Winter Heating Outlook
Preparations and Expectations

American Gas Association
The American Gas Association (AGA) represents companies delivering natural gas safely, reliably, and in an environmentally responsible way to help improve the quality of life for their customers every day. AGA's mission is to provide clear value to its membership and serve as the indispensable, leading voice and facilitator on its behalf in promoting the safe, reliable, and efficient delivery of natural gas to homes and businesses across the nation.

Committed to utilizing America’s abundant, domestic, affordable and clean natural gas to help meet the nation’s energy and environmental needs.
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Observations

Heading into the winter heating season

ENERGY PRICES CLIMBED THIS SUMMER BUT HAVE SINCE FALLEN

GAS UTILITIES ARE PREPARED THROUGH SUPPLY PLANNING AND ASSISTANCE PROGRAMS

NATURAL GAS REMAINS MOST AFFORDABLE HOME HEATING FUEL
Storage rebuild is accelerating right before winter

Lower 48 weekly working gas in underground storage

billion cubic feet

Mar May Jul Sep Nov Jan

2022 2021 2017-2021 average 2017-2021 range
US natural gas futures are trading above recent history

Natural Gas Prices Prompt-Month Futures at Henry Hub
$/MMBtu

Source: Energy Information Administration
Analysis & Chart: American Gas Association
US natural gas prices remain within historical bounds

Daily Natural Gas Prices Prompt-Month Futures at Henry Hub, Inflation Adjusted (Sept. 2022$/MMBtu)

Source: Energy Information Administration
Analysis & Chart: American Gas Association
Natural gas futures prices decline by end of winter

Natural gas futures price (twelve-month strip)

Dollars per million British thermal units

Nov-22 Jan-23 Mar-23 May-23 Jul-23 Sep-23

Current reporting week
Prior reporting week
Year ago
Supply growth to overtake demand in 2023, according to EIA Short-Term Energy Outlook

### Natural Gas Balances (Bcf per Day)

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Dry Gas Production</strong></td>
<td>74.9</td>
<td>84.3</td>
<td>92.9</td>
<td>91.5</td>
<td>94.6</td>
<td>97.6</td>
<td>99.6</td>
</tr>
<tr>
<td><strong>LNG Net Exports</strong></td>
<td>1.7</td>
<td>2.8</td>
<td>4.9</td>
<td>6.4</td>
<td>9.7</td>
<td>10.9</td>
<td>12.3</td>
</tr>
<tr>
<td><strong>Pipeline Net Exports</strong></td>
<td>-1.4</td>
<td>-0.8</td>
<td>0.4</td>
<td>1.1</td>
<td>0.8</td>
<td>0.7</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Total Consumption</strong></td>
<td>74.4</td>
<td>82.6</td>
<td>85.3</td>
<td>83.4</td>
<td>84.0</td>
<td>87.9</td>
<td>85.3</td>
</tr>
<tr>
<td><strong>December Working Gas Inventories (Bcf)</strong></td>
<td>3,033</td>
<td>2,708</td>
<td>3,188</td>
<td>3,341</td>
<td>3,210</td>
<td>2,857</td>
<td>3,163</td>
</tr>
<tr>
<td><strong>Net Inventory Change</strong></td>
<td>-0.7</td>
<td>-0.9</td>
<td>1.4</td>
<td>0.5</td>
<td>-0.2</td>
<td>-1.0</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Source: Energy Information Administration
Table: American Gas Association
Notable forecast changes in EIA Short-Term Energy Outlook

• Natural Gas Prices in 2022 Q4 (Henry Hub Spot, $/MMBtu)
  • Was: $9.03
  • Now: $7.41
  • Change: -18%

• Residential natural gas consumption (Billion cubic feet per day):
  • Was: 16.76
  • Now: 16.84
  • Change: +0.5%

Source: Energy Information Administration
How do utilities plan for the Winter Heating Season?

- Anticipate consumer demand, manage physical flows, and mitigate market fluctuations
  - Utilities must manage extreme demand due to weather
- Diversify sources of supply
  - Balances consumption with domestic and international suppliers
  - Utilize a range of physical and financial mechanisms
- Ready to deliver natural gas safely and reliably
  - Meeting consumer needs on the coldest days, weeks, and months
Since last year, the option for pipeline storage and Citygate supplies for transportation customers were the most used sources of peak gas supplies for the 2020 – 2021 winter heating season.

Besides pipeline transportation, other gas supply sources are also important for peak-day deliveries such as Citygate purchases for sales customers, LNG / Propane-air / SNG, local production, on-system underground storage, purchases moved via firm transportation, and asset-managed contracts.

