Clean Energy Partnership
Q3 Board Meeting
September 22, 2021
Agenda

1. Welcome and Introductions
2. Review and Approve Agenda and Q2 Minutes
3. EVAC Co-Chair Update
4. 2020 Annual Report Presentation
5. Decarbonizing MN Natural Gas End Uses – Part II
6. Work Plan Development Update
7. 2019-2021 Work Plan Updates
   1. Time of Rent Energy Cost Reporting
   2. Inclusive Financing
8. Other Partner Updates
EVAC Co-Chair Update
2020 Overview

Energy Efficiency
- Eco Act – **passed in 2021**
- Increased Incentives for Rebuilding
- Virtual Option for Home Energy Squad
- Utility coordination on Commercial Audits
- Instant Rebates for Insulation
- Over $14 M in Utility Conservation Improvement Program incentives in Minneapolis

Renewable Electricity
- Low Income Solar Garden – **approved**

Xcel Energy Adjusted Resource Plan Goals
- 86% Carbon Emissions Reductions by 2030

Minneapolis CEP 2019-2021 Work Plan
- Energy Efficiency
- Renewable Electricity
- Energy Disclosure/Time of Rent
- Carbon Capture
- Workforce Development
- Inclusive Financing

Economic Recovery & Workforce Development
Xcel Energy
- $17.5M Payment Arrearage Forgiveness - **approved**
- $8M Resilient Minneapolis
- $6M Workforce Training (Mpls/St. Paul w/CIP)
- $4M Minneapolis Workforce Training & Development Pilot

CenterPoint Energy
- High-Tech Test Kitchen
- Workforce Development
- Hydrogen Projects
- RNG project

Decarbonizing Natural Gas
- Natural Gas Innovation Act – **passed in 2021**
- G21 – Decarbonizing MN NG End Uses Stakeholder Group
**Greenhouse Gas Emissions (Community-wide)**

**GHG reduction goal of 30% by 2025:**
32% reduction since 2006; achieved 2025 goal but unknown if on track due to 2020 impacts from the pandemic

**Metric 1.1**
Score: YELLOW

**Greenhouse Gas Emissions (Community-wide)**

**GHG reduction goal of 80% by 2050:**
32% reduction since 2006; not on track for 2050 goals

**Metric 1.2**
Score: RED
2050 Goal
ALL total GHG emissions need to be <~1M
Renewable Electricity (Community-wide)

100% of renewable electricity use by 2030:

32% in 2020 and not on track

Metric 5
Score: RED

Renewable Electricity - Community-wide

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage of Use</th>
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<tbody>
<tr>
<td>2014</td>
<td>24%</td>
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<tr>
<td>2015</td>
<td>23%</td>
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<tr>
<td>2016</td>
<td>25%</td>
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<td>2017</td>
<td>29%</td>
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<tr>
<td>2018</td>
<td>26%</td>
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<tr>
<td>2019</td>
<td>23%</td>
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<tr>
<td>2020</td>
<td>32%</td>
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</table>

Local Actions: 7%
Adj. Grid Mix: 25%

2030 Goal
Renewable Electricity (Local and Directly Purchased)

10% of renewable electricity use by 2025:

6.9% in 2020 and on track

2020 Program Share

- Windsource: 1.6%
- R*C: 1.2%
- S*R Rooftop: 0.2%
- S*R Community: 3.8%
2020 Annual Report
(Supplemental Slides)
Greenhouse Gas Emissions (Community-wide)

**GHG reduction goal of 30% by 2025:**
32% reduction since 2006; achieved 2025 goal but unknown if on track due to 2020 impacts from the pandemic

**Metric 1.1**  
Score: YELLOW

Greenhouse Gas Emissions (Community-wide)

**GHG reduction goal of 80% by 2050:**
32% reduction since 2006; not on track for 2050 goals

**Metric 1.2**  
Score: RED

Greenhouse Gas Emissions (Municipal Operations)

**GHG reduction goal of 1.5% annually:**
62% reduction since 2008 and on track

**Metric 2**  
Score: GREEN

Energy Use (Residential)

**15% energy consumption reduction by 2025:**
4% decrease compared to growth baseline; unknown if on track due to annual variations

**Metric 3**  
Score: YELLOW

Energy Use (Commercial and Industrial)

**20% energy consumption reduction by 2025:**
4% decrease compared to growth baseline; not on track

**Metric 4**  
Score: RED
Metrics Scorecard

(Renewable Electric Goals)

Renewable Electricity (Community-wide)
100% of renewable electricity use by 2030:
32% in 2020 and not on track

