

ASTORIA STATION PUBLIC INPUT HEARING

Deubrook Elementary School Gymnasium
Toronto, South Dakota
November 27th, 2017
Docket: EL 17-042



PRESENTERS

- Bill Swanson, Manager, Supply Engineering
 - Astoria Station Project Manager
- Mark Thoma, Manager, Environmental Services
 - Astoria Station Permitting Manager

CONSULTANTS SUPPORTING PROJECT

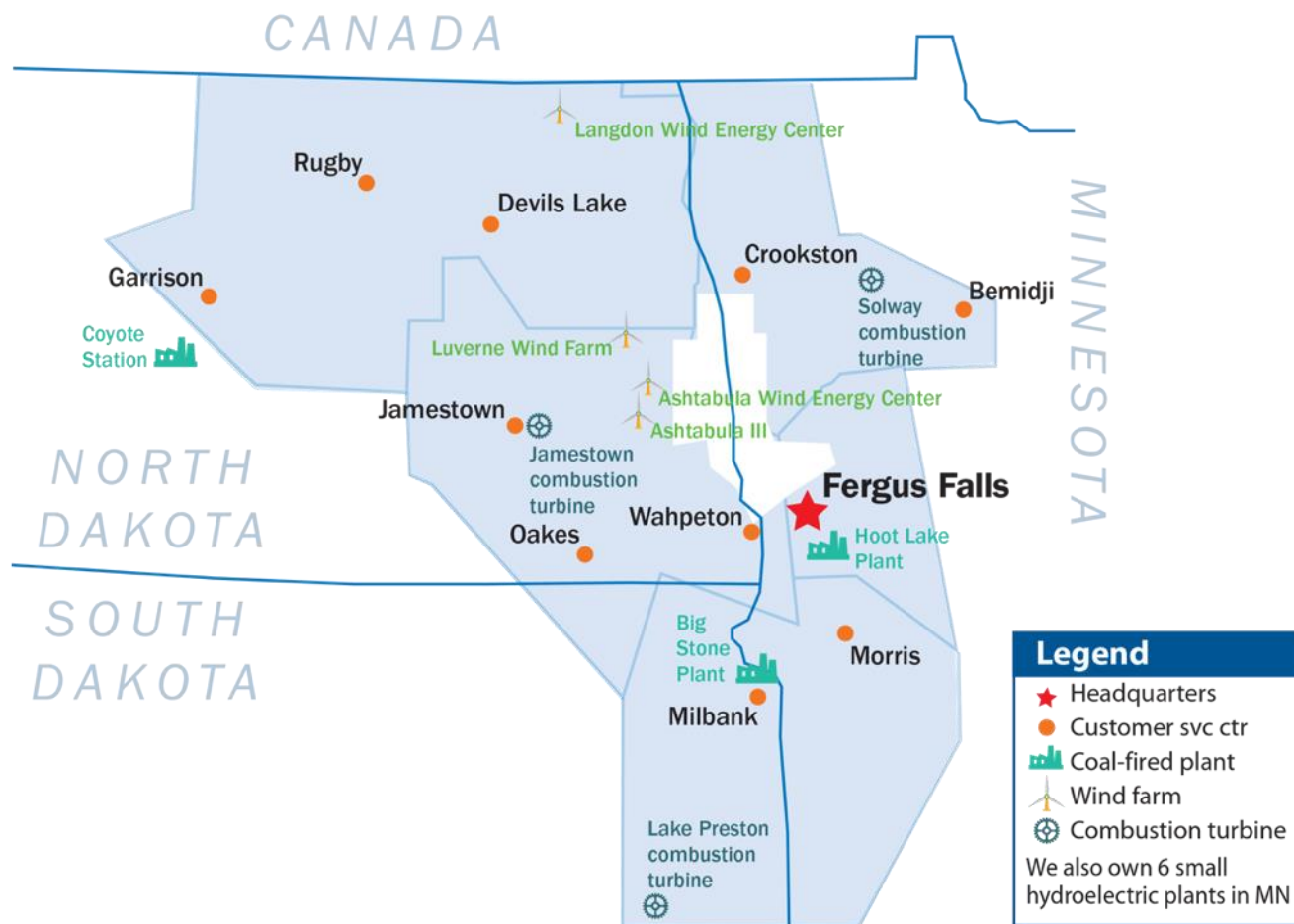
- HDR
 - Air Permit and Site Permit Support
- Sargent & Lundy
 - Preliminary Engineering
- First District Association of Local Governments
 - Social & Economic Impact Study
- Banner Engineering
 - Groundwater Evaluation
- Power Engineers
 - Generation-Tie Line Design

AGENDA

- Who we are
- Project need and location
- Project components and schedule
- Community impacts
- Environmental review

WHO WE ARE

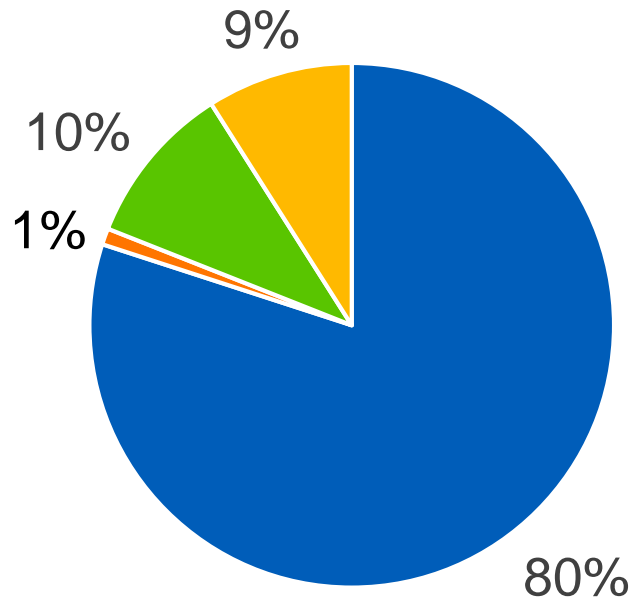
WHO WE SERVE



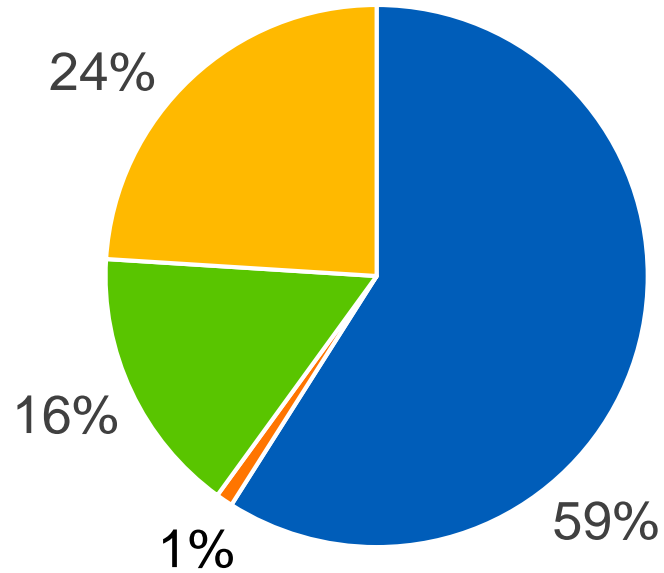
- 70,000 Square Miles
- 131,551 Customers
- 422 Communities
 - Avg. population ≈400
- 796 Employees
 - 472 Minnesota
 - 205 North Dakota
 - 119 South Dakota
- About 800 MW owned generation

