



**An Analysis of the Relationship between
Changes in Government Weather
Forecasts and Natural Gas prices.**

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Introduction

- **Theory – “Significant” changes in government weather forecast models influence natural gas markets.**
- **Analysis Tools – Weather Insight’s historical forecast database with Logical Information Machines’ XMIM (Market Information Machine)**
- **Analysis –Studies examining NYMEX futures during the winter and summer months**
- **Results**
- **Conclusions**

Theory

- **“Significant” changes in government weather forecast models influence natural gas markets.**
- **Fundamental reasons**
 - **Changes in natural gas demand**
 - **Freeze-offs impact supply**
- **Recent history of natural gas trading**
 - **New market entrants initially less focused on market fundamentals.**
 - **Weather forecast volatility provides trading opportunities.**

Analysis Tools

- **Weather Insight's historical forecast database**
 - **Global Forecasting System (GFS) – May 2003**
 - **GFS ensemble – June 2006**
 - **ECMWF (European) ensemble – June 2006**
- **Logical Information Machines' XMIM**
 - **XMIM – Market Information Machine**
 - **Evaluates price action during market events**
 - **Create informed, accurate hedging strategies**

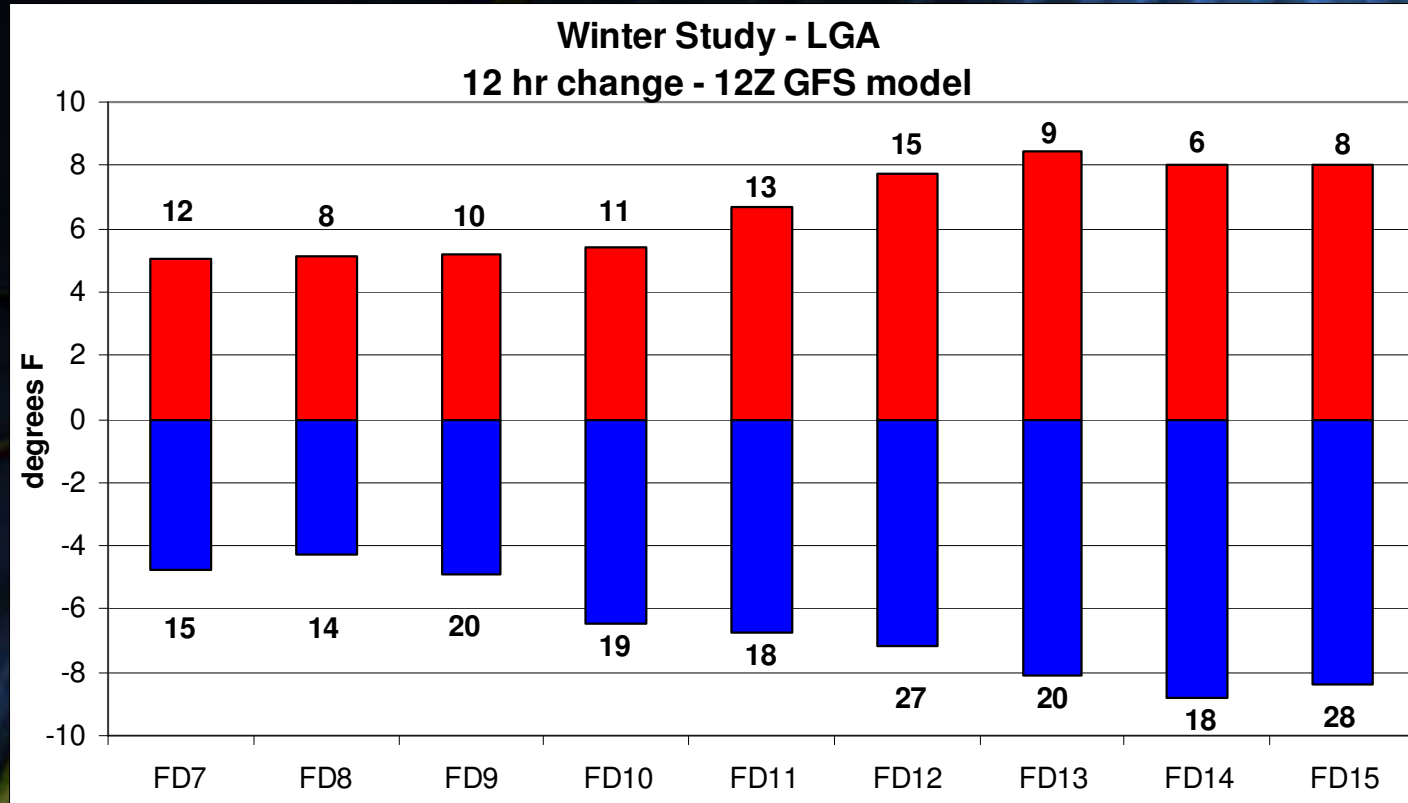
Analysis

- **Determine relationships between NYMEX NG prices and changes in forecast models.**
 - **Winter studies**
 - **NG – Prompt contract: Nov. 1 thru March 31**
 - **Colder and warmer forecasts**
 - **Summer Studies**
 - **NG – Prompt contract: June 1 thru August 30**
 - **Colder and warmer forecasts**

NYMEX NG futures – Winter study

- **NYMEX NG contract**
 - **City: New York - LaGuardia**
 - **Period: Winters 2006/7 & 2007/8 (11/1 to 3/31)**
 - **Forecast period – Forecast day 7 (FD7) or later**
 - **Temperature criteria**
 - **Forecast – Much below the 30-yr normal**
 - **Greater than average change of 12Z GFS model compared to GFS run 12 hours prior**

NYMEX NG futures – Winter study



- **Bars represent the average positive and average negative 12-hr forecast temperature changes of 12Z GFS.**
- **Bold numbers represent number of days that temperature criteria was met.**

