



# Markets, Opportunities and Risk Management

March 2014

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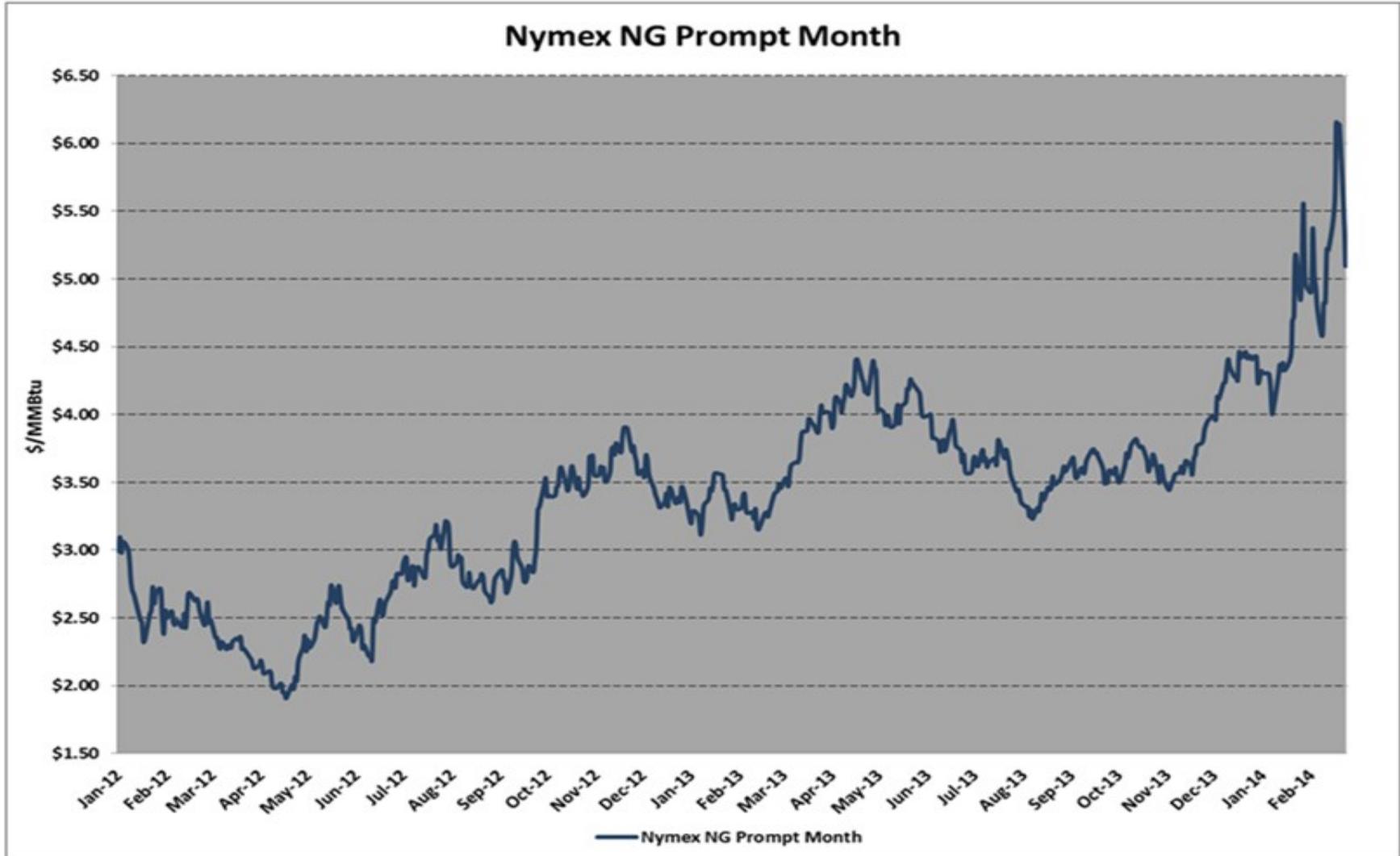
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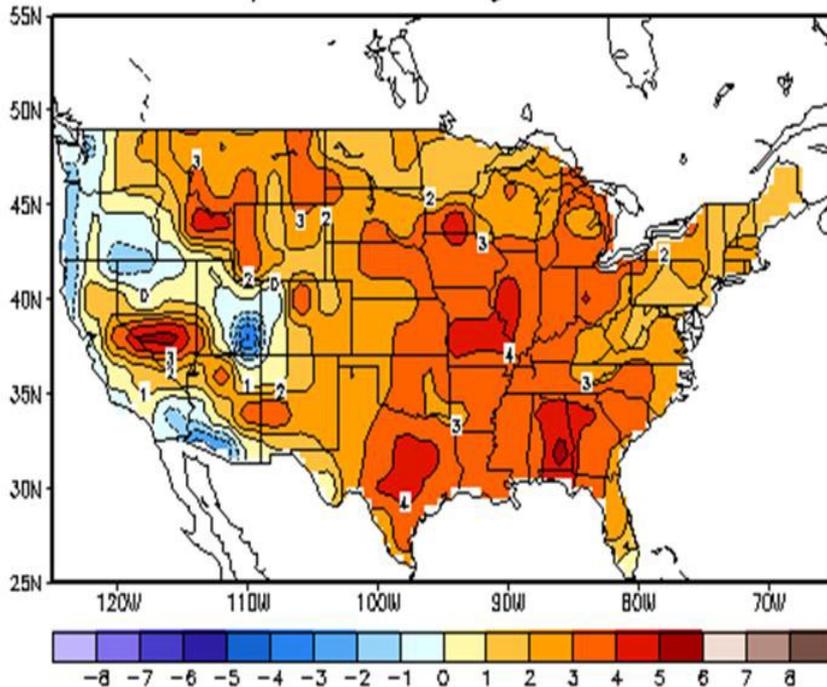
# History of NYMEX Prompt Month Contract Since 2012