HOW WE CREATE ELECTRICITY

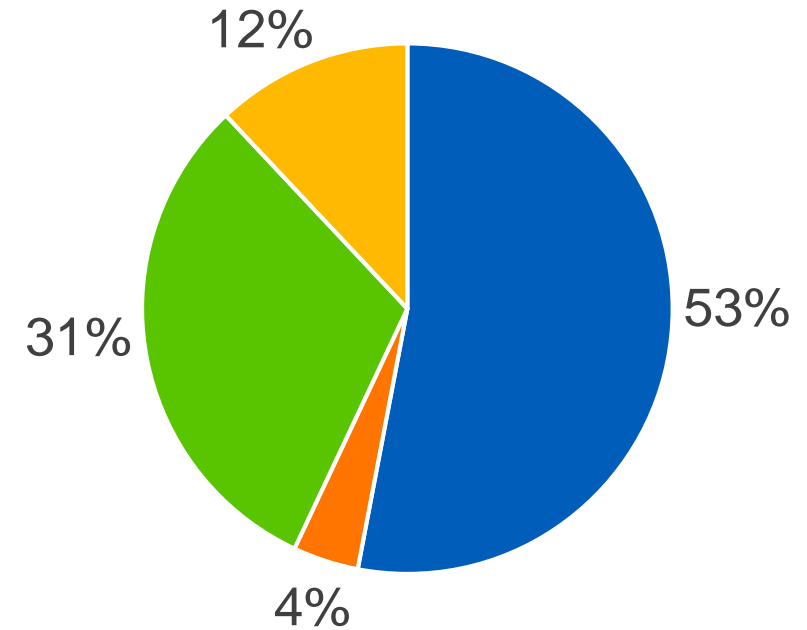
2001



2011



2021



■ Coal ■ Gas/Oil ■ Renewable ■ Purchased

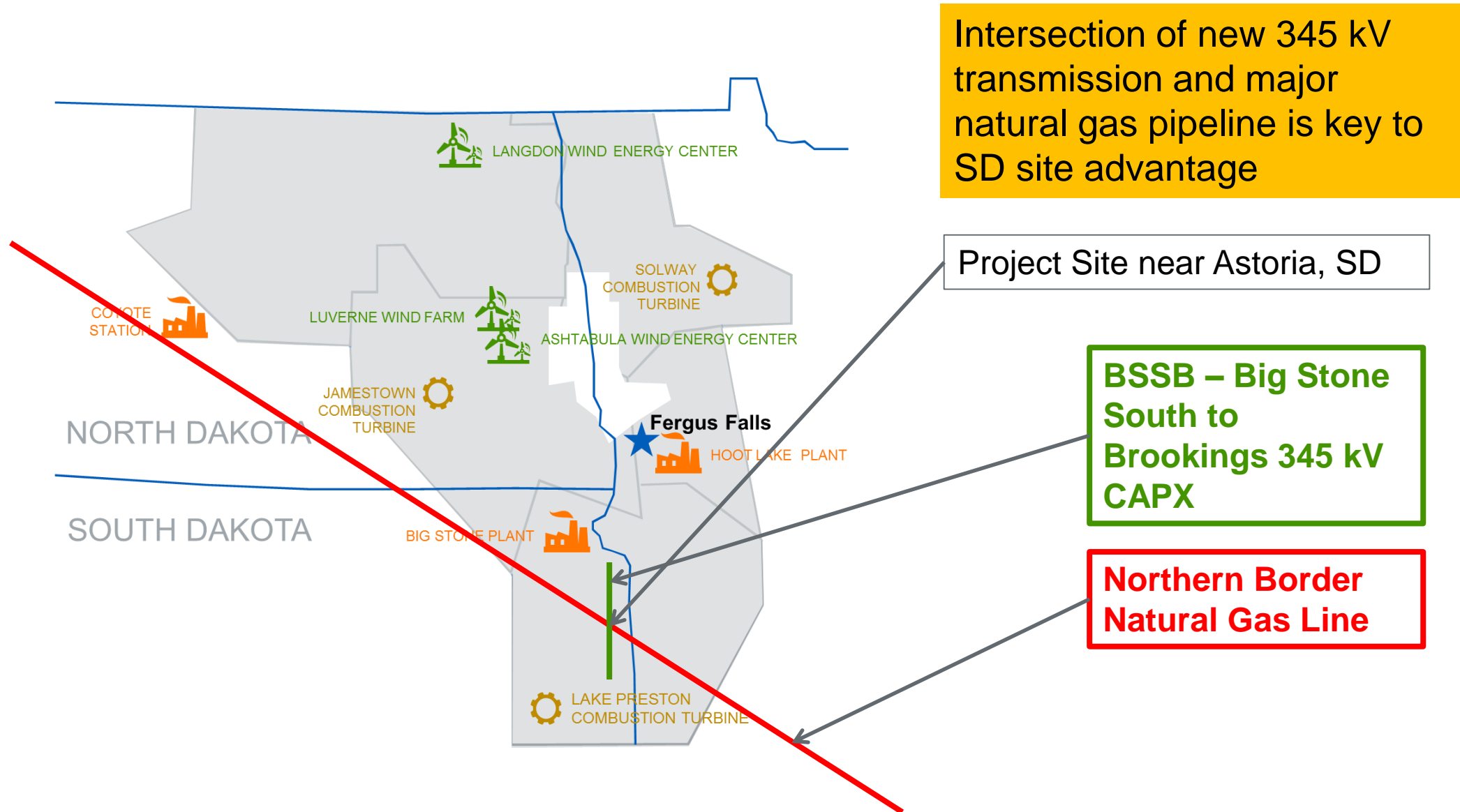
PROJECT NEED AND LOCATION

PROJECT NEED & KEY HISTORY

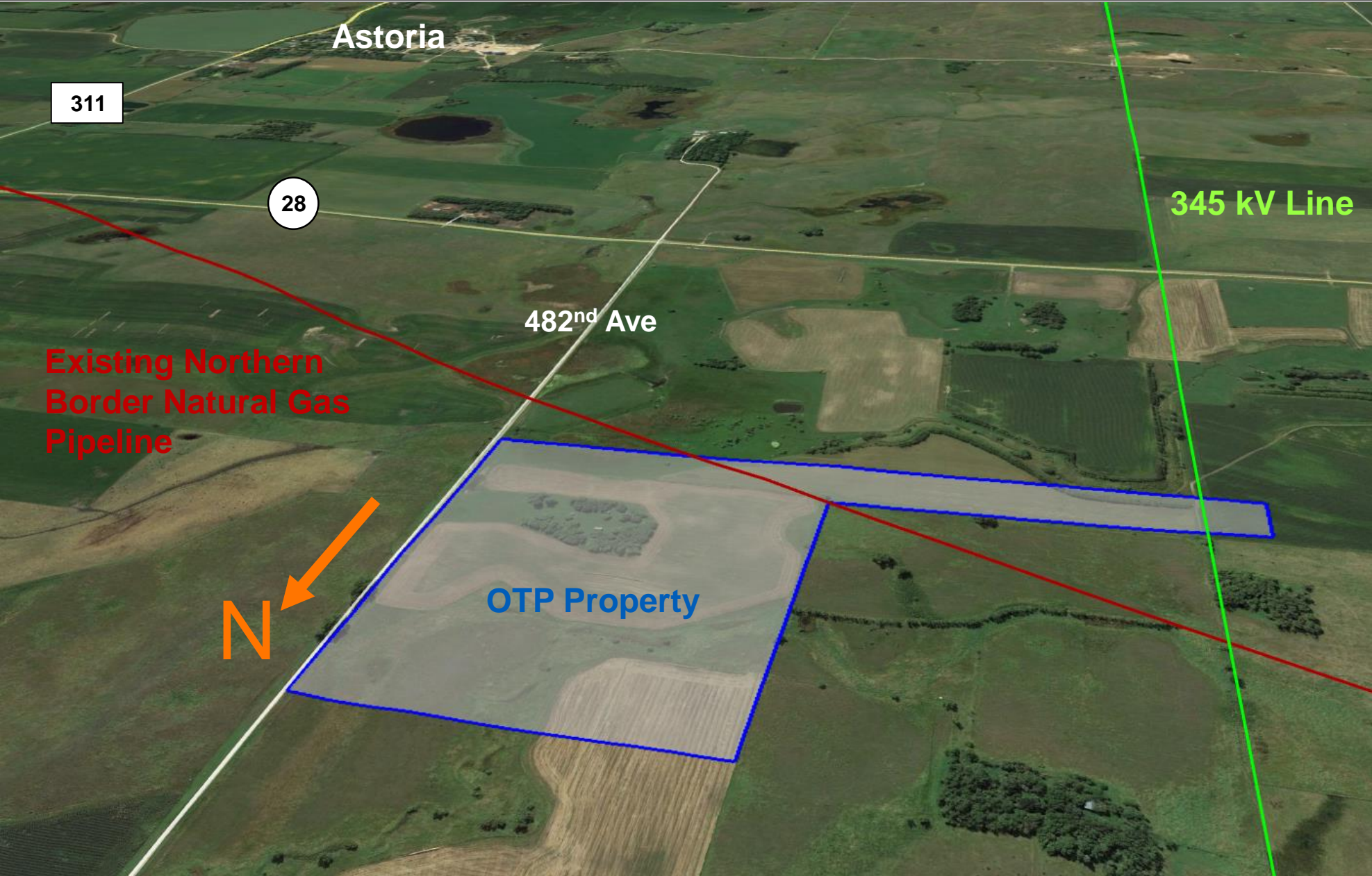
Astoria Station is a needed project for OTP. Three factors:

