

# OE ENERGY MARKET SNAPSHOT

## National Version – February 2010 Data

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- **Special Report**
- **Natural Gas and Fuel Markets**
- **Electricity Markets**

Office of Enforcement  
Federal Energy Regulatory Commission  
March 2010

# Special Report:

## Agenda Update

- **Order 720A**
- **Electric Transparency Notice of Inquiry**
- **Credit Notice of Proposed Rulemaking**

## Order 720A Promotes Greater Transparency in Gas Markets

- Commission voted to reaffirm and clarify Order No. 720 at January meeting
- Requires most “non-interstate pipelines” that deliver  $\geq 50$  million MMBtu (Bcf) annually to post daily scheduled flows at receipt and delivery points on a publicly accessible website
  - Postings to occur for receipt and delivery points with design capacity  $\geq 15,000$  MMBtu/d
- Exemptions primarily for:
  - 1) Pipelines that deliver  $< 50$  million MMBtu (Bcf) annually
  - 2) Pipelines that deliver more than 95% of natural gas directly to “retail end-users” (primarily LDCs)
  - 3) Pipelines that fall entirely upstream of a processing or treatment plant (primarily gatherers)
  - 4) Storage providers
  - 5) Pipeline owned or operated by end-users
- Requires interstate pipelines to post no-notice service

Link: <http://edocket.access.gpo.gov/2010/pdf/2010-1546.pdf>

## Electricity Market Transparency NOI

The Commission is seeking comment on whether it should extend the EQR filing requirements to publicly owned utilities, municipal utilities, public utility districts, rural cooperatives, and federal entities in order to improve:

- Ability to monitor power sales for market power and manipulation
- Ex Ante analysis (granting MBR authority)
- Ex Post analysis

Additionally, the Commission is seeking comment on whether FERC should consider other refinements to the existing EQR filing requirements including:

- Reporting the trade date and type of rate;
- Reporting resale of financial transmission rights in secondary markets;
- Standardizing the unit for reporting energy and capacity transactions; and
- Omitting the time zone from the contract section of the EQR.

Comments are due March 30, 2010.

Link: <http://www.ferc.gov/whats-new/comm-meet/2010/012110/E-3.pdf>

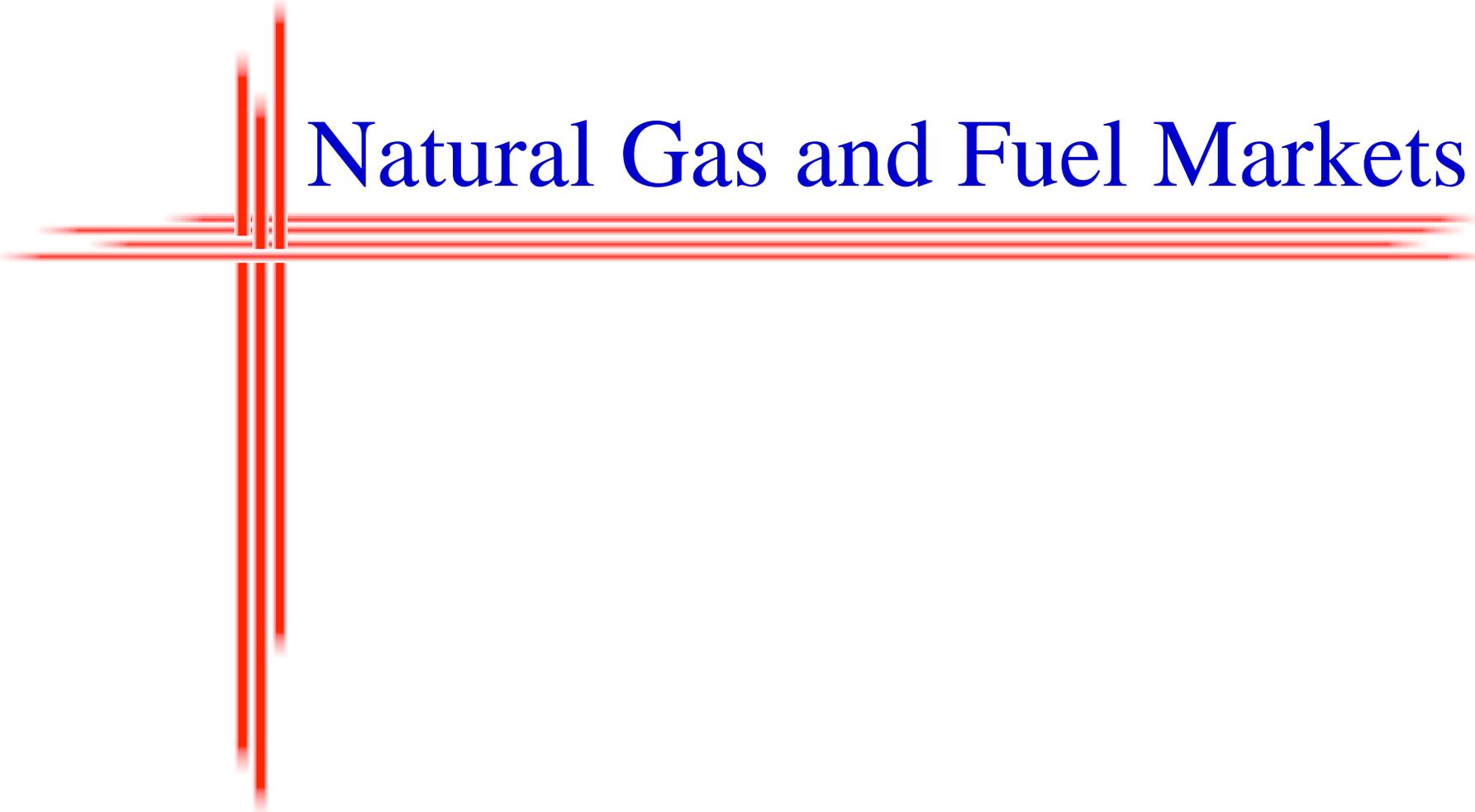
## Credit Reforms in Organized Wholesale Electric Markets

The Commission is seeking comment on the following proposals:

- Shorten the settlement cycle to no more than seven calendar days with no more than an additional seven calendar days for final payment;
- Limit unsecured credit to no more than \$50 million per market participant in energy markets and eliminate unsecured credit in Financial Transmission Rights (FTR) markets; Clarify the ability of market administrators to offset amounts owed to market participants against amounts owed by market participants and to manage defaults;
- Establish minimum participation criteria for market participants;
- Specify circumstances in which a market administrator may invoke “material adverse change” to require a market participant to post additional collateral;
- Limit time period allowed for posting additional collateral when additional collateral is requested; and
- Whether the credit reforms should be applied differently to certain market participants depending on their characteristics.

Comments are due March 29, 2010.

Link: <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=12249545>

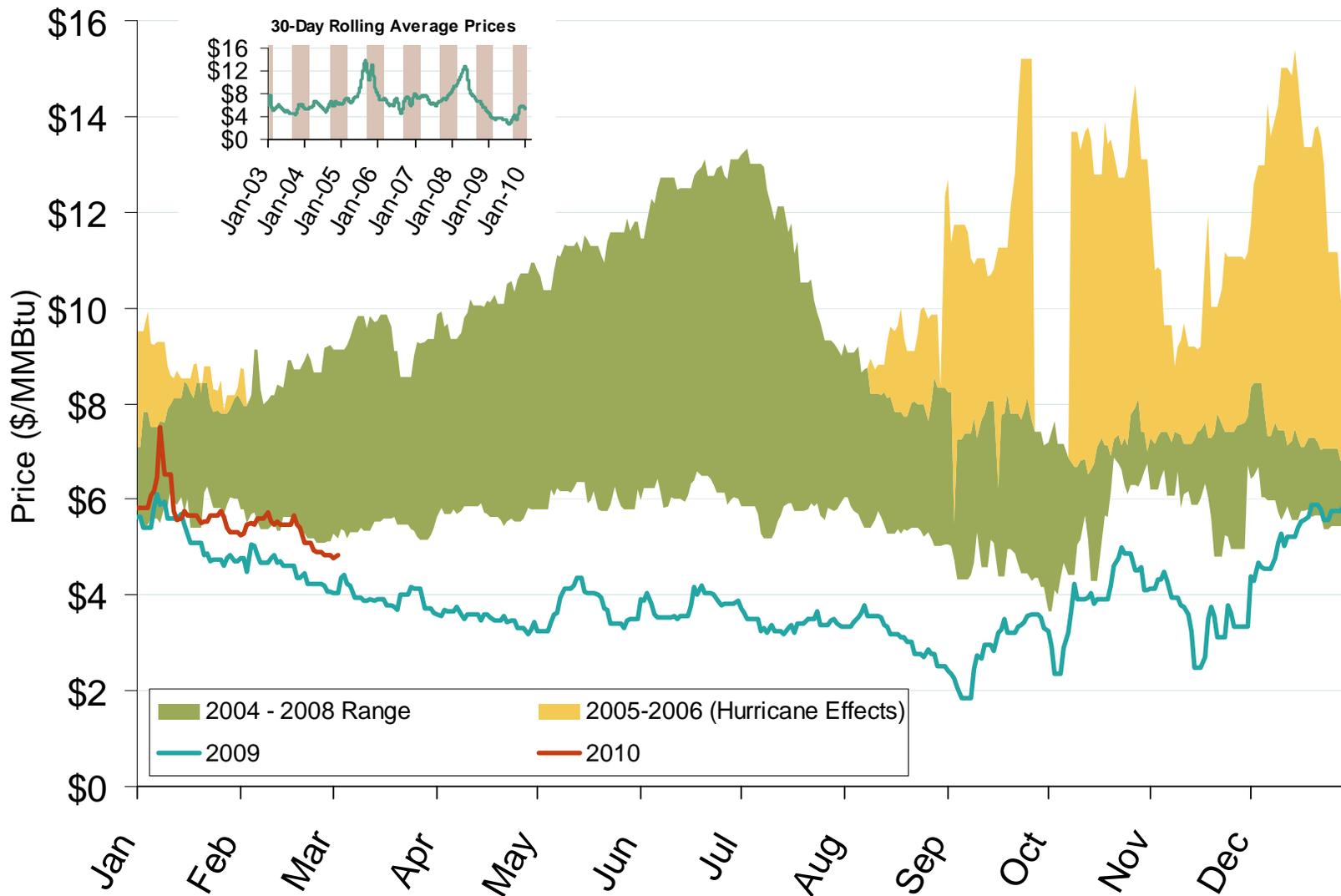


# Natural Gas and Fuel Markets

Natural Gas Market Overview: 5 Year Range of Henry Hub Spot Prices

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

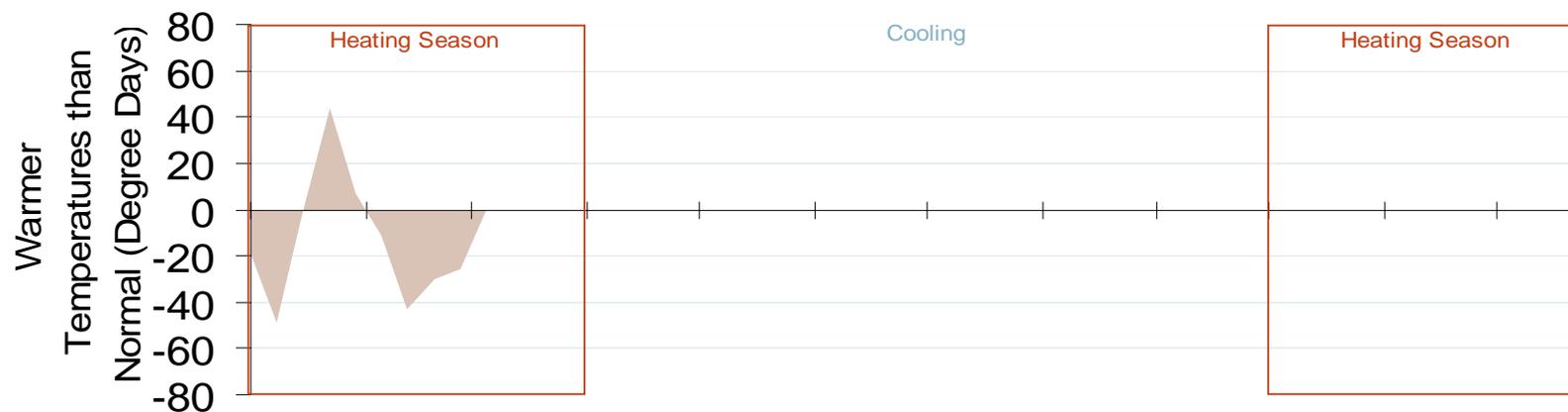
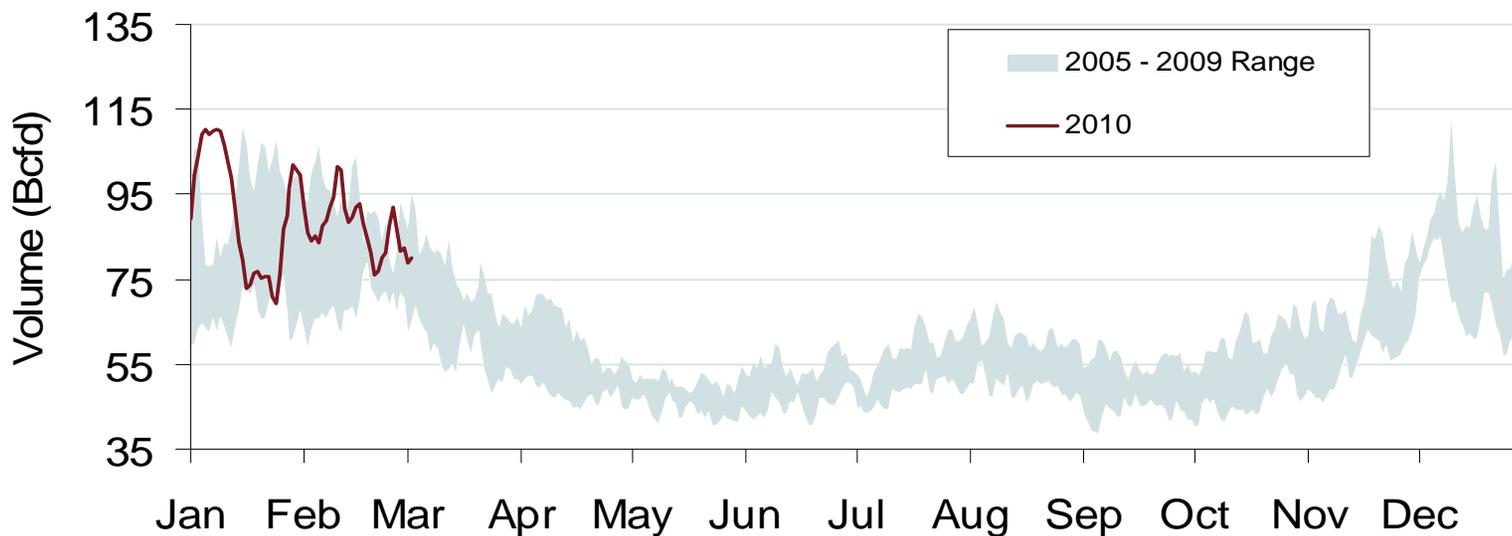
# Henry Hub Natural Gas Daily Spot Prices



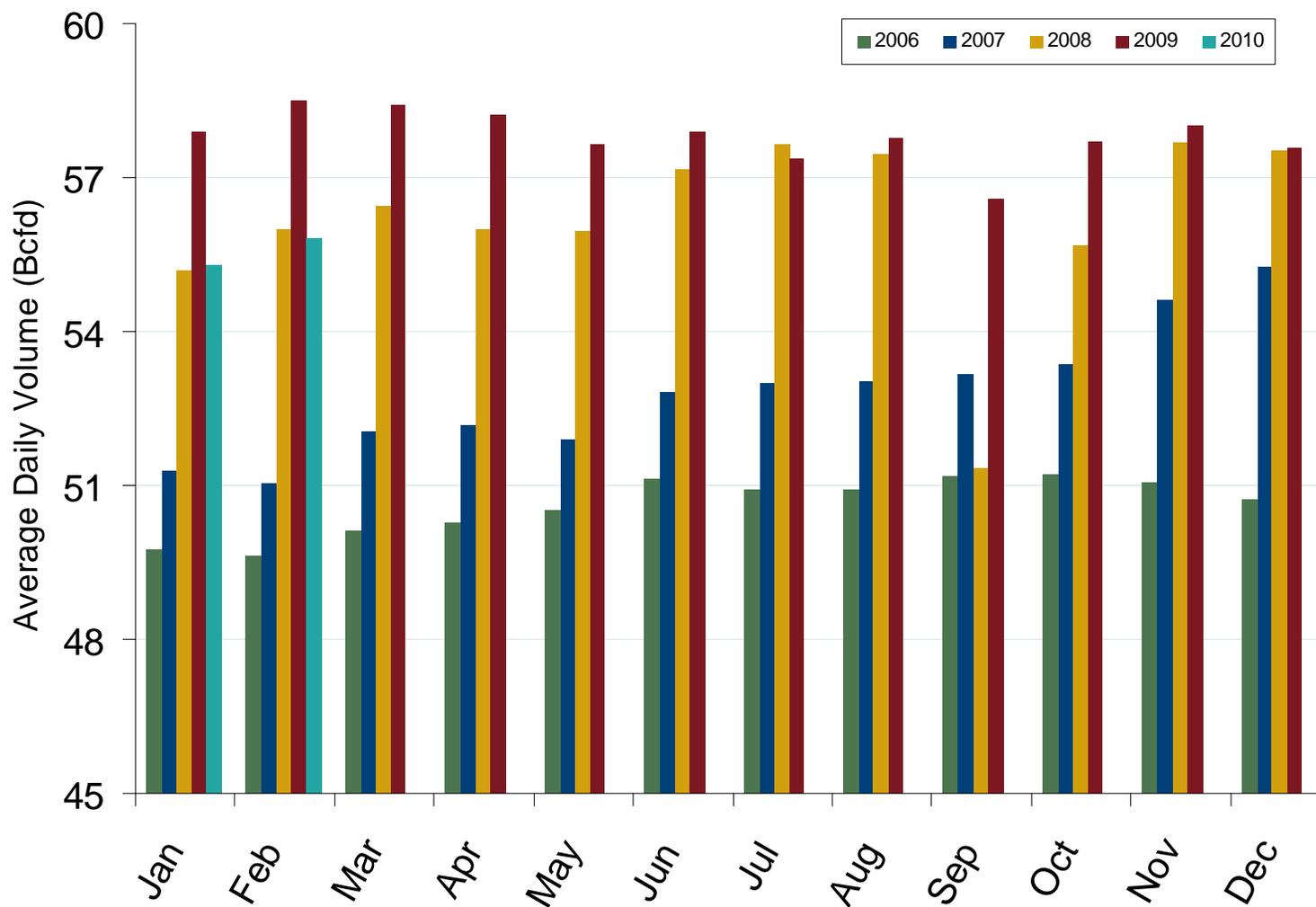
Source: Derived from *Platts* data.  
 March 2010 National Snapshot Report

