require structural shoreline stabilization methods.

Findings: As stated previously in this report, the Applicant has stated there is a need (substantial public benefit) and the proposed transmission line does not unreasonably interfere with public trust rights, that there are no feasible alternative upland locations, and adverse impacts are minimized by spanning the transmission line improvements across the estuarine areas and avoiding any ground disturbance. The Applicant also states that no temporary access roads or conductor pulling and tensioning sites will be located within the Estuary Natural (EN) and Estuary Conservation 1 (EC1) Zone (Exhibit B). In review of the proposed routine and estuary maps, alternative non-aquatic locations are unavailable/impractical.

The applicant is proposing install the transmission lines above ground and within the estuarine areas, there are no existing rights-of-way. Staff did not identify corridors with existing lines and crossings in the estuarine areas. Review of the application indicates there are no plans to discharge water into estuarine areas, intertidal areas and tidal wetlands. The Applicant states they will obtain approval for necessary permits prior to construction and will continue to work with relevant regulatory agencies regarding the timing of construction (Exhibit B). Should the Planning Commission consider approval of this project, staff recommends a Condition of Approval be made to require compliance with EPA and DEQ standards, including compliance with any water quality policies.

The applicant is proposing to install new energy facilities and utilities in the Estuary Natural (EN) and Estuary Conservation 1 (EC1) Zones. The Applicant's responses to the standards outlined in TCLUO Section 3.140 are outlined on pages 5-19 through 5-22 of the narrative included in "Exhibit B".

Findings by the County that confirm the proposed use is consistent with the resource capabilities of the area and the preservation of areas needed for scientific, research or educational needs could be as follows:

- The applicant is proposing minimal disturbance within the Estuary Natural and Estuary Conservation 1 Zones by limiting development within these areas by only spanning the transmission line improvements across the estuary zoned areas.
- The applicant has provided a '*Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project*' that includes an avian protection plan.
- No comments were received from state or federal agencies to indicate or conclude the proposed line would have a detrimental effect on the characteristics, habitats, animals present or significant biological functions of the identified estuary management units.

There are no stormwater and sewer outfalls proposed and no new energy facilities and utilities are proposed in the Estuary Development (ED) Zone. No fill is proposed to be placed within the identified estuary zoned areas. No structural shoreline stabilization methods are proposed (Exhibit B).

G. TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'

Consistency with the requirements of TCLUO 3.510, 'Flood Hazard Overlay (FH) Zone', is addressed in Floodway/Estuary/Floodplain Development Permit Request (851-17-000448-PLNG) below.

H. TCLUO Section 3.545, 'Shoreland Overlay'

In the vicinity of the proposed project, the Goal 17 element of the Tillamook County Comprehensive Plan identifies land west of a boundary formed by State Highway 131 from its junction in Netarts with Whiskey Creek Road to its junction with the Oregon Coast Highway 101 near Tillamook, and all areas within 1,000 feet of estuaries and 500 feet of coastal lakes as within the Shorelands Boundary which may be subject to the provisions of TCLUO 3.545, 'SH Shoreland Overlay'. TCLUO 3.545 defines those areas within the Shorelands Boundary included within the Shoreland Overlay Zone. Relevant to the proposed development, TCLUO 3.545(2) identifies areas within 50 feet of estuaries as areas included in the Shorelands Overlay zone.

Findings: Staff finds that segments of the proposed development are located within the Shorelands Boundary as identified in the Goal 17 element of the Tillamook County Comprehensive Plan. Staff has reviewed the proposed development and determined that those areas within 50 feet of estuaries along the proposed transmission line route are categorized as 'Rural Shorelands' as described in TCLUO 3.545(3) and are subject to the use limitations identified in TCLUO 3.545(4)(a)(1) and the standards identified in TCLUO 3.545(6). Applicant has identified proposed development within these Rural Shoreland areas as consisting of eight power pole locations (poles 5, 8, 43-46, 48 and 49) which are illustrated on the Figure 4 maps included in Appendix A to the Applicant's submittal (Exhibit B). Additional Rural Shoreland areas will be spanned by the transmission lines and include areas around Hoquarten, Dougherty, Hall and Tomlinson Sloughs, the Trask and Tillamook Rivers and Stillwell Ditch (Exhibit B).

Staff has reviewed the significant shoreland inventory contained in the Goal 17 element of the Comprehensive Plan and has verified that the proposed transmission route does not impact significant shorelands. The nearest described significant shoreland is the Rain River Preserve which is located to the north and west of Goodspeed Road.

TCLUO Section 3.545(4) USES PERMITTED: Uses authorized by the underlying zone as outright or conditional uses are permitted, except at locations identified in (3) above.

(a) Rural Shorelands in General:

(1) Rural Shorelands uses are limited to:

- (a) Farm uses*
- (b) Propagation and harvesting of forest products consistent with the Oregon Forest Practices Act,*
- (c) Aquaculture,*
- (d) Water-dependent recreational, industrial and commercial uses,*
- (e) Replacement, repair or improvement of existing state park facilities,*
- (f) Other uses are allowed only upon a finding by the County that such uses satisfy a need which cannot be accommodated at any alternative upland location, except in the following cases:*

...

Findings: Section 8.6(C)(c) 'Energy Facilities and Utilities in Rural Shorelands' of the Goal 17 element of the Tillamook county Comprehensive Plan provides findings that identify a need to provide for 'normal domestic energy facilities and utility service within rural shorelands' and states that 'this need can not be met on upland locations or in urban or urbanizable areas'. In reviewing county zoning maps, Staff finds that it would impractical to map a route between the Bonneville Power Administration's Tillamook Substation and the area surrounding Oceanside entirely on upland areas – Shoreland areas have to be crossed (Exhibit A). Staff finds that the proposed transmission line cannot be accommodated at any alternative upland location.

TCLUO Section 3.545(6) STANDARDS: Uses within the SHORELAND OVERLAY ZONE are subject to the provisions and standards of the underlying zone and of this section. Where the standards of the SHORELANDS OVERLAY ZONE and the underlying zone conflict, the more restrictive provisions shall apply.

- (a) Riparian vegetation shall be protected and retained according to the provisions outlined in Section 4.140, REQUIREMENTS FOR PROTECTION OF WATER QUALITY AND STREAMBANK STABILIZATION.*
- (b) Development in flood hazard areas shall meet the requirements of Section 3.510, FLOOD HAZARD OVERLAY ZONE.*

(c) Development in beach and dune and other geologic hazard areas shall meet the requirements of Section 3.085, BEACH AND DUNE OVERLAY ZONE and Section 4.130, DEVELOPMENT REQUIREMENTS FOR GEOLOGIC HAZARD AREAS.

...

Findings: The requirements of TCLUO Section 4.140, 3.510 and 4.130 are addressed below.

(e) The productivity of resource land on Rural Shorelands shall be considered when determining the location of "Other Uses" within a given land parcel in the F-1, F, and SFW-20 zones. "Other Uses" within these zones shall be located so that the productivity of resource land is maintained.

Findings: Applicant has identified proposed development within Rural Shoreland areas as consisting of eight power pole locations (poles 5, 8, 43-46, 48 and 49) which are illustrated on the Figure 4 maps included in Appendix A to the Applicant's submittal (Exhibit B). Additional Rural Shoreland areas will be spanned by the transmission lines and include areas around Hoquarten, Dougherty, Hall and Tomlinson Sloughs, the Trask and Tillamook Rivers and Stillwell Ditch (Exhibit B).

Applicant has provided a Farm and Forest Impacts Assessment as Appendix C to their submission which characterizes characteristics of resource lands such as soil capability class, describes current use and discusses potential impacts related to the proposed development (Exhibit B).

Applicant provides a description of the route selection process including alternatives considered and states that the proposed project route was preferred by the Applicant and the Citizen Advisory Group involved in route selection because *'it also minimizes impacts to agricultural land and natural resources compared to other alternatives'*. Applicant states *'The proposed project corridor further reduces impacts on agricultural and resource lands through co-location with existing linear developments within the County'* (Exhibit B). Staff finds that the productivity of resource land was considered in determining the location of the transmission line.

Applicant states that *'wherever possible, power pole locations have been selected along property lines and on the edge of fields to minimize the impact on current farming activities'* and states that approximately 77 square feet of resource land within Rural Shorelands will be subject to permanent impacts (Exhibit B). Maintenance of resource land productivity is discussed at length in Administrative Review 851-17-000448-PLNG-02 below.

I. TCLUO Section 3.550, 'Freshwater Wetlands Overlay'

(1) PURPOSE AND AREAS INCLUDED: The purpose of this zone is to protect significant areas of freshwater wetlands, marshes and swamps from filling, drainage or other alteration which would destroy or reduce their biological value. Areas included in this zone are:

(a) Significant Goal 5 Wetlands: wetlands identified as "significant" in the Goal 5 Element of the Comprehensive Plan;

(b) Notification Wetlands: wetlands shown on the Statewide Wetland Inventory (discussed in the Goal 5 Element of the Comprehensive Plan). When required, the verification of zone boundaries shall be carried out in conjunction with the property owner and the Oregon Division of State Lands.

Findings: Staff conducted a review of Goal 5 inventories and determined that the proposed development does not cross or impact any significant Goal 5 wetlands. Applicant

(2) USES PERMITTED:

...

(b) Notification Wetlands:

(1) uses permitted outright or conditionally in the underlying zone shall be permitted subject to approval by the Oregon Division of State Lands.

(1) STANDARDS: The following standard shall be met in addition to the standards of the underlying zone.

...

(b) Development activities, permits, and land-use decisions affecting a Notification Wetland require notification of the Division of State Lands, and are allowed only upon compliance with any requirements of that agency. The applicant shall be responsible for obtaining approval from the Division of State Lands for activities on Notification Wetlands.

Findings: Staff conducted a review of Goal 5 inventories and determined that the proposed development does not cross or impact any significant Goal 5 wetlands.

Applicant has provided a wetland delineation report as part of their application submittal and states that twelve wetlands were identified within a 100 foot study corridor along the proposed transmission line route ten of which were identified by Applicant's consultant as potentially subject to federal and state jurisdiction (Exhibit B). Applicant states that they have submitted their wetland delineation report to DSL and USACE for review and approval in accordance with OARs 141-090-0005 through 141-090-0055 and by the USACE, Portland District (Exhibit B). Mike DeBlasi, Oregon Department of State Lands Aquatic Resource Coordinator for Tillamook County confirmed that the Oregon Department of State Lands has received an application from the Applicant for the proposed project and it is currently under review (Exhibit D).

J. TCLUO Section 4.130, 'Development Requirements for Geologic Hazard Areas'

(1) The following are GEOLOGIC HAZARD AREAS to which the standards of this Section apply:

...

(b) Inactive landslides, landslide topography and mass movement topography identified in DOGMI bulletins 74 and 79 where slopes are greater than 19 percent;

...

(f) Other locally known areas of GEOLOGIC HAZARD based on evidence of past occurrences. (g) As required for development

Findings: Applicant's submittal contains a Geologic Hazards Memo addressing these standards in detail (Exhibit B). Applicant states that an approximately 600 foot segment of the proposed corridor crosses an area identified as landslide topography on DOGAMI Bulletin 74 which contains slopes exceeding 19 percent (Exhibit B). Applicant states that the transmission line also crosses areas of documented landslide deposits and comes in close proximity to two documented landslides near MP 7.3 of the transmission route. Applicant states that power poles will be located to avoid areas of known historical landslides and that the power pole types and foundations will be selected by their engineer, TriAxis Engineering, to safely support the transmission line and maintain the overall integrity of the Project (Exhibit B).

(2) All development within GEOLOGIC HAZARD areas shall comply with the following standards:

(a) Vegetation removal shall be the minimum necessary to accommodate the use.

(b) Temporary measures shall be taken to control runoff and erosion of soils during construction. Such measures include temporary stabilization (mulching or sodding) sediment basins or other performance equivalent structures required by the Planning Department.

(c) Exposed areas shall be planted in permanent cover as soon as possible after construction.

(d) Storm water shall be directed into drainages with adequate capacity so as not to flood adjacent or downstream properties. Finished grades should preferably be designed to direct water flows along natural drainage courses.

(e) Additional requirements contained in a Geologic report required by this Section shall be followed.

Findings: Applicant states that they will comply with these standards (Exhibit B). At the time of applying for Zoning and Building Permit approval, Applicant will be required to submit evidence demonstrating compliance with TCLUO 4.130(2). Staff recommends that these standards be met through compliance with Conditions of Approval.

(3) A GEOLOGIC HAZARD report is required prior to approval of planned developments, coast resorts, subdivisions and partitions governed by the Land Division Ordinance, building permits, mobile home permits, sand mining, occurring in areas identified in (1) with the following exception:

(a) For building or mobile home or manufactured home permits in areas identified in (1) (b), reports are needed for lots 20,000 square feet or larger only where the proposed structure is to be situated on slopes greater than 29 percent or if (1) (f) applies.

Findings: Applicant states that TriAxis Engineering, Inc. who specializes design services and studies for electrical power systems, will provide the design and engineering for the proposed transmission line and will work with the Applicant to select transmission line power pole locations that avoid areas known or believed to be susceptible to landslides (Exhibit B). Applicant states that the power pole types and foundations will be selected to safely support the transmission line and maintain the overall integrity of the Project (Exhibit B). Staff finds that a Condition of Approval can be adopted requiring demonstration of compliance with TCLUO 4.130(3) at the time of applying for Zoning and Building Permit approval.

K. TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization'

1) The following areas of riparian vegetation are defined:

(a) Fifty (50) feet from lakes and reservoirs of one acre or more, estuaries, and the main stems of the following rivers where the river channel is more than 15 feet in width; Nestucca, Little Nestucca, Three Rivers, Tillamook, Trask, Wilson, Kilchis, Miami, Nehalem and North and South Fork Nehalem River.

(b) Twenty-five (25) feet from all other rivers and streams where the river or stream channel is greater than 15 feet in width.

(c) Fifteen (15) feet from all perennial rivers and streams where the river or stream channel is 15 feet in width or less.

For estuaries, all measurements are horizontal and perpendicular from the mean high water line or the line of non-aquatic vegetation, whichever is most landward. Setbacks for rivers, streams, and coastal lakes shall be measured horizontal and perpendicular from the ordinary high water line.

Findings: Applicant has provided a 'Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project' as part of their submittal which describes the 12 locations where the proposed transmission line route crosses perennial water bodies with riparian buffers regulated by TCLUO 4.140.

(2) All development shall be located outside of areas listed in (1) above, unless:

(a) For a bridge crossing; or

(b) Direct water access is required in conjunction with a water dependent use; or

(c) Because of natural features such as topography, a narrower riparian area protects equivalent habitat values; or

(d) A minimal amount of riparian vegetation is present and dense development in the general

*vicinity significantly degrades riparian habitat values.
Setbacks may be reduced under the provisions of (c) and (d) above only if the threat of erosion will not increase and a minimum 20 foot setback is maintained. Determinations of habitat values will be made by the Oregon Department of Fish and Wildlife.*

- ...
- (4) *All trees and at least 50 percent of the understory vegetation shall be retained within areas listed in (1) above, with the following exceptions:*

Finding: Applicant states that the proposed development will require the placement of six poles and the removal of some existing trees within the riparian buffer (Exhibit B). Applicant has reviewed the scope of their proposed development and vegetation management activities required for the proposed development within riparian buffer areas with the Oregon Department of Fish and Wildlife (ODFW) and ODFW has provided documentation confirming that the proposed permanent pole locations meet the exception criteria outlined above in TCLUO 4.140(2)(c) or (d) and that proposed mitigation for riparian buffer crossings is sufficient for proposed tree removal (Exhibit B). Staff recommends that should the request be approved, a Condition of Approval be imposed requiring documentation be provided to the Department of satisfaction of the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District.

L. TCLUO Section 4.160, 'Protection of Archaeological Sites'

- (1) *The Planning Department shall review building permits and other land use actions that may affect known ARCHAEOLOGICAL SITES. If it is determined that the proposed action may affect the integrity of an ARCHAEOLOGICAL SITE, the Planning Director shall consult with the State Historic Preservation Office on appropriate measures to preserve or protect the site and its contents. No permit shall be issued until either the State Historic Preservation Office determines that the proposed activity will not adversely affect the ARCHAEOLOGICAL SITE, or the State Historic Preservation Office has developed a program for the preservation or excavation of the site.*
- (2) *Indian cairns, graves and other significant archaeological resources uncovered during construction or excavation shall be preserved intact until a plan for their excavation or reinterment has been developed by the State,*

Findings: Applicant conducted a cultural resource study within the Project corridor and did not locate any significant historic, archaeological, or cultural resources that would be impacted by the proposed Project (Exhibit B). Applicant has committed to complying with the standards of TCLUO 4.160 (Exhibit B). No comments on this application were received from the State Historic Preservation Office.

M. TCLUO Section 3.004, 'Forest (F) Zone'

TCLUO Section 3.004(1) PURPOSE:

- (a) *The purpose of the Forest (F) Zone is to protect and maintain forest lands for grazing, and rangeland use and forest use, consistent with existing and future needs for agricultural and forest products. The F zone is also intended to allow other uses that are compatible with agricultural and forest activities, to protect scenic resources and fish and wildlife habitat, and to maintain and improve the quality of air, water and land resources of the county.*
- (b) *The F zone has been applied to lands designated as Forest in the Comprehensive Plan. The provisions of the F zone reflect the forest land policies of the Comprehensive Plan as well as the requirements of ORS Chapter 215 and OAR 660-006. The minimum parcel size and other standards established by this zone are intended to promote commercial forest operations.*

TCLUO Section 3.004(13), 'Use Table', identifies uses permitted in the Forest zone subject to the general provisions, special conditions, additional restrictions and exceptions set forth in ordinance. 'New electric transmission lines with right-of-way widths of up to 100 feet as specified in ORS 772.210' are identified in this section as a use allowed subject to satisfaction of the conditional use review criteria set forth in TCLUO 3.004(8) and in TCLUO Article 6.

Findings: Applicant states that a 100 foot corridor width will be maintained (Exhibit B). ORS 772.210 addresses right of entry and condemnation of lands and trees for construction of service facilities. A copy of ORS 772.210 has been included here as 'Exhibit 'E' to this Staff Report.

Staff finds that the applicant is proposing a new electric transmission line within a right-of-way not to exceed 100 feet in width. Staff finds that the proposed use is allowed conditionally in the Forest Zone subject to satisfaction of the conditional use review criteria set forth in TCLUO 3.004(8) and in TCLUO Article 6 which are addressed below.

TCLUO Section 3.004 (3) DEVELOPMENT STANDARDS

(a) Land divisions and development in the F Zone shall conform to the following standards, unless more restrictive supplemental regulations apply:

- ...
2. *The minimum front, rear, and side yards shall all be 30 feet.*

Findings: Applicant states that all but three pole locations conform to the required 30-foot yard setback standards of the Forest zone (Exhibit B). Applicant states that the three pole structures which are located within the 30-foot yard setback are detached structures accessory to the primary use of the properties and are in conformance with the requirement of TCLUO Section 4.040(1)(b) which states 'An accessory structure that is separate from the main building may be located in the required rear and side yard, except in the required street side yard of a corner lot, provided that it is at no point located closer than three feet to a property line' (Exhibit B). Staff finds that the proposed pole and substation locations conform with the development standards of the Forest Zone.

TCLUO Section 3.004 (9) SITING STANDARDS FOR DWELLINGS AND STRUCTURES IN FOREST ZONES

The following siting criteria or their equivalent shall apply to all new dwellings and structures in forest zones. These criteria are designed to make such uses compatible with forest operations, to minimize wildfire hazards and risks and to conserve values found on forest lands. The County shall consider the criteria in this section together with the requirements of Section (10) to identify the building site:

- ...
- (d) Dwellings and structures shall be sited on the parcel so that:*
1. *They have the least impact on nearby or adjoining forest or agricultural lands;*
 2. *The siting ensures that adverse impacts on forest operations and accepted farming practices on the tract will be minimized;*
 3. *The amount of forest lands used to site access roads, service corridors, the dwelling and structures is minimized; and*
 4. *The risks associated with wildfire are minimized.*

(e) Siting criteria satisfying Subsection (d) may include setbacks from adjoining properties, clustering near or among existing structures, siting close to existing roads and siting on that portion of the parcel least suited for growing trees.

Findings: Applicant states that an approximately 4.3-mile portion of the proposed route, 36 poles and a new substation are proposed to be located in the Forest zone (Exhibit B). The applicant has provided

a Farm and Forest Impact Assessment as Appendix C to their submittal contained in 'Exhibit B' to this Staff Report.

The applicant states that 'wherever possible, the proposed transmission line route through the County's Forest zone is located directly adjacent to a network of existing private forest roads to minimize the impacts to surrounding lands' (Exhibit B). Staff finds that siting the proposed transmission line adjacent to existing roads reduces the need for new access roads, minimizes the amount of forest land needed to site the proposed development and facilitates access for fire suppression purposes should the need arise.

Applicant has indicated that they will coordinate with Green Crow Corporation and Stimson Lumber Company, the underlying property owners, to minimize impacts to forest operations during the construction phase (Exhibit B). Applicant further states that all methods of timber harvesting and reforestation activities, and the equipment used for these activities, can continue on lands surrounding the proposed development (Exhibit B).

Potential impacts to forest practices and fire hazards are discussed further below in addressing the criteria of TCLUO Section 3.004(8).

TCLUO Section 3.004 (10) FIRE-SITING STANDARDS FOR DWELLINGS AND STRUCTURES: The following fire-siting standards or their equivalent shall apply to all new dwelling or structures in a forest zone:

...

(c) The owners of the dwellings and structures shall maintain a primary fuel-free break area surrounding all structures and clear and maintain a secondary fuel-free break area on land surrounding the dwelling that is owned or controlled by the owner in accordance with the provisions in "Recommended Fire Siting Standards for Dwellings and Structures and Fire Safety Design Standards for Roads" dated March 1, 1991, and published by the Oregon Department of Forestry and shall demonstrate compliance with Table (10)(c)1

Findings: Applicant states that they will comply with the requirement to maintain the required fuel-free breaks around the pole structures, conductor and substation (Exhibit B). Applicant notes that NESC, RUS and Tillamook PUD have additional standards for the maintenance of cleared areas (Exhibit B). Applicant states that their easement agreements will contain provisions addressing Tillamook PUD's commitment to maintain transmission corridors free of potential fuel, providing a fire break to help reduce the spread of forest fires (Exhibit B).

Practices to minimize fire hazards are discussed further below in addressing the criteria of TCLUO Section 3.004(8).

TCLUO Section (8) CONDITIONAL USE REVIEW CRITERIA: A use authorized as a conditional use under this zone may be allowed provided the following requirements or their equivalent are met. These requirements are designed to make the use compatible with forest operations and agriculture and to conserve values found on forest lands. Conditional uses are also subject to Article 6, Section 040.

- 1. The proposed use will not force a significant change in, or significantly increase the cost of, accepted farming or forest practices on agriculture or forest lands.*

Findings: The applicant has provided a Farm and Forest Impact Assessment as Appendix C to their submittal contained in 'Exhibit B' to this Staff Report. Forest zoned property along the proposed transmission line route includes tracts owned by Stimson Lumber Company and Green Crow

Corporation and are primarily devoted to the management of timber stands and timber harvest (Exhibit A). Stimson Lumber and Green Crow Corp were provided notice of this application and have not provided comments. Generally, forest operations are expected to include activities such as reforestation of forest land, road construction and maintenance, harvesting of a forest tree species, application of chemicals, and disposal of slash (OAR 660-06-0025(2)(a)).

