Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

OE ENERGY MARKET SNAPSHOT

National Version – December 2009 Data

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

Office of Enforcement
Federal Energy Regulatory Commission
January 2010

Special Report:

OE Report, Priorities, Orders, and Transparency

2009 REPORT ON ENFORCEMENT

Docket No. AD07-13-02

Released December 17, 2009

Report: http://www.ferc.gov/legal/staff-reports/12-17-09-enforcement.pdf
Webcast of Presentation: http://ccrealserver.gmu.edu/podcasts/ferc121709a-2.mp3

SR1AKR

Office of Enforcement Priorities

Enforcement will focus on matters involving:

- Fraud and market manipulation;
- Serious violations of the reliability standards;
- Anticompetitive conduct; and
- Conduct that threatens the transparency of regulated markets.

SR1AKR

FERC Acts to Make Enforcement Process Transparent

Docket Nos: PL10-1-000

- FERC formalized a process by which the Office of Enforcement will provide exculpatory evidence to subjects of its investigations and respondents in administrative enforcement proceedings.

Docket Nos: PL10-2-000

- FERC authorized the Secretary of the Commission to issue a “Staff’s Preliminary Notice of Violations” after the subject of the investigation has had an opportunity to respond to staff’s preliminary findings letter.

SR1AKR

Natural Gas and Fuel Markets

Natural Gas Market Review for 2009

- Average spot natural gas prices declined 55% dipping to their lowest level in seven years.
- Domestic dry gas production rose 3% despite the dramatic decline in prices and a 45% decline in rigs. Major contributors to domestic gas supply gains were expanding shale development and high-grading"; improvements in business practices; use of hedging and persistent high forward prices.
- Growing domestic supplies pushed out gas imports; overall imports fell by 1 Bcfd.
  - Canadian gas imports declined 16% to 6.8 Bcfd.
  - LNG sendout rebounded by 20% to 1.2 Bcfd; LNG imports grew 42% to 500 Bcf.
- Despite the recession, overall average daily gas use was down less than 1% from the previous year to 64.2 Bcfd. Increases in power generation demand almost offset declines in the residential, commercial, industrial sectors. Gas use for power set a record (7 Tcf) even though overall electric demand fell 4%.
- Storage set new records leading EIA to update its estimate of peak working gas capacity to 3.9 Tcf.
- Big gains in infrastructure occurred for the 2nd year in a row. Estimated capacity increases in 2009 were:
  - Pipelines: 22 Bcfd of natural gas intrastate and interstate capacity;
  - Storage: 107 Bcf of incremental working gas capacity;
  - LNG: 5 Bcfd of regasification plus 20 Bcfd of onsite storage.

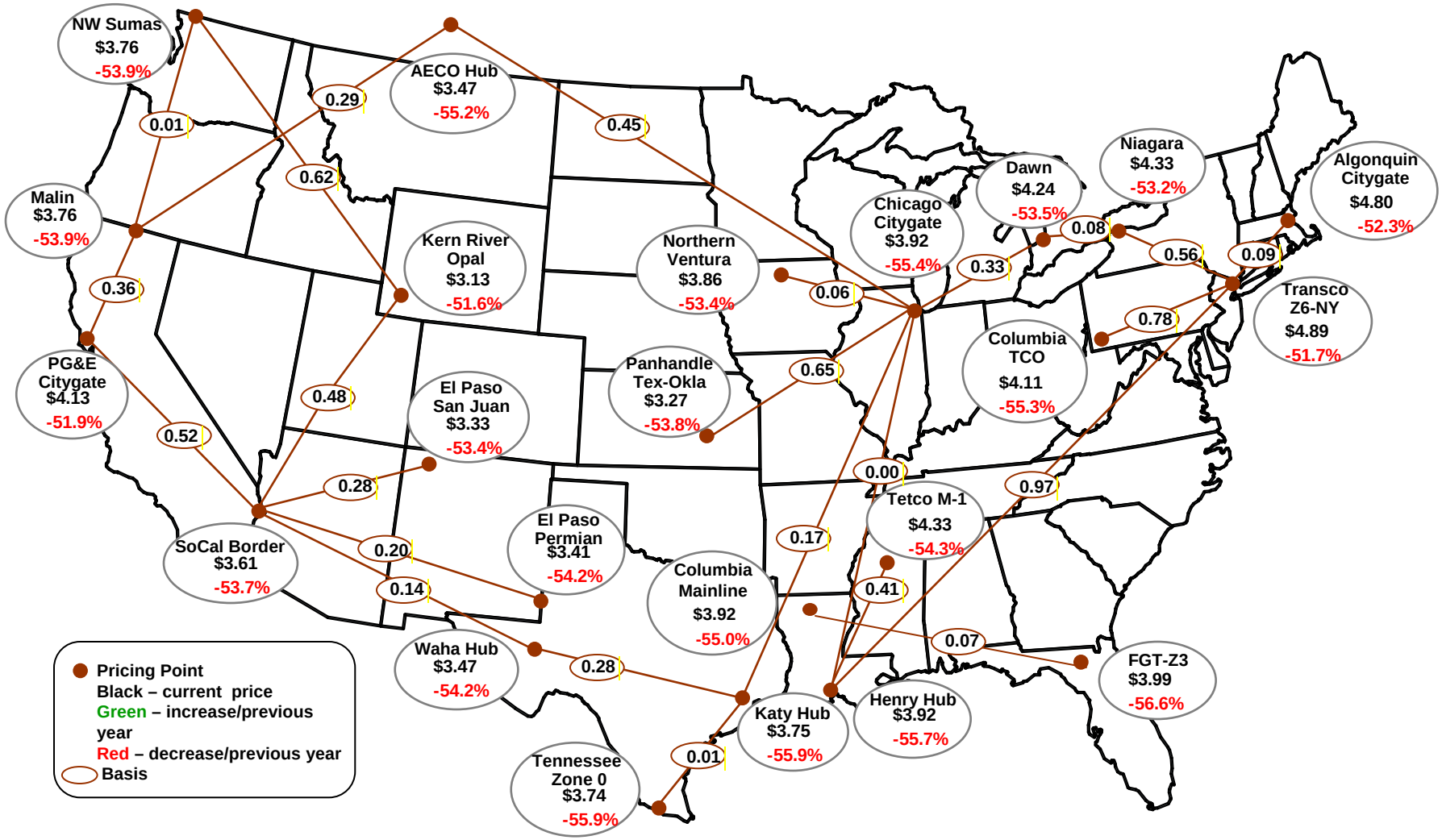
Sources: ICE, Bentek Energy LLC, and EIA.

Updated January 11, 2010

Natural Gas Market Overview: Spot Gas Prices

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

Average Spot Gas Prices, 2009



Source: Derived from *Platts* data.

Updated January 12, 2010

2181

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

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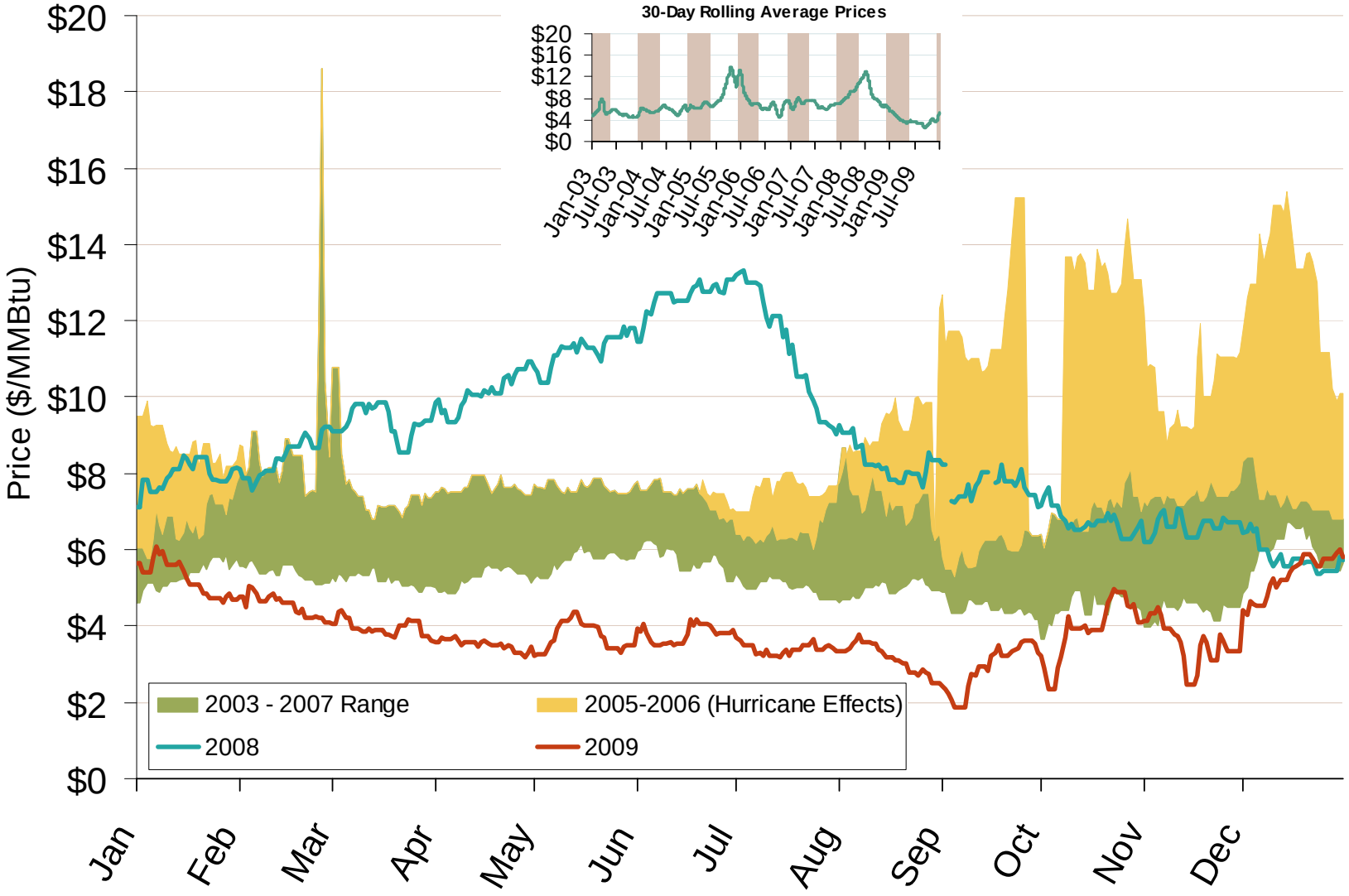
Henry Hub Natural Gas Daily Spot Prices
2008, 2009 and 2003-2007 Range

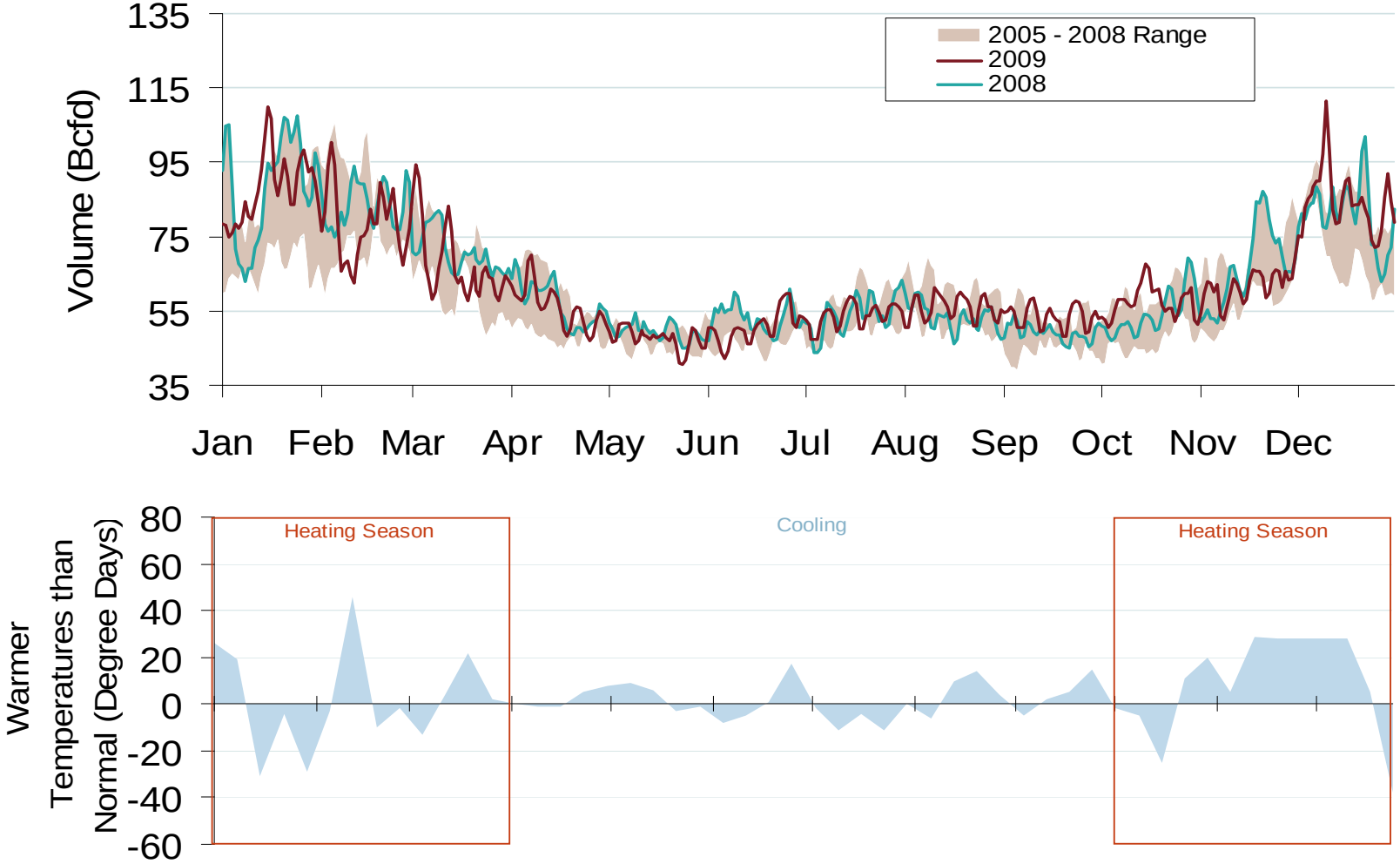


Source: Derived from *Platts* data.

Updated January 8, 2010

2085

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

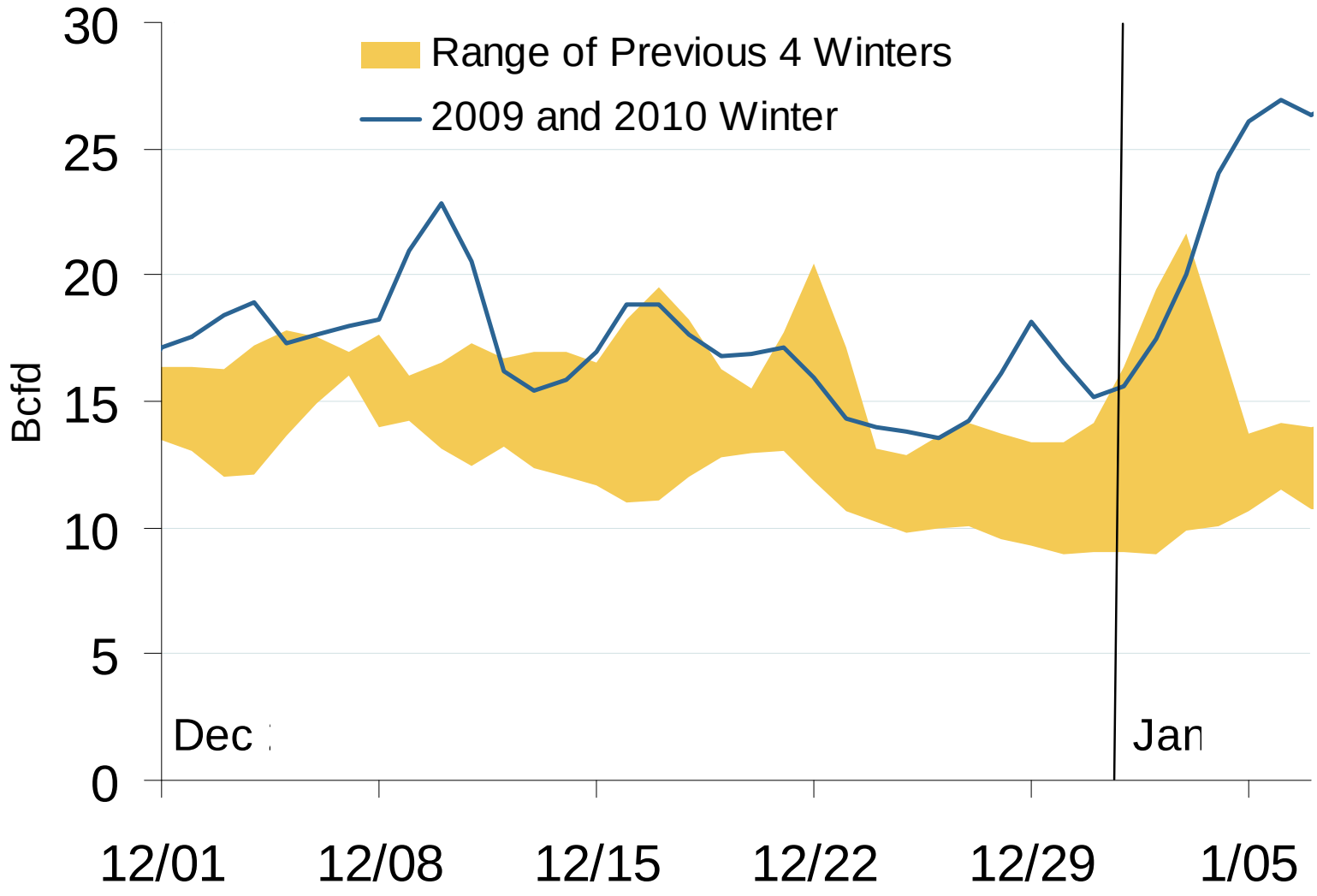


Source: Derived from *Bentek Energy* data.