Updated March 5, 2010

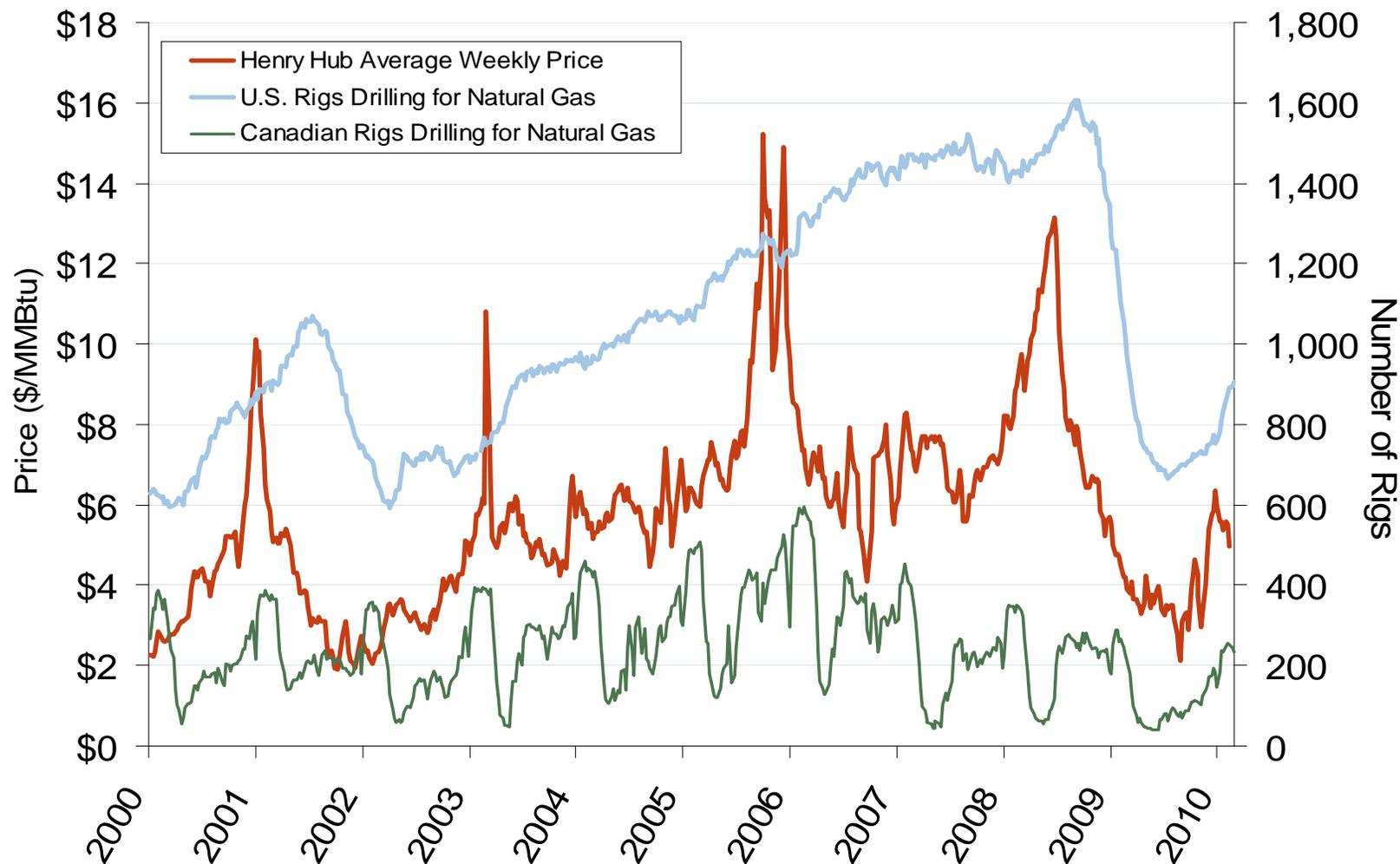
## Total U.S. Natural Gas Demand (All Sectors) and Temperatures



# U.S. Dry Gas Production



## U.S. and Canadian Natural Gas Drilling Rig Count and Daily Spot Prices

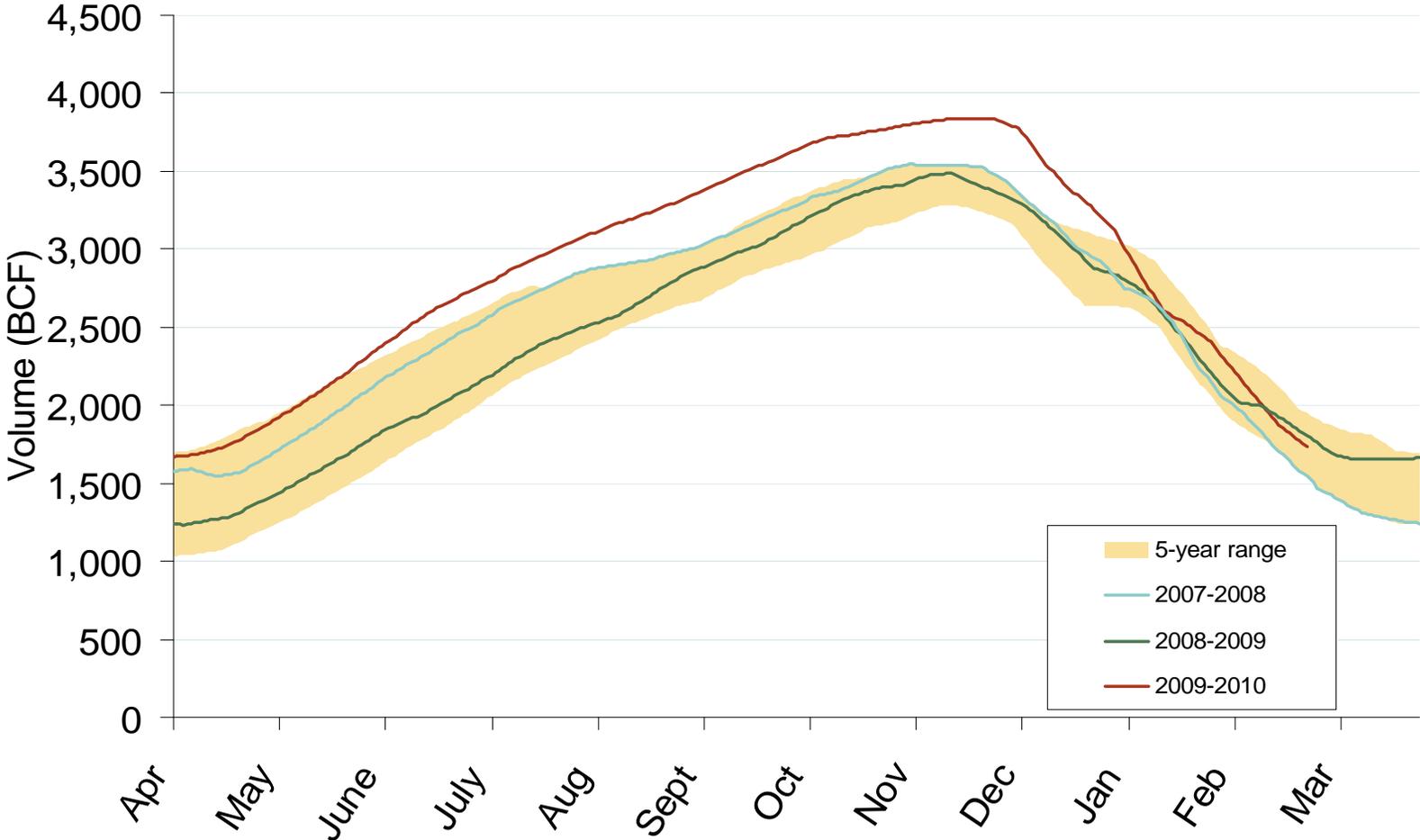


Source: Derived from *Platts* and *Baker Hughes* data.  
March 2010 National Snapshot Report

Updated March 5, 2010

2007

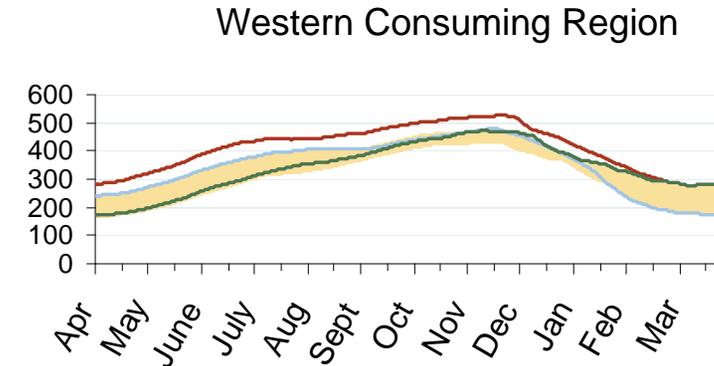
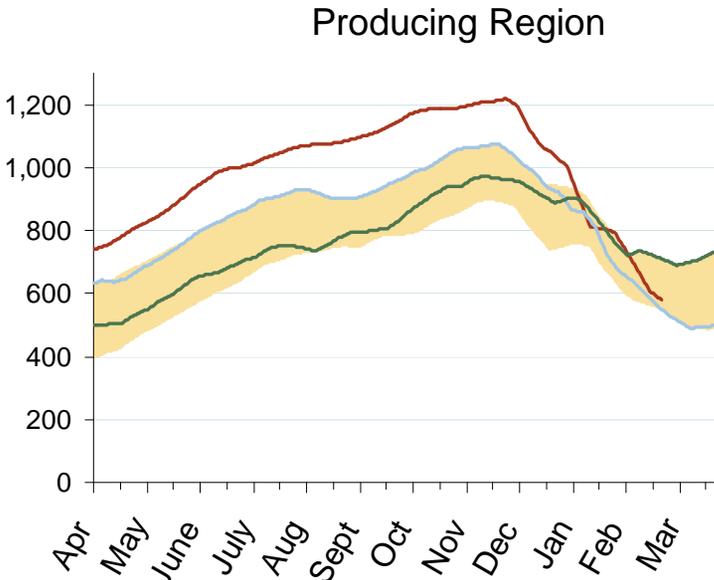
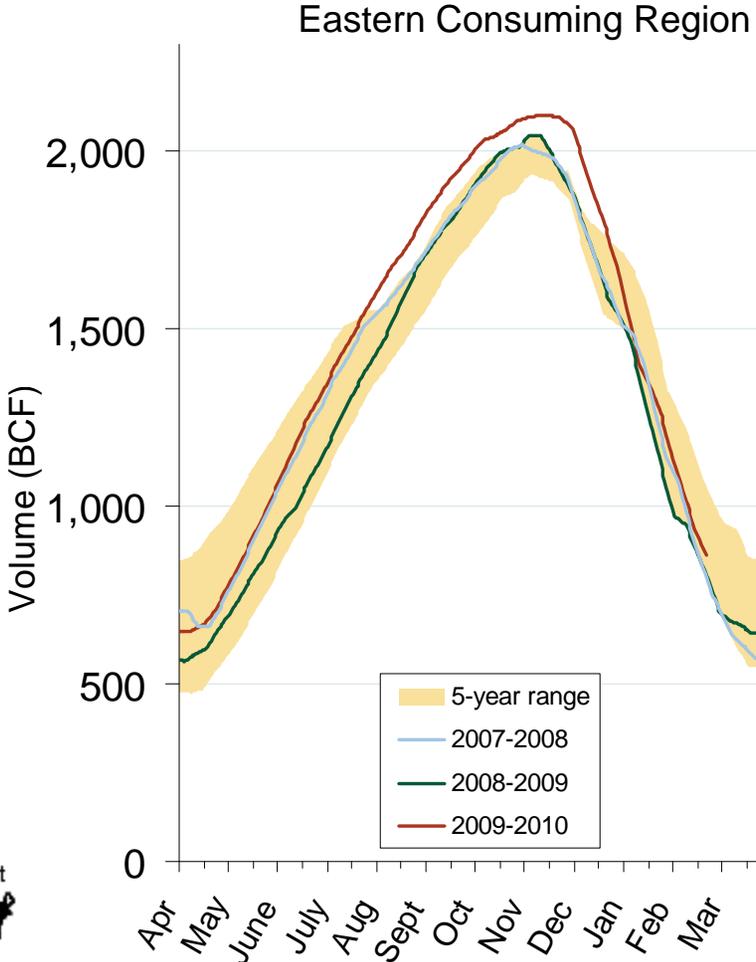
# Total U.S. Working Gas in Storage



Source: Derived from EIA data.  
March 2010 National Snapshot Report

Updated March 5, 2010

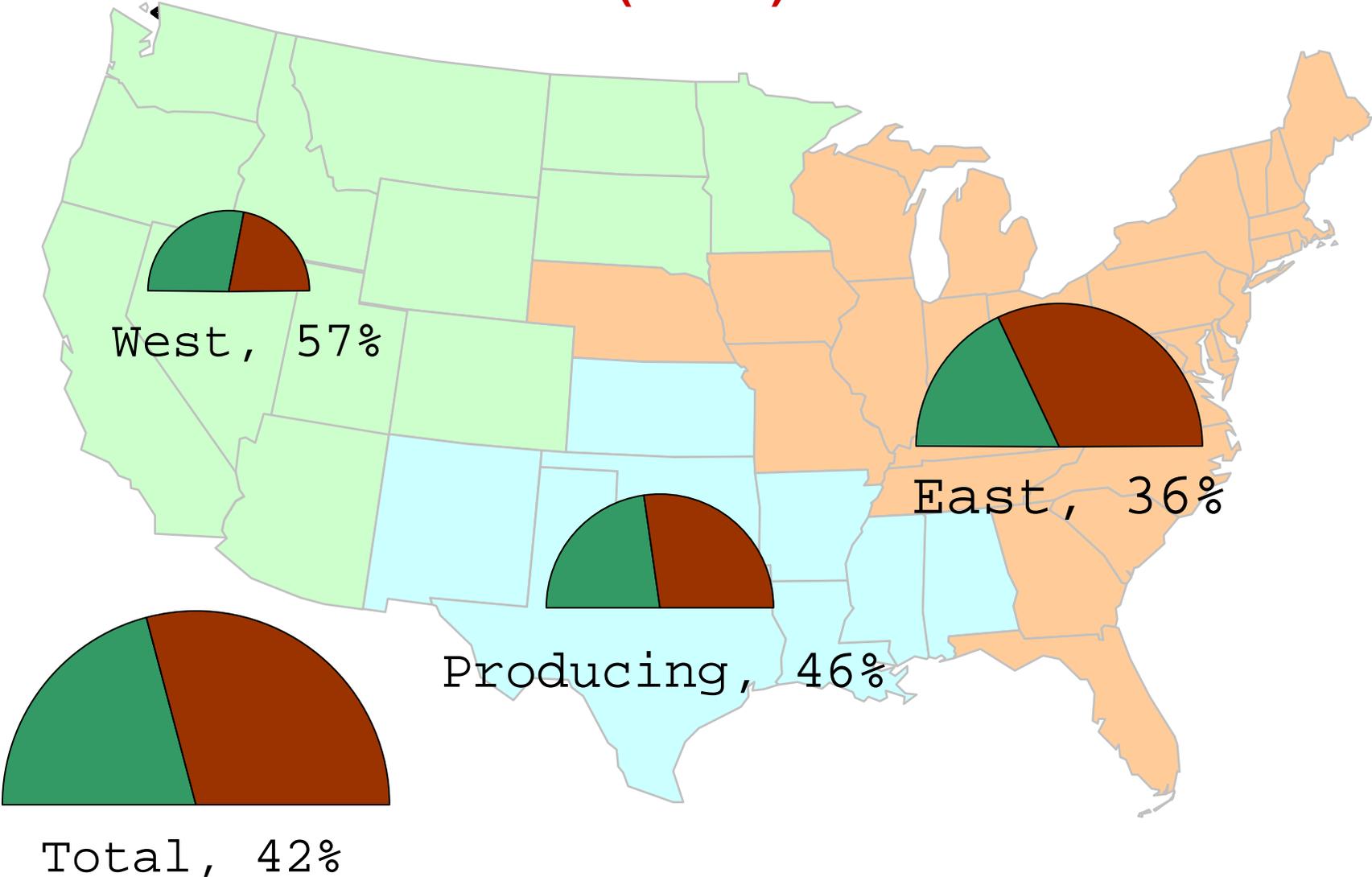
# Regional Totals of Working Gas in Storage



Source: Derived from EIA data.  
March 2010 National Snapshot Report

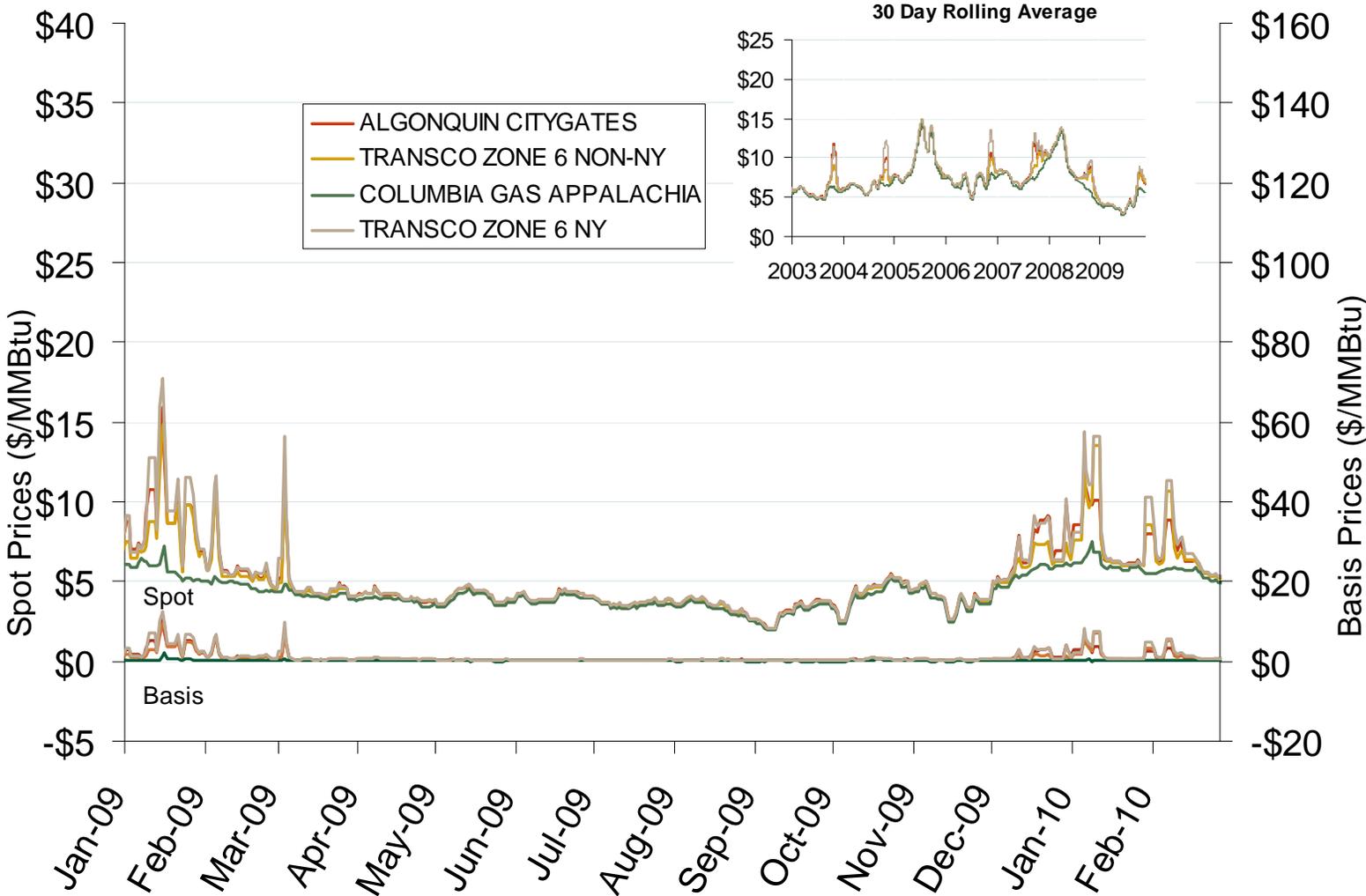
Updated March 5, 2010

# Natural Gas Storage Inventories – As of March 5, 2010 (% Full)



Source: Derived from EIA Storage and Estimated Working Gas Capacity data.  
March 2010 National Snapshot Report