Applicant states that:

- The line route has been sited along existing roads to the extent possible, minimizing the need for new access road construction and reducing the need for tree removal to facilitate the project (Exhibit B).
- The proposed project corridor – a 100 foot wide easement running 5,581 lineal feet on Green Crow Corporation property and 17,000 lineal feet on Stimson Lumber Company property – represents a very narrow corridor particularly in the context of the extensive timber tracts managed by Green Crow and Stimson in this area (Exhibit B).
- Since most of the proposed development is located along existing logging roads and scheduled maintenance occurs once a year, impacts to gate management practices and existing logging roads are anticipated to be minimal (Exhibit B).
- The transmission line design provides 25 feet of clear story height under the line in all locations which is sufficient to move logging equipment from one side of the line to the other (Exhibit B).
- If trees adjacent to the right-of-way edge are over 100 feet in height, directional tree falling will be required and that directional tree falling is a common accepted forest harvest practice in response to a variety of conditions. (Exhibit B)
- No significant impacts to aerial spraying operations are anticipated (Exhibit B).
- The substation will be sited adjacent to a property developed with sanitation utility facilities owned and operated by the Netarts Oceanside Sanitary District (Exhibit B)

Potential fire-related impacts are discussed below.

Staff finds that the proposed use will not force a significant change in or significantly increase the cost of accepted forestry practices, such as harvesting and replanting timber species, building and maintaining roads, applying chemicals and disposing of slash on the Green Crow and Stimson Lumber tracts.

2. *The proposed use will not significantly increase fire hazard or significantly increase fire suppression costs or significantly increase risks to fire suppression personnel.*

Findings: Notice of this application was provided to impacted fire suppression districts and the Oregon Department of Forestry. Comments received were from the Oregon department of Forestry requesting that Applicant's contractor comply with industrial fire protection rules when the state declares fire season (Exhibit D). Applicant states in their submittal included here as 'Exhibit B' that:

- Project construction, operation, and maintenance will comply with applicable federal, state, and county laws, ordinances, rules, and regulations pertaining to fire prevention, presuppression, and suppression (Exhibit B).
- During Project construction and operations, a Fire Protection Plan will be implemented in coordination with the local fire districts and the Oregon Department of Forestry and will demonstrate compliance with wildfire prevention and suppression requirements under Oregon Revised Statutes Chapter 477 and its associated administrative rules including the following (Exhibit B).
 - Provide fire-prevention equipment on machinery
 - Limit or stop work during periods of elevated fire danger

- Provide firefighting tools
 - Provide water supplies and pumping equipment
 - Provide fire watch personnel
 - Suppress wildfires originating from construction activity
 - Dispose of debris in a specified manner
 - Construction contractor to accept liability for the State's cost of suppressing wildfires originating from construction activity
- The Tillamook PUD Emergency Response Plan lists contacts and procedures for responding to incidents, including fire-related events (Exhibit B).
 - Tillamook PUD will maintain the transmission line corridor free from potential fuel and Tillamook PUD's ability to do so will be memorialized in easement agreements (Exhibit B).
 - The cleared, fuel-free transmission line easement in the forested area will provide a fire break, helping reduce the spread of a fire (Exhibit B).

Staff finds that the Applicant has committed to implementing fire prevention, pre-suppression and suppression plans for the construction and operational phases of the proposed project in accordance with federal, state and county regulations. Should the Planning Commission agree with these findings, this criterion could be met through compliance with a Condition of Approval requiring Applicant to provide letters from the impacted fire protection districts documenting the sufficiency of the fire prevention, presuppression, and suppression plans prepared by its construction contractor for the construction phase of the project and the sufficiency of the fire prevention, presuppression, and suppression plans prepared for the operational phase of the project.

3. *A written statement recorded with the deed or written contract with the county or its equivalent is obtained from the land owner that recognizes the rights of adjacent and nearby land owners to conduct forest operations consistent with the Forest Practices Act and Rules for uses authorized in OAR 660-006-0025(5)(c).*

Findings: Applicant states that they accept the requirement to acknowledge the rights of adjacent and nearby landowners to conduct forest operations consistent with the Forest Practices act and Rules for uses authorized in OAR 660-006-0025(5)(c) (Exhibit B). The underlying property owners in this case are commercial timber companies engaged in forest operations and the Applicant will be obtaining property rights through easement rather than deed (Exhibit B). Applicant states that this acknowledgement will be recorded as part of the easement obtained from the underlying property owners (Exhibit B).

Staff finds that this criterion can be satisfied through compliance with a Condition of Approval requiring demonstration at the time of applying for Zoning Permit approval that the easement agreements recorded between the Applicant and underlying property owner contain an acknowledgement by the Applicant recognizing the rights of adjacent and nearby land owners to conduct forest operations consistent with the Forest Practices Act and Rules for uses authorized in OAR 660-006-0025(5)(c). Staff recommends that this criterion can be met through compliance with the recommended Conditions of Approval.

N. TCLUO Article VI, 'Conditional Use Procedures and Criteria'

TCLUO Section 6.040, 'Review Criteria' requires that any Conditional Use authorized according to TCLUO Article VI shall be subject to the following criteria, where applicable:

(1) *The use is listed as a CONDITIONAL USE in the underlying zone, or in an applicable overlying zone.*

Findings: As noted above, the proposed use is listed as a conditional use in the underlying zones as described in TCLUO 3.004(13), 'Forest (F) Zone', TCLUO 3.010(3)(n), 'Rural Residential 2 Acres (RR-2) zone' and TCLUO 3.020(3)(n), 'Rural commercial (RTC) Zone'. As discussed above, TCLUO 3.102(3)(d), 'Estuary Natural (EN) Zone' identifies 'Electrical distribution lines and line support structures' as a use allowed conditionally in the EN zone and the Director has made a Similar Use Determination that the proposed 115kV transmission line is similar in character and impact.

The Conditional Use review criteria discussed below apply to the proposed development located in the Forest, Rural Residential 2-Acre, Rural Commercial and Estuary Natural zones. The development standards relevant to proposed development located in the Farm and Estuary Conservation 1 zones are addressed in Administrative Review 851-17-000448-PLNG-02.

(2) *The use is consistent with the applicable goals and policies of the Comprehensive Plan.*

Findings: The Tillamook County Land Use Ordinance is an implementing document of the Comprehensive Plan. In the absence of evidence to the contrary, uses allowed conditionally in the Land Use Ordinance are presumed to be consistent with the Comprehensive Plan.

The Applicant's submittal contains a description the proposed development located in the Forest, Rural Residential 2-Acre, Rural Commercial and Estuary Natural zones is consistent with the applicable policies of the Tillamook County Comprehensive Plan (Exhibit B).

Staff finds that the proposed transmission line development is consistent with the Goal 1, 2, 9, 10, 12, 13, 18 elements of the Comprehensive Plan.

- Tillamook County Comprehensive Plan Goal 3 Element: AGRICULTURAL LANDS
Summary: Goal 3 defines "agricultural lands." It then requires counties to inventory such lands and to "preserve and maintain" them through farm zoning. Details on the uses allowed in farm zones are found in ORS Chapter 215 and in Oregon Administrative Rules, Chapter 660, Division 33.

Findings: The Tillamook County Land Use Ordinance is an implementing document of the Comprehensive Plan and the use and development of land subject to Farm zoning is addressed under TCLUO Section 3.002. Conformance of those portions of the proposed transmission line development located on Farm zoned land are addressed below in Administrative Review 851-17-000448-PLNG-02.

- Tillamook County Comprehensive Plan Goal 4 Element: FOREST LANDS
Summary: This goal defines forest lands and requires counties to inventory them and adopt policies and ordinances that will "conserve forest lands for forest uses."

Findings: The proposed transmission line development will cross approximately 4.2 miles of commercial forest in the Forest zone located between Bayocean Road and Applicant's proposed new Oceanside Substation (Exhibit B). Tillamook County Comprehensive Plan Goal 4 policies require that all non-forest uses proposed for the Forest zone will be reviewed by the County Planning Commission to assure that they are compatible with forest and farm uses on adjacent land, and to assure that these uses meet all other criteria and standards described in the zoning ordinance. These policies also require the productive capacity of the land in each use shall be evaluated. Compatibility with forest and farm uses on land adjacent to the proposed transmission line segments located in the Forest zone are addressed above in response to the criteria of TCLUO Section 3.004(8) and below in response to TCLUO Section 6.040(4).

- Tillamook County Comprehensive Plan Goal 5 Element: NATURAL RESOURCES

Summary: Goal 5 covers more than a dozen natural and cultural resources such as wildlife habitats and wetlands. It establishes a process for each resource to be inventoried and evaluated. If a resource or site is found to be significant, a local government has three policy choices: preserve the resource, allow proposed uses that conflict with it, or strike some sort of a balance between the resource and the uses that would conflict with it.

Findings: Staff has not identified any Goal 5 protected resources along the segments of the proposed transmission line route located in the F, RC, RR-2 or EN zones. The Goal 5 element of the Tillamook County Comprehensive Plan does identify potential mineral and aggregate sites in the vicinity of the Mt Mears Quarry in T1S R10W Sections 28, 29 and 21, however county records indicate that Goal 5 protection has not been sought for these sites. Compatibility of the proposed development with existing quarry use in the Forest zone is addressed below.

- Tillamook County Comprehensive Plan Goal 6 Element: AIR, WATER AND LAND RESOURCES QUALITY

Summary: This goal requires local comprehensive plans and implementing measures to be consistent with state and federal regulations on matters such as groundwater pollution.

Findings: Staff finds that the proposed transmission line development would not reduce protections for resources and natural features addressed in the Goal 6 Element or waive requirements for satisfaction of development standards intended to address resource quality such as those contained in TCLUO 4.040 'Requirements for Protection of Water Quality and Streambank Stabilization'. Compliance with TCLUO Section 4.040 is discussed above in this Staff Report. Applicant has obtained a Nationwide Permit Verification Letter from the U.S. Army Corps of Engineers and 401 Water Quality Certification approval from DEQ (Exhibit B). Staff typically imposes Conditions of Approval on development requiring Applicants obtain all required Federal, State, and Local permits and/or licenses and comply with applicable rules and regulations.

- Tillamook County Comprehensive Plan Goal 7 Element: HAZARDS

Summary: Goal 7 deals with development in places subject to natural hazards such as floods or landslides. It requires that jurisdictions apply "appropriate safeguards" (floodplain zoning, for example) when planning for development there.

Findings: The Tillamook County Land Use Ordinance is an implementing document of the Comprehensive Plan and contains ordinance provisions addressing the identification of hazard areas and requirements for development in identified hazard areas. Segments of the proposed development are located in a Special Flood Hazard Area (Exhibits A and B). Applicant has provided a No-Rise hydrological study prepared by Northwest Hydrological Consultants which is the subject of Floodway/Estuary/Floodplain Development Permit request #851-17-000448-PLNG addressed below (Exhibit B). Segments of the proposed development are located within areas of landslide topography as identified on DOGAMI Bulletin 74 and compliance with the requirements of TCLUO Section 4.130, 'Development requirements for Geologic Hazard Areas' is addressed above (Exhibit A).

- Tillamook County Comprehensive Plan Goal 8 Element: RECREATION

Summary: This goal calls for each community to evaluate its areas and facilities for recreation and develop plans to deal with the projected demand for them. It also sets forth detailed standards for expedited siting of destination resorts.

Findings: The County shall has adopted special zoning designations for the preservation of unique open space areas and recreation areas in order to preserve them from incompatible development – the Recreation Management, Recreational Natural and Recreation Development zoning designations as well as a process for establishing a Planned Destination Resort. Applicant’s proposed development is not near land subject to these zoning designations.

- Tillamook County Comprehensive Plan Goal 9 Element: POPULATION AND ECONOMY
Summary: Goal 9 calls for diversification and improvement of the economy. It asks communities to inventory commercial and industrial lands, project future needs for such lands, and plan and zone enough land to meet those needs.

Findings: The Goal 9 Element of the Comprehensive Plan summarizes information from several sources to describe in general terms the economic base of the County and trends in population and economic change. Population characteristics are presented however the growth projections only extend to the year 2000. Development potential for the major sectors of the economy are then described including a special section on development potential related to coastal resources. A brief evaluation is made of the existing zones and known potential alternative sites for economic development. Findings and policies for community organization, public services, industrial land, the need for manufacturing employment opportunities, natural resources development and human resources development are outlined in the Goal 9 Element.

Applicant state that the proposed development is required to serve ongoing development and growth in the vicinity of the unincorporated communities of Oceanside and Netarts and the central Tillamook Valley area including the incorporated cities of Tillamook and Bay City (Exhibit B). These are areas that are zoned for residential, commercial and some light industrial uses. The provision of electrical utility service to support growth in these municipal and unincorporated community areas is consistent with the Goal 9 Element of the Tillamook County Comprehensive Plan.

- Tillamook County Comprehensive Plan Goal 11 Element: PUBLIC FACILITIES
Summary: Goal 11 calls for efficient planning of public services such as sewers, water, law enforcement, and fire protection. The goal's central concept is that public services should be planned in accordance with a community's needs and capacities rather than be forced to respond to development as it occurs.

Findings: The Goal 11 Element of the Comprehensive Plan speaks to public services and facilities in Tillamook County, and requires local governments and special districts “to plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development”. There is a significant amount of discussion within the Goal 11 element pertaining to rural versus urban development and concerns about limiting urban sprawl.

Comments have been received questioning the compatibility of the proposal development with Statewide Planning Goal section 11(A)(6), ‘All utility lines and facilities should be located on or adjacent to existing public or private rights-of-way to avoid dividing existing farm units.’ Staff notes that Statewide Planning Goals do not apply directly to a quasi-judicial decision governed by the County’s acknowledged plan and land use regulations. The referenced section of Goal 11 sets forth guidelines to be considered and are not mandatory.

Applicant states that the proposed development is required to serve ongoing development and growth in the vicinity of the unincorporated communities of Oceanside and Netarts and the central Tillamook Valley area including the incorporated cities of Tillamook and Bay City (Exhibit B). Services and facilities within these areas include public schools, transportation, water supply, sewage disposal, solid waste disposal, police protection, fire protection, planning, zoning and subdivision control, energy service, and communications services. These are areas that are primarily zoned for residential, commercial and some

light industrial uses. Applicant has provided a statement describing the need for improved reliability and expanded electrical service in order to meet projected growth for these areas. Staff finds that the provision of expanded electrical service to these non-resource areas which are zoned for density and development is consistent with the policies of the Goal 11 element of the Comprehensive Plan.

- Tillamook County Comprehensive Plan Goal 14 Element: URBANIZATION

Summary: This goal requires cities to estimate future growth and needs for land and then plan and zone enough land to meet those needs. It calls for each city to establish an "urban growth boundary" (UGB) to "identify and separate urbanizable land from rural land." It specifies seven factors that must be considered in drawing up a UGB. It also lists four criteria to be applied when undeveloped land within a UGB is to be converted to urban uses.

Findings: The purpose of Goal 14 is to provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities. In addition to addressing preservation of the use and integrity of resource lands, the establishment of unincorporated community growth boundaries and the priorities/establishment of urban growth boundaries, concerns about impacts of dense rural development and small lot development are described in this goal element. Four major areas of concern related to allowing small lot sizes and development in rural areas include traffic congestion, water quality, water availability and impacts on resource lands.

Applicant is proposing the transmission line development to serve ongoing development and growth in the vicinity of the unincorporated communities of Oceanside and Netarts and the central Tillamook Valley area including the incorporated cities of Tillamook and Bay City (Exhibit B). These are areas that are zoned for residential, commercial and some light industrial uses. The provision of electrical utility service to support growth in these municipal and unincorporated community areas is consistent with the Goal 14 Element of the Tillamook County Comprehensive Plan.

- Tillamook County Comprehensive Plan Goal 16 Element: ESTUARINE RESOURCES

Summary: This goal requires local governments to classify Oregon's 22 major estuaries in four categories: natural, conservation, shallow-draft development, and deep-draft development. It then describes types of land uses and activities that are permissible in those "management units."

Findings: Applicant states that no transmission line power poles will be located in the EN zone, the proposed 115-kV transmission line conductor will completely span over the top of the EN zone and that there will be no surface impacts from the proposed Project within the EN zone (Exhibit B). The Tillamook County Land Use Ordinance is an implementing document of the Comprehensive Plan and the use and development of estuarine areas is addressed under the ordinances of the relevant estuary zone as well as the general estuary development standards contain in TCLUO 3.140. Conformance of those segments of the proposed transmission line which span areas subject to estuary zoning designation are addressed in this Staff Report.

- Tillamook County Comprehensive Plan Goal 17 Element: COASTAL SHORELANDS

Summary: The goal defines a planning area bounded by the ocean beaches on the west and the coast highway (State Route 101) on the east. It specifies how certain types of land and resources there are to be managed: major marshes, for example, are to be protected. Sites best suited for unique coastal land uses (port facilities, for example) are reserved for "water-dependent" or "water related" uses.

Findings: As discussed above, segments of the proposed development are located within the Shorelands Boundary as identified in the Goal 17 element of the Tillamook County Comprehensive Plan. Staff has reviewed the proposed development and determined that those areas within 50 feet of estuaries along the

proposed transmission line route are categorized as 'Rural Shorelands' as described in TCLUO 3.545(3) and are subject to the use limitations identified in TCLUO 3.545(4)(a)(1) and the standards identified in TCLUO 3.545(6). Staff has reviewed the significant shoreland inventory contained in the Goal 17 element of the Comprehensive Plan and has verified that the proposed transmission route does not impact significant shorelands. The Tillamook County Land Use Ordinance is an implementing document of the Comprehensive Plan and the use and development of areas within the Shoreland Boundary is regulated by TCLUO Section 3.545, 'Shoreland Overlay' which is addressed in above. No Significant Shoreland elements were identified in proximity to the proposed development.

(3) *The parcel is suitable for the proposed use considering its size, shape, location, topography, existence of improvements and natural features.*

Findings: Applicant's submittal included here as 'Exhibit B' contains a detailed description of the proposed development and the properties over which the transmission easement is proposed.

The proposed Project includes construction and operation of approximately 8.4 miles of the 115-kV electric transmission line located within a 50-100 foot-wide easement corridor and a 115-kV to 24.9/14.4-kV distribution substation (Exhibit B). Applicant states that the proposed route was established through a route siting process which included the formation of a 14-member, volunteer Citizen Advisory Group who reviewed detailed analysis of potential alternative routes and provided recommendations for selection (Exhibit B). Applicant states that wherever possible, the proposed development has been routed adjacent to or collocated with existing linear facilities such as highway and road rights-of-way, utility corridors, or previously developed areas (Exhibit B).

Rural Commercial Zone: Applicant is proposing to locate an approximately 0.1-mile segment of the proposed transmission line easement and two power poles (power pole 1 and 3) in the County's Rural Commercial (RC) zone on property owned by the Bonneville Power Administration and currently developed with the Tillamook Substation and on property owned by Tillamook PUD (Exhibit B). No riparian features, wetlands, special flood hazard or other hazards are identified in this area (Exhibit B).

Staff finds that the properties subject to the proposed development in the Rural Commercial zone are relatively flat, predominantly cleared and graveled, lacking in hazards and are developed with utility facilities and currently devoted to utility use (Exhibits A and B).

Rural Residential Zone: Applicant states that an approximately 0.05-mile portion of the proposed route and one pole are proposed to be located in the RR-2 zone within the public right-of-way of Wilson River Loop Road (Exhibit B). Applicant states that the proposed easement width in the vicinity of pole #16 has been reduced so that no easement will be located on the adjacent private RR-2 land devoted to residential use (Exhibit B). County road right-of-way is irregular in shape along this portion of Wilson River Loop Road (Exhibit A). Tillamook PUD owns and operates an existing power distribution line in this area that runs along the northern side of Wilson River Loop Road which would be relocated to the proposed easement corridor along the south side of Wilson River Loop Road in order to minimize impacts on adjacent private properties in the RR-2 zone (Exhibit B). Tillamook PUD received a County permit for Utility Facilities within a Public Right-of-way for the proposed transmission line and structures located within the County right-of-way along Wilson River Loop Road, permit number UP#5251 (Exhibit B). No riparian features, wetlands, special flood hazard or other hazards are identified in this area (Exhibit B).

Staff finds that the property subject to the proposed development in the Rural Residential 2-Acre zone is relative flat, predominantly cleared and graveled or paved, is developed with transportation facilities, utility facilities and private access drives (Exhibits A and B).

Forest Zone: Applicant states that an approximately 4.3-mile portion of the proposed route, 36 poles and a new substation are proposed to be located in the Forest zone (Exhibit B). The proposed transmission line easement in the Forest zone is 100 feet in width and is co-located to the extent possible with existing logging roads (Exhibit B). The properties subject to development in the Forest zone are large, forested timber tracts managed for forest operations and quarry use, are developed with logging access roads, and consist of terrain of varying slope (Exhibit B).

Segments of this portion of the proposed route traverse Geologic Hazard areas as discussed above (Exhibit B). Staff finds that it would not be possible to map a route between Tillamook and the vicinity around Oceanside without crossing Forest zoned property and without crossing areas of landslide topography as identified in DOGAMI Bulletin 74 or documented landslide deposits as identified in DOGAMI Statewide Landslide Information Database for Oregon (SLIDO). Applicant states that they have worked with their engineering consultant, TriAxis Engineering, to select transmission line power pole locations that avoid areas known or believed to be susceptible to landslides and areas of known geologic hazards including landslides and weak bearing soils (Exhibit B). Applicant states that transmission lines commonly are located in terrain of this type and that the hazard can be addressed through appropriate route design and engineering (Exhibit B).

There are no mapped wetlands or Special Flood Hazard Areas crossed by the segment of the proposed route located in the Forest zone (Exhibit B). There are several perennial stream locations identified along the proposed route in the Forest zone as identified in Applicant's submittal and confirmed by the Oregon Department of Fish and Wildlife which are addressed above (Exhibit B). Applicant states that no ODFW Category 1 habitat was identified in the proposed transmission corridor area and no concerns related to wildlife impacts have been expressed by ODFW staff (Exhibits B and D).

Staff finds that Applicant is proposing to locate a segment of the proposed transmission line within the Forest zone on a comparatively small portion (of two large timber tracts and generally adjacent to existing road improvements in conformance with Forest zone siting requirements discussed above. Staff finds that the proposed pole locations in the Forest zone will not be located in riparian buffer areas and will not be located in areas known or believed to be susceptible to landslides or weak bearing soils and will not be otherwise located in areas of known hazards. Staff finds that the subject properties are currently devoted to forest use and industrial quarry use.

Estuary Natural Zone: Applicant states that the proposed transmission line will span the Estuary Natural zone for 0.2 miles within a 50 foot wide easement area at one location over the Tillamook River on the proposed route (Exhibit B). Applicant states that the Tillamook River is a navigable waterway at this proposed crossing and requires a permit from the USACE under Section 10 of the Rivers and Harbors Act of 1899 (Exhibit B). Diking infrastructure bounds the southwestern edge of the Estuary Natural zone in this area and Applicant states that the underlying area is otherwise undeveloped (Exhibits B and G). This section of estuary is contained in Management Unit 39EN and categorized as a major tract of saltmarsh predominated by shrubs and cleared agricultural land (Exhibit G). Suitability of the development for this zoning designation and the requirements for development in the Estuary Natural zone are discussed extensively above.

(4) The proposed use will not alter the character of the surrounding area in a manner which substantially limits, impairs or prevents the use of surrounding properties for the permitted uses listed in the underlying zone.

Applicant's submittal included here as 'Exhibit B' contains a detailed description of the proposed development, the properties over which the transmission easement is proposed, and uses and development in the areas surrounding those segments of the proposed transmission line subject to Conditional Use

review. Applicant states that the proposed development was specifically routed to be co-located with existing linear facilities, to utilize existing right-of-way to the extent practical and to avoid existing structures and buildings so the easement corridor and transmission line do not limit, impair, or prevent use of the properties crossed in these zones (Exhibit B).

Rural Commercial Zone: As noted above, the subject properties in the Rural Commercial zone are developed with utility facilities and currently devoted to utility use lines and are under utility ownership (Exhibit B).