Updated January 8, 2010

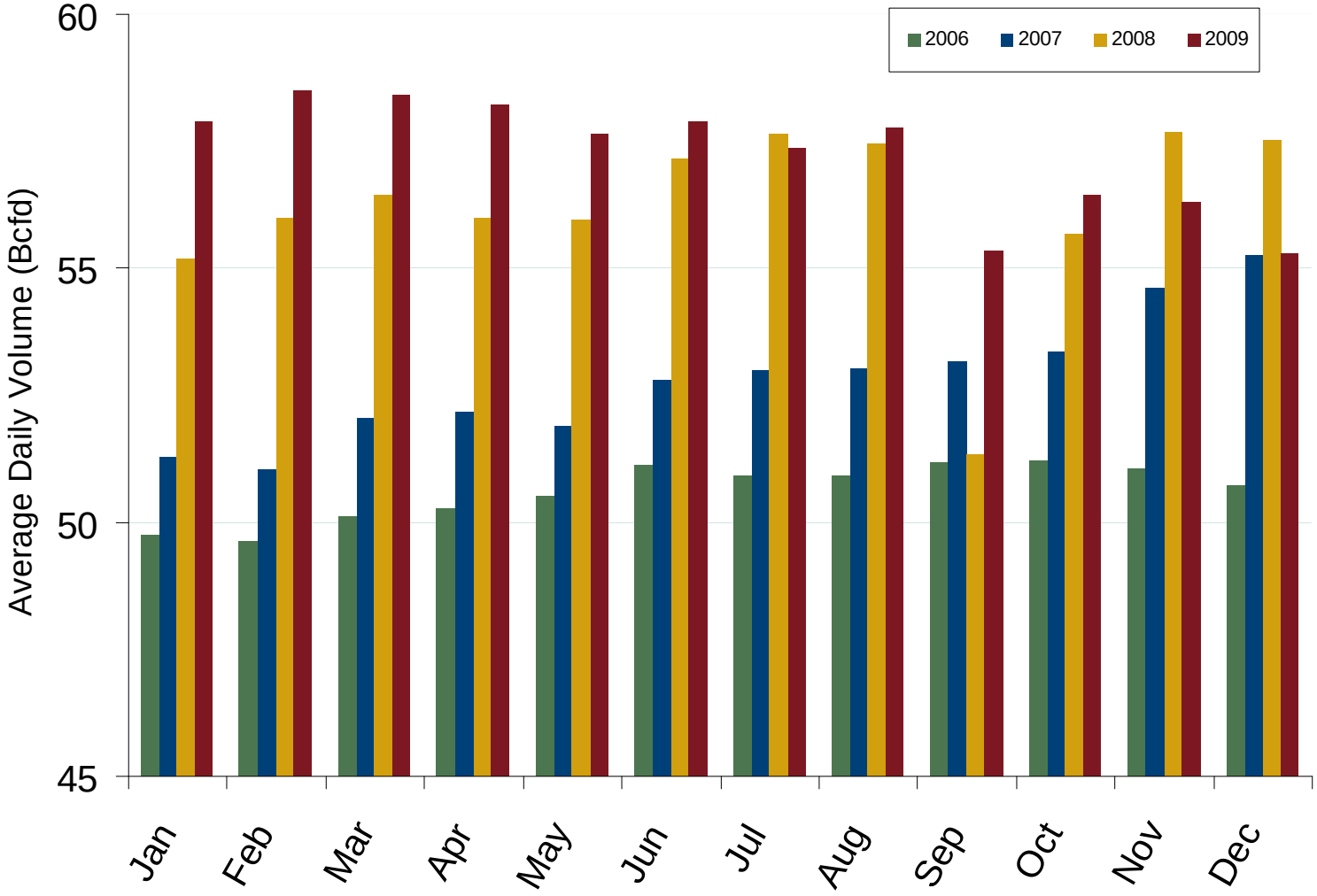
20009

Winter Gas Use for Power Generation – Total U.S.



Source: Derived from Bentek data.

U.S. Dry Gas Production

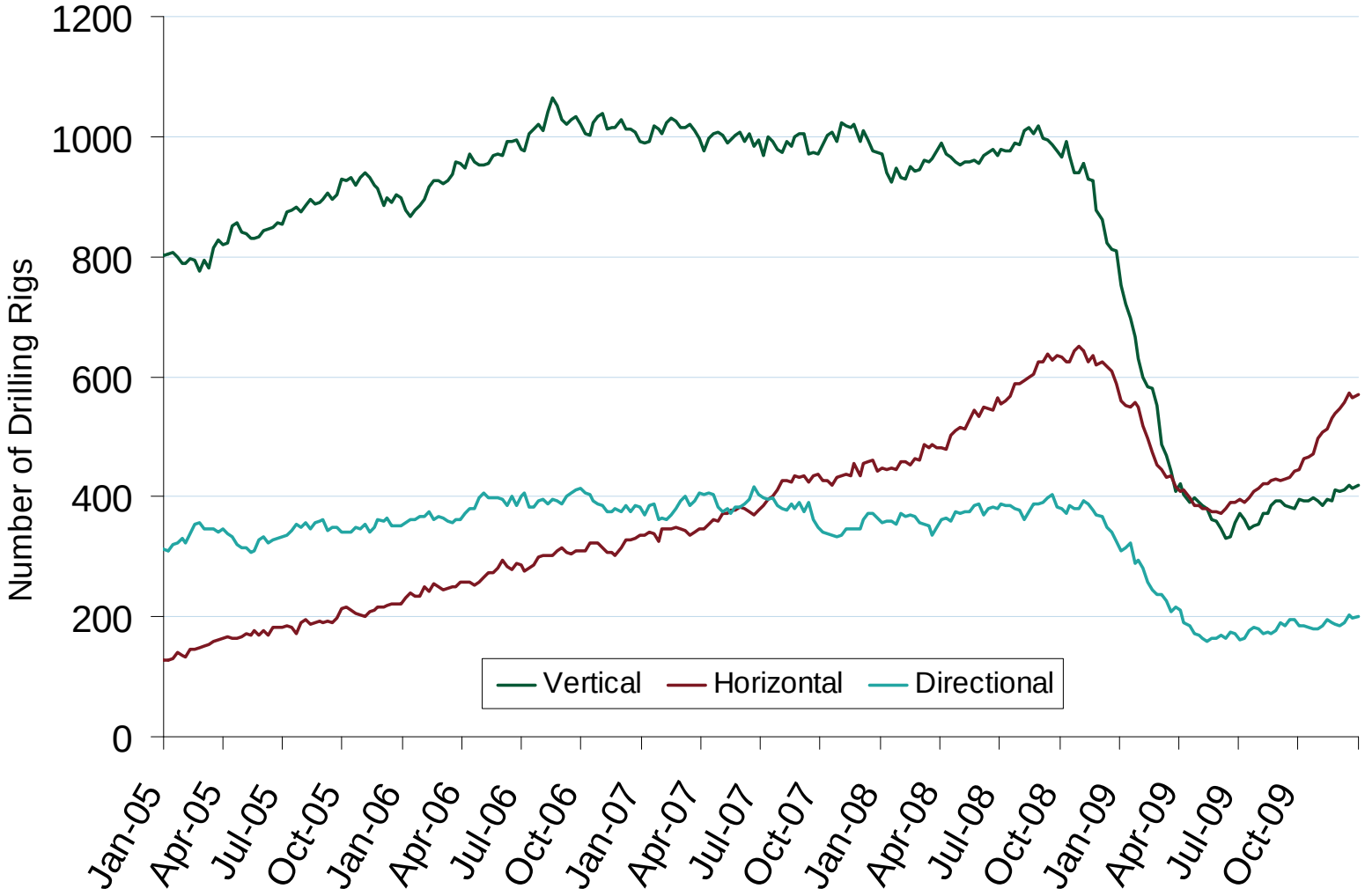


Source: Derived from *EIA and Bentek data.*

Updated January 8, 2010

20021

U.S. Oil and Natural Gas Drilling Rig Count by Type

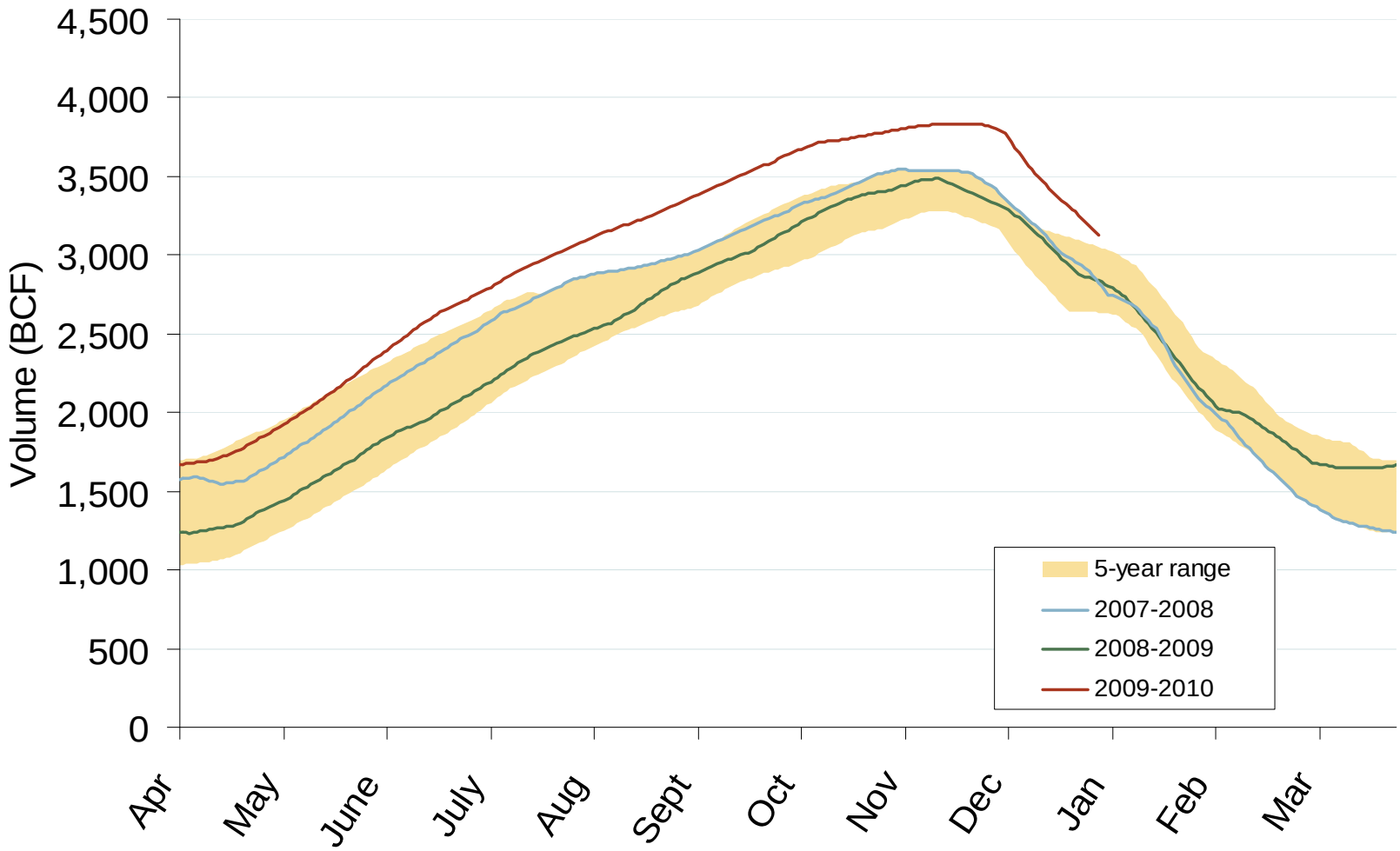


Source: Derived from *Platts* and *Baker Hughes* data.

Updated January 8, 2010

20018

Total U.S. Working Gas in Storage

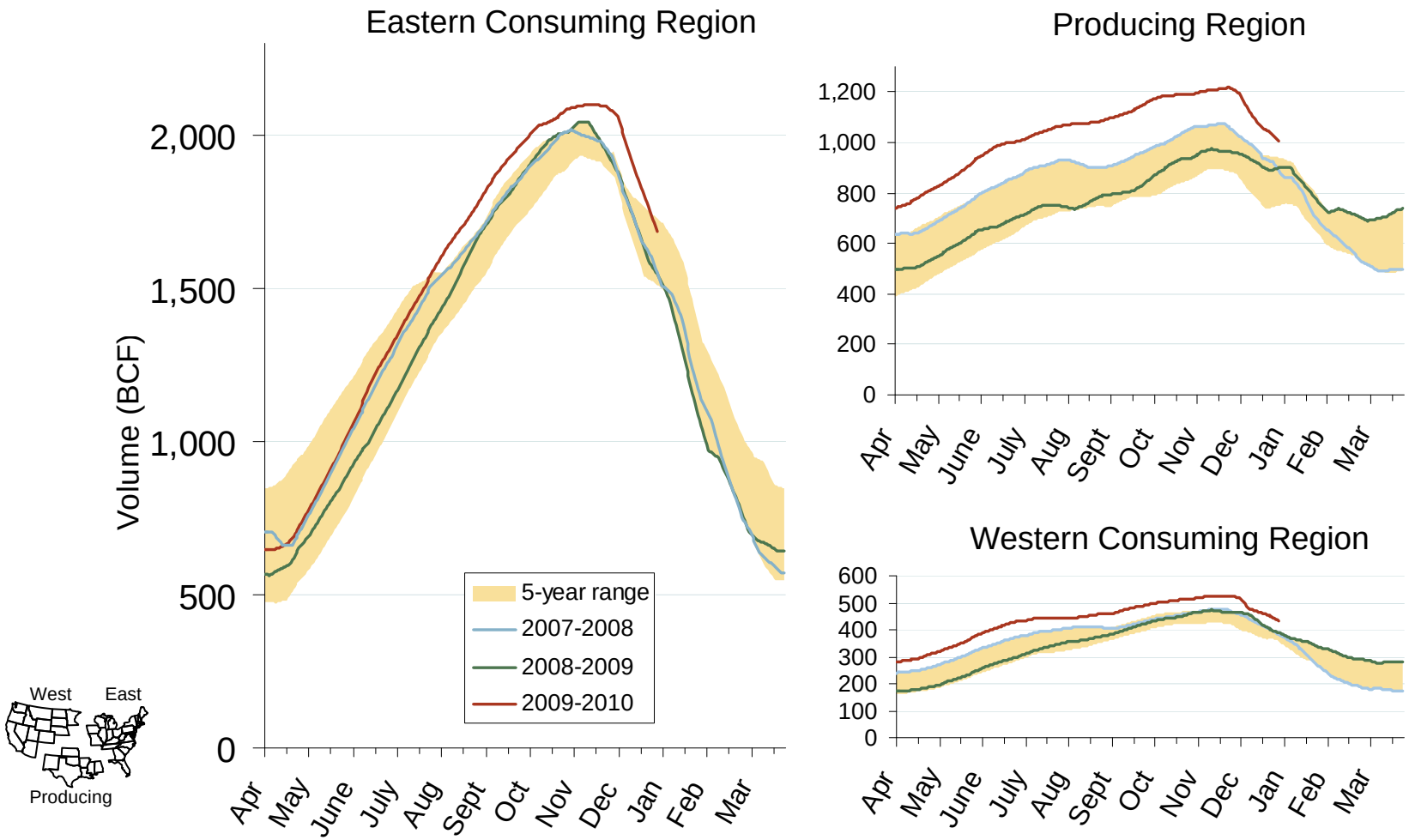


Source: Derived from *EIA* data.

