



# 2003/04 Winter Energy Market Assessment



***November 13, 2003  
Office of Market Oversight and Investigations  
Federal Energy Regulatory Commission***

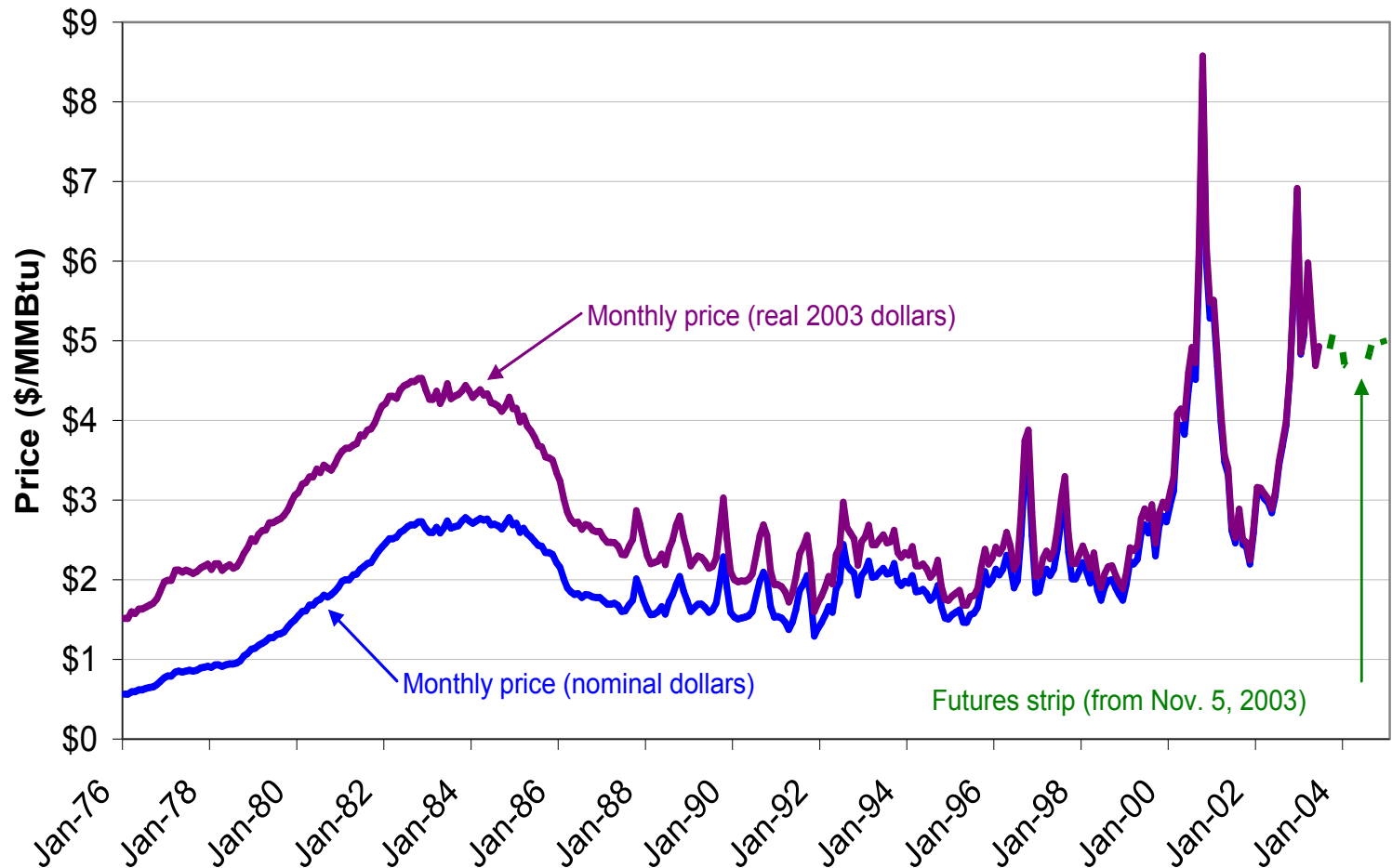


# Progress is being made on issues identified by OMOI in earlier assessments.

Concerns in previous assessments	November 2003 status
Deteriorating financial conditions	\$60 billion of market cap gained by major market participants in 2003 Credit deratings have slowed
Managing credit exposure	More than \$30 billion of stressed debt refinanced (only one company's debt defaulted) Continued credit clearing initiatives with mixed results, reducing capital requirements
Shaken confidence in price discovery	FERC <i>Policy Statement</i> (July 2003) Revised trade press procedures ICE-initiated price reporting
Continuing potential for manipulation	Isolated incidents
Strained natural gas supply	Improved conditions going into the heating season due to record refill of storage