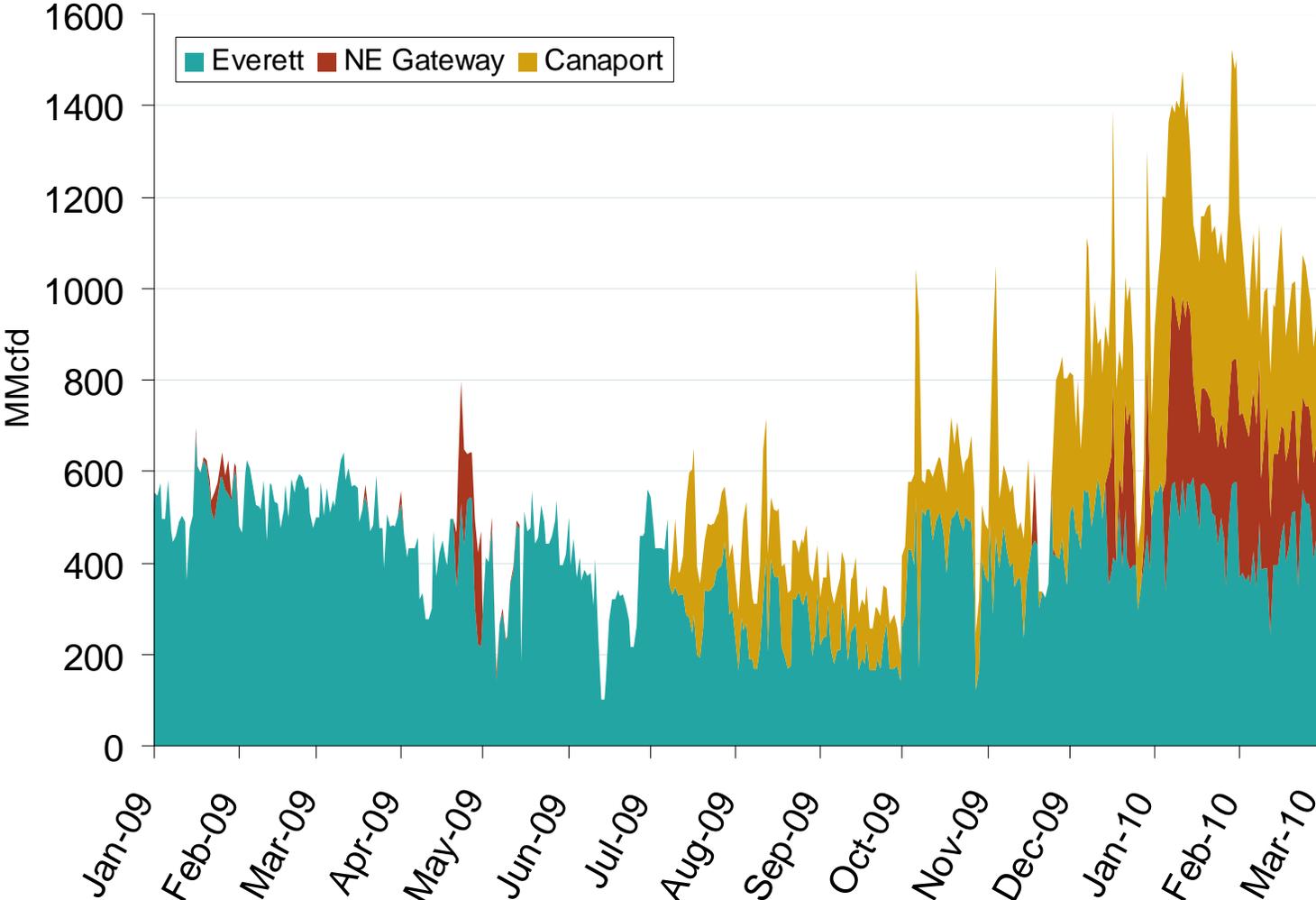
# Northeastern Spot Prices and Basis



Source: Derived from *Platts* data.  
March 2010 National Snapshot Report

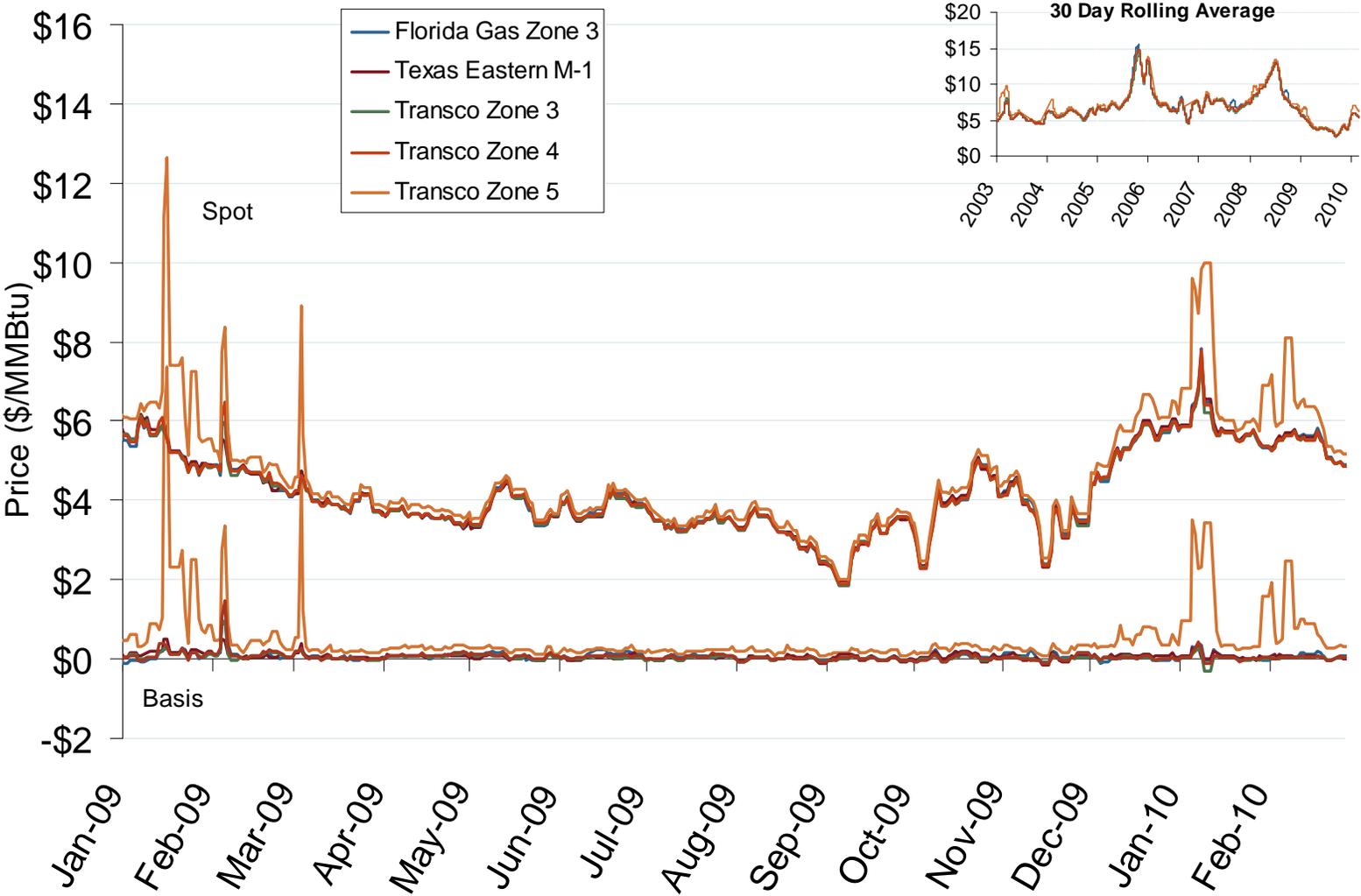
Updated March 5, 2010

# Sendout From New England LNG Terminals



Source: Derived from *Bentek* data.  
March 2010 National Snapshot Report

# Southeastern Day-Ahead Hub Spot Prices and Basis

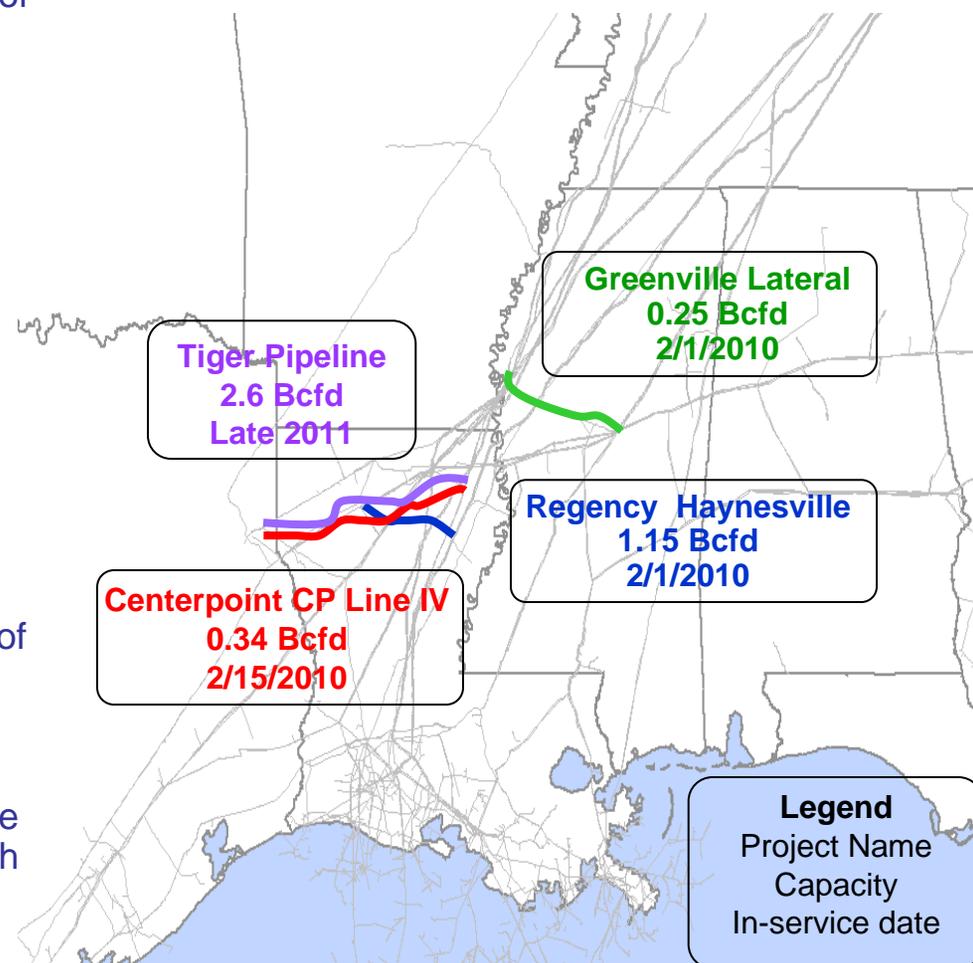


Source: Derived from Platts data. March 2010 National Snapshot Report

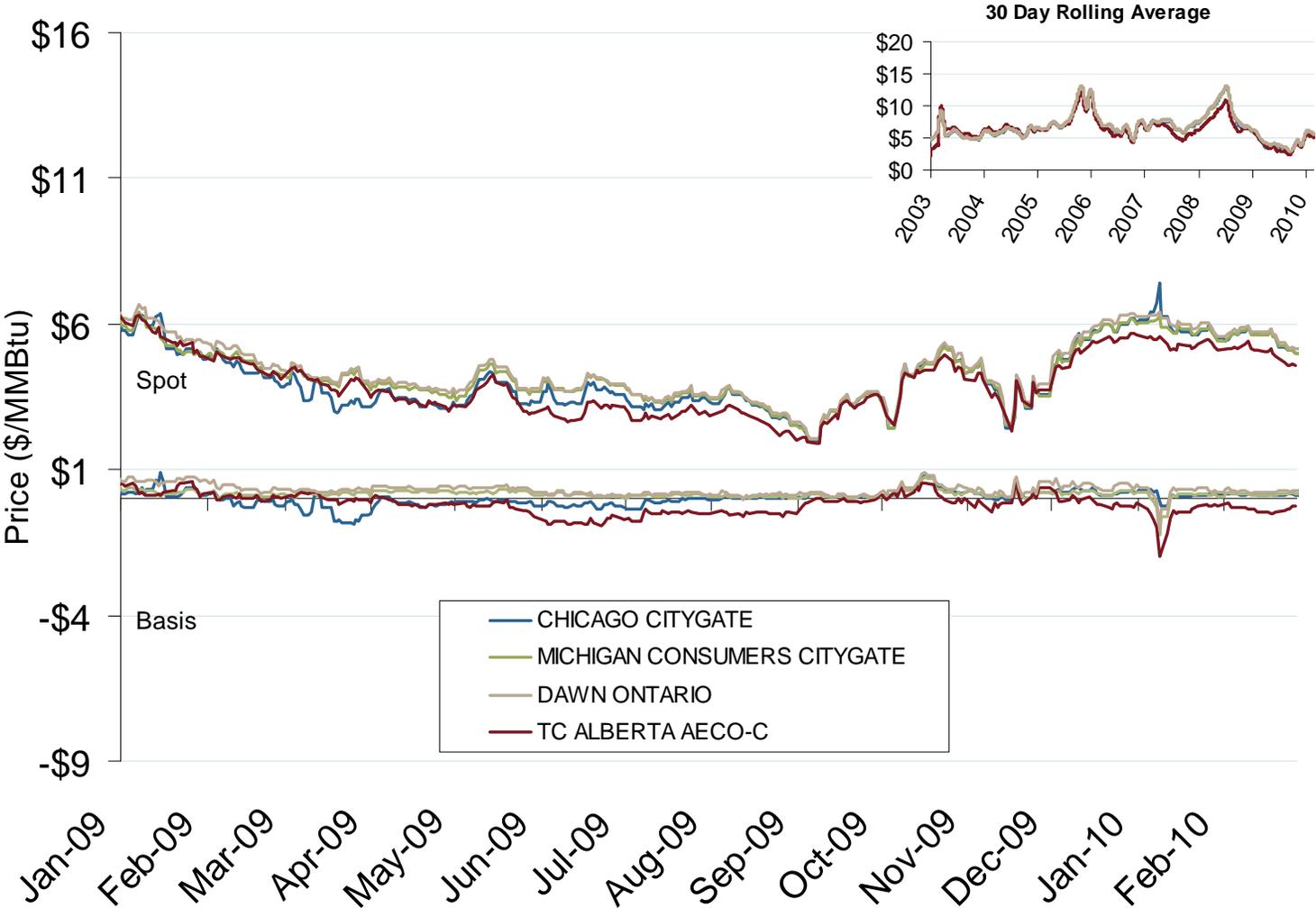
Updated March 5, 2010

## Southeast Infrastructure Additions

- **ETP's Tiger Pipeline** – Will add 2.6 Bcfd of takeaway capacity from the Haynesville, Bossier Sands, and Fort Worth supply basins into the Perryville Hub in northern LA. Will interconnect with Texas Gas, Tennessee, TETCO, Trunkline, ANR and SESH.
- **Texas Gas Greenville Lateral Stage 2 Expansion** - adds 250 MMcfd of capacity in Mississippi through additional compression, giving Fayetteville shale producers increased access to markets served by ANR, Trunkline, Sonat and TETCO.
- **CenterPoint CP Line Phase IV** - Stage 4 compression expansion adds 340 MMcfd of capacity to the CP Line.
- **Regency Energy Partners Haynesville Expansion and Red River Lateral** - This 1.2 Bcfd intrastate line is designed to move Haynesville shale gas to interconnects with Texas Gas, Tennessee, Trunkline, Sonat, Columbia Gulf and ANR at the Perryville Hub.