- The other also included purchases to supplement imbalances with third-party suppliers, on-system balancing and linepack.
Gas utility strategies utilize a diversity of supplies and operational tools.

Companies tend to diversify their supply strategy in increments that often amount to less than 50 percent of their total supply.

Source: American Gas Association, LDC Supply Portfolio Management During the 2020-2021 Winter Heating Season
Gas utilities use several tools to reduce the effects of market volatility on customer bills to reliably and economically procure gas supplies. Even state regulator-approved pricing mechanisms may appear favorable one year while less so the next. Flexibility and constructive policy reviews can have a positive effect on the delivery of natural gas and services to customers at the lowest possible cost. 

Source: American Gas Association, LDC Supply Portfolio Management During the 2020-2021 Winter Heating Season
Natural gas utility preparations include continual work with customers through energy efficiency and weatherization programs.

### U.S. Natural Gas Efficiency Program Investments
(Million Dollars)

<table>
<thead>
<tr>
<th>Year</th>
<th>Investment (Million Dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>$320</td>
</tr>
<tr>
<td>2008</td>
<td>$565</td>
</tr>
<tr>
<td>2009</td>
<td>$803</td>
</tr>
<tr>
<td>2010</td>
<td>$838</td>
</tr>
<tr>
<td>2011</td>
<td>$958</td>
</tr>
<tr>
<td>2012</td>
<td>$1,130</td>
</tr>
<tr>
<td>2013</td>
<td>$1,150</td>
</tr>
<tr>
<td>2014</td>
<td>$1,270</td>
</tr>
<tr>
<td>2015</td>
<td>$1,290</td>
</tr>
<tr>
<td>2016</td>
<td>$1,300</td>
</tr>
<tr>
<td>2017</td>
<td>$1,367</td>
</tr>
<tr>
<td>2018</td>
<td>$1,412</td>
</tr>
<tr>
<td>2019</td>
<td>$1,578</td>
</tr>
</tbody>
</table>

Source: American Gas Association
Expectations for 2022-2023 Winter Weather

NOAA Forecast
October-December

NOAA Forecast
January-March

Source: National Weather Service Climate Prediction Center
Temperatures will drive energy consumption

- NOAA's forecast expects temperatures to be close to normal in terms of total heating degree days.
- Estimated usage for 2022/23 based on NOAA and EIA Winter Season Forecast.

Source: National Weather Service Climate Prediction Center, Energy Information Administration
Natural gas remains the most affordable home heating fuel

Average Expenditures for Heating Fuels During the Winter (October – March)

Sources: Energy Information Administration, Winter Fuels Outlook 10/12/2022
Natural gas is the principal heating fuel across much of the country.

- 75% of Electric Space Heating Households Live in the South
- 36% of Electric Space Heating Households Use a Heat Pump, 88% in the South
- 84% of Gas Space Heating Households Use a Warm Air Furnace
- 57% of Gas Space Heating Households Live in the North

Sources: US Census, American Community Survey 2021, Heating Fuel by Occupied Homes, EIA Residential Energy Consumption Survey 2020
Shipments of gas warm-air furnace increase in 2021

Gas Warm Air Furnaces

Source: Monthly Shipments, Air-Conditioning, Heating, & Refrigeration Institute 2022
### Natural Gas Winter Heating Season

<table>
<thead>
<tr>
<th>Year</th>
<th>Consumption (Mcf)</th>
<th>Price ($/Mcf)</th>
<th>Expenditures ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-'18</td>
<td>57.6</td>
<td>9.82$</td>
<td>565$</td>
</tr>
<tr>
<td>18-'19</td>
<td>60.2</td>
<td>9.72$</td>
<td>586$</td>
</tr>
<tr>
<td>19-'20</td>
<td>55.5</td>
<td>9.73$</td>
<td>540$</td>
</tr>
<tr>
<td>20-'21</td>
<td>56.3</td>
<td>10.17$</td>
<td>573$</td>
</tr>
<tr>
<td>21-'22</td>
<td>55.6</td>
<td>13.02$</td>
<td>724$</td>
</tr>
<tr>
<td>22-'23</td>
<td>58.4</td>
<td>15.95$</td>
<td>931$</td>
</tr>
</tbody>
</table>

