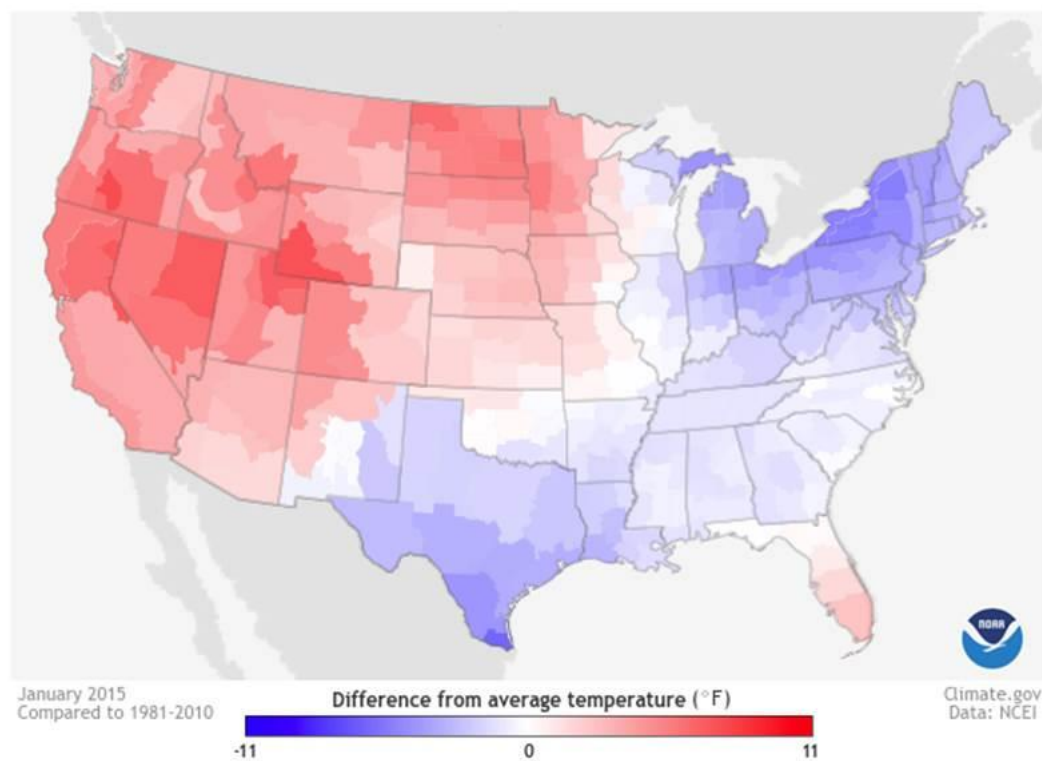
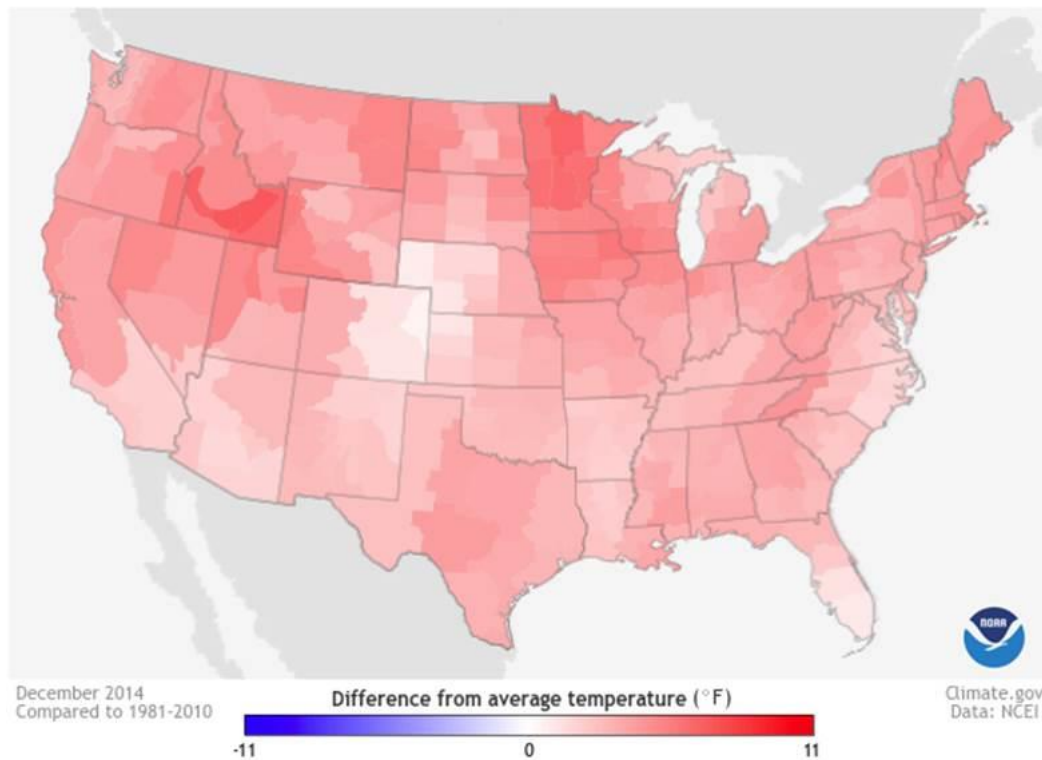


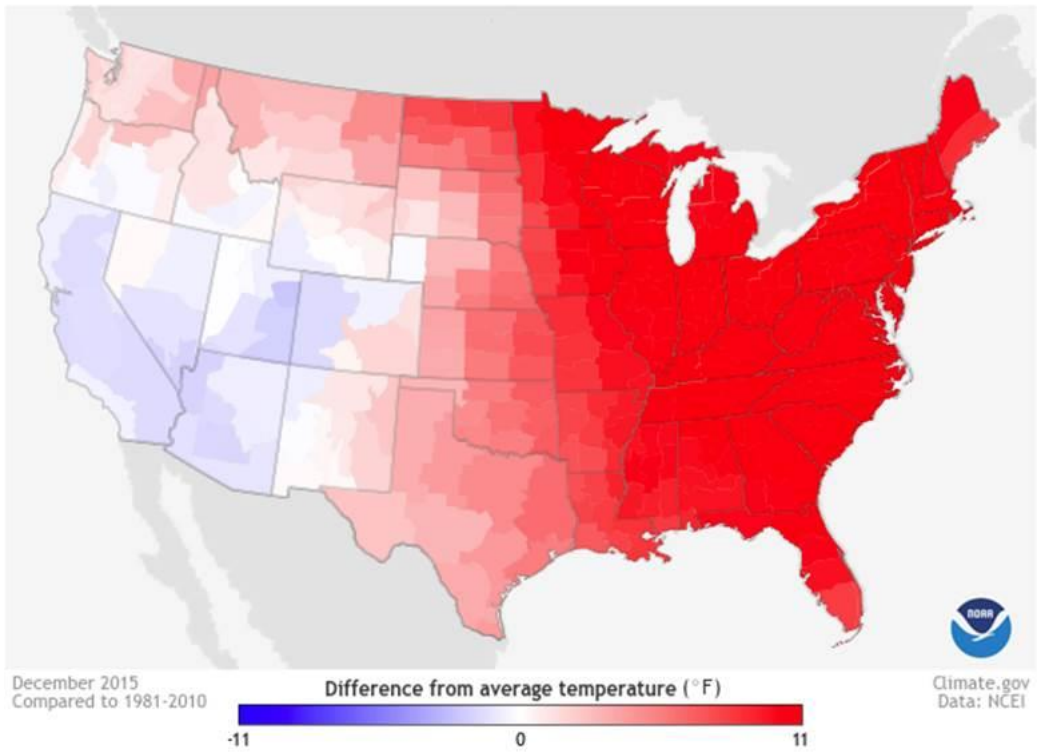
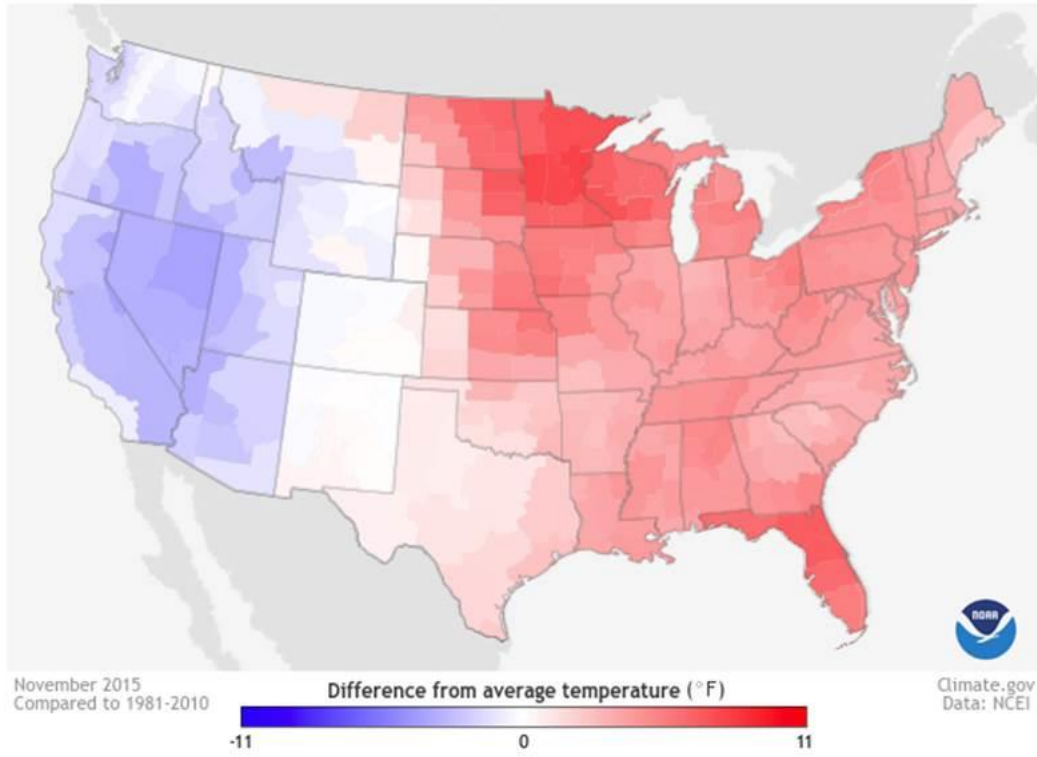
Natural Gas Market Impacts 2016-2017 (LAS Natural Gas Program)

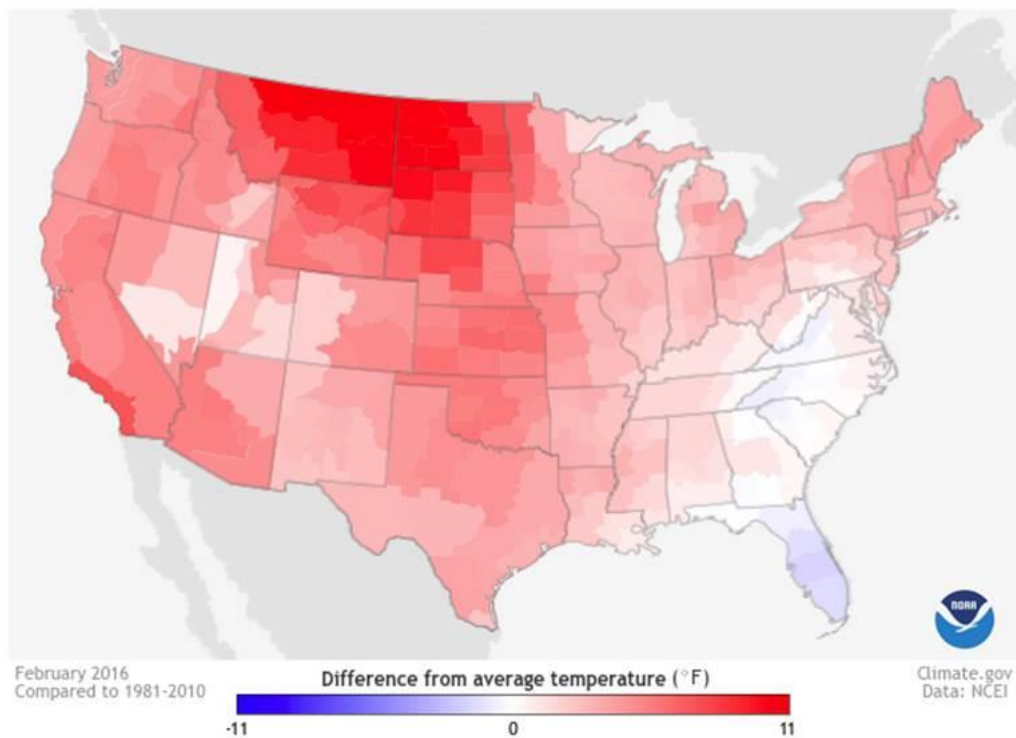
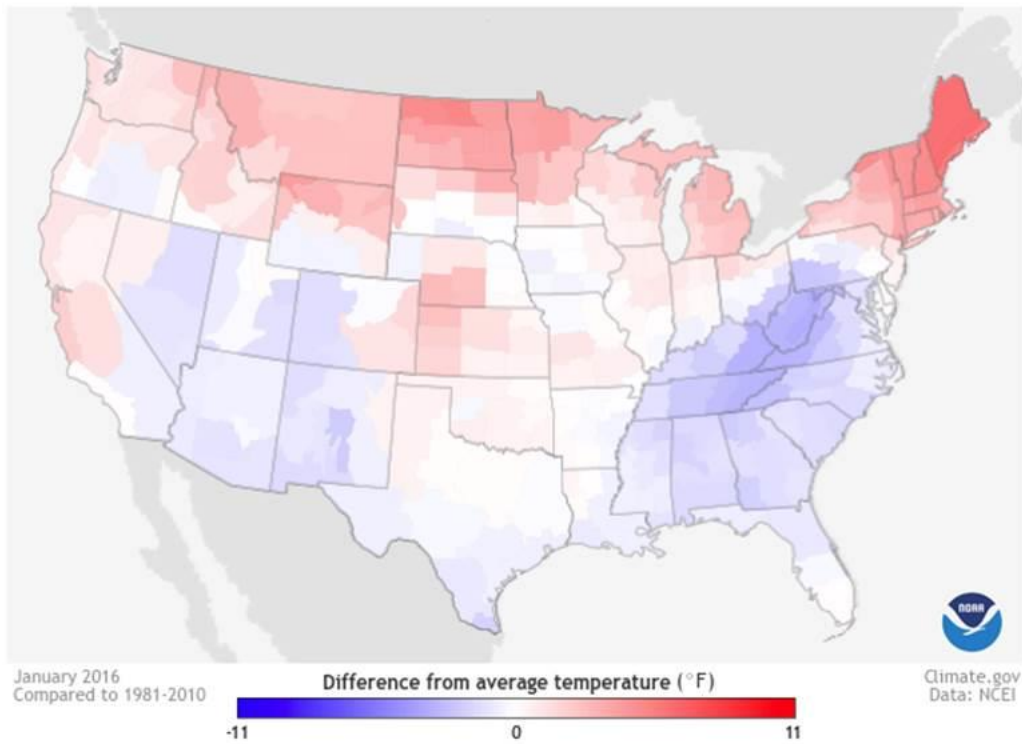
- During the winter of 2013/14 we were hit by the extreme cold temperatures of the Polar Vortex, which saw sustained cold throughout the majority of the winter season and caused an increase in heating demand along the East Coast and natural gas inventories to hit 11-year lows. Coming out of that winter, there were major concerns as to how natural gas inventories would refill through the summer of 2014 to get to “adequate” levels for the following winter of 2014/15.
 - Given the fact that natural gas inventories were at 11-year lows, this put significant upward pressure on both the day and forward markets given the uncertainty of how the market would recover, as natural gas producers were already reeling from financial losses on hedges from the winter of 2013/14 after the market spiked.
- Heading into the summer of 2014, one of the risks to the storage refill was the potential for a “normal” to “hotter than normal” summer that could potential increase power generation demand for natural gas, which we were seeing on the rise with more coal to gas switching for power production. This also contributed to the upward pressure on gas prices at that time.