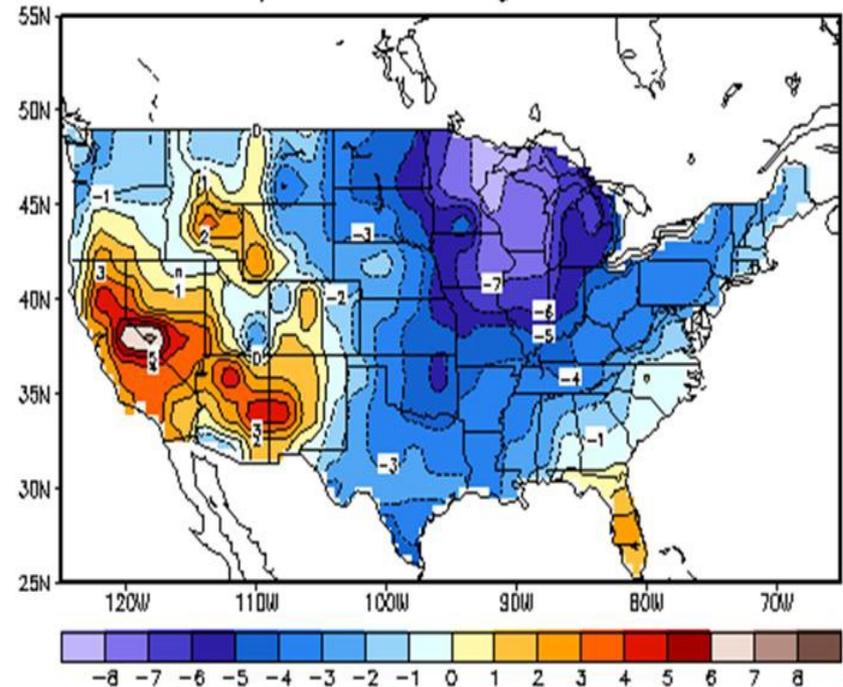
# Winter 2014 has been colder than 2013 in TX, Midcon, and NE



Mean Temp (F) Anomaly  
90-day mean ending Feb 12 2013

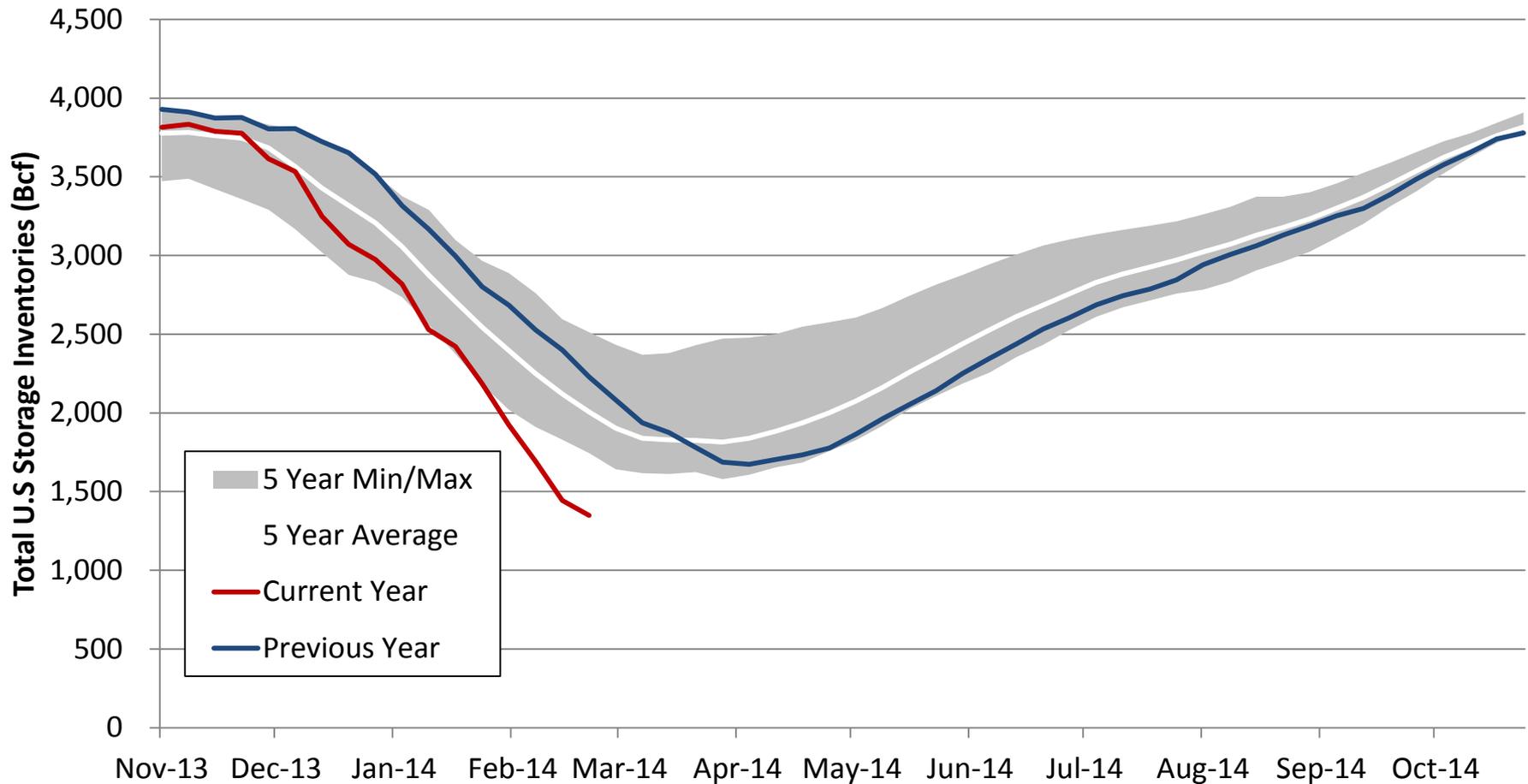


Mean Temp (F) Anomaly  
90-day mean ending Feb 12 2014



*The current year 90-day period has averaged 374 more HDDs across the US compared to year-ago national HDD levels*