1. Hoot Lake Plant is retiring in May 2021.
 - Hoot Lake is a 140 MW coal-fired facility in Fergus Falls, MN.
2. We have expiring capacity contracts in approximately the same timeframe.
3. We project future load growth.

ASTORIA, SD - LOCATION



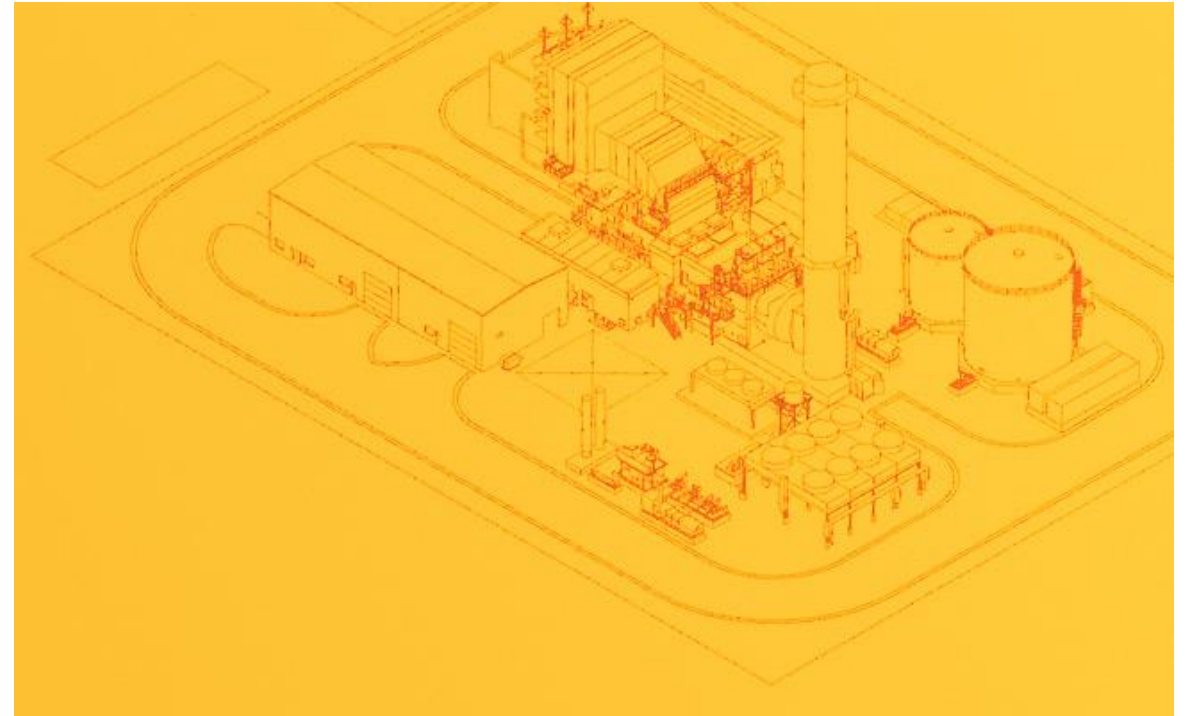
PROJECT SITE OVERVIEW



PROJECT COMPONENTS AND SCHEDULE

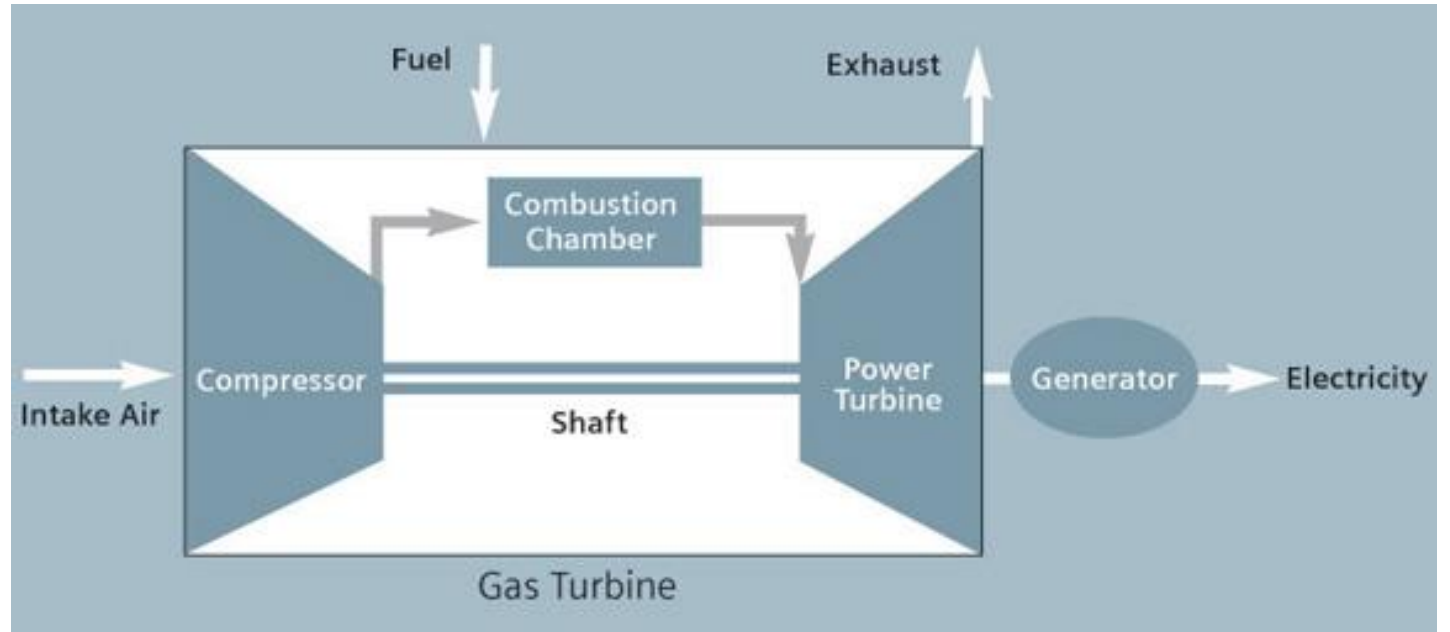
ASTORIA STATION

- Astoria Station will be an approximate 250 MW simple-cycle natural gas combustion turbine.
- The peaking plant will serve during periods of high demand or when other generating sources are not available.
- Cost ~\$165M. We expect the station to be online in 2021.

