

Second Supplemental Filing to the Energy Conversion Facility Permit Application

Astoria Station Project

Docket EL17-042

Submitted to:

Public Utilities Commission of the
State of South Dakota

Submitted by:

Otter Tail Power Company



March 1, 2018

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- Appendix J: Deuel County Rezoning Permit Application
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- Appendix L: Town of Astoria Resolution of Support
- Appendix M: Gen-Tie Structure Drawings

**Note: Appendices A-H are located in Otter Tail Power’s initial application submitted to the SDPUC on 10/5/2017 and can be found in Docket EL17-042.*

Acronyms and Abbreviations

Abbreviation	Meaning
ARSD	Administrative Rules of South Dakota
BSSB 345 Line	Big Stone South to Brookings Transmission Line
Company	Otter Tail Power Company
EMF	electromagnetic field
Gen-Tie	generation tie
kV	kilovolt
kV/m	kilovolts per meter
LRC	Local Review Committee
mG	milliGauss
Otter Tail	Otter Tail Power Company
ROW	right-of-way
SDDENR	South Dakota Department of Environment and Natural Resources
SDPUC	South Dakota Public Utility Commission
USGS	United States Geological Survey

1.0 Introduction

Otter Tail Power Company (Otter Tail or Company) submitted an energy conversion facility siting application for the Astoria Station Project (Project) to the SDPUC on October 5, 2017 (Application). This supplement provides additional information and updates pertaining to the referenced administrative rules since submission of the Application. Updates provided in this supplement include:

- The Company has acquired an easement to enable a more direct route for the 345 kilovolt (kV) generation-tie (gen-tie) line.
- The Project has been issued air quality and water appropriations permits.
- The Company has had continued discussions with community, township, and county stakeholders.

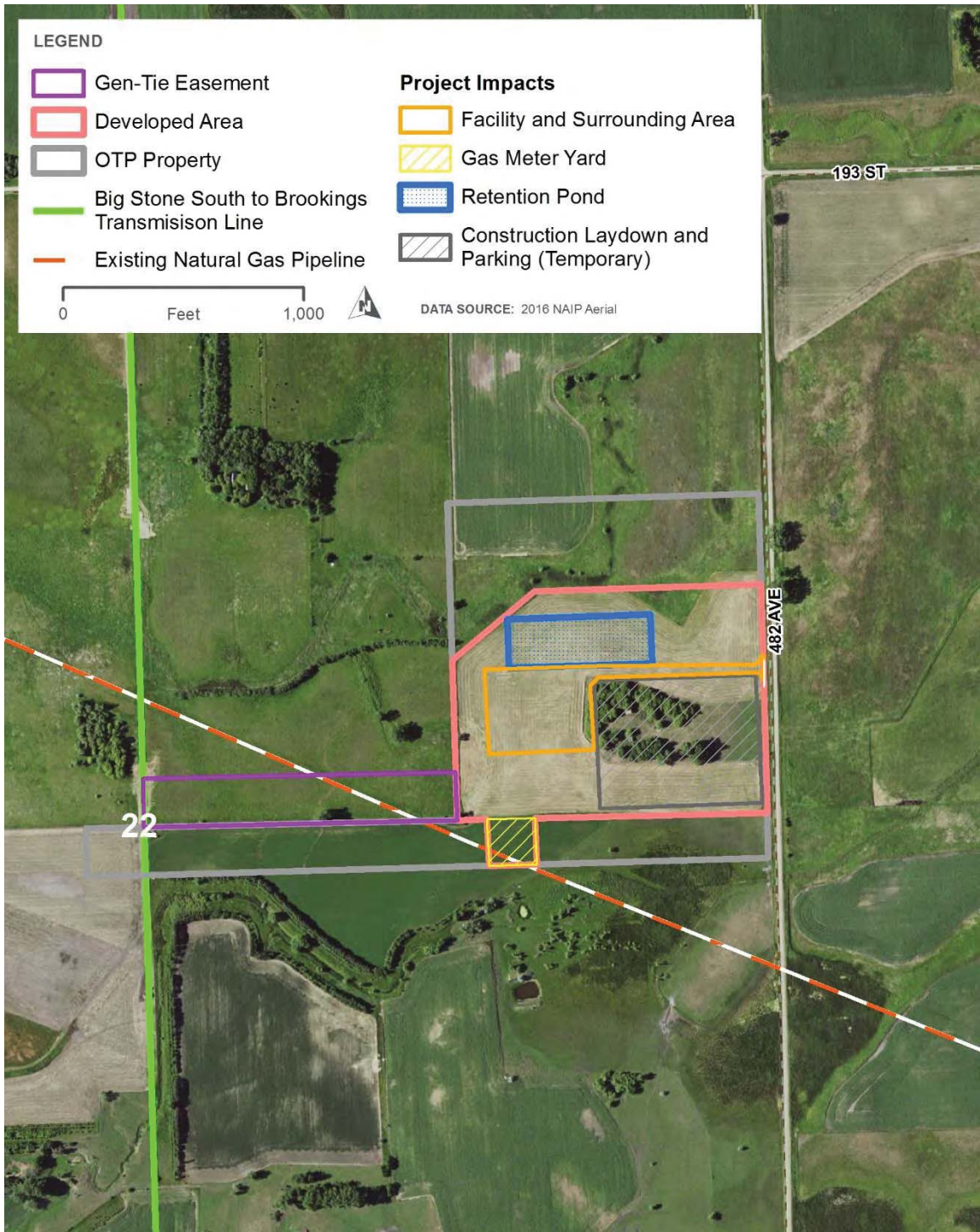
This supplement only provides an update for those items in the Application that have changed or further developed since the filing of the Application. If an area of the Application is not addressed in this supplement, that is because there are no changes from the information previously provided by the Company.

