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A Trader's Perspective for Why Weather Matters in Energy

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Agenda

- Brief Background on Natural Gas Trading
- Weather's Role in Natural Gas Trading
- Case Study: Joe the Trader
  - What are the daily challenges of being a Natural Gas Trader
  - How trader's leverage weather information, along with other market information, to evaluate trades

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Background on Natural Gas (NG) Trading

- NG is a consumption driven commodity - it reacts to weather because its usage increases and decreases as the weather changes.
  - This demand, and the expectations for demand drive prices of NG up and down over time.

- NG trades on the Chicago Mercantile Exchange (CME), NYMEX, & The Intercontinental Exchange (ICE) with the physical and financial contracts typically settling at Henry Hub.

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Weather’s Role in Natural Gas Trading

- The meteorologists distill significant amounts of market information that allow the traders to make more informed trading decisions.
  - Traders work along side of meteorologists and quantitative analysts.

- Trading decisions are based on analysis of the most recent data and experience with similar market states.

- From this compilation of data, internal models and analytics are built by the traders and/or quantitative analysts.

The secret to having a great Meteorology Team… make sure you have big windows

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Case Study:

Joe is an experienced lead
gas-trader at Albany Trading Company

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The Challenges for Joe (or of being a Natural Gas Trader)

- Joe, and traders at the firm are expected to make money on a daily basis.

- Typical portfolios are subject to 'draw-down' limits (risk management)
  - If a trader loses 5-10% in a month, they are potentially told to cut their portfolio positions by 50%.

  - If the loss are larger than 10%, they are told to completely exit their positions.

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Joe's Situation (Dilemma)

It's is March 1st, 2012 and Joe is facing a crossroads in the market. Joe considered three options for the best path forward for trading investment.

- Bearish/Small Size: He can either trade with significantly less risk and enjoy the fact that he had made good money through the winter and not risk giving money back.

- Bearish/Large Size: He can press on with a series of large structurally bearish trades in his book that mimic'd what he saw as the overall bearish landscape fundamentally.

- Bullish: Or he can attempt to pick the natural gas price bottom and turn his trading portfolio into a contrarian perspective.

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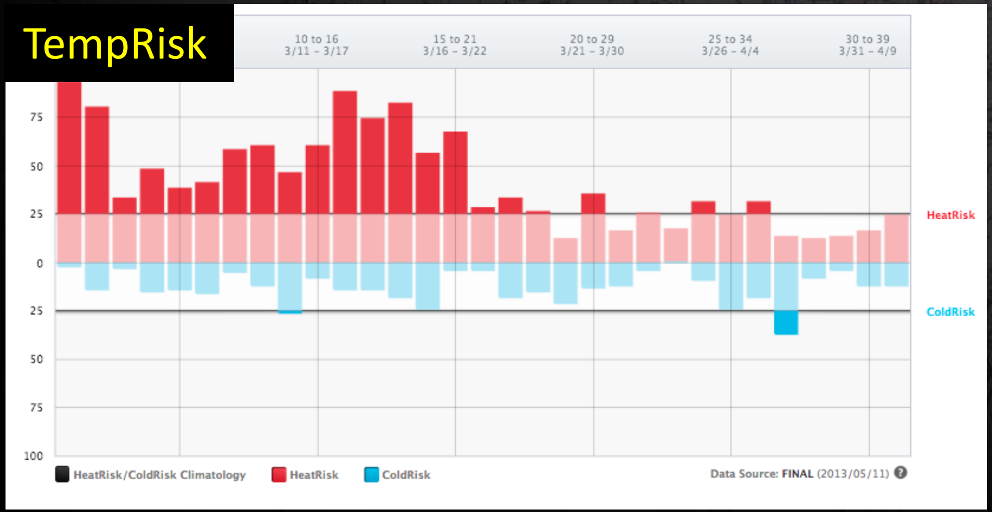
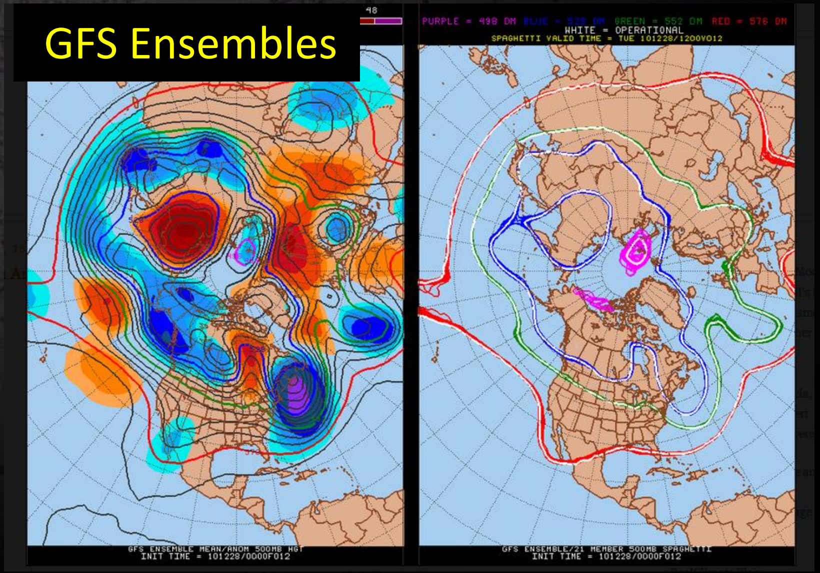
Joe Evaluates the Fundamentals: Part I

