

PUBLIC VERSION
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Information and Have Been Removed.*

**BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS**

DIRECT TESTIMONY OF

WM. EDWARD BLUNK

**ON BEHALF OF
KANSAS CITY POWER & LIGHT COMPANY**

**IN THE MATTER OF THE PETITION OF
KANSAS CITY POWER & LIGHT COMPANY (“KCP&L”)
FOR DETERMINATION OF THE RATEMAKING PRINCIPLES
AND TREATMENT THAT WILL APPLY TO THE RECOVERY
IN RATES OF THE COST TO BE INCURRED BY KCP&L FOR
CERTAIN ELECTRIC GENERATION FACILITIES
UNDER K.S.A. 66-1239**

DOCKET NO. 11-KCPE-581-PRE

1 **Q: Please state your name and business address.**

2 A: My name is Wm. Edward Blunk. My business address is 1200 Main Street, Kansas City,
3 Missouri 64105.

4 **Q: By whom and in what capacity are you employed?**

5 A: I am employed by Kansas City Power & Light Company (“KCP&L” or the “Company”)
6 as Supply Planning Manager.

1 **Q: What are your responsibilities?**

2 A: My primary responsibilities are to facilitate the development and implementation of fuel
3 purchase and risk management strategies.

4 **Q: Please describe your education, experience and employment history.**

5 A: In 1978, I was awarded the degree of Bachelor of Science in Agriculture Cum Laude,
6 Honors Scholar in Agricultural Economics by the University of Missouri at Columbia.
7 The University of Missouri awarded the Master of Business Administration degree to me
8 in 1980. I have also completed additional graduate courses in forecasting theory and
9 applications.

10 Before graduating from the University of Missouri, I joined the John Deere
11 Company from 1977 through 1981 and performed various marketing, marketing research,
12 and dealer management tasks. In 1981, I joined KCP&L as Transportation/Special
13 Projects Analyst. My responsibilities included fuel price forecasting, fuel planning and
14 other analyses relevant to negotiation and/or litigation with railroads and coal companies.
15 I was promoted to the position of Supervisor, Fuel Planning in 1984. In 2007, my
16 position was changed to Manager, Fuel Planning. In 2009, my position was changed to
17 Supply Planning Manager.

18 **Q: Have you previously testified in a proceeding before the Kansas Corporation
19 Commission or before any other utility regulatory agency?**

20 A: I have previously testified before both the Kansas Corporation Commission (“KCC” or
21 “Commission”) and the Missouri Public Service Commission (“MPSC”) in multiple
22 cases on multiple issues regarding KCP&L’s fuel prices, fuel price forecasts, strategies

1 for managing fuel price risk, fuel-related costs, fuel inventory, and the management of
2 KCP&L's sulfur dioxide ("SO₂") emission allowance inventory.

3 **Q: On what subjects will you be testifying?**

4 A: I will be testifying on (1) natural gas prices, market uncertainty, related costs and issues
5 associated with long-term contracts for natural gas; and (2) forecasted carbon dioxide
6 ("CO₂") market prices.

7 **Q: Why will you be testifying on these issues?**

8 A: As discussed in the Direct Testimony of Company witness Burton Crawford, natural gas
9 prices and CO₂ prices are critical uncertainties in the analysis of any utility generation
10 construction project including the La Cygne environmental upgrade project.

11 **I. NATURAL GAS PRICES**

12 **A. Historical Prices**

13 **Q: How have natural gas prices changed in the past few years?**

14 A: Schedule WEB2011-1 shows how natural gas prices have changed dramatically over the
15 past few years. Natural gas has been demonstrating significant price movement. Natural
16 gas in December 2004 was about \$6.83 per million British thermal units ("MMBtu"). In
17 December 2005 it reached a peak of \$15.38/MMBtu then dropped to \$4.20/MMBtu in
18 September 2006. Those moves represented a climb of 125 percent followed by a decline
19 of 73 percent. By July 2008 natural gas had returned to \$13.58/MMBtu but then dropped
20 82 percent to \$2.51/MMBtu, a price level it had not seen since March 2002. By the end
21 of March 2010 natural gas was trading near \$4.00/MMBtu. Today it is trading near
22 \$4.50/MMBtu.