# Nat Gas Storage



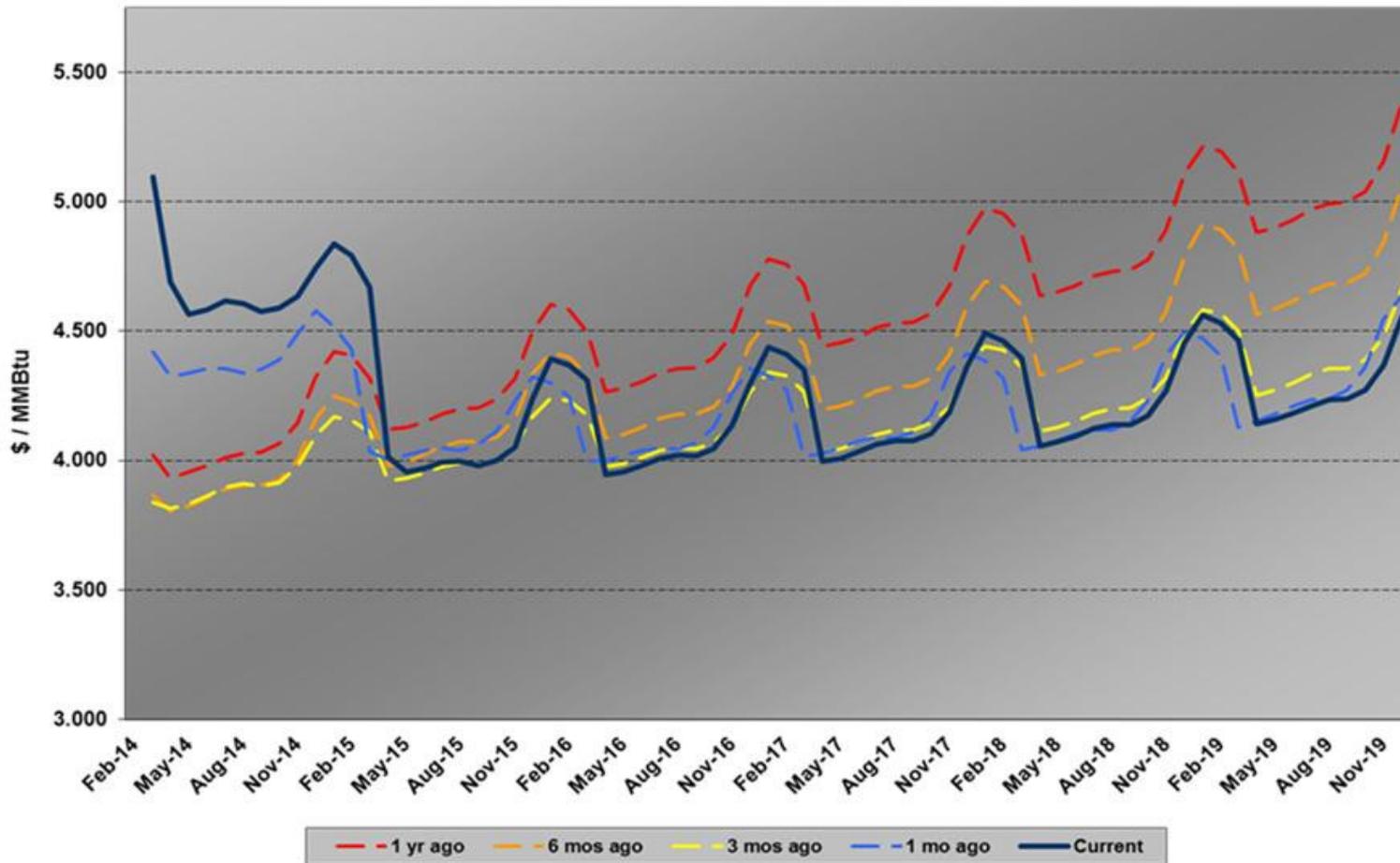
*US storage inventories are 881 Bcf **below** year ago levels*

*and 659 Bcf below the five year average*

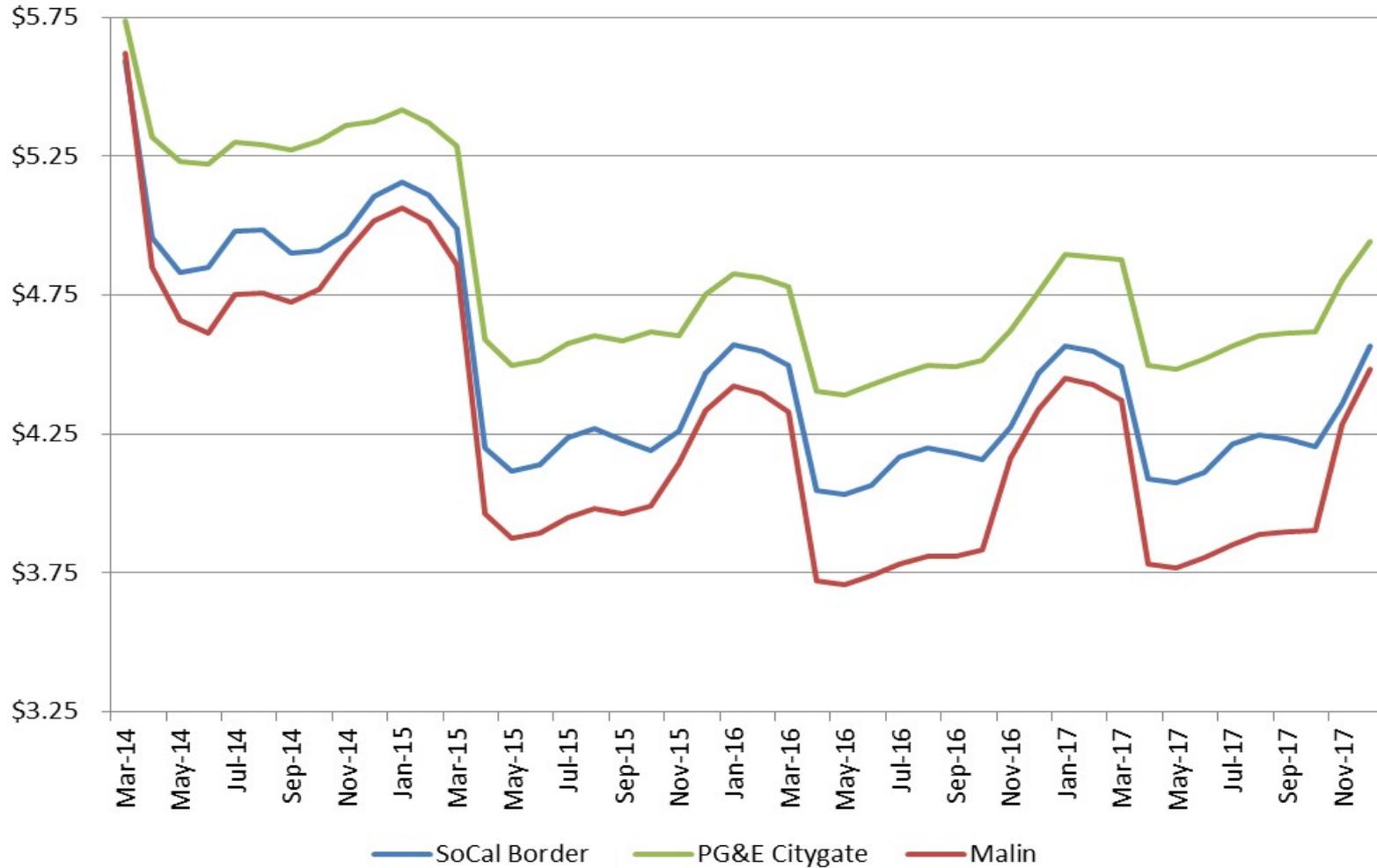
# History of the Nymex Five Year Forward Curve