2.0 General Site Description (ARSD 20:10:22:11)

As described in Section 6 of the Application, the combustion turbine and main plant buildings for the Project are planned in the northeast quarter of Section 22, Township 113N, Range 48 West, Scandinavia Township, Deuel County, approximately 1.5 miles northwest of Astoria, South Dakota. The 345 kV gen-tie line will connect to the Big Stone South-Brookings County 345 kV electric transmission line (BSSB 345 Line) located less than 0.5 miles west of the combustion turbine. The gen-tie line had been preliminary designed for construction on land owned by the Company. However, as indicated in Section 7.2 of the Application, the Company was also evaluating an alternative, more direct route requiring an easement from the neighboring landowner.

Because the more direct route will reduce the cost and complexity of transmission structures, the Company acquired an easement from the neighboring landowner for the southern 200 feet of their adjacent parcel. This gen-tie line location is approximately 200 feet north of the preliminary location identified in the Application, as reflected in Exhibit 2-1.

Exhibit 2-1. Project Features



3.0 Hydrology (ARSD 20:10:22:15)

As described in Section 10.2.2 of the Application, water uses for the facility include process water and potable water. The Application included a copy of a water rights permit application for an on-site well, with a capacity of 100 gallons per minute. No offsite pipelines or channels will be required for water transmission from the on-site well.

On November 20, 2017 the South Dakota Department of Environment and Natural Resources (SDDENR) issued a report and recommendation of approval of the Company's requested appropriation. SDDENR did not receive any petitions to intervene on the recommendation, and subsequently issued a water permit on December 15, 2017. The SDDENR recommendation of approval and the final water permit is included as Appendix I.

As provided in Section 10.2.2 of the Application, the Brookings-Deuel rural water supply is a potential alternative water source. Discussions with the Brookings-Deuel rural water supply are preliminary and will be further evaluated during detailed engineering. If this alternative is pursued an offsite pipeline may be required to tie into that system.

4.0 Effect on Terrestrial Ecosystems (ARSD 20:10:22:16)

4.1 Existing Flora and Fauna

Based on field investigations, the gen-tie line easement property includes two general habitat or cover types: non-native upland meadow and a wetland dominated by non-native grasses. Both native and introduced species are present. The non-native upland meadow is dominated by smooth brome (*Bromus inermis*), Kentucky bluegrass (*Poa pratensis*), common dandelion (*Taraxicum officinale*), and native species such as Canada goldenrod (*Solidago canadensis*), red-osier dogwood (*Cornus sericea*), red cedar (*Juniperus virginiana*) and some mature green ash (*Fraxinus pennsylvanica*) and eastern cottonwood (*Populus deltoids*) trees. The wetland includes water smartweed (*Polygonum amphibium*), reed canary grass (*Phalaris arundinacea*), yellow foxtail (*Setaria glauca*), and giant goldenrod (*Solidago gigantea*).

