



New Generation & Transmission Update

Committee Meeting

February 13, 2024



New Generation & Transmission Update

Agenda

- Standing Bear Lake Station & Turtle Creek Station
- Solar
- Cass to Sarpy Transmission
- Near Term Generation Key Natural Gas Decisions & Next Steps
- North Omaha Station Refuel & Retire

Standing Bear Lake Station & Turtle Creek Station



New Generation & Transmission Update

Standing Bear Lake Station

- Site Progress: 89.4%
- Construction activities
 - Substation:
 - Substation Substantial Completion: December 13, 2023
 - Energization: December 16, 2023
 - Generation: Final major equipment delivered to site with installation efforts underway.
 - Focus: Electrical work supporting commissioning preparations.



Site Tour with NE PRB & ELT, 11/17



Facing East in Engine Hall – Top of Engine #9



Electrical Equipment & Cable Installation



Facing Southeast – Engine Hall 3

New Generation & Transmission Update

Turtle Creek Station

- Site Progress: 80.5%
- Construction activities
 - Substation:
 - Substation Substantial Completion: November 28, 2023
 - Energization: November 30, 2023
 - Generation: Equipment assembly continues, including welding and wiring.
 - Focus: Equipment assembly and erection continues.



Facing South – Unit #2 Filter House Assembly



Facing South – Substation



Power Distribution Center Motor Control Center



Facing Northwest – Unit #1 GCB/Isophase

New Generation & Transmission Update



Facing East – Aerial SBLs, January 2024



Facing Southwest – Aerial TCS, January 2024

Solar Update



Platteview Solar

- OPPD Substation Progress: 100%
- AES (Blue Ridge Power – EPC) Construction Progress: 100%
- Generator Step-up Transformer Energized and backfeeding
- Efforts advancing for Test Energy and Facility Testing
- On track for Commercial Operation Date no later than 5/1/2024



OPPD Substation – Bus Extension to AES Collector Substation



Platteview Solar – Racking & Module Installation



*AES Collector Substation
Operation*

Design & Engineering

Construction



Platteview Solar – Aerial of North Parcel Dec 2023



Platteview Solar – Aerial of South Parcel Nov 2023

K Junction Solar

- Generation Interconnection Agreement between OPPD, NPPD, and SPP effective August 2023
- Project Team evaluating documentation and project schedule
- Continuing community engagement and communication
- Supporting York County and the Village of McCool Junction on the development of reasonable solar regulations
- Efforts ongoing with NPPD on the timeline of the associated transmission/facility upgrades