Updated January 8, 2010

2003

Regional Totals of Working Gas in Storage

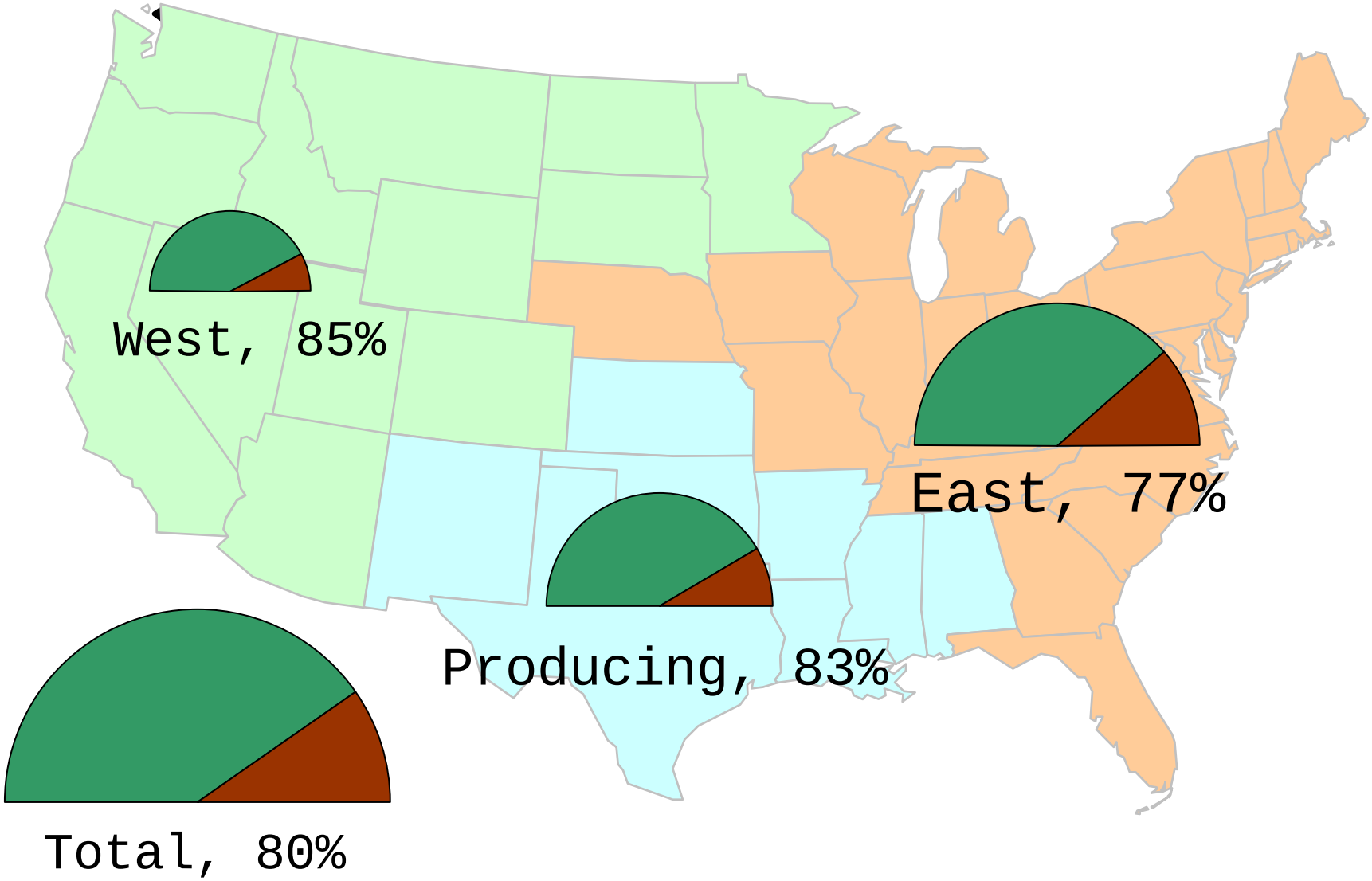


Source: Derived from *EIA* data.

Updated January 8, 2010

2004

Natural Gas Storage Inventories – January 1, 2010



Source: Derived from EIA Storage and Estimated Working Gas Capacity data.

Updated January 12, 2010

20022

Storage Projections Miss EIA Report and Add Price Volatility

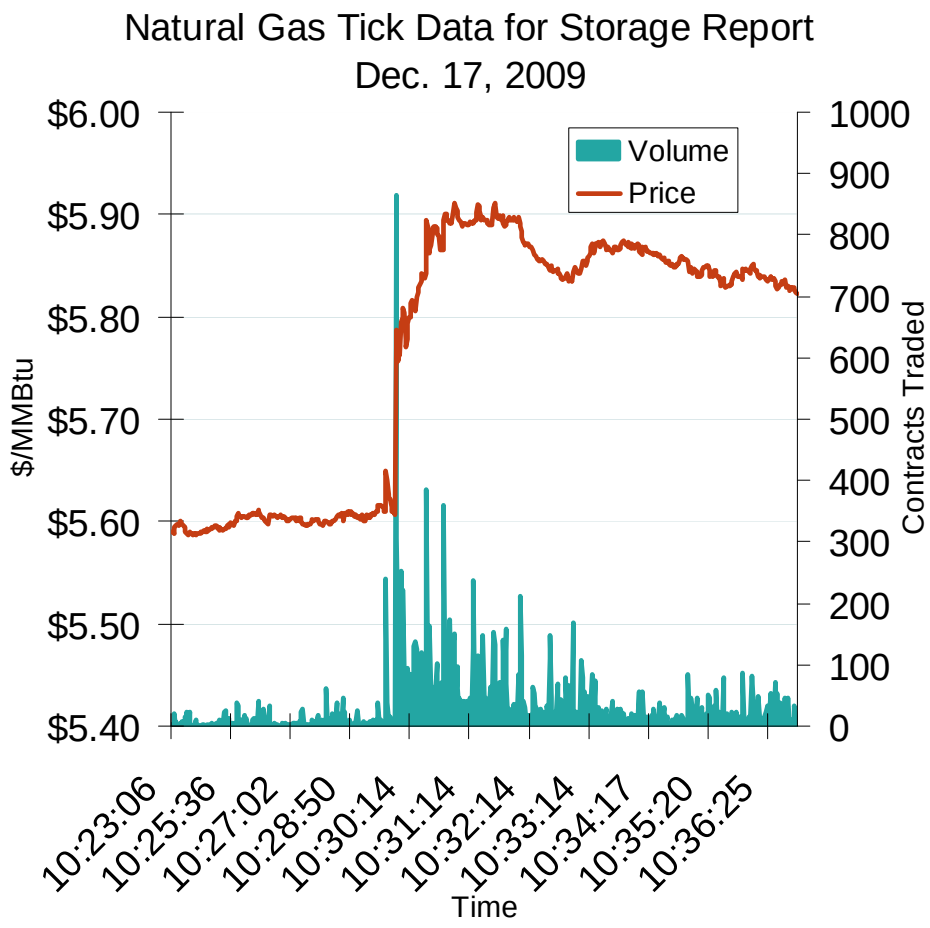
Dec 17, 10:30am - EIA Releases Storage Report

- EIA reports 207 Bcf storage withdrawal for the week ending Dec 11.
- Consensus estimates wide of mark -179 Bcf.
- Prompt futures price jumps $0.30 in 62 seconds, with high trading volumes.

Possible reasons for greater than expected withdrawal:

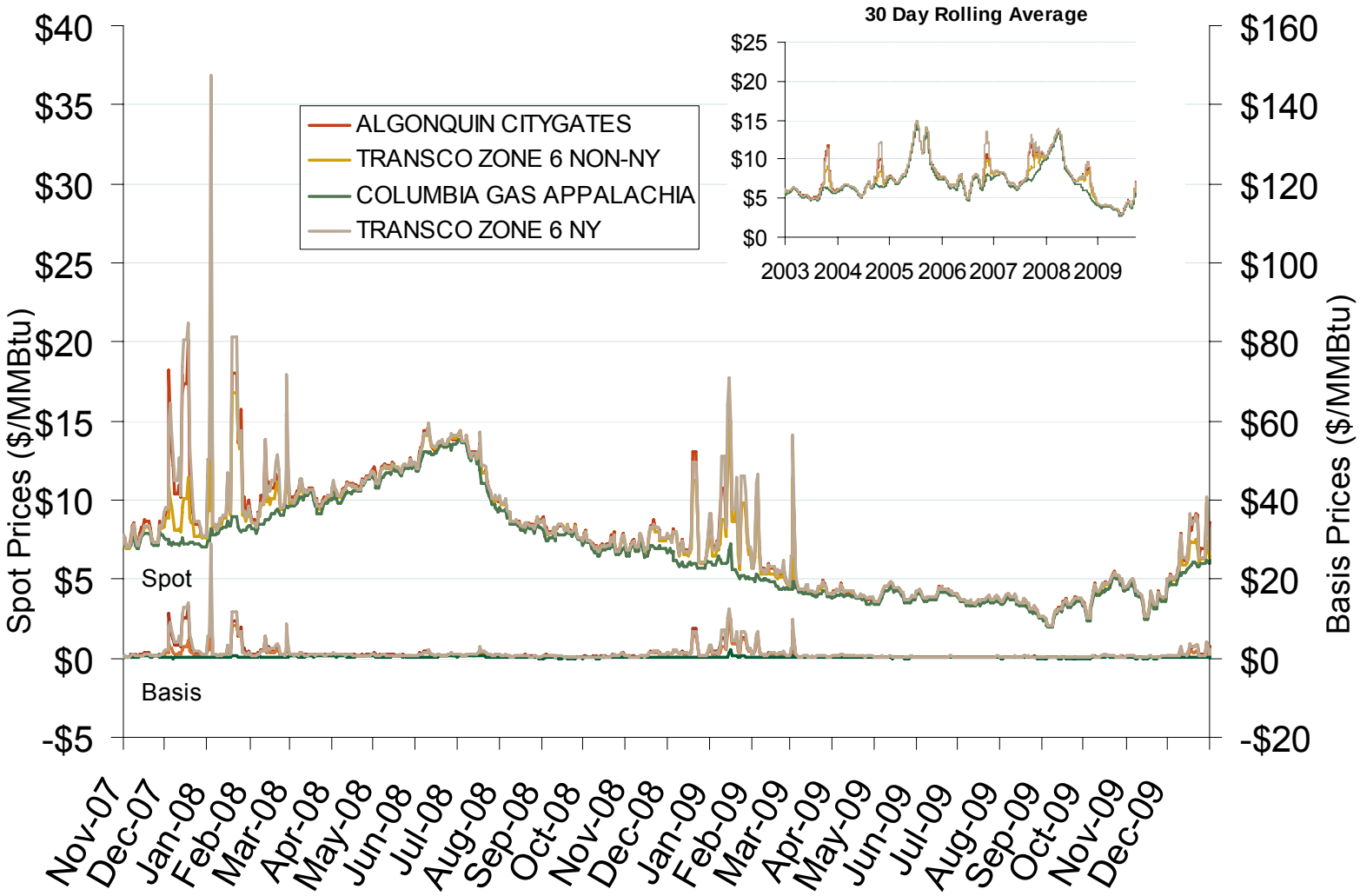
- Some estimates based on heating degree days. Impact of record high inventories and cheap gas in storage not adequately assessed.
- Estimates that rely on observing daily flows in and out of storage of the interstate pipeline system unable to see and assess the pull on storage in the intrastate gas market. Intrastate pipelines do not report flows.

Large estimation errors continued in December resulting in price volatility.



Source: Derived from Bloomberg data

Northeastern Spot Prices and Basis

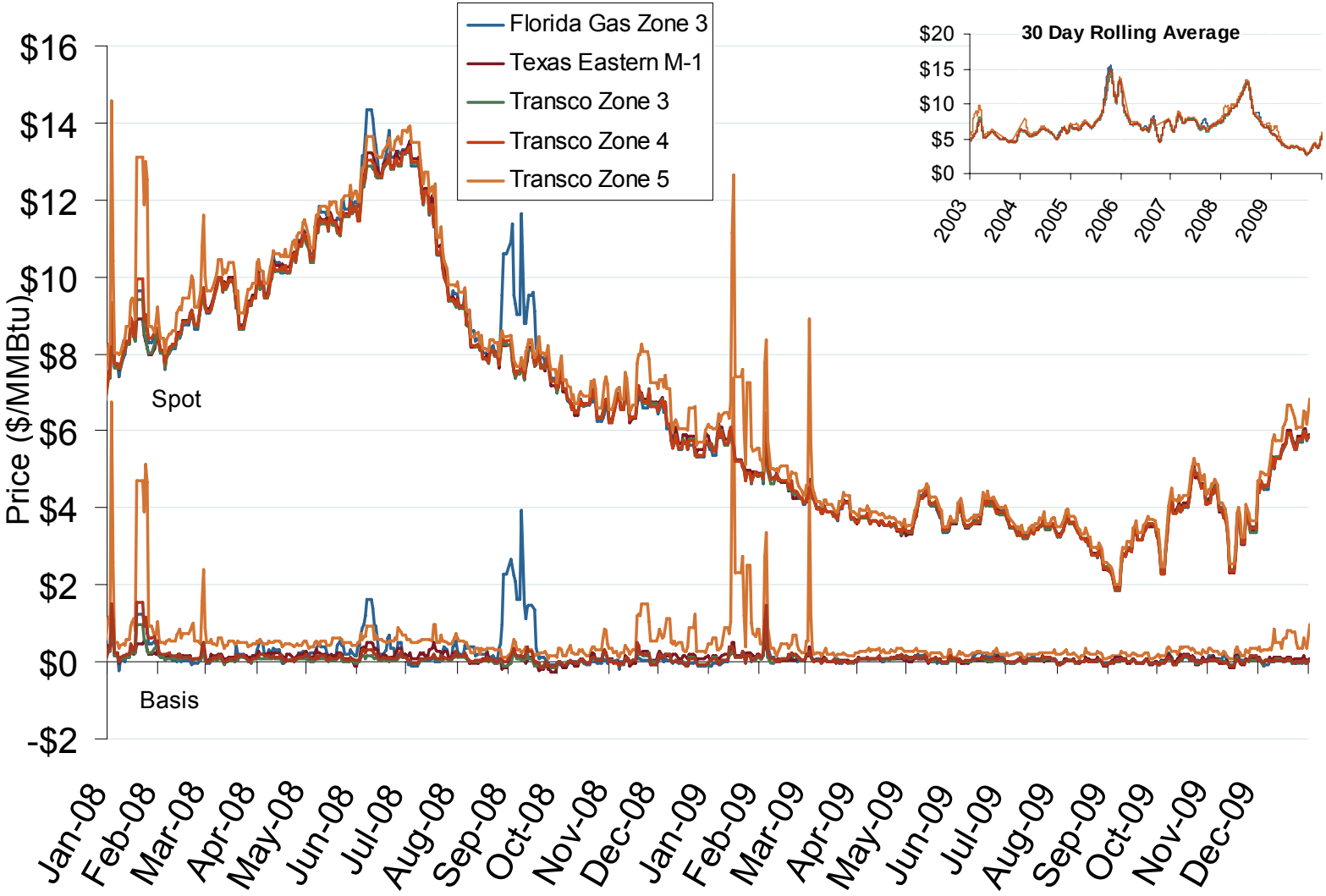


Source: Derived from *Platts* data.

Updated January 8, 2010

2030

Southeastern Day-Ahead Hub Spot Prices and Basis

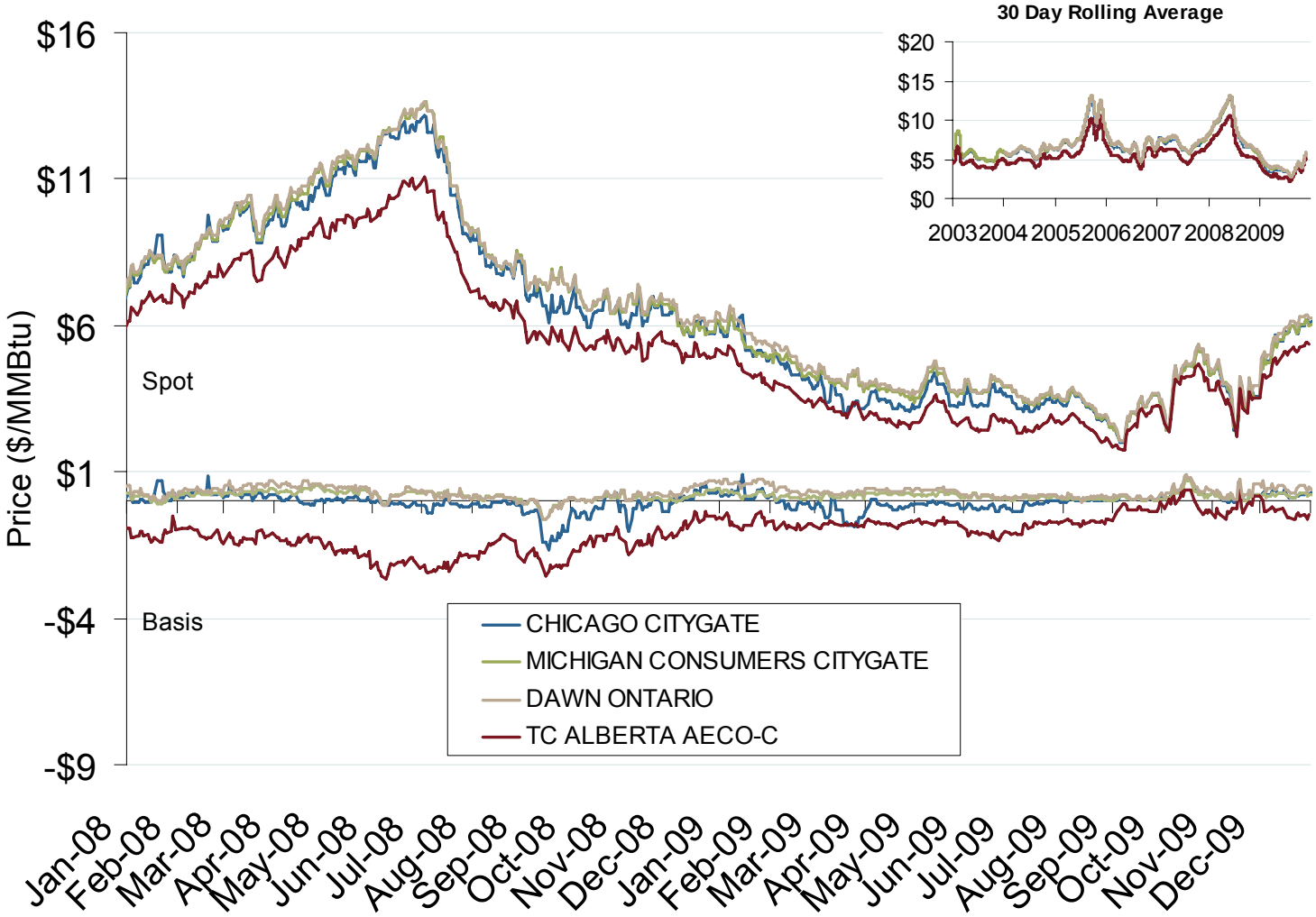


Source: Derived from *Platts* data.