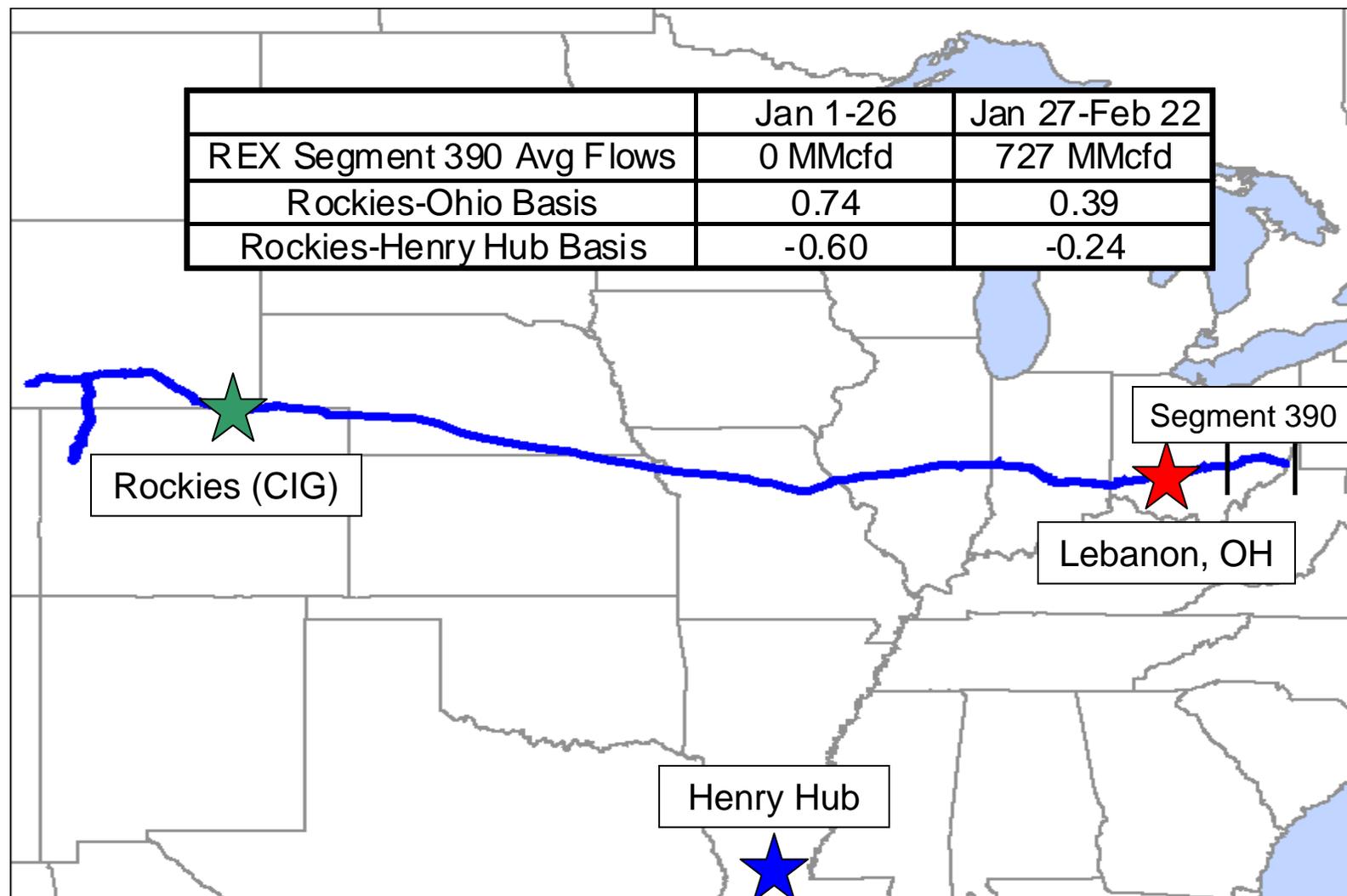


# Midwestern Day-Ahead Hub Spot Prices and Basis

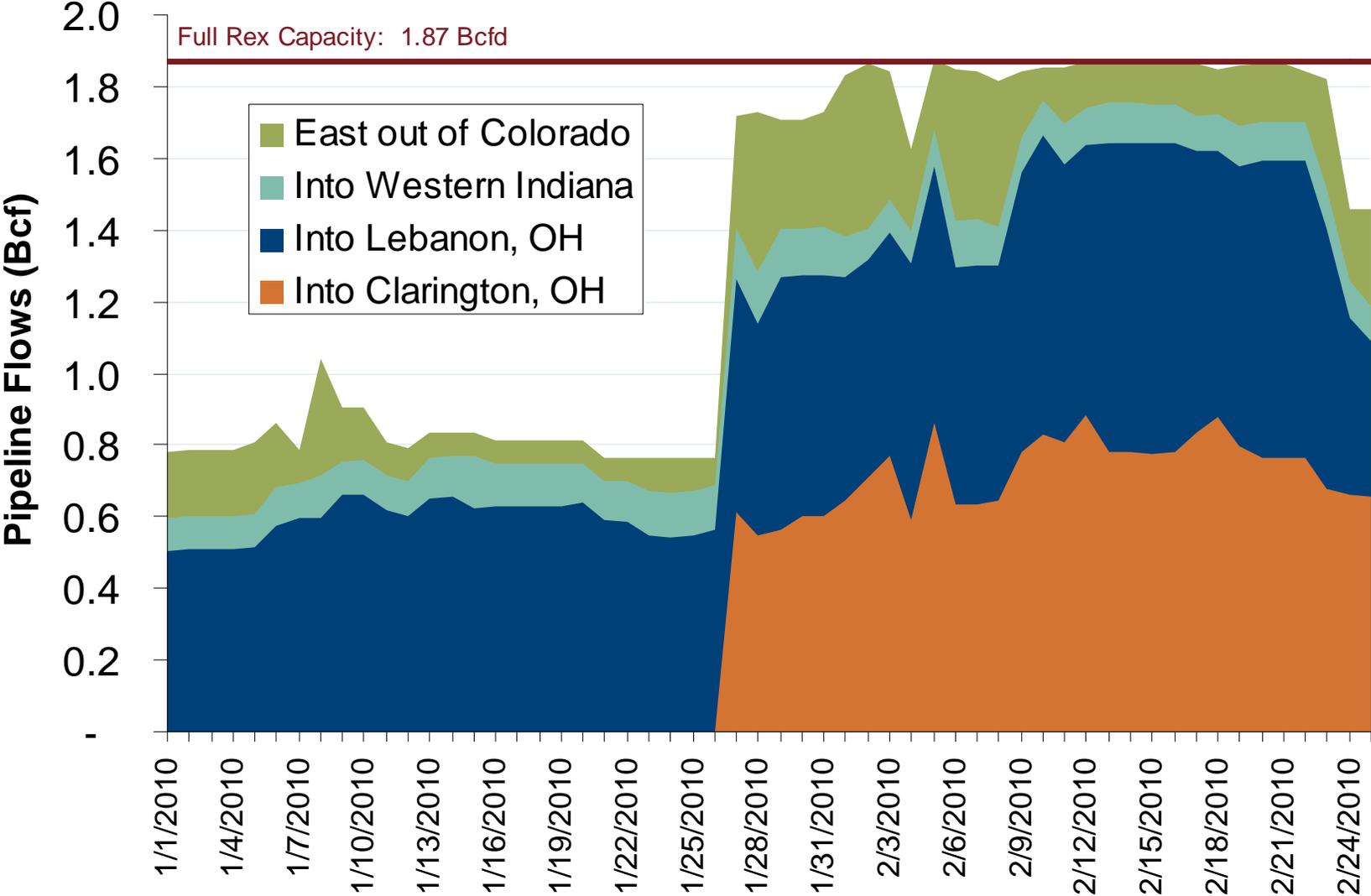


Source: Derived from *Platts* data.  
March 2010 National Snapshot Report

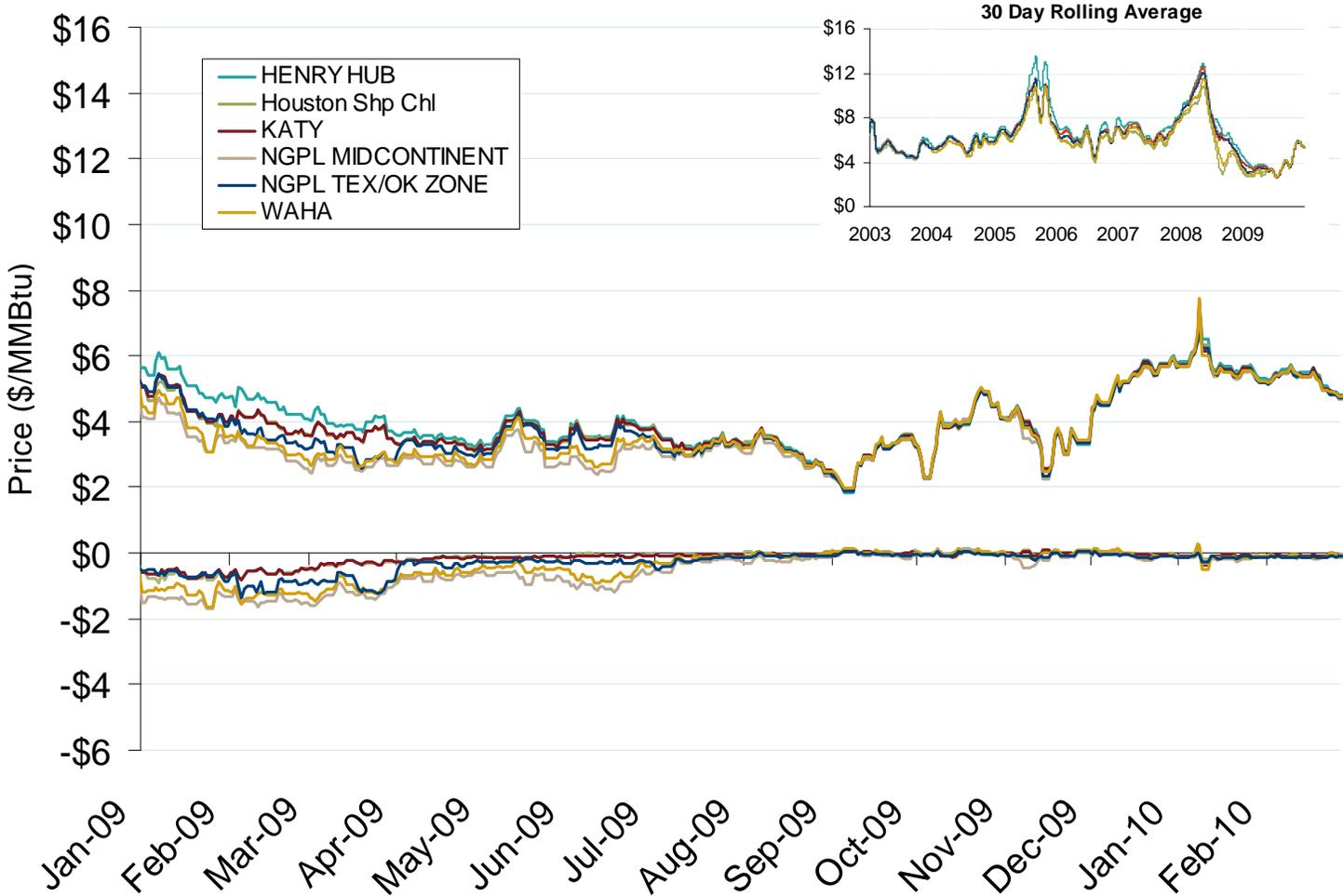
## Rockies Express-East Segment 390 Returns to Service



# REX Flows Reach Capacity



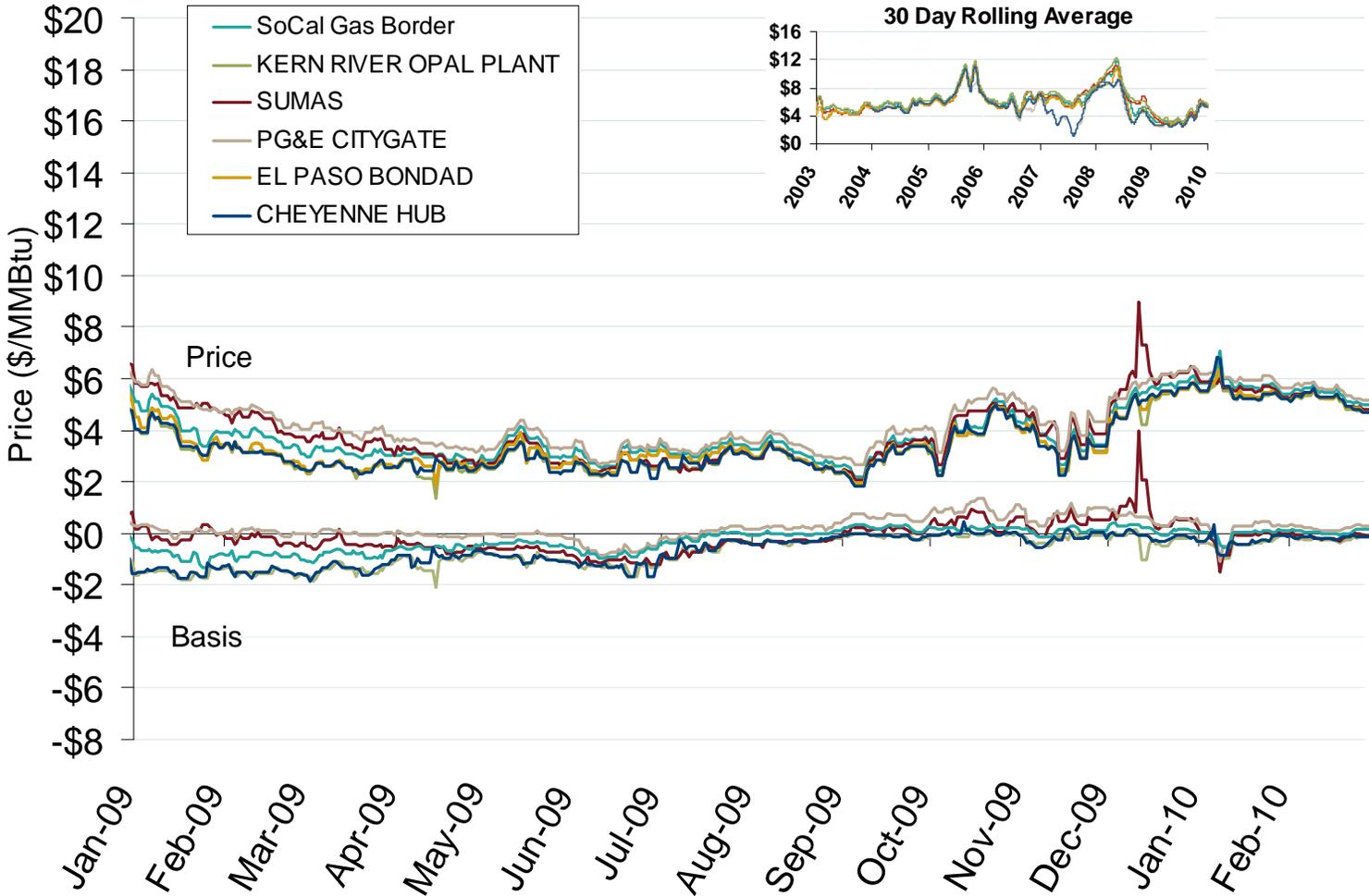
# Gulf Day-Ahead Hub Spot Prices and Basis



Source: Derived from *Platts* data.  
March 2010 National Snapshot Report

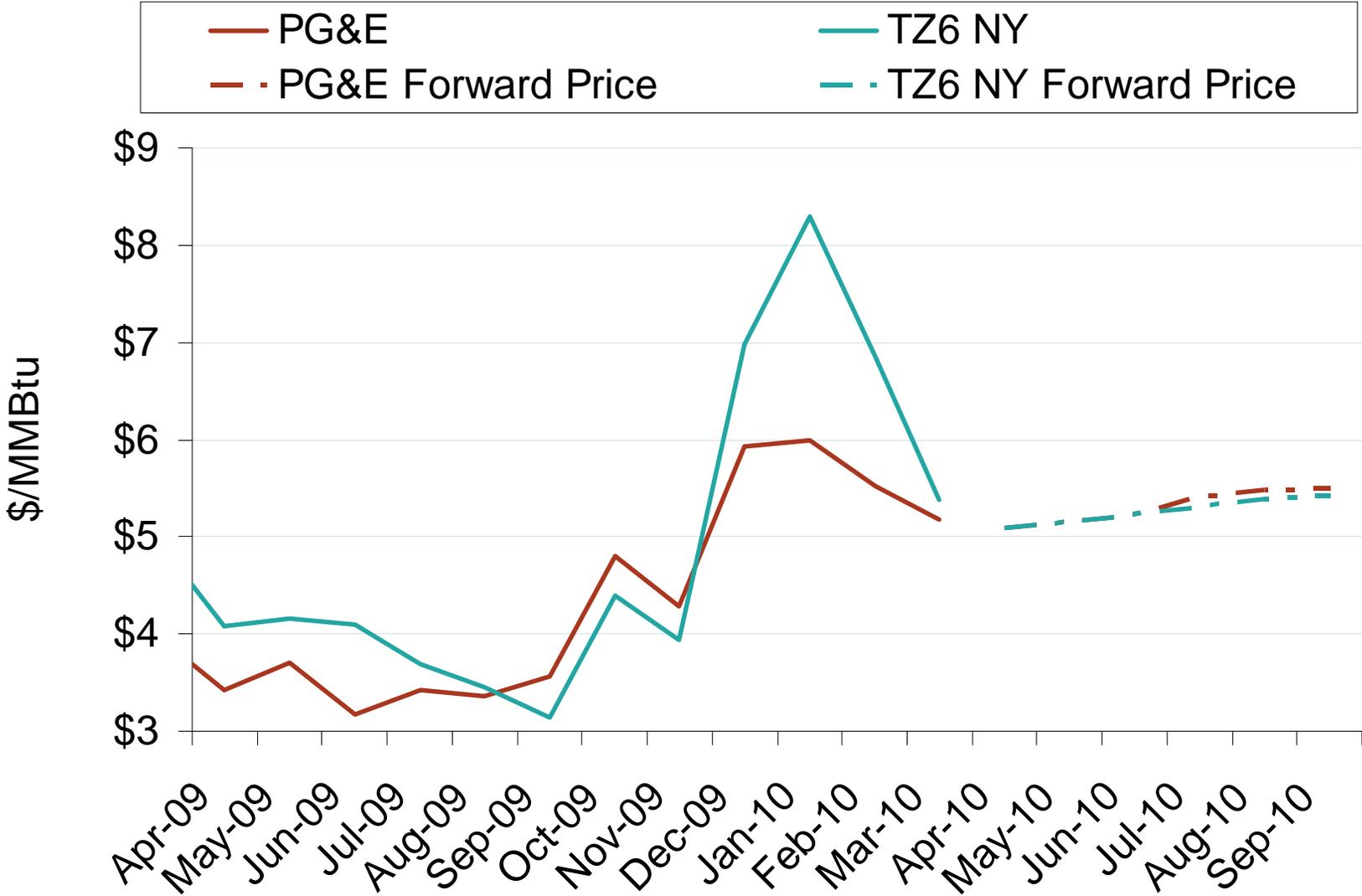
Updated March 5, 2010

# Western Day-Ahead Hub Spot Prices and Basis



Source: Derived from *Platts* data.  
March 2010 National Snapshot Report

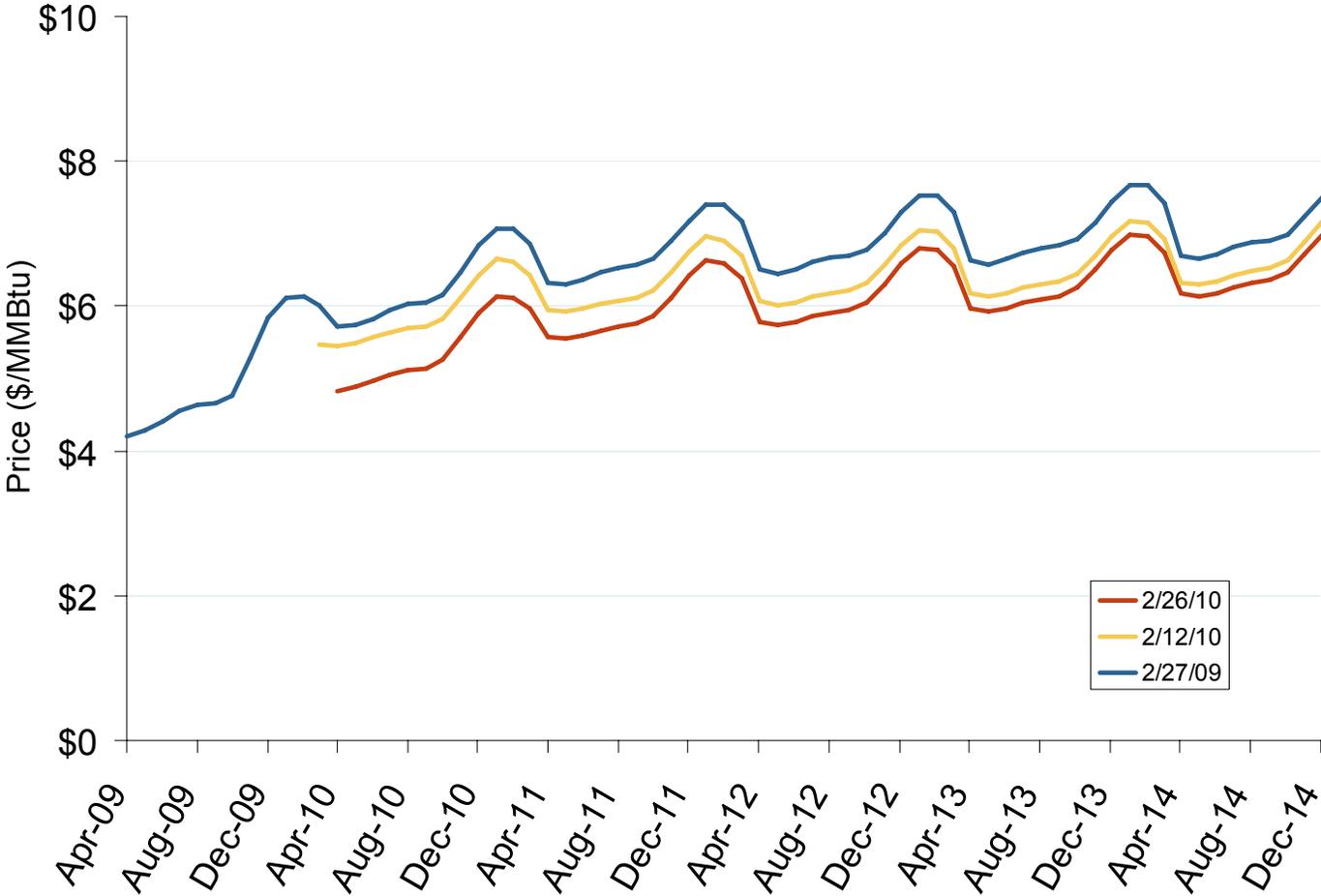
# PG&E Gas Prices Expected To Surpass Transco Zone 6 This Summer