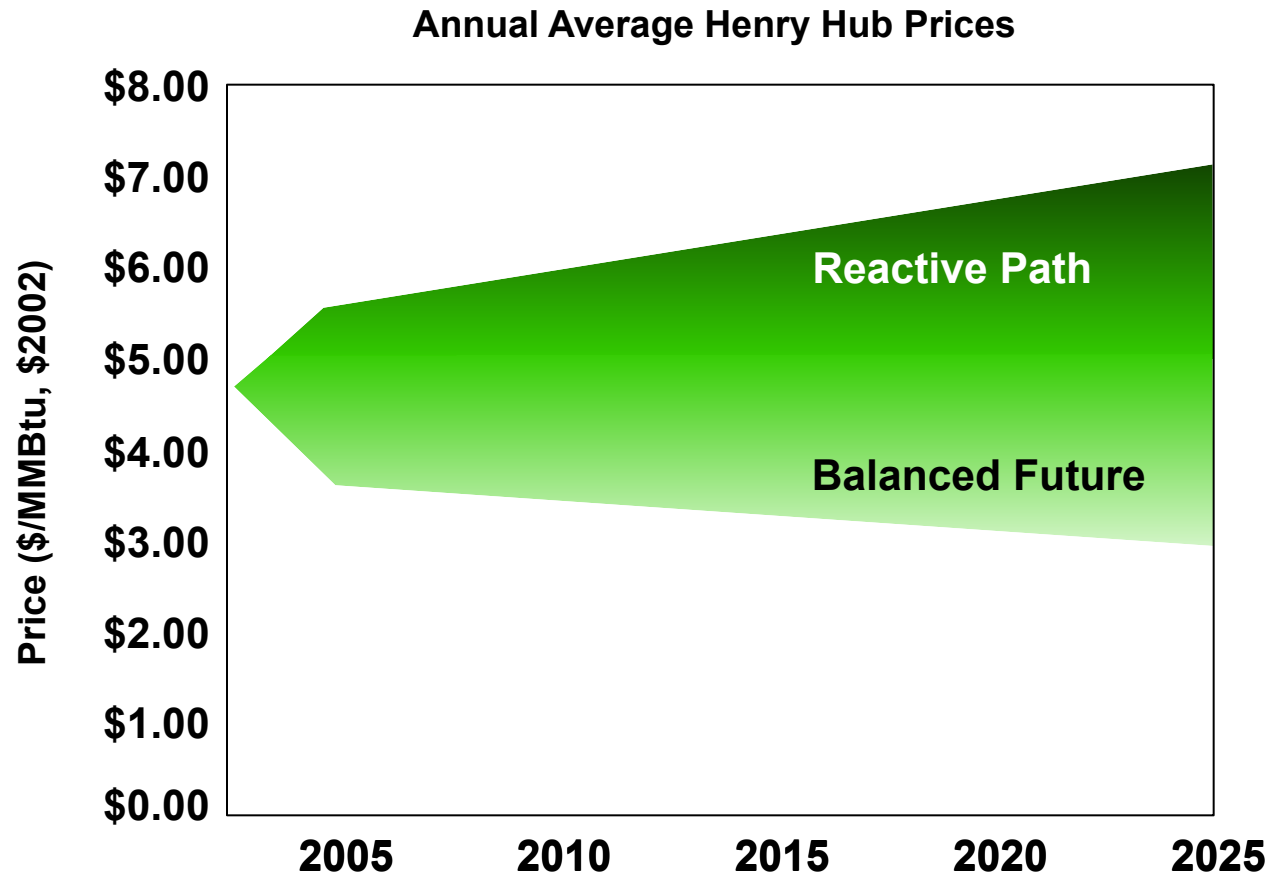
# After a decade of low prices, natural gas prices are now more volatile at a higher level.



Sources: Nymex, EIA and Bureau of Labor Statistics. Data current through May 2003.



# Long-term supply uncertainty keeps up prices— *e.g.*, NPC study shows prices likely to remain high through 2025.

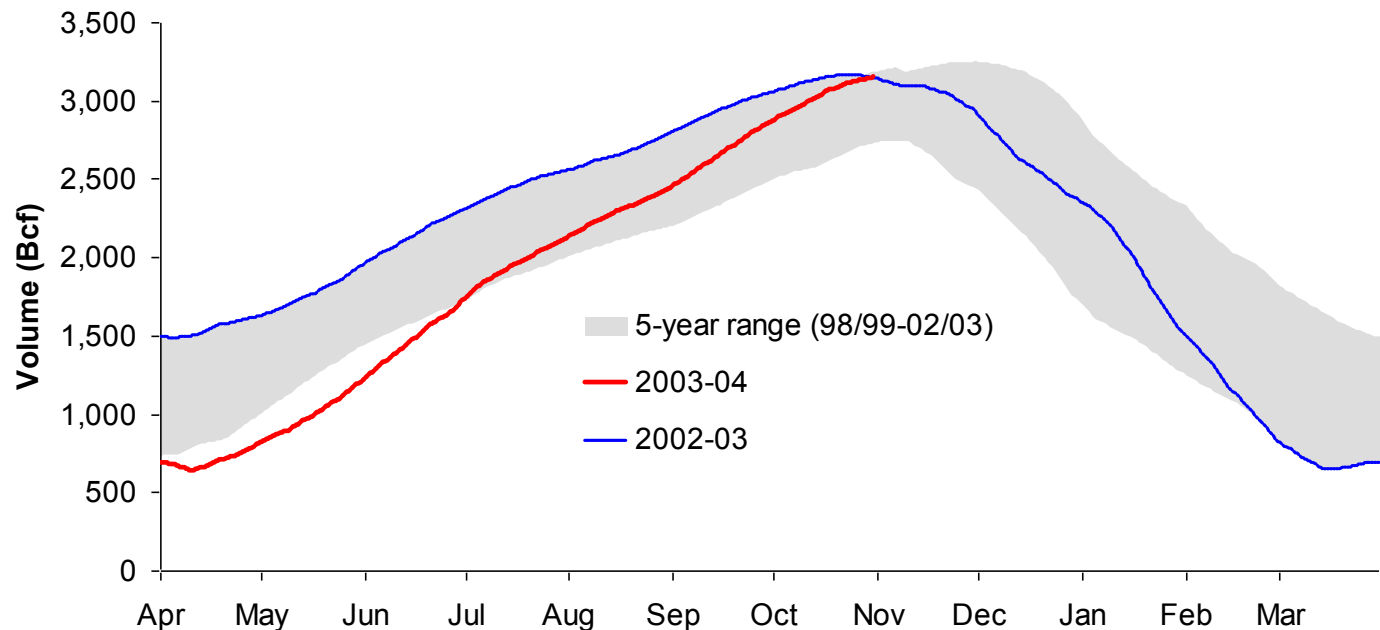


Source: National Petroleum Council, "Balancing Natural Gas Policy: Fueling the Demands of a Growing Economy," September 2003.



