CASCADE NATURAL GAS CORPORATION®

A Subsidiary of MDU Resources Group, Inc.

In the Community to Serve®

LC 76 2020 OR IRP Update

JUNE 28, 2022

MICROSOFT TEAMS/TELECONFERENCE

IRP Updates

- Cascade has been involved in the Natural Gas Fact Finding docket UM 2178 and has committed to modeling the Climate Protection Program (CPP) in the upcoming 2023 IRP.
- Cascade is the successful bidder in response to a Deschutes County RFP issued to make beneficial use of the landfill gas produced at the Knott Landfill located in Bend, OR. Cascade does not yet have a contract in place with Deschutes County, but our intent is to develop a landfill gas conversion facility, improve the gas to pipeline quality RNG specifications, and inject the RNG into Cascade's distribution system pending successful contract negotiations.
- Cascade has contracted with Energy Exemplar to replace our upstream optimization model, SENDOUT, with their model Plexos. Plexos has a lot of the same functionalities as SENDOUT but has an additional functionality in emissions constraint modeling that is necessary for the CPP modeling.
- Cascade forecasted growth of 2.43% from 2020 to 2021 and 2.38% from 2021 to 2022. Based on January actuals, Cascade has actually grown 2.53% in 2021 and 2.59% in 2022. Cascade's customer growth forecast model has done an excellent job in capturing customer growth.

REINFORCEMENTS IDENTIFIED IN 5 YEAR BUDGET OVER $500,000

- Prineville Gate Upgrade
- Bend Gate Upgrade
- Baker City Reinforcement and New Gate Station
- Bend Shelvin Park Reinforcement
- Bend 6-inch HP Reinforcement/Replacement
- Ontario Reinforcement

PRINEVILLE GATE UPGRADE

- Project Summary: Gate capacity upgrade, CNG and TransCanada gates will be rebuilt
- System Benefits: Current gate station will be replaced with larger piping and facilities that will allow for higher flows out of that gate station.
- Alternative Considered: None, existing gate needs additional capacity.
- Cost: $2.3M
  - GTN Gate Upgrade: $860K
  - CNG Gate Upgrade: $1.55M
- Year Budgeted:
  - 2022 Design
  - 2023 Construction

BEND GATE UPGRADE

- Project Summary: Gate capacity upgrade, CNG and TransCanada gates will be rebuilt
- System Benefits: Current gate station will be replaced with larger piping and facilities that will allow for higher flows out of that gate station.
- Alternative Considered: None, existing gate needs additional capacity.
- Cost: $2.73M
  - GTN Gate Upgrade: $860K
  - CNG Gate Upgrade: $1.87M
- Year Budgeted:
  - 2024 Construction

BAKER CITY REINFORCEMENT AND NEW GATE STATION

- Project Summary: New gate station on the eastside of Baker City with a 1,200 foot 6-inch PE reinforcement tied into the existing distribution system.

- System Benefits:
  - New gate station provides a secondary/redundant feed to Baker City
  - Reinforcement provides additional capacity to support growth in Baker City
  - Reinforcement boosts design day pressures on the east side of Baker City

BAKER CITY REINFORCEMENT AND NEW GATE STATION CON'T

- Alternative Considered:
  - Increasing the capacity of the existing gate station and then completing reinforcements from the gate to the east side of Baker City to carry pressures and flows deeper into the distribution system.

- Cost: $1.75M
  - GTN Gate Cost: $1.4M
  - 6-inch PE Reinforcement: $356K

- Year Budgeted:
  - 2022 Construction

BEND - SHELVIN PARK REINFORCEMENT

- Project Summary: High pressure main extension and new regulator station on the westside of Bend. Project will consist of extending 1.8 miles of 6-inch steel high pressure pipe.

BEND - SHELVIN PARK REINFORCEMENT CON'T

- System Benefits:
  - Will extend high pressure into the westside of Bend
  - Will eliminate the need to bypass during cold weather events, in the past couple of years the west side of Bend has experienced significant pressures issues requiring manual bypassing to maintain pressure.
  - New regulator station boosts distribution pressure on the west side of Bend.
  - Reinforcing the west side of Bend will support the significant growth we have seen and expect to see on the west side of Bend.