The site was evaluated for rare native fauna, and no native prairie capable of supporting prairie obligate species such as Dakota skipper, Poweshiek skipperling, or western prairie-fringed orchid (*Platanthera praeclara*) was identified within lands affected by the gen-tie easement property.

4.2 Potential Impacts

One copse of trees occurring on the gen-tie line easement property may provide limited habitat for bats, birds and other mammals. No additional habitat impacts are expected from locating the gen-tie line on the easement property as compared to the previous discussion provided in Section 11.2 of the Application.

4.3 Mitigation

Consistent with the mitigation previously provided in Section 11.3 of the Application, construction activities will be temporary and once the facilities are in operation, displacement due to noise and construction activities will be minimal. If tree removal in the gen-tie easement property is required, it will take place outside the bat maternity roosting period of June 1 through July 31. Once the Project is completed, access to the right-of-way (ROW) is required during the life of the Project to ensure its continued integrity. Minimal disruptions to agricultural practices or species are expected.

5.0 Effect on Aquatic Ecosystems (ARSD 20:10:22:17)

5.1 Existing Environment

Section 12 of the Application identified three palustrine emergent wetlands that were delineated on the Project site in June 2017. An additional delineation was performed in September 2017 on the gen-tie line easement property. A small wetland area was identified on the east side of the easement property. This area is part of a wetland that was previously delineated on the Project site, as reflected in Exhibit 5-1.

5.2 Potential Impacts

No impacts to aquatic species are expected from shifting the gen-tie line into the easement property. Transmission structures will be placed to avoid the delineated wetlands to the extent possible. As described in the Application, if any permanent wetland impacts occur, permitting and mitigation will be done in compliance with direction from the United States Army Corps of Engineers. Based on preliminary design, only one transmission structure will be required within the easement property.

6.0 Land Use (ARSD 20:10:22:18)

6.1 Existing Environment

Land cover (as defined in the National Land Cover Database) in the gen-tie line easement property is classified as mostly grasslands/herbaceous with a small portion of cultivated crops (see Exhibit 6-1). Other land uses near the Project site include emergent herbaceous wetlands, hay/pasture, and mixed forest (USGS 2017b).

6.2 Potential Impacts

No additional land use impacts are expected from locating the gen-tie line on the easement property as compared to the previous discussion provided in Section 13.1.2 of the Application. In fact, the gen-tie line route across the easement property will potentially reduce the number of transmission structures, thus reducing land use impacts.

