

Clean Heat by 2040:

What Will it Take to Get Us There

LAND & TRAUMA ACKNOWLEDGEMENT

Wherever you may be, let us acknowledge that we are all on Indigenous land. Minnesota is located on the traditional and contemporary homelands of the Anishinaabe and Dakota peoples, the original stewards of this territory. We are committed to uplifting the name of these lands and the community members from these Nations as we pursue a right path together.

We acknowledge the trauma that is deeply embedded in the foundation of this country. The land we reside on came under control of the USA, through genocide, slavery, and ongoing occupation. We recognize the deep historical, spiritual, and personal trauma that has impacted indigenous communities, communities of color, and immigrant communities. By offering this acknowledgment of trauma, we affirm the right of people to bring their whole selves and stories into this space, and we affirm our intention to promote healing, respect, and love.



Clean Heat by 2040

- What is Clean Heat?
- What are the benefits?
- Why 2040?
- What are the barriers to getting to this goal?
- How can we take action to overcome them?

CO₂ Pipelines in Minnesota

Bret Pence

Greater Minnesota Director, MNIPL



Jim Doyle

St. Paul 350/Unidos



What is Clean Heat?

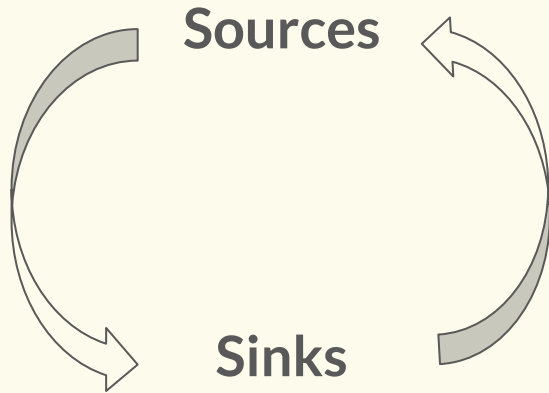
Not heat from burning things:

- Coal
- Natural Gas
- Biomass
- Fuel Oil

But **Collecting** heat found in:

- Air
- Ground
- Water

What is Clean Heat?



- Air
- Ground
- Water

Why transition to Clean Heat?

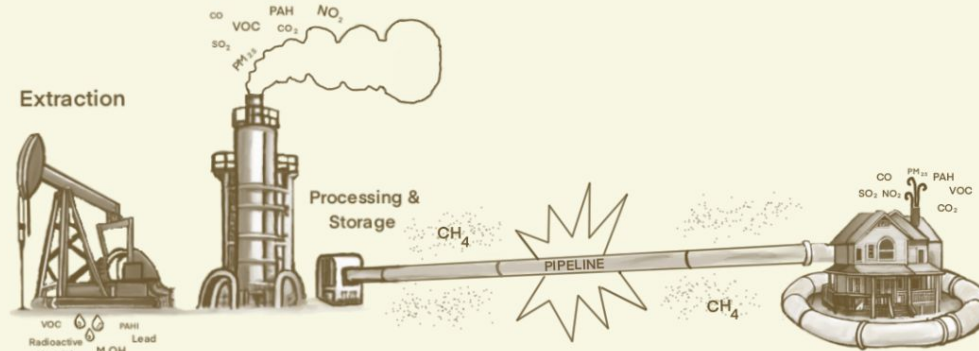
Impact of Burning Fossil Fuels:

- To Climate
- To Physical Health
- To Financial Health

Why transition to Clean Heat? Climate.

Natural Gas is Methane:

- 86 times as Potent as CO₂
- Methane leaks occur throughout the supply chain



Why transition to Clean Heat? Health.

Natural Gas is Making Us Sick:

- Driving up cancer and asthma rates

Why transition to Clean Heat? Efficiency saves.

Natural Gas Requires Extraction, Refining Over and Over:

- Raw materials are used up.
- This is always **inefficient** and **expensive**.

Why Clean Heat by 2040?

Meeting climate goals requires early and equitable action.