Updated January 8, 2010

2058

Midwestern Day-Ahead Hub Spot Prices and Basis

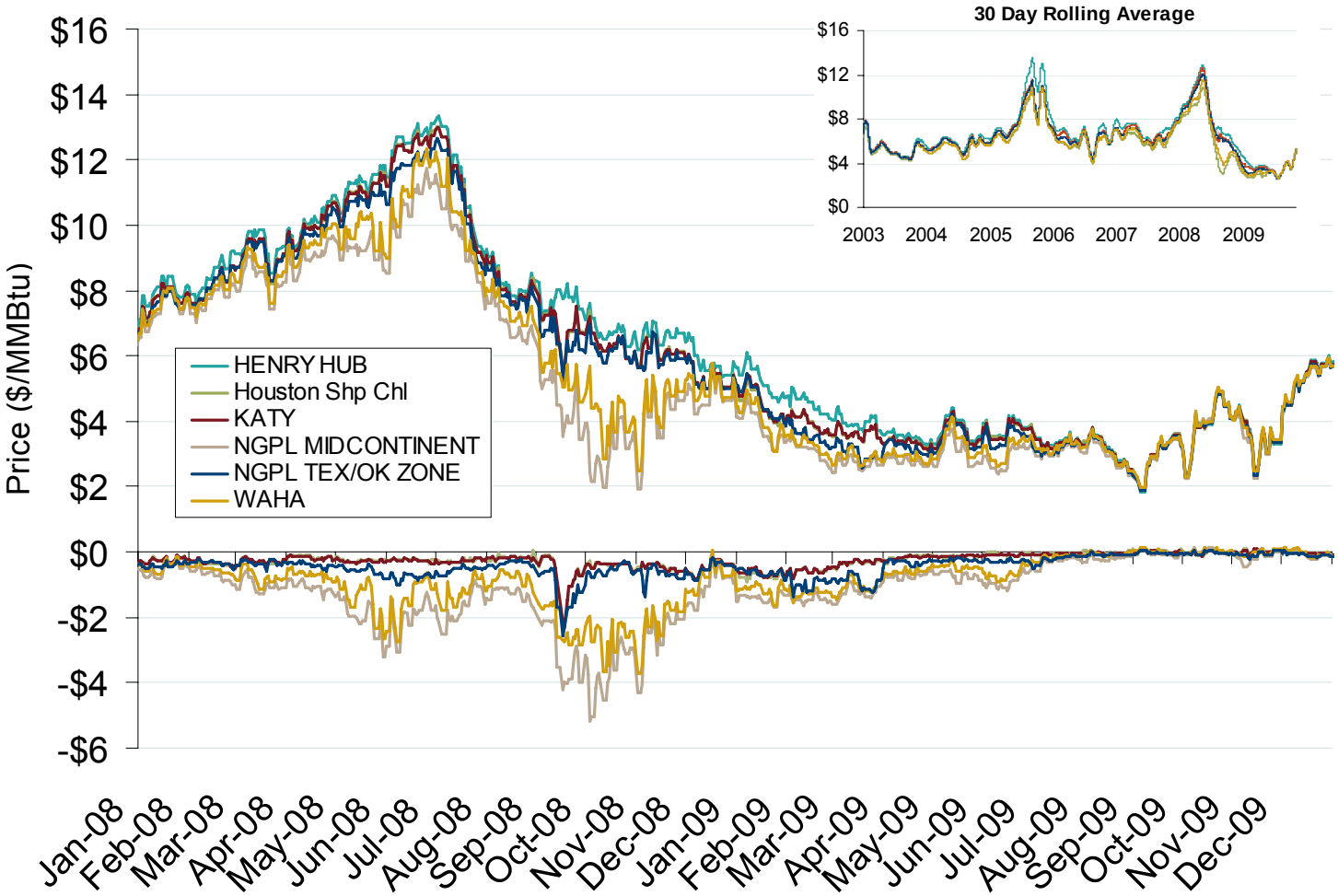


Source: Derived from *Platts* data.

Updated January 8, 2010

2016

Gulf Day-Ahead Hub Spot Prices and Basis

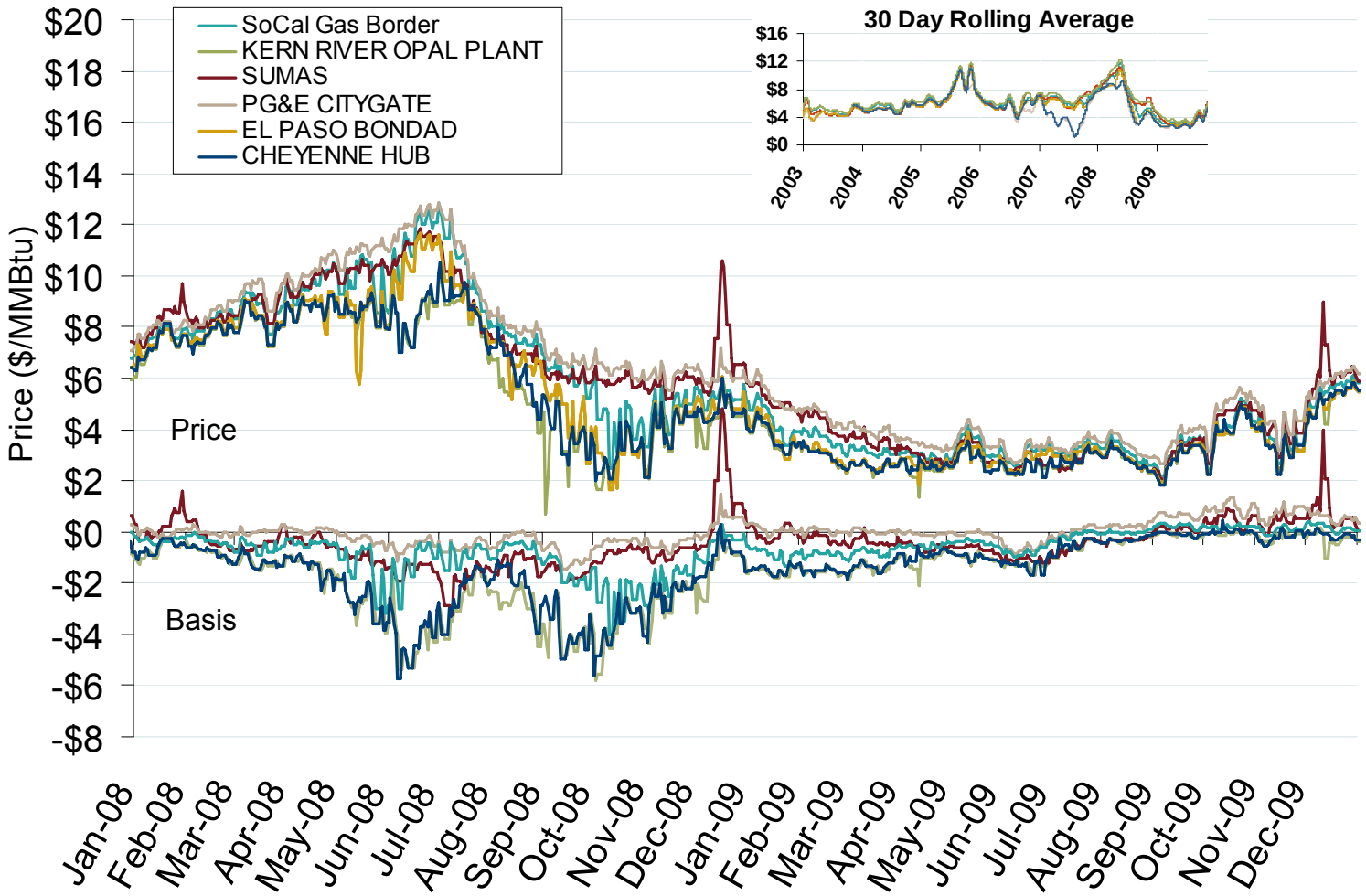


Source: Derived from *Platts* data.

Updated January 8, 2010

2044

Western Day-Ahead Hub Spot Prices and Basis

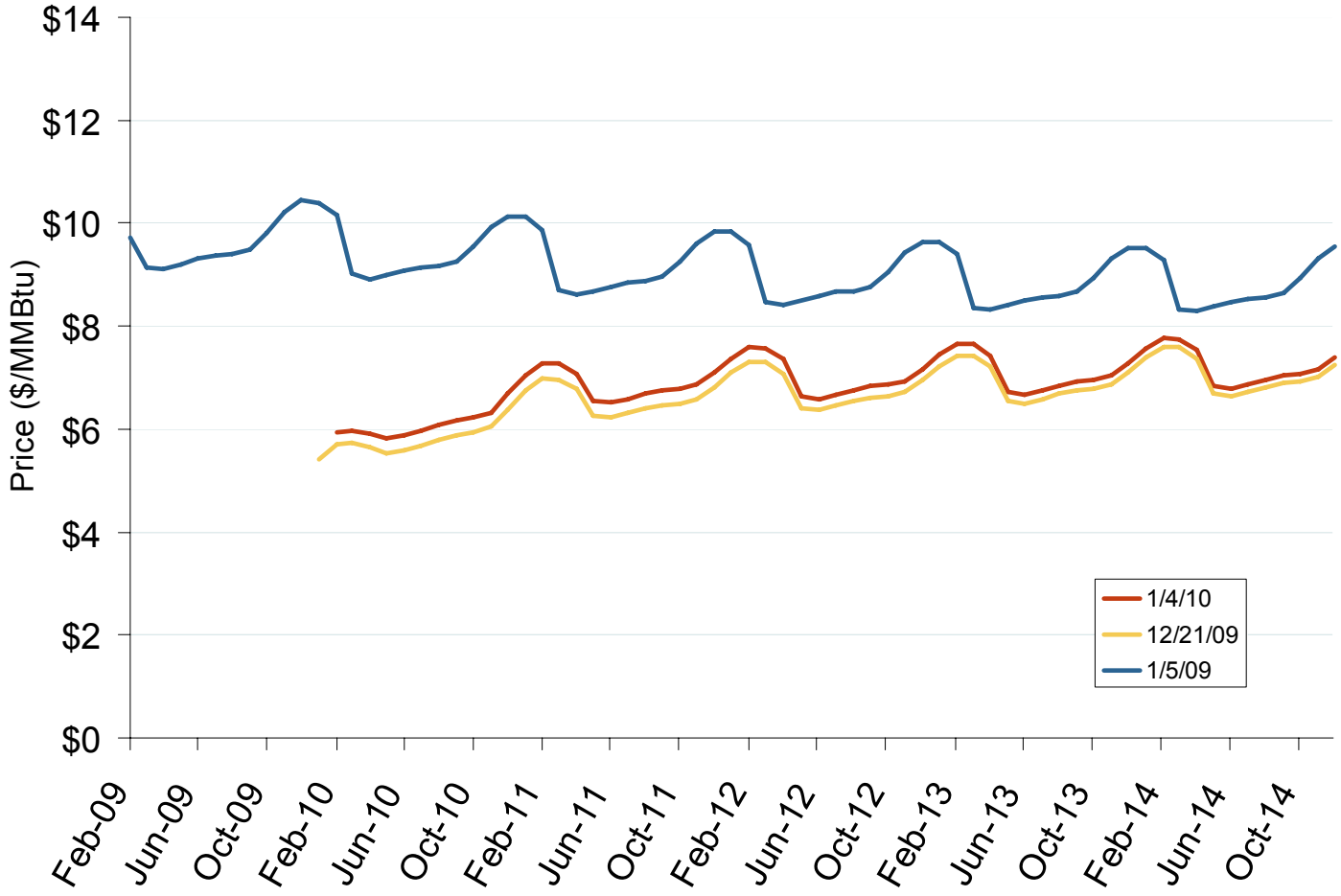


Source: Derived from *Platts* data.

Updated January 8, 2010

2072

NYMEX Natural Gas Forward Price Curve



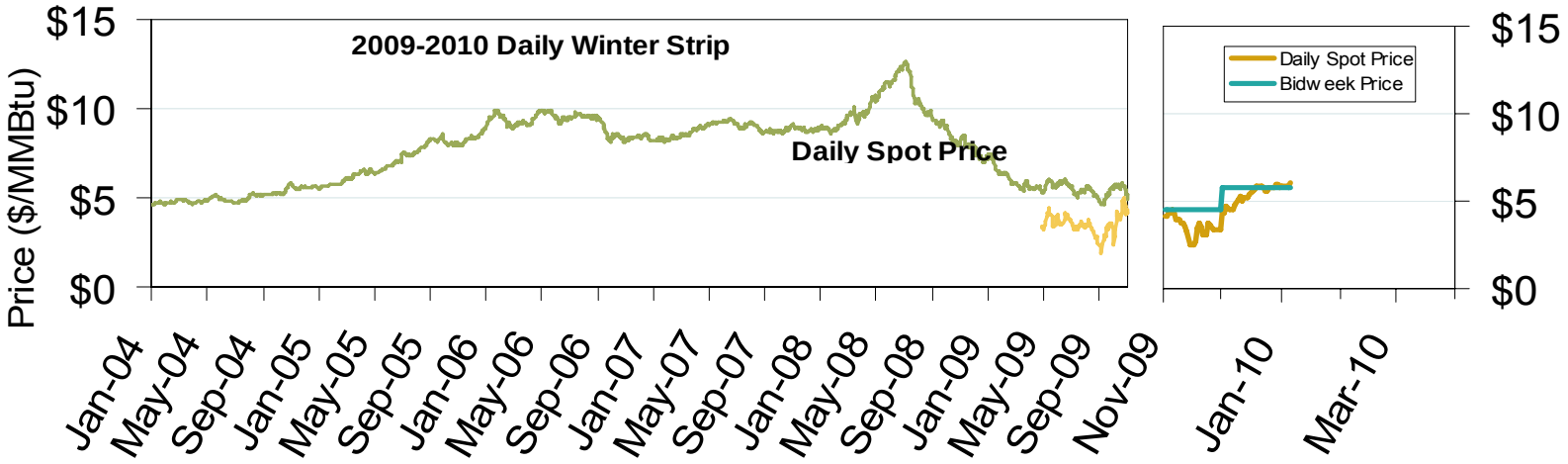
The NYMEX futures contract trades in 10,000 million Btu units. The blue series shows the forward price curve for these contracts 1-year ago. The red and yellow curves show prices for contracts traded on the current and previous months.

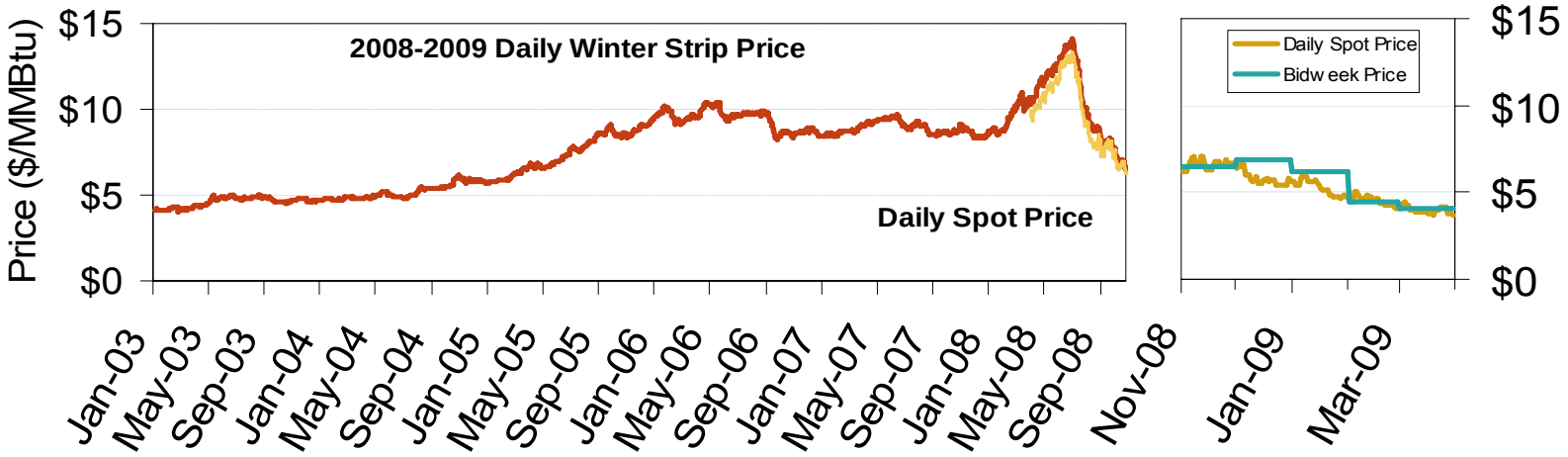
Source: Derived from *NYMEX* data.