Renewable Electricity (Municipal Operations)
100% of renewable electricity use by 2022:
88% in 2020 and on track

Renewable Electricity (Local and Directly Purchased)
10% of renewable electricity use by 2025:
6.9% in 2020 and on track
Decarbonizing MN Natural Gas End Uses
Part II
Decarbonizing Minnesota’s Natural Gas End Uses Stakeholder Process

Clean Energy Partnership Q3 Board Meeting
September 22, 2021

https://e21initiative.org/NGReport
AGENDA

1. Stakeholder Process
2. Scenario Modeling
3. Stakeholder Recommendations
4. Questions/Discussion
1. Stakeholder Process
Advisory Committee

- Erica Larson, CenterPoint Energy
- Joe Dammel, Fresh Energy
- Luke Hollenkamp, City of Minneapolis, Sustainability Division
- Dr. Margaret Cherne-Hendrick, Fresh Energy
- Nick Martin, Xcel Energy
- Dr. Sydnie Lieb, Xcel Energy
Who participated?

- BlueGreen Alliance
- CenterPoint Energy
- City of Minneapolis
- Clean Energy Resource Teams
- Ever-Green Energy
- Fresh Energy
- Laborers’ International Union of North America (LIUNA) – Minnesota and North Dakota
- Minnesota Center for Environmental Advocacy
- Minnesota Department of Commerce*
- Minnesota Energy Resources Corporation*
- Minnesota Housing*
- Minnesota Mechanical Contractors Association
- Minnesota Office of the Attorney General, Residential Utilities Division*
- Minnesota Pollution Control Agency*
- University of Minnesota
- Xcel Energy

*Organizations marked with an asterisk participated as observers only, which means they provided information to support discussions, but were not asked to agree to the final recommendations.
2. Scenario Modeling
Greenhouse gas (GHG) emission reductions per scenario

- Reference
- High Electrification
- High Decarbonized Gas
- Electrification with Gas Back Up
Gas and Electricity Consumption in Each Scenario

- **High Decarbonized Gas**
- **Electrification with Gas Back Up**
- **High Electrification**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Residential Energy</th>
<th>Commercial Energy</th>
<th>Industrial Energy</th>
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<tbody>
<tr>
<td><strong>Gas Consumption</strong> (TBtu)</td>
<td></td>
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<tr>
<td>2018</td>
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<td>2020</td>
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<td>2048</td>
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<td>2050</td>
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</tbody>
</table>

**Electricity Consumption (TWh)**

- **Residential**
- **Commercial**
- **Industrial**

**2018 to 2050 Comparison**

- **High Decarbonized Gas**
  - Residential: - 5 TWh
  - Commercial: + 0.0 TWh
  - Industrial: - 5 TWh

- **Electrification with Gas Back Up**
  - Residential: - 5 TWh
  - Commercial: + 1.2 TWh
  - Industrial: + 5.9 TWh compared to 2050 reference

- **High Electrification**
  - Residential: + 13 TWh
  - Commercial: + 33.3 TWh
  - Industrial: + 8.2 TWh compared to 2050 reference
Total Estimated Incremental Resource Costs (2050)

- **High Decarbonized Gas**
- **High Electrification**
- **Electricity with Gas Back Up**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Nominal $ Billion/yr</th>
</tr>
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<tbody>
<tr>
<td>High Decarbonized Gas (Low)</td>
<td>-5.0</td>
</tr>
<tr>
<td>High Decarbonized Gas (High)</td>
<td>0.0</td>
</tr>
<tr>
<td>High Electrification (Low)</td>
<td>5.0</td>
</tr>
<tr>
<td>High Electrification (High)</td>
<td>10.0</td>
</tr>
<tr>
<td>Electricity with Gas Back Up (Low)</td>
<td>15.0</td>
</tr>
<tr>
<td>Electricity with Gas Back Up (High)</td>
<td>20.0</td>
</tr>
</tbody>
</table>

**Legend:**
- **Consumer Capital Costs**
- **Costs of Gas**
- **Electric System Costs**
- **Total Incremental Costs (net)**
High-Level Takeaways

• Full decarbonization of Minnesota’s natural gas end-uses is possible under all 3 scenarios, but requires technology commercialization and accelerated implementation.

• Efficiency will be an important tool in all scenarios (in terms of costs and feasibility).

• Energy costs will increase (compared to today) under all three scenarios.

• All 3 scenarios will require significant policy and financing.

