

Decision No. C23-0144

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO**

PROCEEDING NO. 23M-0092G

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IN THE MATTER OF THE COMMISSION'S GENERAL INVESTIGATION INTO  
COLORADO NATURAL GAS UTILITIES' DESIGN DAY AND PEAK DEMAND  
PARAMETERS.

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**COMMISSION DECISION OPENING REPOSITORY  
PROCEEDING AND SCHEDULING  
COMMISSIONERS' INFORMATION MEETING**

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Mailed Date: February 28, 2023

Adopted Date: February 22, 2023

**I. BY THE COMMISSION**

**A. Statement**

1. By this Decision, the Commission opens this Proceeding to serve as a repository for materials relating to the Commission's general investigation into Colorado natural gas utilities' design day and peak demand parameters. Filings containing supporting information or documents may be submitted in this Proceeding, both prior to and following the initial Commissioners' Information Meeting (CIM) scheduled by this Decision.

2. The Commission intends to hold one or more CIMs on this topic to solicit information from subject matter experts. The first Commissioners' Information Meeting is scheduled for March 6, 2023 at 1:00 p.m. The goal for this meeting is to improve transparency and the Commission's understanding around the natural gas utility planning, modeling, and projection processes prior to the Gas Infrastructure Plans (GIPs) that will be filed starting in May of 2023 pursuant to the rules being promulgated in Proceeding No. 21R-0449G.

3. Commissioner Megan M. Gilman will preside over the CIM, as initial utility contacts have been made per her request to the Commission's Research and Emerging Issues Team.

**B. Findings and Conclusions**

4. As explained further in the Commission's decisions rendered in Proceeding No. 21R-0449G, the Commission has adopted comprehensive planning rules for regulated gas utilities that continue Colorado's leadership in the growth of clean energy pursuant to both Senate Bill 21-264 and House Bill 21-1238. Decision No. C22-0760. For instance, Rule 4552 requires each Colorado gas utility to file a GIP every two years. To better prepare both the Commission and the utilities, this CIM is intended to promote a deeper understanding of current and historic gas planning methods and modeling approaches.

5. Discussion will be guided by the following list of questions, which has been provided to each of the utilities in preparation for the March 6, 2023, CIM:

a) **Usage and Demand:**

- How does the utility define its operating gas day (e.g., 7am to 7am MT)?
- How are projections for usage per customer developed and updated?
  - What is the assumed increase in gas flow to feed the same building at 0°F, -5°F, -10°F, -15°F, -20°F, -25°F?
- Do utilities utilize DSM program participation in certain areas or measure types of usage to understand interaction with peak demand?
- When looking at mountain systems where there are large snowmelt loads, what are projections for utilization of snowmelt systems at the design day temperature?
- How are the end-uses for gas considered in the design day?
  - What are the different considerations for residential/commercial/industrial?

- Are there different considerations for heating vs. hot water vs. other?
- What contingency plans does the utility maintain for an event where load in excess of design day forecast and/or supply failures result in an inability to serve contemporaneous load while maintaining adequate pressure?
- Do the utility customers have automated meters? If so, interested in information on installation by rate class, including percent of rate class and by areas of service territory and the granularity of data.

b) **Weather:**

- What are the design temperatures used in each different weather zones of the utility's system?
  - What is the basis for these temperatures?
  - How has this logic changed (if at all) as weather patterns have changed?
- Does the utility plan system load and service for multi-day cold weather events?
  - If yes, please explain the multi-day event assumptions and the basis for the assumptions and inputs (e.g., an actual multi-day event that took place in recent history).
  - If not, why not? What approach does the utility apply to conduct such analysis?
- Within the coldest recent recorded temperatures experienced on your system, how does timing of day influence modeling? Time-dependency and predictability of industrial loads, DHW, etc. vs those loads that are more directly weather-dependent. How is this considered in projections?
- How does historic weather data and system peak correlate with modeled design day needs?
  - If you take the actual five coldest days with utility data, what has gas flow been?
  - What were the weather conditions and time of day for highest peak gas flow for segments of the system in Denver metro, mountain system?
  - What parameters had the most influence on the occurrence of peak gas flow in the highest five observed peaks?

c) **Historic Usage:**

- Looking at historic usage and how it correlates with temperature, do the observed peak flows correlate well with temperature fluctuations?

- We would like to see a compilation of gross and per capita gas flow in different sectors (res/comm/ind)
- This data would be useful to see for somewhere like Summit County or Winter Park in addition to somewhere on the Front Range.
- How close have we actually come to needing as much gas as projected by design day requirements?
  - Is there an explicit safety margin used in the modeling? If so, what is the safety margin?
  - What is the closest that actual flows have gotten to projections for design day in various areas of the system?
- What is the utility's typical, or average, daily load forecasting error over the past five years?

**d) Projections/Modeling:**

- What kind of model does the utility use to project natural gas demand (e.g., end-use, econometric, hybrid)?
  - Do they run it themselves or have someone (a consultant, e.g., Itron, Marquette) forecast their demand?
  - What are the variables in the model and what is the source of the data used to update it?
  - What, if anything, is adjusted in post-processing and how?
- How are building codes and market changes in efficiency and fuel switching factored into future design day projections?
- How are energy efficiency, conservation, and demand response programs accounted for in the demand forecast?
- With respect to daily load forecasts, what is the utility's targeted reserve margin?
  - Does the utility's targeted reserve margin change for a day that is expected to be a near peak day?
- What software package does the utility use to conduct hydraulic load analyses?
- How does the utility determine the need to add capacity? Upon what interval is this reevaluated?
- How does the utility determine the maximum load it can serve?
  - Does it do so on a system-wide basis or does it do so by subsystem? Define those subsystems.
- Does the utility prepare seasonal, monthly or daily demand/capacity balance analyses to support planning?

- How granular is the accessible usage/demand data?
- How does the utility account for uncertainty in their forecast (e.g., range of demand forecasts reflecting weather, economic activity, and penetration of energy efficiency measures)?
  - Does it conduct any scenario analysis to evaluate these factors?
  - How broad have the uncertainty margins been historically?
- What duration is planned for regarding a design event?
  - Is the event typically a few hours? A day? A week?
  - How quickly do the design event parameters ramp up and drop off from the extreme temperature reached?
- How is the utility incorporating climate change impacts in its demand forecast for the next 20 years?
  - Are the design parameters for each weather zone expected to change?
  - Are the overall number of heating degree days expected to change?

## II. **ORDER**

### A. **The Commission Orders That:**

1. This Proceeding is opened as a repository for materials relating to the Commission's general investigation into Colorado natural gas utilities' design day and peak demand parameters, consistent with the discussion above.

2. This Proceeding is designated as an administrative proceeding under 4 *Code of Colorado Regulations* 723-1-1004(b) of the Commission's Rules of Practice and Procedure.

3. A Commissioners' Information Meeting is scheduled as follows:

DATE: Monday, March 6, 2023

TIME: 1:00 p.m. until concluded, but not later than 5:00 p.m.

LOCATION: Hearing Room A, which can be found on the Commission's website at <https://puc.colorado.gov/webcasts>

4. The Commissioners' Information Meeting will be held online via Zoom. A Zoom link will be emailed to speakers and participants prior to March 6, 2023.

5. This Decision is effective upon its Mailed Date.

**B. ADOPTED IN COMMISSIONERS' WEEKLY MEETING  
February 22, 2023.**

( S E A L )



ATTEST: A TRUE COPY

G. Harris Adams,  
Interim Director

THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF COLORADO

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