**Nymex NG**  
5 Yr Fwd Curve-Variou Intervals



# Forward Prices (Not Current)



# Fixed Price

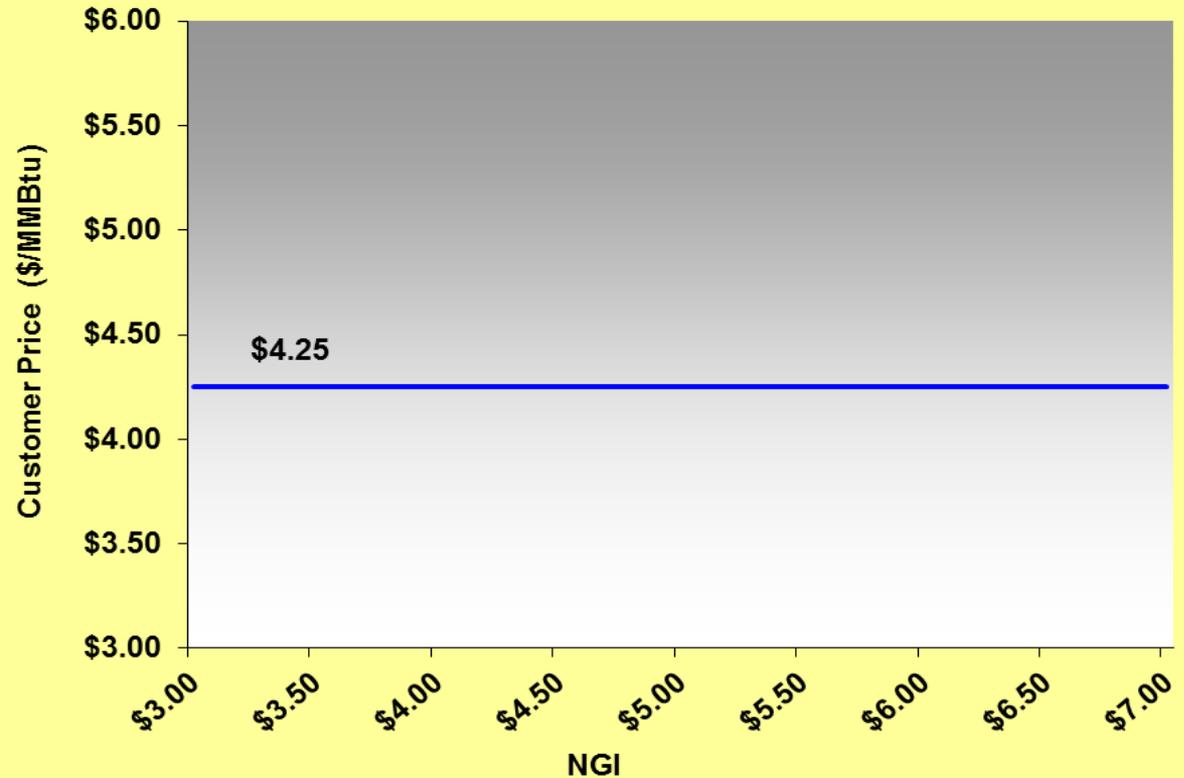


## Description

- Customer locks in a fixed price.

## Details

- Malin
- Apr 14 – Dec 17
- 2,500MMBtu/d
- Price: \$4.25/MMBtu



## Examples

- Customer Price is \$4.25/MMBtu

# Participating Swap



## Description

- Customer receives a fixed price but if NGI posts below the fixed price, the fixed price is reduced by 35% of the difference between the initial fixed price and NGI

## Details

- Malin
- Apr 14 – Dec 17
- 2,500 MMBtu/d
- Price: \$4.50/MMBtu with 35% participation for every penny that IFERC posts below \$4.50.
- Current Market is \$4.25



## Examples

- If NGI posts \$6.00, customer price is \$4.50
- If NGI posts \$3.00, customer pays \$3.98 [  $\$4.50 \times 65\% + \$3.00 \times 35\%$  ]

# Price Update



	Apr 14	Apr14-Dec14	Apr14-Dec15	Apr14-Dec16	Apr14-Dec17
Malin Fixed Price	\$4.80	\$4.73	\$4.45	\$4.31	\$4.25
Malin 35% Participating Swap		\$5.00	\$4.75	\$4.55	\$4.55
Socal Border Fixed Price	\$4.91	\$4.89	\$4.63	\$4.52	\$4.46
Socal Border 35% Participating Swap		\$5.15	\$4.90	\$4.80	\$4.75
PG&E Citygate Fixed Price	\$5.27	\$5.25	\$4.97	\$4.85	\$4.81
PG&E Citygate 35% Participating Swap		\$5.50	\$5.25	\$5.10	\$5.10

# Bio and Contact Information



Ben Go is the Director of Structured Products, West Region for BP's North American Gas and Power. He has been in the energy business for 30+ years in a variety of roles ranging from engineering, field operations, strategic planning/analysis, crude oil trading and natural gas marketing. Ben has a BS in Mechanical Engineering from UC Berkeley. In his various assignments, Ben has lived in San Francisco, Anchorage, Prudhoe Bay Alaska, Los Angeles, Tokyo and is now currently based in Houston. In his current role, Ben is responsible for providing financial markets and customized products in the Western United States and assisting customers in their physical and financial risk management and hedging programs.

Contact Information:

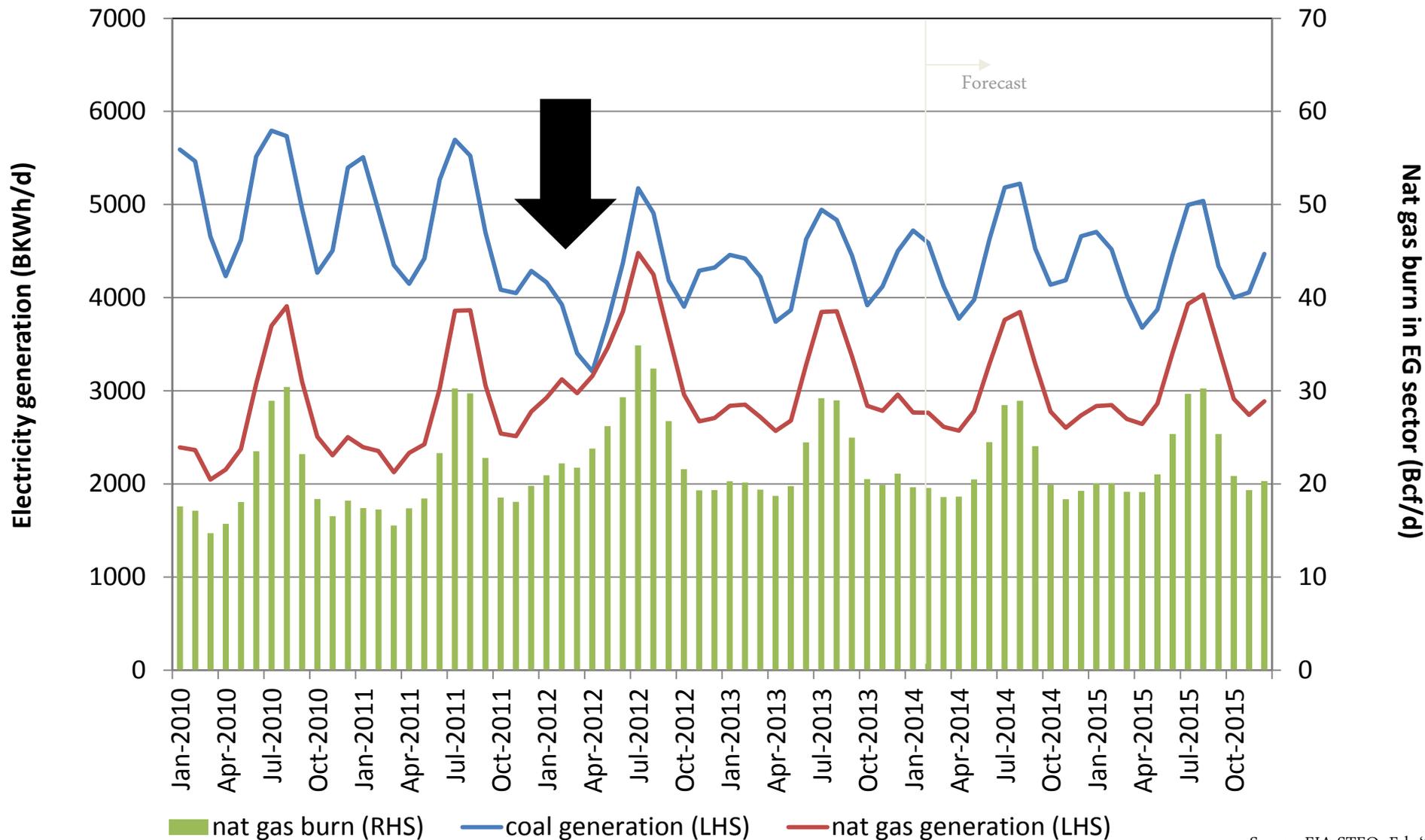
713-323-4606

[GOBM@BP.COM](mailto:GOBM@BP.COM)



Back Up Slides

# US Power Generation: Gas displacement of coal continues



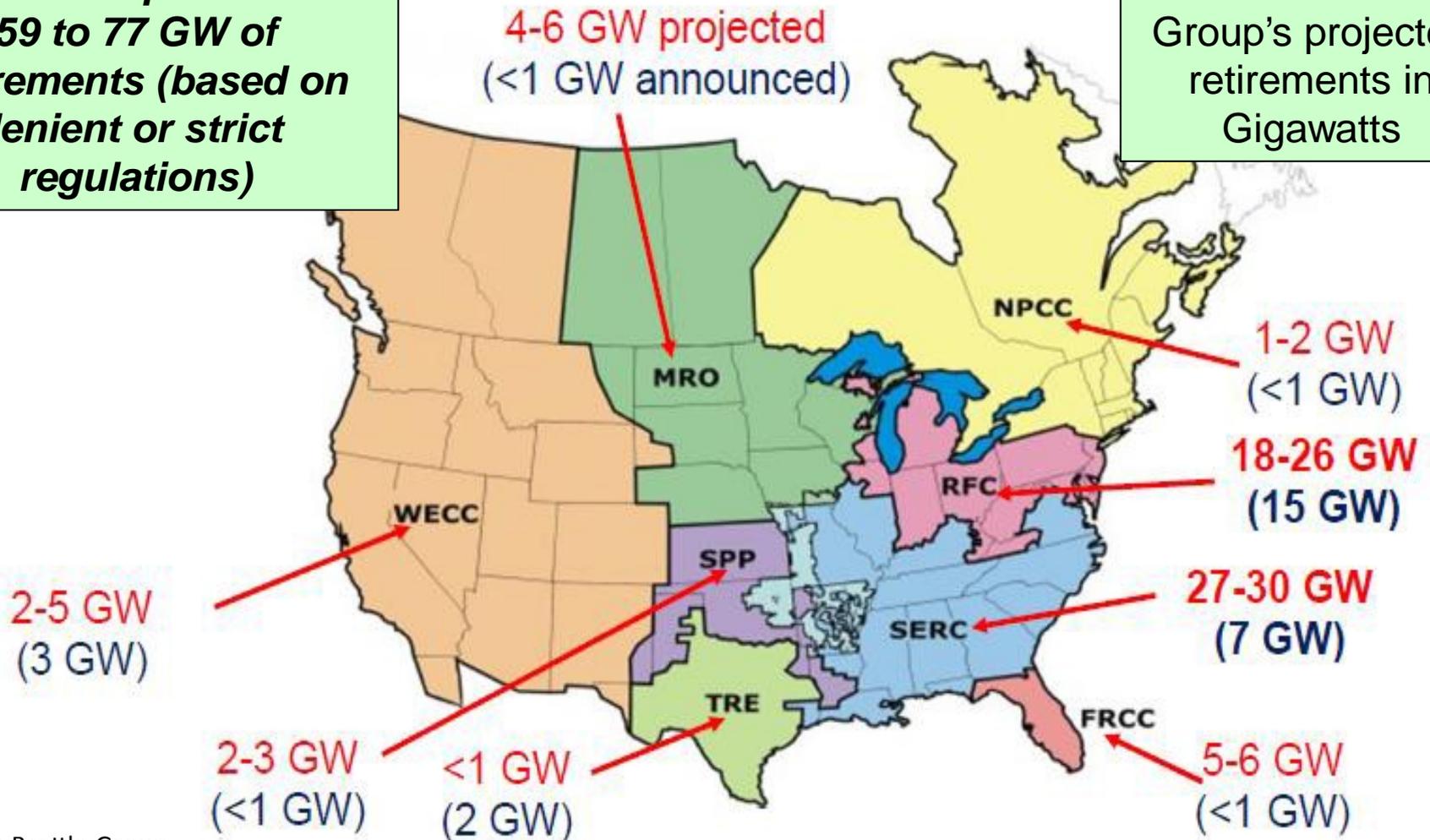
# Coal retirements could significantly impact the gas and power markets