• Continued technological improvements will help under all 3 scenarios.
3. Recommendations
Stakeholder Recommendations
now Initiated by Legislation

Implement mechanisms to advance research, development, and deployment of innovative clean technologies to reduce greenhouse gas emissions across the natural gas supply chain (#23)

**REPORT RECOMMENDATIONS (Deployment)**

**Minnesota Efficient Technology Accelerator (META)**

- META will accelerate the deployment of efficient technologies through strategic initiatives with technology manufacturers, equipment installers, and other key actors in the supply chain.
- META will bring innovative energy efficient technologies to Minnesota customers sooner and at a lower cost.
- Modeled after the Northwest Energy Efficiency Alliance’s successful market transformation program.
REPORT RECOMMENDATIONS (CIP Changes)

**Update the CIP cost-effectiveness framework** to ensure that it is aligned with state decarbonization goals. (#17)

**Modify CIP to allow fuel switching** and load management that enables the adoption of highly efficient decarbonization technologies. (#18)

**Re-evaluate the methodology used to determine source energy from electric generation**, to ensure it reflects the current mix of a utility’s electric generation resources. (#19)

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Energy Conservation and Optimization (ECO) Act

- Most sweeping changes to CIP program since 2007
- Increases utility goals while providing new tools to meet them
- Expands programs to include “efficient fuel switching”
  - Fuel switching that reduces net energy consumption, reduces net GHG emissions, is cost-effective, improves utility’s system load factor
  - Guidelines by March 2022
- Broader load management/demand response opportunities
- Increases low-income spending requirements and makes pre-weatherization eligible
**REPORT RECOMMENDATIONS (Innovation)**

The MN PUC should initiate a process to evaluate opportunities and considerations for changes to gas utility regulatory and policy structures needed to support cost-effective and equitable achievement of the state’s economywide greenhouse gas reduction goals and net-zero greenhouse gas emissions by 2050. (#16)

MN’s regulatory agencies, in consultation with utilities and stakeholders, should develop a framework that requires and/or incentivizes gas utilities to integrate fuels and technologies to achieve decarbonization. (#20)

Implement mechanisms to advance research, development, and deployment of innovative clean technologies to reduce greenhouse gas emissions across the natural gas supply chain (#23)

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**Natural Gas Innovation Act (NGIA)**

- Creates PUC process for natural gas utility programs for “innovative resources”
- Innovative resources are biogas, carbon capture, district energy, energy efficiency, power-to-ammonia, power-to-hydrogen, renewable natural gas, and strategic electrification
- First utility plans are cost capped at 1.75% of utility revenue each year; half of first plan must be for a fuel-type resource (e.g. RNG, hydrogen)
- CenterPoint’s first plan must include district energy, residential electrification, and C/I audit programs
- Requires several actions from PUC to prepare for utility plans and to align regulation of natural gas utilities with state’s GHG goals
<table>
<thead>
<tr>
<th>Stakeholder Recommendations seen in CEP Conversations</th>
</tr>
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<tbody>
<tr>
<td><strong>REPORT RECOMMENDATIONS (Topical relevance to the CEP)</strong></td>
</tr>
<tr>
<td>Ensure equity and equitable engagement are thoroughly incorporated into all efforts, initiatives, and research to decarbonize Minnesota’s natural gas end uses. (#1)</td>
</tr>
<tr>
<td>Assess options for deploying district energy systems to support decarbonization. (#3)</td>
</tr>
<tr>
<td>Advance building shell efficiencies well beyond the current trajectory. (#10)</td>
</tr>
<tr>
<td>Significantly advance air-source heat pump deployment for the residential sector, including multifamily housing. (#11)</td>
</tr>
<tr>
<td>Address health and safety considerations during any building envelope retrofits. (#12)</td>
</tr>
<tr>
<td>Address split incentives that pose barriers to energy efficiency and technology adoption. (#14)</td>
</tr>
<tr>
<td>Develop policies, programs, and actions to keep energy burden below established targets to ensure that the costs of the transition are not borne disproportionately by the most under-resourced Minnesotans. (#15)</td>
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4. Questions/Discussion
Appendix – Other Background, Modeling Results, and Recommendations
Minnesota is behind in meeting our greenhouse gas reduction goals.