Properties to the north of this proposed transmission line segment are zoned Farm (F-1) and include several large parcels which form part of the Hogan farm tract (Exhibits A and B). High Voltage transmission lines are currently located on the southern portion of this farm tract (Exhibits A and B). The Hogan farm tract is developed with a residence and various agricultural buildings and is in farm use (Exhibits A and B). Applicant has provided a detailed Farm and Forest Impact Assessment as part of their submittal which contains information on use and characteristics of the Farm zoned area south of the RR-2 zoned segment of the proposed transmission line (Exhibit B). Staff notes that transmission lines under 200 feet in height are a use allowed outright subject to standards in the Farm zone. Compliance with those standards for segments of the transmission line proposed on property subject to Farm zone zoning is addressed in Administrative Review 851-17-000448-PLNG-02 below.

Applicant states that the transmission line corridor is located in a previously developed commercial area, is similar in character to existing electrical transmission and substation facilities that characterize this Rural Commercial zoned area and will not limit or prevent existing uses on surrounding properties or within this discrete area within the RC zone.

Rural Residential Zone: Applicant states that in the RR-2 zone one power pole will be placed within the public right-of-way for Wilson River Loop Road, and no poles will be placed on private RR-2 zoned property (Exhibit B). Properties to the north of this proposed transmission line segment are zoned Rural Residential 2-Acre, are relatively flat, sparsely vegetated, are developed with residential dwellings and accessory structures and a commercial bait shop and are generally devoted to residential use (Exhibits A and B). Applicant states that the proposed easement width in the vicinity of pole #16 has been reduced so that no easement will be located on the adjacent private RR-2 land devoted to residential use (Exhibit B). Tillamook PUD owns and operates an existing power distribution line in this area that runs along the northern side of Wilson River Loop Road which would be relocated to the proposed easement corridor along the south side of Wilson River Loop Road in order to minimize impacts on adjacent private properties in the RR-2 zone (Exhibit B).

Properties to the south of this proposed transmission line segment are zoned Farm (F-1) and include a substandard parcel improved with a residential dwelling and several larger parcels which form part of the Hogan farm tract (Exhibits A and B). The Hogan farm tract is developed with a residence and various agricultural buildings and is in farm use (Exhibits A and B). High Voltage transmission lines are currently located on the southern portion of this farm tract (Exhibits A and B). Applicant has provided a detailed Farm and Forest Impact Assessment as part of their submittal which contains information on use and characteristics of the Farm zoned area south of the RR-2 zoned segment of the proposed transmission line (Exhibit B). Staff notes that transmission lines under 200 feet in height are a use allowed outright subject to standards in the Farm zone. Compliance with those standards is addressed in Administrative Review 851-17-000448-PLNG-02 below.

Applicant states that one power pole will be developed within the RR-2 zone, will be located within the right-of-way for Wilson River Loop Road, and therefore, will not limit or prevent permitted uses on surrounding properties (Exhibit B). Staff finds that applicant is proposing to develop an approximately 0.05-mile portion of the proposed route and one pole are proposed to be located in the RR-2 zone within

the public right-of-way of Wilson River Loop Road and that Wilson River Loop Road is currently developed with transportation facilities and utility facilities.

Forest Zone: Applicant states that an approximately 4.3-mile portion of the proposed route, 36 poles and a new substation are proposed to be located in the Forest zone (Exhibit B). The proposed transmission line easement in the Forest zone is 100 feet in width and is co-located to the extent possible with existing logging roads in conformance with Forest zone siting standards (Exhibit B). The properties surrounding the proposed transmission line development in the Forest zone are large, forested timber tracts managed for forest operations and quarry use and are developed with logging access roads (Exhibit B). The substation is proposed to be located adjacent to a Forest zoned property developed with existing sanitation utility facilities owned and operated by the Netarts Oceanside Sanitary District (Exhibits A and B). Impacts of the proposed transmission line and substation development on forest operations, which generally include activities such as reforestation of forest land, road construction and maintenance, harvesting of a forest tree species, application of chemicals, and disposal of slash, are discussed in detail above. Applicant states that all methods of timber stand maintenance, harvesting and reforestation can continue on lands surrounding the permanent easements for the proposed transmission line corridor and Oceanside Substation and therefore will not alter the character of the surrounding area in a manner which substantially limits, impairs or prevents the use of surrounding properties for forest use.

The Mt. Meares Quarry is located just north of proposed power pole 72 along an existing access road on taxlot 1S10000002101 (Exhibits A and B). Other quarry operations in the vicinity are the adjacent 600 Pit and the 200 Line Pit located to the north of the proposed substation, and which are listed, along with the Mt Meares Quarry, as potential aggregate sites in the Goal 5 Element of the Comprehensive Plan (Exhibit A). All quarry operations are on land owned by Green Crow Corporation (Exhibit A). Applicant states that anticipated impacts on quarry operations are minor and primarily consist of potential construction traffic impacts which will be of limited duration (Exhibit B). Applicant states that they will coordinate with the underlying landowners to schedule construction so potential disruptions to planned operations on surrounding lands are limited to the greatest extent possible (Exhibit B).

The Netarts Oceanside Sanitary District operates a treatment plant on property directly west of proposed power pole 87 and north of the proposed Oceanside Substation (Exhibit B). Applicant states that anticipated impacts on treatment plant operations are minor and primarily consist of potential construction traffic impacts which will be of limited duration (Exhibit B). Applicant states that operations and maintenance of the Netarts Oceanside Sanitary District Plant will be improved by reducing the number and duration of electrical power outages that the plant is now being subjected to (Exhibit B).

Estuary Natural Zone: Applicant states that the proposed transmission line will span the Estuary Natural zone for 0.2 miles within a 50 foot wide easement area at one location over the Tillamook River on the proposed route (Exhibit B). The general area is very sparsely developed and generally devoted to farm use, habitat conservation and limited recreational uses (Exhibit B).

The area to the north and east of the proposed transmission line segment within the Estuary Natural zone is zoned Estuary Conservation 1 (EC1) and encompasses portions of the Tillamook River (Exhibits A and B). A small portion of the area to the southwest of this segment is also zoned EC1 (Exhibits A and B). Compliance with the development standards of the EC1 zone are addressed in Administrative Review 851-17-000448-PLNG-02 below.

The area to the west and south of the proposed transmission line segment within the Estuary Natural zone is primarily zoned Farm (F-1) and consists of several parcels owned by Eric and Loretta Peterson comprising a farm tract devoted to farm use, specifically a dairy operation (Exhibits A and B). Applicant has provided a detailed Farm and Forest Impact Assessment as part of their submittal which contains

information on use and characteristics of the Farm zoned area southwest of the EN zoned segment of the proposed transmission line (Exhibit B). Staff notes that transmission lines under 200 feet in height are a use allowed outright subject to standards in the Farm zone. Compliance with those standards for segments of the transmission line proposed on property subject to Farm zone zoning is addressed in Administrative Review 851-17-000448-PLNG-02 below.

Applicant states that the Project was specifically routed to avoid existing and planned public access areas and will not preclude the public from using estuarine areas within the EN zone, interfere with public use and access to the Tillamook Bay estuary in general and will not unreasonably interfere with the public use and enjoyment of the Tillamook Bay estuary (Exhibit B).

(5) The proposed use will not have detrimental effect on existing solar energy systems, wind energy conversion systems or wind mills.

Finding: Applicant state that no solar energy systems, wind energy conversion systems, or wind mills exist within the vicinity of the proposed Project where it could interfere with their operation (Exhibit B). Staff finds no County records that indicate the presence of such facilities in the vicinity. Staff finds that the proposed use will not have detrimental effect on existing solar energy systems, wind energy conversion systems or wind mills.

(6) The proposed use is timely, considering the adequacy of public facilities and services existing or planned for the area affected by the use.

Applicant has provided a detailed description of the need for the proposed transmission line and substation in their submittal included here as 'Exhibit B' and states that the Project is necessary to:

- "Ensure the Applicant's system capacity in the central Tillamook Valley does not exceed the RUS recommended peak loading capacity, allow for additional system capacity and growth in the central Tillamook Valley and Netarts-Oceanside areas, and allow for the transfer of load capacity between substations to prevent load curtailments to customers."
- "Improve the reliability of service to approximately 1,800 customers in the Tillamook Valley crossed by the proposed Project and substantially reduce the number of customers affected by an outage and the length of the outage."
- "Replace the failing infrastructure associated with the existing radial distribution line that is over 50 years old and serves the Netarts-Oceanside area. Based on the age of the infrastructure, industry safety practices require that power is cut to the line during repairs, which creates an outage and cuts power to approximately 1,800 customers during each maintenance event."

Rural Commercial Zone: Staff finds that existing road access infrastructure and fire protection service is available to those segments of the proposed transmission line located in the RC zone.

Rural Residential 2-Acre Zone Staff finds that existing road access infrastructure and fire protection service is available to those segments of the proposed transmission line located in the RR-2 zone.

Forest Zone: Staff finds that some new access road infrastructure will be required to facilitate the proposed transmission line development, but that as described in Applicant's proposal, wherever possible, the proposed transmission line route has been located adjacent to or near existing private access roads minimizing the requirement for new road development (Exhibit B). Staff finds that the Oregon Department of Forestry can provide fire protection service to the proposed development located in the Forest zone and that they have not expressed significant concerns related to the proposed development (Exhibits B and D).

Estuary Natural Zone: Staff finds that Fire protection service is available to those segments of the proposed transmission line located in the EN zone and that access to these segments will not be located within the EN zone.

IV. FLOODWAY/ESTUARY/FLOODPLAIN DEVELOPMENT PERMIT 851-17-000448-PLNG

TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'

(1) *PURPOSE: It is the purpose of the FH zone to promote the public health, safety and general welfare and to minimize public and private losses or damages due to flood conditions in specific areas by provisions designed to:*

- (a) *Protect human life and health;*
- (b) *Minimize expenditure of public money for costly flood control projects;*
- (c) *Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the public;*
- (d) *Minimize prolonged business interruptions;*
- (e) *Minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in areas of special flood hazards;*
- (f) *Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas;*
- (g) *Ensure that potential buyers are notified that property is in an area of special flood hazard; and*
- (h) *Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.*
- (i) *Maintain the functions and values associated with Special Flood Hazard Areas which reduce the risk of flooding.*

(5) *GENERAL STANDARDS: In all areas of special flood hazards the following standards are required:*

ANCHORING

- (a) *All new construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.*
- (b) *All manufactured dwellings must likewise be anchored to prevent flotation, collapse or lateral movement, and shall be installed using methods and practices that minimize flood damage. Anchoring methods may include, but are not limited to, use of over-the-top or frame ties to ground anchors (See FEMA's "Manufactured Home Installation in Flood Hazard Areas" guidebook for techniques). A certificate signed by a registered architect or engineer which certifies that the anchoring system is in conformance with FEMA regulations shall be submitted prior to final inspection approval.*

CONSTRUCTION MATERIALS AND METHODS

- (c) *All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.*
- (d) *All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.*
- (e) *Electrical, heating, ventilation, plumbing, and air-conditioning equipment and other service facilities shall be elevated to prevent water from entering or accumulating within the components during conditions of flooding. In Flood Zones A, A1-A30, AE, V, V1-V30 or VE, such facilities shall be elevated three feet above base flood elevation. In Flood Zone AO, such facilities shall be elevated above the highest grade adjacent to the building, a minimum of one foot above the depth number specified on the FIRM (at least two feet above the highest adjacent grade if no depth number is specified).*

UTILITIES

- (f) All new and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood water into the system.*
- (g) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharge from the systems into flood waters.*
- (h) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.*

Findings: The Applicant states that 44 power poles will be located in Zone AE and 23 power poles are within the floodway. Poles have been selected based on soil conditions and hydrologic conditions, which will be confirmed during the detailed engineering phase of the project. Poles will be constructed using materials designed to resist flood damage, steel (tubular with a painted galvanized coating) or wood, consisting of single pole, or of two or three poles, depending on soil types and span lengths and designed to minimize flood damage. Specific details regarding pole design and installation detail, height of improvements and installation methods are described on pages 5-32 and 5-34 of the Applicant's submittal (Exhibit B).

(6) SPECIFIC STANDARDS FOR A ZONES (A, AE or A1-A30): In all areas of special flood hazards where base flood data has been provided as set forth in Section 3.510(2) or other base flood data are utilized, the following provisions are required:

NONRESIDENTIAL CONSTRUCTION

(c) New construction and substantial improvement of any commercial, industrial or other nonresidential structure shall have either the lowest floor including basement elevated to three feet above the level of the base flood elevation or higher; or, together with attendant utility and sanitary facilities, shall:

- (1) Be floodproofed so that the portion of the structure that lies below the portion that is three feet or more above the base flood level is watertight with walls substantially impermeable to the passage of water.*
- (2) Have structural components capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.*
- (3) Be certified by a registered professional engineer or architect that the design and methods of construction are in compliance with accepted standards of practice for meeting provisions of this Subsection based on their development and/or review of the structural design, specifications and plans. Such certifications shall be provided to the Community Development Director.*
- (4) Nonresidential structures that are elevated, not floodproofed, must meet the same standards for space below the lowest floor as described for residential construction in Section 3.510(6)(a) and (b).*
- (5) Applicants floodproofing nonresidential buildings shall be notified that flood insurance premiums will be based on rates that are one foot below the floodproofed level (e.g. a building constructed to the base flood level will be rated as one foot below that level).*

Findings: As stated in the previous section, the Applicant states that the poles have been selected based on soil conditions and hydrologic conditions, which will be confirmed during the detailed engineering phase of the project. Details related to the applicable standards listed above are outlined on pages 5-32 through 5-34 of the Applicant's submittal (Exhibit B).

(8) SPECIFIC STANDARDS FOR FLOODWAYS: Located within areas of special flood hazard established in Section 3.510(2) are areas designated as regulatory floodways. Since the floodway is an extremely hazardous area due to the velocity of flood waters which carry debris, potential projectiles, and erosion potential, the following provisions apply:

(a) Encroachments in the regulatory floodway including fill, new construction, substantial improvements and other development are prohibited unless certification is provided by a professional registered civil engineer demonstrating through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that such encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge.

(b) If Subsection 8(a) is satisfied, all new construction and substantial improvement shall comply with all applicable flood hazard reduction provisions of Section 3.510(5) and (6).

(c) If hydrologic and hydraulic analysis indicates an increase in flood levels, the applicant shall obtain a Conditional Letter of Map Revision (CLOMR) from FEMA before any encroachment, including fill, new construction, substantial improvement, or other development, in the regulatory floodway is permitted. Upon completion of the project, but no later than six months after project completion, a Letter of Map Revision (LOMR) shall be submitted to FEMA to reflect the changes on the FIRM and/or Flood Insurance Study. A LOMR is required only when the CLOMR documents an increase in flood levels during the occurrence of the base flood or where post-development conditions do not reflect what was proposed on the CLOMR.

Findings: The Applicant retained Northwest Hydraulic Consultants to complete the no-rise analysis required for development within the regulatory floodway (Appendix D of Exhibit B). The analysis confirms that the proposed encroachments into the regulatory floodway will not result in any increase in flood levels (Exhibit B).

(13) **DEVELOPMENT PERMIT PROCEDURES:** A development permit shall be obtained before construction or development begins within any area of special flood hazard zone. The permit shall be for all structures including manufactured dwellings, and for all development including fill and other development activities, as set forth in the Definitions contained in this Section of the Land Use Ordinance.

(a) Application for a development permit shall be made on forms furnished by the Community Development Director and shall include but not necessarily be limited to: plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question, existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information in 3.510(13)(a)(1)-(4) is required and Development Permits required under this Section are subject to the Review Criteria put forth in Section 3.510(13)(b):

(1) Elevation in relation to a specific datum of the lowest floor, including basement, of all structures as documented on an Elevation Certificate;

(2) Elevation in relation to a specific datum to which any proposed structure will be floodproofed as documented on an Elevation Certificate;

(3) If applicable, certification by a registered professional engineer or architect that the floodproofing methods for any nonresidential structure meet the floodproofing criteria in Subsection (6)(c)(3) of this Section; and

(4) Description of the extent to which any watercourse will be altered or relocated as a result of proposed development.

Findings: A Development Permit is required for development within an area of Special Flood Hazard, defined as both AE Flood Zone areas (areas susceptible to a 1 percent annual chance of flood or 100-year flood event) and the floodway. Development Permit review is included in this staff report and Applicant responses to the Development Permit review criteria are outlined on pages 5-34 and 5-35 of the Applicant's narrative (Exhibit B).

(b) **Development Permit Review Criteria**

(1) The fill is not within a floodway, Coastal High Hazard Area, wetland, riparian area or other sensitive area regulated by the Tillamook County Land Use Ordinance.

(2) The fill is necessary for an approved use on the property.

- (3) *The fill is the minimum amount necessary to achieve the approved use.*
- (4) *No feasible alternative upland locations exist on the property.*
- (5) *The fill does not impede or alter drainage or the flow of floodwaters.*

Findings: The Applicant is proposing the installation of transmission line improvements within the floodway and areas regulated by the Tillamook County Land Use Ordinance. A hydrologic study resulting in a no-rise certification has been provided by the Applicant, demonstrating that the power poles will not impede or alter drainage or flow of flood waters (Exhibit B). The proposed installation of the transmission line and associated improvements is allowed as a use permitted with standards or a use permitted conditionally in the underlying zones of which an analysis of each of those zones in relation to the applicable criteria and standards is outlined throughout this report and also outlined in the Applicant's submittal (Exhibit B). The Applicant states the proposed poles are necessary within the floodway (Exhibit B).

Staff finds that the fill to support the lines (identified as foundations and poles) can be considered necessary for the proposed use in general terms and is necessary for the installation of the transmission line in both the floodway and the AE Flood Zone. The Applicant states that the type, size and location of the specific power poles within the floodway is based on preliminary engineering performed on soil and hydrologic conditions, which will be confirmed during the detailed engineering phase of the project (Exhibit B).

The Applicant describes their process for review of alternative routes on page 5-35 of the narrative (Exhibit B). Each route was considered through public/citizen involvement efforts and examined against a set of established criteria such as permitability, ease of obtaining corridor approval, access, constructability and a series of other environmental, land use, and financial factors. The Applicant states that the proposed route is the conclusion of this alternatives analysis (Exhibit B).

The Applicant states that there are no feasible upland locates as the floodway encompasses a significant area north of the existing Tillamook substation of Highway 101 and cannot be avoided with routes crossing north of the City of Tillamook downtown area (Exhibit B). Based upon the Applicant's analysis, it could be determined that there are no feasible alternative upland locations for the placement of fill outside of the Area of Special Flood Hazard, defined as the floodway and AE Flood Zone.

V. ADMINISTRATIVE REVIEW REQUEST 851-17-000448-PLNG-02

A. **TCLUO Section 3.002, 'Farm (F-1) Zone'**

TCLUO Section 3.002(1) PURPOSE:

The purpose of the Farm Zone (F-1) is to protect and maintain agricultural lands for farm use, consistent with existing and future needs for agricultural products. The Farm Zone is also intended to allow other uses that are compatible with agricultural activities, to protect forests, scenic resources and fish and wildlife habitat, and to maintain and improve the quality of air, water and land resources of the county. It is also the purpose of the Farm Zone to qualify farms for farm use valuation under the provisions of ORS Chapter 308.

The Farm Zone has been applied to lands designated as Agriculture in the Comprehensive Plan. The provisions of the Farm Zone reflect the agricultural policies of the Comprehensive Plan as well as the requirements of ORS Chapter 215 and OAR 660-033. The minimum parcel size and other standards established by this zone are intended to promote commercial agricultural operations.

TCLUO Section 3.002(15), 'Use Table', identifies uses permitted in the Farm zone subject to the general provisions, special conditions, additional restrictions and exceptions set forth in ordinance. *'Utility facilities necessary for public service, including associated transmission lines as defined in ORS 469.300*

and wetland waste treatment systems but not including commercial facilities for the purpose of generating electrical power for public use by sale or transmission towers over 200 feet in height' are identified in this section as a use permitted in the zone subject to satisfaction of the standards set forth in TCLUO 3.002(4)(n) as determined through Administrative Review.

TCLUO Section 3.002(2)(pp), 'Definitions', describes Utility facilities necessary for public service as follows '*Unless otherwise specified in this Article, any facility owned or operated by a public, private or cooperative company for the transmission, distribution or processing of its products or for the disposal of cooling water, waste or by-products, and including, major trunk pipelines, water towers, sewage lagoons, cell towers, electrical transmission facilities (except transmission towers over 200' in height) including substations not associated with a commercial power generating facilities and other similar facilities.*'

Findings: Applicant is proposing to develop a 115kV electrical transmission facility and substation with power poles ranging in height between approximately 50 and 125 feet above the ground (Exhibit B). Staff finds that Applicant's proposal is subject to Administrative Review and satisfaction of the standards described in TCLUO 3.002(4)(n) which are addressed below.

TCLUO Section 3.002(4) USE STANDARDS:

(n) A utility facility that is necessary for public service.

1. A utility facility is necessary for public service if the facility must be sited in the exclusive farm use zone in order to provide the service. To demonstrate that a utility facility is necessary, an applicant must:

a. Show that reasonable alternatives have been considered and that the facility must be sited in an exclusive farm use zone due to one or more of the following factors:

i. Technical and engineering feasibility;

ii. The proposed facility is locationally-dependent. A utility facility is locationally-dependent if it must cross land in one or more areas zoned for exclusive farm use in order to achieve a reasonably direct route or to meet unique geographical needs that cannot be satisfied on other lands;

iii. Lack of available urban and nonresource lands;

iv. Availability of existing rights of way;

v. Public health and safety; and

vi. Other requirements of state and federal agencies.

Findings: Applicant states that alternatives for achieving the capacity and reliability goals of the Project were considered and that such alternatives had technical and engineering limits and costs that made those alternatives infeasible (Exhibit B). Applicant states that the Project as proposed will provide the greatest capacity and reliability at the least cost to the public (Exhibit B).

Applicant's submittal contains a description of the route selection process it conducted in consultation with a Citizen's Advisory Group (Exhibit B). As further described in their submittal, Applicant states that the route proposed here was selected following a detailed analysis of potential alternative routes as well as recommendations received from the Citizen Advisory Group (Exhibit B).

Applicant has provided in their submittal, which is included here as 'Exhibit B', a discussion of the purpose and need for the facility which they have summarized as follows:

- "Ensure the Applicant's system capacity in the central Tillamook Valley does not exceed the RUS recommended peak loading capacity, allow for additional system capacity and growth in the central Tillamook Valley and Netarts-Oceanside area, and allow for the transfer of load capacity between substations."

- “Improve the reliability of service to approximately 1,800 customers and substantially reduce the number of customers affected by an outage and the length of the outage.”
- “Replace the failing infrastructure associated with the existing radial distribution line that is over 50 years old and serves the Netarts-Oceanside area. Based on the age of the infrastructure, industry safety practices require that power is cut to the line during repairs, which creates an outage and cuts power to approximately 1,800 customers.”

Staff finds that Applicant has considered alternatives to the proposed development to serve the identified need.

Applicant states that the proposed project is locationally-dependent and that no alternative route exists that can connect the existing and proposed substations without crossing land zoned Farm (F-1) (Exhibit B). In reviewing zoning maps for the County, Staff concurs that it is not possible to map a route, even an indirect route, between Tillamook City and the area surrounding Oceanside without crossing land zoned Farm (F-1) and Forest (F) (Exhibit A). The City of Tillamook is effectively surrounded by land subject to Farm zone designation (Exhibit A).

Applicant states that wherever possible, the Project has been routed adjacent to or co-located with existing linear developments within the County including the Port of Tillamook Bay’s railroad right-of-way from the substation north to Wilson River Loop Highway, along Wilson River Loop Highway, along Goodspeed Road, and along various existing access roads through private farmland in Tillamook County (Exhibit B). Staff finds that segments of these rights-of-way are located in the Farm (F-1) zone.