**Figure 4** Announced and Projected Coal Retirements by NERC Region

**Brattle Group estimates 59 to 77 GW of retirements (based on lenient or strict regulations)**

**GW: Brattle Group's projected retirements in Gigawatts**

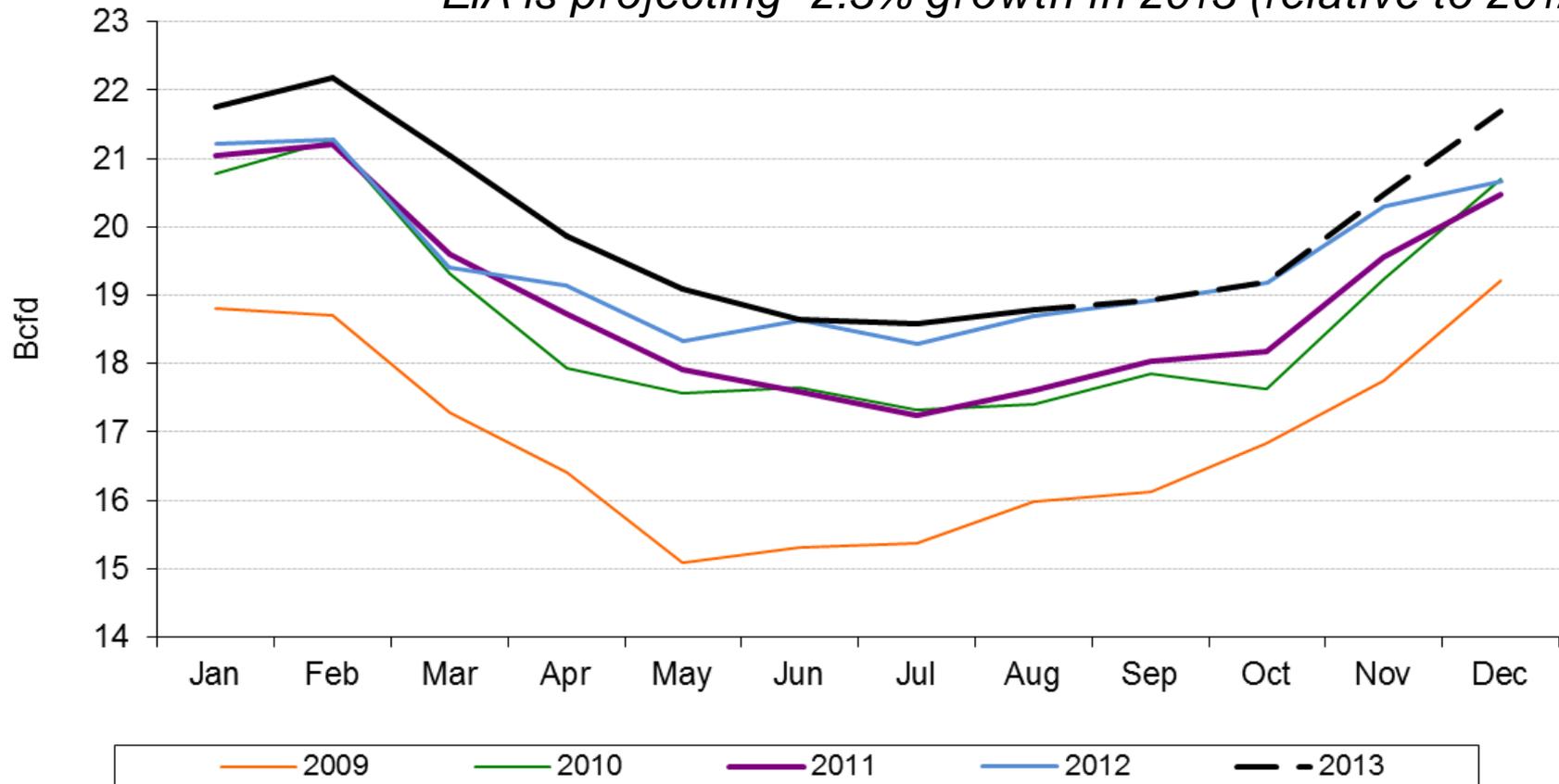


# Industrial gas demand: Modest growth



Source: EIA, Jun '13

*EIA is projecting 2.3% growth in 2013 (relative to 2012)*

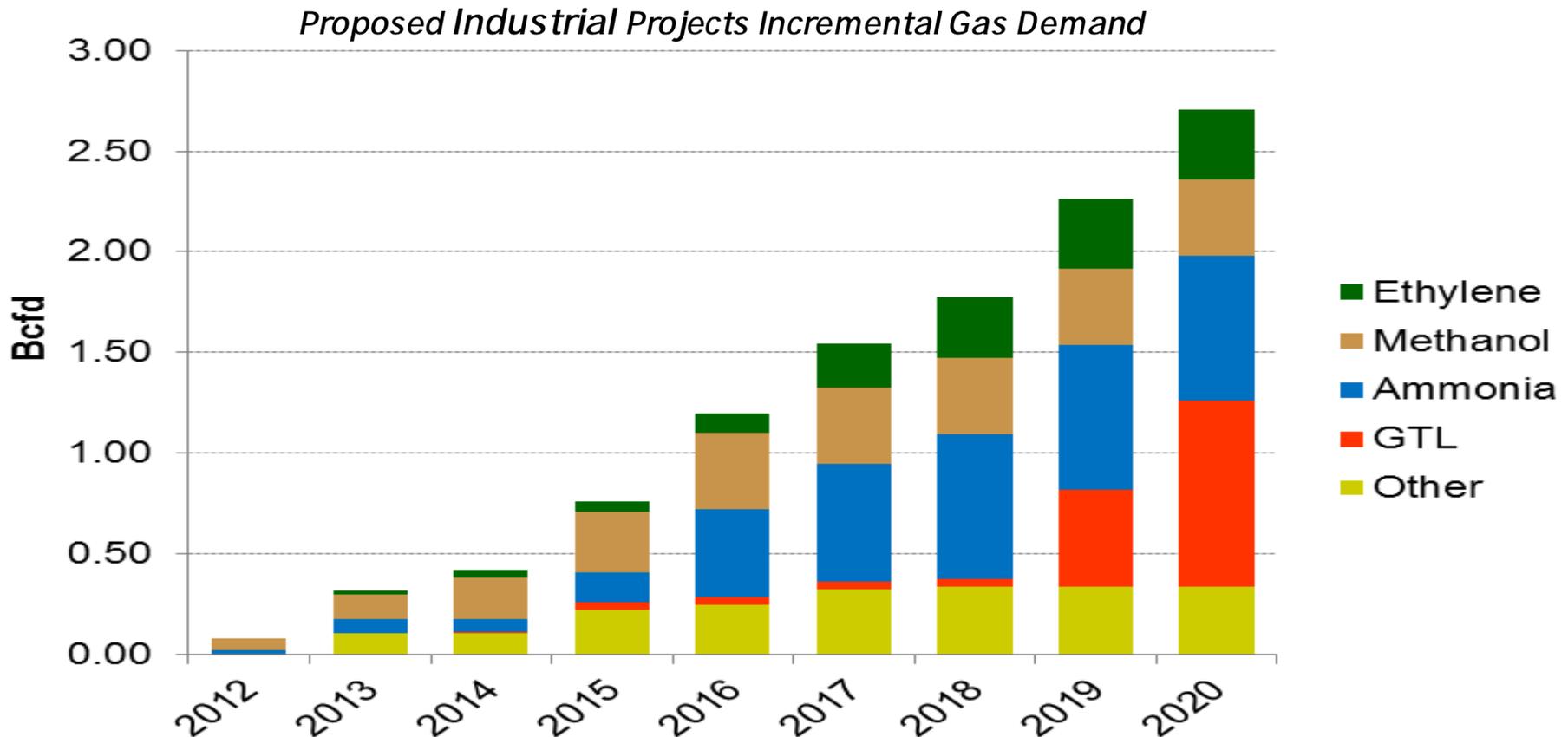


*Gas demand in industrial sector has surpassed pre-recession levels,  
driven by petchems sector*

