2015 Summer Outlook for Natural Gas

Markets Matter

Executive Summary

The Natural Gas Supply Association's (NGSA) *2015 Summer Outlook for Natural Gas* summarizes the association's view of existing natural gas market conditions and fundamentals. The analysis covers the key points that can affect supply and demand dynamics, which ultimately impact all consumers of natural gas.

NGSA forecasts whether natural gas prices will be subject to upward, downward or level pressure for the upcoming summer compared to the summer of 2014, but the association does not forecast actual prices.

Based on an analysis of the weather, economy, consumer demand, production and storage, NGSA expects downward price pressure on the natural gas market in summer 2015 compared to last summer.

Our expectation for downward price pressure is based on a forecast for record production that exceeds even the record level of demand expected to occur this summer.

A glance at the natural gas market's major pressure points for summer 2015 reveals:

- **WEATHER:** The National Oceanic and Atmospheric Administration (NOAA) predicts that the continental United States will on average experience a summer that will be 3 percent warmer than last summer and 4 percent warmer than the 30-year average. Compared summer-over-summer, the total number of cooling degree days (CDDs) is modestly higher in 2015, leading to a projection that weather will place slight **upward pressure** on demand and prices.
- **ECONOMY:** Public data anticipates the economy will continue to show positive economic signs, but unimpressive growth in GDP translates to **neutral pressure** on natural gas prices compared to last summer.
- **DEMAND:** NGSA expects record demand to take place in the summer of 2015, led by the electric sector, where the combination of temporary coal-to-gas switching and permanent coal retirements is forecasted to spark an 8 percent increase in demand for natural gas. At the same time, the industrial sector is projected to experience 4.5 percent growth in gas demand compared to last summer, because of a number of capacity expansions in five key natural gas-intensive industries. Demand from the residential and commercial sectors is forecasted to be similar to last summer. When all sectors are combined, **overall demand** is projected to be more than 4 Bcf/day (5 percent) greater than the summer of 2014 and thus to place **upward pressure** on natural gas prices compared to last summer.
- **STORAGE:** The natural gas industry entered the summer cooling season with storage inventories that were nearly twice the level in storage at the beginning of last summer's injection season. Filling storage to adequate levels will require smaller weekly injections than last summer. Storage is forecasted to place **downward pressure** on prices.
- **PRODUCTION:** Production is projected to exceed last summer's robust levels, reaching a new record even though rig counts have decreased. The increased production is the result of continued advances in drilling efficiency and new infrastructure. A forecasted summer-over-summer increase of 5 Bcf per day in production is likely to result in **downward pressure** on natural gas prices.

All of these projected pressure points are interrelated and a deviation in one affects the other assumptions in this equation. *Increased demand from the electric and industrial sectors and the magnitude of natural gas production are the most significant factors impacting this summer's forecast.*

NGSA
Natural Gas Supply Association

Representing America's Major Producers and Suppliers of Natural Gas Since 1965
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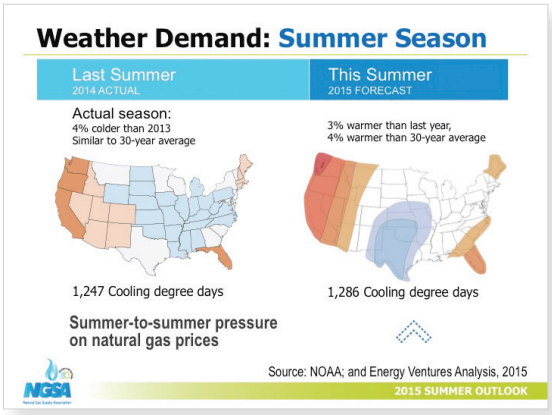
The following pages provide more detailed information about each of the five factors analyzed in NGSA's *2015 Summer Outlook*, as well as a look at possible "wild card" factors and a discussion of natural gas industry trends that transcend this summer.

Weather/Demand

Based on NOAA's current projections for warmer-than-average summer temperatures, EVA forecasts that the summer months will be 3 percent warmer than the summer of 2014 on a national average, and 4 percent warmer than the 30-year average.

On a regional basis, NOAA's weather forecast neatly divides the country. The west coast, mountain and southeastern coastal states are projected to be warmer than normal, while the center of the United States is forecasted to experience fairly typical summer temperatures and Texas and several contiguous states will be cooler than usual.