Latest Weather Information

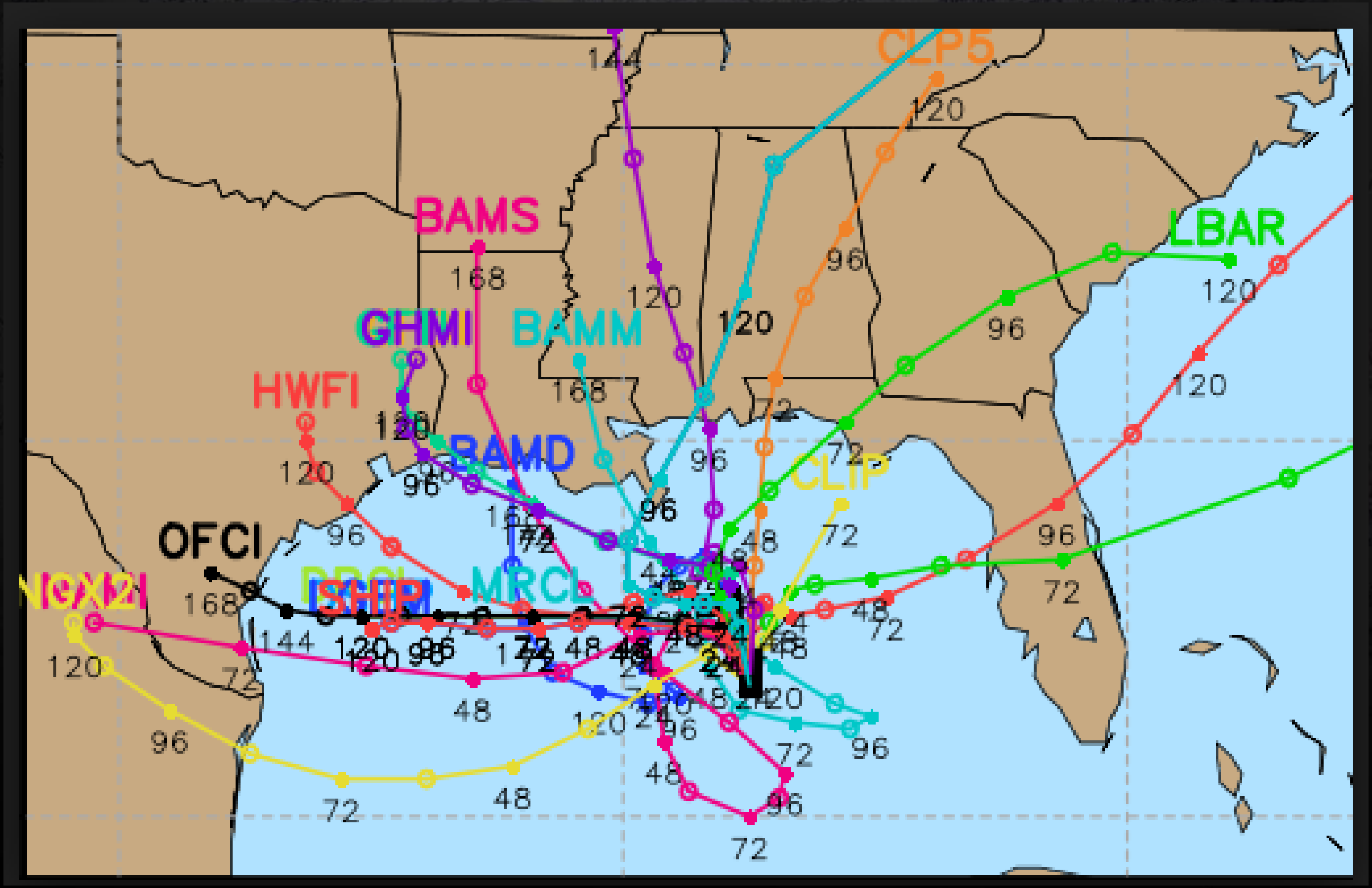
- Joe's meteorologist evaluates and considers a diverse group of data points ranging from market leading monthly forecasts, dynamic models, to independent and cutting edge products like TempRisk.