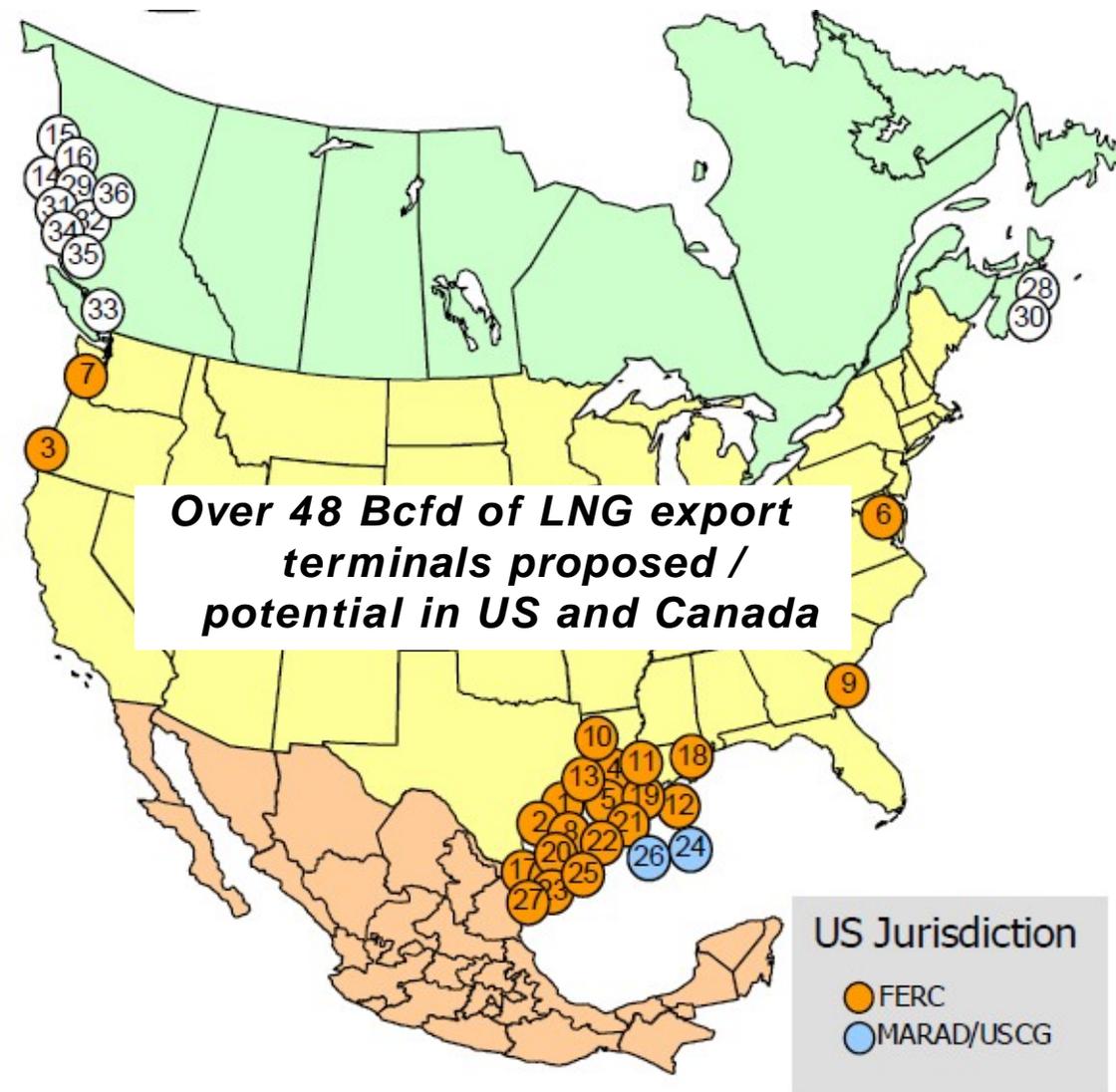
# Low gas prices prompt industrial revolution????



- *Low-cost gas and healthy market for end product could spur new industrial capacity*
- *73% of new industrial projects expected to be built in Texas and Louisiana*
- *Permits, financing, and market share will influence the number of projects that break ground*