As a nation, over the full seven-month summer cooling season (April 2015-October 2015), Energy Ventures Analysis, Inc. (EVA) is forecasting 1,286 cooling degree days (CDDs) this summer, compared to 1,247 CDDs last summer. The number of cooling degree days is defined as the difference between 65 degrees Fahrenheit and the average outside temperature for that day. Based on the difference in summer-over-summer cooling degrees, the forecast is for **weather to put slight upward pressure** on natural gas prices.

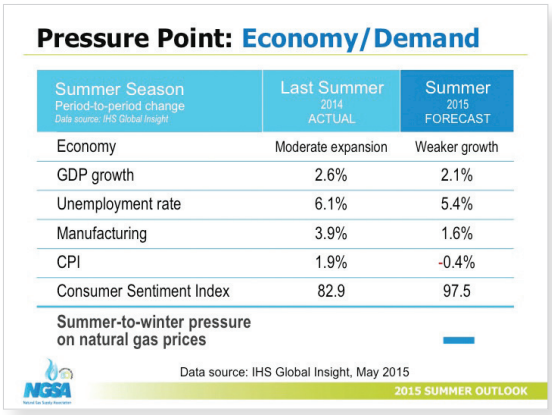


Economy/Demand

This summer, public forecasts anticipate an economy that will grow at a slightly slower rate than it did last summer, but the difference is not expected to be significant enough to exert pressure on prices.

A key component of economic health is the Gross Domestic Product (GDP). According to IHS Global Insight, a nationally recognized economic forecasting firm, the GDP is expected to increase 2.1 percent compared to the summer of 2014, when GDP expanded by 2.6 percent.

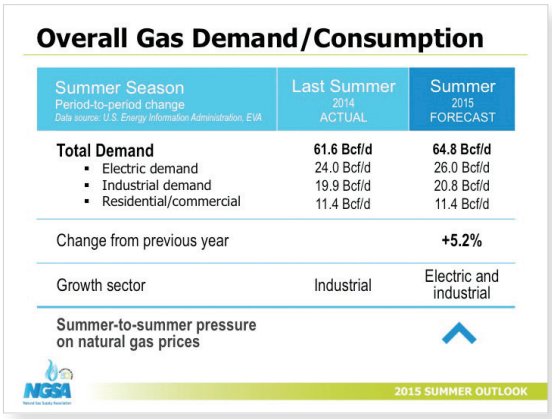
Global Insight also predicts that manufacturing, an important influence on the GDP, will only grow 1.6 percent in summer 2015, a significant drop from last summer's 3.9 percent growth. Meanwhile, the latest Consumer Sentiment Index (CSI) shows that consumers feel



very positive about the economy, with the CSI tracking at a strong 97.5 percent, reflecting general consumer optimism, probably the result of a strong labor market and decreased energy prices. The Consumer Sentiment Index is a gauge of consumer confidence in the economy conducted for more than 40 years by the University of Michigan. While these economic indicators generally reflect good news for consumers, the growth in GDP is too small to pressure prices. Therefore NGSA anticipates the **economy will place level summer-over-summer pressure** on natural gas prices.

Overall Natural Gas Demand

An independent demand analysis performed by EVA notes that **natural gas demand will reach an all-time high this summer**. EVA forecasts overall summer 2015 demand for natural gas at 64.8 billion cubic feet per day (Bcf/d) compared to 61.6 Bcf/d last summer. A sector-by-sector breakdown follows.



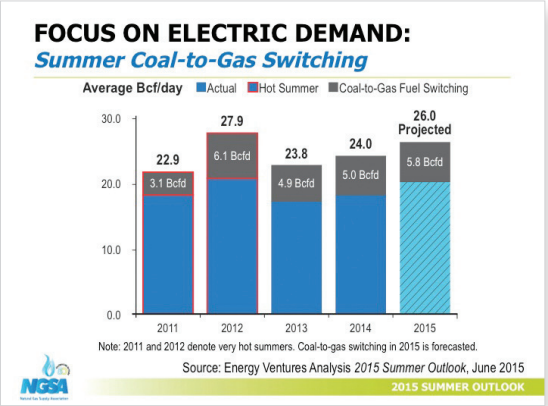
When analyzing the **electric sector**'s projected demand for natural gas this summer, EVA predicts a hefty increase of 2 Bcf/day.

The major cause of the increased demand from the electric sector can be attributed to a significant increase in coal-to-gas switching compared to the previous summer. Coal-to-gas switching, also known as fuel switching, occurs when electric utilities choose to run natural gas-fired power plants rather than coal plants to generate electricity. Switching is a short-term decision that is purely an economic choice based on the current price of the competing fuels.