"Equity must be at the center of the global response... Wealthier countries will have to cut emissions more quickly, making reductions by 2030 beyond those currently proposed and reaching net-zero emissions before 2050."

- the New England Journal of Medicine, signed by 19 medical journals

Why Clean Heat by 2040?

Because we can.

The Technology that Gets Us to Clean Heat.

- Heat-Pumps
- Ground-source heat pumps
- Networked Geothermal (ground-source heat pumps)
- Thermal Energy Networks (using heat from air, water, ground)

Air Source Heat Pumps

Transfers heating or cooling air from the outside into the building or from the building to the outside

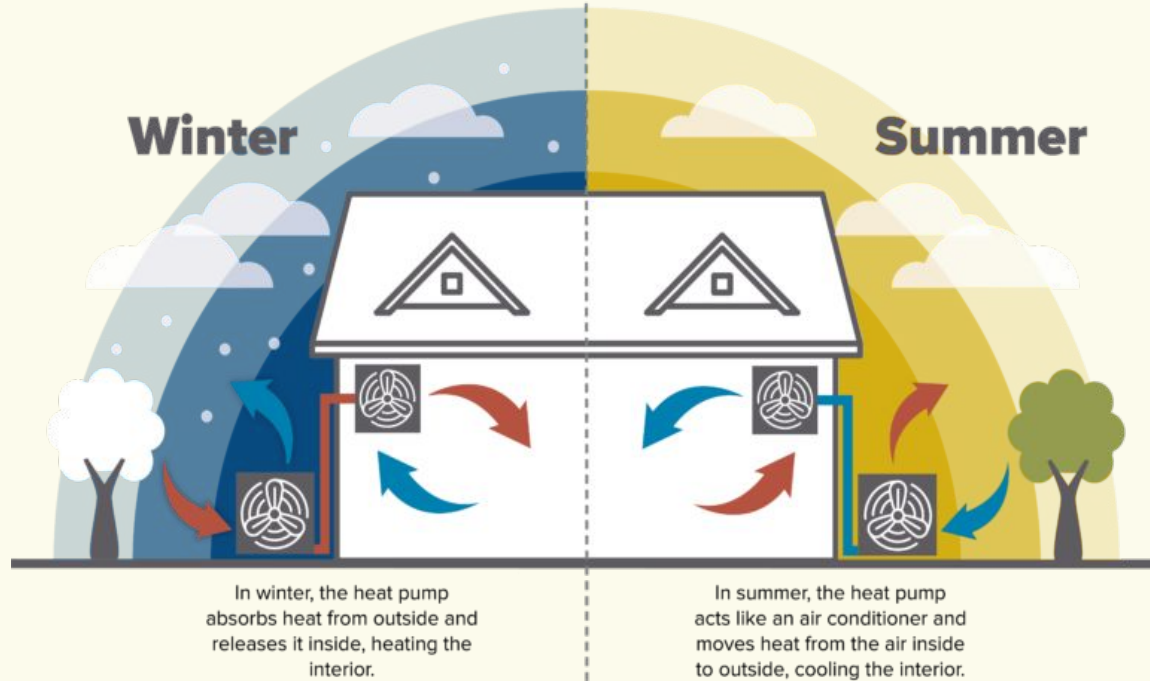


Image from elephantenergy.com

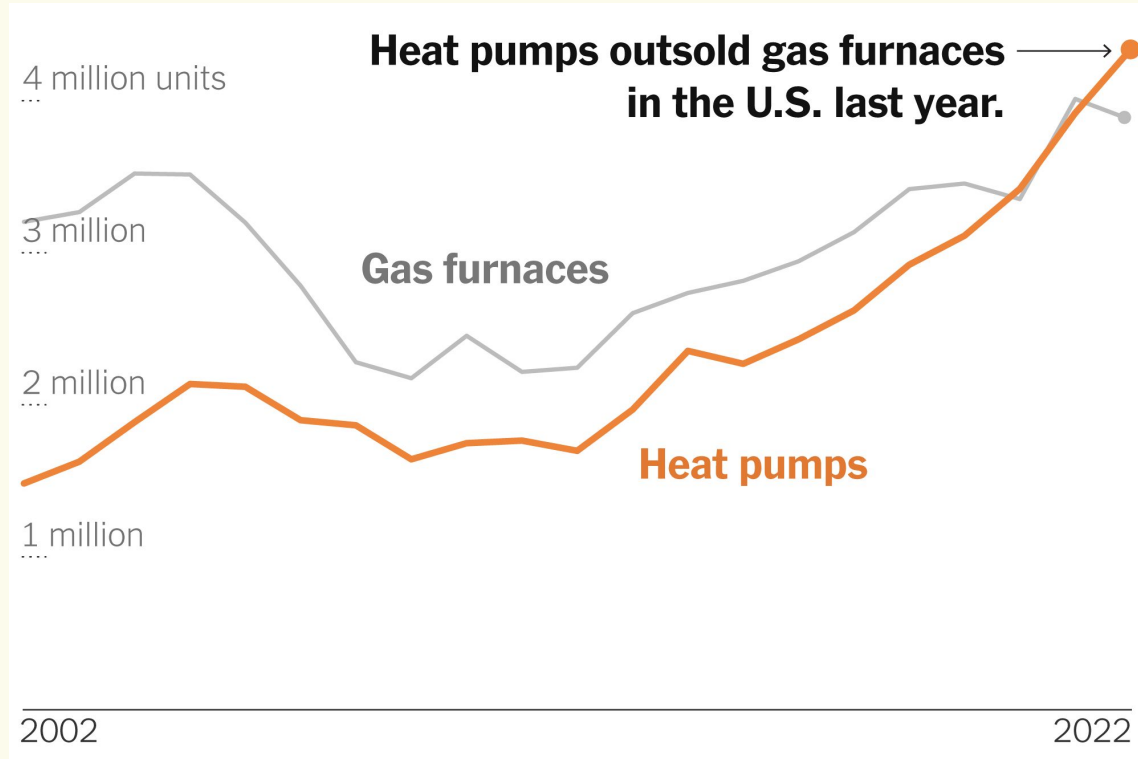
Air Source Heat Pumps

Joe and JoAnn Ward

- Built their home from the ground up to be carbon neutral!
- Prominent features include:
 - Heat pump
 - Solar Panels
 - Battery for storage
 - Induction Stove
 - Thick windows and walls
 - Electric Vehicles

