

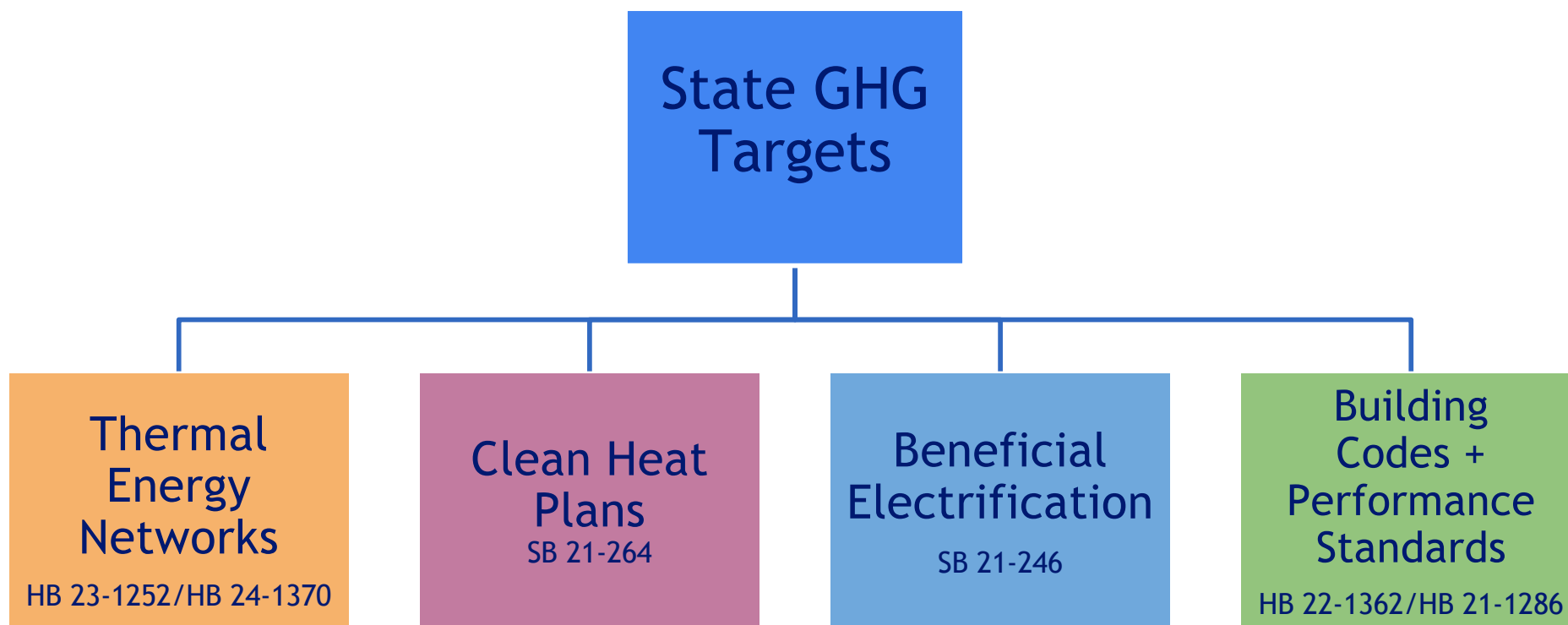
Clean Heat Planning in Colorado

NASEO Fall Meeting
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Will Toor, Colorado Energy Office