- Given the above risks and resulting upward pressure on the markets, this resulted in the LAS program adding some hedge layers for 2016 and 2017 as part of the overarching strategy (price protection/stability) that would have been on the higher end of the market. However, given some of the existing hedges that were already in place for the program for these years, the program was still able to maintain year over year rate reductions by having a lower weighted average price given some lower priced hedges already in place pre-Polar Vortex. Of course, though, the higher priced hedges would not look that great against a potential dipping market. What again is important to note, LAS typically caps their hedging at 80% for a given contract year, having 20% exposure to spot conditions, so should the spot market drop, members would still benefit by having that 20% exposed.
- A lot of the dips that we saw in the market in 2016 and 2017 were primarily weather driven. Coming out of the winter of 2013/14, the main concern was how storage would refill during the summer months, especially if we saw more demand from power generation. During the summer of 2014 we actually saw much cooler summer conditions which in turn led to natural gas inventories refilling to more “normal” levels in time for the next winter. This is further outlined in the below temperature graphs from July and August 2014 that show cooler than average temperatures for those months:



- Following the Polar Vortex, we also saw some back to back winters with some months of above normal temperatures, which would have caused less heating demand and allowed the market to continue its downward trend. Some notable winter months outlined below:

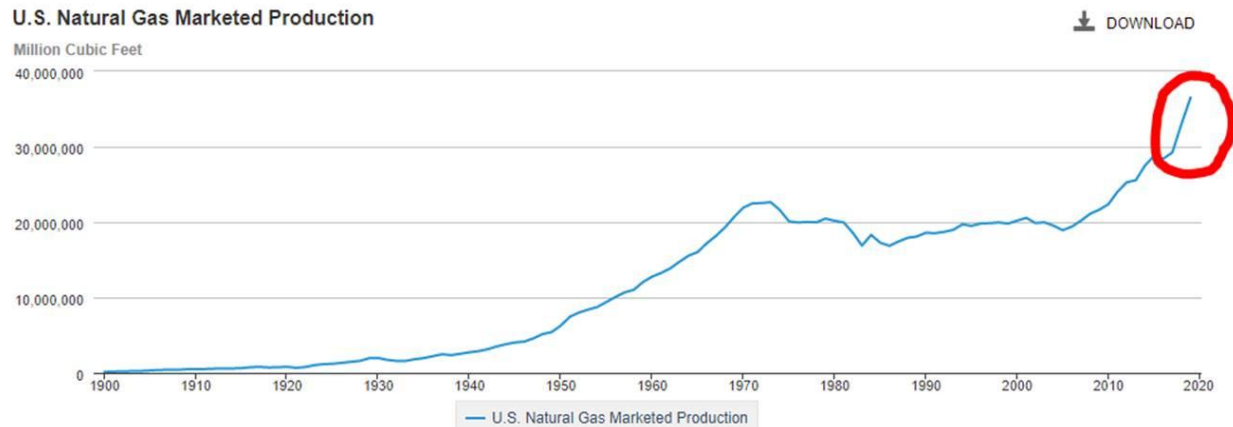






- US natural gas production also continued to grow at a record pace, so this combined with weather conditions that failed to materialize to seasonal norms, ultimately resulted in the larger disconnect

we saw during the 2016-2017 period. The graph below will give a bit of context to the rapid growth in gas production we saw during this period:



- Essentially the bulk of the volatility (both during the upside of the Polar Vortex and the corresponding market drop after) can be mainly attributed to weather anomalies.
- While LAS would've had hedges in place during 2016-2017 that would have been inflated due to the market conditions from the Polar Vortex, it is important to note that by having multiple hedge layers already in place at lower prices, we did not put the program at risk of seeing any upward rate movement for members, rather we were able to continue our YOY trend of rate reductions.
- The LAS program was also able to take advantage of these dips in the market for future contract years to continue to trend of year over year rate reductions for members.

While the disconnect seen during 2016-2017 was unfortunate for program members, with a lot of it being driven by weather, you can imagine that the predictability of patterns, trends and markets reactions can at times be difficult when you throw the monkey wrench of weather into the mix.