Source: [https://www.pca.state.mn.us/air/state-and-regional-initiatives](https://www.pca.state.mn.us/air/state-and-regional-initiatives)
Greenhouse gas emissions data

Source: [https://www.pca.state.mn.us/air/greenhouse-gas-emissions-data](https://www.pca.state.mn.us/air/greenhouse-gas-emissions-data)
MN Emissions from Natural Gas

Lifecycle Emissions from Minnesota Natural Gas Consumption By Source

Source: https://www.mncee.org/it-all-adds-emissions-minnesotas-natural-gas-consumption
The modeling explored opportunities for 100% gas end-use decarbonization through 3 scenarios

Technology focus

High Electrification

- Almost all buildings switch to ASHPs and GSHPs. Heating is supplied by electricity throughout the entire year. Some features:
  - All-electric for new construction
  - High efficiency through building retrofits
  - Industrial electrification where technically viable

High Electrification with Gas Back Up

- Buildings keep their gas connection and are supplied with a heat pump combined with a gas furnace that serves as back up in the coldest hours of the year. Some features:
  - All-electric for new construction
  - High efficiency through building retrofits
  - Industrial electrification where technically viable

High Decarbonized Gas

- Buildings keep their gas connection while natural gas is gradually replaced by RNG. The industrial sector switches to hydrogen. Some features:
  - RNG supplied by biomethane and synthetic natural gas
  - High efficiency through building retrofits
  - Dedicated hydrogen in Industry, 7% hydrogen blend in other sectors
Conservative outlook for supply of decarbonized gaseous fuels

Optimistic outlook for supply of decarbonized gaseous fuels
Annual Incremental Electric System Costs Relative to Reference (2050)

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Energy Generation</th>
<th>Generating Capacity</th>
<th>Transmission</th>
<th>Distribution</th>
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<tbody>
<tr>
<td>High Decarbonized Gas</td>
<td>$273</td>
<td>$311</td>
<td>$576</td>
<td>$606</td>
</tr>
<tr>
<td>Electrification + Gas Back Up</td>
<td>$1,140</td>
<td>$657</td>
<td>$1,444</td>
<td>$1,447</td>
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<tr>
<td>High Electrification</td>
<td></td>
<td></td>
<td>$5,174</td>
<td>$1,677</td>
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(All costs are in million 2020$)
Broadly advance equity and education

1. Ensure equity and equitable engagement are thoroughly incorporated into all efforts, initiatives, and research to decarbonize Minnesota’s natural gas end uses.

2. Conduct education and outreach for all Minnesotans to increase awareness and understanding of what they need to do to advance decarbonization of natural gas end uses.
Conduct studies to support better decision-making

3. **Assess options for deploying district energy systems** to support natural gas end-use decarbonization.

4. **Better define the various natural gas end uses for the large commercial and industrial sectors**, and match decarbonization technologies to those end uses.

5. **Explore infrastructure investment opportunities to decarbonize the energy demands of industrial and large commercial customers.**

6. **Conduct a workforce impact study** around the three decarbonization scenarios that this group explored.
Maintain and build a robust workforce

7. Improve gas and electric utility workforce reporting requirements.

8. Address energy sector workforce gaps that need to be addressed regardless of the pathway to decarbonizing natural gas end uses.

9. Ensure Minnesota’s workforce has the training and expertise necessary to support decarbonization of natural gas end uses.
Retrofit homes and small businesses

10. **Advance building shell efficiencies** well beyond the current trajectory.

11. **Significantly advance air-source heat pump deployment** for the residential sector, including multifamily housing.

12. **Address health and safety considerations** during any building envelope retrofits.

13. **Reduce barriers to deployment of all-electric and dual-fuel solutions** for existing buildings with rooftop units.

14. **Address split incentives** that pose barriers to implementing energy efficiency and technology adoption.

15. **Develop policies, programs, and actions to keep energy burden below established targets** to ensure that the costs of the transition are not borne disproportionately by the most under-resourced Minnesotans.
16. The Minnesota Public Utilities Commission should initiate a process to evaluate opportunities and considerations for changes to gas utility regulatory and policy structures needed to support cost-effective and equitable achievement of the state’s economywide greenhouse gas reduction goals and net-zero greenhouse gas emissions by 2050.
Update the Conservation Improvement Program

17. Update the CIP cost-effectiveness framework to ensure that it is aligned with state decarbonization goals.

18. Modify CIP to allow fuel switching and load management that enables the adoption of highly efficient decarbonization technologies.

19. Re-evaluate the methodology used to determine source energy from electric generation, to ensure it reflects the current mix of a utility’s electric generation resources.
Regulatory actions

20. Minnesota’s regulatory agencies, in consultation with utilities and stakeholders, should **develop a framework that requires and/or incentivizes gas utilities to integrate fuels and technologies to achieve decarbonization.**

21. Minnesota’s regulatory agencies should **implement regulatory reforms to prioritize utility procurement of natural gas and decarbonized gaseous fuels from producers that have adopted management practices to reduce greenhouse gas emissions across the entire process chain.**

23. Implement mechanisms to advance research, development, and deployment of innovative clean technologies to reduce greenhouse gas emissions across the natural gas supply chain.