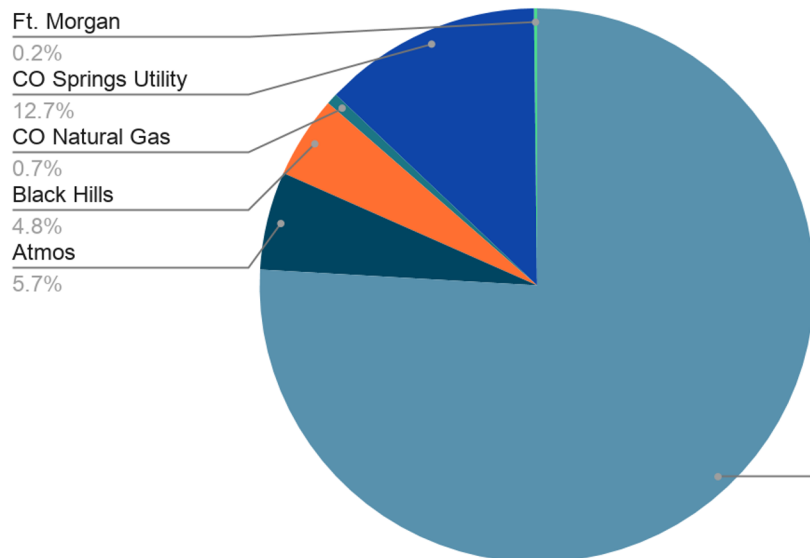


Colorado Building Decarbonization Legislation



Colorado Gas Utilities

Percent of GHG Emissions



- Investor-owned-utilities regulated by the Colorado PUC: Xcel Energy, Black Hills Gas, Atmos Energy, and Colorado Natural Gas
 - Only Xcel has combined (electric/gas) service customers; Xcel covers about 75% of customers
- Colorado Springs and Fort Morgan are municipal utilities. Co Springs provides gas and electric service.

What is a Clean Heat Plan (CHP)?

Gas Distribution Utilities Must Submit Plan For Emission Reductions

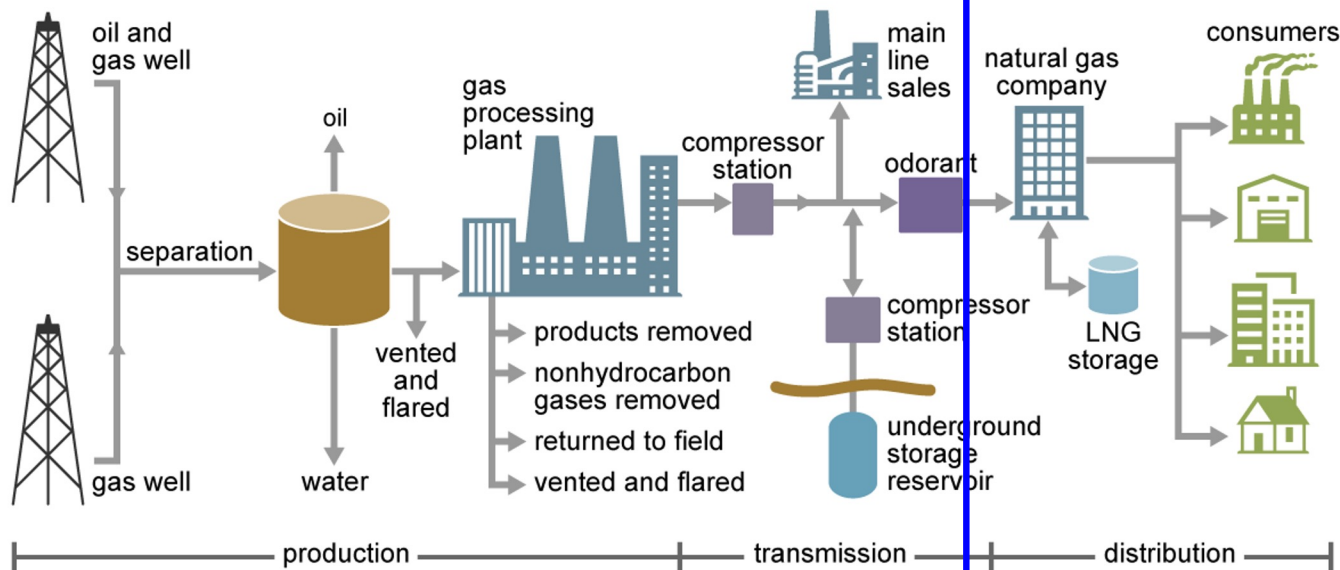
- Senate Bill 21-264: Sets greenhouse gas emission reduction targets of 4 percent for 2025 and 22 percent for 2030 relative to a 2015 baseline. PUC must set post-2030 emissions reduction targets.
- Investor-owned gas utilities must file five-year CHPs with the PUC beginning in 2023, with budgets and emission reduction estimates for 2024-2030