# Natural gas storage rebound *significantly* improved the prospects for winter 2003/04.

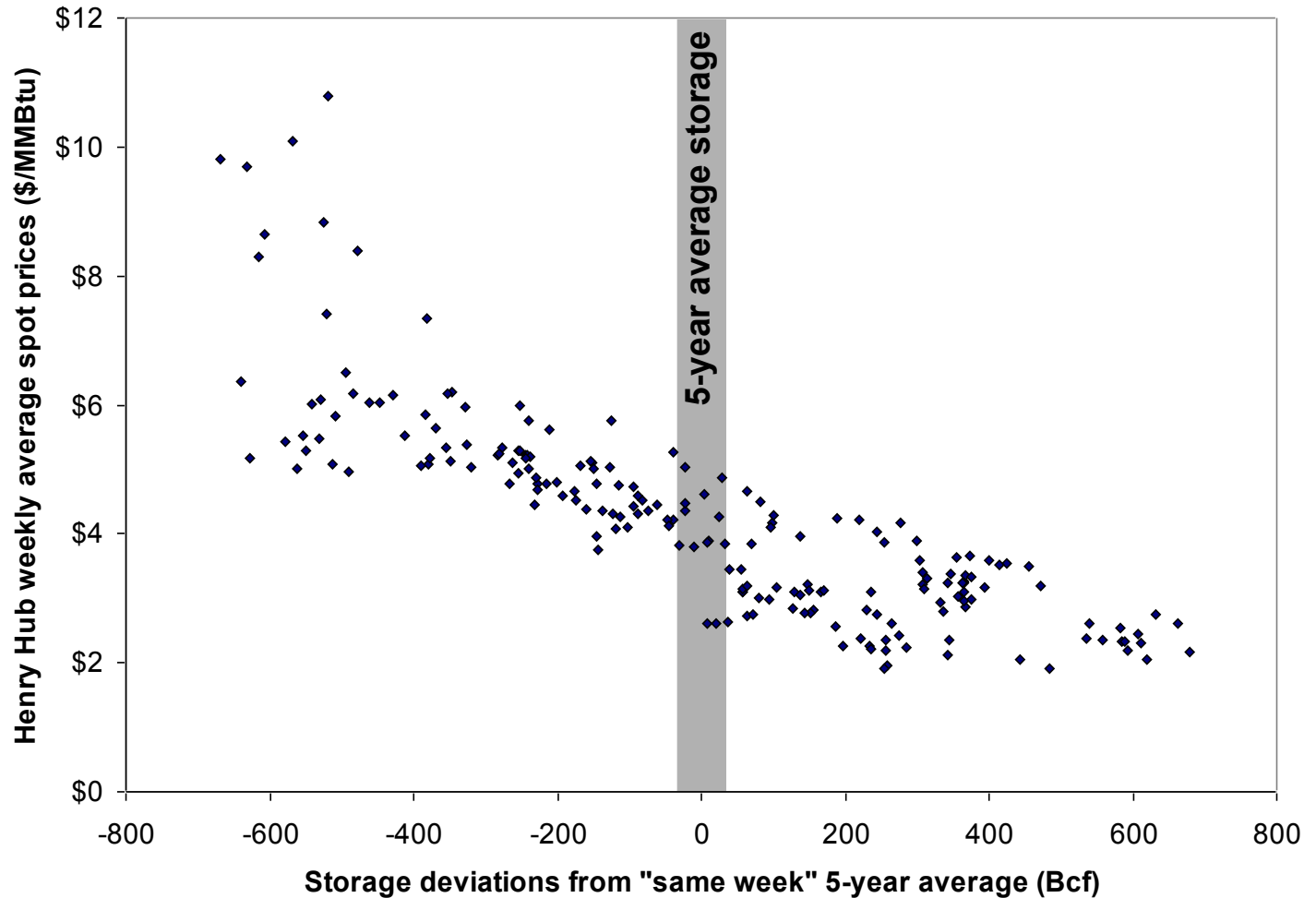
- Stronger storage position than anticipated, mitigating prices
- Storage position critical—relationship with price
- Protection comes at a cost
- Relative cost depends on weather
- Use of storage over the last two years has pushed the upper and lower limits of capacity



Source: EIA, Form EIA-912, "Weekly Underground Natural Gas Storage Report. Data through week ending October 31, 2003.



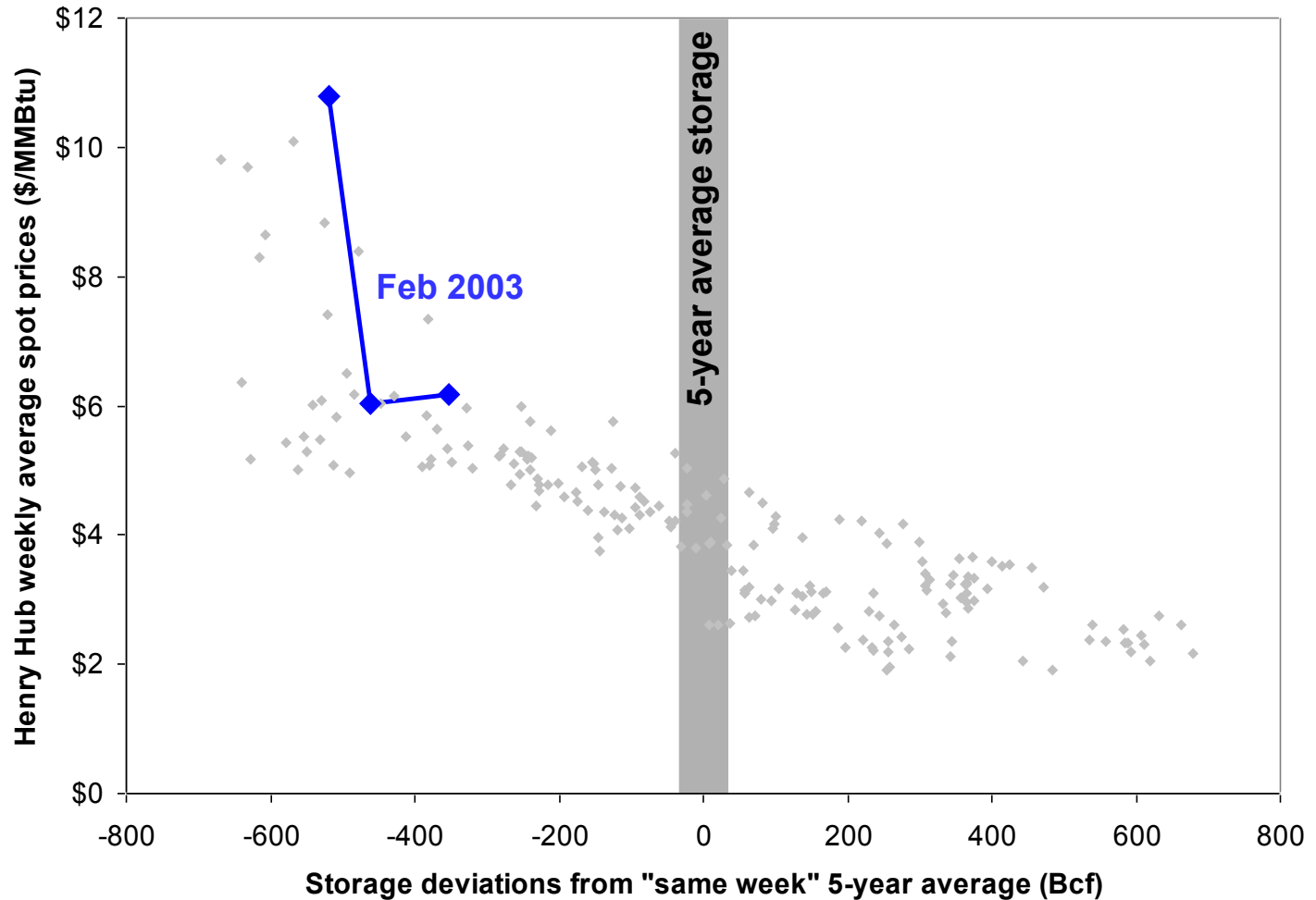
# Storage inventory has a strong relationship with price levels and volatility.



