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As El Niño Fades, Will Natural Gas Prices Soar?

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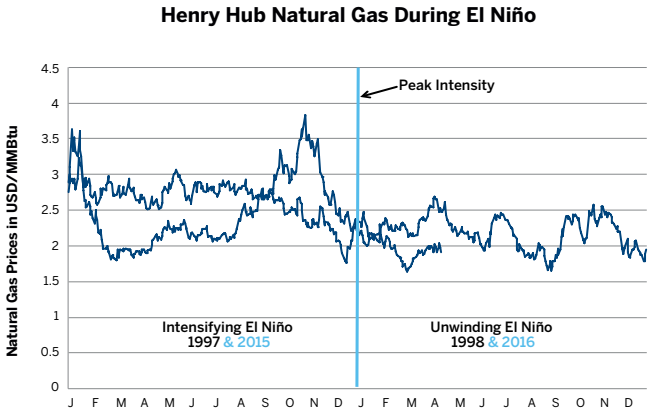
The El Niño of 2015-16 tied the 1997-98 weather episode for being the strongest on record. In both cases, sea surface temperatures along the central and east-central equatorial Pacific peaked at 2.3 degrees Centigrade above normal, resulting in a much warmer-than-normal winter for the northern United States and Canada. The spike in temperature depressed electricity and heating demand, and put natural gas prices under downward pressure this past winter just as it did in 1997 and 1998 (Figure 1).

The question now for the natural gas market is what happens next? Just as the 1997-98 El Niño's impact on natural gas presaged what would happen to gas prices this time around, the aftermath of the previous episode might provide some insight as to where natural gas prices might head in the near future.

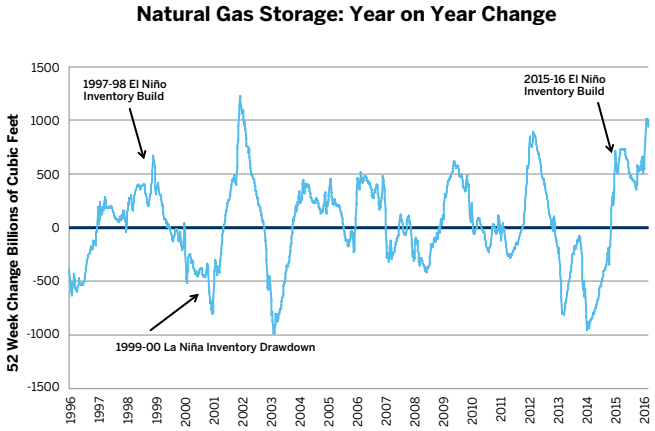
Figure 1: El Niño Depressed Natural Gas Prices in 1997-98 and (so far in) 2015-16.



Source: Bloomberg Professional (NG1)

Following the 1997-98 El Niño's peak intensity in November and December 1997, natural gas prices remained depressed for all of 1998. The fact that the 1997-98 El Niño had turned into a La Niña by the end of 1998 did not immediately boost prices. The reason was fairly simple: storage levels. Stocks of natural gas swelled during the 1997-1998 El Niño, rising by as much as half a trillion cubic feet above year ago levels (Figure 2). It wasn't until 1999 and 2000 when those storage levels were drawn down to a point that natural gas prices began to soar (Figure 3).

Figure 2: Weather Influences Storage Levels, Which In Turn Influence Prices.

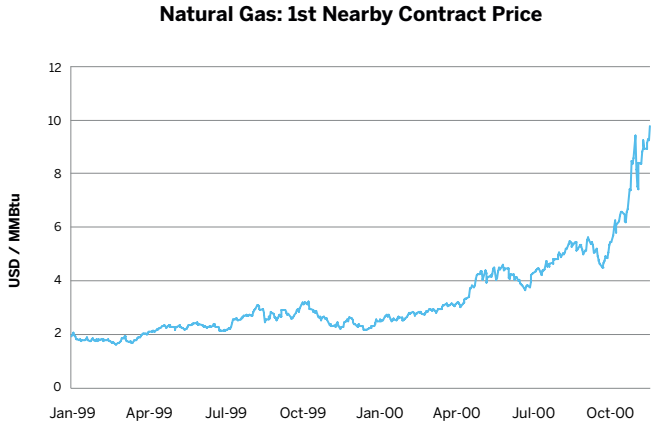


Source: Bloomberg Professional (DOENUST1) with CME Group Economic Research Calculations