1 **Q: How do historical natural gas prices compare to historical coal prices?**

2 A: Schedule WEB2011-2 compares Henry Hub natural gas prices with the cost of Powder
3 River Basin (“PRB”) low-sulfur coal delivered to La Cygne using the market price for
4 coal and a freight rate estimate consistent with the current rail pricing paradigm. It shows
5 that Btu-for-Btu natural gas is consistently more than twice as expensive as coal.
6 Schedule WEB2011-3 takes this comparison one step further by comparing the \$/MWh
7 equivalent of the two fuels assuming a 7,000 Btu/kWh heat rate for natural gas and a
8 10,000 Btu/kWh heat rate for coal. Even giving natural gas the benefit of a combined
9 cycle heat rate, there were only 29 days over the past ten years when the price of natural
10 gas would have been less than the delivered price of coal at La Cygne. If we add
11 transportation costs to the price of natural gas, it drops that 29 days to one week or less
12 out of ten years.

13 **B. Forecast Prices**

14 **Q: What are KCP&L’s expectations regarding the future price of natural gas?**

15 A: CONFIDENTIAL Schedule WEB2011-4 shows the natural gas price forecast KCP&L
16 used for its analysis regarding environmental retrofits at the La Cygne Generating
17 Station. Generally it shows that on a nominal basis, we expect a distribution of future
18 prices that is consistent with what we have seen since 2000.

19 **Q: What are KCP&L’s expectations regarding the cost of PRB coal delivered to
20 La Cygne?**

21 A: CONFIDENTIAL Schedule WEB2011-5 shows the coal price forecast KCP&L used for
22 its analysis regarding environmental retrofits at the La Cygne Generating Station. For

1 every year of the forecast, the base and high prices for natural gas are projected to be
2 more than double the high scenario for the delivered cost of PRB coal to La Cygne.

3 **Q: How does KCP&L develop long-term price forecasts for fuel and emissions?**

4 A: KCP&L uses composite price forecasts for fuel and emission allowance commodities.
5 The various commodity price forecasts used in the composite price forecasts are obtained
6 from independent consulting firms and/or government agencies that have expert
7 knowledge and experience with the particular commodity. KCP&L also uses the set of
8 commodity price forecasts to develop probability distributions around those composite
9 forecasts.

10 **Q: Who were the independent consulting firms and/or government agencies that you
11 used in developing your natural gas price forecasts?**

12 A: KCP&L used forecasts from Cambridge Energy Research Associates (“CERA”), Energy
13 Ventures Analysis (“EVA”), Energy Information Administration (“EIA”), Global Insight,
14 and PIRA Energy Group (“PIRA”) to construct its composite price forecasts for natural
15 gas.

16 **Q: Who were the independent consulting firms and/or government agencies that you
17 used in developing your coal price forecasts?**

18 A: KCP&L used forecasts from EVA, EIA, JD Energy (“JDE”) and Wood Mackenzie
19 Limited to construct its composite price forecasts for long-term coal prices.

20 **Q: Why does KCP&L use composite forecasts for fuel and emission allowance
21 commodities?**

22 A: KCP&L has determined that of the various forecasts it has reviewed, no single forecast
23 provider always outperforms all others. On the other hand, the combination or composite

1 of those various forecasts consistently is more accurate than most of the individual
2 forecasts that it represents. In any one year, some forecasting services will do better than
3 the composite in terms of predicting the correct outcome. These “top performers” will
4 vary from year to year and are very difficult if not impossible to identify in advance.