Joe Evaluates the Fundamentals: Part II

Okay, so this isn't temperature guidance, but this does provide an example of how complex forecast situations can be.



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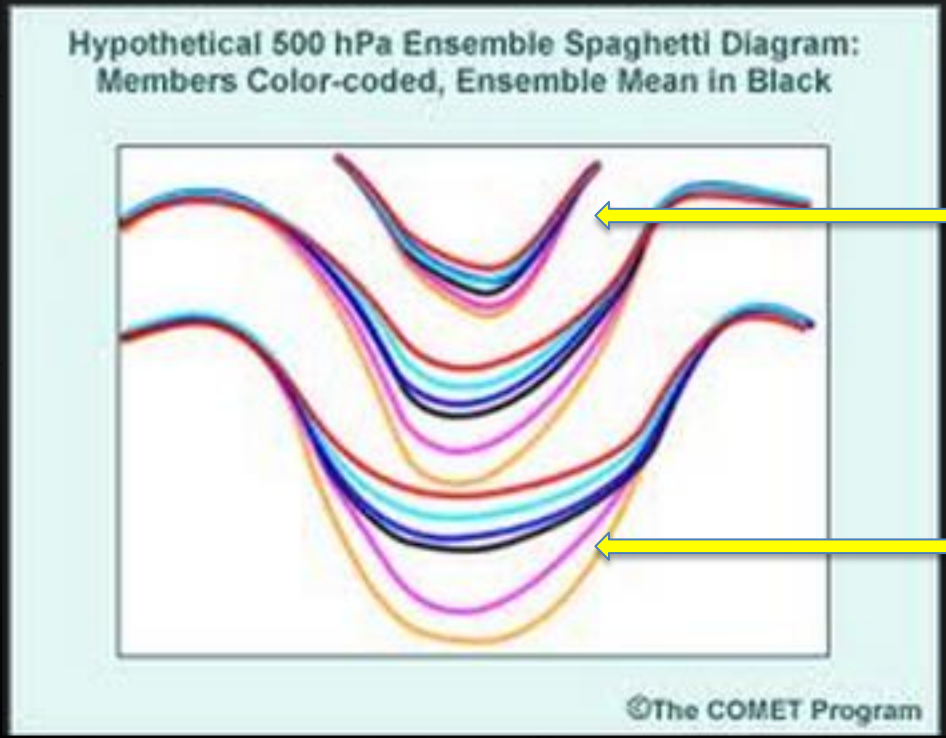
Joe Evaluates the Fundamentals: Part III

- Ensemble (spaghetti) data like the ensemble paths below – can sometimes provide similar ensemble means, but much different risks for outlier events.