Staff finds that the Applicant considered alternatives to the proposed route and that the facility must be sited in an exclusive farm use zone as it is locationally-dependent, that lands subject to Farm zoning designation must be crossed in order to connect the existing substation in the City of Tillamook and a substation location in the vicinity of Oceanside and that no urban and nonresource lands are available to support an alternative route that does not cross land subject to Farm zone designation.

b. Costs associated with any of the factors listed in subparagraph a of this paragraph may be considered, but cost alone may not be the only consideration in determining that a utility facility is necessary for public service. Land costs shall not be included when considering alternative locations for substantially similar utility facilities and the siting of utility facilities that are not substantially similar.

Findings: Applicant states that they did not consider cost alone and that the main factors in siting the route were proximity to the existing BPA Tillamook Substation and customers to be serviced by the proposed Oceanside Substation, collocation with existing linear rights-of-way, and avoidance of biological and cultural resources (Exhibit B). As noted above, the City of Tillamook is surrounded by land subject to Farm (F-1) zoning designation and it would not be possible to establish a route between the City of Tillamook and the vicinity of Oceanside without crossing land zoned Farm regardless of cost (Exhibit A).

c. The owner of a utility facility approved under paragraph (n)1 shall be responsible for restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this paragraph shall prevent the owner of the utility facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration.

Findings: Applicant’s submittal contains commitments for restoration of temporarily disturbed areas as follows:

- Areas disturbed during construction will be recontoured and seeded and restored to as near original condition as possible for continued use of the land for agricultural production.
- The Applicant will restore all areas disturbed during required maintenance or repair of the proposed Project.
- Surface scarification for seeding will be done where necessary for germination.
- Farming can continue in areas of the proposed corridor that were previously in farm use.
- Low-lying vegetation will be allowed to grow throughout the corridor.
- Excess soil materials, rock, and other non-native materials will be disposed of in a manner approved by the County.
- Applicant is committed to controlling the spread of noxious weeds within the Project area during the construction, reclamation, and maintenance phases of the transmission line and substation development as described in the Noxious Weed Control section of their submittal.

Staff finds that this standard can be met through compliance with the recommended Conditions of Approval.

d. The county shall impose clear and objective conditions on an application for utility facility siting to mitigate and minimize the impacts of the proposed facility, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on surrounding farmlands.

Findings: Applicant has provided a detailed Farm and Forest Impact Assessment as Appendix C to its submittal which is included here in 'Exhibit B' to the Staff Report. The Farm and Forest Impact Assessment contains a description of farm use and practices on surrounding properties and addresses potential impacts from stray voltage, physical barriers, and gate management and access (Exhibit B). Potential impacts to accepted farm practices or the cost of farm practices on surrounding lands addressed in the Applicant's Farm and Forest Impact Assessment (Exhibit B) are summarized as follows:

- Applicant states that agricultural operators will be able to continue farming areas within the proposed transmission easement area in the F-1 zone and that continued farm use will be ensured through establishment of easements allowing that use (Exhibit B).
- Applicant states that apart from the approximately 0.06 acres (2,614 square feet) of permanent lost farm production resulting from 45 power poles and related guy wires and anchors proposed to be located on land zoned Farm, landowners will be able to continue farming within the easement areas in the F-1 zone (Exhibit B). County records indicate that approximately 37,589 acres are zoned Farm (F-1) in Tillamook County.
- Applicant states that maintenance activities are conducted rarely and in coordination with the landowner and consequently significant impacts related to gate management and associated with maintenance access are not anticipated (Exhibit B).
- For those line segments proposed to be located in the Farm zone, the Farm and Forest Impact Assessment provided by the Applicant contains an analysis of line clearances and the mobility of farm equipment and concludes that with the lowest line heights ranging between 20 to 50 feet, the proposed transmission line should not pose a barrier to the mobility of the majority of farm equipment and should not pose a barrier to irrigation operations, particularly manure gun operations (Exhibit B).
- With respect to stray voltage, Applicant has stated that the distance between existing development and the proposed transmission route is unlikely to create stray voltage issues (Exhibit B). Applicant has committed to grounding metal structures, such as fences, that exist within the proposed right-of-way

and to apply prudent utility practices to correct any measured stray voltage should it occur in the future (Exhibit B).

Comments have been received on this request expressing concerns related to potential impacts to agricultural operations including: permanent removal of farm land from agricultural use, barriers to field spraying, the potential for the project to lead to urbanization, barriers to the introduction of aerial technologies for crop monitoring and nutrient mapping, biosecurity measures, incompatible use of herbicides, introduction of noxious weeds, introduction of hazardous materials, liability, impacts to diking infrastructure and barriers to maintenance of diking infrastructure, soil compaction, cow safety during construction, disruption to cow contentment/milk production during construction and inappropriate and disruptive construction access routing (Exhibit C).

Many of these potential impacts have been addressed elsewhere in Applicant's submittal as summarized below:

- Applicant's submittal included here as 'Exhibit B' addresses reclamation and contains commitments for restoration of temporarily disturbed areas as follows:
 - Areas disturbed during construction will be recontoured and seeded and restored to as near original condition as possible for continued use of the land for agricultural production.
 - The Applicant will restore all areas disturbed during required maintenance or repair of the proposed Project.
 - Reseeding will be done as soon as possible during the optimal period after construction and surface scarification for seeding will be done where necessary for germination. Where applicable, certified "noxious weed-free" seed will be used on areas to be seeded.
 - Farming can continue in areas of the proposed corridor that were previously in farm use.
 - Low-lying vegetation will be allowed to grow throughout the corridor.
 - Excess soil materials, rock, and other non-native materials will be disposed of in a manner approved by the County.
 - Efforts will be made to limit the spread and establishment of a noxious weed community within the disturbed areas.
 - On agricultural lands that are cultivated or pasture lands, this effort will be coordinated with the landowner, so that the appropriate reclamation occurs.
- As noted above, *'restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility'* is a standard that is required under TCLUO 3.002(4)(n)(1)(c).
- Applicant states that during construction, construction equipment, materials, and vehicles will be stored at the sites where construction will occur or at specified construction yards. Personal vehicles, sanitary facilities, and staging areas will be confined to a limited number of specified locations to decrease chances of incidental disturbance and spread of noxious weeds (Exhibit B).
 - Applicant states that during maintenance activities, Applicant will use a qualified contractor to control weeds as needed (Exhibit B).
 - Applicant states that fences, gates, cattle guards and any additional rock will be added to construction access roads where necessary (Exhibit B). Applicant further states that only temporary construction roads will be used on properties subject to Farm zoning as operational maintenance will be conducted by foot or using track vehicles designed to traverse soft soils (Exhibit B).

- Applicant has addressed potential hydrological impacts through the provision of a No-Rise Analysis prepared by Northwest Hydraulic Consultants which has been reviewed under Floodway/Estuary/Floodplain Development Permit #851-17-000448-PLNG and is addressed elsewhere in this Staff Report (Exhibit B).

For the Planning Commission's consideration, Staff has provided a recommended set of Conditions of Approval intended to impose clear and objective conditions to mitigate and minimize potential impacts of the proposed facility on surrounding lands devoted to farm use as follows:

- i. During the construction of the proposed project, Applicant shall install fences, gates and/or cattle guards along construction access routes as necessary to ensure livestock safety during construction.
- ii. Applicant shall be responsible for restoring, as nearly as possible to its former condition any agricultural land and associated improvements subject to Farm (F-1) zoning designation that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the proposed 115kV transmission facility. Reseeding required as part of restoration efforts will be done as soon as possible during the optimal period after construction and surface scarification for seeding will be done where necessary for germination. Certified "noxious weed-free" seed will be used on areas to be seeded within those portions of the easement subject to Farm (F-1) zoning designation.
- iii. Applicant will ground all existing metal structures located within the proposed right-of-way subject to Farm (F-1) zoning designation.
- iv. During operations, should stray voltage be measured and determined to be caused by the proposed 115kV transmission line project, Applicant will implement corrective measures in accordance with good utility practices.
- v. Agricultural operators will be able to continue farming areas within the proposed transmission easement area in the F-1 zone. Continued farm use will be ensured through establishment of easements allowing that use.
- vi. Applicant will use a qualified contractor to control noxious weeds within the transmission line easement area subject to Farm (F-1) zoning designation.

These recommended Conditions of Approval are also included in Article VI below. Based on the testimony received, the Planning Commission may wish to consider imposing additional mitigating measures.

B. TCLUO Section 1.060, 'Ordinance Interpretations'

(1) Authorization of Similar Uses. Where a proposed use is not specifically identified by this Ordinance, or the Ordinance is unclear as to whether the use is allowed in a particular zone, the Director may find the use is similar to another use that is permitted, allowed conditionally, or prohibited in the subject zone and apply the Ordinance accordingly. However, uses and activities that this Ordinance specifically prohibits in the subject zone, and uses and activities that the Director finds are similar to those that are prohibited, are not allowed. Similar use rulings that require discretion on the part of County officials shall be processed following the Type II procedure of Article 10. The Director may refer a request for a similar use determination to the Planning Commission for its review and decision.

(2) Ordinance Interpretation Procedure. Requests for Ordinance interpretations, including but not limited to similar use determinations, shall be made in writing to the Director and shall be processed as follows:

(a) The Director, within 10 days of the inquiry, shall advise the person making the inquiry in writing as to whether the County will make a formal interpretation.

(b) Where an interpretation does not involve the exercise of discretion, the Director shall advise the person making the inquiry of his or her decision within a reasonable timeframe and without public notice.

Director Findings & Determination: In review of the United States Department of Labor, Occupational Health and Safety Labor website: https://www.osha.gov/SLTC/etools/electric_power/transmission_dist.html, Clarification of the Electric Power Generation, Transmission, And Distribution Standard, 29 (CFR) 1910.269 does not make a distinction between transmission and distribution systems, however the language recognizes that important potential safety differences do exist between them. ...Transmission conductors are normally large to carry the high power and are installed on taller structures than distribution lines and equipment. Substations are considered to be both transmission and distribution facilities in CFR 1910.269.

It is fair to note that in addition to the higher voltage carried through transmission lines (important potential safety differences) and that the structures supporting the transmission lines are taller than those structures supporting distribution lines, the footprint of a transmission line structure is also generally larger.

In review of the uses permitted with standards and conditionally contained in each estuarine zones identified in the Tillamook County Land Use Ordinance (TCLUO), electrical distribution lines and electrical support structures are listed as uses permitted with standards or as a use listed conditionally in all estuary zones with exception to the Estuary Conservation Aquaculture Zone, subject to the procedures of Section 3.120: Regulated Activities and Impact Assessments, Section 3.140: Estuary Development Standards and Article 6: Conditional Use Procedures And Criteria as applicable. While transmission lines are not specifically stated in the underlying estuarine zone language, TCLUO Section 3.140: Estuary Development Standards, Subsection (6)(b) under standards for energy facilities and utilities identifies electrical distribution lines and electrical support structures as "*electrical or communication transmission lines*" with no other language or guidance that would separately identify or differentiate types of energy facilities and utilities.

Because Section 3.140 provides standards for *electrical transmission lines*, the Director finds that the proposed transmission line is of the same general character of electrical distribution lines and that this determination is consistent with the clarification outlined in CFR 1910.269. The proposed use remains subject to the development standards outlined in TCLUO Section 3.120, Section 3.140 and Article 6.

For the reasons outlined above, it was also determined by the Director that this interpretation did not involve the exercise of discretion and the applicant was advised of this determination during the pre-application meeting, within the required reasonable timeframe and without public notice as per TCLUO Section 1.060(2)(b).

C. TCLUO Section 3.106, 'Estuary Conservation 1 (EC-1) Zone

(1) *PURPOSE AND AREAS INCLUDED: The purpose of the EC1 zone is to:*

- (a) *Provide for long-term utilization of areas which support, or have the potential to support valuable biological resources.*
- (b) *Provide for long-term maintenance and enhancement of biological productivity.*
- (c) *Provide for the long-term maintenance of the aesthetic values of estuarine areas, in order to promote or enhance the low intensity recreational use of estuarine areas adjacent to rural or agricultural shorelands.*

Except where a goal exception has been taken in the Tillamook County Comprehensive Plan, the EC1 Zone includes the following areas within Development and Conservation Estuaries:

- (a) *Tracts of tidal marshes, tideflats, seagrass and algae beds which are smaller or of less biological importance than those included in EN or ECA Zones.*
- (b) *Productive recreational or commercial shell fish and fishing areas.*
- (c) *Areas that are partially altered and adjacent to existing development of moderate*

intensity which do not possess the resource characteristics of Natural or Development management units.

(d) Areas with potential for shell fish culture (excluding platted oyster beds in Tillamook Bay).

(2) USES PERMITTED WITH STANDARDS: The following uses are permitted subject to the procedure of Section 3.120 and the standards in Section 3.140:

(h) Electrical distribution lines and line support structures.

Findings: A similar use determination is outlined in this report. The proposed route for the transmission line spans across the Estuary Conservation 1 (EC1) zone as depicted in "Exhibit B". The proposed use in the EC1 zone is subject to the procedures of Section 3.120, the standards in Section 3.140 outlined in the TCLUO. These sections are addressed in the staff report.

D. TCLUO Section 3.120, 'Review of Regulated Activities'

(1) PURPOSE: The purpose of this Section is to provide an assessment process and criteria for local review and comment on State and Federal permit applications which could potentially alter the integrity of the estuarine ecosystem.

(2) REGULATED ACTIVITIES: Regulated activities are those actions which require State and/or Federal permits and include the following:

(a) Fill (either fill in excess of 50 c.y. or fill of less than 50 c.y., which requires a Section 10 or Section 404 permit from the U.S. Army Corps of Engineers).

...

(d) Piling/dolphin installation.

Findings: Significant degradations or reductions of estuarine natural values as defined in the Estuarine Element (Goal 16) of the Tillamook County Comprehensive Plan include dredging, fill, in-water structures, riprap, log storage, application of pesticides and herbicides, flow-lane disposal of dredged material, water-intake or withdrawal and effluent discharge and other activities which will cause significant offsite impacts as determined by an impact assessment.

As depicted in the applicant's submittal, the proposed transmission line will span across areas zoned Estuary Natural (EN) and Estuary Conservation 1 (EC1). Procedures for review of the regulated activities identified above include review of the proposal according to the requirements of the zone(s) in which the proposed use/activity are to be located, the relevant standards outlined in TCLUO Section 3.140, an impact assessment, consideration of requirements for degradations or reductions of estuarine natural values where applicable and consideration of comments from State and Federal agencies having responsibility for permit review.

Included in the applicant's submittal are documentation of both state and federal permits (Exhibit B). The proposed use is allowed permitted with standards in the Estuary Conservation 1 (EC1) zone and allowed as a use permitted Conditionally in the Estuary Natural (EN) zone. The proposed transmission line in relation to the standards outlined in the Shoreland Overlay zone are also addressed in this report.

With the assistance of affected State and Federal agencies, and in conjunction with review of state and federal permits required for this proposal, the following considerations are required to be addressed:

(a) The type and extent of alterations expected.

(b) The type of resource(s) affected including, but not limited to aquatic life and habitats, riparian vegetation, water quality and hydraulic characteristics.

(c) The expected extent of impacts of the proposed alteration on water quality and other physical characteristics of the estuary, living resources, recreation and aesthetic use,

navigation and other existing and potential uses of the estuary.

(d) The methods which could be employed to avoid or minimize adverse impacts.

The Applicant has provided a *'Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project'* as part of their submittal which describes the 12 locations where the proposed transmission line route crosses perennial water bodies with riparian buffers regulated by TCLUO 4.140. While the proposed development will require the placement of six poles and the removal of some existing trees within the riparian buffers, all improvements associated with this project will span across the estuary zoned areas with no ground disturbance including fill or grading activities will take place within estuarine areas. All ground disturbance for development of the transmission line and associated structures/improvements are located outside of estuarine zoned areas (Exhibit B).

The Applicant has reviewed the scope of their proposed development and vegetation management activities required for the proposed development within riparian buffer areas with the Oregon Department of Fish and Wildlife (ODFW) and ODFW has provided documentation confirming that the proposed permanent pole locations meet the exception criteria outlined above in TCLUO 4.140(2)(c) or (d) and that proposed mitigation for riparian buffer crossings is sufficient for proposed tree removal (Exhibit B). As stated elsewhere in this report, Staff recommends that should the request be approved, a Condition of Approval be imposed requiring documentation of satisfaction of the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District be provided to the Department.

Requirements for resource capability determinations is required by TCLUO Section 3.140 and the proposed activity must be found to be consistent with the resource capabilities of a management unit (as described in Section 2 of the Estuarine Resources Element of the Tillamook County Comprehensive Plan) when either the impacts of the use on estuarine species, habitats, biological productivity and water quality are not significant; or that the resources of the area are able to assimilate the use and activity and their effects and continue to function in a manner that is consistent with the purposes of the zone. The resource capability determination shall be based on information generated by the impact assessment.

The Estuarine Resources Element in Section 2 of the Tillamook County Comprehensive Plan lists by management unit those resource areas of the Tillamook Bay estuary where the transmission line is proposed to traverse. Copies of the management unit descriptions and the Management Unit Designation map are included as "Exhibit G". Categories include areas needed for maintenance or enhancement of biological productivity, major tract of saltmarsh, area needed for recreational and aesthetic uses (tracts of significant habitat are smaller or of less biological importance than those in natural management units, and area needed for recreational use. Placement of fill and diking is identified as a historical alteration in each of the identified management units. Fish, birds and nesting areas are identified as those animals present in the identified management units. Significant biological functions include bird use/nesting in conjunction with adjacent riparian/marsh areas, fish feeding, and salmonid passage.

While some of the estuary management units categorize area needed for aesthetic uses, review of Tillamook County Comprehensive Plan Goal Elements 5, 16 and 17 confirm the proposed route of the transmission line is not located within an identified area inventoried in the Comprehensive Plan as an aesthetic resource area or an area identified as a significant shoreland.

The *'Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project'* located in "Exhibit B" addresses the resource capabilities of this area and includes an avian protection plan. Agencies that provided comments regarding these estuarine management units included the Oregon Department of Fish and Wildlife (ODFW) and the Oregon Department of State Lands (DSL). Comments from DSL are limited to the confirmation that a state application has been received and is in review.

Comments from ODFW were focused primarily on fish passage requirements. No comments were received from the US Fish & Wildlife Service, the US Army Corps of Engineers, National Marine Fisheries, the Environmental Protection Agency and the Oregon Department of Land Conservation and Development.

The Applicant has stated there is a need (substantial public benefit) and the proposed transmission line does not unreasonably interfere with public trust rights, that there are no feasible alternative upland locations, and adverse impacts are minimized by spanning the transmission line improvements across the estuarine areas and avoiding any ground disturbance. Specifically, the Applicant states that, "The Project will not unreasonably interfere with public trust rights to the County's estuarine areas within the EC1 and EN zones. The Project will be entirely aboveground and landward of the Line of Ordinary High Water except for the aerial conductor, and only the 50-foot wide permanent easement will need to remain free from certain types of vegetation and development consistent with NESC, RUS and Applicant standards for clearances and use for the operation and maintenance of a transmission line. The Project was specifically routed to avoid existing and planned public access areas and will not preclude the public from using estuarine areas within the EC1 and EN zones. The presence of the Project will not interfere with public use and access to Tillamook Bay estuary in general..."

E. TCLUO Section 3.140, 'Estuary Development Standards'

- (6) ENERGY FACILITIES AND UTILITIES: Siting, design, construction, maintenance or expansion of energy facilities and utilities in estuary zones, shall be subject to the following standards:*
- (a) When new energy facilities and utilities are proposed within estuarine waters, intertidal areas or tidal wetlands, evidence shall be provided by the applicant and findings made by the County that:*
- (1) A need (i.e. a substantial public benefit) exists and the use or alteration does not unreasonably interfere with public trust rights.*
 - (2) Alternative non-aquatic locations are unavailable or impractical.*
 - (3) Dredging, fill and other adverse impacts are avoided or minimized.*
- (b) Electrical or communication transmission lines shall be located underground or along existing rights-of-way unless economically infeasible.*
- (c) Above-ground utilities shall be located to have the least adverse effect on visual and other aesthetic characteristics of the area. Interference with public use and public access to the estuary shall be minimized.*
- (d) Whenever practicable, new utility lines and crossings within estuarine waters, intertidal areas or tidal wetlands shall follow the same corridors as existing lines and crossings.*
- (e) Water discharge into estuarine waters, intertidal areas and tidal wetlands from an energy facility or utility shall meet EPA and DEQ standards, and shall not produce increases in temperature in the receiving waters which would have adverse impacts on aquatic life. Water Quality policies shall apply.*
- (f) When new energy facilities and utilities are proposed in EN zones, evidence shall be provided by the applicant and findings made by the County that the proposed use is consistent with the resource capabilities of the area and the preservation of areas needed for scientific, research or educational needs.*
- (g) When storm water and sewer outfalls are proposed in EC2 and EC1 zones, evidence shall be provided by the applicant and findings made by the County that the proposed use is consistent with the resource capabilities of the area and the long-term use of renewable resources, and does not cause a major alteration of the estuary.*
- (h) When new energy facilities and utilities are proposed in Estuary Development (ED) zones, evidence shall be provided by the applicant and findings made by the County that the proposed facility will not preclude the provision or maintenance*

- of navigation and other public, commercial and industrial water dependent uses.*
- (i) Storm water and sewer outfalls shall go out to channels or areas where flushing will be adequate and shall not empty onto tideflats or intertidal wetlands. Effluent from outfalls must meet DEQ and EPA water quality standards. Water Quality policies shall apply.*
- (j) Dredge, fill, shoreline stabilization or other activities in conjunction with construction of energy facilities or utilities shall be subject to the respective standards for these activities.*
- (k) Energy facilities and utilities shall be sited so that they do not and will not require structural shoreline stabilization methods.*

Findings: As stated previously in this report, the Applicant has stated there is a need (substantial public benefit) and the proposed transmission line does not unreasonably interfere with public trust rights, that there are no feasible alternative upland locations, and adverse impacts are minimized by spanning the transmission line improvements across the estuarine areas and avoiding any ground disturbance. The Applicant also states that no temporary access roads or conductor pulling and tensioning sites will be located within the Estuary Natural (EN) and Estuary Conservation 1 (EC1) Zone (Exhibit B). In review of the proposed routine and estuary maps, alternative non-aquatic locations are unavailable/impractical.

The applicant is proposing install the transmission lines above ground and within the estuarine areas, there are no existing rights-of-way. Staff did not identify corridors with existing lines and crossings in the estuarine areas. Review of the application indicates there are no plans to discharge water into estuarine areas, intertidal areas and tidal wetlands. The Applicant states they will obtain approval for necessary permits prior to construction and will continue to work with relevant regulatory agencies regarding the timing of construction (Exhibit B). Should the Planning Commission consider approval of this project, staff recommends a Condition of Approval be made to require compliance with EPA and DEQ standards, including compliance with any water quality policies.

The applicant is proposing to install new energy facilities and utilities in the Estuary Natural (EN) and Estuary Conservation 1 (EC1) Zones. The Applicant's responses to the standards outlined in TCLUO Section 3.140 are outlined on pages 5-19 through 5-22 of the narrative included in "Exhibit B".

Findings by the County that confirm the proposed use is consistent with the resource capabilities of the area and the preservation of areas needed for scientific, research or educational needs could be as follows:

- The applicant is proposing minimal disturbance within the Estuary Natural and Estuary Conservation 1 Zones by limiting development within these areas by only spanning the transmission line improvements across the estuary zoned areas.
- The applicant has provided a 'Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project' that includes an avian protection plan.
- No comments were received from state or federal agencies to indicate or conclude the proposed line would have a detrimental effect on the characteristics, habitats, animals present or significant biological functions of the identified estuary management units.

There are no stormwater and sewer outfalls proposed and no new energy facilities and utilities are proposed in the Estuary Development (ED) Zone. No fill is proposed to be placed within the identified estuary zoned areas. No structural shoreline stabilization methods are proposed (Exhibit B).