This time around, too, natural gas inventories have spiked. By March 2016, storage levels were nearly one trillion cubic feet larger than they were a year earlier (Figure 2) – a 68% year-on-year rise. This may prevent natural gas from staging a strong rally until those levels have come down. When the levels come down, however, there is a great deal of upside potential, particularly if a strong, persistent La Niña develops, as was the case after previous and similarly strong El Niños (1972-73, 1982-83 and 1997-98).

If the world experiences a prolonged La Niña, the potential upside for natural gas prices is enormous. During the 1998-2001 La Niña, prices eventually rose to close to $10/MMBtu –a 500%+ rally from their 1997-98 El Niño lows. However, it took a substantial drawdown in storage levels to get them up there.

Figure 3: Henry Hub Futures Prices During the Prolonged 1998-2001 La Niña.



Source: Bloomberg Professional (NG1)

Factors to Watch

There are a number of factors to watch to see how natural gas prices might move as the El Niño fades, some weather-related and some not.

From a meteorological perspective, watch the "delta" – how quickly the El Niño fades might indicate whether it is going to turn into a La Niña. From the El Niño peak in 1998 (Figure 4) to the 1999-2001 La Niña's initial temperature lows in December 1999 (it became even more intense in 2000 and 2001), there was a dramatic change in sea surface temperatures (Figure 5). A similar phenomenon appears to be happening this time as well, but we are just a few months past the peak (Figures 6 and 7).

Figure 4: January 3 1998, El Niño's Peak Intensity.

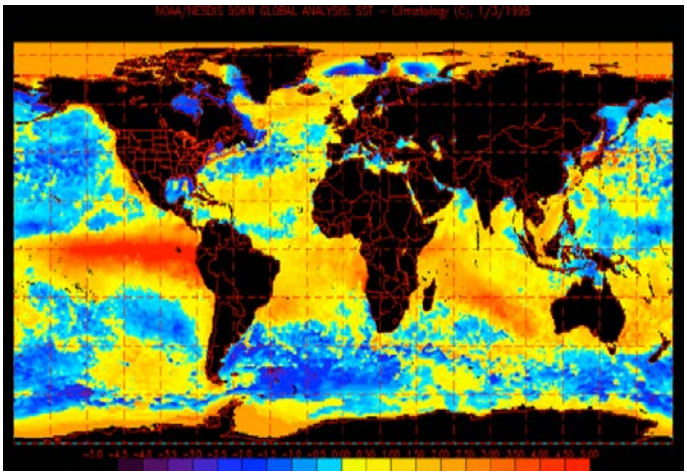


Figure 5: December 18, 1999: La Niña's Initial Peak Intensity.

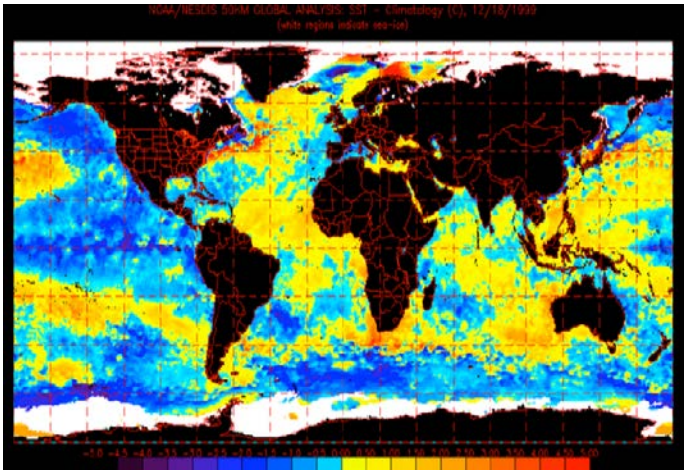


Figure 6: December 2015 Close to El Niño's Peak Intensity.