10% probability for a 2 Stdev Cold event (lets assume this is the current scenario)

25% probability for a 2 Stdev Cold event

Bottom Line: The risk-reward can be vastly different for these two scenarios

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Joe’s Risk Assessment on going Short with a Large Position…

- Bottom Line: The majority of data points show a warmer than normal March for the East Consuming Region…. And per the previous slide the risks for a strong cold event appear relatively low.

  - Potential Reward: Joe sees between 10-20 million dollars of potential upside in his trading strategy for the month of March.

  - Potential Downside: Joe calculates his maximum probable downside as 3-4 million dollars.

Summary: This amounts to a bet of approximately 4 to 1, reward/risk benefit and this fits nicely into his customary trade schedules.

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Joe's Actual Decisions in March 2012

- Joe's Decisions : Bearish/Large Size. Joe's high confidence in a continued Bearish trend through the month of March had him choose to stay in the market with a larger than typical short-portfolio, for the end of the winter.

- Joe decided to short the front of the Natural gas curve (the April 2012 contract) as well as buy June 2012 $1.90 Puts.

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So What Happened?

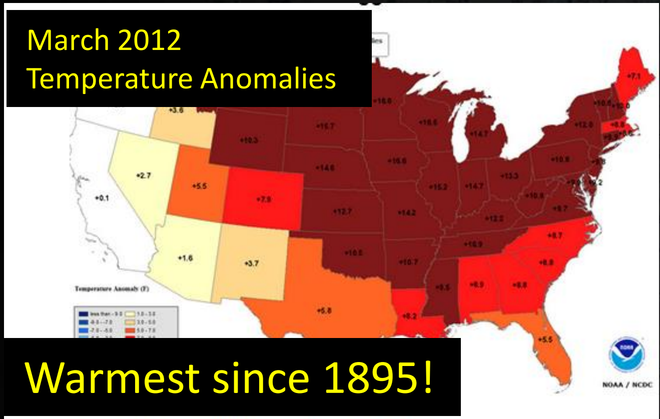
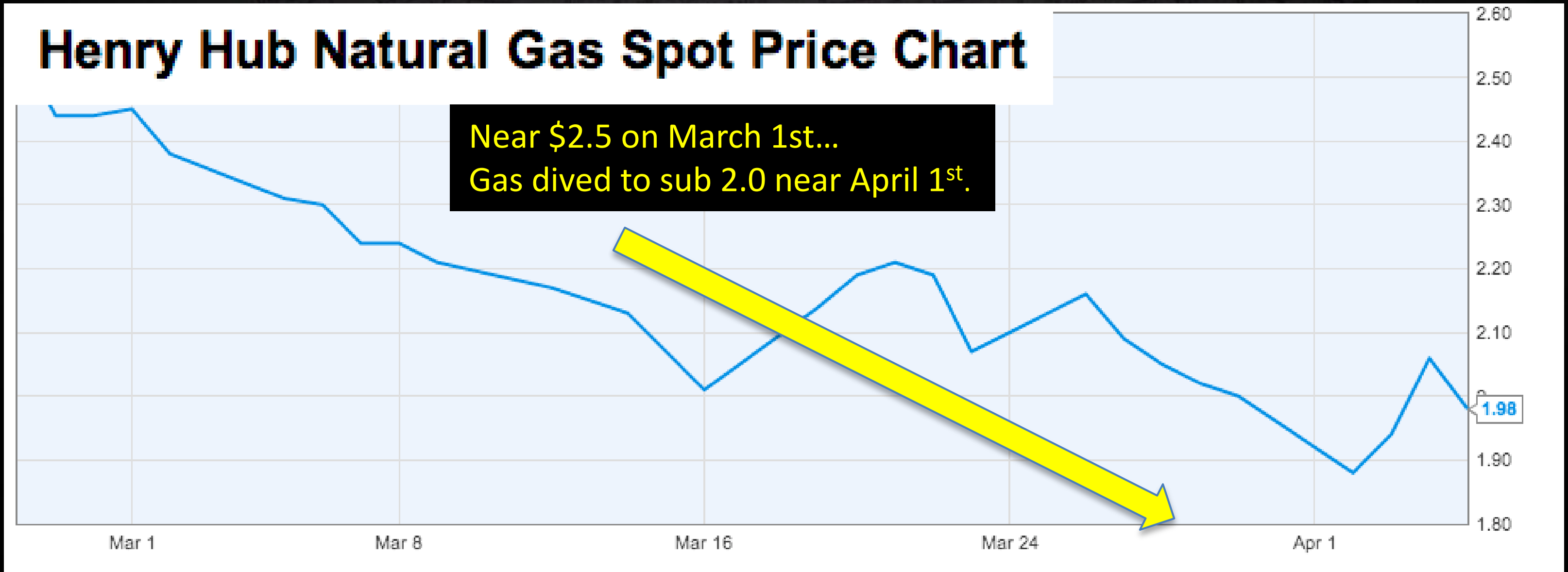