5 **Q: Does the academic research support KCP&L’s finding regarding the accuracy of**
6 **composite forecasts?**

7 A: Yes. KCP&L’s finding is consistent with academic research showing that forecast
8 combinations have, on average, been found to produce better forecasts than methods
9 based on the ex-ante best individual forecasting model.

10 **II. NATURAL GAS MARKET UNCERTAINTY**

11 **Q: What is the purpose of this portion of your testimony?**

12 A: The purpose of this portion of my testimony is to discuss historical and anticipated
13 uncertainty and volatility in natural gas markets.

14 **A. Uncertainty vs. Volatility**

15 **Q: Is uncertainty different from volatility?**

16 A: In some contexts, volatility is synonymous with uncertainty. For the purpose of this
17 testimony I will use the word “volatility” to refer to “historical volatility,” which is
18 defined as the standard deviation of the daily change in the natural logarithm of the
19 commodity’s price for some period of time expressed as an annual rate. On the other
20 hand, I will use the term “uncertainty” to indicate not knowing or being unsure.

1 **Q: Generally people use the term “volatility” when speaking of movements in prices.**
2 **Why are you drawing a distinction between volatility and uncertainty?**

3 A: Volatility represents short-term risk. Uncertainty represents long-term risk. Schedule
4 WEB2011-6 compares the NYMEX near-month settlement closing price with one
5 standard deviation based on the 20-day volatility. It shows that since 2000 there have
6 been eight (8) times when one standard deviation based on the 20-day volatility exceeded
7 \$6.00/MMBtu. Since 2003, volatility has spiked about once a year. The levels of
8 volatility that we see in the market for natural gas do not appear to change from typical
9 patterns despite major changes in price trends and levels. For example, in the latter part
10 of June 2000 natural gas prices were about \$4.40/MMBtu and 20-day volatility was
11 74 percent. That 74 percent represented a standard deviation of \$3.26/MMBtu. In the
12 latter part of December 2005, the average 20-day volatility was 76 percent but the settle
13 price for the near month New York Mercantile Exchange (“NYMEX”) contract was
14 \$12.50/MMBtu. That 76 percent represented a standard deviation of \$9.50/MMBtu,
15 which is almost three times the level we saw in June 2000.

16 **Q: How does natural gas price volatility compare to volatility in the price of PRB coal?**

17 A: Schedule WEB2011-7 compares the volatility of natural gas prices with the volatility of
18 PRB coal prices. Since 2001, natural gas volatility has averaged 56 percent while coal
19 has averaged 20 percent. In other words, natural gas is almost three times more volatile
20 than PRB coal.

21 **Q: What do you mean when you say uncertainty represents long-term risk?**

22 A: Commodity prices tend to be mean-reverting. That is, over some period of time, prices
23 come back to a mean level. The catch is the mean may also be moving. Schedule

1 WEB2011-8 illustrates this by overlaying an 18-month moving average line that has been
2 shifted back 18 months in an effort to show the then-current mean. Where volatility is
3 essentially price movement around some mean base line or long-term trend, I am defining
4 uncertainty as that movement in the mean base line or long-term trend. This movement
5 in the mean base line represents a shift in the market.

6 **B. Natural Gas Market Uncertainty**

7 **Q: How do market shifts affect KCP&L's fuel costs?**

8 A: Prices are higher in supply-limited markets than in supply-surplus markets. Prices also
9 are more uncertain and volatile in supply-limited markets than in supply-surplus markets.
10 Because of the relative price inelasticity of natural gas demand, we have seen some
11 significant price spikes when the natural gas market is supply-limited.

