

20 QUESTIONS ABOUT NATURAL GAS MARKET CONDITIONS WINTER 2013–2014

This winter of extreme, widespread and sustained cold challenged the natural gas market more than ever before in history — but it performed reliably despite record cold and record demand.

1. What factor has the greatest influence on natural gas prices?

Without doubt, the biggest single short-term influence on natural gas supply and demand — and thus prices — is weather.

2. How did this past winter's weather compare to previous cold winters?

It was one of the two coldest winters recorded in the last quarter-century. Record-setting cold temperatures were so widespread that two-thirds of the U.S. experienced historic demand levels nearly simultaneously in January. [Source: NCDC]

3. What was the impact on natural gas consumption?

Natural gas consumption reached its highest level ever in January, even topping 137 Bcf/day for the first time in history on January 7th. Despite the extreme conditions and with only a few days notice, natural gas producers and suppliers were able to meet demand, a testament to the flexibility and efficiency of the natural gas system. [Source: FERC]

4. What was the impact on natural gas prices and how did prices compare to previous cold winters?

Natural gas prices increased to a five-year high in February — but still peaked at only half of what customers paid in previous, pre-shale cold winters. [Source: EIA] The market moderated so quickly in 2014 compared to the most recent cold winter of January/February 2003 because of the abundance of natural gas supply in era of shale gas.

5. Was natural gas production affected by the cold weather?

EIA data shows that production in January was at a record high, [Source: EIA] even though the unprecedented arctic blasts caused rare natural gas well freeze-offs in some areas. [Source: Platts/Bentek]

6. What are “freeze-offs?”

Very cold temperatures can sometimes cause natural gas wells to experience “freeze-offs,” when small amounts of water produced along with natural gas crystallize inside the pipelines at or near production wells, temporarily blocking off the gas flow.

7. How did freeze-offs impact natural gas supply this winter?

This past winter, freeze-offs occurred in nearly every region because of the severity of the cold. Their overall impact on supply was small because most lasted less than a day. [Source: Platts/Bentek] **Despite freeze-offs, daily winter gas production exceeded last winter by more than 2 percent.** [Source: EIA]

8. Could customers get natural gas?

Yes, customers could get natural gas at contracted levels. However customers have tremendous flexibility in how they choose to purchase their natural gas as well as the pipeline transportation needed to deliver it, and those choices mattered this winter.

9. What is the difference between “interruptible” and “firm” transportation?

Businesses that can accommodate occasionally having their natural gas supply interrupted or that can significantly reduce their consumption when notified by the provider can get better rates for natural gas transportation by having “interruptible” service. Typically an interruptible customer is a large industrial or commercial customer with the ability to use other fuels or temporarily halt operations. In many regions, power generators choose to have interruptible transportation service for natural gas. In contrast, firm customers contract for steady transportation service.

10. Why do some customers choose to be interruptible?

Customers like the cost savings.

11. What is the difference between “spot” prices, “well-head” prices and other kinds of natural gas prices?

Wellhead prices and citygate prices refer to the price paid at a physical point of sale. “Spot” (also called “cash”) prices, futures prices, and short- and long-term contract prices refer to the expected term of delivery of the natural gas. Ideally, customers try to diversify their natural gas supply portfolios with a mix of gas from different supply regions acquired under different circumstances including spot market gas, short-term and longer-term contract gas, supplemented by gas from storage and peaking arrangements.

12. Why do electric generators buy so much natural gas from the spot market rather than through firm service or monthly contracts?

Power companies often buy natural gas to fuel power plants on a need-to-have-it basis in the spot market, counting on the fact that there will be enough natural gas available. There are no commercially viable ways to store electricity and competitive generators don't want to buy more fuel than they will need. Competitive power markets are struggling with ways to incent generators to make purchasing decisions to ensure pre-arranged fuel supply in markets with seasonal pipeline transportation constraints. (See #18)

13. What role did storage play in meeting demand this winter?

Storage is an important part of the winter supply portfolio. In some parts of the U.S., natural gas can be stored in underground storage facilities. Storage enhances physical reliability and also helps customers to manage their costs, since gas is usually purchased and injected into storage when it is in least demand and thus at its lowest price in April through October.

14. Why are prices so different among different regions?

The average price of natural gas has decreased significantly across the U.S. since the arrival of abundant shale gas in the market. However there are regional variations. In New England, the daily spot/cash market price for natural gas in winter 2013–2014 increased more than other regions because of a lack of available pipeline capacity compared to other regions. However even in capacity-constrained New England, local gas utilities and other customers who had purchased their supply through term contracts (rather than on the New England spot/cash market) paid prices that were close to Henry Hub prices, at the time only \$4.50–\$5.50/MMBtu.

15. Were all the winter issues due to increased demand or were there actual physical/operational problems as well?

There were very limited mechanical difficulties that were restricted to a day or so, primarily when two or three compressor units along the pipeline system failed due to cold weather. [Source: INGAA]

16. If there were so few true winter operational issues, why did we hear about many natural gas-fired power plants in PJM, ISO-New England and Midcontinent ISO that experienced "forced outages" or "couldn't get gas?"

The majority of "forced outages" of natural gas-fired

generators occurred because those generators held interruptible contracts for natural gas. [See questions 9, 10 and 12] Because of the cold weather, pipelines already were running at peak capacity with gas for local gas utilities, which held firm transportation contracts for their gas. [Source: PJM]

17. What drove New England's natural gas prices higher than other regions?

Largely, the need for more pipeline capacity into the region to satisfy peak winter demand. Investment in new infrastructure is needed to deliver more natural gas to New England. Competition was fierce for the natural gas that was available, including shipments of liquefied natural gas (LNG).

18. Why haven't more pipelines been built to New England?

Actually, some pipeline expansion projects that will help the supply situation are underway in the Northeast but they don't reach New England. Although pipeline capacity to the region is highly constrained, other market pressures make electric generators in ISO-New England reluctant to commit to the kind of long-term arrangement that pipeline companies need in order to build.

19. What can be done in New England to incent new pipelines?

Numerous groups are engaged in finding a way to incent new infrastructure in the region, including the states and their governors, ISO-New England, electric and gas stakeholders and FERC. Recently, the governors in New England even announced an intention to work with ISO-NE to explore the idea of state-funded expansions.

20. How can customers protect themselves against higher prices?

Remember, daily spot market gas represents only a portion of the overall volumes of natural gas being bought and/or sold. **There are strategies customers can use to acquire a diverse natural gas supply portfolio, thereby mitigating exposure to the spot market, but such steps must be made in advance.** Customers can purchase natural gas from a variety of regions and sources; use a balance of daily spot market, short- and long-term contracts; and use available financial hedging tools.

Sources: National Climatic Data Center *State of the Climate*, March 2014 ("NCDC"); Federal Energy Regulatory Committee *Report on Winter Operations and Market Performance*, April 1, 2014 ("FERC"); U.S. Energy Information Administration *Historical Henry Hub Natural Gas Spot Prices; EIA Natural Gas Monthly*, released March 31, 2014 ("EIA"); Bentek data from *Platts Gas Daily*, March 31, 2014 ("Platts/Bentek"); Interstate Natural Gas Association of America testimony, March 6, 2014 ("INGAA"); *PJM Analysis of Operational Events and Market Impacts During the January 2014 Cold Weather Events*, May 8, 2014 ("PJM").