Figure 2: Temperature anomalies by state for March 2012.



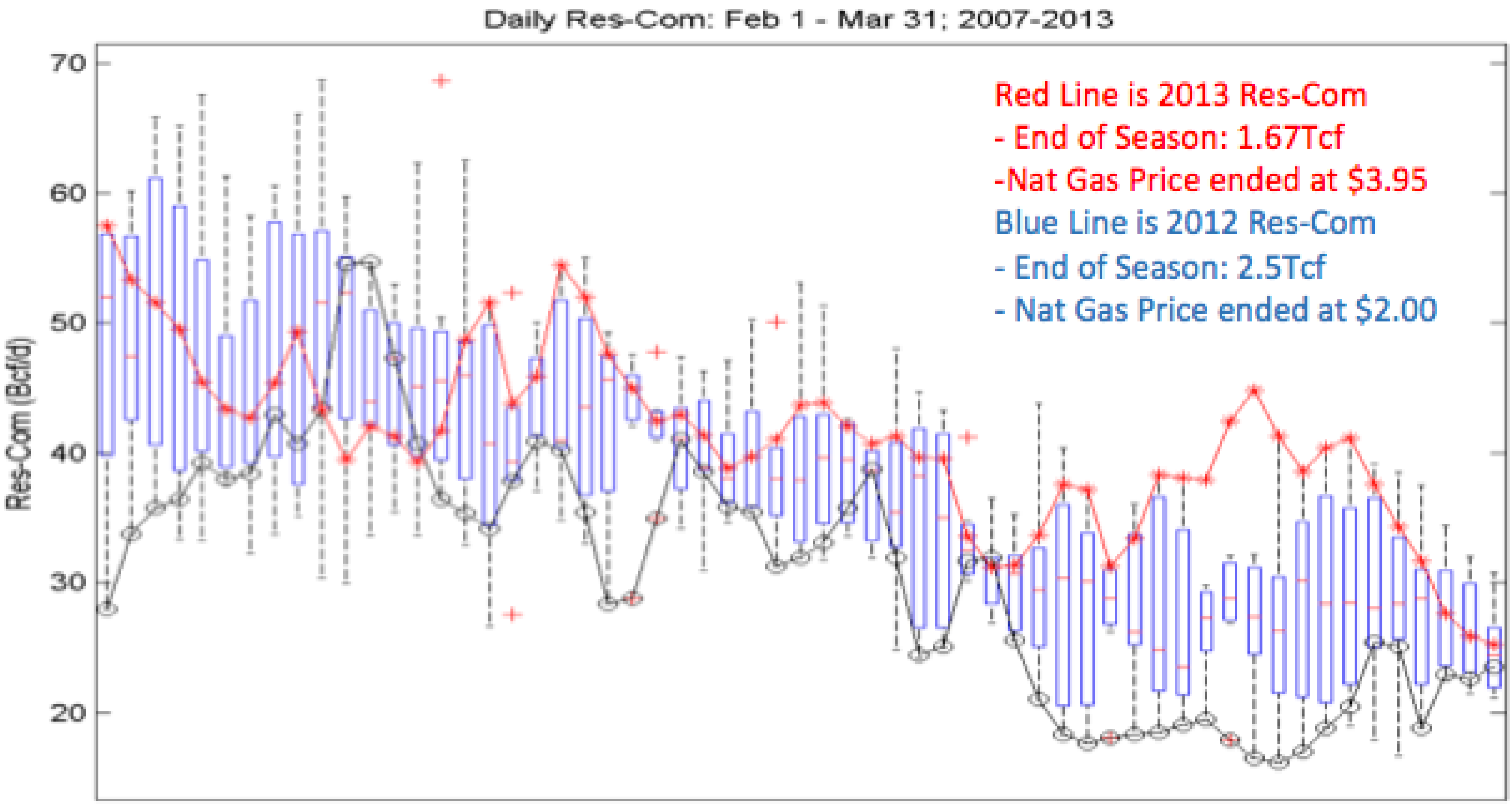
So What Happened?