Updated January 8, 2010

2009

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



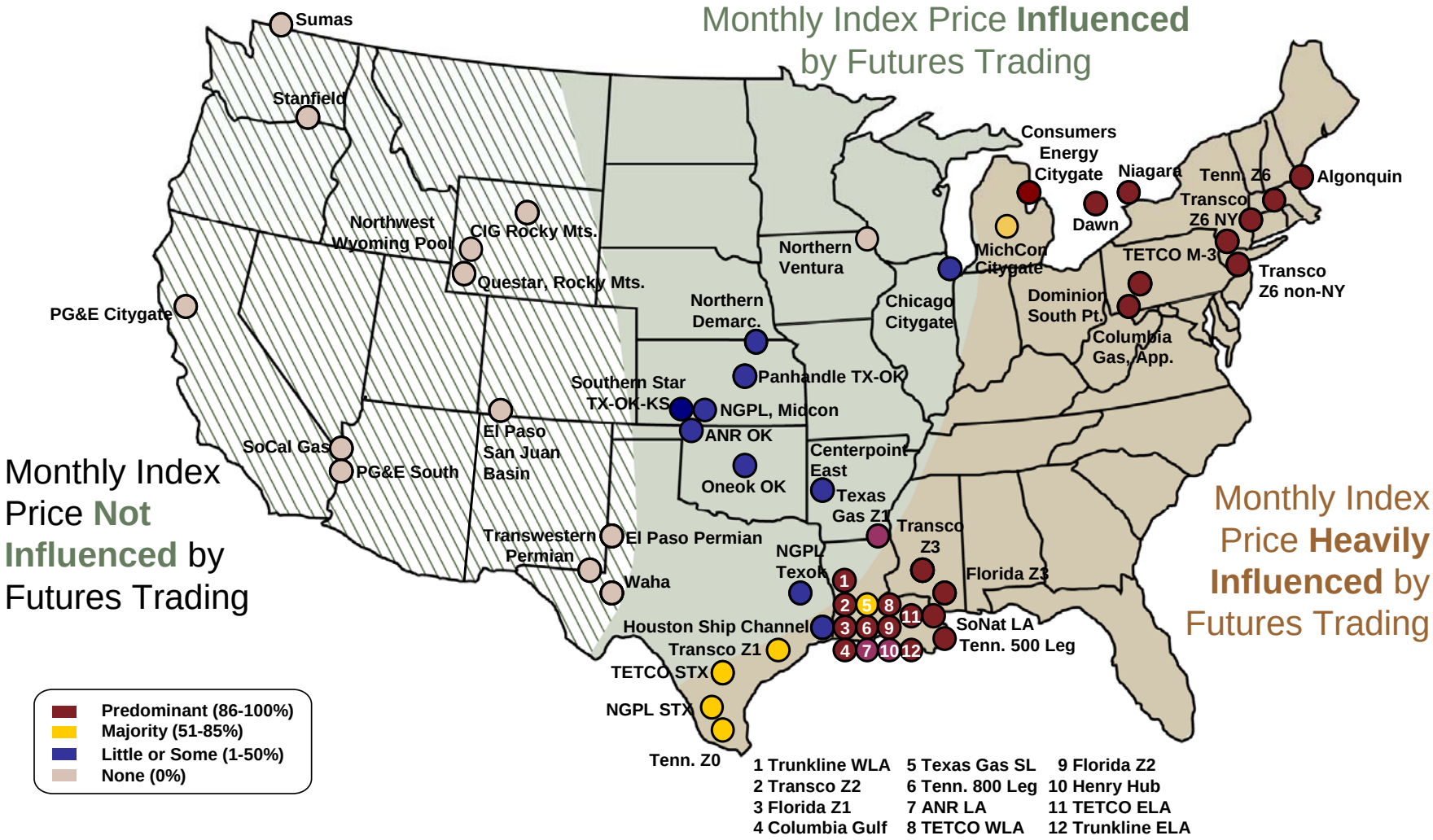


Source: Derived from *Platts* and *Nymex* data.

Updated January 8, 2010

2158

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

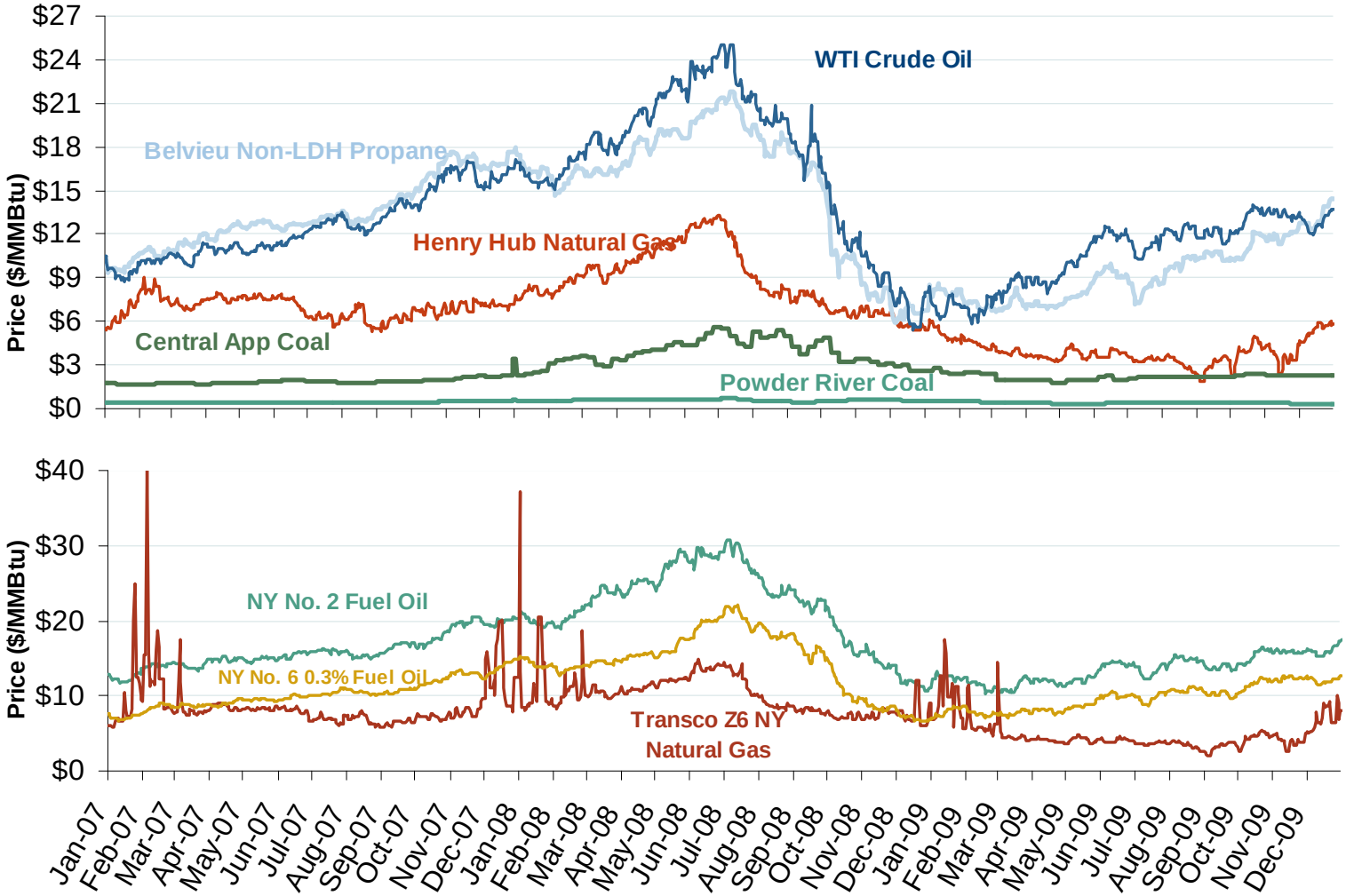


Source: Derived from *Platts* data for January through June 2009 indices.

Updated June 9, 2009

2167

Oil, Coal, Natural Gas and Propane Daily Spot Prices



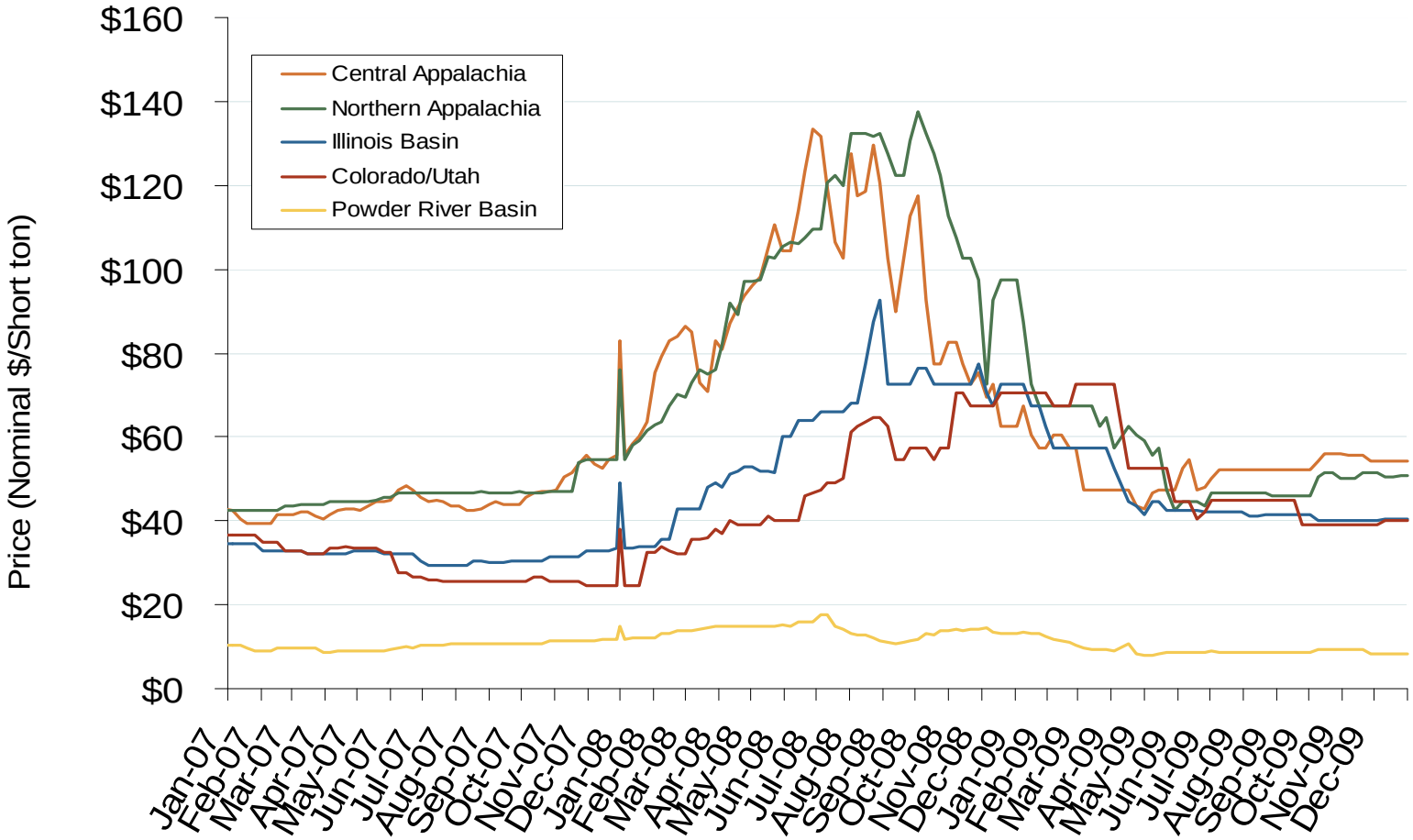
Source: Derived from *ICE* and *Bloomberg* data.

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 January 8, 2010

3001

Regional Coal Spot Prices



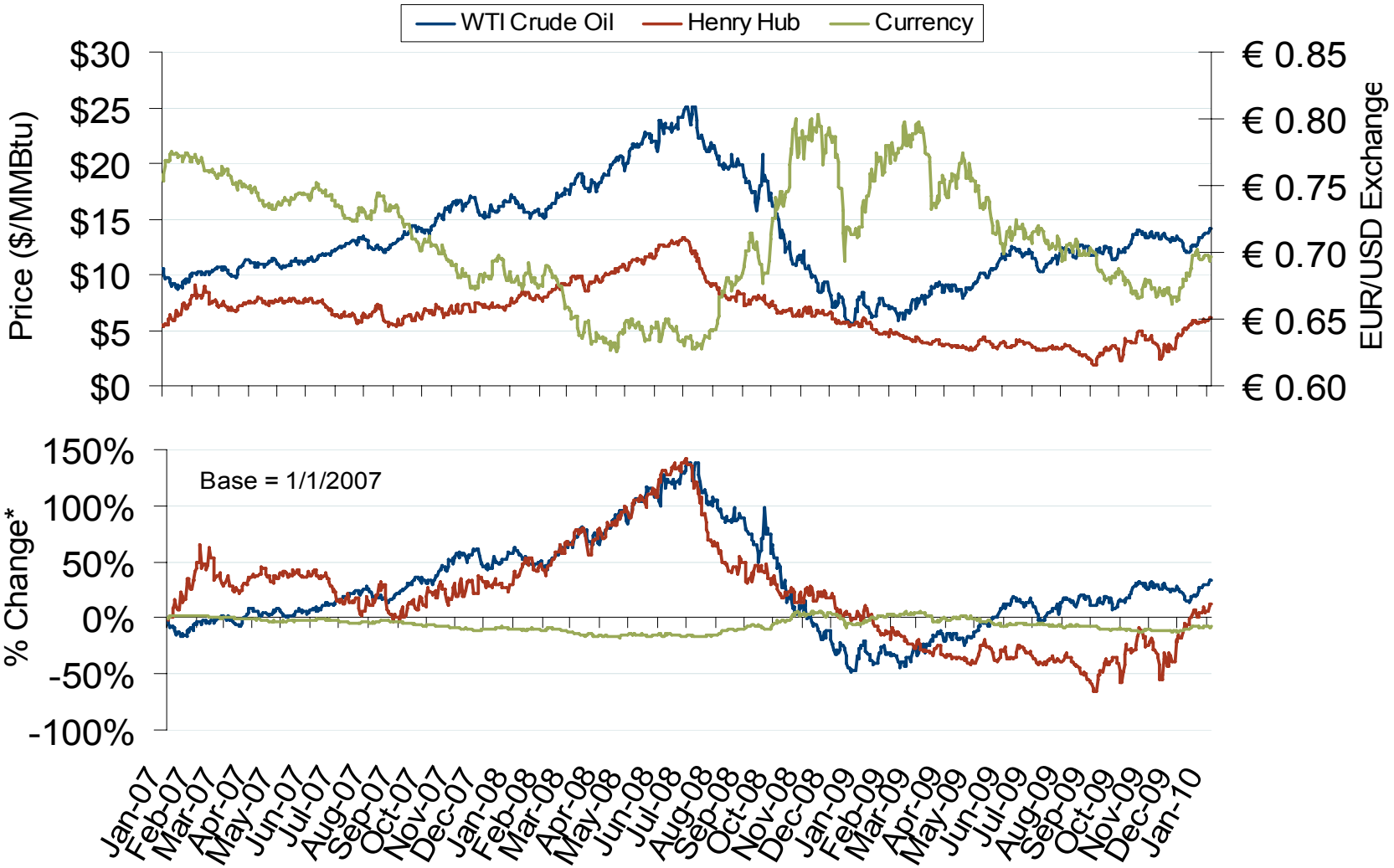
Note: the Central Appalachian (CAPP) coal is priced at Big Sandy. All others are mine mouth prices. Prices do not include transportation costs to a plant, as those can vary widely by contract specifications. Prices exclude incremental cost of emissions allowances.

Source: Derived from *Bloomberg* data.

Updated January 8, 2010

3002

Oil, Natural Gas and Currency Spot Prices

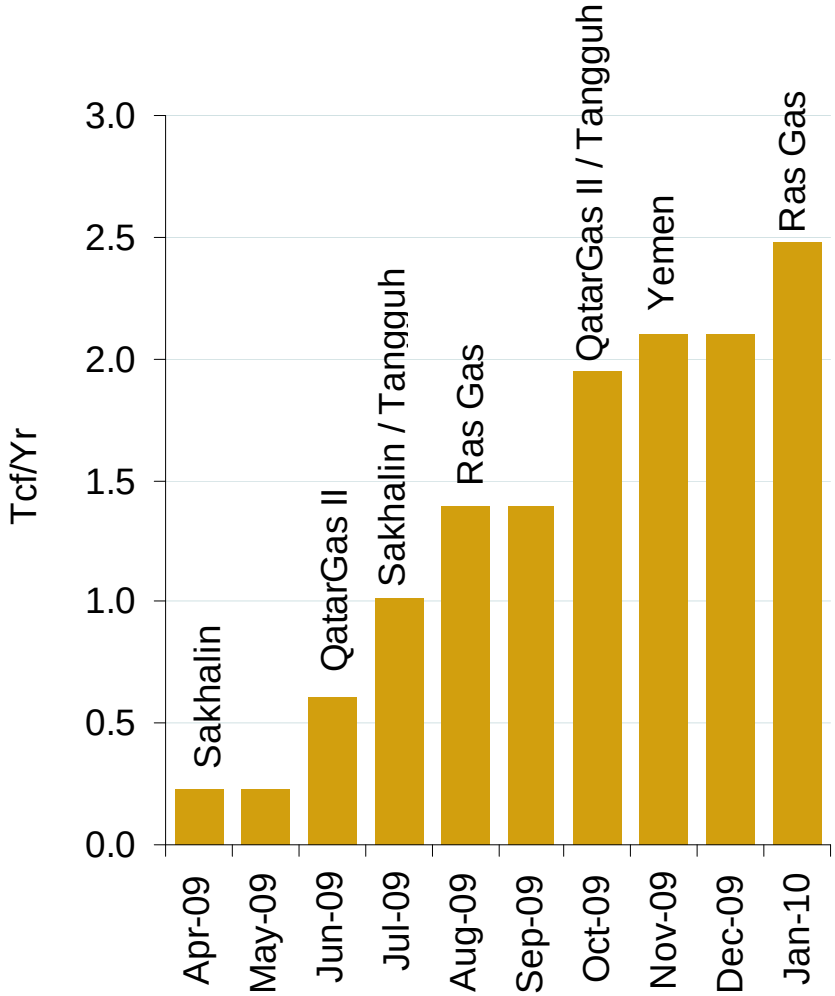


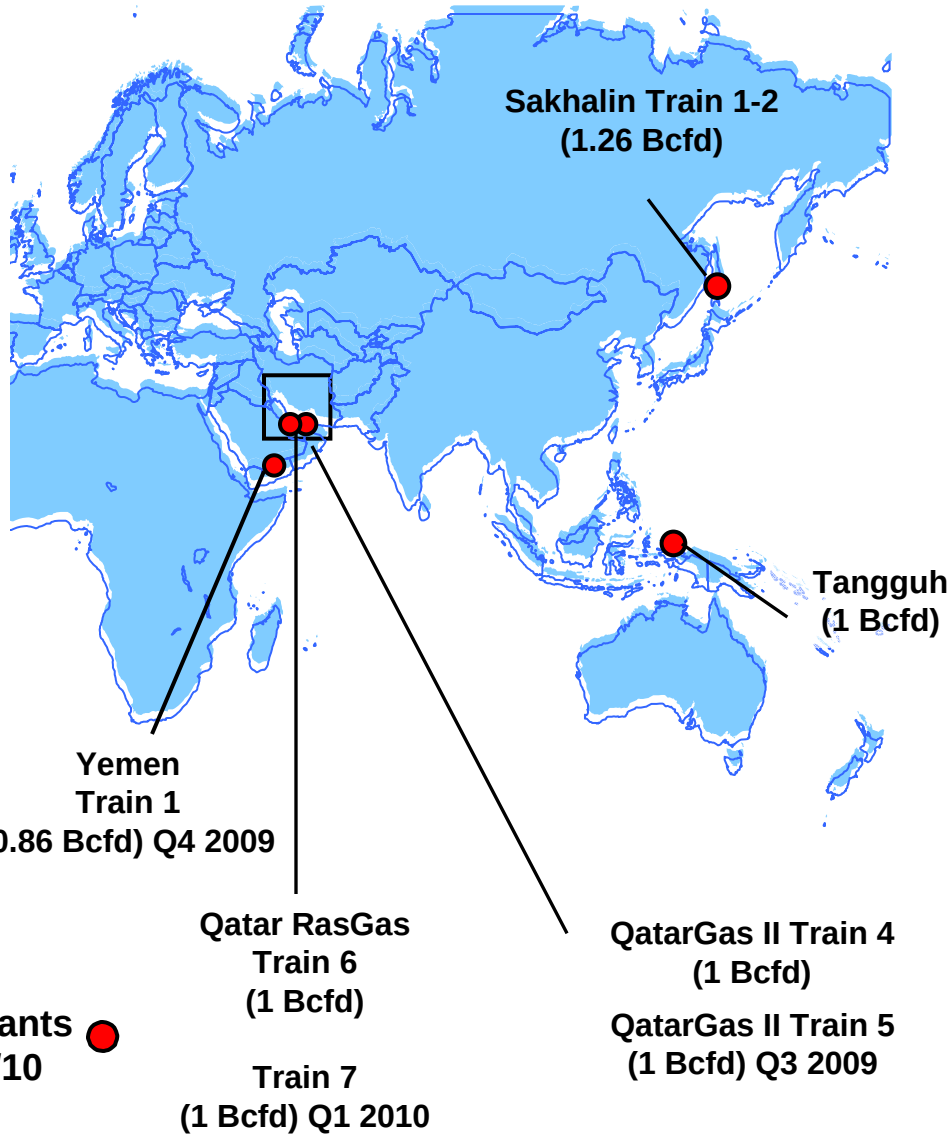
Source: Derived from *Bloomberg* data.