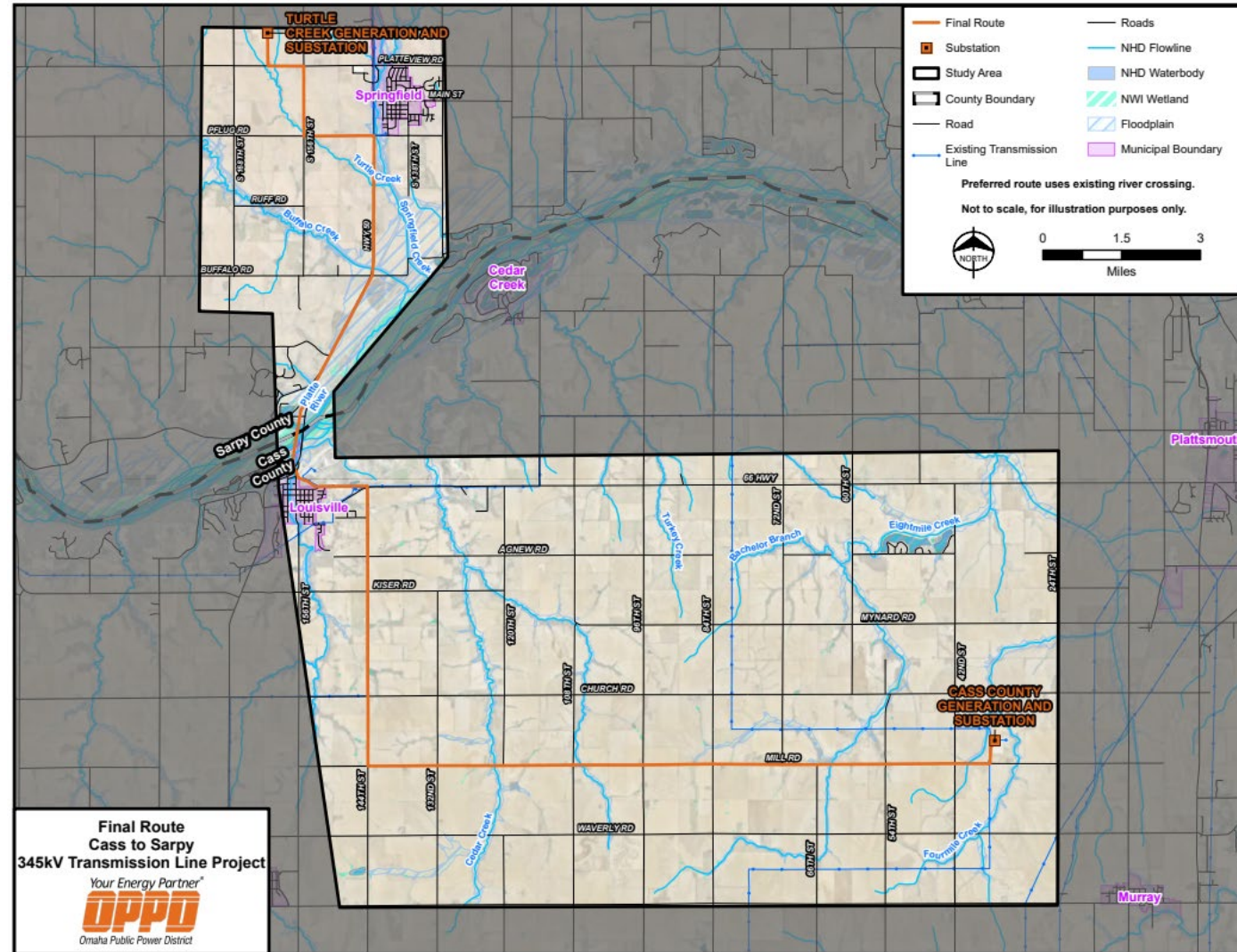
★ General solar facility location

Cass to Sarpy Transmission Project Update



Cass to Sarpy Transmission Project Update

- Major Project Organization continue to work on scoping and developing the project management plan for the remainder of the projects.
- Project Team finalizing ultimate substation plans at both remote ends.
- Data gathering for environmental permitting is underway.
- In-person discussions with the landowners along the final route to begin in February.
 - Notifications to all landowners along final route went out January 8th.



New Generation Key Natural Gas Decisions



Objective

- Communicate key natural gas infrastructure decisions for near term generation

Agenda

- Key natural gas decisions
- Next Steps

| Resources Selected (Nameplate or Peak Tested Capacity) | Recommended Range of Incremental Additions (MW) |
|--|---|
| Renewables (Either Solar and/or Wind) | 1,000 – 1,500 |
| Storage (4-hour equivalent) | Up to 125 |
| Dual Fuel Combustion Turbine | 600 – 950 |
| Demand Response | 32+ <i>Future DR to be pursued as available.</i> |
| Added fuel oil capability and storage at existing facilities | Approximately 320MW |

Dual Fuel Combustion Turbines

Four Primary, Contemporaneous Decisions

- Decision 1
 - Volume: 600 to 950
- Decision 2
 - Turbine technology class
- Decision 3
 - Turbine manufacturer
- Decision 4
 - Site selection