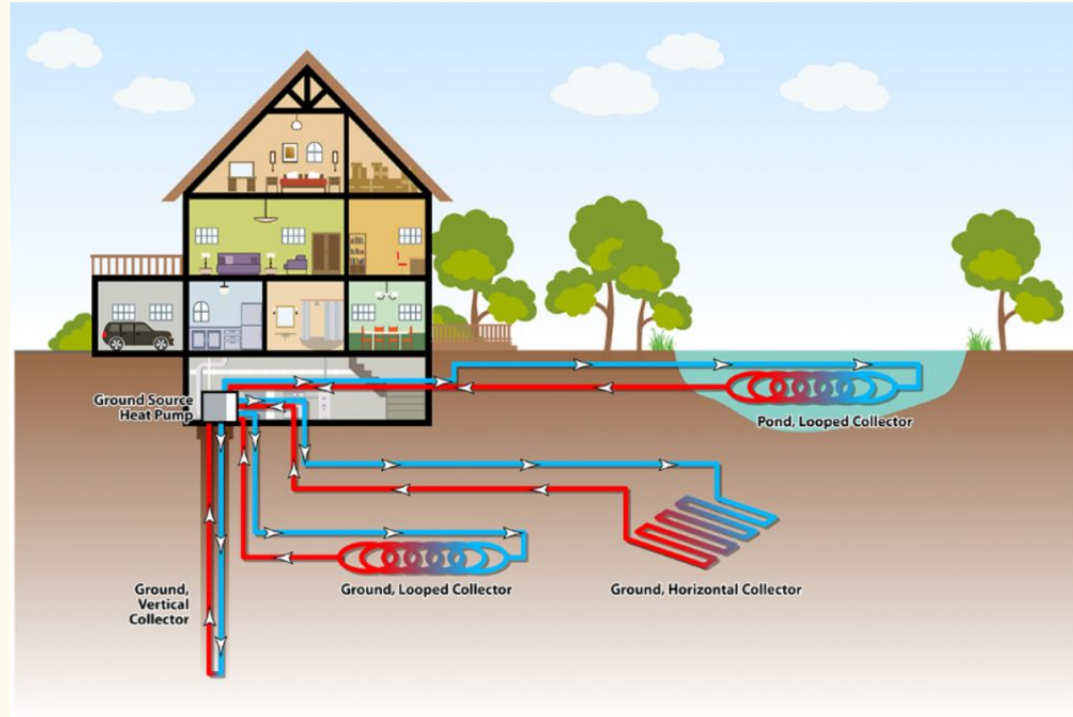


Good News: Heat-Pumps Taking Off



Ground Source Heat Pumps

Transfers heat from the ground into the building (source) or transfers heat from the inside into the ground (sink)



MN Ground Source Heat Pump / Geothermal Case Studies

Minnesota Churches

Saints Peter and Paul Catholic Church (Elrosa, MN - population 213)

St. John the Divine Episcopal Church (Moorhead)

Our Lady of Grace (Edina)

Mount Olive Lutheran Church (Minneapolis)



“We hope that our bills will be at least half, and probably two-thirds of what they were” -Art Halbardier, manager of the church building committee

Ground Source Heat Pumps



Darcy Systems' Ground Source Heat Pump installed to cool St. Paul Steamfitters and Pipefitters Local 455.

“We think it’s probably going to be the future of cooling,” Local 455 Business Manager Tony Poole said. “It virtually provides our building with free air conditioning. The only costs that we pay are for the electricity to run the pumps that cycle water through the building.”

Thermal Energy Networks

Networked Geothermal

Duluth Wastewater

- Last year the DOE announced a 13-million dollar initiative to fund geothermal heating and cooling systems
- Duluth received \$700,000 to develop a geothermal district heating system: use heat from wastewater from Western Lake Superior Sanitary District to heat buildings in the Lincoln Park neighborhood



<https://www.duluthnewtribune.com/news/local/award-allows-duluth-to-explore-wastewater-as-possible-heat-source>

MN Networked Geothermal Case Studies

Rochester:

Under construction now:

- Destination Medical Center
- City Hall
- Public library
- Mayo Clinic Civic Center

Proposed:

- Downtown residential and commercial buildings
(1 million⁺ square feet of downtown space)



“A few years ago, it would have taken about 50 wells to heat and cool city hall. Now, it requires just two wells thanks, in part, to design innovations developed in the past decade at the University of Minnesota.”

MN Networked Geothermal Case Studies

Milan

(Chippewa County)

Population – 418 people

- Milan Elementary School Buildings
- Church
- Private Residences

All Networked



“The west central town, through its Greater Milan Initiative, committed in 2009 to develop a long-term community culture of reducing energy usage and costs and promoting renewable energy to end users.”

MN Networked Geothermal Case Studies

Presbyterian Homes:

Geothermal being used extensively on large senior developments

Carondelet Village - Wayzata

Folkestone - Wayzata



“John Mehrkens, Presbyterian Homes & Services vice president of development, said the decision to build large geothermal installations and green roofs at Carondelet Village and Folkestone in Wayzata both **made financial sense** over the long term.”

The Heights - St. Paul

In St. Paul's East Side, The Heights new development will use networked geothermal:

- 1,000 fossil-fuel free housing units
- 1,000 living wage jobs
- Received \$4.7 from MNCIFA – MN Climate Innovation Finance Authority
 - Addressing energy burden on East Side
 - Alternative to fossil fuels
 - Lowering the cost of energy



Image from St. Paul Port Authority.

St. Paul 350 / Unidos - Engagement Model

Engage with City Council and Mayor's office to advocate for a robust and timely heat decarbonization plan in the City's Climate and Resilience Plan

Regular meetings with Russ Stark, and Ward teams currently meeting with their CMs



Image from St. Paul Port Authority.