Updated January 8, 2010

3009

Cumulative Liquefaction Additions

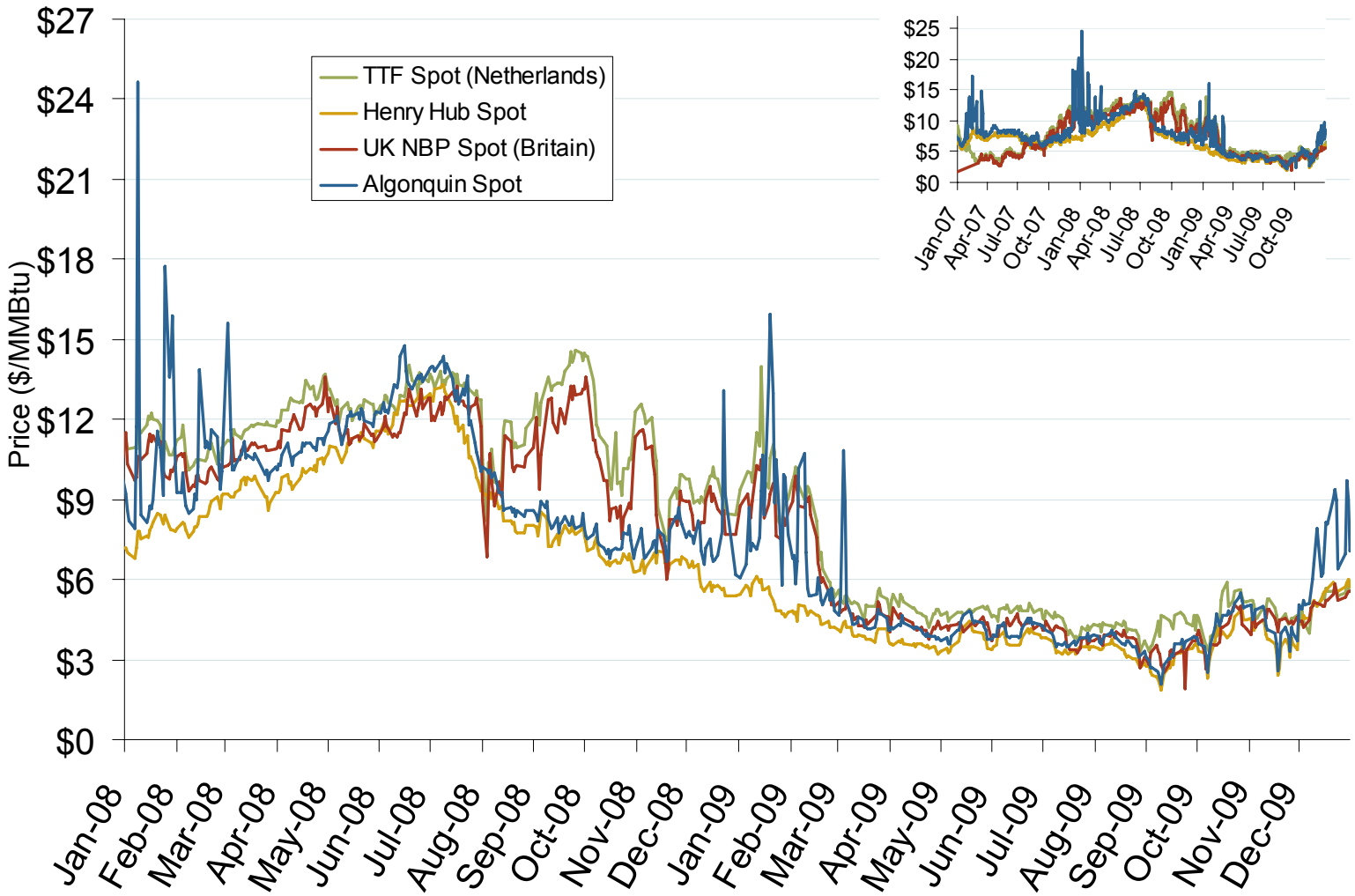




New Liquefaction Plants Due Onstream 2009/10

Source: Waterborne LNG

Atlantic Basin European and US Spot Natural Gas Prices



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

Updated January 8, 2010

3008

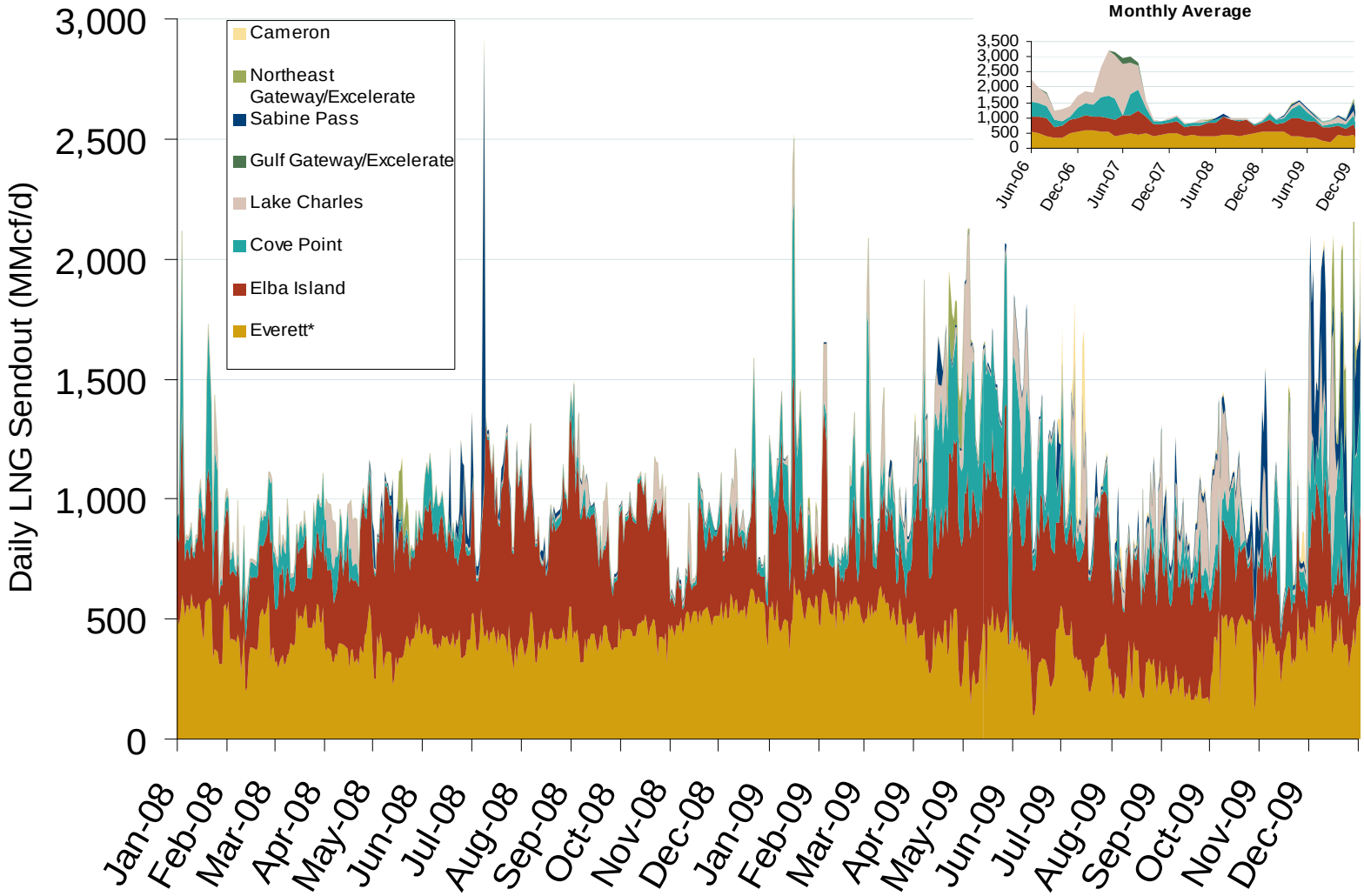
World LNG Estimated January 2010 Landed Prices

Source: *Waterborne Energy, Inc.* Data in $US/MMBtu.

Updated January 8, 2010

3024

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 January 8, 2010

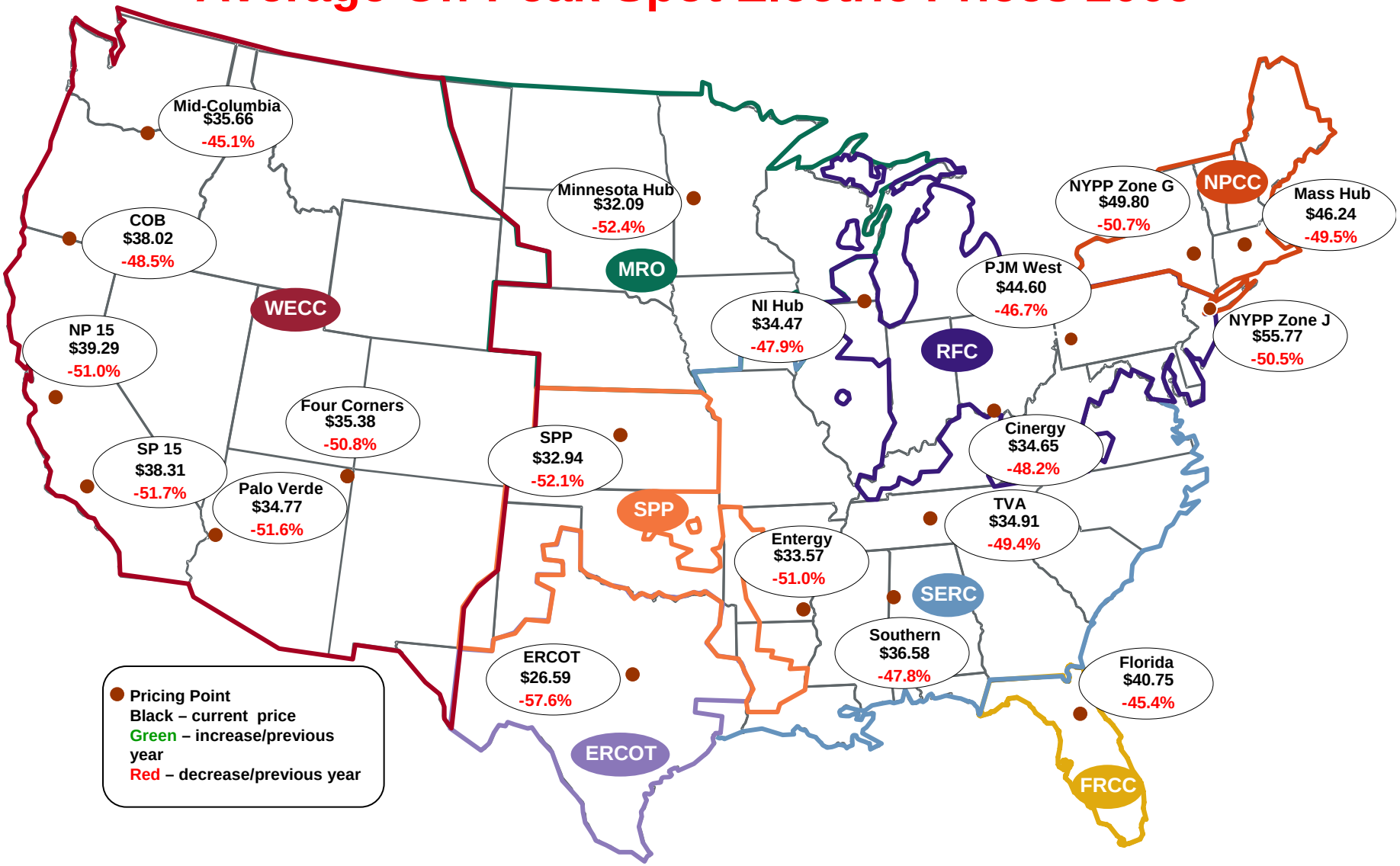
3007

Electricity Markets

Electric Market Overview: On-Peak Spot Electric Prices

Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

Average On-Peak Spot Electric Prices 2009



Source: Derived from *Platts* data.

Updated January 8, 2010

1207

Regional Spot Prices: 2007-2009

	On-peak Spot Prices					Off-peak Spot Prices				
	2007	2008	2009	% Change 07-08	% Change 08-09	2007	2008	2009	% Change 07-08	% Change 08-09
Northeast										
Mass Hub	77.39	91.55	46.24	18.3%	-49.5%	54.73	66.50	34.57	21.5%	-92.4%
Ny Zone G*	83.51	100.99	49.80	20.9%	-50.7%		67.32	34.14		-97.2%
NY Zone J*	94.15	112.63	55.77	19.6%	-50.5%		70.29	35.25		-99.4%
NY Zone A*	64.02	68.34	35.54	6.7%	-48.0%		50.68	27.98		-81.1%
PJM West	71.15	83.70	44.60	17.6%	-46.7%	42.23	51.21	31.68	21.3%	-61.6%
Southeast										
VACAR	60.52	70.86	36.42	17.1%	-48.6%	33.67	39.36	25.68	16.9%	-53.2%
Southern	59.10	70.13	36.58	18.7%	-47.8%	33.03	39.82	25.82	20.6%	-54.2%
TVA	60.28	69.01	34.91	14.5%	-49.4%	33.56	38.61	24.69	15.0%	-56.4%
Florida	65.59	74.66	40.75	13.8%	-45.4%	35.80	41.35	28.00	15.5%	-47.7%
Entergy	59.74	68.49	33.57	14.6%	-51.0%	31.88	35.26	21.89	10.6%	-61.1%
Midwest										
Cinergy	61.20	66.88	34.65	9.3%	-48.2%	28.94	31.14	22.15	7.6%	-40.6%
Michigan Hub	64.43	69.15	36.56	7.3%	-47.1%	31.04	31.81	22.97	2.5%	-38.5%
Minnesota Hub	72.32	67.46	32.09	-6.7%	-52.4%	29.32	25.76	14.19	-12.1%	-81.6%
NI Hub	58.93	66.13	34.47	12.2%	-47.9%	29.32	31.24	19.49	6.5%	-60.3%
Illinois Hub	59.88	62.52	31.36	4.4%	-49.8%	27.40	26.29	17.44	-4.1%	-50.7%
MAPP South	61.18	69.18	33.31	13.1%	-51.9%	30.80	34.00	20.78	10.4%	-63.6%
South Central										
SPP North	60.21	68.77	32.94	14.2%	-52.1%	31.24	33.66	20.36	7.7%	-65.4%
ERCOT	58.27	62.78	26.59	7.7%	-57.6%	38.83	38.36	17.44	-1.2%	-119.9%
Southwest										
Four Corners	63.21	71.84	35.38	13.7%	-50.8%	40.19	49.40	23.76	22.9%	-107.9%
Palo Verde	61.74	71.87	34.77	16.4%	-51.6%	41.94	52.16	24.26	24.4%	-115.0%
Mead	64.49	75.63	36.58	17.3%	-51.6%	44.15	54.90	26.34	24.3%	-108.4%
Northwest										
Mid-C	56.57	65.00	35.66	14.9%	-45.1%	44.00	53.70	28.24	22.0%	-90.2%
COB	62.14	73.86	38.02	18.9%	-48.5%	46.38	55.81	29.22	20.3%	-91.0%
California										
NP15	66.59	80.14	39.29	20.3%	-51.0%	47.10	59.22	28.66	25.7%	-106.6%
SP15	66.48	79.36	38.31	19.4%	-51.7%	46.76	57.86	26.64	23.7%	-117.2%