Exhibit 5-1. Delineated Wetlands

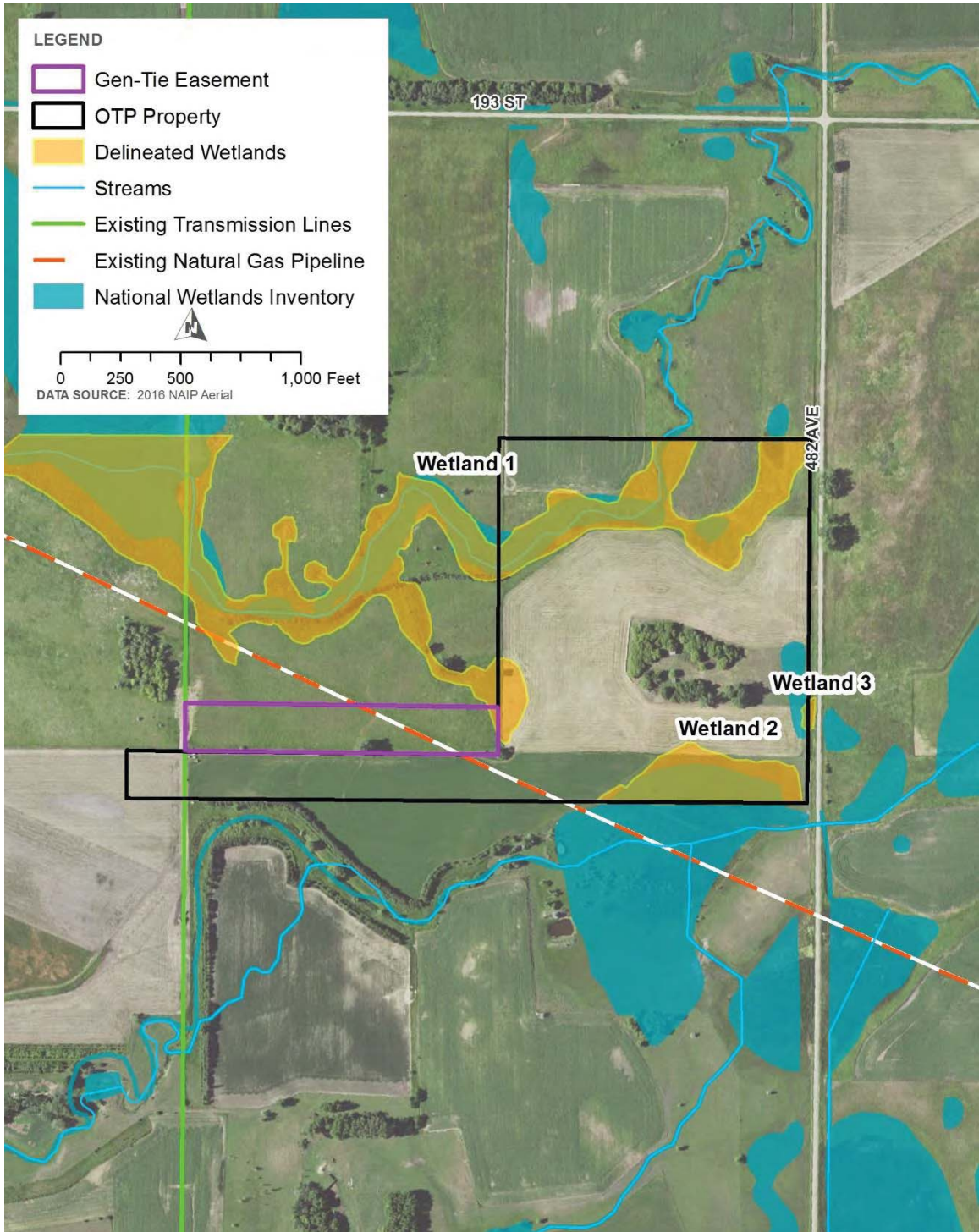
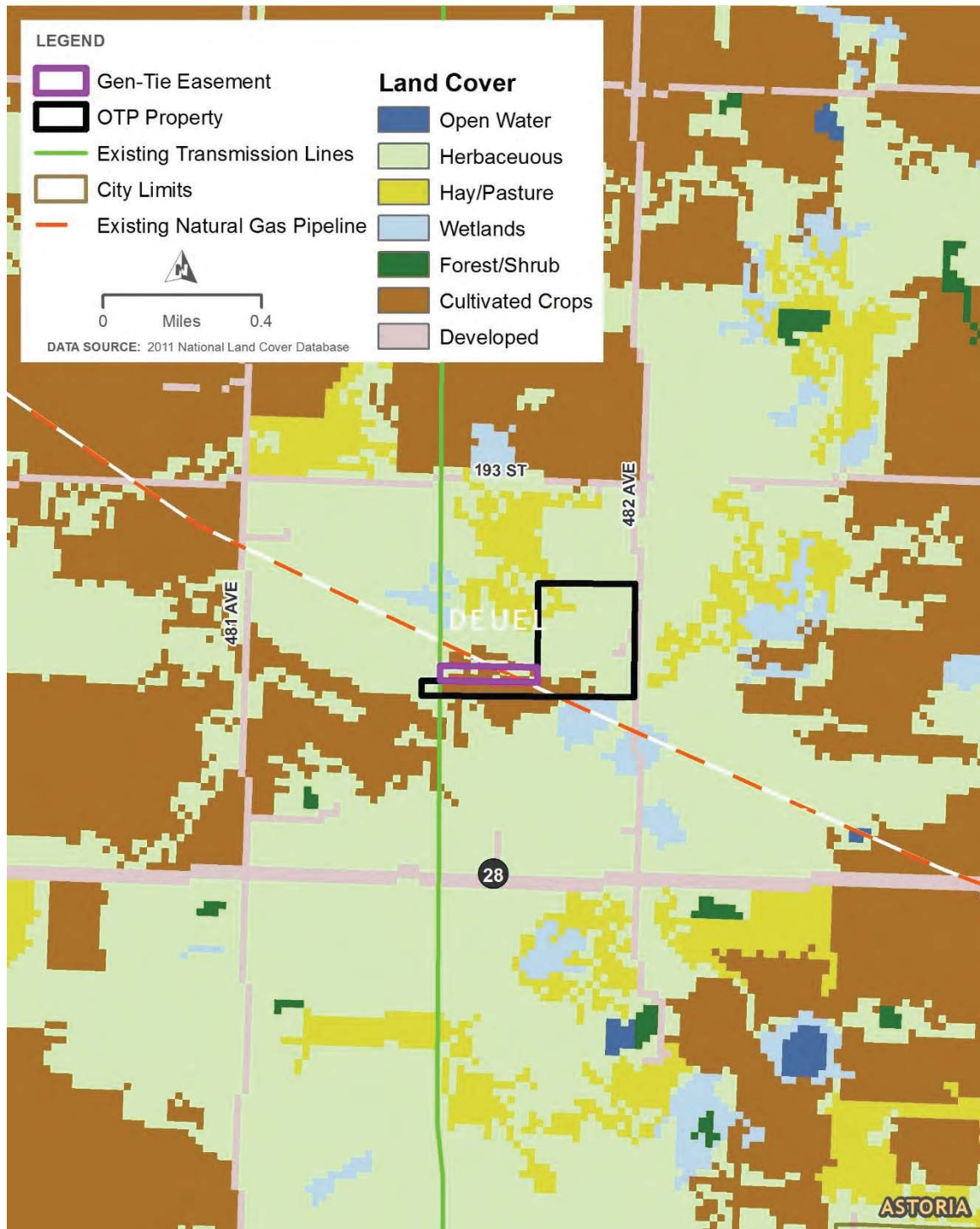