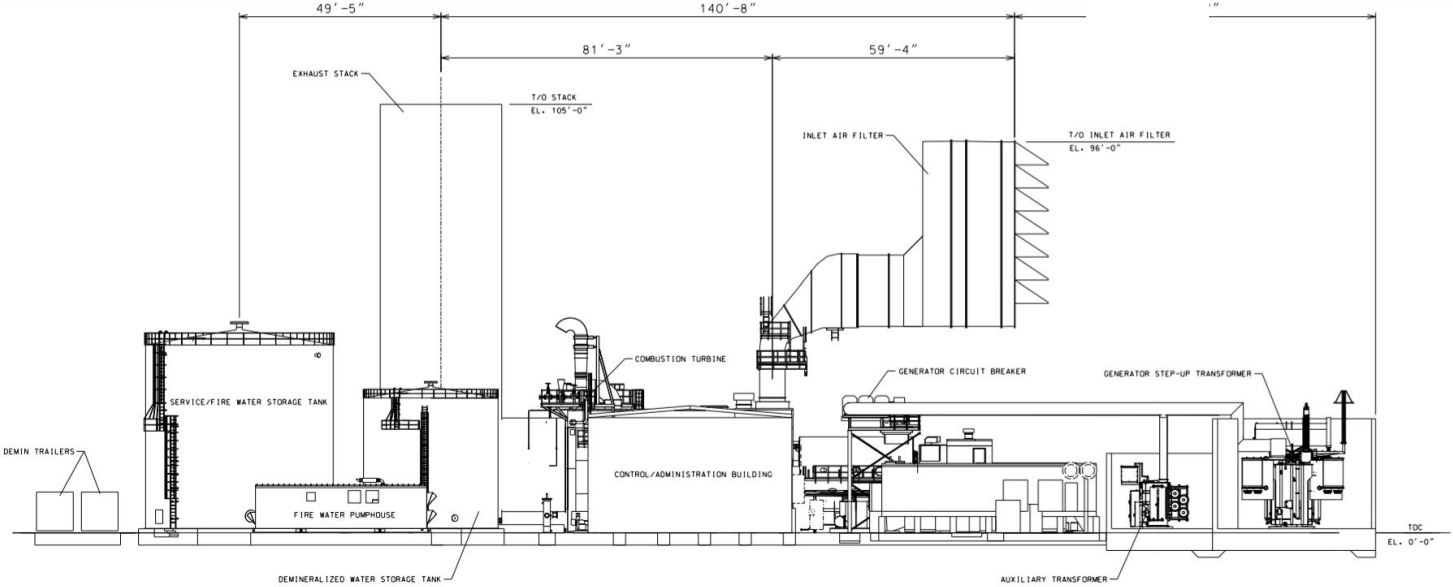


SIMPLE CYCLE TURBINE

- Resources Needed:
Water, Air, Natural Gas
- Major Components:
 - Inlet Air Filter
 - Air Compressor Section
 - Gas Combustion Chamber
 - Power Turbine
 - Electrical Generator
 - Generator Step Up Transformer