Source: OMOI analysis based on RDI and EIA.



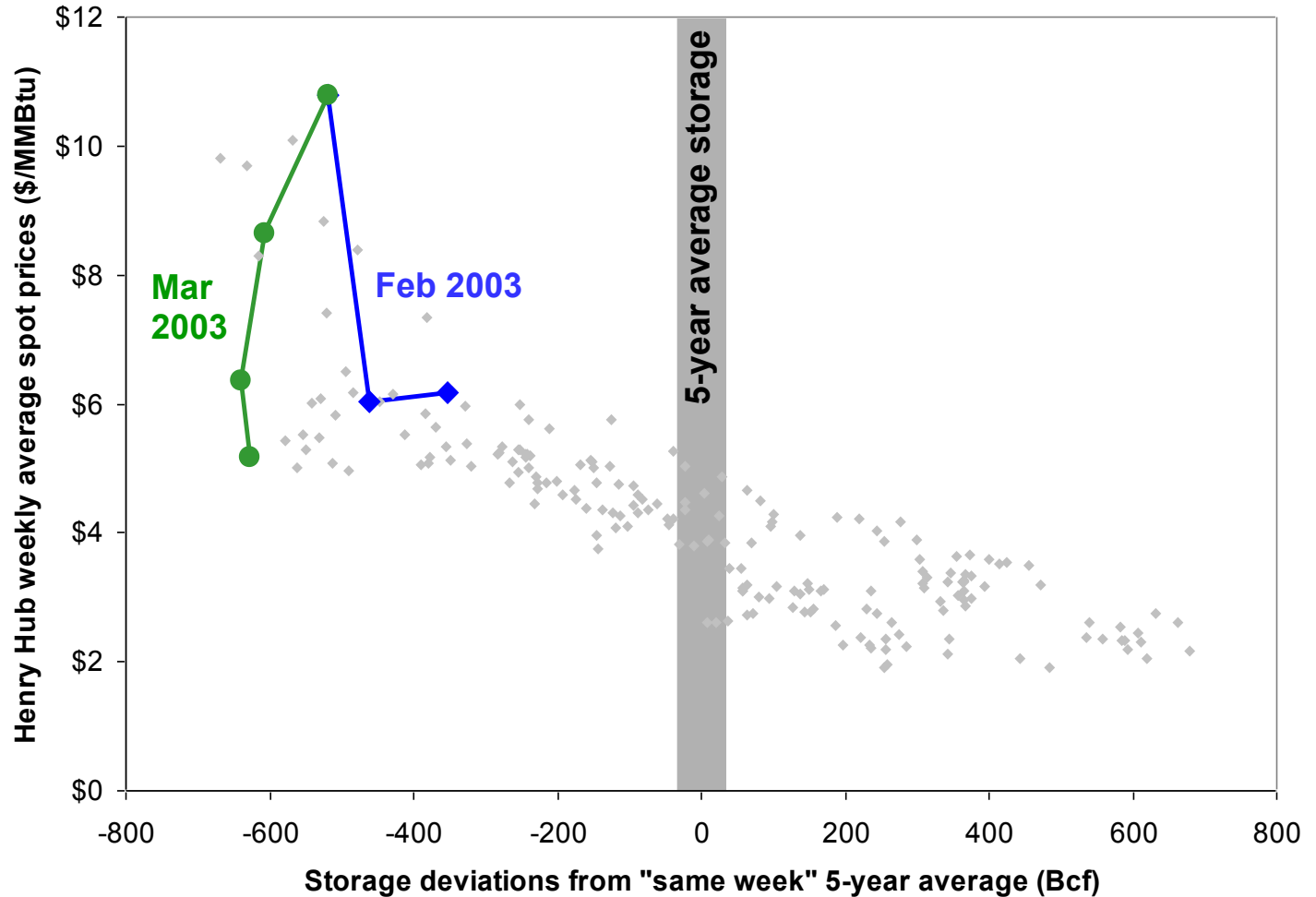
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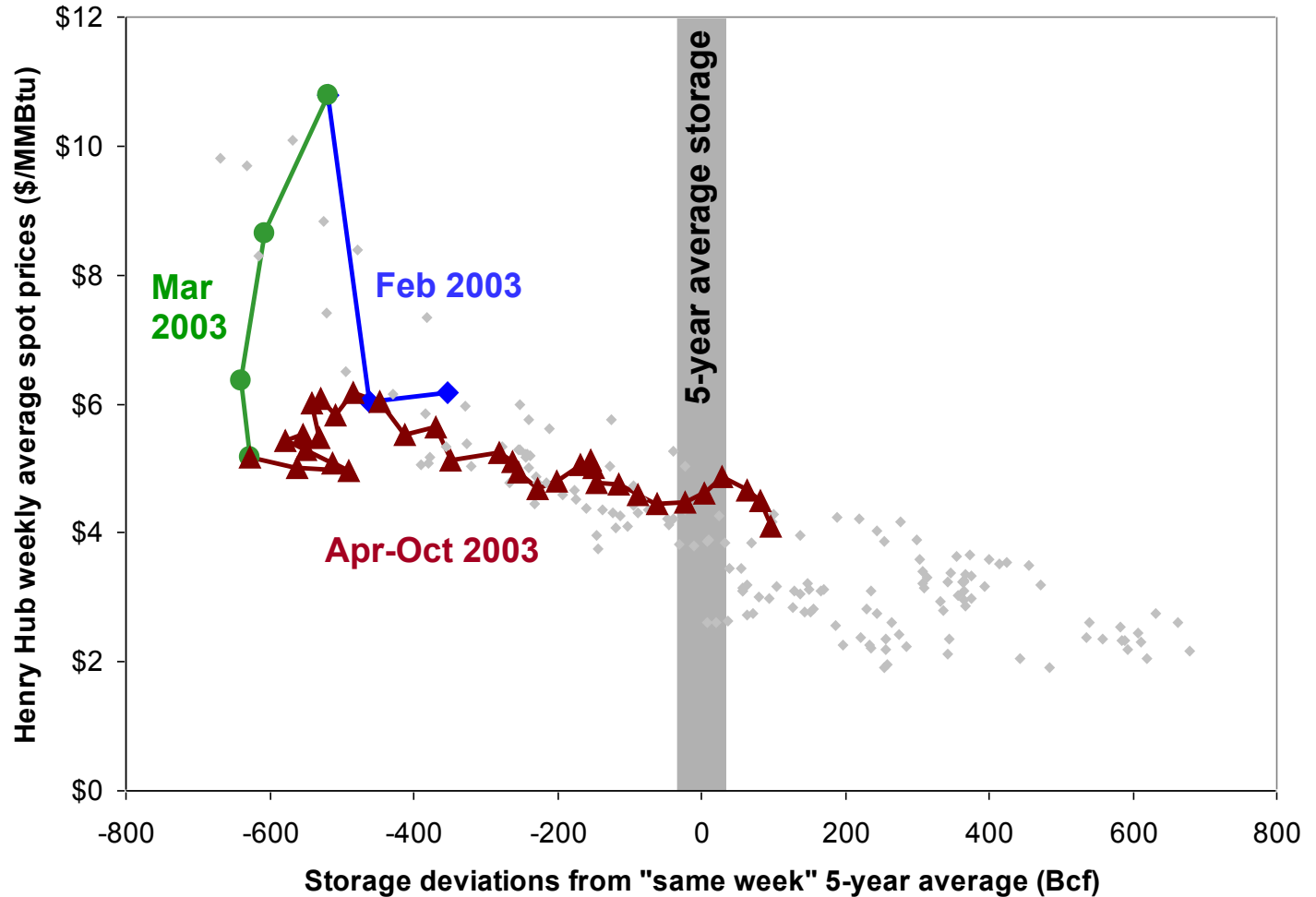