Exhibit 6-1. Land Cover



7.0 Local Land Use Controls (ARSD 20:10:22:19)

7.1 Energy Conversion Facility Site

Following discussions with the Deuel County Zoning Officer, it has been determined that the land parcel where the combustion turbine will be located is not eligible for a special exception to the agricultural district. Therefore, the parcel's zoning classification must first be changed to the commercial/industrial district. Once rezoned, the parcel is eligible for a special exception to permitted uses in the commercial/industrial district as a public utility function. The Company's application for a change in zoning classification is included as Appendix J.

7.2 Generation-Tie Line Site

The easement property for the location of the gen-tie line is zoned as agricultural. Deuel County's zoning ordinance for the agricultural district allows for a special exception for essential services, which includes overhead electrical transmission or distribution systems and structures. The Company intends to apply for this special exception coincident with the special exception application for the energy conversion facility site, once the latter parcel is classified as commercial/industrial.

8.0 Air Quality (ARSD 20:10:22:21)

As described in Section 16 of the Application, the Project will include three combustion-related emission units: the simple-cycle combustion turbine, a dew point heater to warm the incoming natural gas, and an emergency fire pump engine. Otter Tail applied to the SDDENR to obtain an Air Quality Construction Permit for these emission units.

Following a 30-day comment period in which no comments were received, SDDENR issued the final permit on January 8, 2018. The final Air Quality Construction Permit is included as Appendix K.

9.0 Time Schedule (ARSD 20:10:22:22)

As described in Section 17 of the Application, the Company continues to target spring 2021 for commercial operation. A preliminary permitting, procurement, and construction schedule is provided in Table 9-1 below.

Table 9-1. Astoria Station Project Major Events Schedule

Activity	Schedule
Permitting (Air Quality, Water Appropriations, Energy Conversion Facility)	September 2017 through September 2018
Combustion Turbine Selection	October 2018 through February 2019
Detailed Engineering/Design	October 2018 through April 2020
Site Development, Grading, Foundation Construction	April 2019 through September 2020
Building Erection and Gas Turbine Installation	September 2019 through April 2021
First Fire	April 2021
Commercial Operation	May 2021

This schedule is based on information known as of this filing and on planning assumptions. The schedule may be subject to adjustment and revision as further information is developed. Otter Tail plans to provide milestone updates through the Project's website.