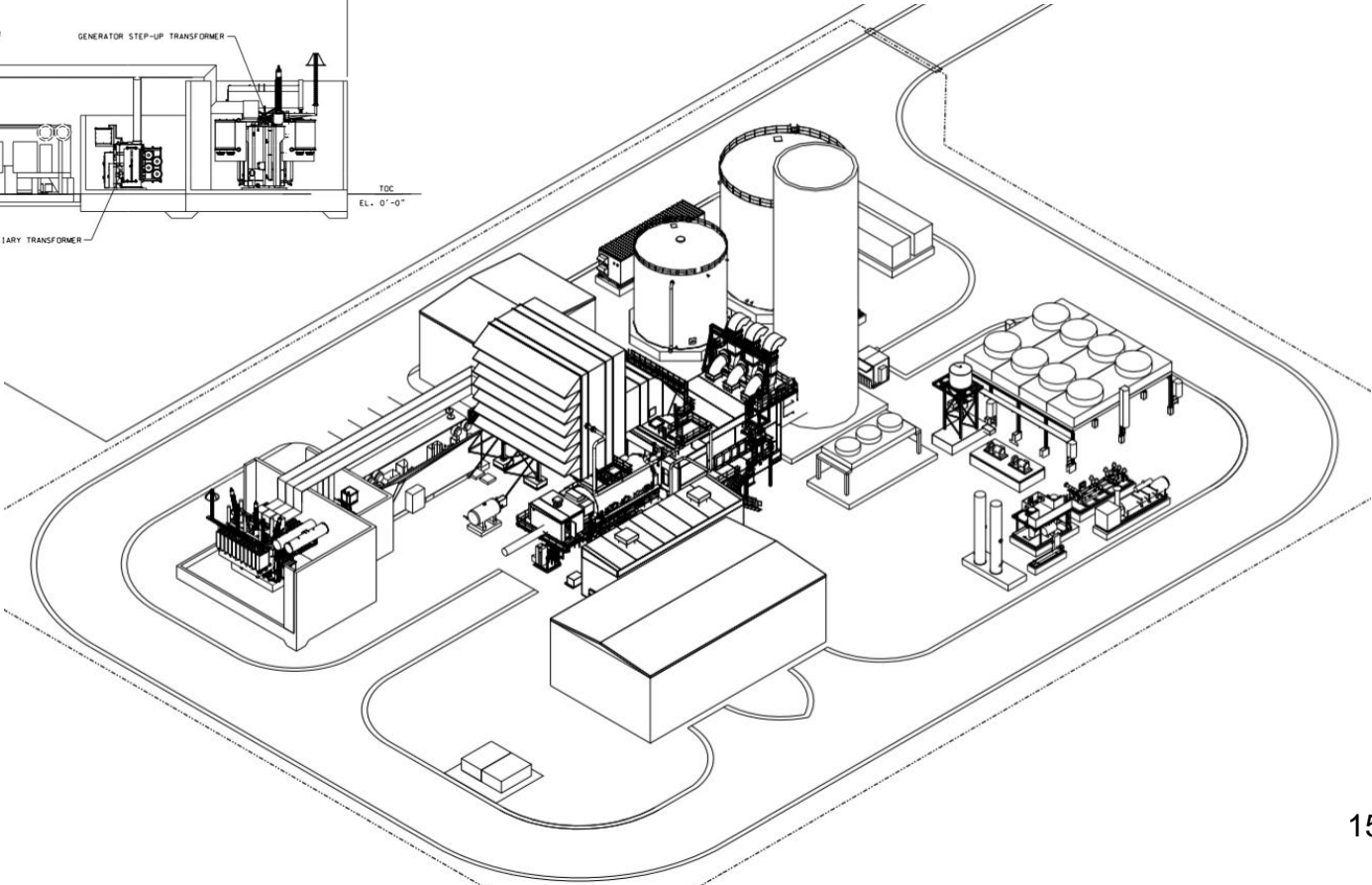


PLANT GENERAL ARRANGEMENT



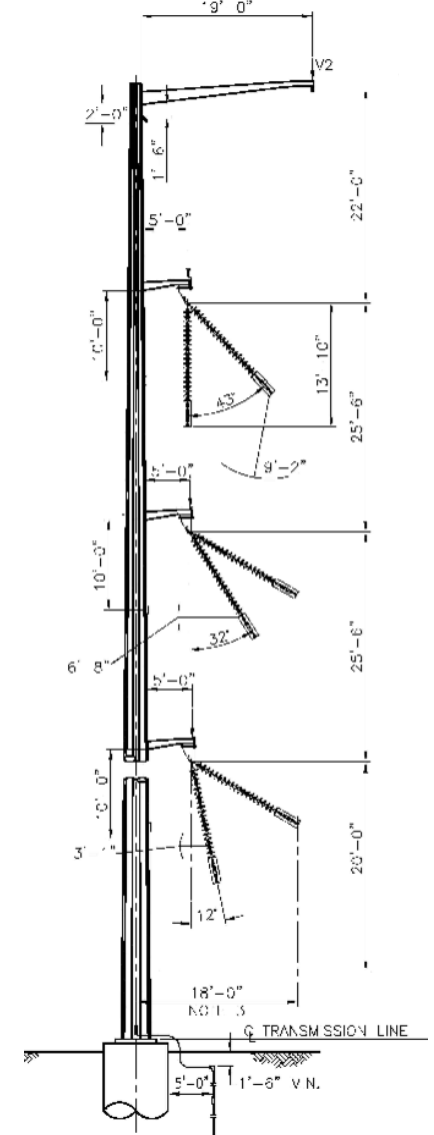
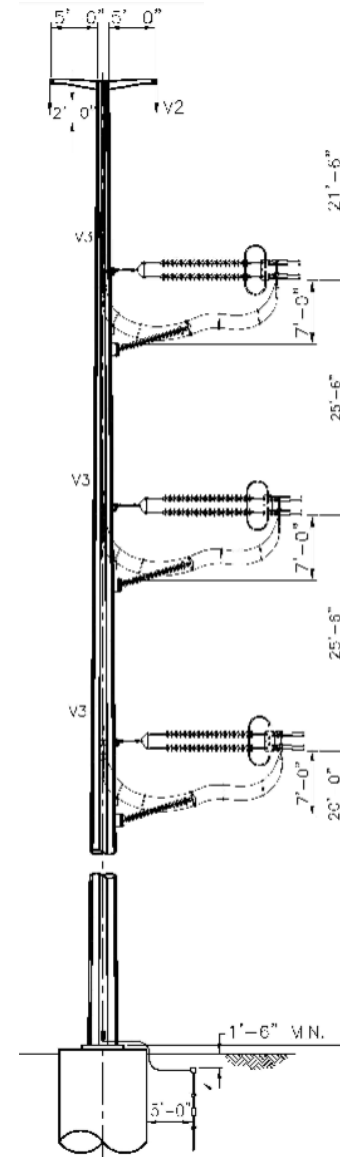
Side View

45° Angle View



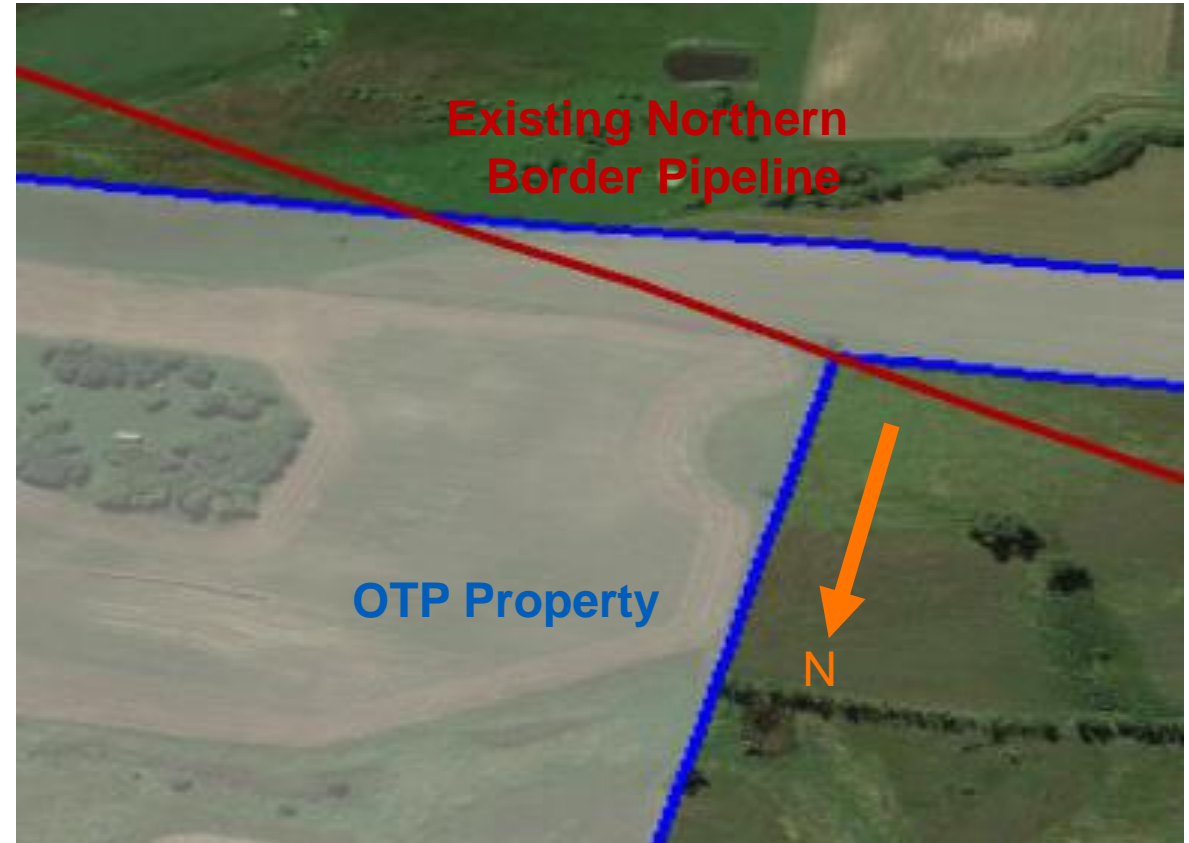
GEN-TIE LINE

- Less than ½ mile to interconnect to BSSB 345-kV transmission system
- 3-5 new structures
- OTP's property connects to the preliminary location identified for the BSSB switching station