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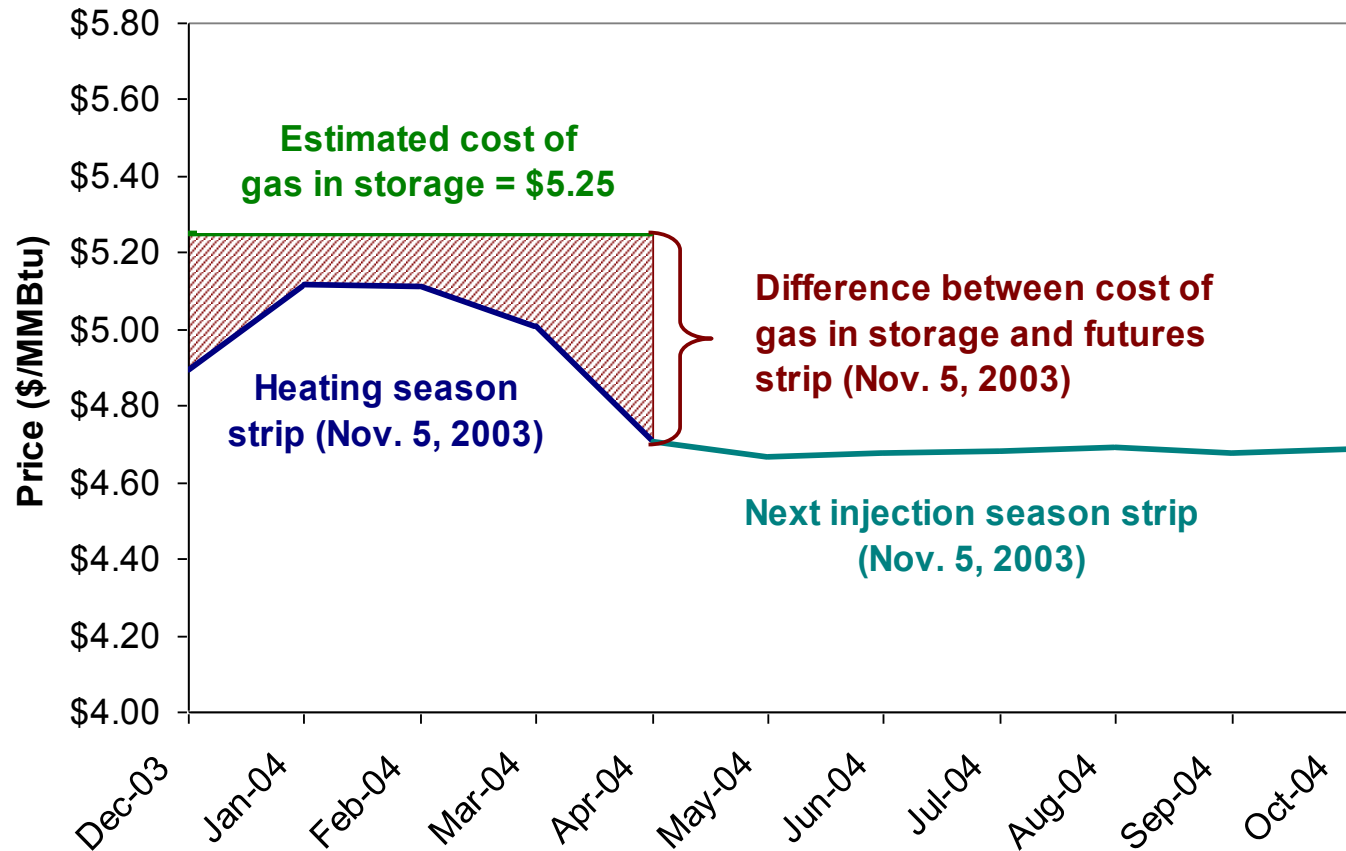
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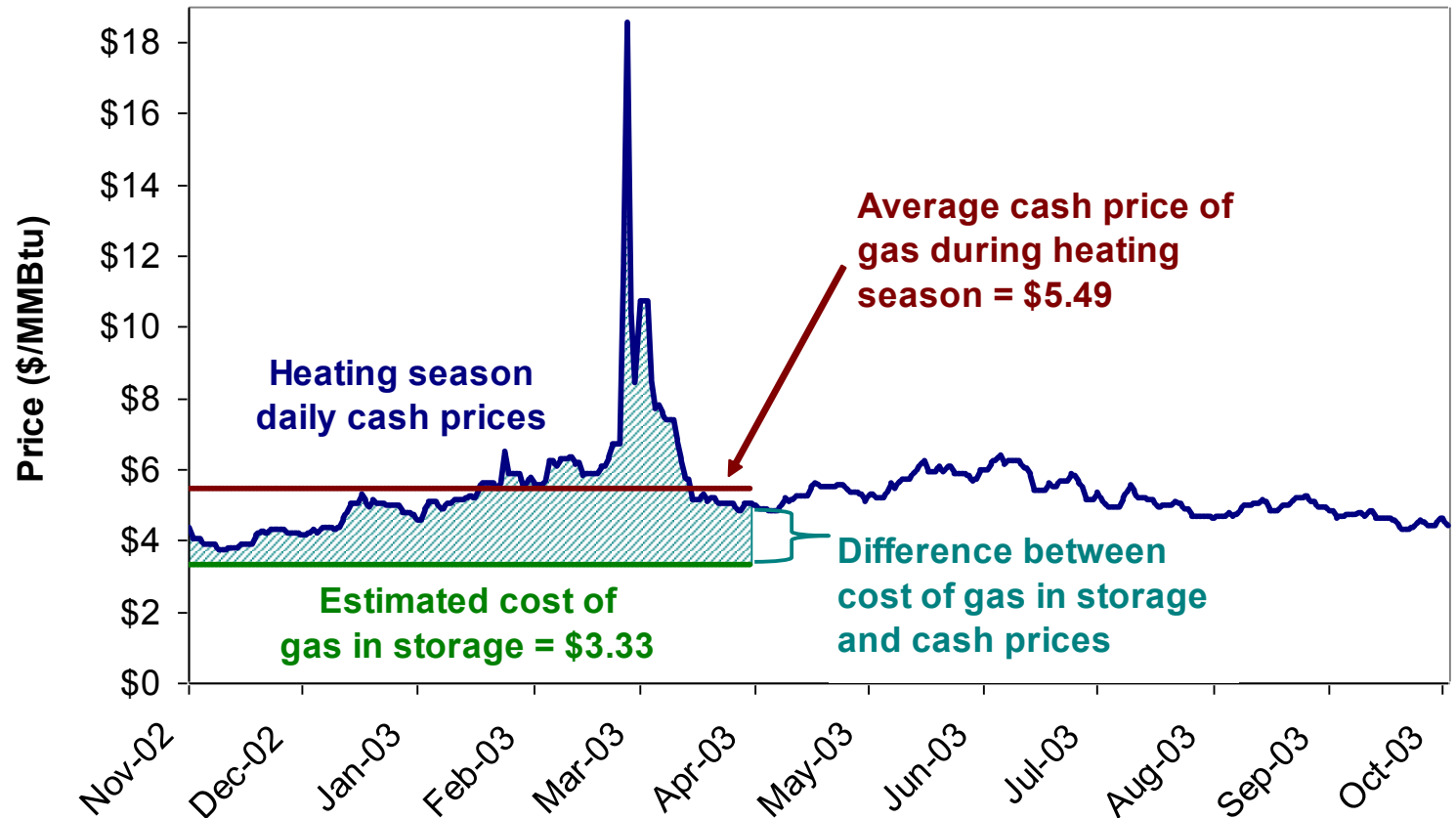
# But forward prices indicate that resulting storage inventory costs may be high.