Source: Derived from ICE data.  
March 2010 National Snapshot Report

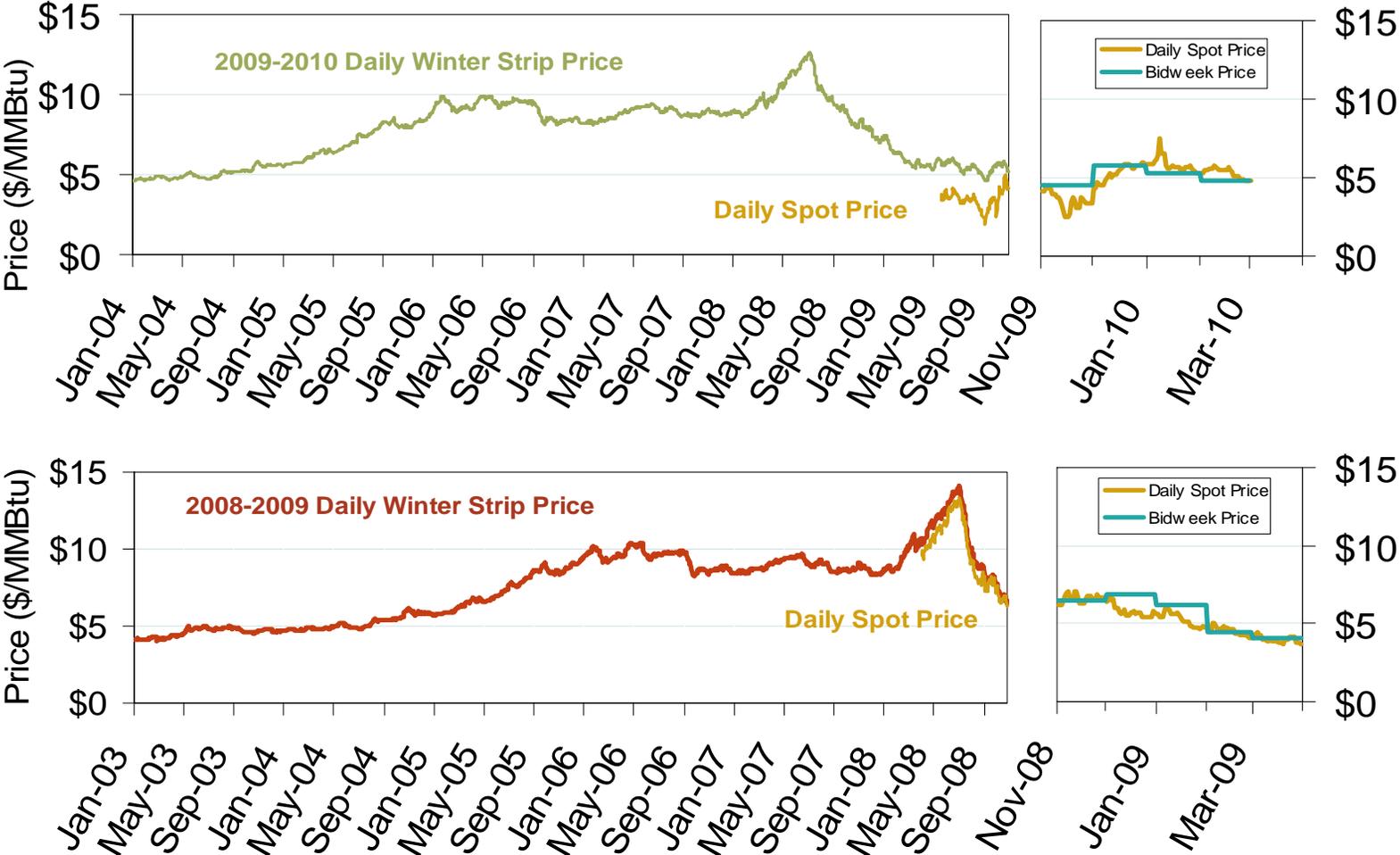
Updated March 2, 2010

# NYMEX Natural Gas Forward Price Curve



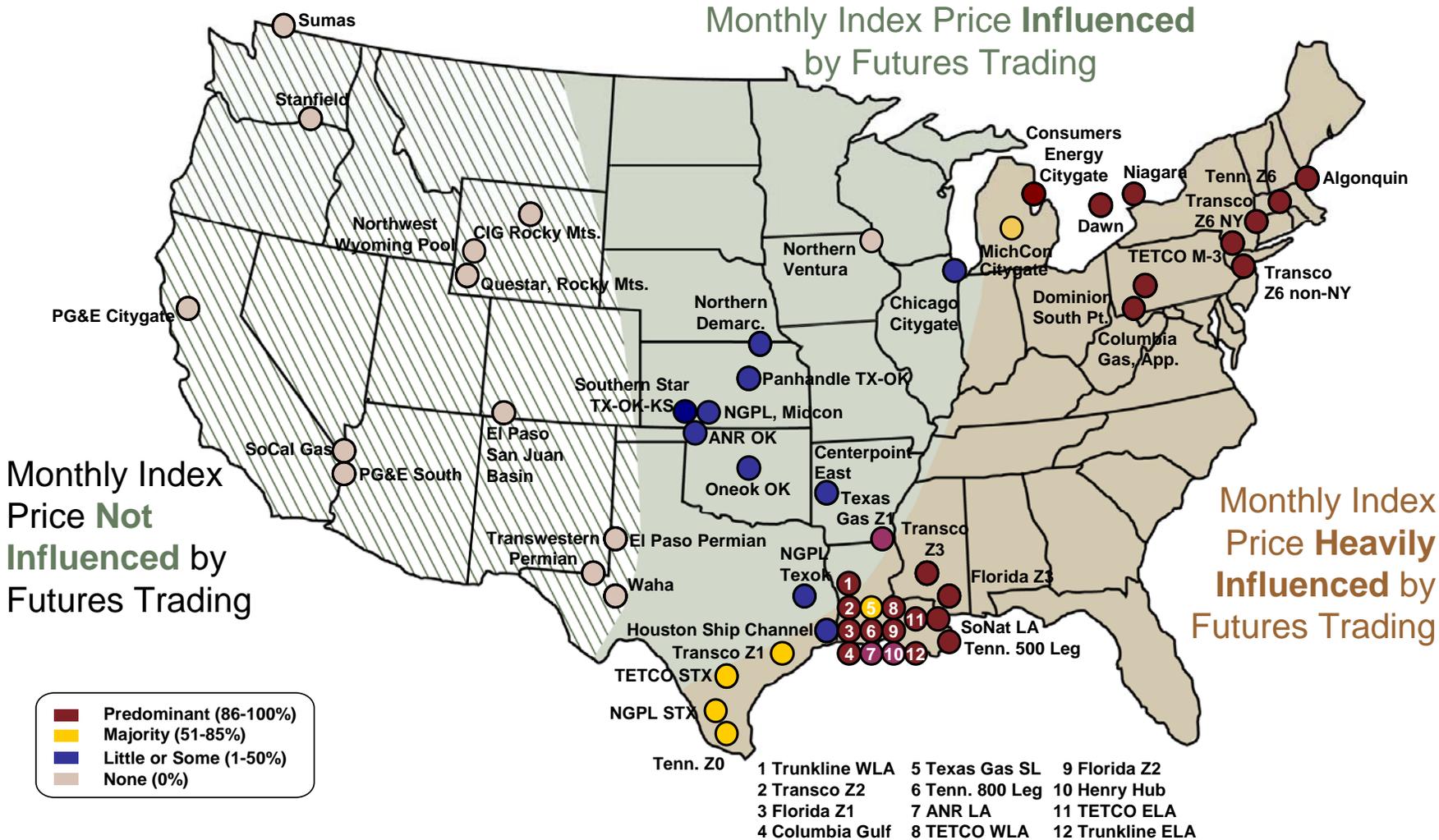
The NYMEX futures contract trades in 10,000 million Btu units. The blue series shows the forward price curve for these contracts 1-year ago. The red and yellow curves show prices for contracts traded on the current and previous months.

# Natural Gas Winter Futures Strip and Daily Henry Hub Spot and Bidweek Prices



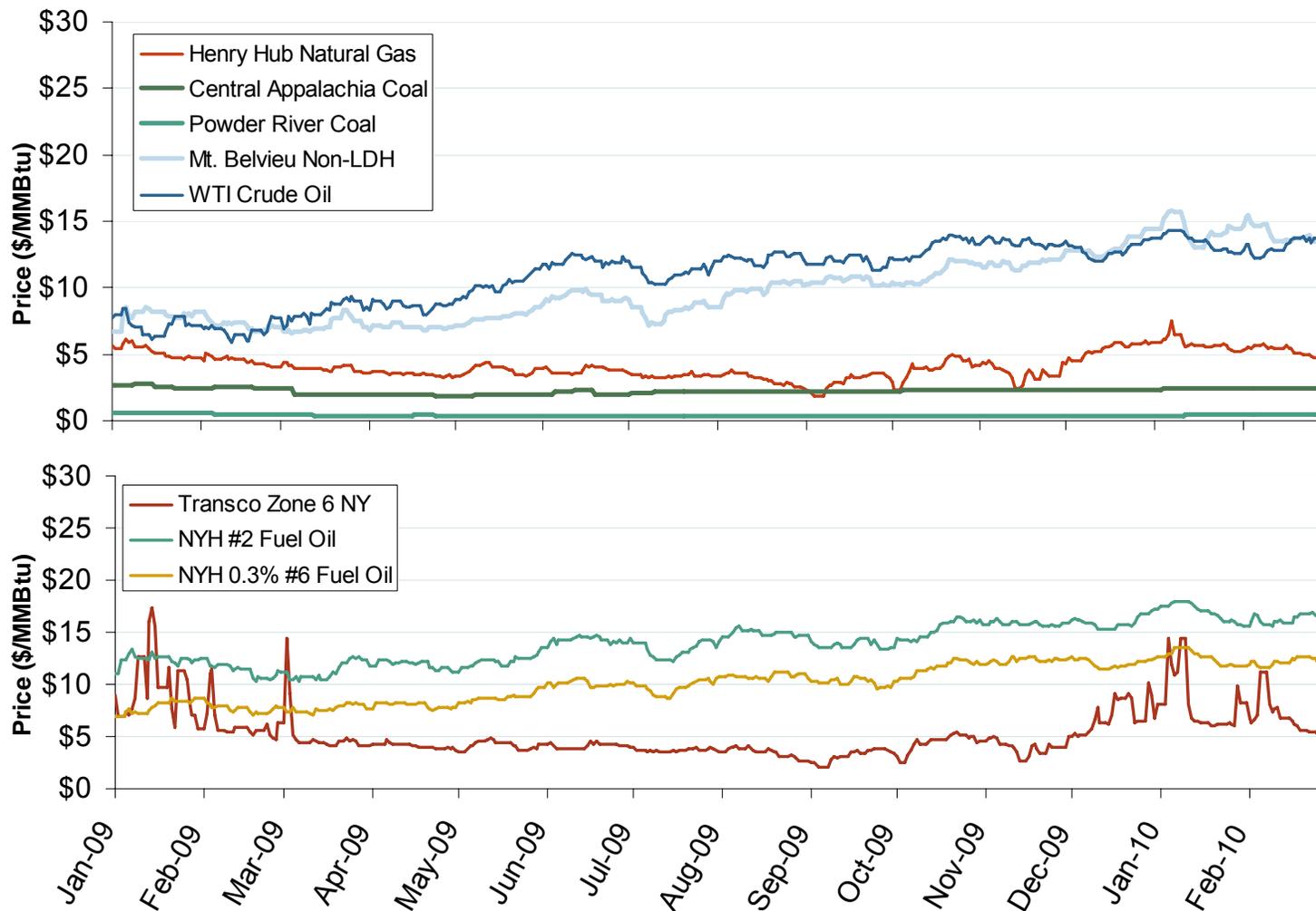
Source: Derived from Platts and Nymex data.

# Use of Physical Basis in Natural Gas Price Indices at Major Trading Points, 2009



Source: Derived from *Platts* data for January through June 2009 indices.

## Oil, Coal, Natural Gas and Propane Daily Spot Prices

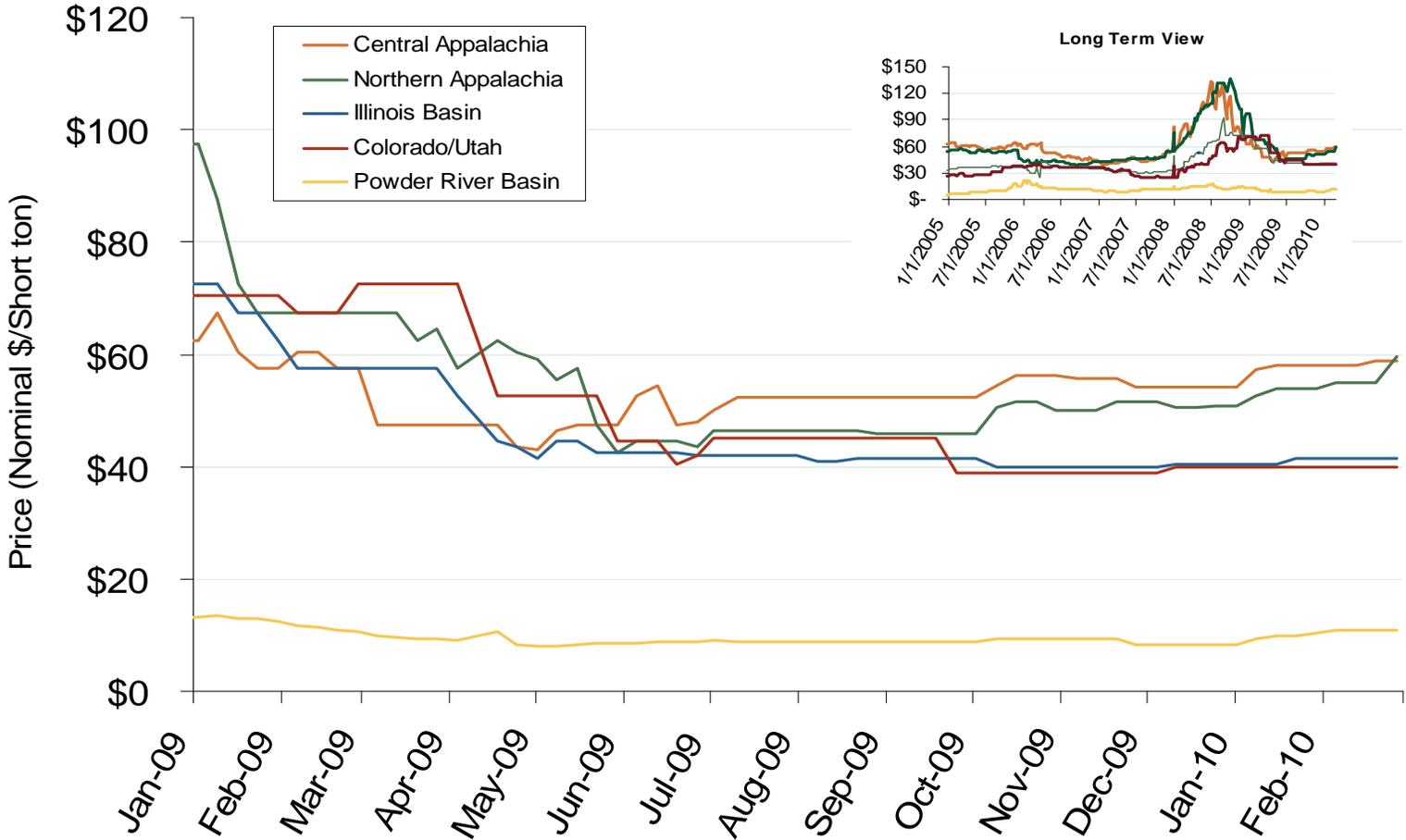


Source: Derived from *ICE* and *Bloomberg* data.

Note: Coal prices are quoted in \$/ton. Conversion factors to \$/MMBtu are based on contract specifications of 12,000 btus/pound for Central Appalachian coal and 8800 btus/pound for Powder River Basin coal.

Updated March 5, 2010

# Regional Coal Spot Prices

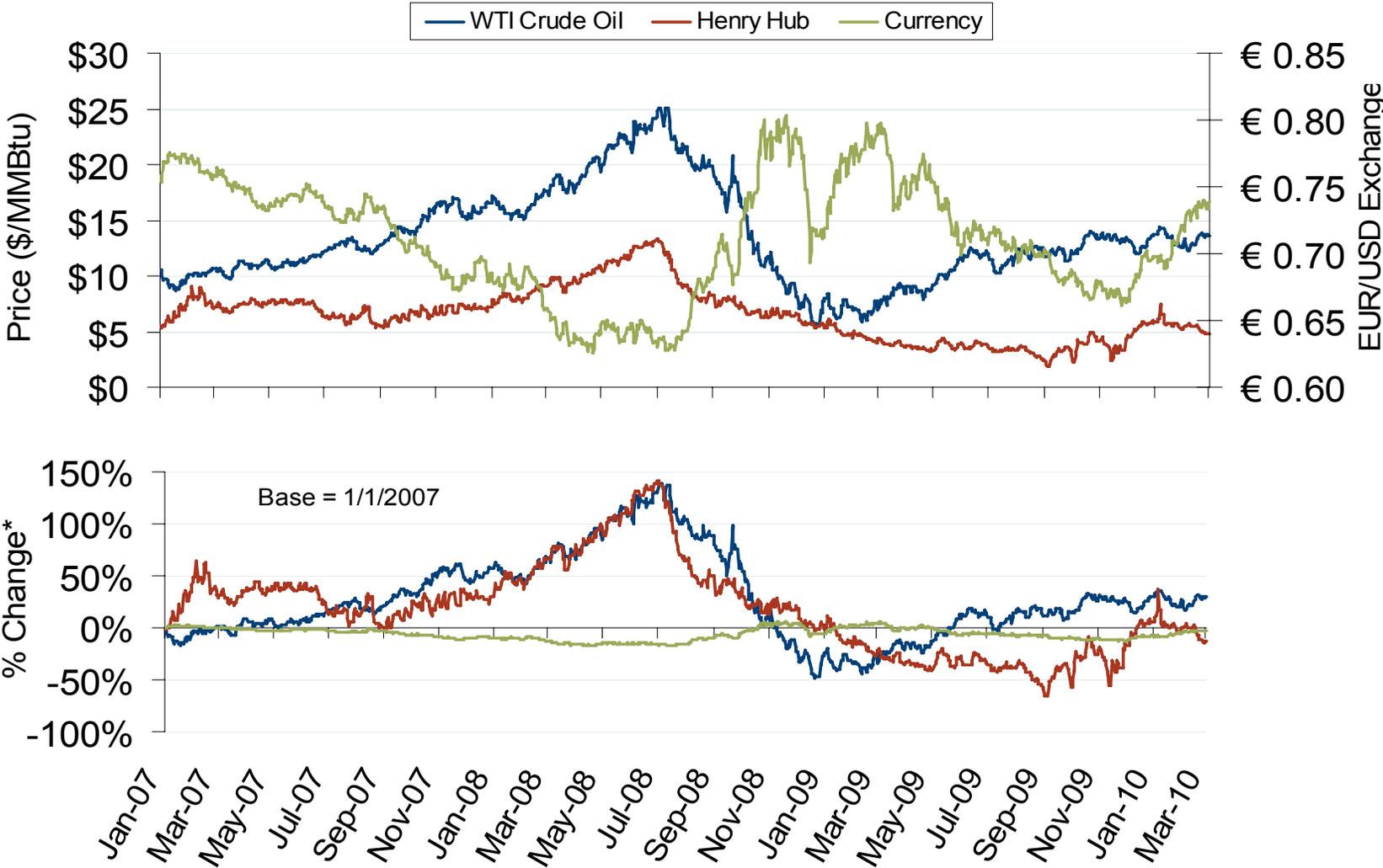


Note: the Central Appalachian (CAPP) coal is priced at Big Sandy. All others are mine mouth prices. Prices do not include transportation costs to a plant, as those can vary widely by contract specifications. Prices exclude incremental cost of emissions allowances.

Source: Derived from *Bloomberg* data.  
March 2010 National Snapshot Report

Updated March 5, 2010

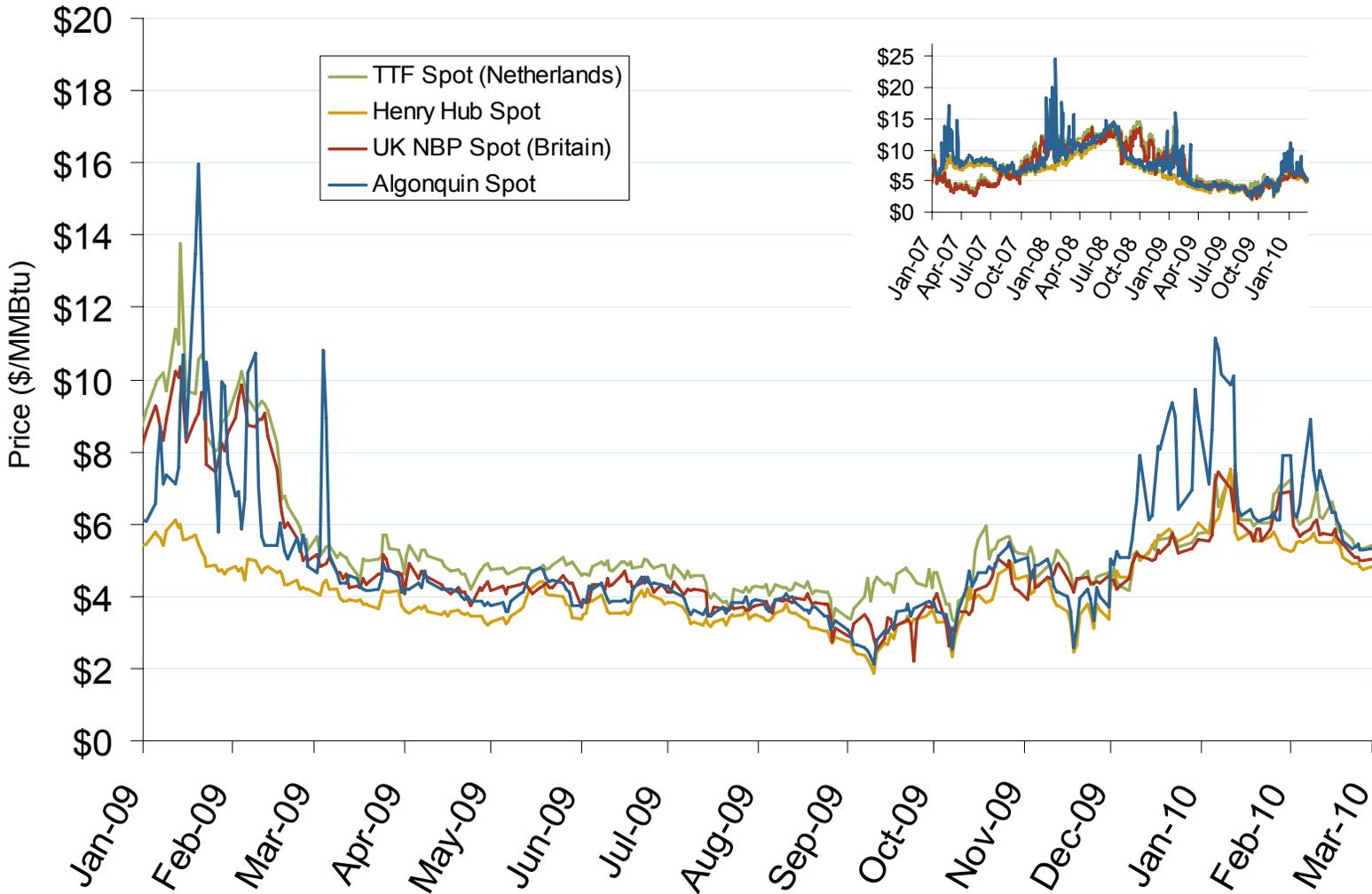
# Oil, Natural Gas and Currency Spot Prices



Source: Derived from Bloomberg data.