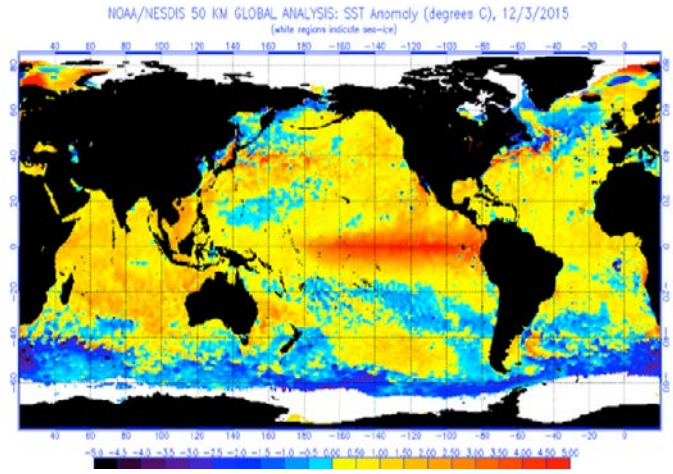
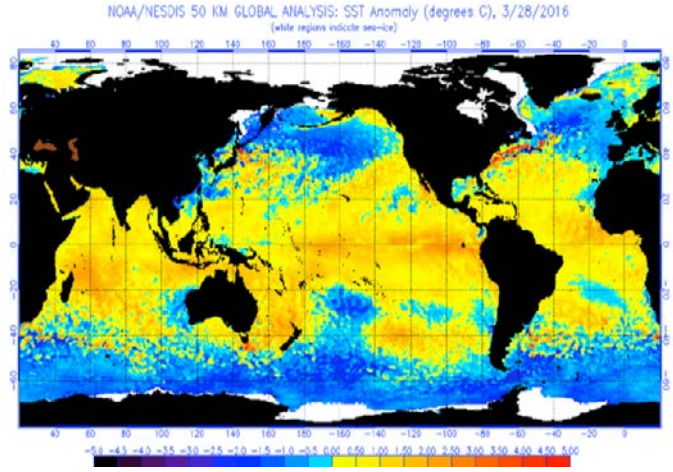


Figure 7: El Niño is Fading Quickly. How Rapidly It Dissipates Might Indicate the Likelihood of La Niño.



In addition to the weather-related factors, there are numerous non-weather issues to focus on.

- **Production:** U.S. natural gas production levels have stopped growing and have, in fact, been flat for the past nine months after many years of strong increases.
- **Investment:** Rig counts for both oil and natural gas have collapsed, meaning little new exploration will take place in coming years.
- **Exports:** The U.S. has begun exporting LNG from Chenière Sabine Pass, and other export facilities are in the works.
- **Demand:** The Department of Energy projects that natural gas will overtake coal this year as the chief source of electricity generation owing, in part, to the sharp increases in natural-gas generation capacity that has been coming on line (and more will continue to come on line).
- **Alternatives:** Large amounts of alternative energy production capacity are also coming on line, but with alternatives there are two things to remember: First, capacity isn't the same thing as generation. Solar panels and wind turbines generate nothing when the sun isn't shining or the wind isn't blowing, respectively. On average, they run at about one-quarter capacity whereas natural gas generation comes close to operating at full capacity. Secondly, investment in the solar and wind sectors depends heavily on tax subsidies, and the future of such tax subsidies depends on political outcomes in Washington that are difficult to forecast. Coal, meanwhile, is natural gas's main competitor and is in terminal decline.

On balance, these 'other' factors argue for higher natural gas prices going forward. The exception is the alternative forms of energy, to the extent that solar and wind take a bite out of the demand for natural gas. Stagnating production, slump in investment and increased demand in natural gas point to the possibility of a massive run up in prices like in 1999-2000. Meanwhile, the possibility of further export growth should, at minimum, put a floor under the price of natural gas. A La Niña would be icing on the cake for a natural gas bull market bringing colder wintertime temperatures and increased electricity and heating demand. However, before any bull market begins in earnest, storage levels need to come down substantially from their current, seasonally-adjusted record levels. In the meantime, in addition to watching the traditional economic drivers of natural gas, don't forget to visit the National Oceanic and Atmospheric Administration's (NOAA) website **http://www.noaa.gov/** and check out sea surface temperatures. As much as any other factor, the agency holds the key to understanding the intermediate-term evolution of natural gas prices.