F. TCLUO Section 3.510, 'Flood Hazard Overlay (FH) Zone'

Consistency with the requirements of TCLUO 3.510, 'Flood Hazard Overlay (FH) Zone', is addressed in Floodway/Estuary/Floodplain Development Permit Request (851-17-000448-PLNG) above.

G. TCLUO Section 3.545, 'Shoreland Overlay'

In the vicinity of the proposed project, the Goal 17 element of the Tillamook County Comprehensive Plan identifies land west of a boundary formed by State Highway 131 from its junction in Netarts with Whiskey Creek Road to its junction with the Oregon Coast Highway 101 near Tillamook, and all areas within 1,000 feet of estuaries and 500 feet of coastal lakes as within the Shorelands Boundary which may be subject to the provisions of TCLUO 3.545, 'SH Shoreland Overlay'. TCLUO 3.545 defines those areas within the Shorelands Boundary included within the Shoreland Overlay Zone. Relevant to the proposed development, TCLUO 3.545(2) identifies areas within 50 feet of estuaries as areas included in the Shorelands Overlay zone.

Findings: Staff finds that segments of the proposed development are located within the Shorelands Boundary as identified in the Goal 17 element of the Tillamook County Comprehensive Plan. Staff has reviewed the proposed development and determined that those areas within 50 feet of estuaries along the proposed transmission line route are categorized as 'Rural Shorelands' as described in TCLUO 3.545(3) and are subject to the use limitations identified in TCLUO 3.545(4)(a)(1) and the standards identified in TCLUO 3.545(6). Applicant has identified proposed development within these Rural Shoreland areas as consisting of eight power pole locations (poles 5, 8, 43-46, 48 and 49) which are illustrated on the Figure 4 maps included in Appendix A to the Applicant's submittal (Exhibit B). Additional Rural Shoreland areas will be spanned by the transmission lines and include areas around Hoquarten, Dougherty, Hall and Tomlinson Sloughs, the Trask and Tillamook Rivers and Stillwell Ditch (Exhibit B).

Staff has reviewed the significant shoreland inventory contained in the Goal 17 element of the Comprehensive Plan and has verified that the proposed transmission route does not impact significant shorelands. The nearest described significant shoreland is the Rain River Preserve which is located to the north and west of Goodspeed Road.

TCLUO Section 3.545(4) USES PERMITTED: Uses authorized by the underlying zone as outright or conditional uses are permitted, except at locations identified in (3) above.

(a) Rural Shorelands in General:

(1) Rural Shorelands uses are limited to:

(a) Farm uses

(b) Propagation and harvesting of forest products consistent with the Oregon Forest Practices Act,

(c) Aquaculture,

(d) Water-dependent recreational, industrial and commercial uses,

(e) Replacement, repair or improvement of existing state park facilities,

(f) Other uses are allowed only upon a finding by the County that such uses satisfy a need which cannot be accommodated at any alternative upland location, except in the following cases:

...

Findings: Section 8.6(C)(c) 'Energy Facilities and Utilities in Rural Shorelands' of the Goal 17 element of the Tillamook county Comprehensive Plan provides findings that identify a need to provide for 'normal domestic energy facilities and utility service within rural shorelands' and states that 'this need can not be met on upland locations or in urban or urbanizable areas'. In reviewing county zoning maps, Staff finds that it would not be practical to map a route between the Bonneville Power Administration's Tillamook Substation and the area surrounding Oceanside entirely on upland areas - Shoreland areas have to be crossed (Exhibit A). Staff finds that the proposed transmission line cannot be accommodated at any alternative upland location.

TCLUO Section 3.545(6) STANDARDS: Uses within the SHORELAND OVERLAY ZONE are subject to the provisions and standards of the underlying zone and of this section. Where the standards of the SHORELANDS OVERLAY ZONE and the underlying zone conflict, the more restrictive provisions shall apply.

(a) Riparian vegetation shall be protected and retained according to the provisions outlined in Section 4.140, REQUIREMENTS FOR PROTECTION OF WATER QUALITY AND STREAMBANK STABILIZATION.

(b) Development in flood hazard areas shall meet the requirements of Section 3.510, FLOOD HAZARD OVERLAY ZONE.

(c) Development in beach and dune and other geologic hazard areas shall meet the requirements of Section 3.085, BEACH AND DUNE OVERLAY ZONE and Section 4.130, DEVELOPMENT REQUIREMENTS FOR GEOLOGIC HAZARD AREAS.

...

Findings: The requirements of TCLUO Section 4.140, 3.510 and 4.130 are addressed below.

(e) The productivity of resource land on Rural Shorelands shall be considered when determining the location of "Other Uses" within a given land parcel in the F-1, F, and SFW-20 zones. "Other Uses" within these zones shall be located so that the productivity of resource land is maintained.

Findings: Applicant has identified proposed development within Rural Shoreland areas as consisting of eight power pole locations (poles 5, 8, 43-46, 48 and 49) which are illustrated on the Figure 4 maps included in Appendix A to the Applicant's submittal (Exhibit B). Additional Rural Shoreland areas will be spanned by the transmission lines and include areas around Hoquarten, Dougherty, Hall and Tomlinson Sloughs, the Trask and Tillamook Rivers and Stillwell Ditch (Exhibit B).

Applicant has provided a Farm and Forest Impacts Assessment as Appendix C to their submission which characterizes characteristics of resource lands such as soil capability class, describes current use and discusses potential impacts related to the proposed development (Exhibit B).

Applicant provides a description of the route selection process including alternatives considered and states that the proposed project route was preferred by the Applicant and the Citizen Advisory Group involved in route selection because 'it also minimizes impacts to agricultural land and natural resources compared to other alternatives'. Applicant states 'The proposed project corridor further reduces impacts on agricultural and resource lands through co-location with existing linear developments within the County' (Exhibit B). Staff finds that the productivity of resource land was considered in determining the location of the transmission line.

Applicant states that 'wherever possible, power pole locations have been selected along property lines and on the edge of fields to minimize the impact on current farming activities' and states that approximately 77 square feet of resource land within Rural Shorelands will be subject to permanent impacts (Exhibit B). Maintenance of resource land productivity is discussed at length above.

H. TCLUO Section 3.550, 'Freshwater Wetlands Overlay'

(1) PURPOSE AND AREAS INCLUDED: The purpose of this zone is to protect significant areas of freshwater wetlands, marshes and swamps from filling, drainage or other alteration which would destroy or reduce their biological value. Areas included in this zone are:

(a) Significant Goal 5 Wetlands: wetlands identified as "significant" in the Goal 5 Element of the Comprehensive Plan;

(b) Notification Wetlands: wetlands shown on the Statewide Wetland Inventory (discussed in the Goal 5 Element of the Comprehensive Plan). When required, the verification of zone boundaries shall be carried out in conjunction with the property owner and the Oregon Division of State Lands.

Findings: Staff conducted a review of Goal 5 inventories and determined that the proposed development does not cross or impact any significant Goal 5 wetlands. Applicant

(2) USES PERMITTED:

...

(b) Notification Wetlands:

(1) uses permitted outright or conditionally in the underlying zone shall be permitted subject to approval by the Oregon Division of State Lands.

(2) STANDARDS: The following standard shall be met in addition to the standards of the underlying zone.

...

(b) Development activities, permits, and land-use decisions affecting a Notification Wetland require notification of the Division of State Lands, and are allowed only upon compliance with any requirements of that agency. The applicant shall be responsible for obtaining approval from the Division of State Lands for activities on Notification Wetlands.

Findings: Staff conducted a review of Goal 5 inventories and determined that the proposed development does not cross or impact any significant Goal 5 wetlands.

Applicant has provided a wetland delineation report as part of their application submittal and states that twelve wetlands were identified within a 100 foot study corridor along the proposed transmission line route ten of which were identified by Applicant's consultant as potentially subject to federal and state jurisdiction (Exhibit B). Applicant states that they have submitted their wetland delineation report to DSL and USACE for review and approval in accordance with OARs 141-090-0005 through 141-090-0055 and by the USACE, Portland District (Exhibit B). Mike DeBlasi, Oregon Department of State Lands Aquatic Resource Coordinator for Tillamook County confirmed that the Oregon Department of State Lands has received an application from the Applicant for the proposed project and it is currently under review (Exhibit D).

I. TCLUO Section 4.140, 'Requirements for Protection of Water Quality and Streambank Stabilization'

1) The following areas of riparian vegetation are defined:

(a) Fifty (50) feet from lakes and reservoirs of one acre or more, estuaries, and the main stems of the following rivers where the river channel is more than 15 feet in width; Nestucca, Little Nestucca, Three Rivers, Tillamook, Trask, Wilson, Kilchis, Miami, Nehalem and North and South Fork Nehalem River.

(b) Twenty-five (25) feet from all other rivers and streams where the river or stream channel is greater than 15 feet in width.

(c) Fifteen (15) feet from all perennial rivers and streams where the river or stream channel is 15 feet in width or less.

For estuaries, all measurements are horizontal and perpendicular from the mean high water line or the line of non-aquatic vegetation, whichever is most landward. Setbacks for rivers, streams, and coastal lakes shall be measured horizontal and perpendicular from the ordinary high water line.

Findings: Applicant has provided a 'Biological Resources Report for the Tillamook-Oceanside 115-kilovolt Transmission Line Project' as part of their submittal which describes the 12 locations where the proposed transmission line route crosses perennial water bodies with riparian buffers regulated by TCLUO 4.140.

- (2) All development shall be located outside of areas listed in (1) above, unless:
- (a) For a bridge crossing; or
 - (b) Direct water access is required in conjunction with a water dependent use; or
 - (c) Because of natural features such as topography, a narrower riparian area protects equivalent habitat values; or
 - (d) A minimal amount of riparian vegetation is present and dense development in the general vicinity significantly degrades riparian habitat values.
- Setbacks may be reduced under the provisions of (c) and (d) above only if the threat of erosion will not increase and a minimum 20 foot setback is maintained. Determinations of habitat values will be made by the Oregon Department of Fish and Wildlife.
- ...
- (4) All trees and at least 50 percent of the understory vegetation shall be retained within areas listed in (1) above, with the following exceptions:

Finding: Applicant states that the proposed development will require the placement of six poles and the removal of some existing trees within the riparian buffer (Exhibit B). Applicant has reviewed the scope of their proposed development and vegetation management activities required for the proposed development within riparian buffer areas with the Oregon Department of Fish and Wildlife (ODFW) and ODFW has provided documentation confirming that the proposed permanent pole locations meet the exception criteria outlined above in TCLUO 4.140(2)(c) or (d) and that proposed mitigation for riparian buffer crossings is sufficient for proposed tree removal (Exhibit B). Staff recommends that should the request be approved, a Condition of Approval be imposed requiring documentation of satisfaction of the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District be provided to the Department.

J. TCLUO Section 4.160, 'Protection of Archaeological Sites'

- (1) *The Planning Department shall review building permits and other land use actions that may affect known ARCHAEOLOGICAL SITES. If it is determined that the proposed action may affect the integrity of an ARCHAEOLOGICAL SITE, the Planning Director shall consult with the State Historic Preservation Office on appropriate measures to preserve or protect the site and its contents. No permit shall be issued until either the State Historic Preservation Office determines that the proposed activity will not adversely affect the ARCHAEOLOGICAL SITE, or the State Historic Preservation Office has developed a program for the preservation or excavation of the site.*
- (2) *Indian cairns, graves and other significant archaeological resources uncovered during construction or excavation shall be preserved intact until a plan for their excavation or reinterment has been developed by the State.*

Findings: Applicant conducted a cultural resource study within the Project corridor and did not locate any significant historic, archaeological, or cultural resources that would be impacted by the proposed Project (Exhibit B). Applicant has committed to complying with the standards of TCLUO 4.160 (Exhibit B). No comments on this application were received from the State Historic Preservation Office.

VI. RECCOMEDNDED CONDITIONS OF APPROVAL:

- (3) The applicant/property owner shall obtain all required Federal, State, and Local permits and/or licenses and will comply with applicable rules and regulations.
- (4) The property owner shall obtain all necessary electrical, mechanical, and plumbing permits.
- (5) At the time of applying for Zoning and Building Permit approval, Applicant will be required to submit the following:
 - (6) The following recommended Conditions of Approval are specific to Conditional Use Request 851-17-000448-PLNG-01:
 - i. At the time of applying for Zoning Permit approval, Applicant shall provide demonstration that the easement agreements recorded between the Applicant and underlying property owners for those segments of the proposed development subject to Forest zone zoning designation contain an acknowledgement by the Applicant recognizing the rights of adjacent and nearby land owners to conduct forest operations consistent with the Forest Practices Act and Rules for uses authorized in OAR 660-006-0025(5)(c).
 - ii. At the time of applying for Zoning and Building permit application, Applicant will provide letters from the impacted fire protection districts documenting the sufficiency of the fire prevention, presuppression, and suppression plans prepared by its construction contractor for the construction phase of the project and the sufficiency of the fire prevention, presuppression, and suppression plans prepared for the operational phase of the project.
 - iii. Applicant will provide to the Department on an annual basis for three years following energization of the transmission line documentation from ODFW that the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District are satisfied.
 - iv. Applicant will provide demonstration of compliance with TCLUO 4.130(2) and (3) at the time of applying for Zoning Permit approval.
- (7) The following recommended Conditions of Approval are specific to Floodway/Estuary/Floodplain Permit Request 851-17-000448-PLNG:
 - i. Any deviation from the proposed development described herein within the Floodway that involves an increase in the amount of fill placed in the Floodway shall require an updated No-Rise Analysis.
- (8) The following recommended Conditions of Approval are specific to Administrative Review Request 851-17-000448-PLNG-02:
 - i. During the construction of the proposed project, Applicant shall install fences, gates and/or cattle guards along construction access routes as necessary to ensure livestock safety during construction.
 - ii. Applicant shall be responsible for restoring, as nearly as possible to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Reseeding required as part of restoration efforts will be done as soon as possible during the optimal period after construction and surface scarification for seeding will be done where necessary for germination. Where applicable, certified "noxious weed-free" seed will be used on areas to be seeded.
 - iii. Applicant will ground all existing metal structures located within the proposed right-of-way.
 - iv. During operations, should stray voltage be measured and determined to be caused by the proposed 115kV transmission line project, Applicant will implement corrective measures in accordance with good utility practices.
 - v. Agricultural operators will be able to continue farming areas within the proposed transmission easement area in the F-1 zone. Continued farm use will be ensured through establishment of easements allowing that use.

- vi. Applicant will use a qualified contractor to control noxious weeds within the easement area as needed.
- vii. Applicant will provide to the Department on an annual basis for three years following energization of the transmission line documentation from ODFW that the mitigation requirements described in the letter dated October 20, 2017 from Robert W. Bradley, ODFW District Fish Biologist, North Coast Watershed District are satisfied.

VII. EXHIBITS

All Exhibits referred to herein are, by this reference, made a part hereof:

- A. Location map, list of subject properties and ownership information, Assessor map, Zoning map, FEMA FIRM, NWI Wetlands map
- B. Applicant's submittal
- C. Public Comments
- D. Agency Comments
- E. ORS 772.210
- F. Shorelands Maps
- G. Estuary Management Units

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 400

**Cross-Answering and
Reply Testimony**

March 2, 2018

1 **Q. Please state your name, occupation, and business address.**

2 A. My name is Nadine Hanhan. I am a Senior Utility Analyst employed in the
3 Energy, Resources, and Planning Division of the Public Utility Commission of
4 Oregon (OPUC or Commission). My business address is 201 High Street SE,
5 Suite 100, Salem, Oregon 97301.

6 **Q. Have you previously provided testimony in this case?**

7 A. Yes. I provided opening testimony on February 7, 2018.

8 **Q. What is the purpose of your testimony?**

9 A. Staff has reviewed the testimony and comments of all parties in this proceeding
10 and has identified several similar arguments and key concerns raised by
11 different parties in this filing. To the extent that the concerns pertain to safety
12 and necessity, I will summarize the similar arguments and respond accordingly.
13 Staff witness Scott Gibbens will address the arguments related to practicability,
14 conformance with land use planning goals, and justification.

15 **Q. Did you prepare an exhibit for this docket?**

16 A. Yes. I prepared the following exhibits:

- 17 • Staff Exhibit 401: Tillamook PUD Narrative Response to Staff DR Nos. 45-
18 52
- 19 • Staff Exhibit 402: Tillamook PUD Narrative Response to Staff DR No. 18
- 20 • Staff Exhibit 403: Tillamook PUD Narrative Response to Staff DR No. 28
- 21 • Staff Exhibit 404: BPA 2011 Load Forecast for Tillamook PUD
- 22 • Staff Exhibit 405: BPA 2012 Load Forecast for Tillamook PUD
- 23 • Staff Exhibit 406: BPA 2013 Load Forecast for Tillamook PUD
- 24 • Staff Exhibit 407: BPA 2014 Load Forecast for Tillamook PUD
- 25 • Staff Exhibit 408: BPA 2015 Load Forecast for Tillamook PUD
- 26 • Staff Exhibit 409: BPA 2016 Load Forecast for Tillamook PUD
- 27 • Staff Exhibit 410: BPA 2017 Load Forecast for Tillamook PUD
- 28 • Staff Exhibit 411: BPA 2018 Load Forecast for Tillamook PUD
- 29 • Staff Exhibit 412: Tillamook PUD Narrative Response to Staff DR No. 32

- 1 • Staff Exhibit 413: Tillamook PUD Attachment to Staff DR No. 32

2

3 **Q. How is your testimony organized?**

4 A. My testimony is organized as follows:

5 Issue 1, Responses to Issues of Safety.....3

6 Issue 2, Responses to Issues of Necessity6

ISSUE 1, SAFETY

1
2 **Q. Please explain what you will be discussing in this part of the**
3 **testimony.**

4 A. Staff has identified two arguments pertaining to safety of Tillamook PUD's
5 ("Company") proposed transmission line. Staff addresses these issues below.
6 First, Intervenor Kristi Sherer made the point that none of the transmission
7 lines shown in Tillamook PUD Exhibit 102¹ are owned by Tillamook PUD, but
8 rather that they are all tap lines from Pacific Power or Bonneville Power. Her
9 comments do not specify the line to which she is referring.² Second, Tillamook
10 PUD/205, Fagen 25 contains meeting notes from a June 23, 2015 Citizen
11 Advisory Group meeting wherein concern about stray voltage was expressed.
12 The Oregon Farm Bureau Federation (OFB) and Oregon Dairy Farmers
13 Association (ODFA) also submitted a filing that contained concerns about stray
14 voltage.

15 **Q. Please explain how Staff interprets the concern about transmission**
16 **line ownership.**

17 Staff interprets this to be an expression of doubt regarding Tillamook PUD's
18 experience in transmission line operation. Presumably, if Tillamook PUD has
19 never owned or operated a transmission line, the risk of this new transmission
20 line as an initial venture is a concern to Ms. Sherer.

¹ Exhibit TPUD/102, Simmons is a map of the transmission lines servicing Tillamook PUD's service territory.

² See page 1 of Kristi Sherer's February 7, 2018 filing.

1 **Q. Does Staff have any concerns about Tillamook PUD's level of**
2 **experience in constructing or operating a new transmission line?**

3 A. No. Staff submitted discovery on the ownership and operation of Tillamook
4 PUD's transmission lines. According to Tillamook PUD, it both owns and
5 operates three 115 kV lines for a total of 11.77 miles in transmission—
6 Tillamook PUD owns and operates 1.9 miles of the Tillamook-Trask Tie line,
7 the Nestucca 5.6 mile line, and the 4.27 Nehalem transmission line. This was
8 detailed in Exhibit Staff/202. Tillamook PUD Exhibit 102 illustrates these three
9 lines in green. Ms. Sherer's comments do not specify whether she is referring
10 to the lines in green. Regardless, from the utility's data response, Staff is
11 convinced that the proposed transmission line is not the first that Tillamook
12 PUD will own and operate. Therefore, on this basis, Staff does not believe that
13 Tillamook PUD lacks the experience to maintain a transmission line. In this
14 regard, Staff does not consider the transmission line to pose a safety hazard.

15 **Q. Please explain how Staff interprets the concern about stray voltage.**

16 A. Staff interprets this to be a concern about any hazardous impacts of a higher-
17 voltage line on animals, specifically dairy cows near proximity of the proposed
18 transmission line.

19 **Q. Does Staff believe this is a valid concern?**

20 A. No. Staff submitted discovery on this topic and found that Tillamook PUD
21 performed an electromagnetic frequency (EMF) calculation for the transmission
22 line. The utility indicated that the transmission line's EMF would be lower than
23 that from a typical 26 kilovolt (kV) distribution feeder. Additionally, because the

1 115 kV line would be a longer distance from the ground than a distribution line,
2 it would produce lower EMFs.³

3 Through discovery, Tillamook PUD also represented the following:

4 The dairy industry has experienced issues with stray voltage
5 and cattle due to the harsh and corrosive environment of
6 housing cattle indoors. In Tillamook County, TPUD is aware of
7 incidents where cattle have been electrocuted. When
8 investigated by TPUD and its insurance company, all incidents
9 were determined to be a result of improperly grounded
10 equipment within the property owner's facilities. There have not
11 been any issues that TPUD is aware of where near-by power
12 lines have caused stray voltage issues, which would be the
13 condition applicable to the transmission line project as it does
14 not directly serve (connect) to any customer facility.⁴

³ Staff Exhibit 401 (Tillamook PUD Narrative Response to Staff DR Nos. 45-52).

⁴ See Staff Exhibit 402 (Tillamook PUD Response to Staff DR No. 18).

ISSUE 2, NECESSITY

Q. Please explain what you will be discussing in this part of the testimony.

A. Staff will be responding to parties' filed comments and testimony regarding the necessity of the transmission line. Staff has reviewed the filings and has identified six key concerns raised in testimony or comments pertaining to necessity:

1. Concerns that Tillamook PUD's load growth estimate of 1.1 percent on an annual basis is not accurate.⁵
2. Tillamook PUD could have cut 4 megawatt (MW) or more from its load by allowing Tillamook County Creamery to switch to propane or diesel fuel.⁶
3. Concerns that the most recent capacity rating for transformers used by Tillamook PUD is too low, and there is no need to increase system capacity.⁷
4. Tillamook PUD can avoid outages on the distribution line by repairing or replacing it, installing protection for the power poles, or cutting back vegetation.⁸
5. Tillamook PUD can improve capacity at the Wilson River or Trask substation as those are closer to where future development will occur.⁹
6. Impact of outages/reliability is less than expected because most of the affected homes are rental or vacation properties.¹⁰
7. Outages are not significant enough to support need for line as outages last hours per year, not days.¹¹

⁵ David Mast Testimony at 1 (January 12, 2018); OFB, TCFB, ODFA November 14, 2017 Comments at 2 (filed February 7, 2018); Oregon Coast Alliance testimony at 2 (December 5, 2017); see also Tilla-Bay Farms Inc. Testimony, Mizee/3 (February 5, 2018).

⁶ David Mast Testimony at 2.

⁷ David Mast Testimony at 3; Doris Mast Testimony at 1-2 (January 11, 2018); Kristi Sherer at 1. See also Oregon Coast Alliance testimony at 2.

⁸ Don Aufdermauer Testimony at 2 (January 11, 2018); Doris Mast Testimony at 2-3; Tilla-Bay Farms Inc. Testimony, Mizee/3; Oregon Coast Alliance testimony at 4.

⁹ Tilla-Bay Farms Inc. Testimony, Mizee/3.

¹⁰ Don Aufdermauer Testimony at 2; Doris Mast Testimony at 3; Oregon Coast Alliance Testimony at 2.

¹¹ Don Aufdermauer filing at 2; Doris Mast Testimony at 2.

1 Staff will address each of the points below in sequential order. Overall, Staff
2 concludes that while some commenters and parties raise some logical
3 points, overall they are not enough to convince Staff of denying
4 recommendation of the application on the basis of necessity. Staff explains
5 its position throughout this testimony.