- Joe's bearish bets that the warmth would continue and that the market would continue to sell off on it made his firm $15 million dollars during the month of March.

- Joe ended his 2012 career with a solid bonus

One more chart…

Demand Comparisons: Above Normal End to Winter (2012) & Below Normal End (2013)



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Summary and Conclusions:

Weather remains a core component of any fundamental trading strategy

Where do we go from here? Sophisticated analytics and cutting-edge research are valued more than in the past, but in many cases they cannot be leveraged by the end user.

- Probabilistic forecasts (Full Distribution)
- Skill metrics targeted for the user (i.e., extreme events are important in Energy). Hit Rates are more tangible than Ignorance for most end users.
- Model Diagnostics that the operational forecaster can leverage real-time.
- User-Defined weather forecasts (i.e., the natural gas industry is most interested in the NYC-ORD-ATL corridor).

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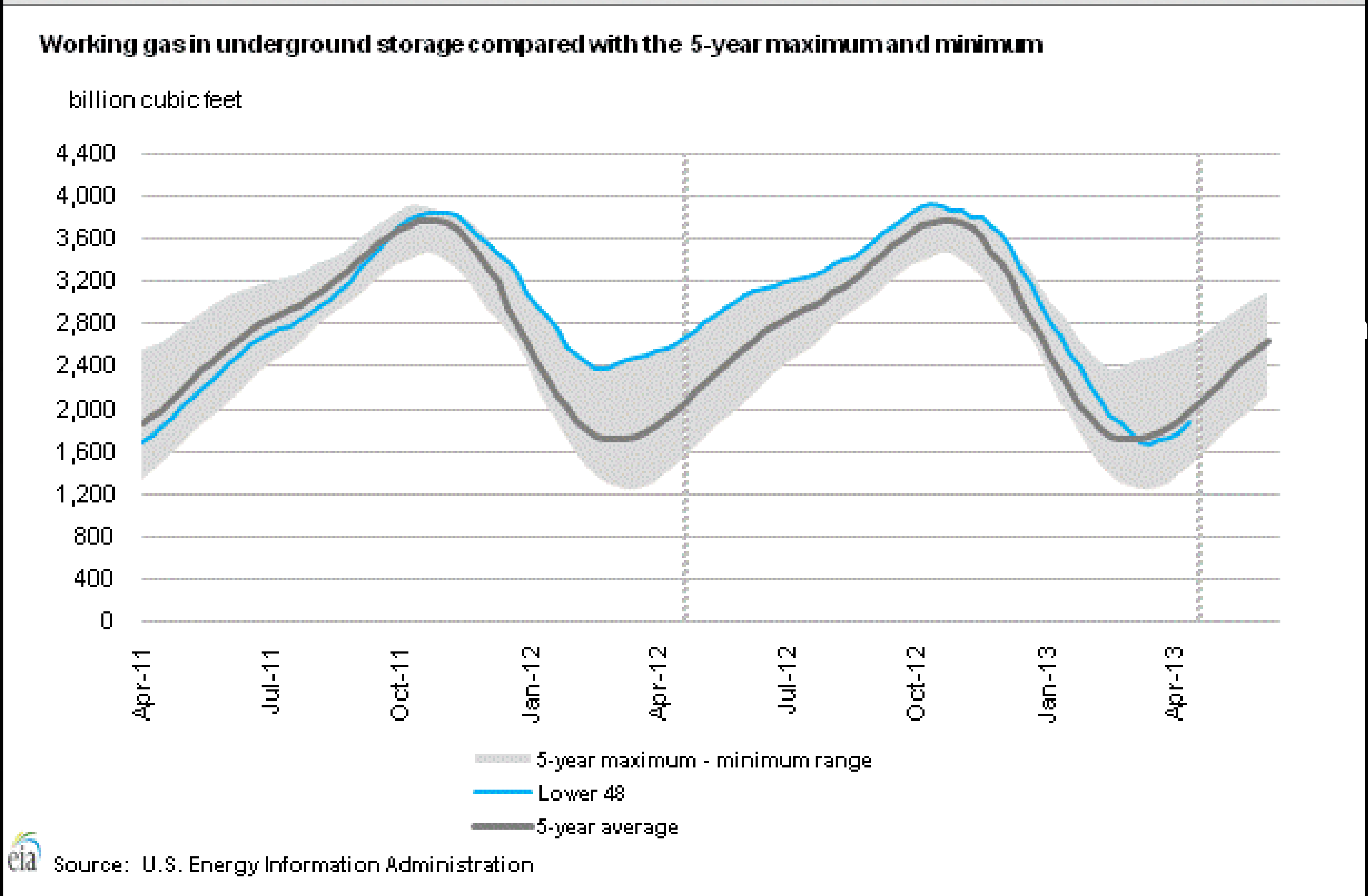
Conclusions:



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Background on Albany Trading

- Is a medium sized natural gas hedge fund with $500MM Assets Under Management (AUM).
- The majority of the employees are financial and business professionals, with some with quantitative research expertise.
- Focuses its research and analytical capabilities into develop pricing models to quantify pricing dislocations within the natural gas market.

Joe's Hedges His 'Bet'

- Now, being structurally short left Joe exposed to any upside price movement