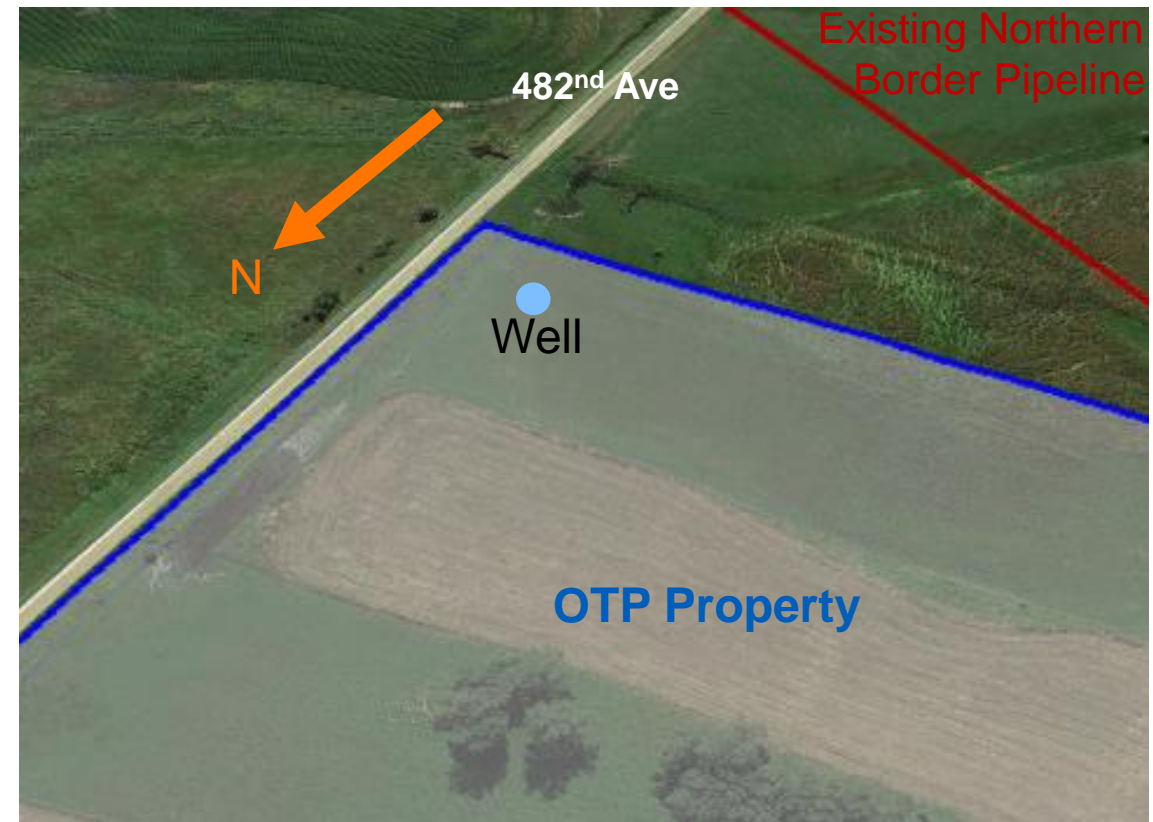
NATURAL GAS PIPING

- Will connect into the Northern Border Pipeline on Otter Tail property
- < 1,000' pipe from meter station to turbine
- 10" diameter pipe

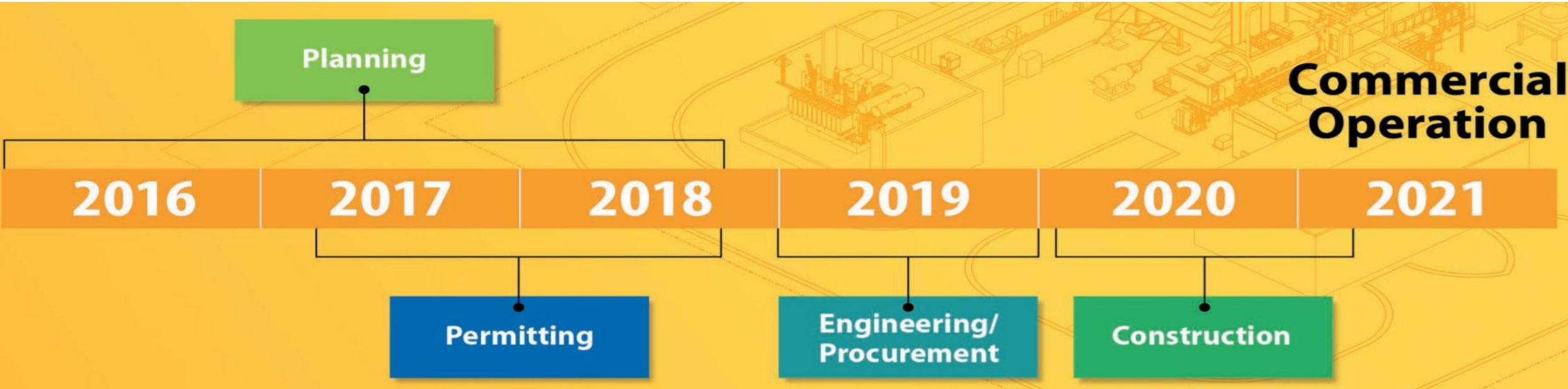


WATER LINE

- Onsite well is proposed
- < 1,500' long, 5" diameter pipe to storage tank
- Proposed capacity of 100 gpm
- Above ground 350,000 gallon storage tank
- There will be many days or months when process water is not required



PROJECT SCHEDULE



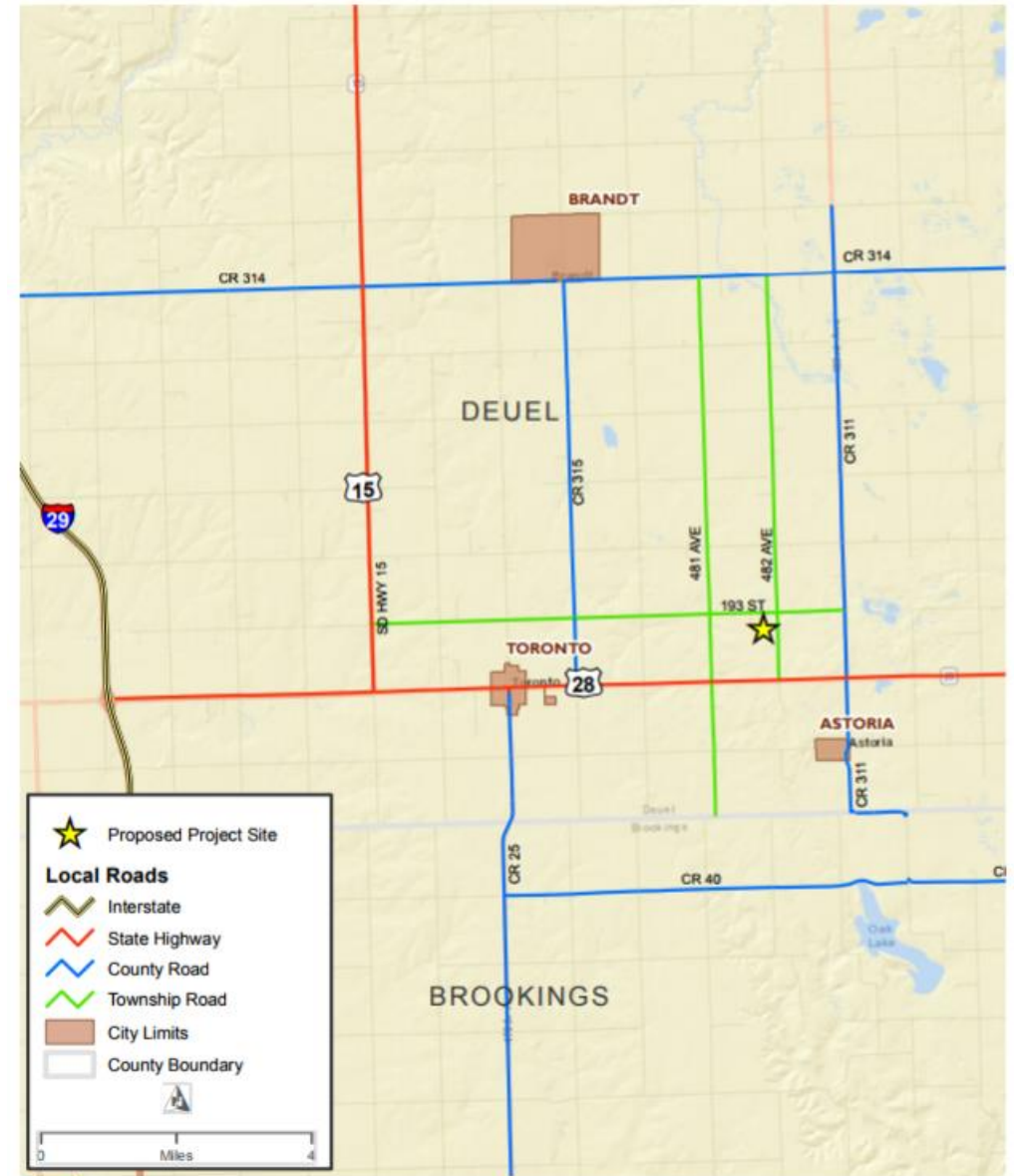
COMMUNITY IMPACTS

CONSTRUCTION WORKFORCE

Date	Number of Workers Onsite
Ground Breaking and Month 1	20
Month 2	30
Month 3	30
Month 4	40
Month 5	50
Month 6	60
Month 7	60
Month 8	70
Month 9	70
Month 10	70
Month 11	60
Month 12	40
Month 13	30

TRANSPORTATION

- Most likely heavy haul route will be East along Hwy 28 from I29 to 482nd Ave.
- Road agreements and heavy haul permits will be reviewed with the Township/County.
- Necessary roadway improvements will be made to 482nd Ave.