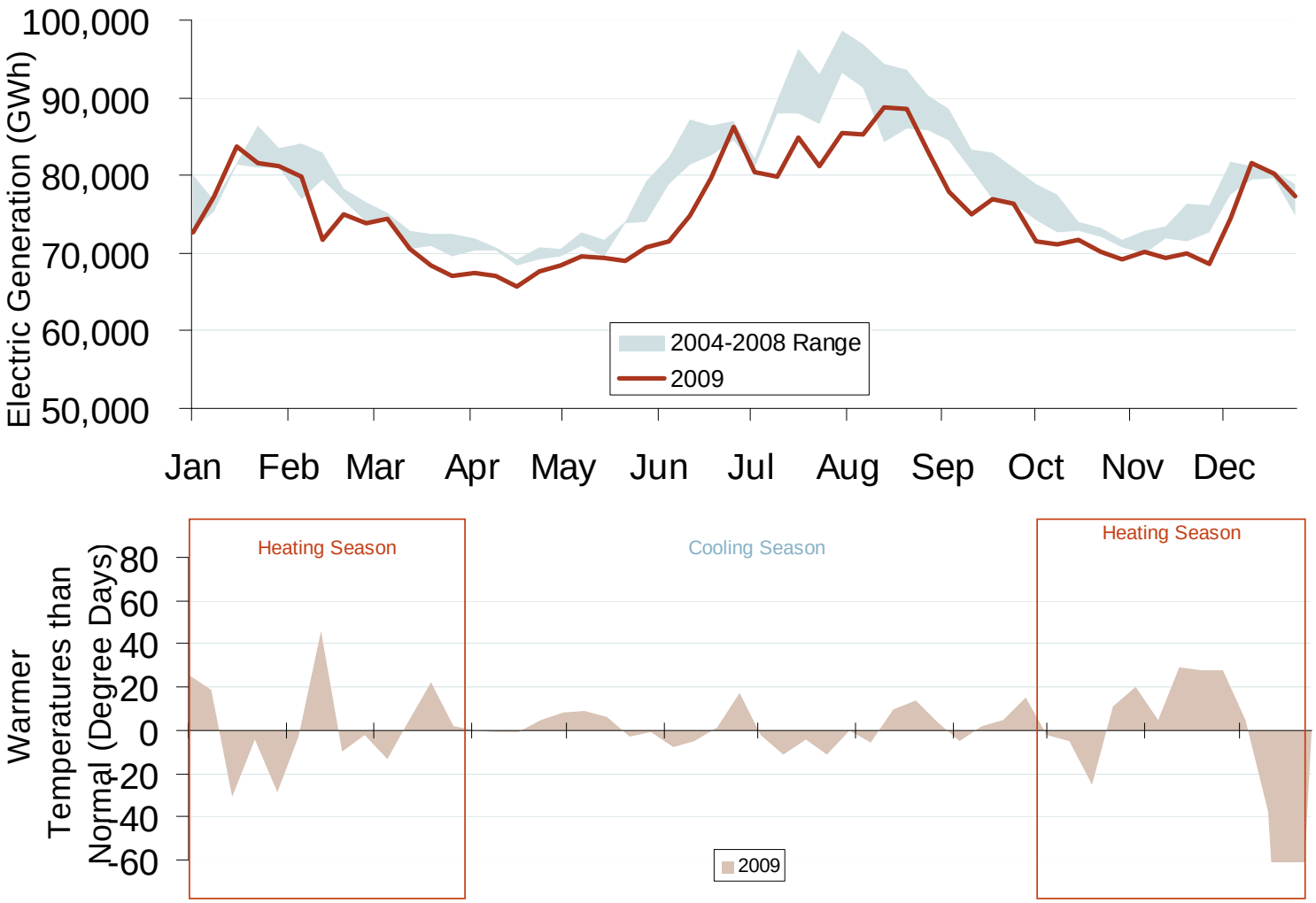
Note: * Off Peak as of April 2, 2007.

Source: Derived from *Platts* data.

Updated January 8, 2010

1208

Weekly U.S. Electric Generation Output and Temperatures

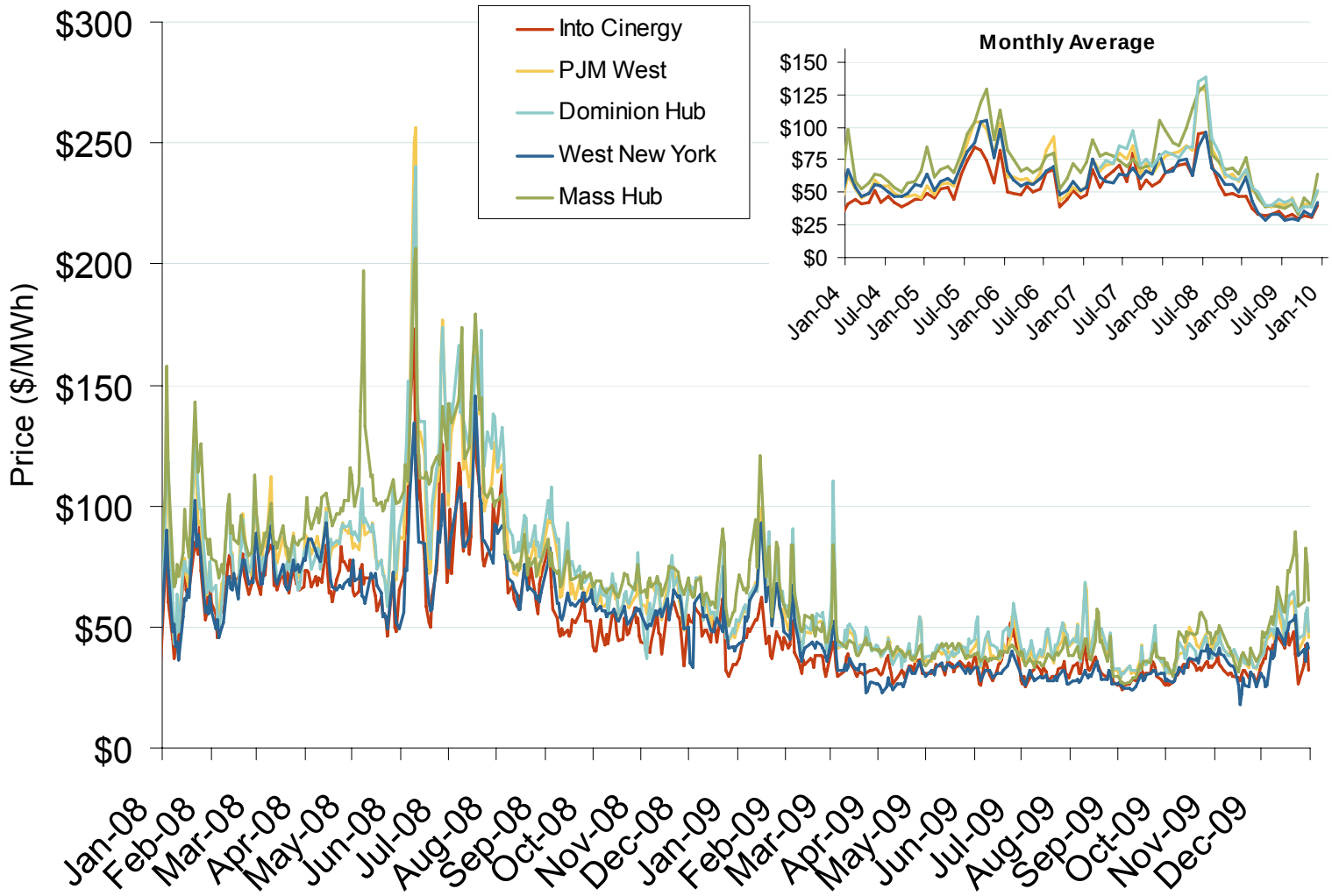


Source: Derived from *EEI* and *NOAA* data.

Updated January 8, 2010

1110

Eastern Daily Bilateral Day-Ahead On-Peak Prices

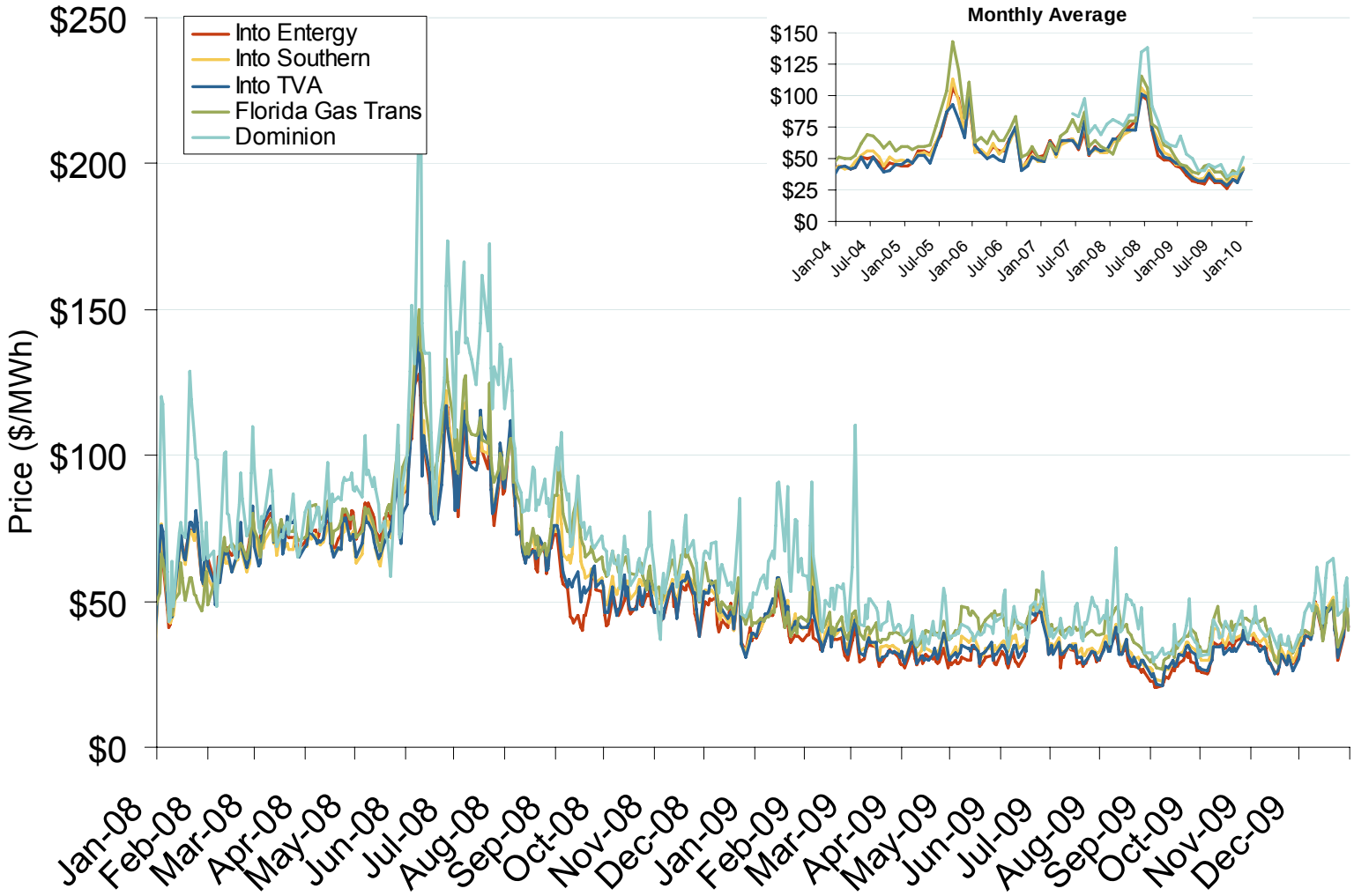


Source: Derived from *Platts* data.

Updated January 8, 2010

1014

Southeastern Daily Bilateral Day-Ahead On-Peak Prices

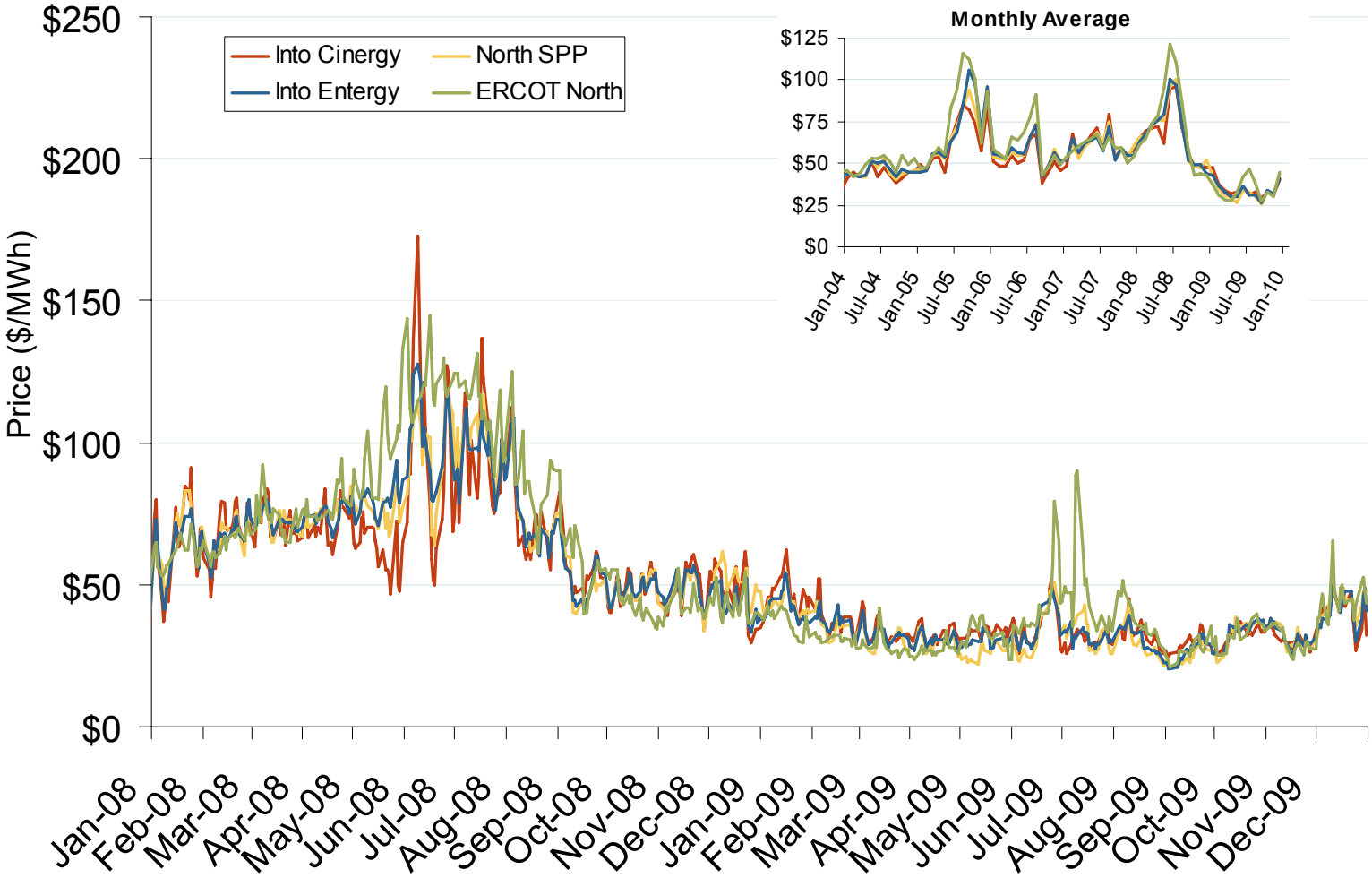


Source: Derived from *Platts* data.

Updated January 8, 2010

1059

Central Daily Bilateral Day-Ahead On-Peak Prices

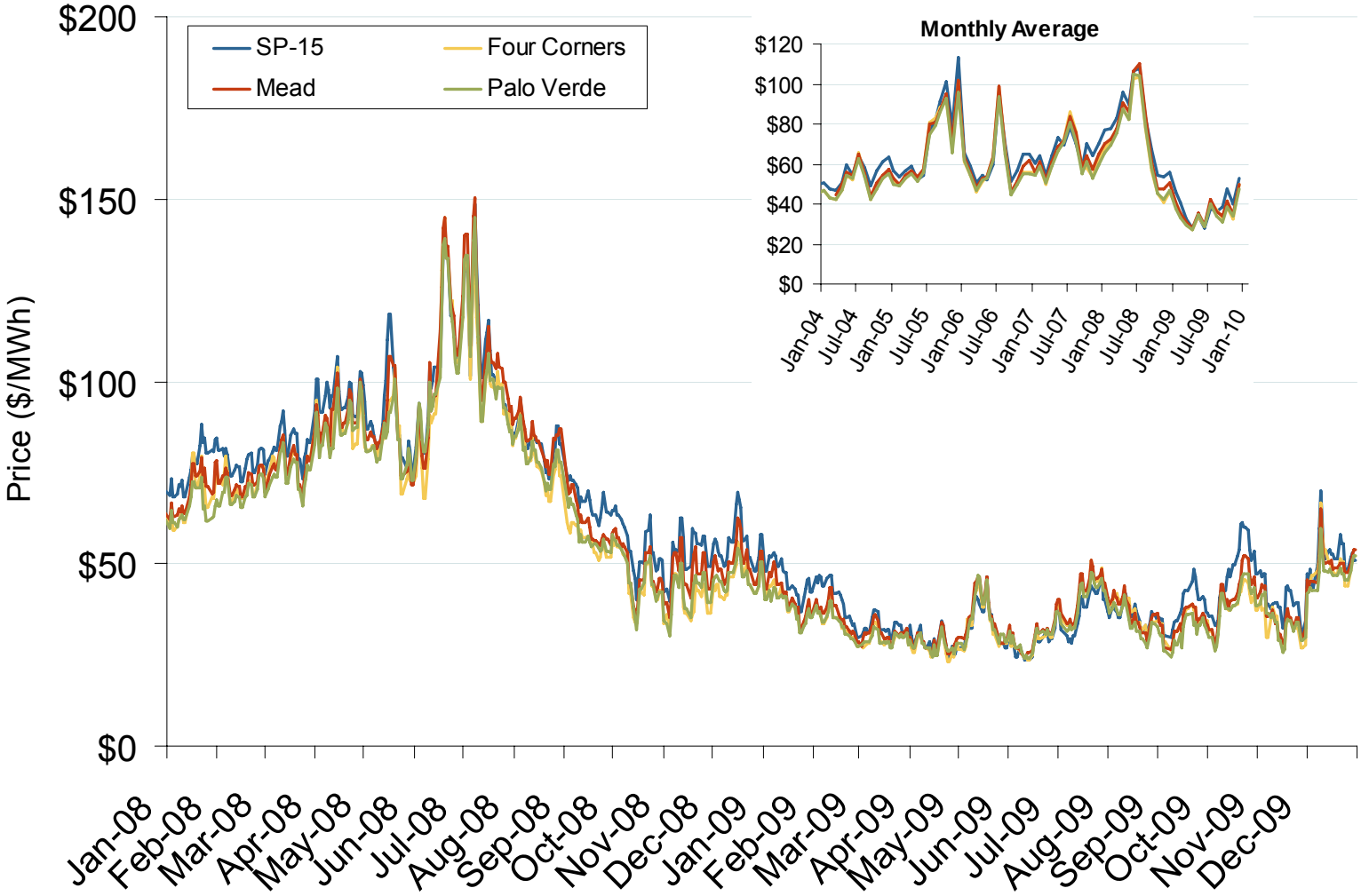


Source: Derived from *Platts* data.