12 **Q: When has the natural gas market shifted from supply-surplus to supply-limited and
13 what were the effects of these shifts on natural gas prices?**

14 A: After many years of being in a supply-surplus market, the first revelation of the natural
15 gas market being significantly supply-limited was in the winter of 2000/2001. As can be
16 seen in Schedule WEB2011-9, which is a chart of population weighted winter heating
17 degree days, the three winters preceding winter 2000/2001 were all warmer than normal
18 with winters 1998/1999 and 1999/2000 being significantly warmer than average. Prior to
19 the very cold winter of 2000/2001, the United States experienced a period of supply-
20 surplus commonly referred to as the "gas bubble." As shown in Schedule WEB2011-10,
21 natural gas storage levels were drawn down to unusually low levels in the very cold
22 winter of 2000/2001. Natural gas prices responded by jumping to about \$10.00/MMBtu,
23 which was more than double the all-time high price (NYMEX near-month close) before

1 September 2000. The natural gas industry responded with increased drilling thereby
2 increasing natural gas production. Before September 2000, there had never been more
3 than 800 rigs devoted to natural gas. By May 2001 over 1,000 rigs were working on
4 natural gas wells. This increased drilling activity combined with the warmer than normal
5 winter of 2001/2002 resulted in storage being filled to a new record level of 3,238 billion
6 cubic feet (“Bcf”) in December 2001.

7 The following winter 2001/2002 was very mild resulting in lower than normal
8 demand. As shown by Schedule WEB2011-10, storage at the end of winter 2001/2002
9 was 1,491 Bcf, a record high end of winter level. Prices dropped to less than
10 \$2.00/MMBtu. The industry again responded but this time with decreased drilling.
11 When prices started trending up later in 2002, the industry was much slower to respond.
12 In fact, fourth quarter 2001 was the last quarter with U.S. dry natural gas production of
13 more than 4,900 Bcf until fourth quarter 2007. Production reached a low in fourth
14 quarter 2005, which included some impact from Hurricanes Katrina and Rita, and was
15 only 4,370 Bcf. U.S. dry production had not been that low since second quarter 1992.
16 Moreover, dry production for September 2005 was only about 87 percent of the average
17 for the preceding ten Septembers.

18 Schedule WEB2011-11 shows another trend. It shows that from May 1999 to
19 October 2006 the number of rigs drilling for natural gas increased almost 300 percent
20 while natural gas production essentially stayed flat. In brief, if the very high prices that
21 were driving record drilling were not increasing production, then the United States was in
22 a natural gas supply-limited environment. In a supply-limited environment for a

1 commodity with price inelastic demand, prices can jump substantially during any supply
2 disruption or surge in demand as prices search for a new demand/supply balance point.

3 **Q: When has the natural gas market shifted from supply-limited to supply-surplus?**

4 A: It appears the most recent shift occurred about 2005 or 2006. That is when it was first
5 suspected the Marcellus Shale had potential to be a major gas resource. Moreover, this
6 was a major resource in the eastern United States, close to high population centers in
7 New England.

8 **Q: How has shale changed the fundamental outlook for natural gas?**

9 A: The main change has been the tremendous increase in natural gas reserves that are now
10 perceived as economically recoverable. Natural gas proven reserves increased
11 12.6 percent from 2006 to 2007. Since 1950, that is double the next largest year-over-
12 year increase of 6.3 percent in 1956. From 2004 to 2007 natural gas proven reserves
13 increased 23.5 percent. That compares to the next largest three-year increase since 1950
14 of only 16.5 percent set from 1954 to 1957.

15 As recently as 2002, the United States Geological Survey in its Assessment of
16 Undiscovered Oil and Gas Resources of the Appalachian Basin Province, calculated that
17 the Marcellus Shale field contained an estimated undiscovered resource of about
18 1.9 trillion cubic feet (“Tcf”) of gas. In early 2008, Terry Englander, a geoscience
19 professor at Pennsylvania State University, and Gary Lash, a geology professor at the
20 State University of New York at Fredonia, estimated that the Marcellus Shale field might
21 contain more than 500 Tcf of natural gas. That is 250 times the 2002 estimate!