ECONOMIC IMPACTS

- Astoria Station will pay property tax totaling approximately \$3 million within the first five years of operation, then approximately \$1 million each subsequent year.
 - These tax payments will get distributed between the Deubrook School District, Deuel County, Scandinavia Township, and the Water and Fire District.
- Astoria Station will:
 - Create construction jobs that equates to approximately \$30 million in labor.
 - Require three to five full-time employees to operate.

LOCAL REVIEW COMMITTEE

Representatives From:

- Deuel County Commission
- Brookings County Commission
- Deubrook School District 05-6
- Deuel School District 19-4
- Town of Astoria
- Town of Brandt
- Town of Toronto
- Otter Tail Power Company

Areas to Study:

- Housing Supplies
- Educational Facilities and Manpower
- Water Supply and Distribution
- Wastewater Treatment and Collection
- Solid Waste Disposal and Collection
- Law Enforcement
- Transportation
- Fire Protection
- Health
- Recreation
- Government
- Energy

ENVIRONMENTAL REVIEW

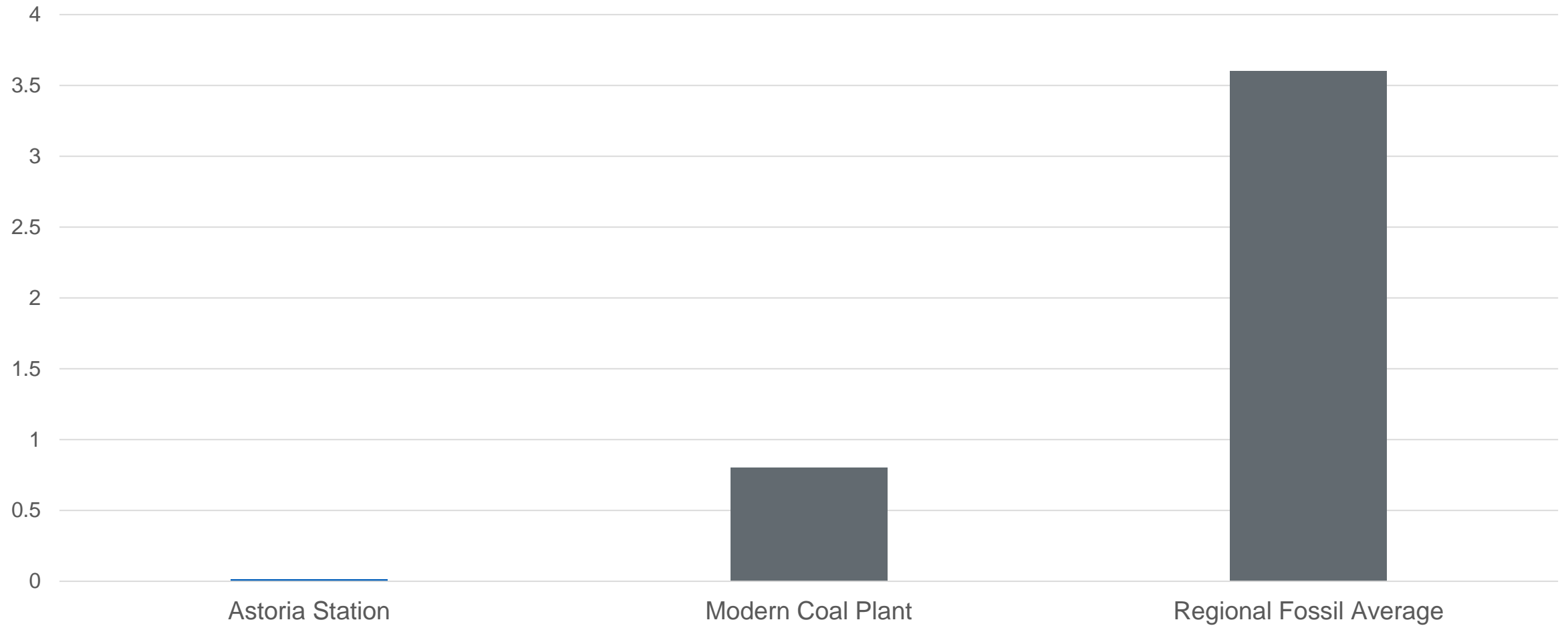
ENVIRONMENTAL REVIEW

Impacts Studied Included:

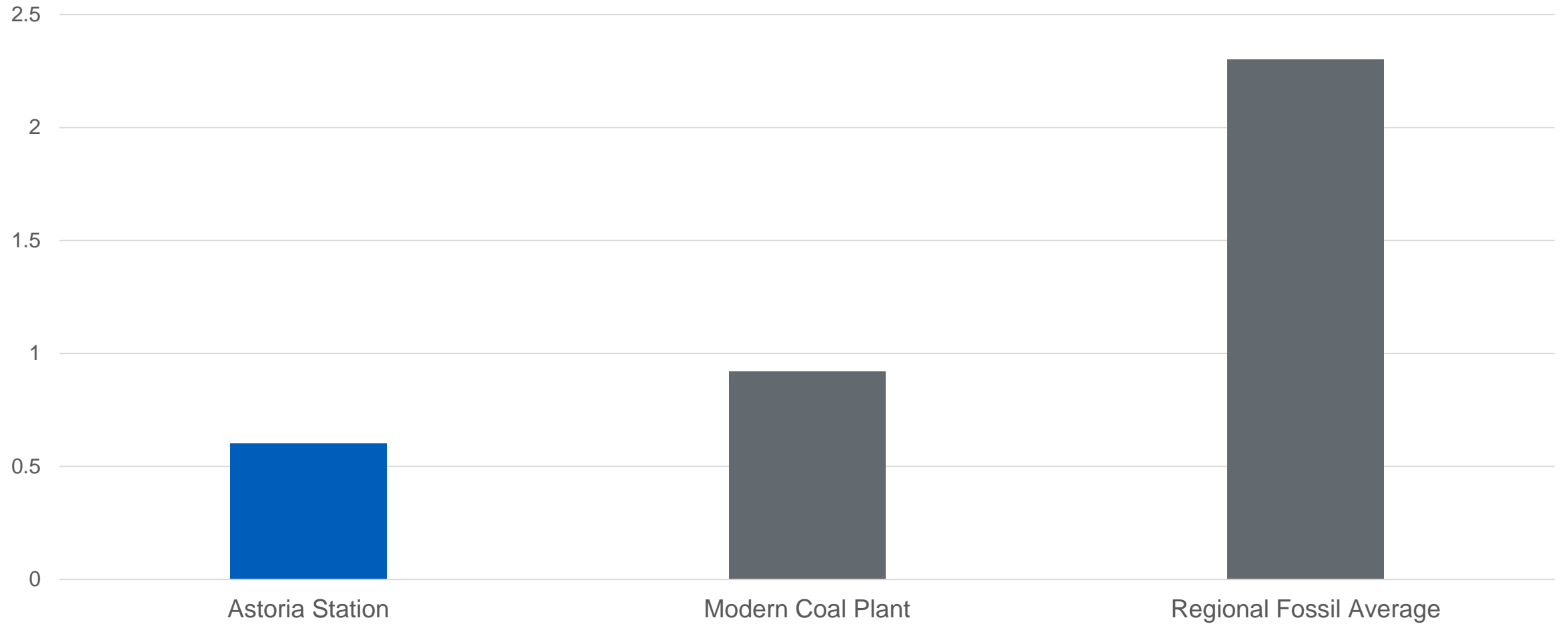
- Aquatic Ecosystems: **No wetland impacts are anticipated**
- Cultural Resources: **No historic properties on the site**
- Terrestrial Ecosystems: **No known threatened, endangered, or rare species**
- Air Quality
- Water Quality
- Sound