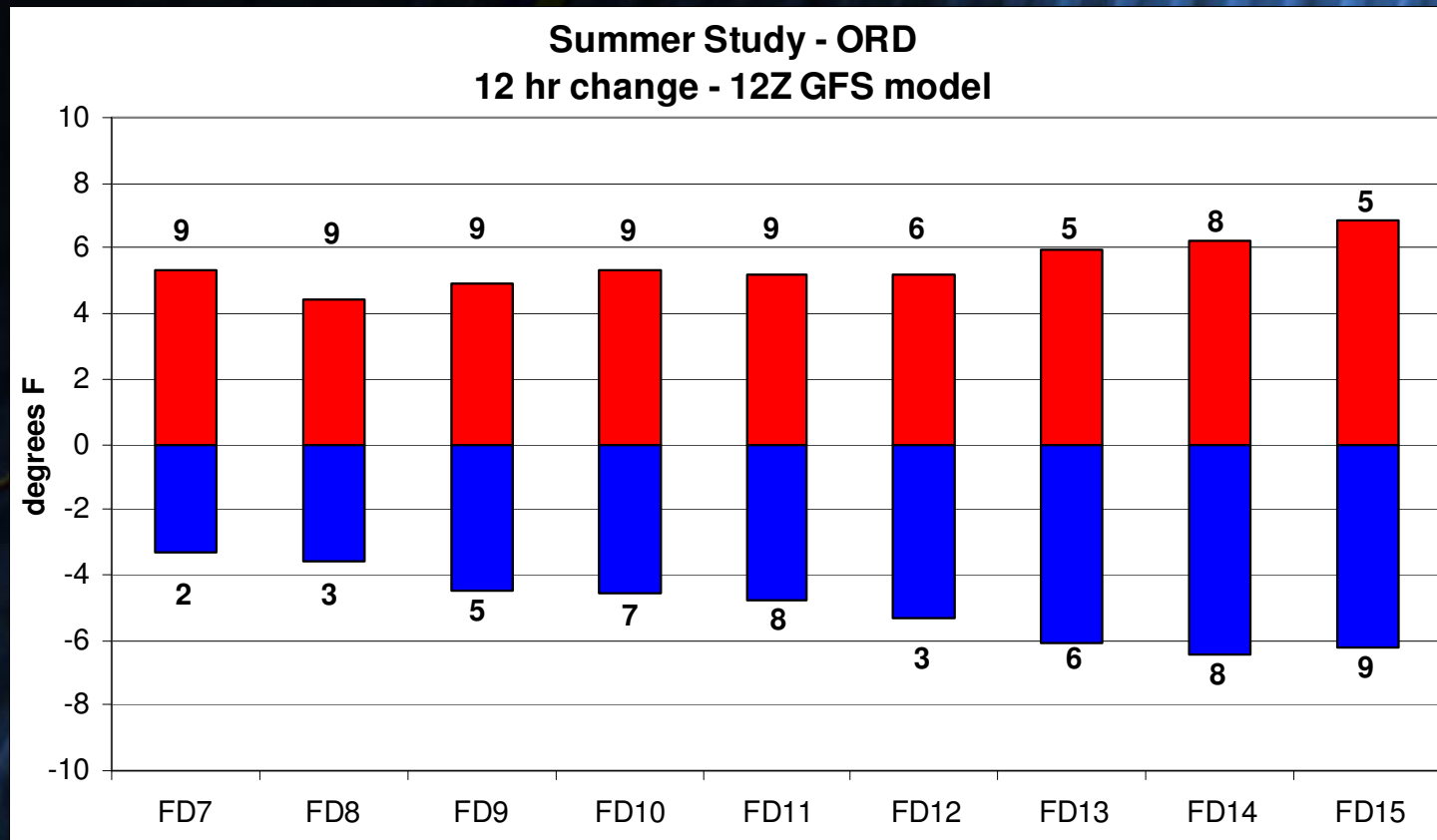
NYMEX NG futures – Winter study

- **Colder forecast – Trader patience is required**
 - **Trader purchases prompt NG contract after both temperature criteria were met on FD7 or later.**
 - **No strong trend in price action within one hour.**
 - **1 hour after forecast is released, strong positive price trends noted during 8 of the 9 of FDs (89%)**
 - **Example: Forecast Day 9**
 - **20 occurrences where both temp criteria were met.**
 - **During 16 of those 20 (80%), NG rallied an avg of 8.1 c**
- **Warmer forecasts were studied but no tradable patterns were established**

NYMEX NG futures – Summer study

- **NYMEX NG contract**
 - **City: Chicago**
 - **Period: Summers 2006 & 2007 (6/1 to 8/30)**
 - **Forecast period – Forecast day 7 (FD7) or later**
 - **Temperature criteria**
 - **Forecast – Much above the 30-yr normal**
 - **Greater than average change of 12Z GFS model compared to GFS run 12 hours prior**

NYMEX NG futures – Summer study



- **Bars represent the average positive and average negative 12-hr forecast temperature changes of 12Z GFS.**
- **Bold numbers represent number of days that temperature criteria was met.**

NYMEX NG futures – Summer study

➤ Warmer forecast – 2 trading options

➤ *Option 1: Act quickly*

➤ 15 minutes after the forecast is released, strong positive price trends on 7 of the 9 FDs

➤ **Example: Forecast Day 7**

- 9 occurrences where both temp criteria were met.**