Source: Platts' *Gas Daily*, Nymex, and EIA. Cost of gas in storage is estimated using the volume-weighted average Henry Hub weekly gas prices over the 2003 injection cycle and does not reflect holding costs.



# Last winter, storage inventory costs were relatively low.



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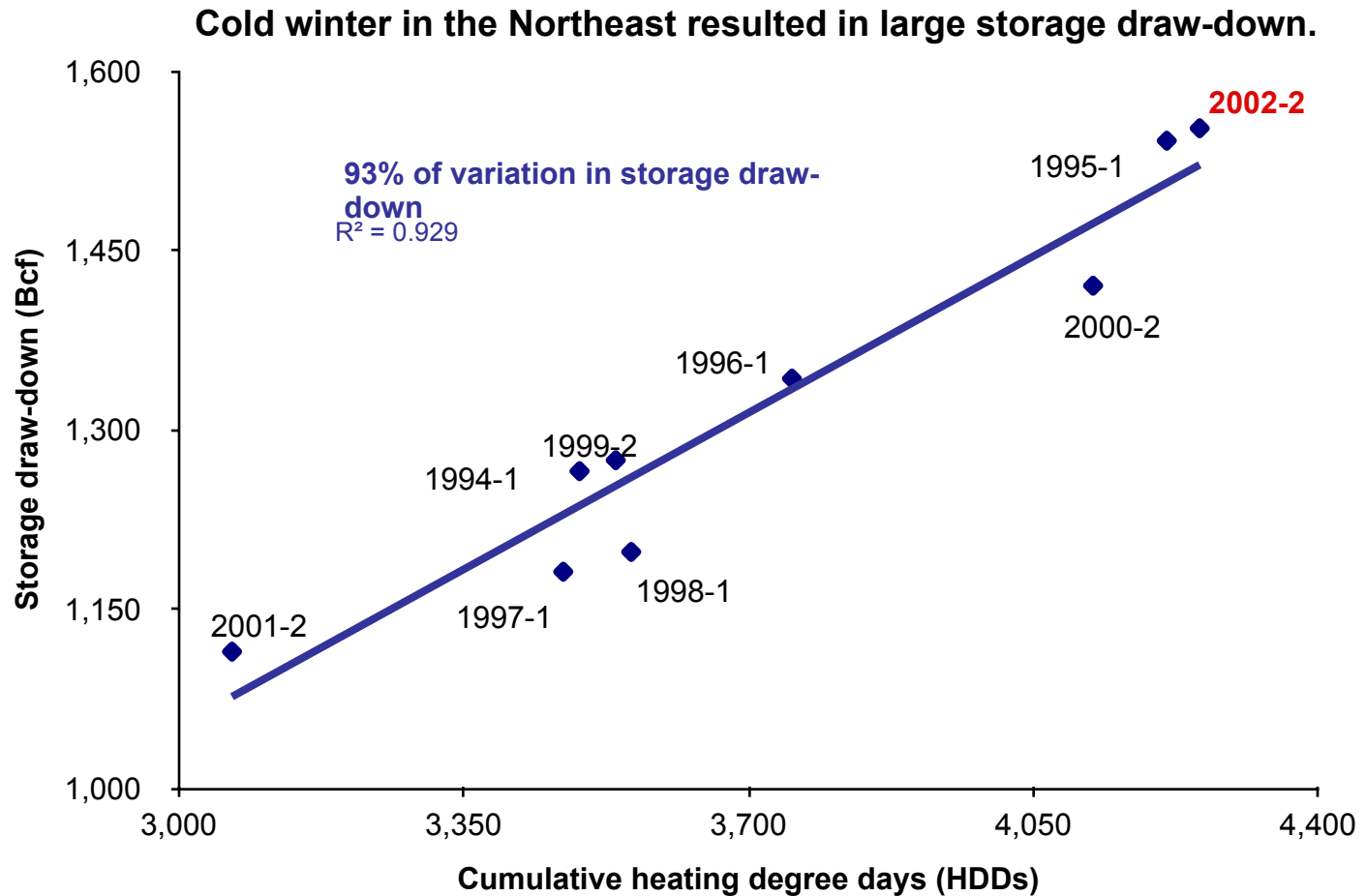