St. Paul 350 / Unidos - Engagement Model

Block-by-block approach to ensure equity

Focus on geothermal energy networks to take advantage of efficiencies, economies of scale, diversity of thermal sources and sinks



Image from St. Paul Port Authority.

What are the Barriers to Clean Heat by 2040?

- Pursuit of False Solutions
- Predatory Delay by Utilities and Fossil Fuel Industry

What are the Barriers to Clean Heat by 2040?

- Pursuit of False Solutions
 - Renewable Natural Gas

Renewable Natural Gas (RNG) - A False Solution

- Renewable Natural Gas = Biomethane industry
- Benefits large-scale dairy producers = Incentivizes consolidation
- Promotes CAFOs and manure pits
- Impacts rural communities' air quality
- Impacts our water

Riverview Dairy

- 3rd largest dairy operation in the world
- Operates in Western MN, South Dakota, Nebraska, New Mexico, Arizona
- Relies on CAFOS
 - Drains water resources and impacts water quality in Western MN



What are the Barriers to Clean Heat by 2040?

- Pursuit of False Solutions
 - Renewable Natural Gas
 - Hydrogen

What are the Barriers to Clean Heat by 2040?

- Pursuit of False Solutions
- **Predatory Delay by Utilities and Fossil Fuel Industry**

How can we overcome the barriers?

Policy Opportunities

→ Benchmarking Bill

→ Utility Accountability Bill:

What is it rate-payers shouldn't have to pay for?

- *Excessive executive compensation?*
- *Dues to the Natural Gas Association?*
- *Build-out of new natural gas infrastructure?*
- *Lobbyists at the State Capitol?*
- *Marketing materials to promote natural gas?*

How can we overcome the barriers?

Policy Opportunities

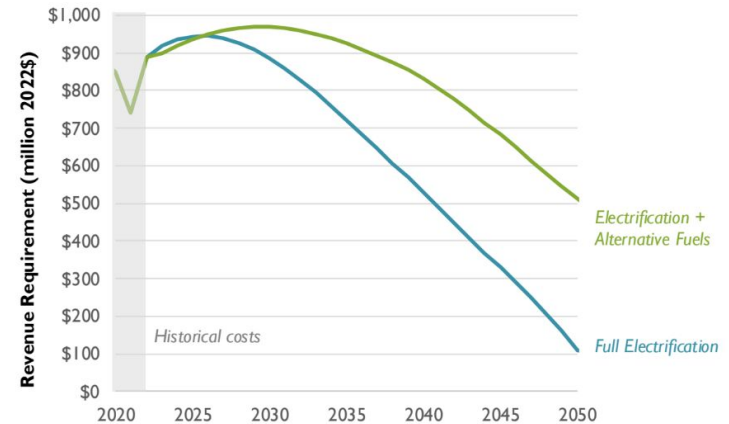
→ Ban on Build-out of New Natural Gas

- **New York State:** Passed law banning natural gas and other fossil fuels in most new buildings
- **Denver:** New building codes will ban natural gas furnaces and water heaters in new commercial & multifamily construction in 2024
- **Chicago:** City council considering ban on natural gas in new buildings
- **Massachusetts:** 10 cities/towns will ban natural gas in all major renovations
- **Washington DC:** Banned most natural gas use in new buildings and outlines a net-zero construction requirement for all new buildings and substantial renovations by 2026

Synapse Study from the Clean Heat Coalition MN

- Compared decarbonization paths
 - **Path 1: Full electrification**
 - Path 2: Maximize use of Renewable Natural Gas (RNG)
- **Results: Full electrification better**
 - **Cost effectiveness:** 25% lower costs (reduction of \$13-\$15 billion)
 - **Health:** \$55.8 million—\$129.5 million cumulative health benefits by 2050
 - **Emission Reduction Goals:** 9% lower emissions