  - To prevent a catastrophic loss to his portfolio, he bought June $3.50 Puts and Calls to create an option structure commonly called a "straddle"
  - This option structure involves buying 1 Call and 1 Put for the same expiry month (June) -- while participating in both the upside and downside, regardless of the outcome.

Joe Evaluates the Fundamentals

- Price and Market Trends
  - Bottom line - Bearish. Running the most realistic Bullish scenario through his demand models, still leaves a significant Natural Gas supply overhang and is likely not enough to flip the balances for the trading months of March and April

- Regulatory Forces and Risks
  - Bottom line – Bearish. The DC circuit court 'stayed' the implementation on the Cross State Air Pollution rule.
    - This regulatory risk can impact the prices of Natural Gas across the curve - this need not be a 'front of the curve' concern"

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Joe's Actual Decisions in March 2012

Joe's Decisions : Bearish/Large Size. Joe's high confidence in a continued Bearish trend through the month of March had him choose **to stay in the market with a larger than typical short-portfolio**, for the end of the winter.

- Joe decided to short the front of the Natural gas curve (the April 2012 contract) as well as buy June 2012 $1.90 Puts.
- The decision to go heavily short through March was one that his colleagues did not agree with and felt it involved far too much risk for the potential reward it could have provided.
- Joe did not follow his colleagues path and forged ahead with the whole desk watching his profit and loss (PnL) on a near minute-by-minute basis as he evolved the March portfolio.

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