Eligible Clean Heat Resources

- Demand-side Management (energy efficiency + demand response)
- Beneficial Electrification
- Green Hydrogen
- Recovered Methane
- Thermal Energy
- Additional Commission-designated resources

Clean Heat Planning

Natural gas production and delivery



Clean Heat Planning focuses on gas LDCs and fuel delivery to full-service customers



Source: U.S. Energy Information Administration

PUC Approval of Clean Heat Plans

The Clean Heat Statute directs the PUC to consider five factors when approving a CHP:

- Whether the [CHP] achieves the clean heat targets through maximizing the use of clean heat resources;
- The additional air quality, environmental, and health benefits of the plan in addition to the [GHG] emission reductions;
- Whether investments in a [CHP] prioritize serving customers participating in income-qualified programs and communities historically impacted by air pollution and other energy-related pollution;
- Whether the [CHP] results in a reasonable cost to customers, including savings to customer bills resulting from investments made pursuant to the plan; and
- Whether the [CHP] ensures system reliability.

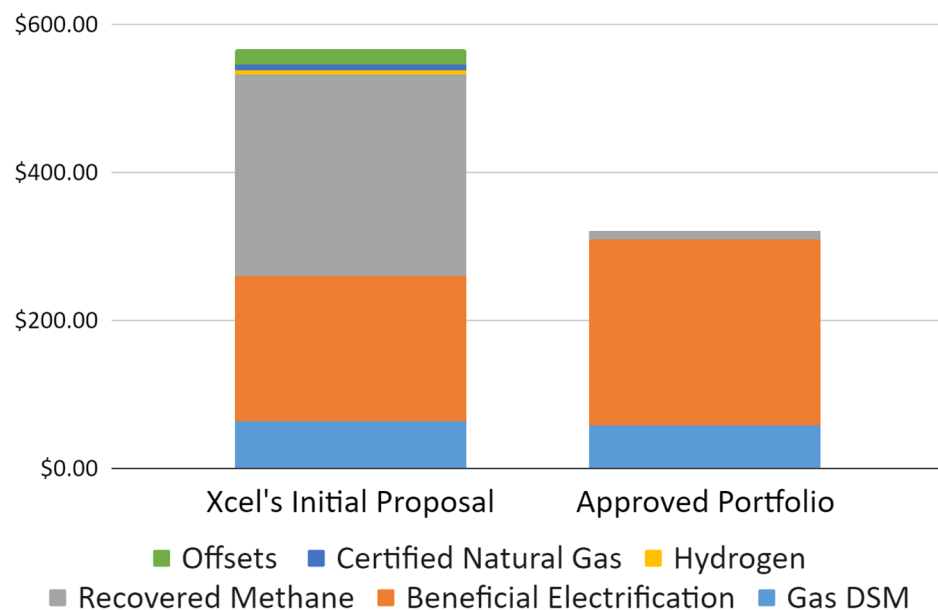
Lowest Reasonable Cost

In approving a Clean Heat Plan, the PUC standard of review is for cost is whether plan is the “Lowest Reasonable Cost,” which means a reasonable-cost mix of clean heat resources that meet the clean heat targets as determined through a detailed analysis of available technologies and includes:

- Resource costs
- Market volatility risks
- Risks to ratepayers
- System operations costs
- Infrastructure costs
- Environmental justice goals
- Social cost of carbon and methane in comparing alternatives
- Other costs and benefits as determined by the Commission