6 **Q. Please explain Staff's assessment of Issue 1.**

7 A. Issue 1 involved concerns that Tillamook PUD's load growth estimate of
8 1.1 percent on an annual basis is not accurate. Parties also pointed
9 towards the .25 percent figure associated with Bonneville Power
10 Administration (BPA).¹² Overall, Staff interprets this to be an allegation that
11 Tillamook PUD has overstated its capacity need for the line. If Tillamook
12 PUD has overstated its load, then according to the comments and
13 testimony, it follows that the line is not needed.

14 **Q. Does Staff agree this is a valid concern about TPUD's load estimate?**

15 A. Not necessarily. Staff concedes that it is not uncommon for utilities to
16 overestimate load for planning purposes, the logic being that a utility must
17 be prepared to meet load should a sudden spike in demand occur.
18 Regardless, Staff read the concerns raised in comments and testimony and
19 proceeded by submitting discovery on the 1.1 and 0.25 percent load
20 estimate figures, the Company's conservation programs, demand response,
21 and the overall robustness of the Company's approach to meeting load
22 growth.

¹² David Mast testimony at 3.

1 Upon a detailed review of the data responses, Staff would like to clarify
2 a statement made in opening testimony about Tillamook PUD's 1.1 percent
3 load growth figure. In prior testimony, Staff stated that Tillamook PUD is
4 expecting growth at 1.1 percent,¹³ but through discovery and further
5 clarification, it is now clear that the 1.1 percent number in Tillamook PUD's
6 testimony^{14,15} is actually an estimation of average historic growth, and it is
7 not a forecast.¹⁶ This number is produced by Tillamook PUD and is an
8 estimation of the overall growth rate of Tillamook PUD's *past* purchases
9 between 1999 and 2016 (17 periods).¹⁷

10 In contrast, the 0.25 percent figure is a forecast of *future* retail load, and
11 it is produced by BPA, not Tillamook PUD. BPA's 0.25 percent forecast is
12 updated annually and only includes the past six immediate years of data
13 (five periods). Tillamook PUD has not produced a load forecast since
14 2012.¹⁸ Because Tillamook PUD's 1.1 percent figure is a statement of
15 historic load growth, Staff cannot interpret this number as a forecast, but
16 rather a comment on how much Tillamook PUD's system has grown
17 between 1999 to 2016.

18 The 0.25 percent forecast is generated by BPA to estimate its own
19 customer load, and eight of these forecasts (2011 to 2018) were provided to
20 Staff in spreadsheet format in response to Staff Data Request (DR) No. 41.

¹³ Staff/200, Hanhan/8.

¹⁴ TPUD/205, Fagen/49.

¹⁵ TPUD/106, Simmons/23.

¹⁶ Staff Exhibit 401 (Tillamook PUD Narrative Response to Staff DR Nos. 45-52).

¹⁷ Staff Exhibit 401 (Tillamook PUD Narrative Response to Staff DR Nos. 45-52).

¹⁸ Staff Exhibit 401 (Tillamook PUD Narrative Response to Staff DR Nos. 45-52) and Staff Exhibit 403 (Tillamook PUD Narrative Response to Staff DR No 28).

1 These spreadsheets included 5-year, 10-year, and 20-year forecasts.
2 These spreadsheets also included peak forecasts and weather-adjusted
3 forecasts.¹⁹

4 In the case of the 2017 forecast that generated the 0.25 percent figure,²⁰
5 Staff confirmed that the 0.25 percent figure was derived from an average
6 annual growth rate based on actuals from six prior years. For example, the
7 2017 forecast used total retail load actuals from years 2011-2016. The
8 2016 forecast used total retail load actuals from years 2010-2015, and so
9 on. As mentioned above, BPA also generates a peak forecast every year.
10 In 2017, peak projection was 0.7 percent. For the most recent 2018
11 forecast, peak projection was 2.6 percent. Staff notes that all of these
12 numbers were produced by BPA based on Tillamook system actuals.²¹

13 The concern raised by parties implies that Tillamook PUD adopted its
14 1.1 percent load "trend" as a system forecast. This is not accurate, and
15 Tillamook PUD has denied this through discovery.²² Rather, Tillamook PUD
16 has indicated that it used its 2009 peak, without assuming additional growth,
17 for planning purposes.²³ Utilizing a peak number is consistent with utility
18 best practices of planning for peak usage rather than average demand.

19 Through the BPA spreadsheet actuals, Staff determined that system peak in
20 fiscal year 2009 was 120.2 MW. Staff also found that in fiscal years 2010,

¹⁹ See Staff electronic Exhibits 404-411 (BPA load forecast spreadsheets).

²⁰ First page of David Mast's Exhibit 4.

²¹ See Staff electronic exhibits 404-411 (BPA load forecast spreadsheets).

²² Staff Exhibit 401, Hanhan (Tillamook PUD Narrative Response to Staff DR Nos. 45-52).

²³ See Staff Exhibit 401, Hanhan (Tillamook PUD Narrative Response to Staff DR Nos. 45-52, specifically DR 49).

1 2014, and 2017, Tillamook's system peak reached 131.5 MW, 128.3 MW,
2 and 124.4 MW, respectively.²⁴ In a phone call with Tillamook PUD asking
3 for clarification, Tillamook PUD indicated that the "2009 peak" that it used
4 was in fact the 2010 fiscal year number of 131.5 MW.

5 In Staff's experience, it is customary industry practice, and often
6 required, for utilities to plan for peak capacity.²⁵ While there may be distinct
7 methods of forecasting average and total demand, utilities ultimately plan for
8 *peak* usage and not average load growth. Through other discovery,
9 Tillamook PUD has indicated that it is already in a position where it may not
10 be able to reliably meet load.²⁶ Coupled with the fact that the Company has
11 assumed zero peak growth since 2009 for determining project need, Staff
12 does not find the criticisms of Tillamook PUD's system usage numbers
13 compelling.

14 **Q. Does Staff agree with the overall concerns about load growth?**

15 A. No. The 1.1 percent number is not a projection but an average estimation of
16 a historic trend. The point also remains that utilities generally build for peaks
17 and not for average load growth conditions. The average load growth
18 figures highlighted by commenters do not directly discuss peak usage.

²⁴ See Staff electronic Exhibits 404-411 (BPA load forecast spreadsheets).

²⁵ For example, the Commission requires investor-owned electric utilities under its jurisdiction to plan for peak capacity. *In the Matter of the Investigation into Integrated Resource Planning*, Docket No. UM 1056, Order No. 07-047, Appendix A at 4. See also North American Electric Reliability Corporation (NERC) Reliability Standards:

<http://www.nerc.com/pa/Stand/Reliability%20Standards%20Complete%20Set/RSCCompleteSet.pdf>
The USDA's Rural Utility Service requires borrower to provide a load forecast, which should include annual peak demand. See RUS Bulletin 1724D-101A, available at:
https://www.rd.usda.gov/files/UEP_Bulletin_1724D-101A.pdf.

²⁶ See Staff Exhibit 102/Gibbens (Tillamook PUD Response to Staff DR No. 05).

1 Tillamook PUD has indicated that under an N-1 condition,²⁷ several of its
2 transformers, including Wilson River transformer T1, operate beyond 90
3 percent of capacity.²⁸ This means that if the system's biggest component,
4 the Wilson River T2 transformer, were to suddenly go out of service, the
5 remaining Wilson River, Garibaldi, and Trask River substation transformers
6 would exceed at least 90 percent of individual power transformer capacity.²⁹
7 In addition to these concerns, adjusting a load forecast would not account
8 for current reliability issues such as the rusting steel wire.³⁰

9 As a result of discovery and further clarification of the role of the
10 0.25 percent load forecast, Staff does not believe that increases in retail
11 purchases are the primary driving factor for building the transmission line.
12 Taken alone, Staff is not convinced that this is a plausible reason to find the
13 project is not necessary or in the public interest.

14 **Q. Please explain Staff's assessment of Issue 2.**

15 A. Issue 2 is the concern that Tillamook PUD could have cut 4 MW or more
16 from its load by allowing Tillamook County Creamery Association
17 ("Creamery") to switch to propane or diesel fuel for its boilers. Staff
18 interprets this to be an indication that Tillamook PUD has overstated its
19 capacity need for the line. Presumably, if the Tillamook Creamery can rely
20 on other fuel, it does not need to use electricity, and 4 MW of load can be

²⁷ Specifically, that would occur if the T2 Wilson River transformer is out of service.

²⁸ TPUD/205, Fagen/50.

²⁹ Tillamook PUD/106, Simmons/23. See also RUS Bulletin 1724D-107 for a Guide for Economic Evaluation of Distribution Transformers: https://www.rd.usda.gov/files/UEP_Bulletin_1724D-107.pdf.

³⁰ Tillamook PUD/200, Fagen/3.

1 removed from Tillamook PUD's system. Thus, the transmission line is not
2 needed.

3 **Q. Does Staff agree with parties raising concerns about reduced load?**

4 A. No. Staff submitted data requests on this topic.³¹ Staff discovered that
5 Tillamook PUD is the electric provider of last resort for the Creamery and
6 that the Creamery is unlikely to get rid of its electric boilers. This means
7 that Tillamook PUD is required to meet any peak demand of the Creamery,
8 regardless of the Creamery's options for additional sources of heat. Staff
9 recognizes that Tillamook PUD has reached an agreement with the
10 Creamery to mitigate peak load,³² but Staff also notes that best practices
11 require that utilities be able to provide power at peak. In a case where fuel
12 prices increase and the Creamery decides to switch back to using
13 100 percent electric power, Tillamook PUD would be required to meet that
14 load. This is similar to a commercial customer who relies on solar panels for
15 power at peak usage. If a cloud passes, rain falls, or if the solar system
16 malfunctions, the utility would still be required to provide power in the case
17 that solar energy is unavailable. The Creamery is located within Tillamook
18 PUD's exclusive service territory, where no other person can provide electric
19 service.³³ Tillamook PUD is still responsible for serving, and therefore,

³¹ Staff Exhibit 401 (Tillamook PUD Narrative Response to Staff DR Nos. 45-52).

³² Staff Exhibit 401 (Tillamook PUD Narrative Response to Staff DR Nos. 45-52, specifically 48 and 51).

³³ *In the Matter of Tillamook People's Utility Service*, Docket No. UA 67, Order No. 99-426 (July 15, 1999); *In the Matter of Tillamook People's Utility Service*, Docket No. UA 66, Order No. 99-427 (July 15, 1999).

1 planning for the 4 MW of load regardless of the Creamery's alternative fuel
2 options.

3 **Q. Does Staff agree with the concerns raised about the 4 MW of deferred**
4 **load?**

5 A. No. As Staff understands it, Tillamook PUD negotiated with the Creamery to
6 come to a beneficial agreement for both parties.³⁴ The negotiation reduced
7 peak demand for all of Tillamook PUD, thereby reducing the demand charge
8 and preventing the application of higher-tiered rates from BPA, resulting in
9 reduced costs for Tillamook PUD.³⁵ Staff views this to be a valid solution to
10 mitigating peak load and also preventing potential rate increases for the rest
11 of Tillamook PUD customers, who would have experienced higher rates due
12 to higher overall demand charges.

13 There is also the additional consequence of a large user's exit from the
14 electric system. If a 4 MW drop were to suddenly occur, system costs would
15 shift to other customers, resulting in rate increases. This would be
16 particularly so under a higher-tiered rate. There would be financial
17 consequences to the rest of Tillamook PUD's customers under both a major
18 increase and decrease in the Creamery's demand.

19 In Staff's view, Tillamook PUD exhibited best practice by mitigating
20 potential rate increases through managing peak demand with the Creamery.

21 **Q. Please explain Staff's assessment of Issue 3.**

³⁴ Staff Exhibit 401 (Tillamook PUD Narrative Response to Staff DR Nos. 45-52, specifically 51).

³⁵ Staff Exhibit 401 (Tillamook PUD Narrative Response to Staff DR Nos. 45-52).

1 A. Issue 3 is a concern that the most recent capacity ratings for transformers
2 used by Tillamook PUD are too low. Staff interprets this to be an indication
3 that Tillamook PUD has understated its most recent transformer rating.
4 Presumably, if Tillamook PUD is understating the capacity ratings for the
5 transformers, then there is additional capacity that can be used, reducing
6 the need for an additional substation and transmission line.

7 **Q. Does Staff agree with this concern about the transformer ratings?**

8 A. No. Staff submitted data requests on this topic and received the actual
9 ratings from the transformers. Staff has provided these ratings as Staff
10 Exhibit 413. Staff discovered that the Company had previously not provided
11 the correct nameplate capacity ratings to the Tillamook PUD Board and had
12 corrected this. Thus, the change in the nameplate capacity was done to
13 correct the Board's reports with the actual nameplate data.³⁶ The Company
14 did not explain why these ratings had not been previously reported at
15 nameplate capacity, but the transformers in question have now been
16 correctly reported as such.

17 **Q. Does Staff agree with the concern raised about the capacity rating of**
18 **the transformers?**

³⁶ See Staff Exhibit 412 (Tillamook PUD Narrative Response to Staff DR No. 32) and Staff Exhibit 413 (Tillamook PUD Attachment to Staff DR No. 32).

1 A. No. While Staff is concerned that the Company had been initially incorrectly
2 reporting its transformer nameplate capacity, the current ratings are the
3 correct original ratings provided by the manufacturer.³⁷

4 **Q. Please explain Staff's assessment of Issue 4.**

5 A. Issue 4 is the concern that Tillamook PUD can avoid outages on the
6 distribution line by repairing or replacing it, installing protection for the power
7 poles, or cutting back vegetation. Staff interprets this to mean that
8 Tillamook PUD's transmission proposal is excessive and that the Company
9 can take measures other than building a transmission line to address energy
10 demand.

11 **Q. Does Staff agree with the concern about taking other measures to**
12 **address need for the transmission line?**

13 A. Not necessarily. While a wide variety of additional scenarios could be
14 proposed in theory, the Company did explore additional options. As Staff
15 already explained in Staff/200, Hanhan/12, Tillamook PUD considered four
16 different alternatives: 1) do nothing; 2) build a redundant 24.9 kV feeder to
17 Netarts and Oceanside; 3) build a redundant 24.9 kV feeder line in addition
18 to upgrading one of the Wilson River substation transformers; and 4) build
19 the proposed transmission line. Tillamook PUD concluded that doing
20 nothing and building a redundant 24.9 kV feeder would not address the
21 issue of adding capacity, which is one of the motivators for its proposal.

³⁷ See Staff Exhibit 412 (Tillamook PUD Narrative Response to Staff DR No. 32) and Staff Exhibit 413 (Tillamook PUD Attachment to Staff DR No. 32).

1 Option 3 was rejected by Tillamook PUD because it was determined that
2 the 115 kV line and associated Oceanside substation would provide the
3 lowest per unit cost of capacity and would possess a longer useful life.³⁸
4 Tillamook PUD also indicated through discovery that none of the other
5 options address the utility's reliability concerns. For option 3, adding an
6 additional 24.9 kV distribution feeder connected to the Wilson River
7 substation would likely require at least two voltage regulators, like the
8 current distribution feeder does. Tillamook PUD indicated that though
9 option 3 would address the issue of adding capacity, both feeders (the old
10 and new one) would stretch 10 to 14 miles. The Company stated that this is
11 a long distance to carry 5 MW of load, particularly because all of the load
12 would be located in the last two to three miles of the feeder. As Staff
13 understands it, this would create a less-than-ideal situation where the utility
14 must account for lower voltage across a longer-than-ideal distribution route
15 by adding two regulators. Both distribution feeders would cross wooded
16 areas and would be susceptible to similar outages as the existing
17 distribution line that is also rusting in certain areas.³⁹ A 115 kV transmission
18 line, being at a higher voltage with a wider corridor, is better suited to
19 covering such a distance.

20 Staff does not believe that the power pole protection and vegetation
21 mitigation concepts address the issues of adding capacity or reliability. The
22 Company has described through discovery the current condition of the 50-

³⁸ Staff/200, Hanhan/12.

³⁹ DRs 5, 30, and last round.

1 year-old rusting distribution line serving the Netarts/Oceanside area. The
2 line cannot currently be repaired safely without being de-energized. As
3 such, the Company would be forced to de-energize the line to repair it,
4 casting roughly 1,600 customers out of service for potentially 4-6 weeks.⁴⁰
5 In such a scenario, Tillamook PUD indicated that it would likely need to rent
6 a 10 MW generator, depending on the season, to provide power to these
7 customers in the meantime. Due to the condition of the rusting conductor,
8 the Company is currently monitoring it for failures, and subsequently unsafe
9 operation. Under such a circumstance, Tillamook PUD has indicated that it
10 will declare an emergency situation and proceed with the steps above of de-
11 energizing the line, rebuilding two miles of the line, and renting a
12 generator.⁴¹ Such extreme scenarios of a rushed line re-build and generator
13 rental would be avoided if there is additional capacity through the proposed
14 115 kV transmission line. As opposed to option 3, the transmission line
15 avoids the lower voltage concern.

16 The Company has stated that this extreme case is still a possibility if
17 significant additional line failures occur before the transmission line is built.⁴²

18 **Q. Please explain Staff's assessment of Issue 5.**

19 A. Issue 5 is the concern that Tillamook PUD can improve capacity at the
20 Wilson River or Trask substation as those areas are closer to where future

⁴⁰ Staff Exhibit 102, Gibbens (Tillamook PUD Response to Staff DR No. 5).

⁴¹ Staff Exhibit 102, Gibbens (Tillamook PUD Response to Staff DR No. 5).

⁴² Staff Exhibit 102, Gibbens (Tillamook PUD Response to Staff DR No. 5).

1 development will occur. Staff interprets this to be a dispute about the
2 optimal location of additional capacity.

3 **Q. Does Staff agree with the idea of building capacity closer to load?**

4 A. Staff is not generally opposed to the idea of capacity additions near load,
5 but Staff also notes that this is not a requirement for delivering power.

6 Economies of scale can provide cost-effective methods of delivering power
7 from far away. As Staff explains above, the Company considered upgrading
8 a transformer at the Wilson substation and adding an additional distribution
9 line, but unit costs would have been higher, useful life would have been
10 shorter, and the solution would not have mitigated concerns about lower
11 voltage and reliability.

12 **Q. Please explain Staff's assessment of Issue 6.**

13 A. Issue 6 is the concern that the impact of outages and associated reliability is
14 less than expected because most Oceanside homes are rental or vacation
15 properties. Staff interprets this to be an indication that Tillamook PUD has
16 overstated its capacity need for the line. Presumably, because demand is
17 high for only a few months out of the year, the line is not needed.

18 **Q. Does Staff agree with the idea that capacity should not accommodate**
19 **seasonal usage?**

20 A. No. This does not constitute utility best practice. Particularly in the case
21 that a utility is the exclusive electric service provider, the utility cannot
22 ignore rental or seasonal properties despite low usage during portions of the
23 year. It is well understood throughout the industry that utilities build for peak

1 loads.⁴³ If this occurs in the summer with rental or seasonal properties,
2 utilities must still meet load as a provider of last resort.

3 **Q. Please explain Staff's interpretation of Issue 7.**

4 A. Issue 7 is the concern that outages are not significant enough to support
5 need for line as outages last hours per year, not days. Staff interprets this
6 to be an indication that Tillamook PUD has overstated its capacity need for
7 the line.

8 **Q. Does Staff agree with the idea that a utility should only be concerned**
9 **with outages lasting hours and not days?**

10 A. No. This does not constitute safe, reliable utility best practice. As Staff has
11 stated several times throughout this testimony, utilities build for peak load.
12 They do not build for average load. They plan for times and seasons when
13 power is most likely to fail due to stresses to the system. The utility cannot
14 ignore peak simply because it is not firm load with consistent customers. If
15 a utility were to ignore seasonal loads, customers would be subject to
16 blackout risk and other reliability related outages during peak hours when
17 the available capacity is overstressed. Seasonal homes tend to move in
18 lockstep—when one home is in use it is much more likely that the other
19 homes are also in use.⁴⁴

20 ///

⁴³ See North American Electric Reliability Corporation (NERC) Reliability Standards, such as:
<http://www.nerc.com/pa/Stand/Reliability%20Standards%20Complete%20Set/RSCCompleteSet.pdf>.

⁴⁴ This is sometimes referred to as seasonal correlation.

1 **Q. Overall, does Staff agree with parties' concerns about building the**
2 **transmission line as it pertains to issues of necessity?**

3 A. No. Staff does not believe parties have presented compelling reasons for
4 discontinuing the line based on necessity. Among the most prominent
5 reasons related to necessity were arguments against capacity need.
6 Through Staff's discovery, testimony, and knowledge of utility best practices,
7 Staff still believes Tillamook PUD has demonstrated necessity.

8 **Q. Does this conclude your testimony?**

9 A. Yes.

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 401

**Exhibits in Support
Of Cross-Answering
and
Reply Testimony**

March 2, 2018

BEFORE THE PUBLIC UTILITY

COMMISSION OF OREGON

PCN -2

In the Matter of TILLAMOOK
PEOPLE'S UTILITY DISTRICT,

CERTIFICATE OF PUBLIC
CONVENIENCE AND NECESSITY

TILLAMOOK PEOPLE'S UTILITY
DISTRICT RESPONSE TO STAFF'S
DATA REQUESTS 45 THROUGH 52

TO: Staff of the Public Utility Commission of Oregon

Attached hereto are the responses of Tillamook People's Utility District, to Staff's Data Requests to TPUD numbered 45 through 52.

DATED this 22nd day of February 2018.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
REQUESTS

STAFF DR TO TPUD NO. 45

See Tillamook PUD/200, Fagen/8, lines 1-5. Tillamook PUD's witness states that Tillamook PUD could not avoid building the transmission line through conservation efforts. Please:

- a. Provide a narrative description of Tillamook PUD's conservation efforts.
- b. Provide a narrative description of why Tillamook PUD believes its conservation efforts to be robust.
- c. Explain whether the district includes demand response (DR) programs as part of its conservation efforts.
- d. Indicate whether the district considers non-wires solutions, other than energy efficiency and DR, to be conservation efforts. For purposes of this request, "non-wires solutions" means anything other than traditional transmission or distribution lines (e.g., including but not limited to energy efficiency, demand response, energy storage, and grid software and controls).
- e. Indicate whether the district performed any analysis of any kind demonstrating non-wires solutions to be insufficient in addressing Tillamook PUD's needs? If so, please provide these analyses.
- f. P, in more detail, a narrative explaining why non-wires solutions would not address Tillamook PUD's needs.

TPUD RESPONSE

- a. Tillamook People's Utility District (TPUD) offers a wide array of conservation programs for residential, commercial, industrial and agricultural customers.
Residential programs include: weatherization, window replacement, and heat pumps.
Commercial programs include: large commercial HVAC system upgrades; small commercial heat pumps; and energy efficiency lighting replacement and retrofits, including LED.
TPUD offers its industrial customers facility wide energy audits and energy studies.
Recommended energy efficiency measures for systems, such as air compressors, liquid pumping stations, air blowers, vacuum pumps and hydraulic pressure systems, are accompanied with estimated energy savings and utility incentives. TPUD also offers programs for the local agricultural community, including variable speed drive milking pumps, milk process pre-cooling, and LED lighting programs.
- b. TPUD has offered a wide variety of energy efficiency programs for over 20 years and continues to add programs that have direct benefits to our customers.
- c. TPUD does not offer a demand response program to our customers.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
REQUESTS

- d. TPUD considers transformer efficiency upgrades, as well as voltage reduction and line loss, to be an energy efficiency measure.
- e. TPUD has looked at voltage reduction and demand programs as non-wires solutions. While these methods are helpful and reduce load by a few percentage points, they do not address the load growth being experienced. Existing energy conservation has helped as well, reducing the average energy consumed by customers. However, the addition of new accounts and increased loads on existing accounts have a higher growth rate than what conservation has been able to achieve. No formal analysis has been written up, but industry reports confirming this conclusion have been reviewed, such as the Northwest Energy Efficiency Alliance's Distribution Efficiency Initiative, and BPA's industrial efficiency and demand reduction programs.