10.0 Community Impact (ARSD 20:10:22:23)

The Project continues to receive support from the local communities, most recently in a resolution of support from the Town of Astoria included as Appendix L.

10.1 Transportation Impacts and Mitigation

In December 2017, the Local Review Committee (LRC) issued a report on the Project's impact to the PUC defined study area. The report included an LRC opinion that the study area "will be able to absorb the construction activities and that the area will gain significant benefits during and after project construction" (LRC 2017). Regarding transportation, the LRC report identified 482nd Avenue north from SD Highway 28 to be the preferred access route to the site, and that this approximate one-half mile of Township roadway will need to be improved in order to accommodate the Project.

Since issuance of the LRC report, Otter Tail has provided a draft memorandum of understanding (MOU) for improving 482nd Avenue to the Clerk of Scandinavia Township. The draft MOU establishes the roles and responsibilities for the road improvements, including the obligation for the Township to permit this segment of roadway, and for Otter Tail to wholly fund all costs associated with the design

improvements. This MOU is scheduled to be presented to the Scandinavia Township Supervisors on March 6, 2018.

11.0 Transmission Facility Layout and Construction (ARSD 20:10:22:34-35)

As described in Section 27.6 of the Application, the Company’s preliminary gen-tie line design included single pole steel structures ranging from 140 feet to 150 feet in height. However, it was also noted that steel H-frame structures were under consideration as an alternative design. The neighboring landowner requested the use of H-frame structures as a condition of the gen-tie line easement; therefore, Otter Tail will proceed with using H-frame structures. Construction procedures for H-frame structures are similar to single pole steel structures, except that H-frame structures are placed into an excavated hole for a direct embedment versus using concrete foundations for single pole steel structures.

Drawings of two types of possible H-Frame structures for the Project are included in Appendix M. The H-frame structures are preliminarily anticipated to be between 95 feet and 110 feet in height.

As described in Section 27.10 of the Application, there will be an electromagnetic field (EMF) surrounding the energy conversion facility and transmission lines. A new calculation of the EMF associated with H-Frame structures was performed, as shown in Table 11.1. As in the Application, these calculations were performed using the Bonneville Power Administration’s Corona and Field Effects Program CORONAI version 3.0 (United States Department of Energy, undated).

Table 11-1 Maximum Calculated EMF

Location	Electric Field (kV/m)	Magnetic Field (mG)
Max in ROW	6.61	103.9
Max Outside ROW	1.80	26.6

Notes:

1. Calculated for winter ambient condition load of 472 Amps (282MW)
2. Maximum operating voltage is 362.25 kV (1.05 per unit)

Applicant's Verification

VERIFIED APPLICANT'S SIGNATURE

State of Minnesota)
)SS.
 County of Otter Tail)

Being first duly sworn, I am the authorized agent of Otter Tail Power Company for purposes of this supplement.

I do not have personal knowledge of all the facts recited in the foregoing Supplement, but the information in the supplement has been gathered by and from employees and contractors of the owner of the Astoria Station Project; and the information in the Supplement is verified by me as being true and correct on behalf of the owner of the Astoria Station Project.

Dated this 1st day of March, 2018.



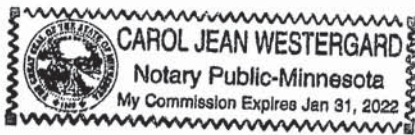
 William Swanson, P.E.
 Manager, Supply Engineering

Subscribed and sworn to before me on this 1st of March, 2018.



 Notary Public
 (SEAL)

My Commission Expires:



12.0 References

South Dakota Public Utilities Commission, 2017 Electric Docket EL17-042. Site Permit Application. <http://puc.sd.gov/commission/dockets/electric/2017/el17-042/application.pdf>

South Dakota Public Utilities Commission, 2017 Electric Docket EL17-042. Local Review Committee Report. <http://puc.sd.gov/commission/dockets/electric/2017/el17-042/report.pdf>

United States Geological Survey (USGS). 2017b. “The National Map”. Accessed January 8, 2018. Last Updated February 7, 2018. <https://viewer.nationalmap.gov/advanced-viewer/>.

United States Department of Energy (USDOE). Undated. Bonneville Power Administration’s Corona and Field Effects Program CORONAI version 3.0.