Updated March 5, 2010

# Atlantic Basin European and US Spot Natural Gas Prices



Source: Derived from *Bloomberg* and *ICE* data.  
March 2010 National Snapshot Report

Updated March 5, 2010

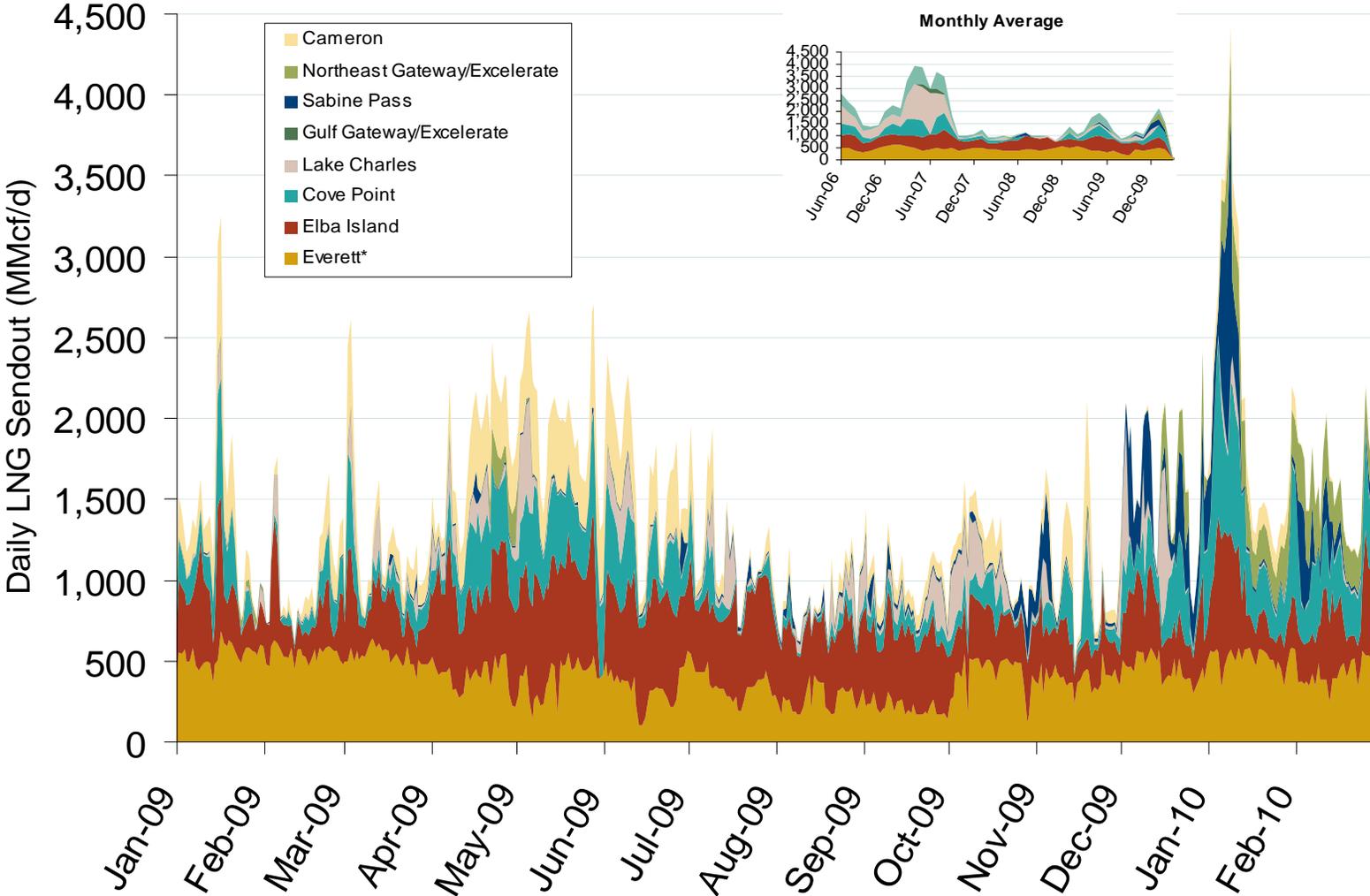
# World LNG Estimated March 2010 Landed Prices



Source: Waterborne Energy, Inc. Data in \$US/MMBtu.  
March 2010 National Snapshot Report

Updated March 5, 2010

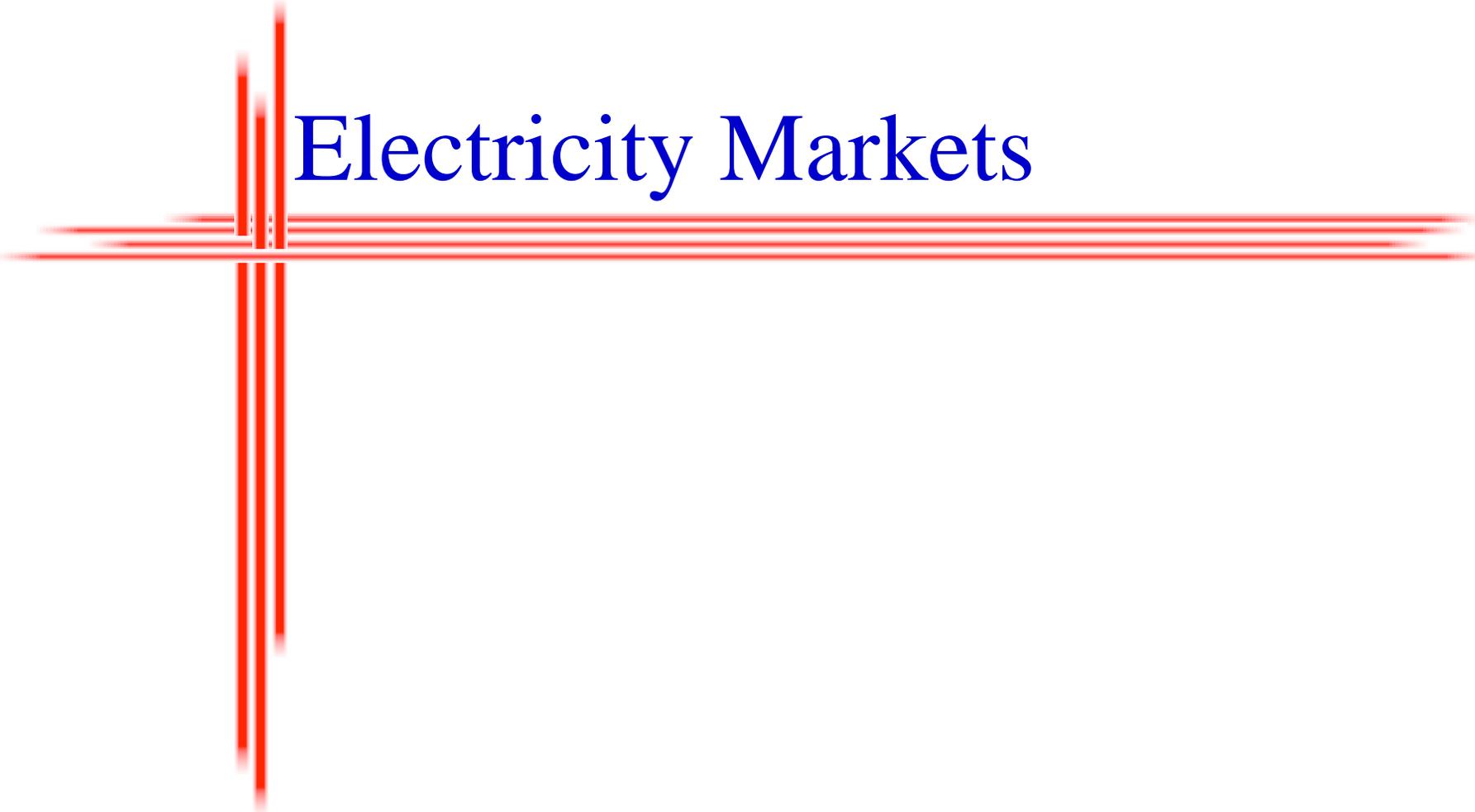
# Daily Gas Sendout from Existing U.S. LNG Facilities



Source: Derived from Bentek data.

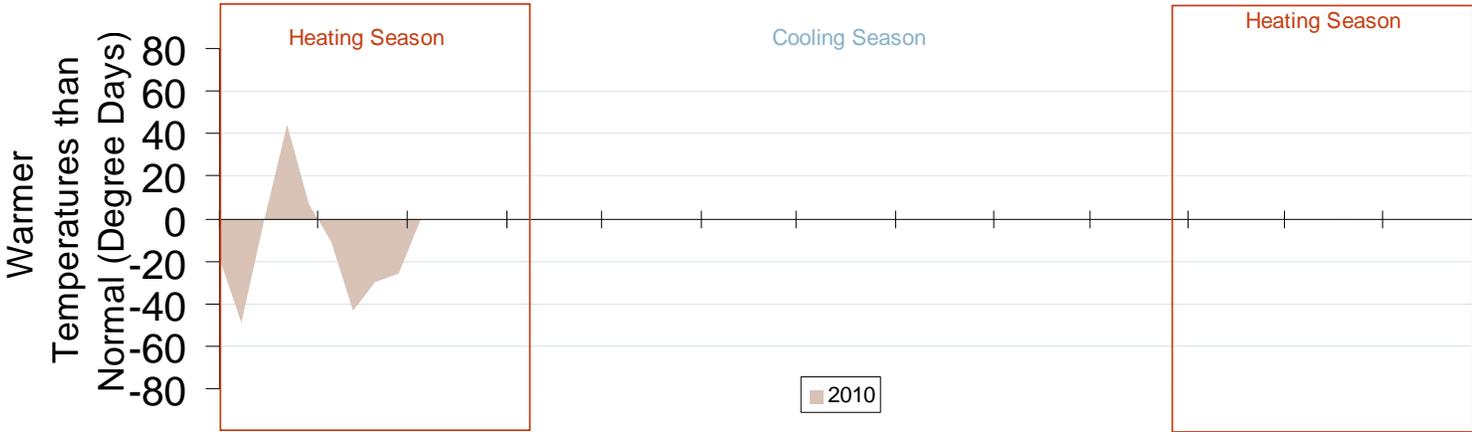
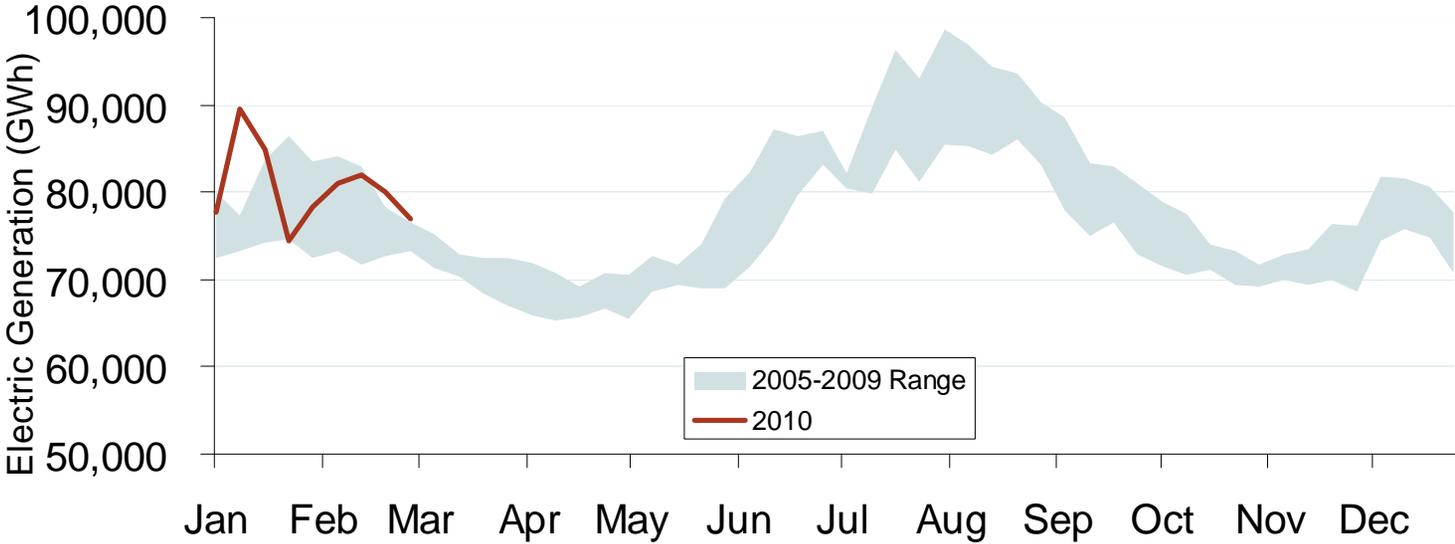
\* Everett data includes flows onto the AGT and TGP interstate lines, plus estimates of flows to the Mystic 7 power plant, Keyspan Boston Gas, and LNG trucked out of the terminal. Excludes Freeport LNG which flows via intrastate pipelines.

Updated March 5, 2010



# Electricity Markets

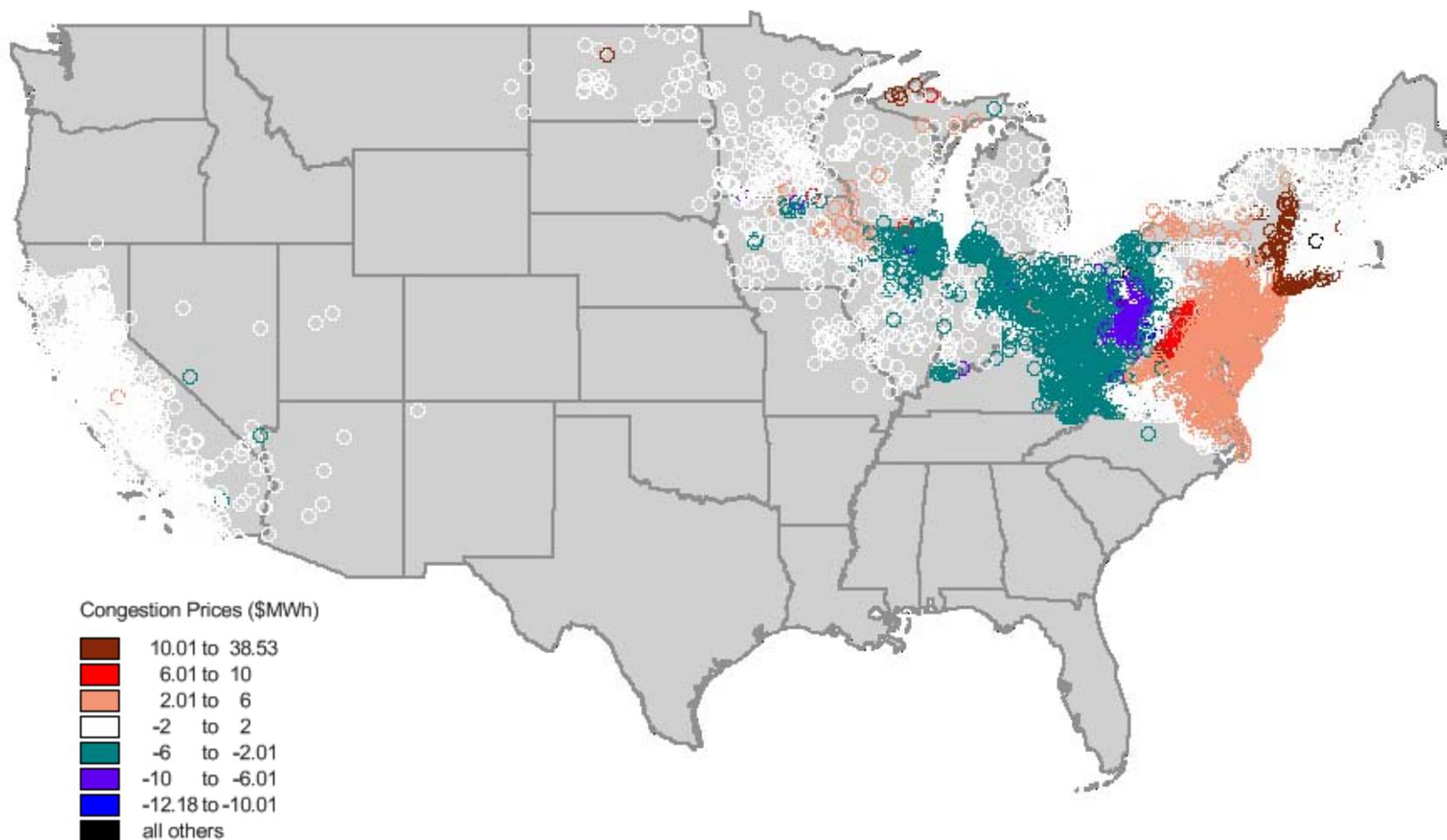
# Weekly U.S. Electric Generation Output and Temperatures



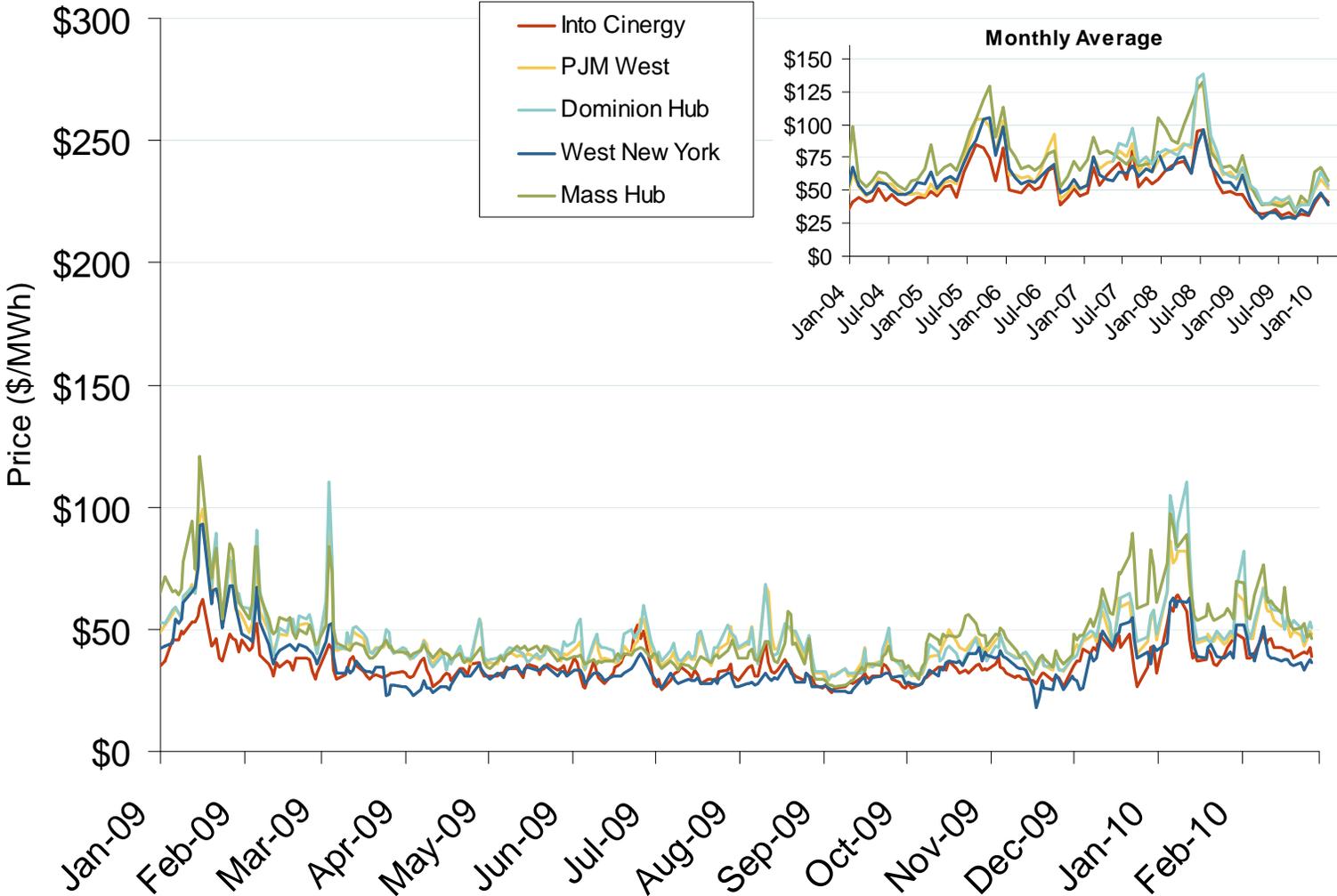
Source: Derived from *EI* and *NOAA* data.  
March 2010 National Snapshot Report