Cass County Station

Dual Fuel Combustion Turbines

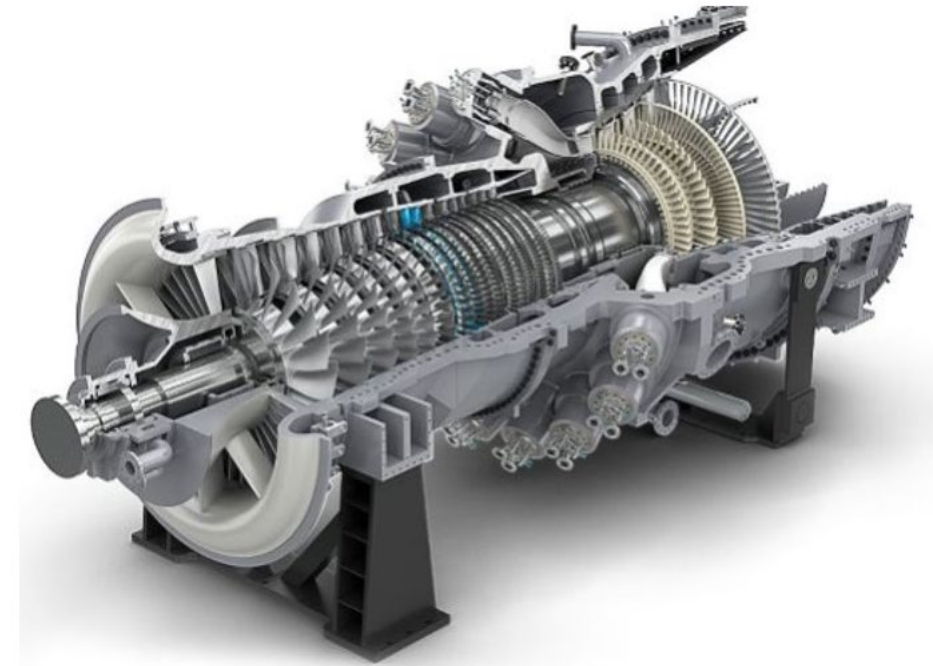
Decision 1: Volume

- Board resolution
 - 600 to 950 MWs of dual fuel combustion turbines
- Considerations
 - SPP Winter PRM is expected to rise, potentially sharply from 15% to possibly 27% to 46%
 - Solar produces energy but does not materially accredit in winter
 - The high end of the range with larger amounts of new generation, regardless of technology, presents more network upgrade risk, potentially being in the hundreds of millions of dollars which is incremental to the existing unknown network upgrade cost risk associated with Standing Bear, Turtle Creek and Platteview.
 - The lower end of the natural gas volume range creates higher likelihood for capacity deficits sooner.
 - Construction and supply chain driven timelines continue to extend.
- Decision
 - The expected dramatic increase in winter PRM causes winter to be our resource adequacy focus
 - Accordingly, natural gas volume will be on the high side of the range

Dual Fuel Combustion Turbines

Decision 2: Technology Class

- Board resolution
 - Does not specify “class” of combustion turbines to ensure proper analysis
 - Two primary classes are being evaluated, F and H, (advanced class not considered due to GI application limits)
- Considerations
 - Affordability
 - Reliability
 - Environmental sensitivity
 - Planned outage frequency
 - Parts availability
 - Operational flexibility
- Decision
 - F Class



Combustion Turbine

Dual Fuel Combustion Turbines

Decision 4: Site Selection

- Board resolution
 - Does not specify locations to allow time to properly analyze
- Considerations
 - Greenfield or Brownfield - Community impact and timeliness
 - Natural gas pipeline capacity
 - Land
 - Water
 - Wastewater
 - Noise constraints
 - Generation interconnection requests in SPP queue
 - Air permitting
- Decision
 - Turtle Creek Station
 - Cass County Station