TPUD has implemented voltage reduction by using control settings that operate the distribution grid at lower voltage level rather than keeping the source voltage at maximum values. In addition, TPUD has worked with large customers on demand reduction where the customer uses alternative energy sources during peak loading times. This has proven beneficial for both TPUD (shared amongst all TPUD customers) and the specific customer employing the alternative energy source.

- f. Several wind mill concepts have been rejected by local authorities having jurisdiction in the Oceanside and Netarts area. Although the customers are continuing efforts to install local generation, these technologies have not proven to be cost effective or cannot be permitted. There are a few solar panel installations and bio-generation facilities. Over the past 10 years, these facilities have not been able to produce sufficient or reliable electricity to the level where TPUD can adjust load forecast or demand forecast. For example, two years ago there were three bio-generation facilities up and running. Today, there is only one unit and it is off line more than it is producing energy.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

STAFF DR TO TPUD NO. 46

Comments were made by other parties to the effect that TPUD has not addressed farming practices along the route. In addition, there were concerns that TPUD did not address conflicts with the transmission line or potential mitigation it will provide for farmers. See Oregon Farm Bureau, Tillamook County Farm Bureau, and Oregon Dairy Farmers Association filing on February 7, 2018, page 2. Please indicate whether or not Tillamook PUD agrees with these comments, and if not, explain why not.

TPUD RESPONSE

TPUD does not agree with these comments. There are numerous issues raised in the referenced letters, which are similar to the issues raised to Tillamook County as part of the land use permitting process. The land use approval process requires TPUD to identify and to mitigate potential impacts to farm practices to prevent any such impacts from forcing a significant change to those farm practices or causing a significant increase to those practices.

In order to identify and address potential impacts to farm practices, TPUD commissioned a third party to conduct a Farm Impacts Assessment. See TPUD's Response to Staff DR To TPUD No. 39. The conclusion of that assessment was as follows:

Based upon our review of the project and examination of dairy farm practices, the likelihood of significant adverse impacts to accepted farm practices in the area appears nonexistent. Our professional opinion is that the proposed 115Kv Project will not significantly impact farm practices in the area nor is it likely to increase the cost of such practices.

TPUD's Farm Impacts Assessment was submitted to the County and has been reviewed by County Staff. Prior to the hearing that took place in that matter on February 8, 2018, the County Staff issued a Staff Report, including the Staff's analysis of the Farm Impacts Assessment. A copy of the County's Staff Report is attached as Exhibit TPUD-Staff-DR46-1. The County's Staff Report concludes that TPUD's application, if conditioned, satisfies the farm impacts-related approval criteria. The County Staff has proposed conditions of approval for that purpose. For example, the County Staff suggests that TPUD be required to ground all metal fixtures within the easement area to address stray voltage concerns.

TPUD's submittal to the County is only the first step in the process. During the remainder of the land use proceeding, farmers will be able to identify any specific impacts they believe will result from the line and TPUD will have a chance to address those. Currently, comments like those provided by the Oregon Farm Bureau simply state that there will be a "myriad of negative impacts" without identifying what those impacts could be. That comment, however, was made on November 14, 2017, about the time TPUD was completing its submittal to the County. It is evident that this comment was made prior to any thorough review of TPUD's Farm Impacts Assessment and TPUD is confident it has thoroughly analyzed potential impacts to farmers along the route of the transmission line.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

As already demonstrated in the record in this proceeding, TPUD also met with all land owners that were willing to meet, and the farm issues that are now being raised were not raised during those meetings. The issues that were raised have been addressed, such as moving poles from the middle of farm land, and placing poles next to fence lines or in locations that will not take up valuable farm land.

One specific issue that is now being raised is the impact during construction. Such impacts, however, will be minimal, as there are only a few poles located on each of most farm properties. Large equipment will need access for a few weeks and then smaller equipment for an additional few weeks. During construction, small areas (when compared to the entire tax lot) of land will need to be blocked off during the large equipment activities. Most of the farms being crossed are used for growing grass and not active grazing.

Application of pest and weed control products can continue as currently practiced, i.e. application with tractors, trailers or trucks. If "crop dusting" methods are used, the power lines would need to be avoided, which constitutes only a small area of the tax lot (average right of way would be about 7.6 percent of the tax lot). This is common practice for aerial applications of product. However, TPUD is not aware of any farmers in the area actually implementing this practice.

Drone technology is compatible with transmission lines. In fact, electric utilities are starting to use drones to inspect power lines. For non-qualified entities, the drones will have to stay approximately 15 feet from the power line conductors. This would allow the drones to fly above, below, and alongside the transmission line.

The type of "stray voltage" that could be caused by the power lines is from induction. The source of this induced voltage is the electro-magnetic field (EMF) generated from power lines. TPUD performed an EMF calculation for the transmission line, and the calculations show that EMF from the transmission line would be lower than that from a typical 26kV distribution feeder or service to an average home (1,250 kWh per month) or barn. This is because the magnetic field is proportional to the current flow in the line. The transmission line would have 25 amps on average, 55 amps at peak, and because the lines are higher from the ground, produce lower EMFs. See Exhibit TPUD-Staff-DR46-2.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
REQUESTS

STAFF DR TO TPUD NO. 47

Comments were made by other parties to the effect that Tillamook PUD has not secured approval of most of the farmers whose property will be impacted by the line. There were also concerns TPUD has not accurately captured negative impacts the proposed transmission line could have on agricultural operations within its route. See Oregon Farm Bureau, Tillamook County Farm Bureau, and Oregon Dairy Farmers Association filing on February 7, 2018, page 2. Please indicate whether or not Tillamook PUD agrees with these comments, and if not, explain why not.

TPUD RESPONSE

TPUD acknowledges that it has not yet obtained easements from most of the farmers whose property will be impacted by the line. TPUD will be able to address potential impacts to those properties in two ways. First, TPUD will continue its attempt to negotiate with individual farmers to obtain an easement allowing the transmission line. As shown in TPUD/210, Fagen/1, TPUD's proposed easement contains placeholder language to be tailored for each farm property that will include protections for current farm practices. Second, TPUD will continue to process its land use application with the County, approval of which requires TPUD to mitigate potential farm impacts so that those impacts do not become significant. See also TPUD's response to Staff DR to TPUD No. 46.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
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STAFF DR TO TPUD NO. 48

See David Mast's testimony, page 2. He states, "[Tillamook PUD compelled] the creamery into continuing to take 4MW for their electric boiler because the reduced load would create negative consequences in their contractual obligations to BPA. In other words, their energy purchases would be at a higher rate. TPUD said that if the Creamery went to the propane boiler they would charge the farmers more for electricity." Please indicate whether or not Tillamook PUD agrees with this statement, and if not, explain why not.

TPUD RESPONSE

TPUD does not agree with the entirety of this statement. TPUD included the additional electric load into TPUD's commitment with BPA for the purchase of electricity, which impacted TPUD's high-water mark. A deviation from the load requirements could have financial impacts to all customers.

To be clear, the Creamery did not use electricity to operate its boiler for more than a decade prior to 2009. Therefore, TPUD had accounted for this load reduction in its load commitment to BPA. When this changed, TPUD was obligated to update the arrangement with BPA so BPA could plan accordingly at a local and regional level.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
REQUESTS

STAFF DR TO TPUD NO. 49

See David Mast's testimony at page 3, regarding the .25 percent load growth concern.

- a. Please indicate whether Tillamook PUD agrees with Mr. Mast's statement that Tillamook PUD's load growth forecast is .25 percent, as reflected in Exhibit David 4. Please explain why or why not Tillamook PUD agrees. Include in the response an explanation as to whether and how this number relates to the 1.1 percent growth stated in Tillamook PUD's exhibits filed in Opening Testimony.
- b. Please explain the load growth that this .25 percent represents, i.e. is it the entirety of Tillamook PUD's load growth? Please provide workpapers and data that demonstrate the origin of this load percentage.
- c. Please explain how the Company arrived at this 1.1 percent growth figure. Staff understands that the Company provided workpapers and data from BPA on load forecasting as part of its data response to Staff Data request 41. Please provide a narrative description of the model utilized and which formulas and numbers were used to calculate the 1.1 percent figure.

TPUD RESPONSE

- a. TPUD agrees with BPA load forecast of 0.25 percent in the context for which it is used. BPA updates its load forecast for each of its load serving customers. This is the source of the 0.25 percent growth. For TPUD, the BPA forecast is used to help predict when TPUD's loads might exceed the established high water mark, which is tied to BPA's Tier 1 rates. Once the high water mark is exceeded, TPUD would be in the Tier 2 rates.

The 1.1 percent load trend is based on historic load data and developed using the trending tool in MS Excel. While the MS trending tool is not a true load forecast (does not take into account other factors such as population, economic trends, trends by individual customer rate classes), it does help identify trends. Regardless, no growth was assumed in the analysis that was performed in determining if the project is needed.

- b. TPUD's most recent load forecast, provided in response to Staff DR to TPUD No. 28 4c, has a growth rate of approximately 0.43 to 0.52 percent. BPA's forecast was provided in TPUD's response to Staff DR to TPUD No. 41.
- c. 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 2016. While both trends were similar, a 1.1509 percent per year trend was listed for the period 1999 to 2016. Again, this trend was not included in the analysis for determining the need of the

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
REQUESTS

project. The loads used in the analysis were the 2009 peak reflected to the 2016 system with no load growth.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
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STAFF DR TO TPUD NO. 50

See David Mast's testimony, exhibit David 6. The exhibit states, "I have had a number of discussions with BPA and NRU staff regarding the potential for a demand response program and other potential scenarios for addressing the TCCA boiler load. Our plan is to move forward with a consultant to perform analytical work on potential options." Staff understands this statement is by Tillamook PUD's public relations department. Has Tillamook PUD completed any analytical work on the DR potential for the referenced boiler? If so, please provide the results of any such analysis.

TPUD RESPONSE

TPUD consulted with BPA regarding Demand Response Program options that could be made available for this customer. Based on discussion with BPA and their consultant, it was determined that these programs were not beneficial to TPUD customers and were not pursued. The issue is that they were intrusive to the customer, i.e. they had to have equipment installed on the premises. There were also reliability issues, i.e. if a signal was sent to equipment, some equipment would not respond so more installations would be required to achieve the goals. Further, customers could override the signal, making them ineffective.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
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STAFF DR TO TPUD NO. 51

See David Mast's testimony at page 2. In Tillamook PUD's response to Staff data request 2, the Company states: "First, there is only one large customer that has an alternative energy source in TPUD's service territory. The customer had traditionally used diesel to heat their boilers and switched to propane a few years ago. That customer has since installed an electric boiler and now has three fuel supplies to choose from. Currently, electricity is that customer's cheapest fuel source and it has increased its electric consumption over the past two years."

- a. Under any circumstances, is Tillamook PUD aware of whether this customer was planning on completely removing its electric boilers or would the customer have retained its electric boilers regardless of the decreased cost of propane? If so, please explain.
- b. Has Tillamook PUD communicated with this customer to encourage the customer to use electric fuel?
- c. Has Tillamook PUD ever communicated to this customer to the effect that if it relied solely on its propane boiler, other customers would need to pick up the cost of a 4 MW drop in load?
- d. Is Tillamook PUD an electric supplier of last resort to this customer?

TPUD RESPONSE

- a. No. It is TPUD's understanding that the customer desires to always have options available, including electricity.
- b. No. The Creamery approached TPUD to begin using electricity to heat its boiler in the 2008 time frame due to the rising cost of its primary energy source. This additional electric load was then accounted for in the electric wholesale agreement TPUD made with BPA. If significant changes are made to TPUD's agreement with BPA, it could impact all rate payers based on TPUD's actual energy used and TPUD's contractual obligation to BPA.
- c. Yes. Please refer to the response to Staff DR to TPUD No. 48. The agreement reached with the Creamery was beneficial to both parties. It reduced the peak demand for all of TPUD, thus reducing the demand charge from BPA. This savings was accounted for in the agreement with the Creamery and the remaining savings were passed on to all customers in the rates.
- d. Yes. TPUD is the only electric supplier available in the customer's service territory.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
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STAFF DR TO TPUD NO. 52

See Exhibit Tilla-bay Farms Inc./9, Mizee,23. The exhibit is a letter, which reads in part, "...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." Please indicate whether or not Tillamook PUD agrees with this statement, and if not, explain why not.

TPUD RESPONSE

TPUD does not agree with this statement. TPUD has always stated three reasons the project is needed; capacity, reliability, and operations/maintenance. The Tillamook Oceanside Transmission Line project provides the best solution to all three issues and does it at a lower cost per unit of capacity added. Other options or alternatives can address capacity in a similar context, but none address reliability to a level that would bring the electrical service to the customers in Oceanside and Netarts to be within reach of the system average values, specifically for customer hours out (meaning if 100 customers were out of power for 2 hours, that would be 200). This is because other alternatives consider a second distribution feeder to serve the Oceanside and Netarts area in addition to the existing feeder. Both feeders would be 10 to 14 miles and peak at about 5MVA each, which is a long way to carry 5MWs on a distribution feeder given that all 5MW is contained in the last 2 to 3 miles of the feeder. Both feeders traverse along roads and through heavily wooded areas and are susceptible to similar outages as the existing distribution line. Given that the existing feeder over the past 8 years has a reliability rating of 8.8 times worse for customer hours out than the system average, each of the two feeders would be 4.4 times worse than the average. See Exhibit TPUD-Staff-DR52 which shows the statistics for each of TPUD's 31 distribution feeders.

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
OF
OREGON**

STAFF EXHIBIT 402

**Exhibits in Support
Of Cross-Answering
and
Reply Testimony**

March 2, 2018

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
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STAFF DR TO TPUD NO. 18

Please see Tillamook PUD/205, Fagen 25, at which meeting notes from a June 23, 2015 Citizen Advisory Group meeting state “[Bart Mizze] said that he is interested to know whether the Tillamook PUD has received a warm welcome from any landowners that were noticed that the preferred proposed route/segment options might cross their property. We are forced to consider how our family, employees and cattle will continue their farming if this line is built. How can their farm continue to operate and what assurances are there that any future problems will be addressed? He mentioned that he is particularly concerned about stray voltage with their animals. He has no interest in pursuing litigation in the future and wants to know how the Tillamook PUD will work with his family to make sure that issues are addressed and resolved.”

- a. Please state how many landowners have provided an easement for the proposed transmission line. This is an ongoing request.
- b. Please explain whether or not the proposed line may restrict the ability of any agricultural property owners affected by the proposed route to continue farming the same acreage in a substantially similar way to their present practices;
- c. What is TPUD's understanding of Mr. Mizze's concern of stray voltage affecting animals? Please explain whether or not TPUD agrees that this is a valid concern.
- d. Does TPUD intend to work with all affected landowners to make sure issues with construction and operation of the transmission line are timely addressed and resolved? If so please describe TPUD's relevant policies and procedures. Please provide a comparison of TPUD's customer satisfaction record to its peers based on survey data or similar.

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA
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TPUD RESPONSE

a) TPUD has not requested easements at this time due to the uncertainty of the permits to be issued and given the history of siting this transmission line. A letter of intent was sent to each property owner in which TPUD asked the property owner for their agreement to terms for an easement and made them a monetary offer for the easement. One land owner has signed the letter of intent. TPUD has received permits from ODOT and the County roads for the portions of the line that would encroach or be placed on road right-of-way. In addition, TPUD has received notification from the State of Oregon and the Federal Aviation Administration indicating that the transmission line does not interfere with any air or heliports in the area. TPUD has also received permits from the US Army Corp of Engineers with stipulations of completing the water quality permit.

b) As part of the land use approval process, TPUD commissioned a Farm Impact Assessment to analyze whether the line would result in significant impacts to farm or forest practices. Below is an excerpt from the report:

5 FARM USE ASSESSMENT SUMMARY

There are numerous dairy farms throughout the area that have power lines that cross them or are adjacent to them. The original electrification to these farms many years ago resulted in the automation of many dairy operations. There are now many power transmission facilities in the area and the dairy industry is still the dominant farm use in Tillamook County. Based upon our review of the project and examination of dairy farm practices, the likelihood of significant diverse impacts to accepted farm practices in the area appears nonexistent. Our professional

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

opinion is that the proposed 115Kv Project will not significantly impact farm practices in the area nor is it likely to increase the cost of such practices.

c) The dairy industry has experienced issues with stray voltage and cattle due to the harsh and corrosive environment of housing cattle indoors. In Tillamook County, TPUD is aware of incidents where cattle have been electrocuted. When investigated by TPUD and its insurance company, all incidents were determined to be a result of improperly grounded equipment within the property owner's facilities. There have not been any issues that TPUD is aware of where near-by power lines have caused stray voltage issues, which would be the condition applicable to the transmission line project as it does not directly serve (connect) to any customer facility. A complete copy of the Farm Impact Assessment is included as Exhibit TPUD-Staff-DR18c.

d) Yes, when entering private land to perform construction or maintenance, TPUD notifies the property owner that it will be entering their property, explains what work will be performed, and how long the work will take. TPUD often has to schedule maintenance activities to coincide with the property owner's activities so that TPUD is not driving over crops or damaging on-going farming operations. There are two scenarios where TPUD would not necessarily contact the property owner first: 1) 10-year inspections where TPUD drives a pick-up truck or walks to a pole; or 2) when performing emergency repairs where access is alongside existing roadways. In either scenario, TPUD attempts to contact the property owners first as a courtesy.

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
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STAFF EXHIBIT 403

**Exhibits in Support
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March 2, 2018

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

STAFF DR TO TPUD NO. 28

Regarding TPUD's response to Staff DR No. 2: has TPUD performed any analysis on load growth using weather normalized data? If so, please provide the analysis and data used. If not, please explain why not.

TPUD RESPONSE

Yes, TPUD's last load forecast 2012 – 2023 used weather normalization for residential customer classes. Load Forecast reports for 2005, 2007, and 2012 are attached as Exhibit TPUD-Staff DR28-1, Exhibit TPUD-Staff DR28-2, and Exhibit TPUD-Staff DR28-4, respectively.

Workbooks for Load Forecasts 2010 (2010 was not adopted by TPUD) are attached as Exhibit TPUD-Staff DR28-3. In 2012, there were three load trends forecasted, including an optimistic, average, and pessimistic forecast. See Exhibit TPUD-Staff DR28-4a, Exhibit TPUD-Staff DR28-4b, and Exhibit TPUD-Staff DR28-4c for each of the 2012 forecasts. The Load Forecast Reports explain how weather normalization was applied to residential customer classes. The load forecast for 2010 was never completed nor adopted, but has been included for reference.

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
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STAFF EXHIBIT 404

**Exhibits in Support
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Reply Testimony**

March 2, 2018

Exhibit 404

Is an Excel spreadsheet

(Provided in electronic format)

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
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STAFF EXHIBIT 405

**Exhibits in Support
Of Cross-Answering
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March 2, 2018

Exhibit 405

Is an Excel spreadsheet

(Provided in electronic format)

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
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STAFF EXHIBIT 406

**Exhibits in Support
Of Cross-Answering
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Reply Testimony**

March 2, 2018

Exhibit 406

Is an Excel spreadsheet

(Provided in electronic format)

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
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STAFF EXHIBIT 407

**Exhibits in Support
Of Cross-Answering
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Reply Testimony**

March 2, 2018

Exhibit 407

Is an Excel spreadsheet

(Provided in electronic format)

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
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STAFF EXHIBIT 408

**Exhibits in Support
Of Cross-Answering
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Reply Testimony**

March 2, 2018

Exhibit 408

Is an Excel spreadsheet

(Provided in electronic format)

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
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STAFF EXHIBIT 409

**Exhibits in Support
Of Cross-Answering
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March 2, 2018

Exhibit 409

Is an Excel spreadsheet

(Provided in electronic format)

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
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STAFF EXHIBIT 410

**Exhibits in Support
Of Cross-Answering
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Reply Testimony**

March 2, 2018

Exhibit 410

Is an Excel spreadsheet

(Provided in electronic format)

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
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STAFF EXHIBIT 411

**Exhibits in Support
Of Cross-Answering
and
Reply Testimony**

March 2, 2018

Exhibit 411

Is an Excel spreadsheet

(Provided in electronic format)

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
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OREGON**

STAFF EXHIBIT 412

**Exhibits in Support
Of Cross-Answering
and
Reply Testimony**

March 2, 2018

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

STAFF DR TO TPUD NO. 32

Does TPUD update the capacity rating for transformers over time? If so, please provide dates and reasoning for changes made between 2007- present.

TPUD RESPONSE

Yes, TPUD has changed the "Winter Capacity" of some of the transformers over time, namely Beaver, Garibaldi, Wilson T1, Wilson T2, Trask, and South Fork. The table below, which is also include as Exhibit TPUD-Staff DR32-3 Transformer Ratings, shows capacity based on the data from the Board Reports in January 2014 and January 2018. The change in total nameplate capacity increased by 2MVA and the Winter Capacity was reduced by 19.4MVA. Changes were made to the transformer winter capacities in August 2014, March 2017, and August 2017 Board Reports. Changes were made to name plate capacities in January 2018 Board Reports. See Exhibit TPUD-Staff DR32-1 Board Packets, containing Board Reports for the prior month and the month of the changes have been provided in the Power Services or Engineering section of the Board Reports (originals and changes have been clouded in red).

The change in the nameplate capacity was done to correct the Board reports with the actual nameplate data, see attached Exhibit TPUD-Staff DR32-2 Transformer Nameplate, which shows the manufacturer's name plate data. The nameplate ratings are provided by the manufacturers and were not correctly listed in the Board reports, so they were updated. For example, South Fork and Beaver showed ratings with the addition of cooling fans. However the transformers are not equipped with cooling fans. Similarly, Wilson T1 was showing the rating

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

for a 65°C temperature rating, but the manufacturer's documentation only lists a 55°C temperature rating.

The Winter Capacity ratings are somewhat of an arbitrary capacity and did not, nor do they now, conform to any industry standards, nor are they consistent among the transformers. For example, the percent change for Winter Capacity in 2014 ranged from 8.7% to 41.8% and averaged 25.5%. In 2018, they range from -2.6% to 55.0% and average 16.3%. Specific documentation cannot be found that supports the past or present winter ratings listed in the Board Reports or why they were changed. IEEE C57.91, IEEE Guide for Loading Mineral-Oil-Immersed Transformers, provides guidelines for adjusting transformer capacity due to temperature variations. The 2011 version increased the margin from 5°C to 10°C, thus reducing the amount the transformer capacity would be increased for a reduction in ambient air temperature from the manufacturer's 30°C design temperature (identified as Winter Loading in TPUD Board reports). Exhibit TPUD-Staff DR32-5 is IEEE Std. C57.91-1995 and Section 6 provides the guidelines for increasing transformer capacity for changes in ambient temperature. The 2011 version is on order and can be provided once received.

TPUD recently contacted several utilities in the Northwest, and eight utilities replied. Six utilities indicated that they do not use winter ratings, one utility has dynamic loading using specialized equipment design for this task and is expecting about a 15% increase in winter capacity, and one utility does have a winter rating based on temperatures. However, the one utility that does have winter ratings has a mobile transformer and can respond quickly to replace or supplement a transformer that is out of service. Data and information are provided in Exhibit TPUD-Staff DR32-4 including correspondence with utilities regarding transformer capacity,

TILLAMOOK PEOPLE'S UTILITY DISTRICT RESPONSE TO STAFF DATA REQUESTS

transformer name plates (capacity as listed by the manufacturer), and the workbook for the table above.