Figure 1. Residential and commercial gas revenue requirement



Action Steps

1. **Engage:** Make an appointment with your legislator

Legislators must know: We have what we need BUT utilities are stalling
AND we must avoid false solutions

2. **Join our Clean Heat Policy Discussion and Action Group:**

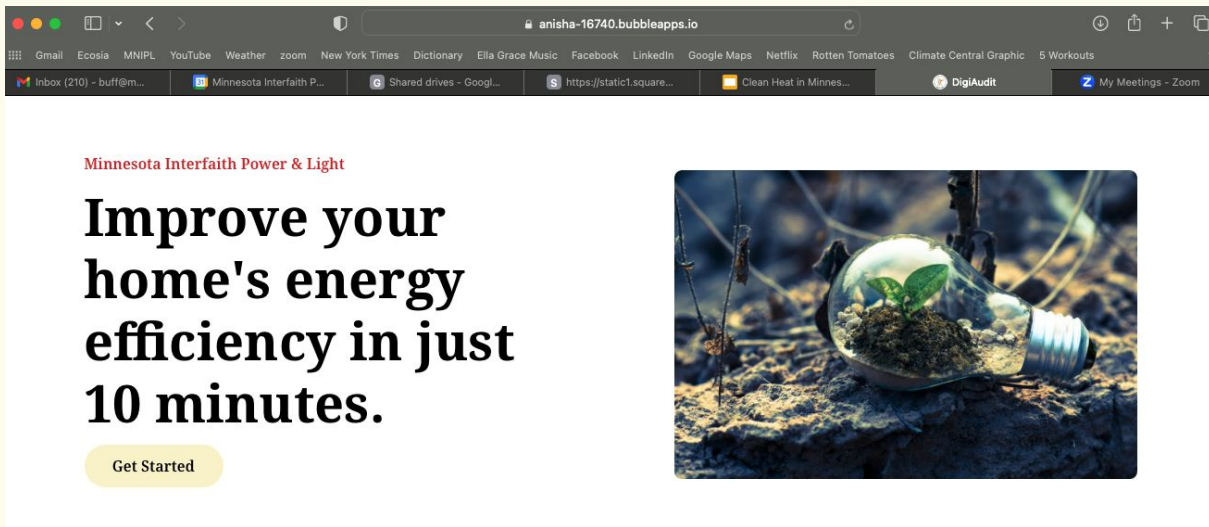
Fill out this Google Form:

<https://docs.google.com/forms/d/15Duphz8sjcEa2f9yHCM5rGU0ALQkq3JzepC0i0Pj0eo/edit>

See Webinar Chat and Follow-Up Resources or email sara@mnipl.org

Coming Action Step

Household Energy – Digital Audit



The screenshot shows a web browser window with the URL `anisha-16740.bubbleapps.io`. The browser's address bar and tabs are visible. The main content of the page includes the text "Minnesota Interfaith Power & Light" in red, followed by the headline "Improve your home's energy efficiency in just 10 minutes." in large black font. Below the headline is a yellow "Get Started" button. To the right of the text is a photograph of a small green plant growing inside a glass lightbulb that is lying on its side on a rocky surface.



Developed by MNIPPL's 2024 UNC Intern Team



Writing Comments: Gas Integrated Resource Planning

Docket #23-117: Gas Utility Resource Planning

This legislation requires gas utilities to submit a comprehensive plan for their future use of gas and gas infrastructure in providing energy to Minnesota customers.

Help decide how the PUC assesses these plans!

→ Reach out to Sara Wolff at sara@mnipl.org if you're interested in making a comment

◆ The deadline for comments is Friday, July 19

Writing Comments: Xcel Rate Case and American Gas Membership

Docket #23-413: Raising Rates and Paying Dues for Xcel

Xcel Energy is proposing raising its rates 9.6 percent and also continuing to force customers to pay \$285,000 in estimated dues. Make a comment to the PUC!

- Reach out to Sara Wolff at sara@mnipl.org if you're interested in making a comment
 - ◆ The deadline for comments is Friday, July 19

THANK YOU!



Please make a
gift to MNIPPL
today!