22 In June 2009, the Potential Gas Committee, a widely recognized and
23 knowledgeable non-profit organization affiliated with the Colorado School of Mines,

1 released the results of its latest biennial assessment of the nation's natural gas resources,
2 indicating that the United States possesses a total resource base of 1,836 Tcf. That is a
3 39 percent increase over the 2006 assessment and is the highest resource evaluation in the
4 Committee's 44-year history. Most of the increase from the previous assessment arose
5 from re-evaluation of shale-gas plays in the Appalachian basin and in the Mid-Continent,
6 Gulf Coast and Rocky Mountain areas. Shale now accounts for about 33 percent of the
7 total resource base.

8 **Q: How fast can the natural gas market swing from supply-surplus to being supply-**
9 **limited?**

10 A: Significant weather events can have major immediate impacts on the supply/demand
11 balance for natural gas. Winter 2000/2001, which I discussed earlier, and summer 2005
12 both show just how quickly the natural gas market can swing from a supply-surplus to
13 being supply-limited. Summer 2005 was the warmest in many years driving electric
14 sector demand for natural gas to new levels. Exacerbating the supply/demand imbalance
15 was the loss of significant quantities of natural gas production due to hurricanes.
16 Summer/fall 2005 was one of the most active hurricane seasons on record. Hurricanes
17 Katrina and Rita demonstrated just how much impact hurricanes can have on natural gas
18 supply when they hit "platform alley" in the Gulf of Mexico. Fortunately, Hurricanes
19 Katrina and Rita did not transverse the most densely rig/platform populated section of
20 "platform alley."

21 Hurricanes Katrina and Rita made landfall on August 28, 2005 and September 19,
22 2005, respectively. They are a major turning point for the natural gas industry. In the
23 January 19, 2006 release of Minerals Management Service's *Impact Assessment of*

1 *Offshore Facilities from Hurricanes Katrina and Rita*, MMS Regional Director Chris
2 Oynes said, “The overall damage caused by Hurricanes Katrina and Rita has shown them
3 to be the greatest natural disasters to oil and gas development in the history of the Gulf of
4 Mexico. Just last year [2004], in the devastating Hurricane Ivan, there were seven
5 platforms destroyed, compared with the 115 platforms destroyed in Katrina and Rita.”
6 Schedule WEB2011-12 shows that production following Hurricanes Katrina and Rita
7 dropped to levels not seen since September 1989. Before Hurricanes Katrina and Rita,
8 the U.S. Minerals Management Service (“MMS”) estimated that natural gas production in
9 the Gulf of Mexico was about 10 Bcf per day. On June 21, 2006, MMS issued its final
10 report on the effects of Hurricanes Katrina and Rita. MMS reported that “the cumulative
11 shut-in gas production 8/26/05-6/19/06 is 803.604 BCF, which is equivalent to 22.017%
12 of the yearly production of gas in the GOM [Gulf of Mexico].”

13 **Q: What risk does the build-up of the gas generation fleet in the early 2000’s present to**
14 **the natural gas market?**

15 A: Schedule WEB2011-13 shows that gas-fired generation summer capacity in the power
16 industry has more than doubled since 1996. Moreover, natural gas summer capacity went
17 from being about half of coal capacity in 1996 to where it stands today at almost 130
18 percent of coal capacity. Because of the decline in the economy, we have not yet seen
19 what all of that new gas-fired capacity can do to demand for natural gas.

20 **III. OTHER NATURAL GAS ISSUES**

21 **Q: Are there issues associated with long-term natural gas contracts?**

22 A: Yes, there are several issues with long-term natural gas contracts. Some are issues with
23 any long-term commodity supply contract. Generally, those issues can be divided into

1 price and quantity. Other issues include transportation and the accounting treatment of
2 long-term commodity contracts.