- On every occurrence, NG rallied - Average of 3.4 c**

➤ *Option 2: Be patient*

➤ 1 hour after the forecast is released, strong positive price trends on last 3 FDs (FD13 - FD15)

➤ **Example: Forecast Day 14**

- 8 occurrences where both temp criteria were met.**
- On every occurrence, NG rallied - Average of 6.3 c**

NYMEX NG futures – Summer study

- **Cooler forecast – Be patient**
 - **Trader sells prompt NG contract after both temperature criteria were met on FD7 or later.**
 - **No strong trend in price action within 30 minutes.**
 - **30 min after the forecast, strong downward price trends noted on all 9 FDs.**
 - **Example: Forecast Day 11**
 - **8 occurrences where both temp criteria were met.**
 - **After 30 min, 6 of 8 occurrences, NG down - Avg - 6.9 c**
 - **After 1 hr, 6 of 8 occurrences, NG down - Avg – 14.3 c**

Conclusions

- **Analysis demonstrated that “significant” changes in government weather forecast models influence natural gas markets.**
- **No single way to approach as a trader.**
 - **Act quickly – During summer, market sensitive to Midwest heat and warmer forecasts.**
 - **Be patient – Market is possibly waiting for the next model run for additional evidence of forecast changes.**
- **What’s next?**
 - **Additional research on physical NG markets, NYMEX spreads, etc.**
 - **Weather Insight’s FirstInsight service - Increasing speed and geographic areas covered.**