Updated March 5, 2010

## Day Ahead On-Peak Congestion Average Monthly Prices February 2010

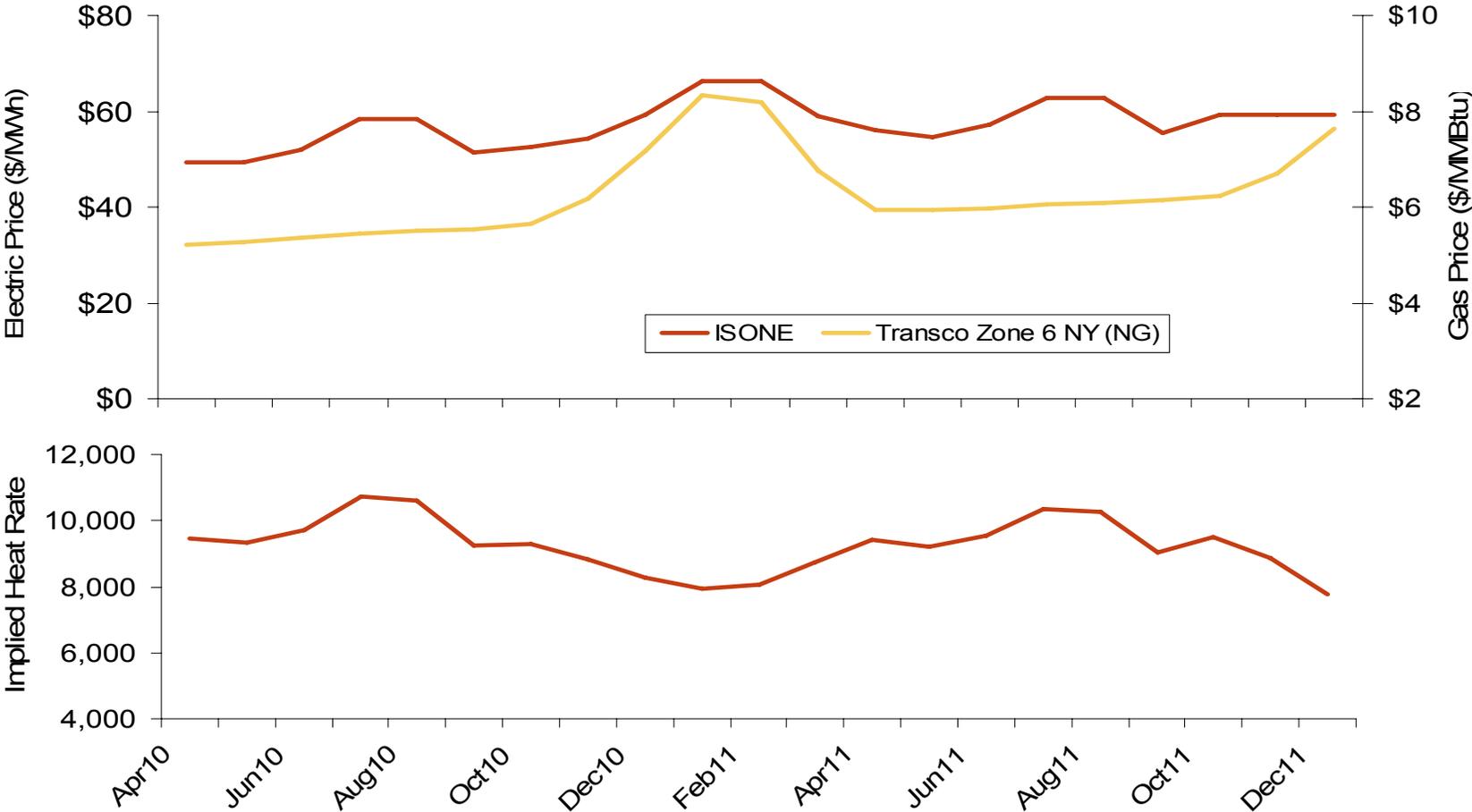


# Eastern Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.  
March 2010 National Snapshot Report

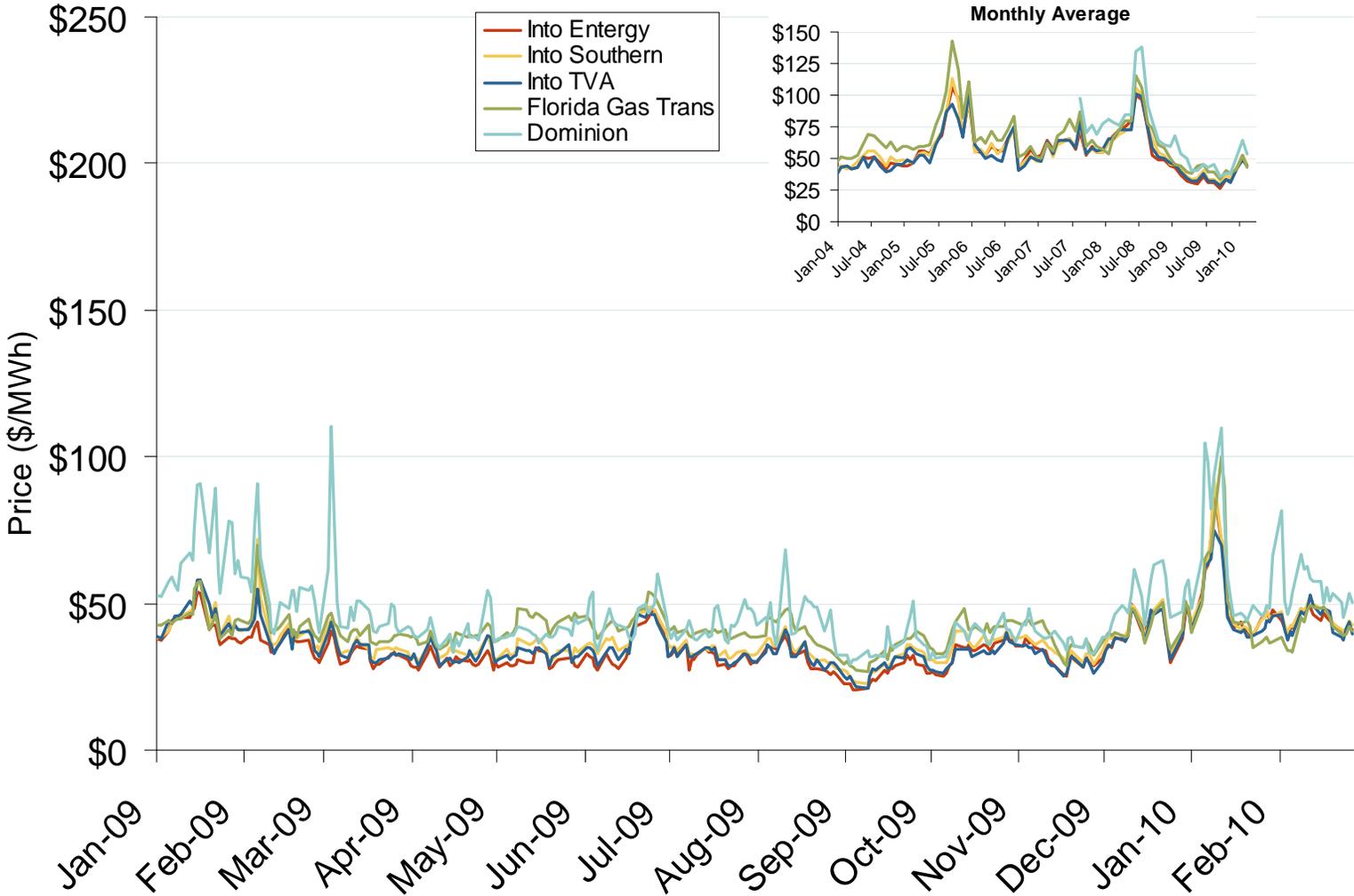
# New England Electric Forward Price Curve and Implied Heat Rate



Source: Derived from Nymex data.  
March 2010 National Snapshot Report

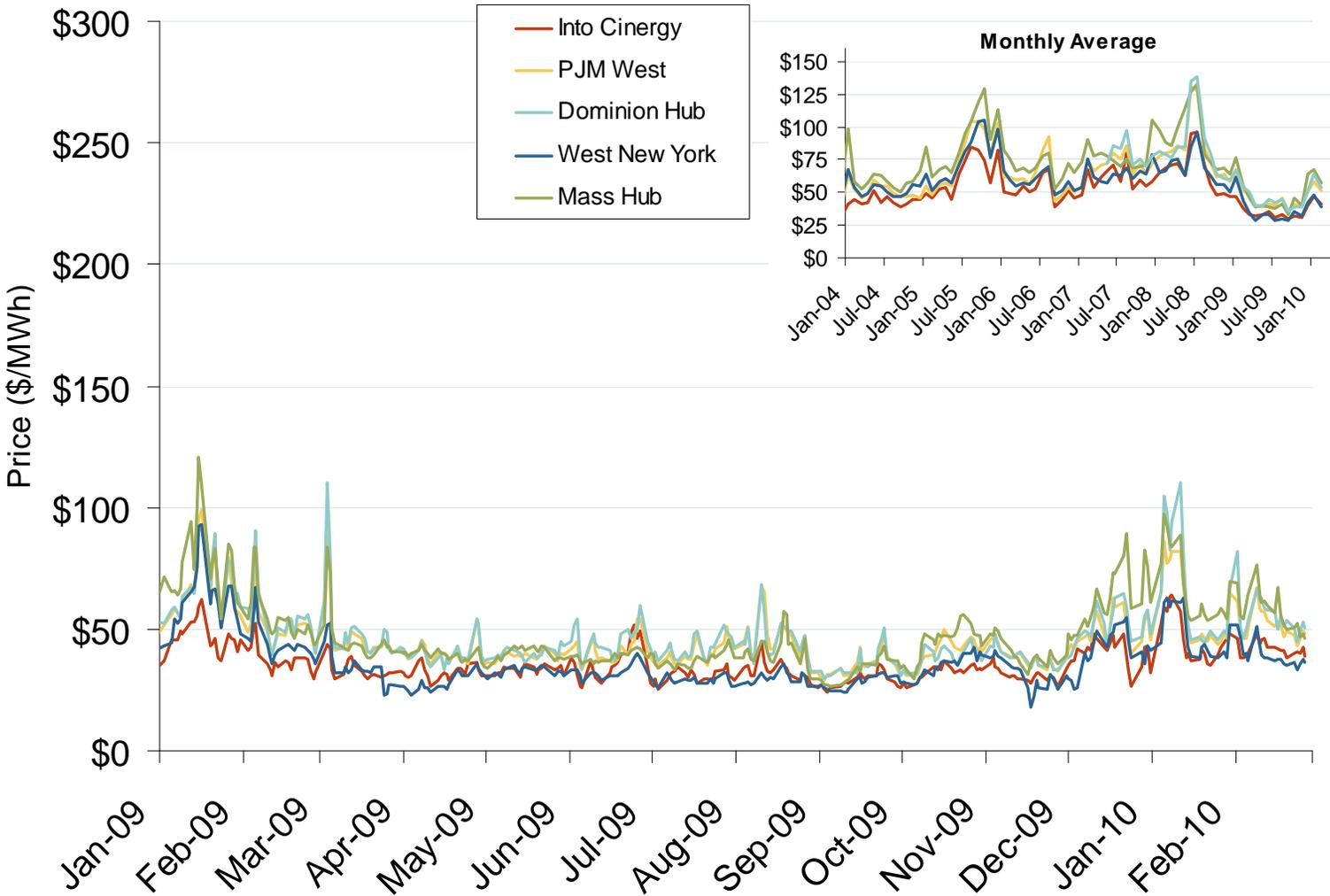
Updated March 5, 2010

# Southeastern Daily Bilateral Day-Ahead On-Peak Prices



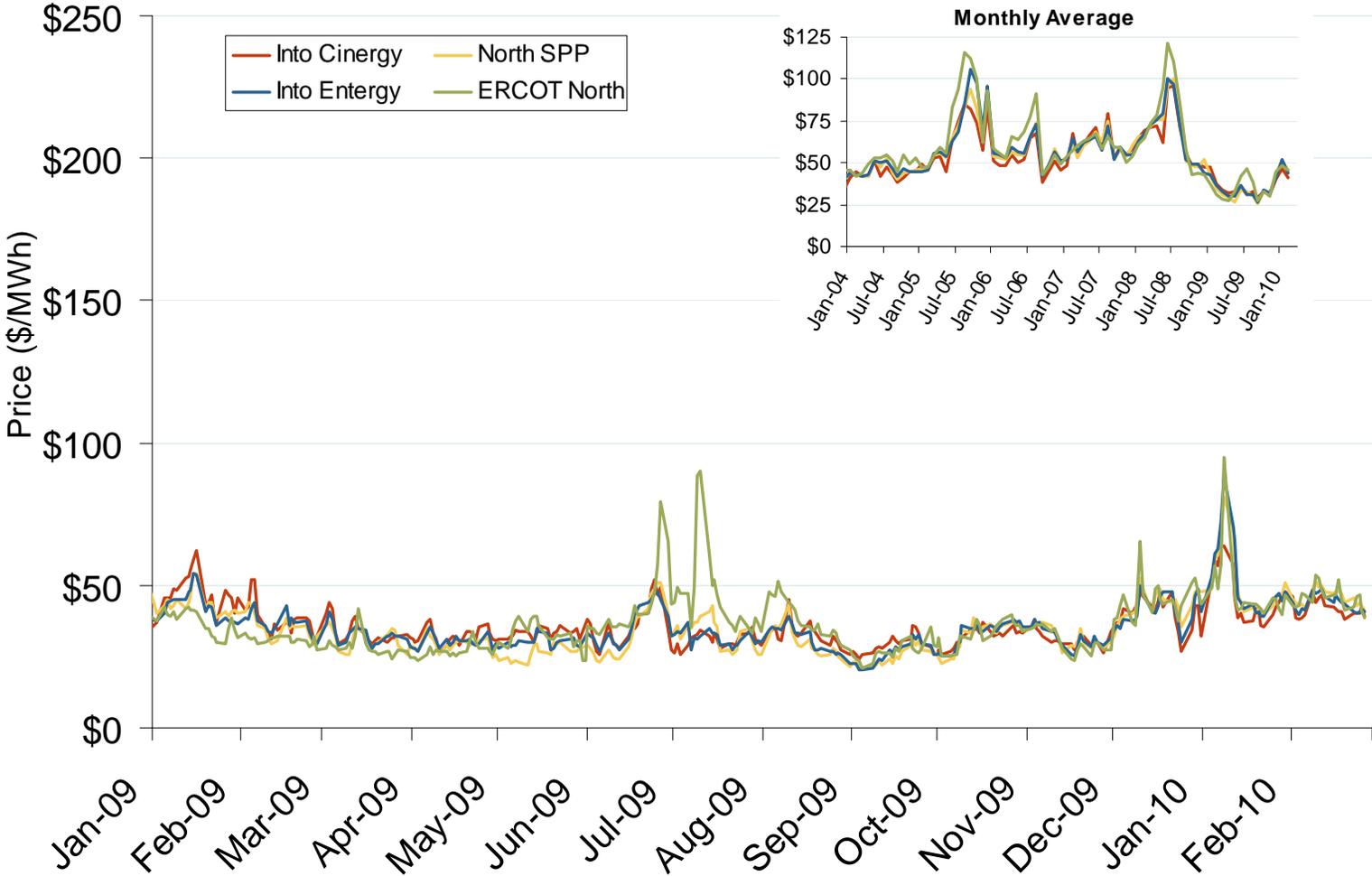
Source: Derived from *Platts* data.  
March 2010 National Snapshot Report

# Eastern Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from Platts data.  
March 2010 National Snapshot Report

# Central Daily Bilateral Day-Ahead On-Peak Prices

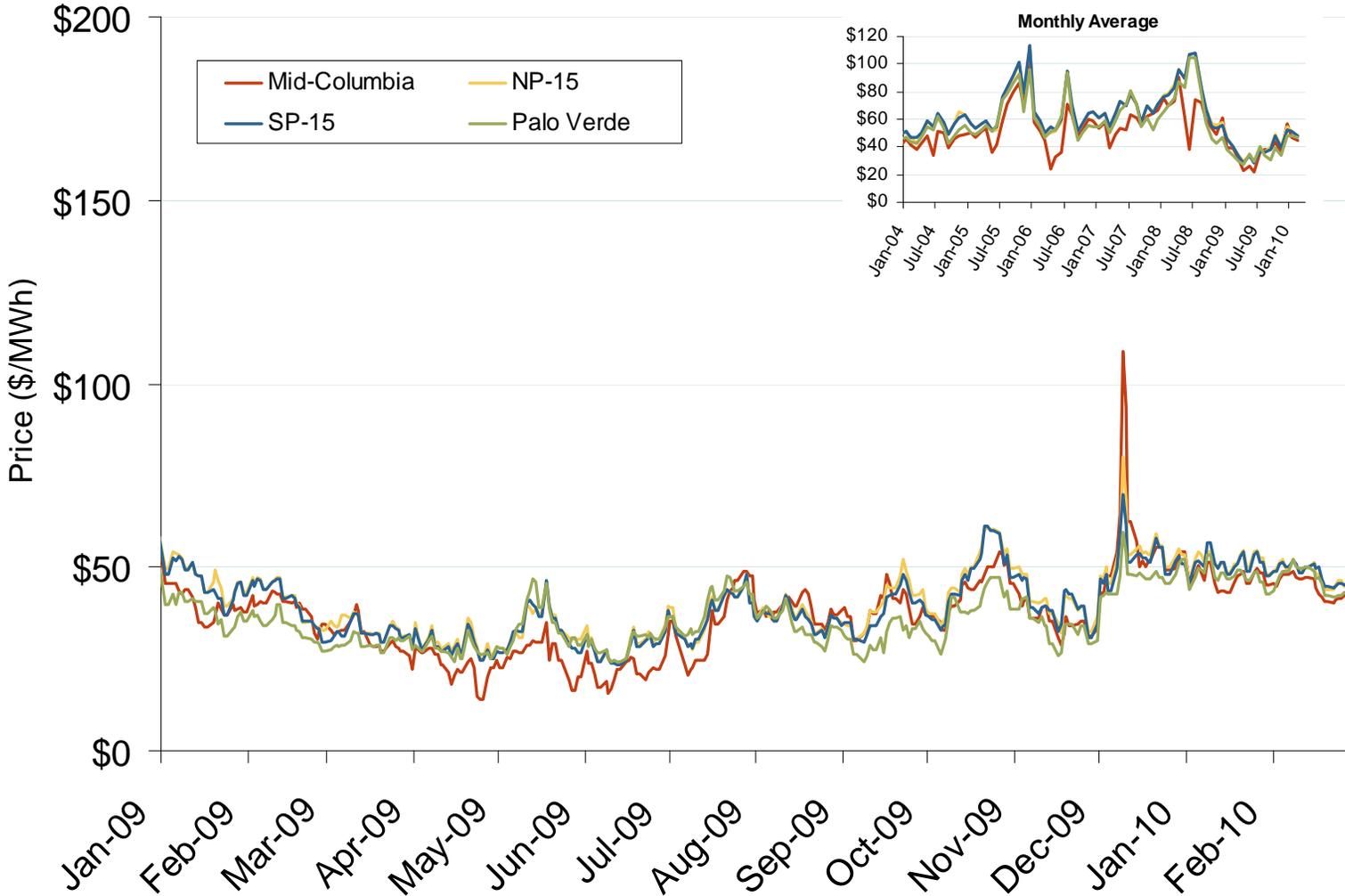


Source: Derived from *Platts* data.  
March 2010 National Snapshot Report

## High Winds Briefly Shut Down 8 SPP Wind Farms December 24, 2009

- Wind gusts of 40-60 mph triggered automatic shutdown of 8 wind farms in western Oklahoma, @ 3:15 and 5:15 am.
- Both times, approx. 625 MWs were dropped when the wind farms had been running at full capacity.
- 4 farms returned 325 MWs to service within 5 minutes of tripping. While the remaining 4 farms remained out 20 minutes to several hours.
- Flowgates in Kansas and Oklahoma encountered intermittent congestion.
- Negligible price impacts.