BEND - SHELVIN PARK REINFORCEMENT CON'T

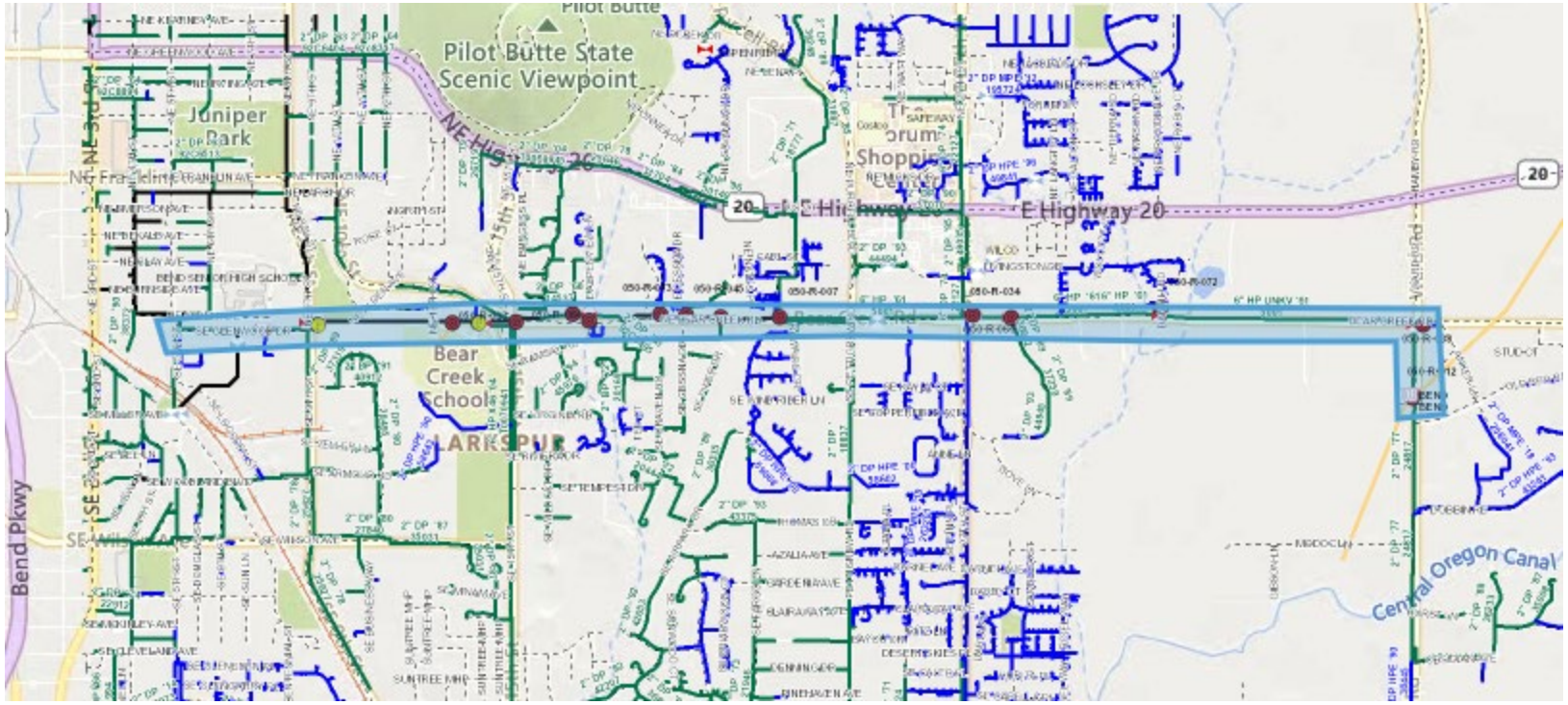
- Alternative Considered: None with similar scope
  - New gate station north of Bend near the airport with approximately 8.5 miles of high-pressure steel running into the westside of Bend with regulator stations tied into the distribution system to boost pressures and flow to the westside of Bend.

- Cost: $2.62M
  - 6-inch HP Steel: $2.5M
  - Regulator Station: $135K

- Year Budgeted:
  - 2022 Construction

BEND 6-INCH HP REINFORCEMENT/REPLACEMENT

- Project Summary: Bend 6-inch HP Line is planned to be replaced to address depth concerns. The line currently has locations with cover less than 6 inches. As this line is replaced it will be replaced with a larger size diameter pipeline to support long term growth expected in Bend.



