Exploring Expectations for the 2015-16 Winter Heating Season and More

Chris McGill, Vice President, Policy Analysis
The American Gas Association (AGA), founded in 1918, represents more than 200 local natural gas utilities that deliver natural gas to 177 million Americans nationwide. In addition, AGA’s broader membership includes natural gas pipelines, Canadian local distribution companies, natural gas gatherers, marketers and storage companies and more than 350 associate members who provide critical products and services to the natural gas industry.
Record Production Levels in 2015

Daily Dry Natural Gas Production
US Lower-48

Billion Cubic Feet per Day

Source: Bentek Energy LLC
Relatively Low and Stable Natural Gas Prices

Natural Gas Prices
Prompt-Month Futures at Henry Hub

Price Range
2006-2010

Source: Energy Information Administration
Working Gas in Underground Storage

Lower 48 States (Bcf)

- Maximum and Minimum (2010-2014)
- Working Gas Storage
- Five year average

US Shale Gas Production

Change in Production, 2014-2020

- **MidCon**: +4.5
- **Perm**: +1.4
- **Eagle Ford**: +0.8
- **ROX**: +1.6
- **App**: +17.1
- **H’ville**: +4.3
- **F’ville**: -0.4
- **Barnett**: +0.1
- **Canada**: +1.3
- **All other**: -6.6
Change in Demand, 2014-2020

- Canada: +3.0
- PacNW: +1.2
- RouX: +0.5
- SW: +0.6
- MC: +1.0
- USGC: +10.3
- Mexport: +3.2
- FL: +1.1
- Northeast/Mid-Atlantic: +2.7
- South east: +1.0
- CA: -0.5
- New England: -0.1
- Southeast

Source: Bloomberg New Energy Finance
Outlook for Natural Gas
Bills This Winter
Bruce McDowell, Managing Director, Policy Analysis
Natural Gas Supply

• Record production levels in 2015.
  • Producers are trying to scale back output.
    • Efficiency gains in production.
    • Large inventory of unconnected wells in states such as Pennsylvania.
• Storage levels nearing 4 Tcf.
  • Injection levels among highest ever.
If storage build continues at even average pace, inventories will set new record.

End of Injection Season Inventory
US Natural Gas in Underground Storage (Bcf)

New record this year?
Natural Gas Demand: Large Volume Customers

- Electricity generation:
  - EIA forecasts slight positive change in demand growth for this winter.
  - As is often the case, pipeline capacity constraints may be an issue in selected areas.
- Industrial sector:
  - Grows about 1 Bcf/day according to EIA forecast.
  - Much of this growth occurs outside local gas utility city gates.

Source: Energy Information Administration
*Short-Term Energy Outlook September 2015*
Let’s Talk About The Weather

NOAA Forecast
October-December

NOAA Forecast
January-March

Source: NOAA.gov
Let’s Talk About Winter (Continued)

Source: WeatherBELL Analytics LLC, Public Winter 15-16 Forecast
Other Contributing Factors to Winter Gas Bills

Degree Day Changes

• National Weather Service estimates 3,645 Heating Degree Days for the upcoming season.
  • Two percent warmer than normal (3,718).
  • Equivalent to three percent less demand.
  • Other forecasts predict even warmer temperatures

Cost of Storage Gas

• Henry hub average cost:
  • 2014 = $4.30/MMBtu.
  • 2015 = $2.80/MMBtu.
• Storage refill gas was 35 percent less expensive in 2015 than in 2014.
• Storage accounts for about 15 - 20 percent of supply during any given winter heating season.

Sources: National Weather Service Climate Prediction Center; Energy Information Administration Short Term Energy Outlook September 2015
Survey of AGA Members

• Question:
  • Do you expect normalized residential heating bills to go up this winter compared to last?

• Response:
  • 17 percent said yes, 83 percent said no.

• Question:
  • By what percent will bills and throughput change compared to last winter?

• Response:
  • 5.9 percent decline in bills and 2.9 percent reduction in throughput. Averages weighted by number of customers.

Respondents – 41, representing 19.0 million customers.

NOTE: Winter’s impact on residential prices will vary by jurisdiction.
AGA Forecast for Winter Bills

• On average, residential natural gas bills will be 5 to 7 percent lower than the previous winter. This assumes Mother Nature behaves.

• These bills would be the second lowest in the past decade. Since the shale gas revolution, only the winter of 2011-2012 had lower bills.

• This would also allow natural gas to continue to be the lowest-cost energy option for home heating.
Average household consumption of natural gas has *dropped by half* since 1970.

Residential Natural Gas Use per Customer, Weather Normalized (Mcf)

Source: Energy Information Administration, AGA Calculations
Natural Gas Used Directly In Homes and Businesses Reduces Greenhouse Gas Emissions

Space Heating System Carbon Dioxide Emissions
(Ton CO2 per 100 MW Useful Energy Consumption)

- Electric Furnaces: 74
- Oil-fired Furnaces: 45
- Air Source Heat Pumps: 31
- Gas-Fired Furnaces: 27

Source: MIT Future of Natural Gas
Appliance efficiencies Energy STAR compliant.
Natural gas homes use less energy, have lower greenhouse gas emissions.

Homes with fuel oil assume electricity for cooking and drying.
Meeting Energy Demand More Efficiently

- **NATURAL GAS** is a low-carbon fuel and can be used as a substitute.

- Lower **FULL FUEL CYCLE** energy and emissions – Production and delivery of natural gas to buildings is more efficient than grid-delivered electricity.

- Even as grid mix becomes cleaner, natural gas **DIRECT USE** will remain a viable emissions reduction strategy.

Natural gas emits 45% less CO$_2$ per unit energy than coal and 30% less than fuel oil.
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