24. The Minnesota Public Utilities Commission should require electric utilities to consider electric load and peak impacts resulting from natural gas decarbonization scenarios in their integrated resource plans and integrated distribution plans.
Addressing equity

25. Implement a stakeholder process to consider potential changes to gas and electric rate design and utility financing mechanisms to support an affordable and equitable transition to a decarbonized energy system.
Work Plan Development Update
City Priorities to focus next work plan
1. 30% Local, Distributed Solar by 2030
2. Beneficial Electrification of Natural Gas End Uses
3. Deep Energy Efficiency with Community Benefits

Partners’ Strategy
• Fewer projects, but with a LARGER Impact
• Increase equity and inclusion
• Greater engagement and collaboration with EVAC
• Rolling development and implementation of some activities to align with NGIA & ECO timelines and engagement in Regulatory Processes
Partnership Activity EE.5

Time of Rent Energy Cost Reporting Update

**Policy Intent:** Rental properties shall disclose building energy info to prospective residential tenants at time of application

- Gives renters upfront insight into the total housing costs of a given building
- Creates implicit incentive for building owners to make energy upgrades that lower utility bills
50,000+ sf Bldgs
- Effective Date: Sep 1, 2021
- Data Gathering: Utilize existing benchmarking process
- Disclosure: Provide tenants w/ benchmarking results or link to City’s results webpage

5+ Unit Bldgs (<50k sf)
- Effective Date: Sep 1, 2021
- Data Gathering: Utilize new utility webtools to create a building-specific energy report
- Disclosure: Provide tenants w/ links to unique energy reports

1-4 Unit Bldgs
- Effective Date: DELAYED IMPLEMENTATION (Currently looking for a mutually agreed upon solution)
- Data Gathering: TBD
- Disclosure: TBD
Utility webtools make energy reporting simple

Monthly Natural Gas Cost Estimate
August 23, 2021

The following information is provided as part of CenterPoint Energy’s energy benchmarking toolkit to help users access and better understand their property’s overall energy use and costs.

This document provides an estimate for annual natural gas energy costs per square foot and per bedroom using the property’s most recent 24 months of aggregated natural gas energy use data, and total floor area and total bedrooms provided by the property’s owner or manager.

Natural gas utility bills at a property can vary based on how the property’s natural gas uses and costs are distributed amongst property management and residents. An individual customer’s natural gas utility bill will also vary seasonally as natural gas equipment use increases in colder months.

Weatherization improvements and energy efficient appliances can help reduce a property’s natural gas use and costs, visit www.CenterPointEnergy.com/SaveEnergy to learn more.

Property name: 123 Apartments
Utility service address(es): 123 P St, Minneapolis, MN 55401

Property Natural Gas Usage:
Energy use period beginning: 01/01/2019
Energy use period ending: 01/01/2021
Total natural gas energy use during period: 96,000 therms
Total natural gas energy cost: $49,440.00
Average monthly natural gas energy use: 4,000 therms per month
Average monthly natural gas energy cost: $2,060.00 per month

Property Characteristics:
Total Floor Area (sqft): 10,000
Property Total Dwelling Units: 30
Property Total Bedrooms: 45

Natural gas energy cost estimate:
$0.21 monthly per square foot
$45.78 monthly per bedroom

Additional notes from property owner or manager:
1. Total energy use and costs associated with the property (as defined by the utility service addresses displayed above) are provided by CenterPoint Energy. These aggregate costs represent costs associated with all gas use at the building, including common areas. Aggregated costs do not include applicable local, state or federal taxes.
2. CenterPoint cannot verify the information provided by property owners and managers; any errors in the reporting would affect the accuracy of the reported metrics of cost per square foot or the cost per bedroom.

CenterPoint Energy has provided this information to an authorized individual in accordance with our Data Aggregation and Release Policy. CenterPoint Energy shall have no liability for misuse of data after it is released through this portal.
Seeking a Solution

- ~32,000 rental units in each category
- 1-4 unit rental properties are more prevalent in Green Zones, tend to house lower incomes and be less EE, and represent much of City’s NOAH.
- Working to bring housing cost data to all renters
Inclusive Financing Update
Other Partner Updates
Adjourn
Next Board Meeting
Q4 2021