# Weather for winter 2003/04 is the key short-term uncertainty regarding natural gas.

- In an extreme cold-weather scenario, prices are higher and volatile
  - Storage drained with high consumption
  - Heating oil prices remain high, discouraging fuel switching
  - Resulting storage inventory costs lower than wholesale prices
- In an extreme warm-weather scenario, wholesale prices drop but retail prices remain relatively higher
  - Late-winter storage withdrawals required for physical operations
  - Storage competition with production forces down prices
  - Resulting storage inventory costs raise average retail costs through winter
- Weather is unpredictable
  - For example, Northeast weather intensity (cumulative HDDs) over the last decade varied by 40%.



# Weather for winter 2003/04 is the key short-term uncertainty regarding natural gas.



Sources: HDD data for NYC LaGuardia from Chicago Mercantile Exchange ([www.CME.com](http://www.CME.com)). Storage data for Eastern Consuming region from EIA/AGA.  
Notes: Cumulative HDDs measured from Nov-1 through Mar-31. Storage draw-down measured from Nov-1 through Mar-31.



# In general, winter natural gas system flexibility has declined.

- Higher reliance on baseload gas-fired electric generation
  - 56 GW of new combined cycle generation added since 2002
  - Equivalent of ~4.7 Bcfd (about 5–6% of typical winter peak demand)
- Low levels of demand elasticity
  - Feedstock fuel switching
    - Estimates of fuel switching capability as low as 5–10% of total industrial gas demand
  - Electric generation fuel switching
    - Dual-fueled units available in few regions
    - Fuel switching capability estimates as high as 30% of total gas-fired power generation, but actual capability may be limited by:
      - Access to alternate fuels
      - Warranty restrictions on using alternate fuels in newer vintage turbines
      - Environmental restrictions

Source: New generation data from EIA. Equivalent gas demand estimate based on 50% capacity factor.