BEND 6-INCH HP REINFORCEMENT/REPLACEMENT CON'T

- System Benefits:
  - Supports long term growth throughout Bend
  - Supports Shelvin Park reinforcement which extends HP capacity from Bend gate and South Bend gate to the westside of Bend
  - Addresses integrity concerns related to shallow cover/depth

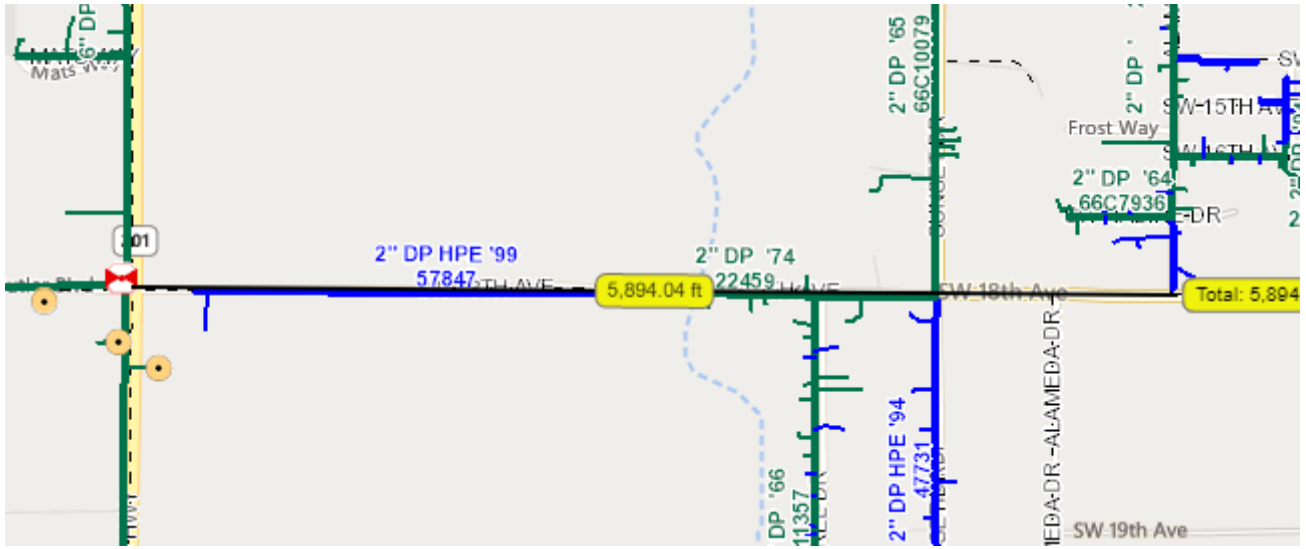
- Alternative Considered: None with similar scope – lateral out of gate needs additional capacity
  - An alternative as discussed earlier would be a new gate station north of Bend near the airport with approximately 8.5 miles of high-pressure steel running into the westside of Bend with regulator stations tied into the distribution system.

BEND 6-INCH HP REINFORCEMENT/REPLACEMENT CON'T

- Cost: $7.5M (2022-2026)
- Year Budgeted:
  - Phase 1 & 2 have been completed
  - Phase 3: $1.95M
    - 2022 Design & 2023 Construction
  - Phase 4: $2M
    - 2023 Design & 2024 Construction
  - Phase 5: $1.775M
    - 2024 Design & 2025 Construction
  - Phase 6: $1.775M
    - 2025 Design & 2026 Construction

ONTARIO REINFORCEMENT

- Project Summary: Install new regulator station and 6,000 ft of 4-inch PE along SW 18th Ave



ONTARIO REINFORCEMENT CON'T

- System Benefits:
  - New regulator station and 4 in PE trunkline boosts pressure and flows to the south and east side of Ontario.
  - New regulator station will provide a second feed to the Ontario distribution system from the south.
  - This reinforcement will allow for smaller reinforcements to support growth to the south and east side of Ontario.

ONTARIO REINFORCEMENT CON'T

- Alternative Considered: None with similar scope
  - An alternative would be installing a larger sized trunk line from the existing regulator station to the south side of Ontario

- Cost: $1.23M
  - New Regulator Station: $148K
  - 4-inch PE Reinforcement: $1.08M

- Year Budgeted:
  - 2022 Regulator Station Construction
  - 2023 4-inch PE Construction

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