The projected increase in fuel switching this summer is the result of the present competitive price of natural gas and the prediction for

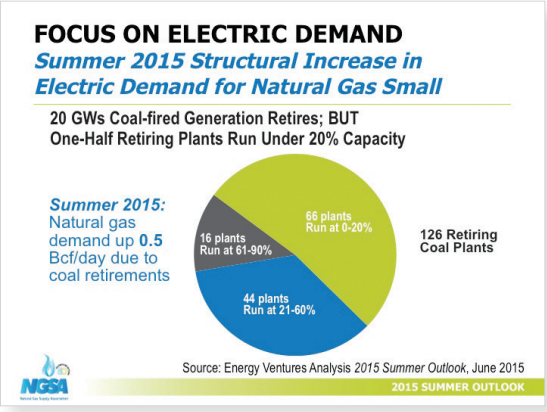
warmer summer weather that in turn increases demand for air conditioning.

EVA's prediction for fuel switching to grow to a sizeable 5.8 Bcf/day of natural gas demand this summer is all the more remarkable in light of the fact that, prior to the shale revolution, coal-to-gas switching had never lasted longer than a few days at a time. In contrast, switching has persisted for seven consecutive summers since 2008.

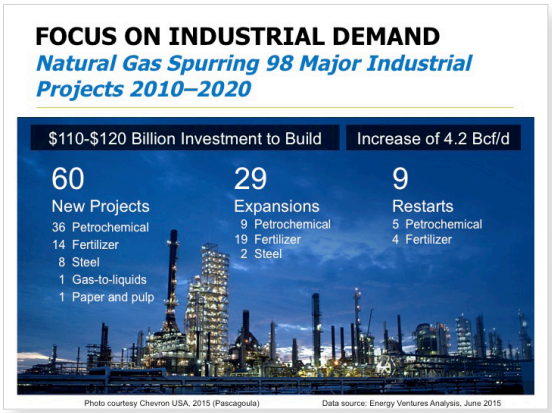


For summer 2015, the level of fuel switching is expected to be only slightly less than the record level of 2012, which would make it the second-highest amount on record.

A more long-term, structural shift in the electric sector accounts for the other source of increased demand for gas-fired generation this summer. As of April 2015, the electric industry must comply with the Mercury Air Toxics Standards (MATS) rule to reduce mercury emissions. As a result, EVA anticipates the retirement of 20 gigawatts (GW) of coal fired electricity in 2015, to be replaced by natural gas-fired generation. Although 126 coal plants are expected to retire, the total increase in gas demand is only expected to be ½ Bcf/day this summer since many of the retiring coal plants were older and operated at less than 40 percent of capacity. This is the first wave: an additional 24 GWs of coal plant retirements have been announced for the 2016-2020 time frame.



The **industrial sector** is expected to increase its summer consumption of natural gas to 20.8 Bcf/day — a sizeable 4.5 percent increase over last summer. In line with the growth projected for this summer, EVA points out that an extended forward view of industrial demand shows nearly 100 new, expanded and re-started major natural gas-intensive industrial projects occurring from 2010 to 2020.



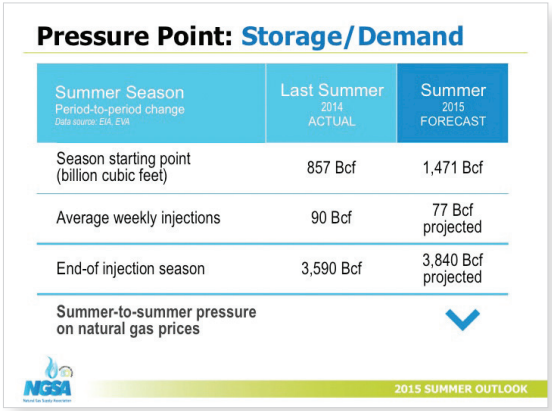
The industrial growth projected over the next five years is primarily due to the petro-chemical, fertilizer, steel and gas-to-liquids industries expanding to take advantage of affordable, abundant natural gas in the U.S. Most of these major projects are slated for southern states, with the exception of several steel projects in Midwestern states.

- Roughly 60 percent of these manufacturing projects are brand new projects;
- Approximately 30 percent are expansions;
- And 10 percent are re-starts of existing facilities.

According to Energy Ventures Analysis, summer-over-summer demand from the **residential and commercial sectors** is expected to be roughly the same as last summer.