Updated January 8, 2010

1073

Southwestern Daily Bilateral Day-Ahead On-Peak Prices

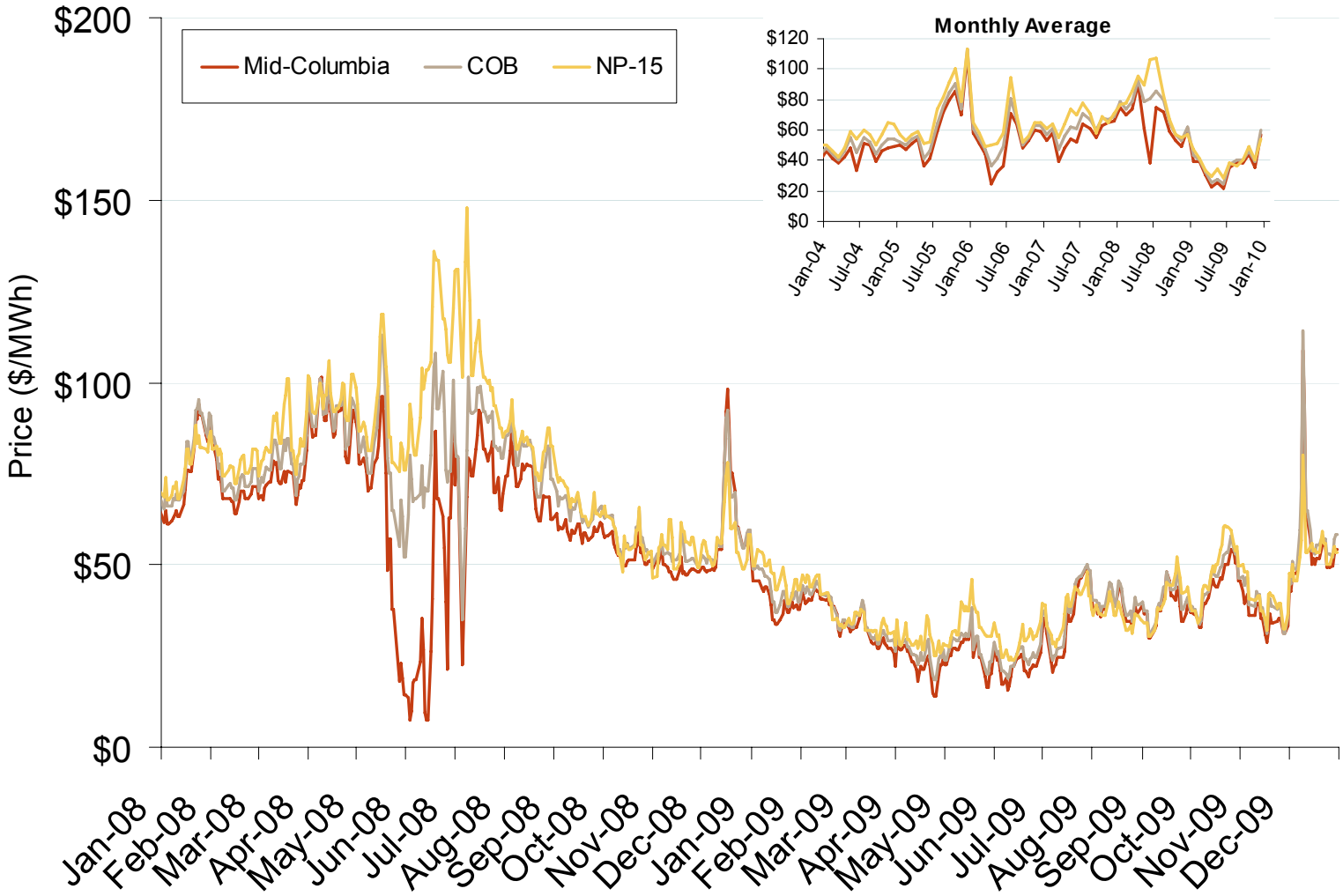


Source: Derived from *Platts* data.

Updated January 8, 2010

1066

Northwestern Daily Bilateral Day-Ahead On-Peak Prices



Source: Derived from *Platts* data.

Updated January 8, 2010

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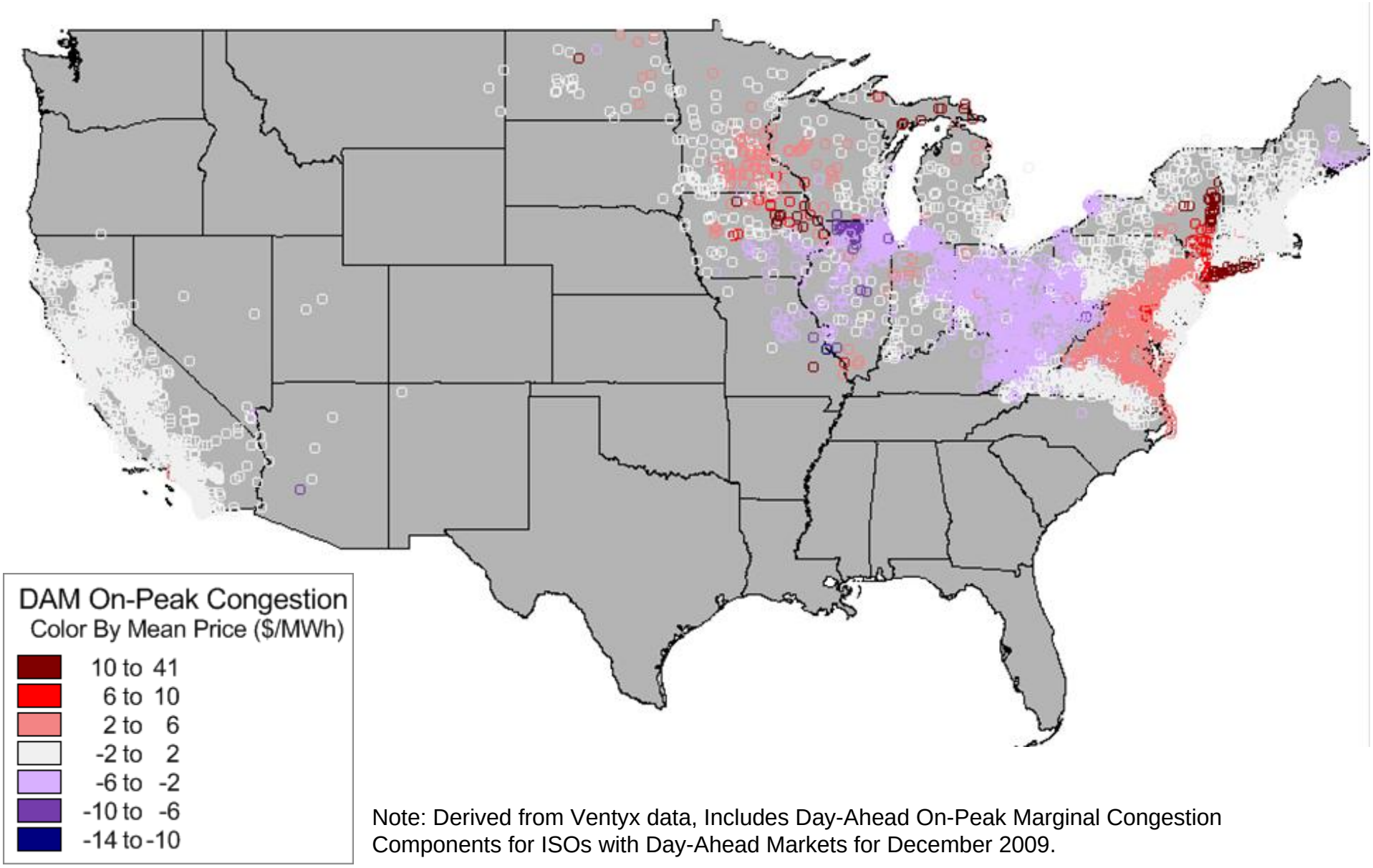
RTO Congestion Map Illuminates FTRs



Note: Derived from Ventyx data, Includes Day-Ahead On-Peak Marginal Congestion Components for ISOs with Day-Ahead Markets for December 2009.

Collaborative Greenhouse Gas (GHG) Programs

Collaborative Regional GHG Programs:

- Three North American groups with goals to lower regional GHG emissions were initiated by state Governors.
- 32 U.S. states, D.C., eight Canadian provinces, and six Mexican states are Participants or Observers.
- Observer jurisdictions do not commit to group GHG reduction goals, but participate in proceedings should they opt to join later. RGGI Observers are not on its Board.

Western Climate Initiative (WCI):

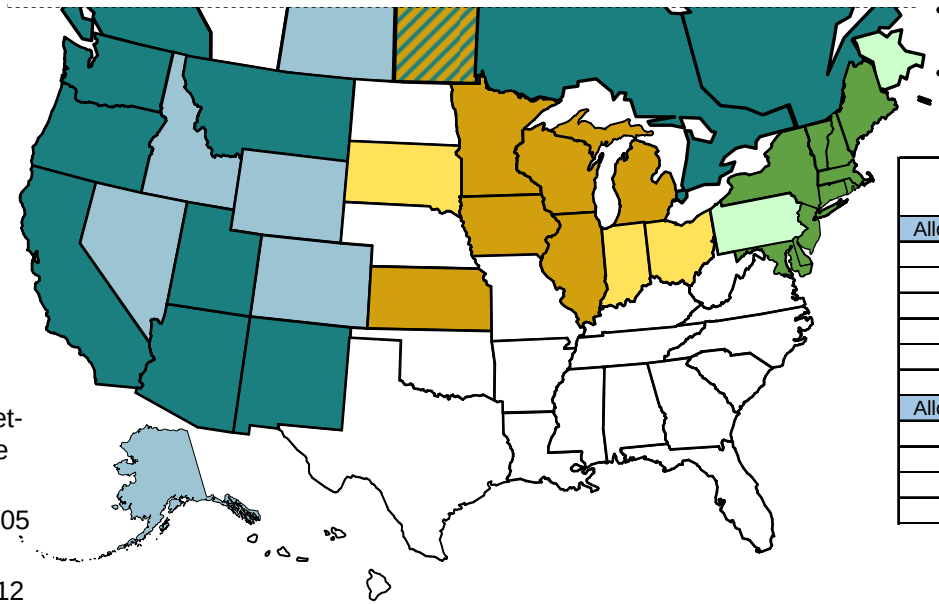
- Created February 2007
- Partners: 7 states, 4 provinces; Observers: 5 states, 1 province
- Announced its design for a market-based, *multi-sector* cap-and-trade program, Sept 2008:
  - 15% CO_2 reduction below 2005 levels by 2020
  - Phase I to take effect Jan 2012

Midwest Greenhouse Gas Reduction Accord:

- Established November 2007
- Participants: 6 states, 1 province; Observers: 3 states, 1 province
- Preliminary design recommendations issued Dec 2008: 15 - 25% reductions by 2020, 60 - 80% by 2050

Regional Greenhouse Gas Initiative (RGGI):

- Compliance period began Jan 1, 2009
- Participants: 10 states Observers: 1 state, D.C., 3 provinces
- Market-based cap-and-trade effort to reduce *power-sector* CO_2 emissions.
- 10% CO_2 reduction by 2018 covers over 200 plants
- One allowance is the right to emit 1 ton of CO_2
- Annual RGGI cap is 188 million tons



RGGI Auction Data

Auction Date	Allowances Sold (M)	Clearing Price	Revenue (M)
Allocation Year 2009			
9/25/2008	12.6	$3.07	$38.7
12/17/2008	31.5	$3.38	$106.5
3/18/2009	31.5	$3.51	$110.6
6/17/2009	30.9	$3.23	$99.8
9/9/2009	28.4	$2.19	$62.2
12/2/2009	28.6	$2.05	$58.6
Allocation Year 2012			
3/18/2009	2.2	$3.05	$6.7
6/17/2009	2.2	$2.06	$4.5
9/9/2009	2.2	$1.87	$4.1
12/2/2009	1.6 / 2.2	$1.86	$3.0

- Participant in WCI
- Observer to WCI
- Participant in MGGRA
- Observer to MGGRA
- Participant in RGGI
- Observer to RGGI
- Participant in MGGRA & WCI

Updates at: http://www.ferc.gov/market-oversight/othr-mkts/emiss-allow/othr-emns-ovr-ghg.pdf

Notes: Kansas is a MGGRA participant and WCI observer. Ontario and Quebec are Partners to WCI and Observers to RGGI; Ontario is also an observer to RGGI.
Sources: regional initiatives - www.rggi.org, www.midwesternaccord.org, www.westernclimateinitiative.org, Point Carbon, analyst reports, trade press

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Collaborative Greenhouse Gas Programs

National Energy and Environment Update:

- Senator Kerry and Boxer introduced the Senate version of the American Clean Energy and Security act of 2009. Major differences from H.R. 2454 include:
  - More aggressive reductions in emissions 20% below 2005 levels by 2020 using cap-and-trade instead of 17%.
  - Bill is silent on emissions allowances given to industry
  - At least give other Senate committees are expected to contribute to the bill

RGGI launches offset module:

- Offset projects can now be registered and tracked in the RGGI CO2 Allowance Tracking System (RGGI-COATS).
- Projects must open a RGGI-COATS account and obtain a project ID, register the project in their home state, and then complete the project verification process.

RGGI Auctions:

- Auction 6 conducted on December 2, 2009 raising $61.6 million for energy efficiency, renewable energy, and other consumer-benefit programs in participating states.
- Participant states are: CT, DE, ME, MD, MA, NH, NJ, NY, RI, VT.
- RGGI has raised a total of $494.7 M to date
- RGGI states auctioned all 28.6 M of the offered allowances for the 2009 vintage and 1.6 of the 2.2 M offered for the 2012 vintage.
- This was the first RGGI auction that failed to sell out.
- 2009 allowances cleared at $2.05 per allowance, down from the $2.19 price of Auction 5.
- 2012 allowances cleared at $1.86 per allowance, the minimum floor price set by RGGI.
- Auction 7 is scheduled for March 10, 2010.

Abbreviations: CO_2 – Carbon dioxide (emissions); DG - distributed generation; DR - demand response; EE - Energy Efficiency; EPA – U.S. Environmental Protection Agency; GHG - Greenhouse Gases; RECs - Renewable Energy Credits; SF6 – sulfur hexaflouride

Midwest Greenhouse Gas Regional Accord:

- Signed at Midwestern Governors Association (MGA) Energy Summit to establish GHG reduction targets (Nov 2007):
  - Participants: IA,IL, KS, Manitoba, MI, MN, WI
  - Observers: IN, OH, Ontario, SD
- Preliminary recommendations included GHG reduction ranges and multiple sector cap-and-trade. (Dec 2008)
- **Draft Plan and** Recommendations released by MGA stakeholder advisory group (June 8, 2009):
  - **Reductions** from 2005 levels: 18-20% by 2020; 80% by 2050
  - **Trading** will begin in 2012.
  - **Allowances** would transition from low-cost allocation in early years to 100% auction after 9 years. The plan left allocation distribution decisions to participant jurisdictions.
  - **5 sectors** to be covered by cap-and-trade, in proportion to their emissions share are: electricity generation, industrial combustion, industrial process sources, other fuels serving buildings, and transportation fuels.
  - **Offsets** can count towards 20% of compliance, but will be limited initially to projects within participating jurisdictions or those who've signed MOUs with the Accord. "Offsets must be real, additional, verifiable, and enforceable."

Western Climate Initiative (WCI):

- Launched at Western Governors' Association meeting to reduce regional GHG collectively, Feb 2007:
  - Partners: AZ, British Columbia, CA, Manitoba, MT, NM, Ontario, OR, Quebec, UT, WA
  - Observers: AK, CO, ID, KS, NV, Saskatewan, WY
- Initial design released for a market-based, *multi-sector* cap-and-trade program (Sept 2008):
  - Phase I to take effect Jan 2012
  - Phase II to begin 2015; will cover 90% of regional emissions
- Released its **2009 - 2010 Work Plan** (Feb 2009), including primary committee tasks.

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