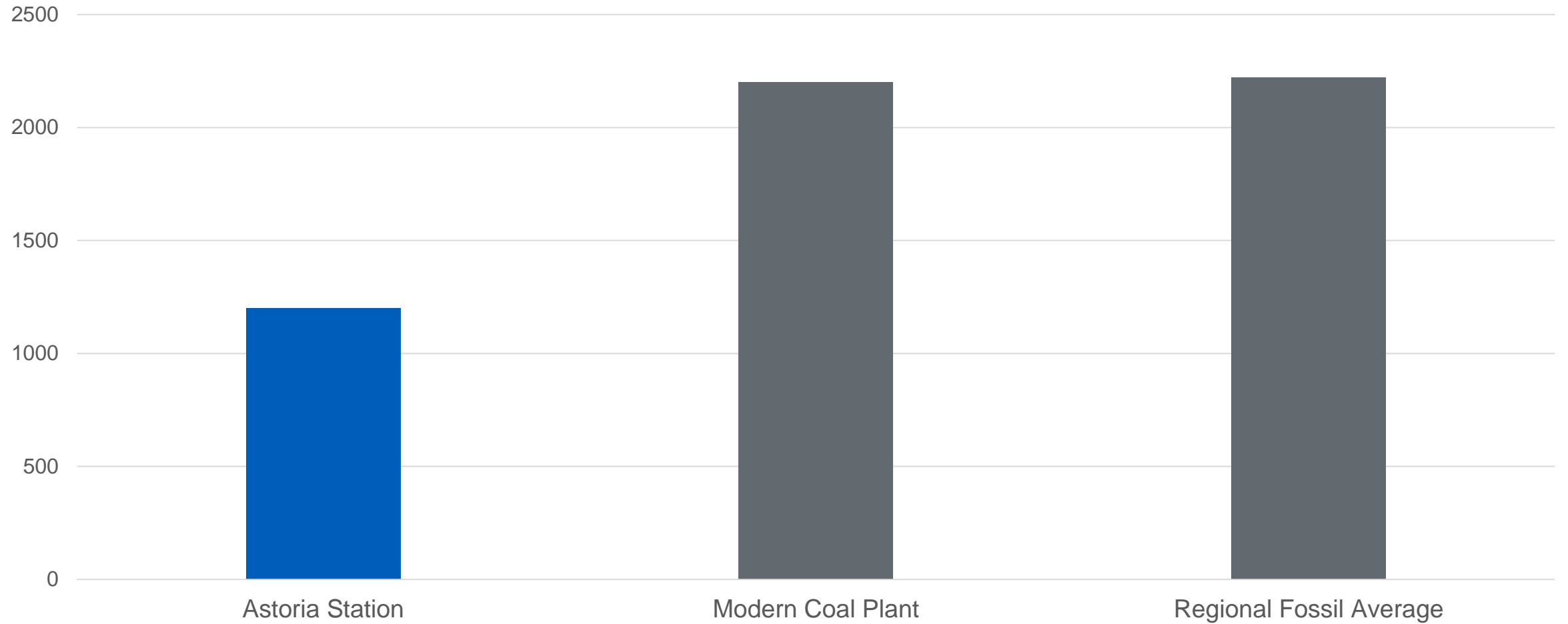
AIR QUALITY: SULFUR DIOXIDE (SO₂) LBS/MWH



AIR QUALITY: NITROGEN OXIDE (NO_x) LBS/MWH



AIR QUALITY: CARBON DIOXIDE (CO₂) LBS/MWH



WATER QUALITY

Water Appropriation:

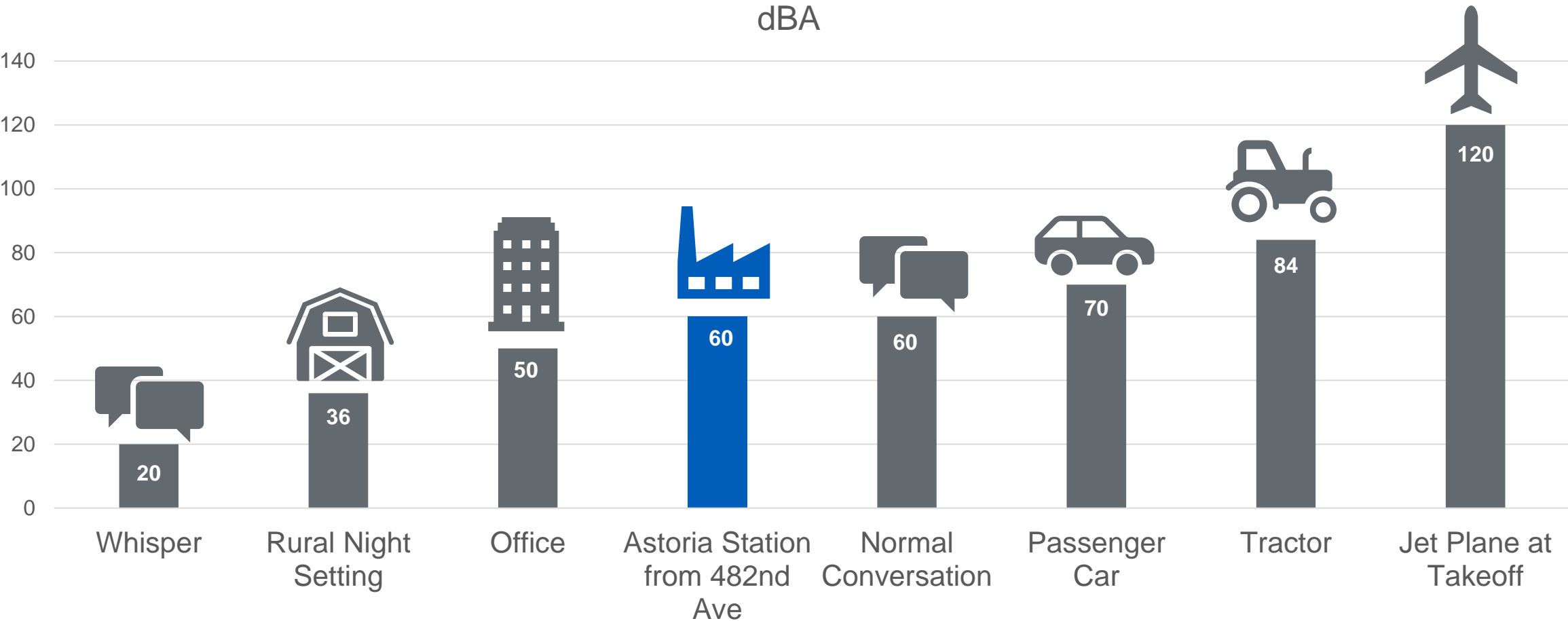
- Test well installed into the Altamont aquifer
- Well depth of 679 feet; reports on file with DENR for other wells within five miles are into shallower aquifers

Surface Water and Stormwater:

- Existing surface water drainage patterns will not be altered
- Stormwater from site operations will be directed into a stormwater retention pond



SOUND COMPARISONS



Thank You!

*For the latest Project information:
otpc.com/AstoriaStation*