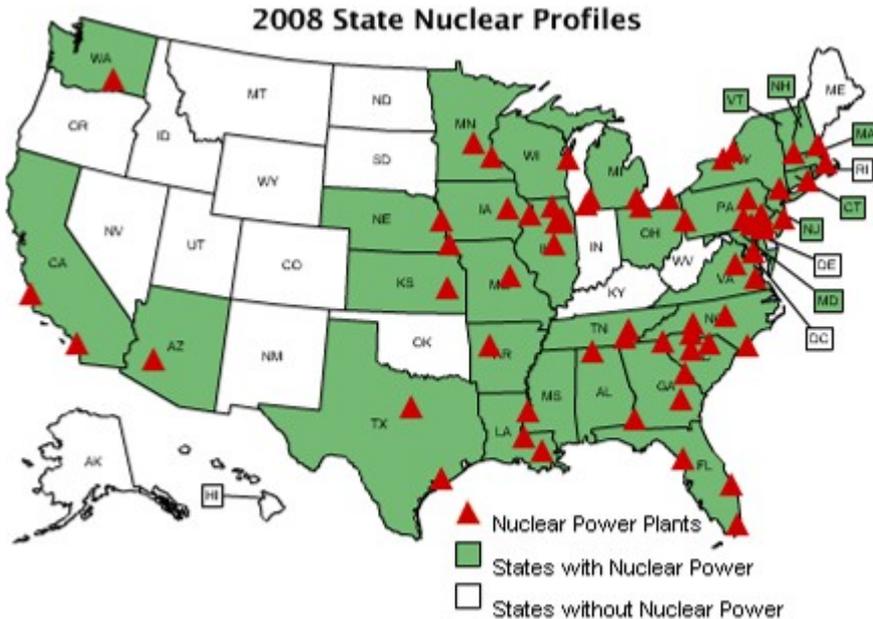


# Multiple LNG export projects are currently under consideration

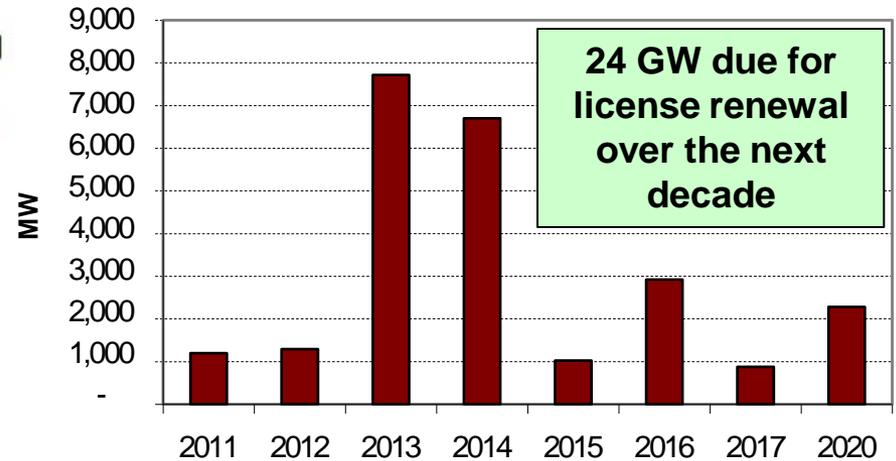


- FERC List of proposed / potential export terminals:
  - U.S. = 31.1 Bcfd
  - Canada = 17.4 Bcfd
- DOE Non-FTA approvals:
  - Sabine (2.6 Bcfd)
  - Freeport (1.7 Bcfd)
  - Lake Charles (2.0 Bcfd)
  - Cove Point (.77 Bcfd)
  - Cameron (1.7 Bcfd)

# Highly utilized and aged nuclear fleet; watch for license renewals

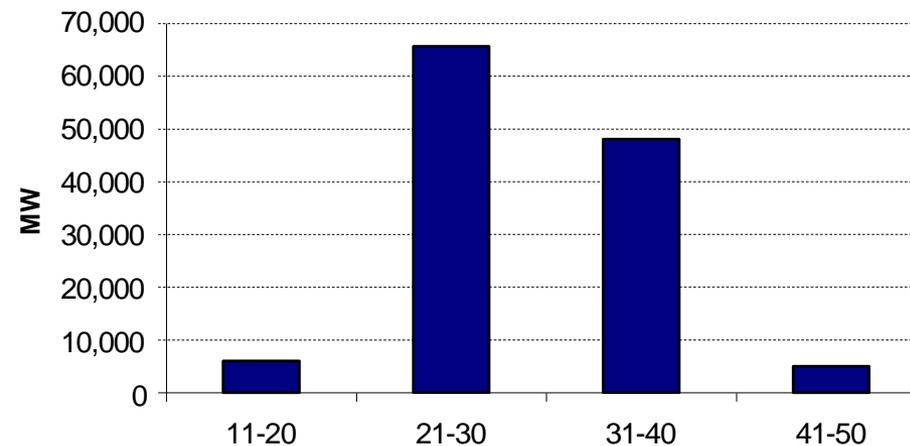


## NA Nuclear Plant Licenses Up for Renewals



- *Approximately 20% of US electricity net generation is nuclear*
- *Beginning in 2009 the US Nuclear Regulatory Commission (NRC) granted 20-year license renewals to more than half of the nuclear operating reactors*
- *Operation length has increased from 40 to 60 years*

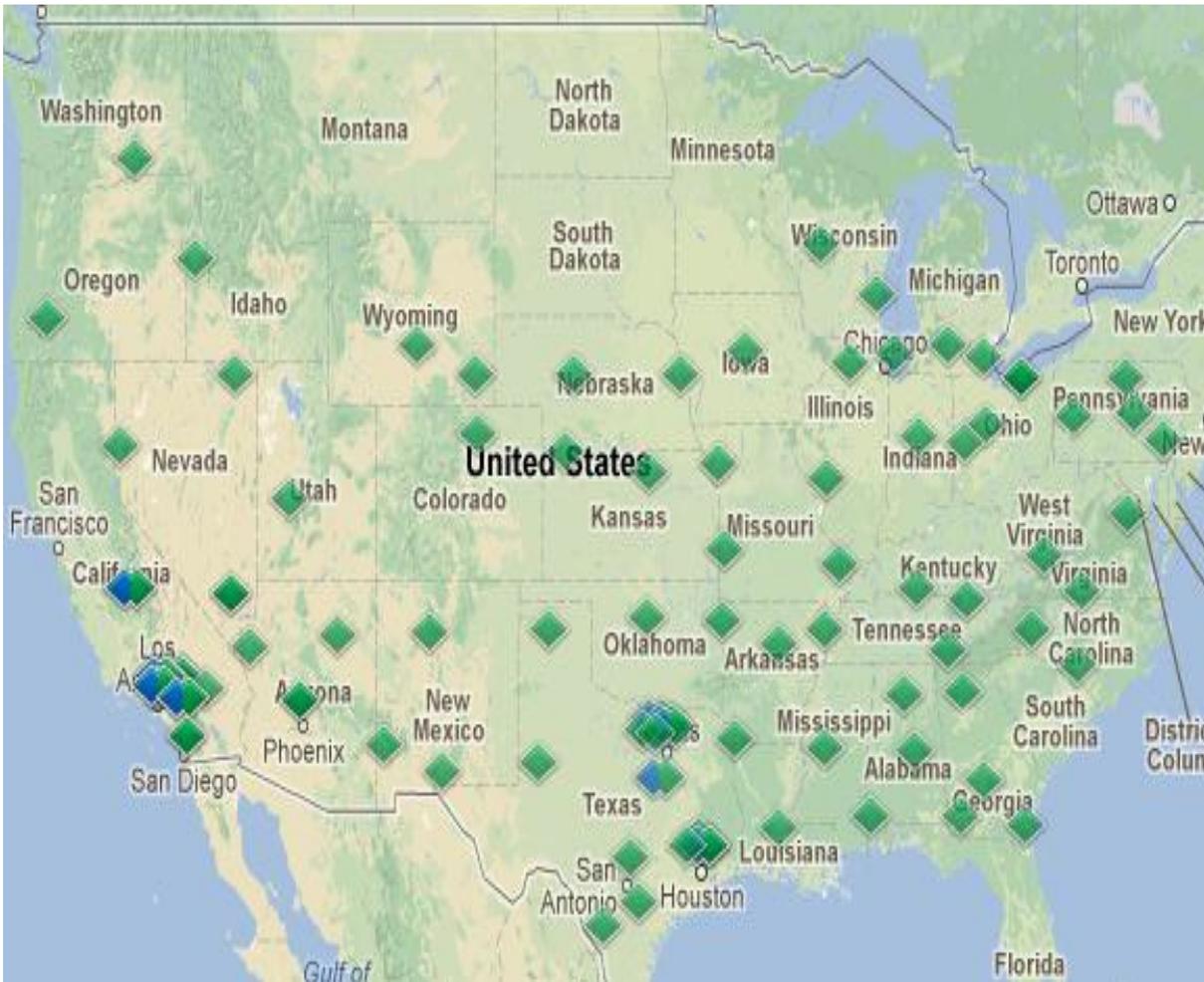
## NA Nuclear Plant Capacity by Vintage



# Demand response #3: Potential in converting Class 8 Trucks to LNG?



## Proposed Clean Energy Fueling Stations



## New LNG Forecast