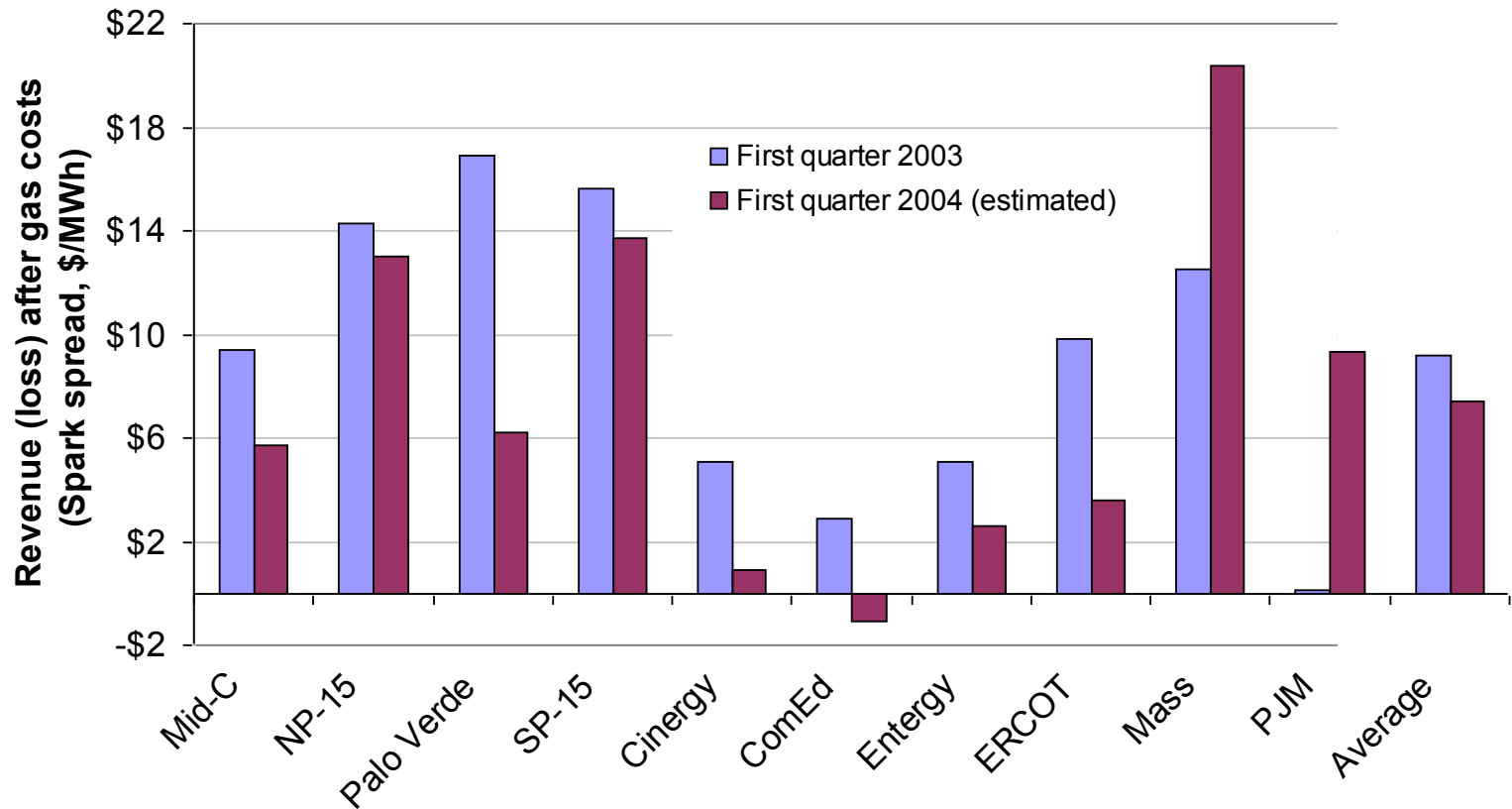


# In general, winter natural gas system flexibility has declined. (cont'd)

- During peak demand, or in cases of equipment failure, transmission congestion could occur.
  - Basis differentials increase in the market area during cold weather.
  - February *Price Spike Study* showed that pipeline and distribution flow restrictions can increase price levels and exacerbate volatility.
- Winter gas flexibility has improved in some areas in response to market forces.
  - West: 1 Bcf of new capacity from Rocky Mountains into central California and southern Nevada (Kern River)
  - Southeast: 1.5 Bcfd of new pipeline capacity into Florida (GulfStream and FGT)
  - East: Increased delivery capacity since last winter (Cove Point and DistriGas LNG)
  - Midwest: Additional gas deliverability into Wisconsin (Horizon and Guardian short-haul systems)



# Gas value-added for generation versus space heating appears greatest in New England and California for winter 2003/04.



Source: Burnham Securities, Inc., "Spark Spread Monitor," Tables 5 and 6, November 10, 2003.





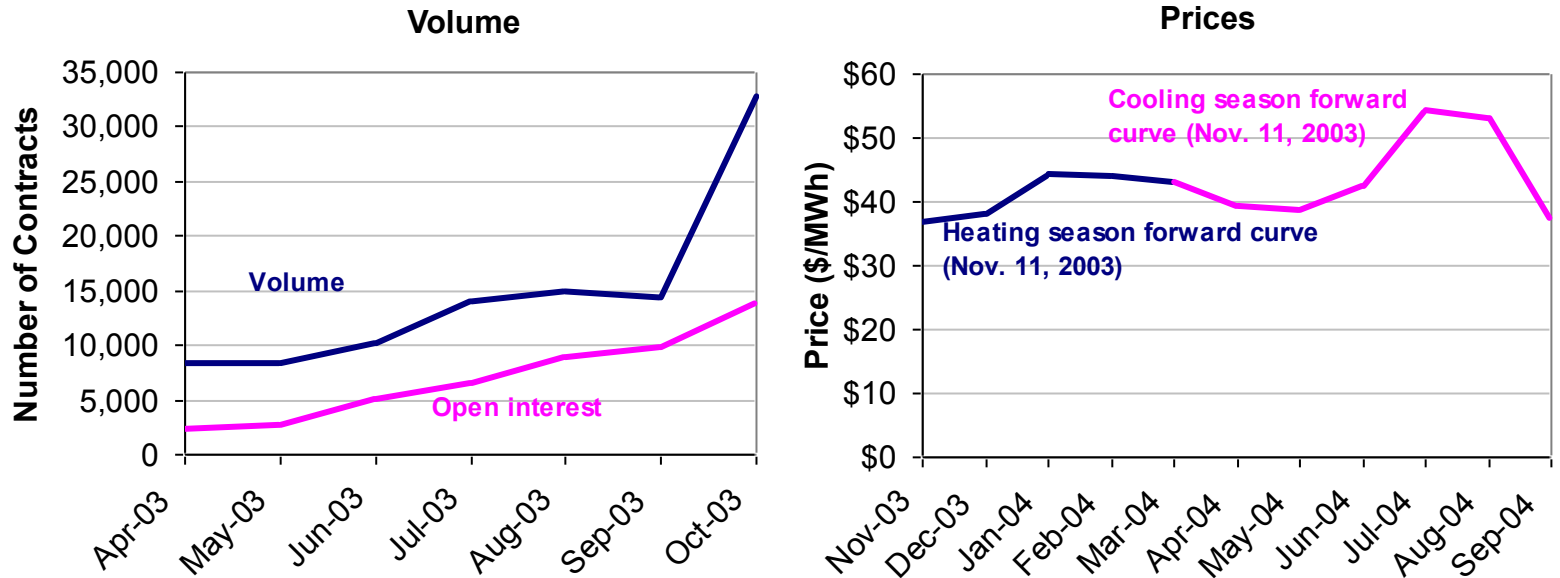
# Survey responses reveal mixed industry reaction to *Policy Statement*.

- Commission's *Policy Statement* on price discovery highlighted current problems and provided standards to improve accuracy, reliability and transparency of indices
- Staff monitoring plan includes:
  - Survey of industry
  - Individual meetings with price index publishers
  - Meetings with associations
  - Liquidity workshop
- Slight decline in number of companies reporting transactions; gas lowest
- Slight decline in number of publishers to whom data is reported
- Some companies plan to resume reporting late 2003 or early 2004 (e.g., Constellation, El Paso Merchant, PG&E, Williams Power)
- Other companies are waiting for clarification of the *Policy Statement* or see no value in reporting their transactions
- Presentations at Nov. 4 workshop on liquidity reported more encouraging progress



# Modest growth is evident in new electricity futures contract on NYMEX.

### PJM monthly electricity futures contract



Source: Nymex statistical group and [www.nymex.com](http://www.nymex.com). Data current through October 2003.



# Credit remains an ongoing concern related to the operations of all energy markets.

- Financial credit ratings and liquidity issues
  - Successful refinancings and debt extension relieved short-term concerns (among those that did not file for bankruptcy)
  - Long-term prospects and solvency still under pressure of low spark spreads and weak electricity capacity markets
- Transactional credit issues
  - Studies like the *Price Spike Study* underscore the effects of credit on transaction costs (some market participants had difficulty finding creditworthy partners during February price spike)
  - Progress made in credit clearing
    - Nymex
      - Gas: 11.7 quadrillion Btus cleared
      - Electricity: 70 million MWh cleared
    - ICE
      - Gas: 20.6 quadrillion Btus cleared
    - Competitors have had more limited traction
  - Need to monitor margin levels for virtual bids and offers in some ISOs



# Based on this and previous assessments, these are some of the factors OMOI will be monitoring this winter:

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- Natural gas storage
  - Storage status
  - Quality of storage data
- Spread between spot gas prices and the cost of gas taken out of storage
- Interaction of electric generation and cold weather
  - Price effects
  - Reliability effects (e.g., pipeline constraints on fuel for power generation)
- Transaction reporting
  - Price and volume reporting
  - Cooperation with FERC's *Policy Statement*
- Creditworthiness issues and implications