Transformer	Nameplate Capacity 2014 (Top MVA Rating)	Nameplate Capacity 2018 (Top MVA Rating)	2014 Winter Capacity (MVA)	2018 Winter Capacity (MVA)
Beaver	7	5	8	5.5
Garibaldi	25	25	31.4	27
Mohler	20	22	27.7	27.7
Hebo	20	22	28.1	28.1
Nestucca	20	22	28.1	28.1
Trask River	33	37	46.8	36
Wilson River T1	40	33	45	36
Wilson River T2	46	45	50	48
Nehalem	25	28	28	28
South Fork	7	6	Not listed	9.3
Totals	243	245	293.1	273.7

CASE: PCN 2
WITNESS: NADINE HANHAN

**PUBLIC UTILITY COMMISSION
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OREGON**

STAFF EXHIBIT 413

**Exhibits in Support
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Reply Testimony**

March 2, 2018

TRANSFORMER BUSINESS DEPARTMENT
GENERAL ELECTRIC CO.
ROME, GEORGIA 30161

Memo of Data Transmittal

4/15/87

Customer: PACIFIC POWER & LIGHT CO

Customer Order: 71000707

GE Requisition: 471-14956

Prints are for INSTALLATION

Prints are not to scale

FILE MARKETING SHIPPING PRODUCTION

JN: 54C160243 ITEM: 1
JA/FA-T-60-10000/12500-116000-21820Y/
12600

71000707

PAINT: ANSI-70
OUTLINE 161D1689
NAMEPLATE 242B3045
CONN DIA 161D2148
LV & NEUT BUSH OUT 3945B357
CT CURVE 263A9944
I/B GEK-95892

UPS 1 DAY SERVICE

Temp Transformer installed at
Nestucca Substation in Winter of
2017

T 3742

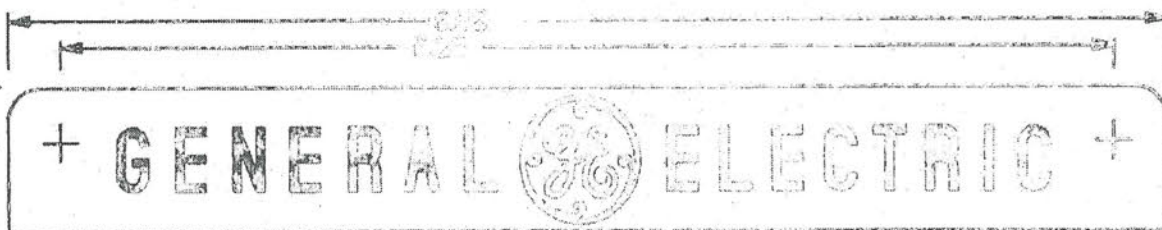
1 M/S
M. E. HANSEN, U&ISSD
PORTLAND, OREGON OFFICE

1 PRINT, 1 IB
D. E. JOHNSON, DAESO
GENERAL ELECTRIC CO
P. O. BOX 909
PORTLAND, OR 97207

1 PRINT, 1 IB
J. C. DENGEL - U&ISSD
GENERAL ELECTRIC CO
P. O. BOX 909
PORTLAND, OR 97207

7 PRINTS, 7 IB'S
*** PACIFIC POWER & LIGHT CO
MS. COLETA PEREZ, ROOM 700, PSB
920 S.W. SIXTH AVENUE
PORTLAND, OR 97204
MARK: 71000707

DESIGNED FOR NOMINAL IMPEDANCE VOLTS OF 8%



TRANSFORMER

NO. CLASS 0A/FA THREE PHASE 60 HERTZ

CAUTION! INSTRUCTION BOOK INSIDE BOX. BEFORE INSTALLING OR OPERATING READ INSTRUCTIONS

VOLTAGE RATING 116000-21820Y/12600
 KVA RATING 10000 CONTINUOUS 65 C RISE SELF COOLED
 KVA RATING 12500 CONTINUOUS 65 C RISE FORCED AIR

IMPEDANCE VOLTS % 116000-21820Y VOLTS AT 10000 KVA

HV WINDING CONNECTIONS		
VOLTS	AMP 12500 KVA	DIAL POS
122000	59.2	1
119000	60.6	2
116000	62.2	3
113000	63.9	4
110000	65.6	5

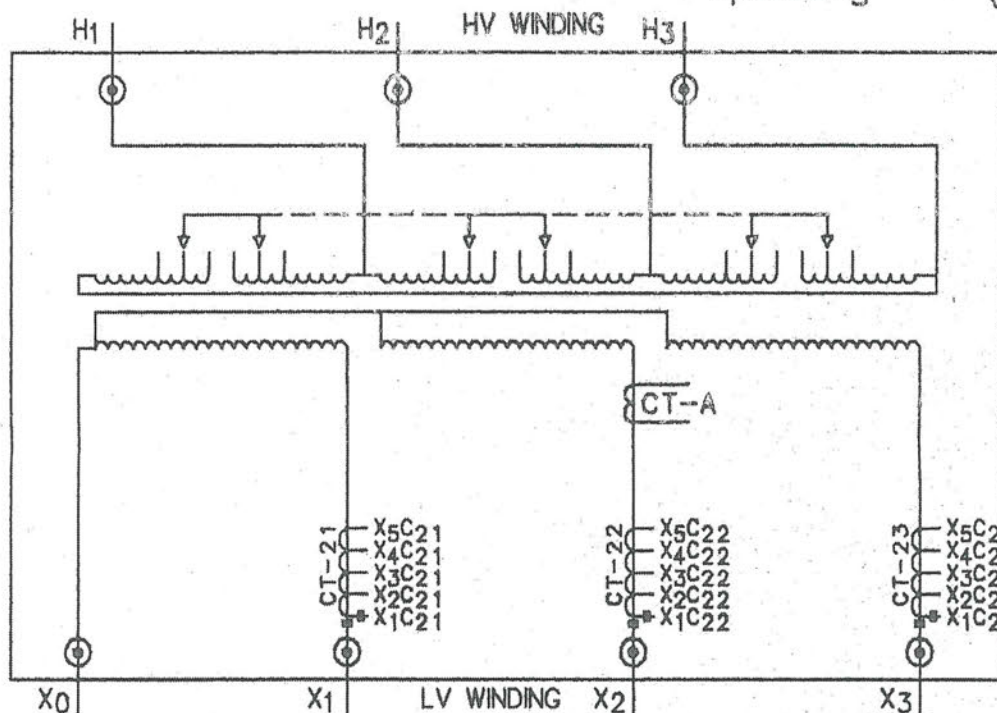
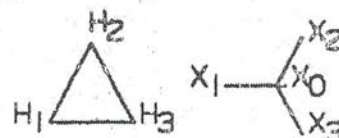
LV WINDING CONNECTIONS	
VOLTS	AMP 12500KVA
21820	331

ITEM	BIL -KV
H ₁ H ₂ H ₃	450
X ₀ X ₁ X ₂ X ₃	150

ALL WINDINGS COPPER

TYPE OF WINDING:

HV DISK
 LV DISK



LIQUID LEVEL CHANGES .79 INCH PER 10 C CHANGE IN LIQUID TEMPERATURE. LIQUID LEVEL BELOW TOP SURFACE OF HIGHEST POINT OF MANHOLE FLANGE AT 25 C IS 12.10 INCHES. MAXIMUM OPERATING PRESSURE OF LIQUID PRESERVATION SYSTEM 7.5LBS POSITIVE TO 0.5 LBS POSITIVE. TANK SUITABLE FOR 14.7LBS VACUUM FILLING.

CT-A IS FOR USE WITH WINDING TEMPERATURE EQUIPMENT. CT 21, 22, 23 ARE 600/5 AMP. APPROX WEIGHTS IN LBS
 TOTAL 54300
 UNTANKING 25000
 TANK & FITTINGS 12600
 TYPE I OIL 2240 GAL 16700

NP 242B3045

ROME, GEORGIA

MADE IN U. S. A.

Temp Transformer installed at Nestucca Substation winter of 2017

(4) .219 HOLES
 STN STL C59F1E2 .020 THK ETCHING
 FILLED WITH BAKING ENAMEL

10.52
 11.12

MADE BY
 ISS
 4/14/87
 Open 15187

APPROVALS
 JWS

M T D
 ROME, GA.

242B3045
 CONT ON SH SH NO. 1

B401 JN 54C160243

REVISIONS

PRINTS TO

FIRST MADE FOR

TITLE
 NAMEPLATE

GENERAL ELECTRIC

242B3045
 CONT ON SH SH NO. 1

Staff/413
 Hanhan/2

Garibaldi Sub
65C

15/20/25

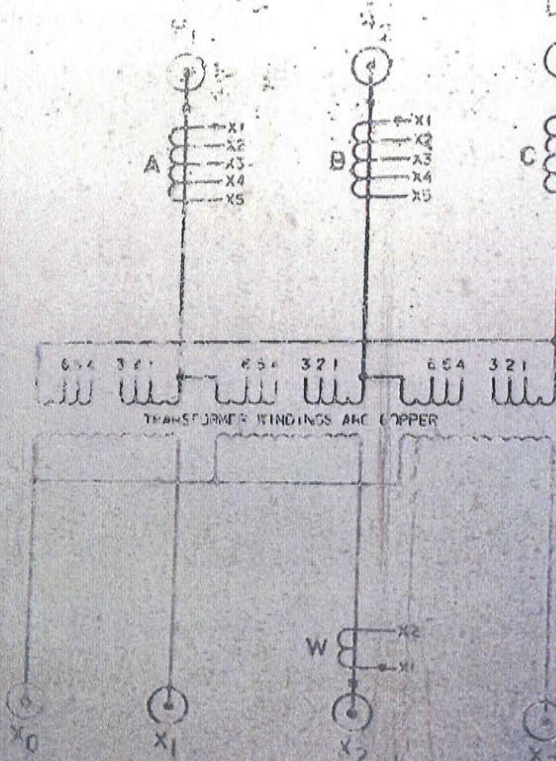
TRANSFORMER

3-PHASE
CONT. TEMP.
VOLTS
VOLTS

NO A6506
15E
E1 - 650 KV
E1E - 150 KV
E1C - 150 KV
AND - 150 MVA

NEUTRAL
IMPEDANCE 8.80

1. LIFT HOOK ONLY TO T
2. WHEN USE ANGLE BEI FRONT (LO EXCEED 50 DIMENSION



BUSHING CURRENT TRANSFORMER RATIO CLASS. TAGS

CURRENT RATIO	TAP	CURRENT RATIO	TAP
50:5	X2-X3	300:5	X2-X3
100:5	X1-X2	400:5	X1-X2
150:5	X1-X3	450:5	X3-X1
200:5	X4-X5	500:5	X2-X3
250:5	X1-X4	500:5	X1-X2

BUSHING CURRENT TRANSFORMER TAP FOR WINDING TEMP. EDLINE 500:5 RATIO

HIGH VOLTAGE TAP CHANGES CENTER TAP POSITION

VOLTS	POS AT L-L	POS AT 25 MA
120750	119.5	4
118800	122.5	9
115000	125.5	14
112130	128.7	19
109250	132.1	24

LOW VOLTAGE

VOLTS	POS AT L-L
24940	57



LEVEL 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

APPROXIMATE WEIGHTS

CORE & COIL (CONTAINING WEIGHT)	15,000 LB
TANK, FITTINGS & RADIATORS	15,000 LB
HADS (BOLT ON)	2,500 LB
OIL MAIN TANK	2,000 GAL
OIL RADIATORS	2,000 GAL
OIL TOTAL	4,000 GAL
TOTAL WEIGHT	32,500 LB

MEASEA



ISO 9001 CERTIFIED

SUNBELT transformer™

TEMPLE, TX - SHARON, PA 1-800-433-3128

THREE PHASE OIL INSULATED TRANSFORMER

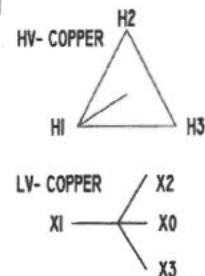
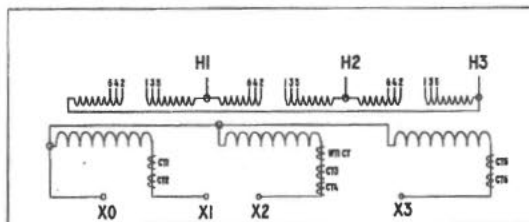
KVA KVA W/FANS

HV LV CLASS TYPE

LV AMPERES TEMP. RISE FREQ HZ

BIL FULL WAVE HV LV IMP. @ 75° C %

INSTR. BOOK SERIAL NO.



HIGH VOLTAGE		TAP CHANGER	
VOLTS	AMPERES	POSITION	CONNECTS
120750	23.94	A	1 TO 2
117875	24.52	B	2 TO 3
115000	25.13	C	3 TO 4
112125	25.78	D	4 TO 5
109250	26.46	E	5 TO 6

CTI, 2, 3, 4, 5, 6
600:5 MR C400.

CORE & COILS LBS

TANK & FITTINGS LBS

LIQUID GALLONS LBS
MINERAL OIL NON-PCB

APPROX. TOTAL WEIGHT LBS

THE 25deg C LIQUID LEVEL IS 13.75 INCHES FROM THE HIGHEST POINT OF THE HANDHOLE FLANGE SURFACE.
LIQUID LEVEL CHANGES 0.69 INCHES WITH EACH 10deg C CHANGE IN LIQUID TEMPERATURE.
MAXIMUM OPERATING PRESSURE 10 PSI (+) - 15 PSI (-).

South Fork
NO FA/FA
5600 KVA

REV: A "AS BUILT DRAWING"
DATE: 8-18-00
DES: KJ



SUNBELT transformer™
TEMPLE, TX
SHARON, PA
1-800-433-3128

TITLE: NAMEPLATE
DATE: 3-01-00
DRAWN: KJ
CHECKED: KJ
DESIGNED: TILLAMOCK
SERIAL NO: 58730N

Nehalem

PAUWELS TRAF0 BELGIUM
TRANSFORMER

SERIAL No. 811 2 4003
TYPE : DLV 15/125
STANDARD : ANSI C57
KVA RATING

CLASS	H WINDING (11800) VOLTS	X WINDING (2400) VOLTS	R WINDING (2000) VOLTS	TEMPERATURE (110) °C
DA	18000	18000	18000	D-5
1st FA	20000	20000	20000	55
DA	20000	20000	20000	55
1st FA	18000	18000	18000	55
2nd FA	22400	22400	22400	65
2nd FA	20000	20000	20000	65

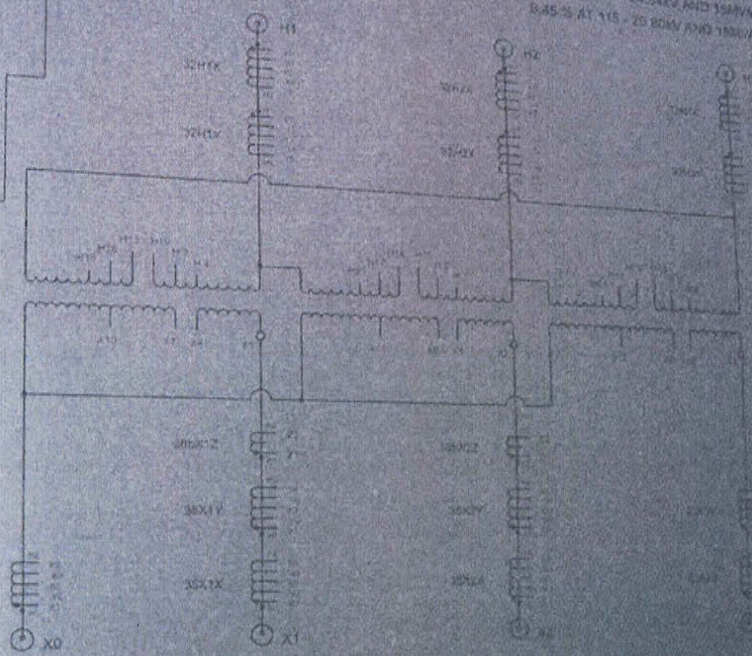
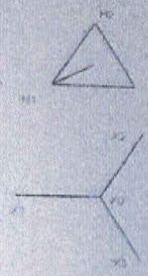
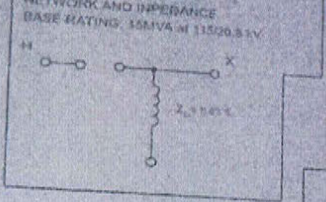
YEAR OF MANUFACTURE : 1999
FREQUENCY / PHASES : 60 HZ / 3 PHASE

WINDING	VOLTS	AMPERES
BIL HV	18000	2000
BIL LV	480V	2000
BIL LV-NEUTRAL	1500V	2000
SERVICE - CONTINUOUS	1500V	2000
INSULATION LIQUID	2700V	2000

DE-ENERGIZED TAP CHANGER TYPE ON HV-ASP FII-220A-115KV
DE-ENERGIZED TAP CHANGER TYPE ON LV-ASP FII-HI-800A-30KV
DE-ENERGIZE TRANSFORMER BEFORE CHANGING TAPS

BOBBI LEVEL : 1200(A) AT 0.2 METER OA
750(A) AT 2 METER 2nd FA
IMPEDANCE 5.7% AT 115 - 24.5KV AND 15MVA
5.45% AT 115 - 20.8KV AND 15MVA

ZERO-PHASE-SEQUENCE NETWORK AND IMPEDANCE BASE RATING : 15MVA @ 115/20.8KV




DIV VOLTAGE TAP-CHANGER FOR DE-ENERGIZED OPERATION				
VOLTS	APPS AT 25% VA	FOB	CONNECTION	
2700	640	1	X1-X0	X2-X0
2700	775	0	X1-X2	X2-X0
2700	775	0	X2-X1	X0-X1

APPROXIMATE MASS & WEIGHTS			
CORE - CORES CONTAINING PARTS	17500	kg	38500
WINDING & FITTINGS	15000	kg	33000
APPROX 2000 GALLONS	8000	kg	17500
TOTAL TAPPS	47500	kg	105000

APPROXIMATE MASS & WEIGHTS (CONTINUED)			
WINDING	15000	kg	33000
APPROX 2000 GALLONS	8000	kg	17500
TOTAL TAPPS	47500	kg	105000

NOTES:
- INSTALLATION & OPERATING INSTRUCTIONS
- SEE TRANSFORMER INSTRUCTION MANUAL
- CONDUCTOR MATERIAL : COPPER
- MAIN WINDING DESIGNED FOR 200 KVA
- WINDING FILLING : 14.5 (F01)
- CONDUCTOR WATER IS COOLED FROM 100 KVA
- WINDING FILLING : 14.5 (F01)
- ALL WINDING SAFETY DISTANCE APPROXIMATELY 100MM
- SEE INSTRUCTION MANUAL FOR MORE DETAILS

Hebo
65C
13440/17920/22400 KVA


Westinghouse 


TYPE NO. 1500/1600/1700/1800
TYPE 11
THREE PHASE
TRANSFORMER
CLASS 00/00/00
INSULATOR INDICATOR

30 HERTZ
L SPEC 3653A
SERIAL

13440/17920/22400 KVA
1500/1600/1700/1800 VA
1500/1600/1700/1800 VA
1500/1600/1700/1800 VA


WESTINGHOUSE ELECTRIC CORPORATION



Westinghouse 

FOR USE IN OTHER COUNTRIES DESCRIBED IN FACTORY CATALOG

13440/17920/22400 KVA
1500/1600/1700/1800 VA
1500/1600/1700/1800 VA
1500/1600/1700/1800 VA



13440/17920/22400 KVA
1500/1600/1700/1800 VA
1500/1600/1700/1800 VA
1500/1600/1700/1800 VA

Wilson T1
55C
20/26.6/33.3 MVA @ 55°C




NOMINAL RATING	COOLING
20000 KVA	ONAN
26600 KVA	FA
33300 KVA	FOA (PUMP)

THREE PHASE TRANSFORMER
CONTRACT NO. PA No 14.03 0067 A ITEM 2
TEMPERATURE RISE 55°C BY RESISTANCE STANDARDS : ISA
FREQUENCY : 60 c/s
VECTOR GROUP : DYN or D11

PRIMARY			SECONDARY		
NOMINAL VOLTAGE MEASURED BETWEEN PHASES	POSITION OF WINDING BASE ON HV	NOMINAL CURRENT AMPS	NOMINAL VOLTAGE MEASURED BETWEEN PHASES	CONNECTIONS TO BE MADE	NOMINAL CURRENT AMPS
20750		139.4	24940	Yy-0	19570

FIELD
The amount of PCB content in this unit has been

Wilson T2



ELCO INDUSTRIES LTD.

TRANSFORMERS DIVISION

THREE PHASE TRANSFORMER

TYPE 13506 SERIAL NO. 13506/1 YEAR 2002 FREQUENCY 60 HZ

24000/32000/40000/44800KVA CLASS: OA/FA/FA/FA 115000-24940 GrdY/14400 VOLTS

TEMPERATURE RISE 65°C

COOLING CLASS	RATED POWER kVA	RATED CURRENT, A	
		HV	LV
OA	26880	134.9	622.3
FA	35840	179.9	829.7
FA	44800	224.9	1037.1

WEIGHTS:

CORE AND COILS 89000 Lb

TANK AND FITTINGS 72000 Lb

TRANSFORMER OIL (FULL) 6900 gal

TOTAL 213000 Lb

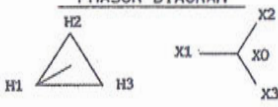
SHIPPING 134000 Lb

INSULATION LEVELS

HIGH VOLTAGE 550 kV BIL

LOW VOLTAGE 150 kV BIL

PHASOR DIAGRAM



IMPEDANCE AT 24000 KVA

Pos. 16L	Pos. N	Pos. 16R
8.79%	8.86%	9.15%

LOW VOLTAGE LV LTC FOR LV VARIATION ABX UZERN 250/600 RATED 600 AMPERES PER PHASE.

	17 CONN	20 CONN	VOLTS	AMPS 44.8 MVA
16L		1-20	21199	1220
15L		2-20	21433	1207
14L		3-20	21667	1194
13L		4-20	21901	1181
12L		5-20	22134	1169
11L		6-20	22368	1156
10L		7-20	22602	1144
9L	17-18	8-20	22836	1133
8L		9-20	23070	1121
7L		10-20	23303	1110
6L		11-20	23537	1099
5L		12-20	23771	1088
4L		13-20	24005	1077
3L		14-20	24239	1067
2L		15-20	24472	1057
1L		16-20	24706	1047
N		17-20	24940	1037
1R		1-20	25174	1027
2R		2-20	25408	1018
3R		3-20	25641	1009
4R		4-20	25875	1000
5R		5-20	26109	991
6R		6-20	26343	982
7R		7-20	26577	973
8R		8-20	26810	965
9R	17-19	9-20	27044	956
10R		10-20	27278	948
11R		11-20	27512	940
12R		12-20	27746	932
13R		13-20	27979	924
14R		14-20	28213	917
15R		15-20	28447	909
16R		16-20	28681	902

CAUTION!

- BEFORE INSTALLING OR OPERATING READ CAREFULLY THE INSTRUCTION BOOK No 418
- TANK DESIGNED FOR FULL VACUUM
- TRANSFORMER IS FILLED WITH ASTM D3487 TYPE II OIL. OIL CONTAINS NO DETECTABLE PCB.
- WINDING MATERIAL-COPPER

PROJECT :TILLAMOOK PEOPLES UTILITY DISTRICT
SERIAL N 13506/1

CATALOG NO. 0299359684

PROJECT :TILLAMOOK PEOPLES UTILITY DISTRICT
SERIAL N 13506/1

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
FINISH	MATERIAL	HEIGHT	SCALE	TRANSFORMER 40MVA 115/24.94KV	FORMAL														
DATE	SIGNATURE	NAME	PAGE	NAMEPLATE	A2														
12.11.01		LEITZENO	1		M														
		JARDITI																	
		A.SIOR																	

01.11.2004 02.02.02

CHANGED WEIGHTS CHANGE BY REVNO CUSTOMER

ELCO INDUSTRIES LTD.

TRANSFORMER DIVISION

DRAWING NO 13506-6501