Turtle Creek Station Units 1 and 2

Dual Fuel Combustion Turbines

Decision 3: Manufacturer

- Board resolution
 - Does not specify “vendor” of combustion turbines allowing timely and competitive sourcing
 - Three vendors provided turbine proposals
 - General Electric, Mitsubishi, Siemens
- Considerations
 - Adherence to solicitation and technical requirements
 - Environmental sensitivity
 - Diversification/commonality
 - Delivery dates
 - Economics
- Decision
 - Siemens



Combustion Turbine Manufacturing

Dual Fuel Combustion Turbines - Recap

Four Primary Contemporaneous Decisions

- Decision 1: Volume 600 – 950 MWs
 - 900 MW
- Decision 2: Turbine technology
 - F Class (4 units)
- Decision 3: Turbine manufacturer
 - Siemens
- Decision 4: Site selection
 - Turtle Creek Station (+1 CT)
 - Cass County Station (+3 CTs)



Cass County Station

Next Steps

Near term activities and timeline

Board Resolution
Aug '23

CT Volume, Sites,
Manufacturer
Determinations
Jan '24

Board Public
Announcement of
Gas Sites
Feb '24

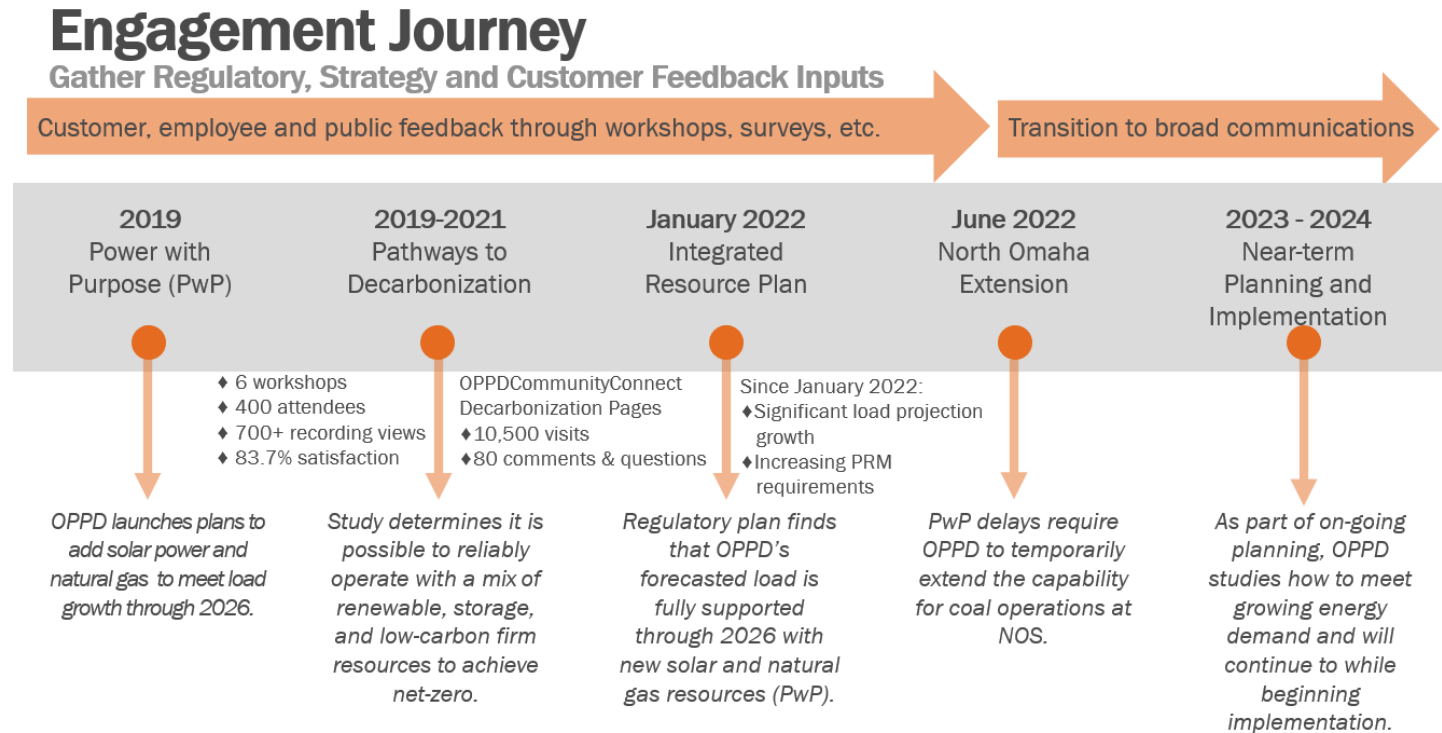
Nebraska PRB
Filing
Q1 '24

SD-13: Stakeholder Outreach and Engagement



“OPPD is committed to engaging its customers, the community and other stakeholders.”

- Multi-year, robust stakeholder outreach and engagement process utilized through Power with Purpose and Pathways to Decarbonization leading up to the current Near-Term Generation announcement
- Education and engagement will continue going forward



Key Messages: Near-term generation

- **What is driving the need**

- Growth in demand
- Increasing regulatory margins

- **Benefits of a diverse energy portfolio**