# Western Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.

## Pacific/Northwest Hydro and Snowpack Levels

	Hydro Generation		Snow Water Equivalent <sup>3</sup>		
	In-State Capacity (MW) <sup>1</sup>	Additional Capacity Created Downstream (MW) <sup>2</sup>	One Year Ago (3/5/09) (% of historical average)	Last Month 2/3/10 (% of historical average)	Current 3/1/10 (% of historical average) *(percentage point change from 2/3/10)
<b>British Columbia</b>	<b>10,000</b>	<b>16,200</b>	<b>85%</b>	<b>91%</b>	<b>69% (-22)*</b>
<b>Idaho</b>	<b>2,700</b>	<b>19,700</b>	<b>83%</b>	<b>68%</b>	<b>64% (-4)</b>
<b>Montana</b>	<b>2,700</b>	<b>16,200</b>	<b>87%</b>	<b>67%</b>	<b>62% (-5)</b>
<b>Washington</b>	<b>21,500</b>	<b>0</b>	<b>74%</b>	<b>73%</b>	<b>67% (-6)</b>
<b>Oregon</b>	<b>9,100</b>	<b>0</b>	<b>83%</b>	<b>79%</b>	<b>64% (-15)</b>
<b>California</b>	<b>10,400</b>	<b>0</b>	<b>88%</b>	<b>115%</b>	<b>112% (-3)</b>

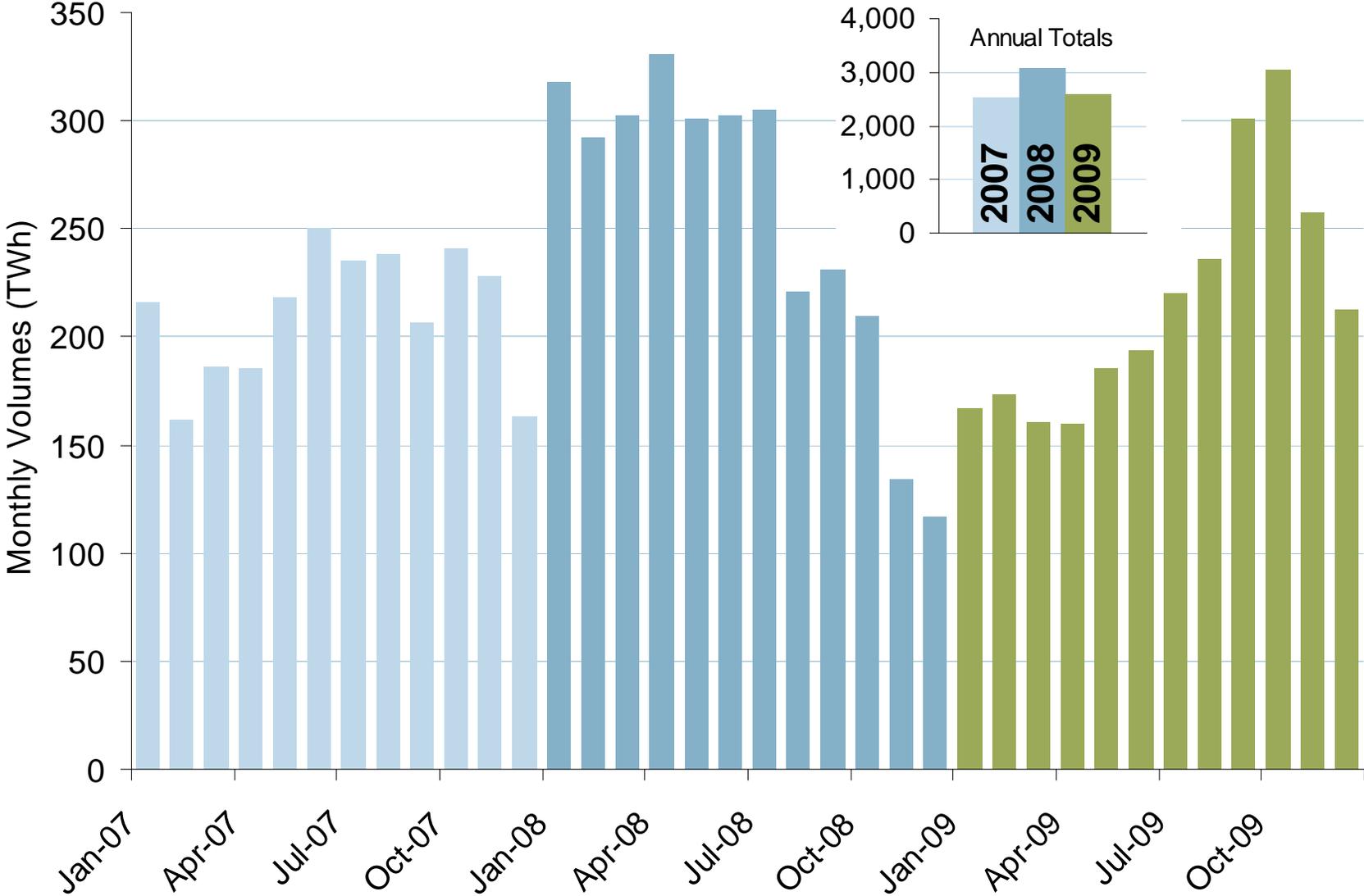
- <sup>1</sup> Net summer capacity in megawatts by state (EIA).
- <sup>2</sup> Approximate electric capacity created by water flow through the downstream states (From EIA and BPA). The capacity estimates reflect the water flow pattern of the series of hydro facilities on the Snake and Columbia Rivers.
- <sup>3</sup> Snow Water Equivalent, in percent of the historical average for the same date, is the ratio of current snow water daily data (collected by the Natural Resources Conservation Services' Snowtel Telemetry sites) compared to the average snow water for the same day between 1961-1990. Total Hydro Capacity figures by state do not tie precisely to Snow Water Equivalent data due to such factors as snow basin terrain and complex distribution of run-off to neighboring state hydroelectric dams or shared facilities (e.g., Columbia River hydroelectric dams on the border of Washington and Oregon) (Bloomberg, California Dept. of Water Resource and Government of British Columbia Ministry of Environment).

Updated March 5, 2010

## California Increases Market Transparency

- CAISO notified market participants, nearly one month ahead of implementing a market process change, by issuing a Technical Bulletin on January 11th and a Market Notice on January 26th.
- Beginning on trade day February 5<sup>th</sup> generation resources needed South-of-Lugo and in Orange County will be committed in the day-ahead market.
- Previously, market participants were not notified when market changes were implemented, instead discovering that changes had been made when market results deviated from expectations, such as when:
  - Commitment requirements were moved into the Residual Unit Commitment process (RUC) from the Exceptional Dispatch mechanism this past summer.
  - Physical transmission constraints in the Southern California Edison (SCE) area were added into the market model this past fall.
- In early February 2010, the CAISO began an effort to increase transparency by hosting a monthly Market Performance and Planning Forum, aimed at:
  - Reviewing market performance issues.
  - Providing information and enabling dialogue on upcoming market changes and implementation planning.
  - Consolidating information for multiple forums for stakeholders.
- The CAISO has also initiated a Data Release & Accessibility stakeholder initiative, the first of three phases addresses transmission constraint management.

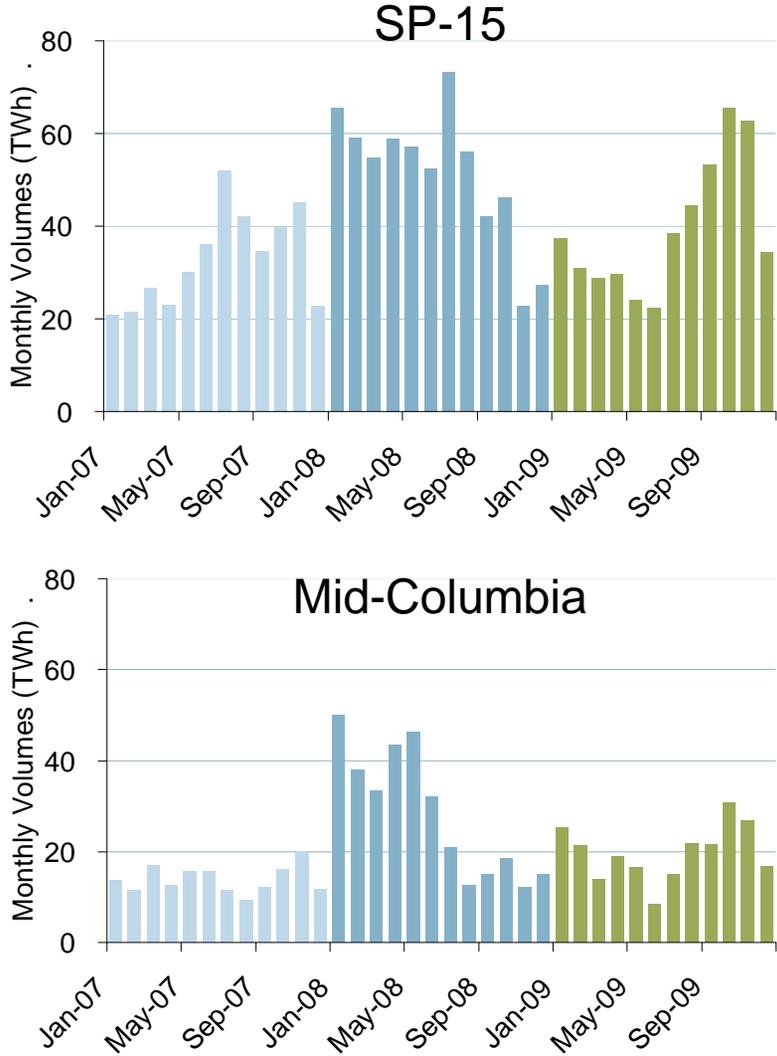
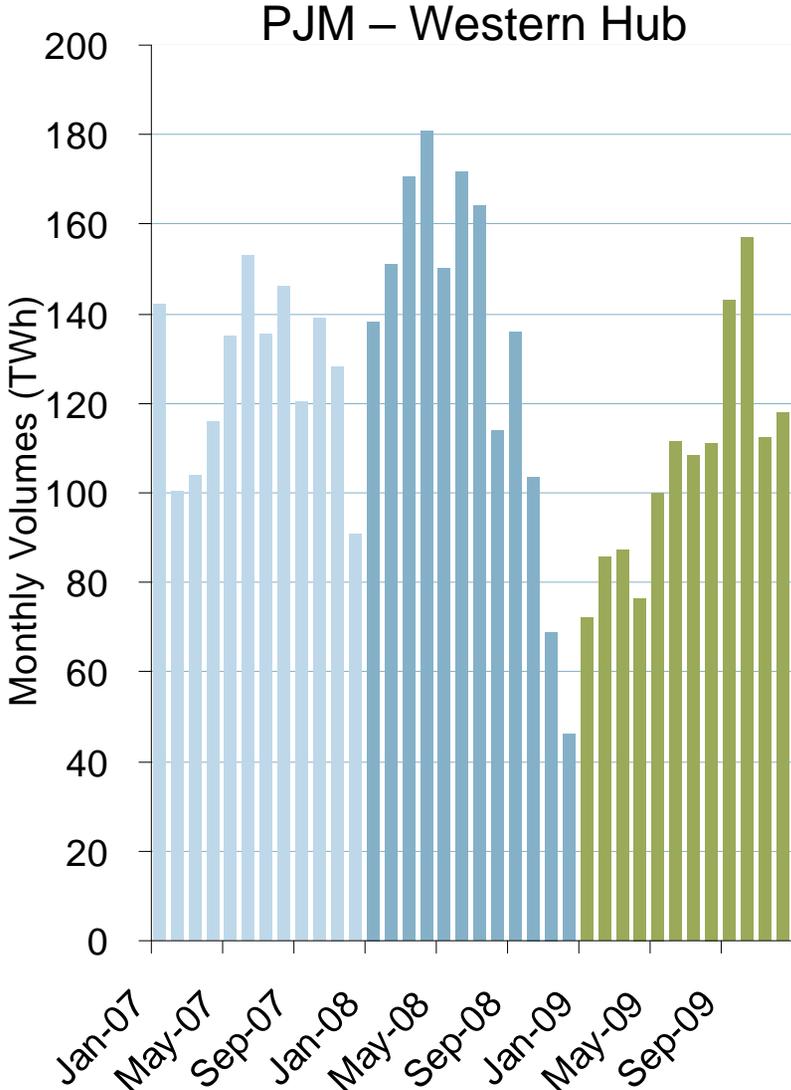
## 2009 Financial Power Volumes on ICE



Notes: Derived from IntercontinentalExchange (ICE) data. Financial-Swap volumes aggregated by trade date. March 2010 National Snapshot Report

Updated February 3, 2010

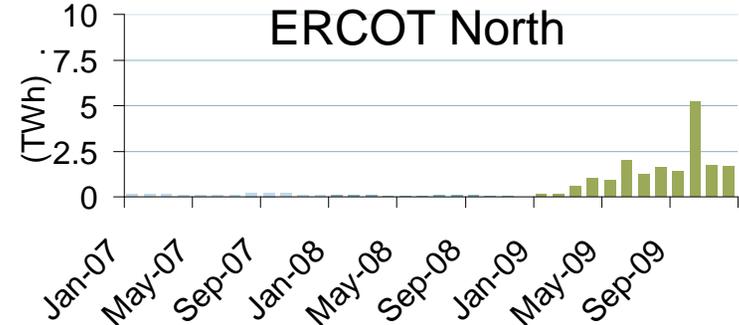
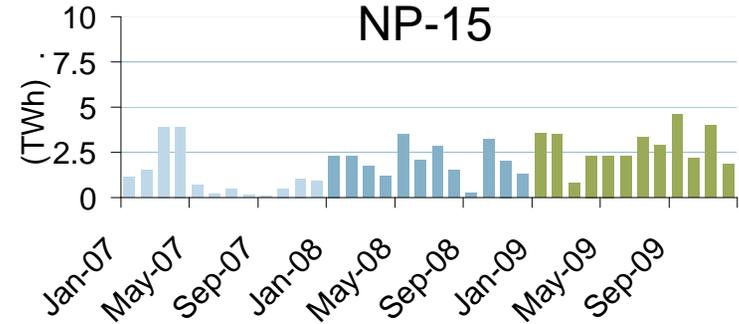
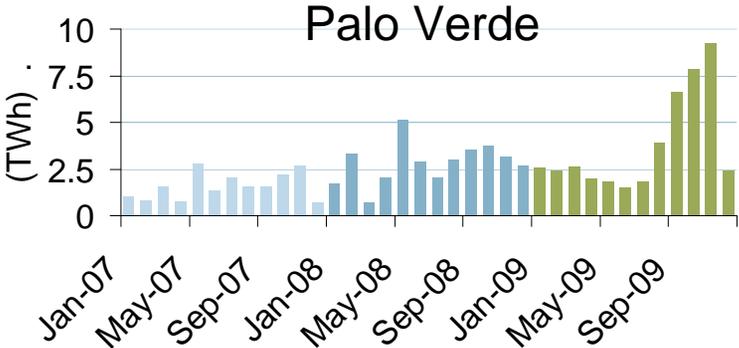
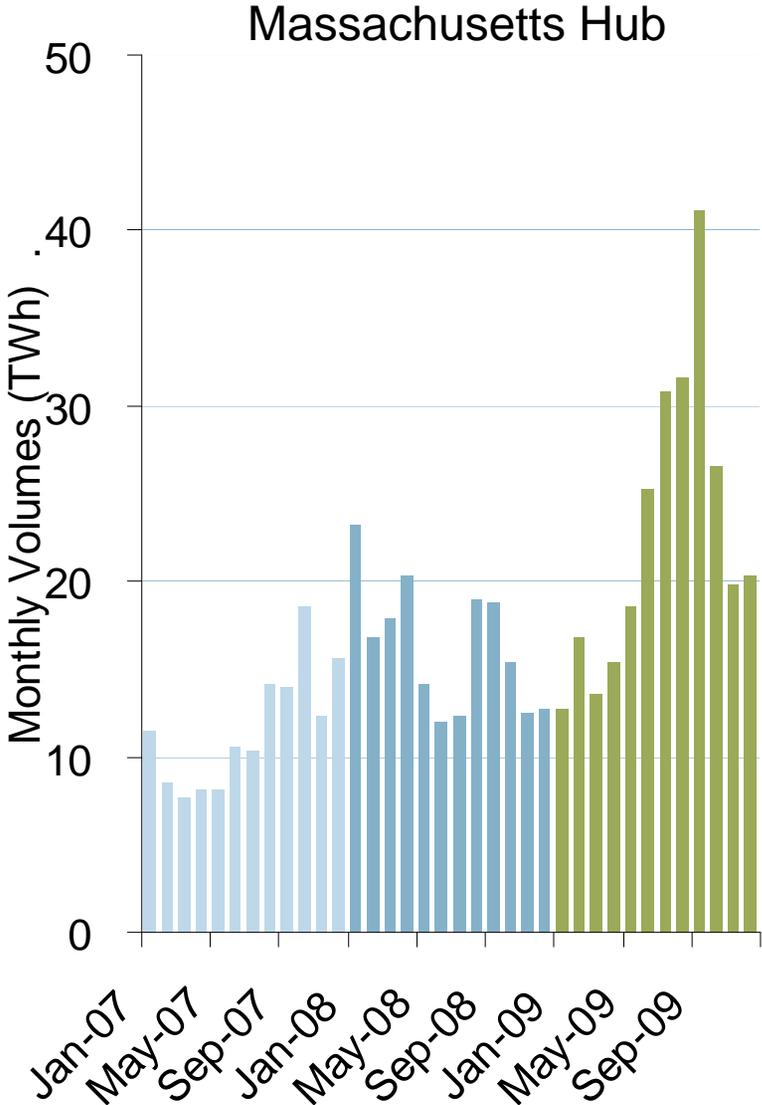
# Financial Volumes on ICE at Major Hubs



Notes: Derived from IntercontinentalExchange (ICE) data. Financial-Swap volumes aggregated by trade date. March 2010 National Snapshot Report

Updated February 3, 2010

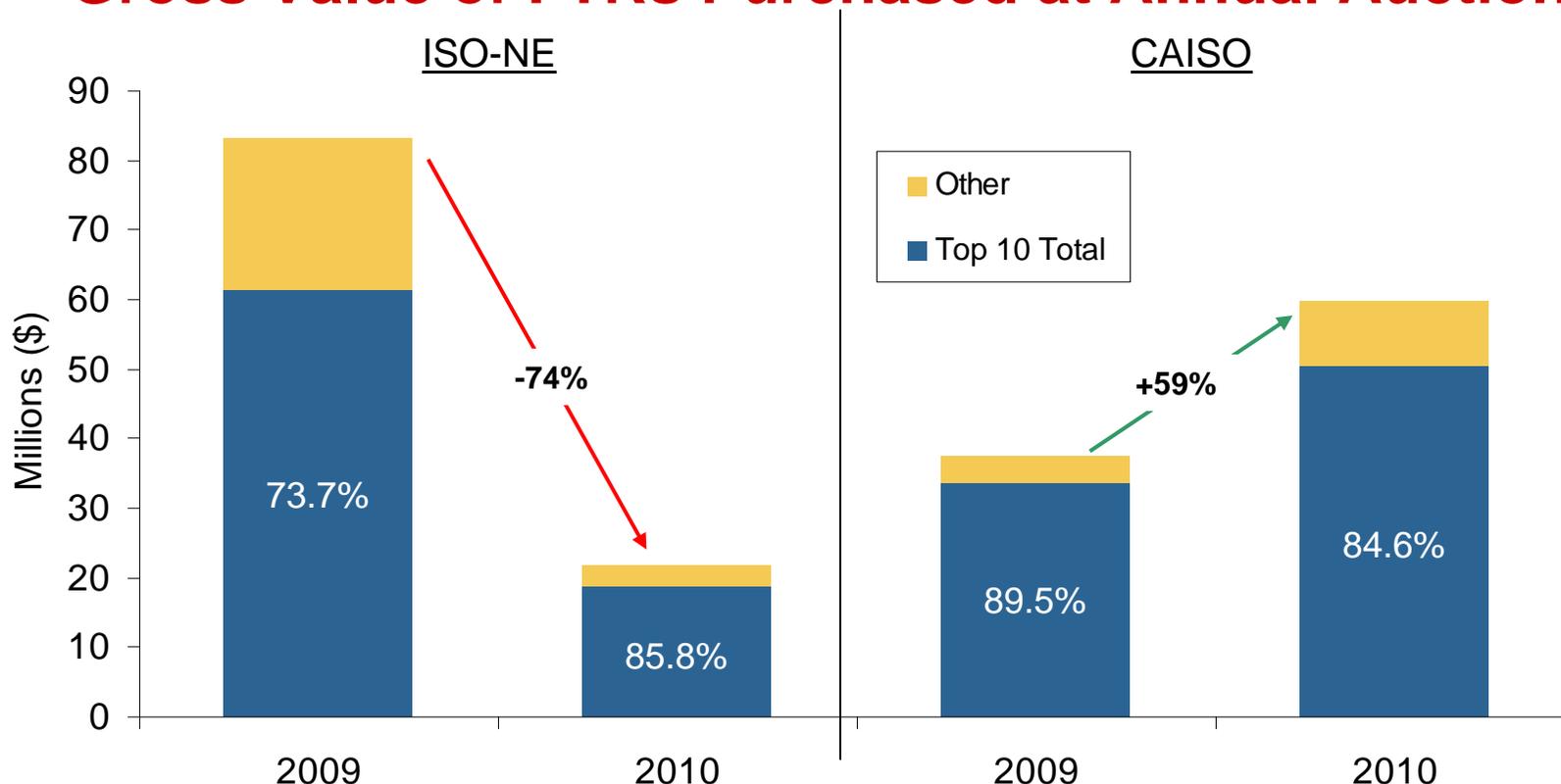
# Financial Volumes on ICE at Other Select Hubs



Notes: Derived from IntercontinentalExchange (ICE) data. Financial-Swap volumes aggregated by trade date. March 2010 National Snapshot Report

Updated February 3, 2010

## Gross Value of FTRs Purchased at Annual Auctions



- Majority of ISO-NE and CAISO FTR auction purchases made by top 10 participants
- Low gas prices, decreased demand, and transmission upgrades contribute to significant decline in ISO-NE annual FTR auction
- 2009 MRTU market start encourages market participation in 2010 FTR auctions

Note: Does not include allocated FTRs positions.

Source: Derived from Ventyx, CAISO, and ISO-NE data