**Percentage Changes:**
- Consumption: 4.9%
- Price: 22.5%
- Expenditures: 28.5%

### Electric Winter Heating Season

<table>
<thead>
<tr>
<th>Year</th>
<th>Consumption (kWh)</th>
<th>Price ($/kWh)</th>
<th>Expenditures ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-'18</td>
<td>9,051</td>
<td>0.126$</td>
<td>1,142$</td>
</tr>
<tr>
<td>18-'19</td>
<td>9,256</td>
<td>0.127$</td>
<td>1,174$</td>
</tr>
<tr>
<td>19-'20</td>
<td>8,764</td>
<td>0.129$</td>
<td>1,128$</td>
</tr>
<tr>
<td>20-'21</td>
<td>9,079</td>
<td>0.131$</td>
<td>1,192$</td>
</tr>
<tr>
<td>21-'22</td>
<td>8,833</td>
<td>0.140$</td>
<td>1,233$</td>
</tr>
<tr>
<td>22-'23</td>
<td>9,189</td>
<td>0.148$</td>
<td>1,359$</td>
</tr>
</tbody>
</table>

**Percentage Changes:**
- Consumption: 4.0%
- Price: 5.9%
- Expenditures: 10.2%

### Heating Degree Days (Oct - Mar Only)

<table>
<thead>
<tr>
<th>Year</th>
<th>Degree Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-'18</td>
<td>3610</td>
</tr>
<tr>
<td>18-'19</td>
<td>3788</td>
</tr>
<tr>
<td>19-'20</td>
<td>3433</td>
</tr>
<tr>
<td>20-'21</td>
<td>3530</td>
</tr>
<tr>
<td>21-'22</td>
<td>3455</td>
</tr>
<tr>
<td>22-'23</td>
<td>3671</td>
</tr>
</tbody>
</table>

**Percentage Change:** 6.3%
The cost to heat with electric vs gas this winter varies by location and the efficiency of end-use equipment.

Findings show homes heating with natural gas this winter could save between 12% and 62% compared to an electrical alternative. These findings are consistent with EIA’s own winter fuels forecast.

Source: AGA Model Based on 2017 and 2018 Winter Temperature Data
### Average breakdown of a natural gas utility bill

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost to Purchase Natural Gas</td>
<td>36.4%</td>
</tr>
<tr>
<td>Distribution</td>
<td>8.3%</td>
</tr>
<tr>
<td>Administrative &amp; General</td>
<td>10.4%</td>
</tr>
<tr>
<td>Local, State &amp; Federal Taxes</td>
<td>9.1%</td>
</tr>
<tr>
<td>Net Income</td>
<td>12.2%</td>
</tr>
<tr>
<td>Storage &amp; Transportation</td>
<td>4.1%</td>
</tr>
<tr>
<td>Cust. Accounts &amp; Services</td>
<td>6.0%</td>
</tr>
<tr>
<td>Depreciation &amp; Amortization</td>
<td>10.7%</td>
</tr>
<tr>
<td>Net Interest</td>
<td>5.5%</td>
</tr>
</tbody>
</table>

Source: AGA Gas Facts, 5 Year Average Customer Bill 2016-2020
The cost of gas may account for a larger share of utility bills this year

Source: AGA Gas Facts 2015, 2020 Data, EIA Short Term Energy Outlook
Households are facing energy insecurity

In 2020, 27% of U.S. households had difficulty meeting their energy needs

U.S. household energy insecurity measures (2015 and 2020)

- Reported any type of energy insecurity:
  - 2015: 31%
  - 2020: 27%

- Reduced or forwent basic necessities to pay energy bill:
  - Frequency of occurrence:
    - Almost every month in the previous year
    - Some months
    - 1 or 2 months

- Received a disconnection notice:
  - 2015: 10%
  - 2020: 10%

- Kept home at unhealthy or unsafe temperature:
  - 2015: 10%
  - 2020: 10%

Source: EIA Residential Energy Consumption Survey
Energy assistance programs are available to help consumers in need

Natural gas utilities offer and participate in several energy assistance programs

• **LIHEAP, State, and Local Funds** – Energy cost assistance for low-income households

• **Budget Billing** – Customers spread costs equally across 12 months, effectively prepaying a portion of heating season bills during the cooling season

• **Weatherization Assistance** – Provides qualifying customers with weatherization assistance to ensure a household is winter-ready

• **Payment plans** – Customers may spread high bills over several months

• **Voluntary Non-terminations** – Certain utilities do not terminate customers during the heating season
Final thoughts

• Weather and a growing economy have spurred energy demand growth

• Natural gas production setting new records as winter begins

• Natural gas pricing has dropped, and the market indicates further easing

• Natural gas remains the most affordable fuel for home heat

• Gas utilities are well-positioned to serve customers reliably
Questions?