- Importance for reliability and resiliency
- Balancing sources allows for reliability during extreme events
- Open to new fuel sources, including small modular nuclear reactors, which remain prohibitively expensive

- **Net-zero commitment**

- Remain committed to balance reliability, affordability and environmental sensitivity
- Reliability and resiliency remains priority

Near-term public engagement and outreach

TIMELINE

- **February 13:**
Updates to OPPD Community Connect generation page
- **February 13:**
Filing with NE Power Review Board
- **March 15:**
NE Power Review Board hearing

STAKEHOLDERS

- Employees
- Public officials
- Community leaders
- Impacted neighbors
- Stakeholders engaged in Pathways to Decarbonization
- Customers
- Media
- Industry

COMMUNICATIONS

- **Internal:**
 - Intranet article for employees
 - Emails to leaders with talking points
 - Targeted comms for Utility Operations
- **External:**
 - Wire story, share on social
 - News release for Feb. Board (standard)
 - Tentative – pre-meeting heads-up to World-Herald



North Omaha Station Refuel & Retirement



North Omaha Station Refuel/Retire Project

Planning:

- Preparations for N05 boiler & turbine outage (Mar '24)

Design/Procurement:

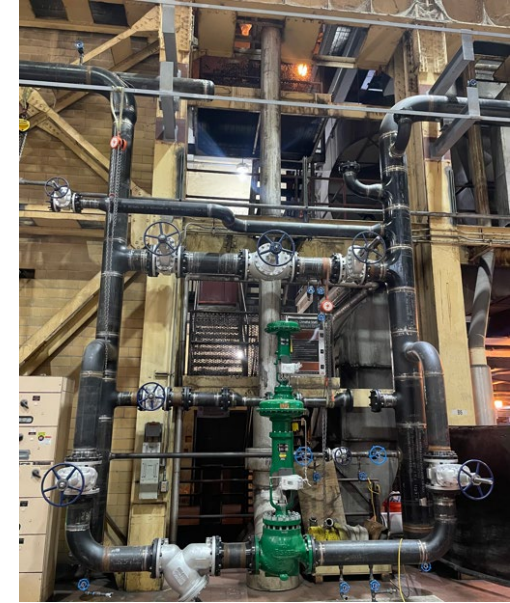
- N05 burner replacement
- 316(b) intake travelling screen

Construction:

- Ash landfill closure
- Ash storage building
- Electric Auxiliary Boiler plant interconnections

Completed:

- N04 turbine & generator inspections
- Cofferdam wall construction



Auxiliary Boiler Piping



Completed Cofferdam



N04 Turbine Inspection



Ash Landfill Progress