Xcel Energy's Clean Heat Portfolio (final)

Initial vs. Approved Portfolio



Key aspects

- **Resource Diversity**
 - Prioritization of DSM and BE - very large investment in BE
 - Could be a future role for recovered methane and hydrogen - if enough information is provided (e.g. pricing, locations)
- **Equity:** income-qualified and disproportionately impacted communities budget carve outs

Black Hills Gas Clean Heat Plan (pending)

- The proceeding is awaiting a decision at the PUC
- Utility's preferred portfolio included:
 - Increasing levels of renewable natural gas and advanced monitoring and leak detection
 - Decreasing levels of DSM, where DSM represented the majority of emissions reductions
 - The utility also included a small BE pilot in an area served by an electric utility affiliate
 - Costs limited to a 2.5% customer bill impact (statutory cost cap)
- Black Hills, CEO, and two state agencies came to an agreement on:
 - Higher, consistent levels of DSM, a thermal energy feasibility study, and the BE pilot
 - Increasing advanced monitoring and leak detection
 - The potential for renewable natural gas, under cost and timing parameters
 - Costs limited to a 2.5% customer bill impact (statutory cost cap)
 - Another intervenor opposes the settlement agreement
- **One lesson - very different dynamics with a utility that is not dual fuel for the same customers, much less focus on electrification**

House Bill 24-1370: Reduce Cost of Use of Gas

Creates a process for five pilot communities to partner with Xcel Energy on neighborhood scale electrification or thermal utility networks as alternative to gas system investments; creates obligation to serve thermal services rather than gas services in pilot areas

- Request for Information will determine the criteria for identifying neighborhoods which may be interested in becoming a gas planning pilot project
- Allows for PUC to approve of up to **5 local governments** to become Gas Planning Pilot Communities that will work with the utility to propose Neighborhood Scale Alternatives Projects for transitioning from gas service to non-emitting resources, such as geothermal or heat pumps
- Applies only to customers on the Xcel Energy gas system.

House Bill 23-1252: Thermal Energy Networks (TEN)

- Created TEN definitions aligned with other legislation (NY) plus apprenticeship requirements
- Allows gas utilities to propose thermal energy networks to PUC not otherwise included in a clean heat plan (SB 21-264) or DSM filing
- Pilot geothermal project required for utilities over 500k customers (Xcel Energy) to be filed by September 1, 2024
- Before Jan. 1, 2025, PUC shall initiate proceeding to determine commission rulemaking or legislative changes are needed to facilitate development of thermal energy

- Intended to spur innovation, good jobs, and create decarbonization pathway for gas utilities

House Bill 23-1252 continued

- Utility pilot report must include assessment of TEN's:
 - Potential to provide bill stabilization and methods to achieve it
 - Potential to reuse existing gas infrastructure or to time end-of-life gas retirement/replacement
 - Potential to assist avoiding stranded gas assets
 - An estimate of avoided emissions
 - Programs, incentives, or other mechanisms to employ widespread implementation a viable option
- PUC's proceeding shall consider appropriate utility ownership models and rate structures
 - They may also consider if rules are necessary for creating requirements for qualified third parties, ensuring reliable/resilient service, promoting training/job transition for utility workers, rate recovery mechanisms, and cost recovery

Recent Colorado Geothermal Network Legislation

Bill	Description
HB 22-1381: Colorado Energy Office Geothermal Energy Grant Program	\$12 million for single-structure geothermal, networked geothermal, and geothermal electricity systems
HB 23-1252: Thermal Energy	Creates definition for thermal energy networks (TEN), TEN pilot required for Xcel Energy, and potential PUC rulemaking to facilitate TEN development
HB 23-1272: Tax Policy That Advances Decarbonization	Includes a projected \$53 million in refundable state tax credits for geothermal networks
SB 23-292: Labor Requirements for Energy Sector Construction	Projects that cost \$1 million or more require various labor requirements (mirrors federal)