Natural Gas Decarbonization and Renewable Solutions

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Erica Larson (Counsel)
Ethan Warner (CIP Regulatory Manager)
Gas Utility Services

Regulated gas distribution jurisdictions in eight states with

- ~4.5 million customers, second largest in the U.S.
- ~119,000 miles of pipe, largest in the U.S.

Electric Utility Services

- Electric transmission and distribution operations with ~2.4 million metered customers across ~5,000 sq. miles in and around Houston, Texas
- Electric generation, transmission, and distribution to ~145,000 metered customers in southwestern Indiana
CenterPoint Energy Minnesota Gas

Largest natural gas distribution business in Minnesota:

- Serving
  - 860,000 customers
  - 260 communities
- Employing
  - 1,200 employees
CenterPoint Energy Inc.: Corporate Carbon Policy

- **Already Underway:**
  - Reducing methane leakage on our system
  - Promoting energy efficiency

- **Next Steps:**
  - Ramp up energy efficiency (EE) and new EE technologies
  - Incorporate lower carbon fuels onto our system
    - Renewable natural gas ("RNG")
    - Renewable hydrogen
    - Others
  - Reduce carbon emissions from customer end use.
What is Renewable Natural Gas (RNG)?

- AGA: “Pipeline compatible gaseous fuel derived from biogenic or other renewable sources that has lower lifecycle CO2e emissions than geological natural gas.”

Examples include pipeline compatible gas derived from:
- Wastewater treatment plants
- Landfill gas
- Anaerobic digestion gas
- Power to gas from renewable electricity
- “Syngas”
What is Hydrogen?

Generates renewable electricity

Powers electrolysis

Creates renewable hydrogen gas

Added to pipeline system for natural gas customer use
Natural Gas Innovation Act

- Included in 2021 Special Session Omnibus Energy Bill H.F. 6, which has become law
- Creates a PUC process for utility programs for utility investment in innovative resources
- Innovative resources are biogas, carbon capture, district energy, energy efficiency, power-to-ammonia, power-to-hydrogen, RNG, and strategic electrification
- Cost cap starts at 1.75% of utility revenue and may increase up to 4% by 2033 if certain cost effectiveness thresholds are met
Stakeholder Engagement
Interconnection Basics

Access
• Process for producers seeking interconnection
• Quality standards for injection

Transport
• CenterPoint Energy will not (necessarily) buy the RNG – will transport to interstate system for producer
• Will charge similar to existing transport tariff – a monthly basic charge, a volumetric “receipt” charge
• CenterPoint Energy will earn a return on investments to serve RNG developers similar to return for transport customers
  – Reduces the need for upfront payment by developer
Interconnection Approved Tariff

- PUC approved RNG Interconnection Tariff November 2020
- Declined to endorse quality standards, left that to CenterPoint
- Next Steps Specified
  - Develop a carbon accounting framework for interconnecting producers
  - Consider different pricing system for large producers
Hydrogen Pilot

- 1 MW or renewable electrical power driving electrolyzer producing 7,500 SCFH of hydrogen
- Operated and maintained by CenterPoint peak shaving staff
- Located at an existing CenterPoint facility in downtown Minneapolis
- Will blend into CenterPoint’s general gas supply
- Planned in service date Fall 2021
What is Carbon Capture and Recycling?

• **Carbon Capture Technology** either:
  – Prevents the CO$_2$ from entering the atmosphere from combustion
  – Removes CO$_2$ from the atmosphere

• **Traditional Carbon Capture and Storage**
  – Capture up to 90 percent of CO$_2$ emissions from fossil fuel combustion
  – Store compressed CO$_2$ underground in appropriate geological formations

• **Advanced Technologies**: Remove CO$_2$ directly from the atmosphere.

• **Minnesota Geology Prevents Local Storage**

• **Carbon Capture and Recycling**
  – Capture technologies enable the separation of a portion of CO$_2$ from fossil fuels during either pre- or post-combustion.
  – The captured CO$_2$ can then be used to manufacture fuels, building materials and more.
Carbon Capture & Heat Recovery – CleanO2 Technology

- Canadian Company
- **First decentralized commercial carbon capture device**
  - Boilers or hot water tanks
  - Hotels, malls, schools, hospitals, fitness centers, etc

- **Benefits to Customers**
  - Reduces up to 20% of CO2 emissions
  - Saves up to 20% in energy costs
  - Pearl ash profit sharing

Clean O2’s CARBiNX™ technology
CenterPoint Energy Pilot Project (2021/2022)

• Objectives:
  – Measurement and verification
  – Facilitate adding the technology to or energy efficiency programs (or an innovation plan)

• Benefits to customers:
  – No cost equipment and installation
  – No risk participation
  – Can choose to keep the equipment post-pilot

• Next Steps:
  – Obtain permit for the first unit from the Department of Labor and Industry
  – Installations in 2021
  – Data collection in 2022

CleanO2 carbon capture technology
Questions & Answers