Storage/Supply

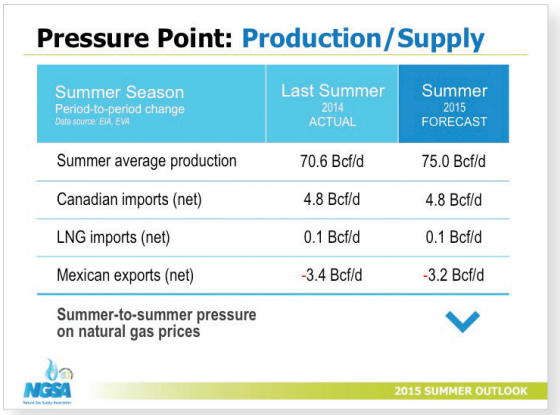
Traditionally, underground natural gas storage has allowed companies to purchase and physically stockpile natural gas supplies in the spring and summer for use during the winter when demand for natural gas space heating is at its peak.



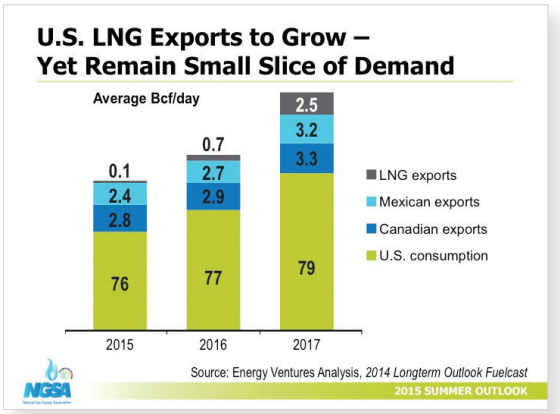
Going into the winter heating season, it is projected that 3,840 Bcf of natural gas will be in storage by the end of the 2015 injection season, which would require an average weekly injection of 77 Bcf. This level of injection is fairly average for the industry and is much less than last summer's average weekly injections of 90 Bcf, which set new records for that summer. **The difference in the size of the weekly injections between the two summers is** expected place **downward pressure** on natural gas prices this summer.

Production/Supply

Turning to natural gas production, EIA expects **domestic production to outperform all previous summers,** including last summer's record-breaking production figures, despite a decrease in the number of drilling rigs compared to last summer. Domestic natural gas production this summer is forecasted to be 75 Bcf/day, considerably greater than last summer's 70.6 Bcf/day.



Among the reasons that summer production is expected to increase are: continued strong production from shale gas plays, due to the completion of backlogged wells, increased efficiencies in natural gas extraction techniques, and improved takeaway capacity in the form of pipelines and processing plants in areas such as the Marcellus.



In addition, the first LNG exports are expected to begin in late 2015 from the Sabine Pass terminal in Louisiana. Although more export facilities will follow over the next few years, the amount of LNG to be exported is projected to remain merely a small slice of overall demand. The *2015 Summer Outlook* also predicts a moderately-sized, but important, contribution from Canadian imports, a minimal amount of liquefied natural gas (LNG) imports, and exports to Mexico in the range of 3.2 Bcf/day.

In summary, strong **supply** this summer will outpace last summer's, placing **downward pressure** on natural gas prices compared to the summer of 2014.

"Wild Card" Market Factors

There are always a few "wild card" factors that can influence the market, in addition to the fundamentals addressed in this Outlook. This summer's wild cards include:

- An unexpectedly hot summer could increase electric demand;
- An end to the California drought or a mild summer could decrease electric demand;
- An unpredicted and very active hurricane/storm season materializes, which would mainly affect demand, since most onshore producing gas fields are not vulnerable to hurricanes.

In conclusion, NGSA analysis of varying data indicates downward overall pressure on natural gas prices this summer compared with last summer. A recap of the five major pressure points reveals:

- Production exceeding last summer's record levels, fueled by shale gas and drilling efficiencies — DOWNWARD PRESSURE
- Overall record demand — electric demand expected to grow 8 percent, and industrial demand expected to grow 4.5 percent. — UPWARD PRESSURE
- Warmer summer weather than last summer — SLIGHT UPWARD PRESSURE
- Expansion in economy, but slowing GDP — FLAT PRESSURE
- Smaller (than last summer) weekly injections required to bring storage to 3,840 Bcf — DOWNWARD PRESSURE

OVERVIEW: Record Production Enables Industry to Meet Record Demand

- Strong production supporting remarkable electric and industrial growth
- Fuel switching continues for seventh straight summer — and approaches 2012's record levels.
- Electric demand growth fueled by temporary fuel switching and permanent coal retirements.
- Industrial demand to reach highest level since 2000, spurred mainly by petrochemical, fertilizer and food.

For more information, please visit www.ngsa.org or contact us directly.

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