3 **Q: How is price an issue in long-term natural gas contracts?**

4 A: When parties enter a long-term contract they make that decision based on their
5 expectations regarding price; both price of the commodity under the contract and market
6 price for the commodity not under contract. If those two prices get very far apart, at least
7 one of the parties will start to think the contract is not a good deal and may be tempted to
8 look for a way out. Sometimes that issue is forced upon the parties. For example, if a
9 seller locks into a price and the market price increases significantly above the contract
10 price, the seller could find themselves in financial difficulty and unable to perform under
11 the contract.

12 **Q: When parties “lock in” to a price, what does that typically look like?**

13 A: As I describe elsewhere, there tend to be problems for at least one of the parties whenever
14 the spread between contract price and market price changes significantly. Market prices
15 typically move over time making it very likely that a price fixed by a contract for 10 or
16 20 years will separate from the prevailing market price. Even prices that are only fixed
17 for a few months can separate from the prevailing market price. Consequently, long-term
18 contracts tend to have some form of price adjustment mechanism. For example, if
19 someone reports they have a 20-year contract for natural gas at \$6.00/MMBtu, unless
20 they specifically state the price is fixed at \$6.00/MMBtu for the term of the agreement,
21 they are probably really saying the beginning or base price before adjustment is
22 \$6.00/MMBtu. The Year 2 price could be significantly different than \$6.00/MMBtu.

1 Depending how the contract is structured, even the Year 1 price could be significantly
2 different than the base price of \$6.00/MMBtu.

3 **Q: Does this potential for contract prices to separate from the prevailing market price**
4 **create other issues?**

5 A: Yes. It can create an issue regarding the value of the contract which is reflected in its
6 “mark-to-market.”

7 **Q: How can “mark-to-market” cause issues with long-term natural gas contracts?**

8 A: Various accounting rules can require commodity contracts be marked-to-market. As I
9 have discussed elsewhere, natural gas prices are subject to significant volatility and
10 uncertainty. All of that market price uncertainty would be reflected in the Company’s
11 accounting statements when the contracts are marked-to-market. That could have a
12 significant financial consequence. For example, in 2010 La Cygne Units 1 and 2 burned
13 about 47 million MMBtus of coal. If, for the sake of illustration, we assume KCP&L had
14 a 20-year fixed price contract for a like amount of natural gas Btus, that contract would
15 represent almost 950 million MMBtus. Historically, natural gas prices have averaged a
16 23 percent move from one quarter to the next. If the price for natural gas in our
17 hypothetical contract was \$6.00/MMBtu, a 20 percent swing would be \$1.20/MMBtu.
18 When applied to the 950 million MMBtus that would translate into a \$1.14 billion
19 quarter-to-quarter movement in the Company’s financials. That average quarterly
20 movement would be almost nine times KCP&L’s 2009 net income.

21 **Q: Can “mark-to-market” cause issues with long-term coal contracts?**

22 A: Yes, but not to the degree it does for natural gas. Following the example I just gave for
23 natural gas but using coal’s lower quarter to quarter price swing and much lower

1 commodity cost, the quarter-to-quarter movement in the Company's financials would be
2 less than \$100 million. Natural gas's billion dollar quarter-to-quarter swing was more
3 than 10 times that.

4 **Q: How is quantity an issue in long-term natural gas contracts?**

5 A: The parties to a long-term contract are relying on certain assumptions about the future
6 regarding their ability to provide natural gas or their need for natural gas. As I discuss
7 elsewhere in this testimony, the main driver behind the current surplus of natural gas is
8 the development of shale. A feature of shale gas production is the increasing steepness of
9 its decline curves. With initial decline rates of 50 percent or more, it means half of all
10 new wells must be replaced within one year just to stay even. In effect, the gas industry
11 is caught on a treadmill where it is necessary to drill at certain levels just to maintain
12 production levels. This treadmill likely will continue with declines in production
13 occurring whenever declines in drilling activity occur.

14 **Q: How is transportation an issue in long-term natural gas contracts?**

15 A: To use natural gas one must transport it from the point of production to the point of
16 consumption. In our region that involves inter-state natural gas pipelines. Neither of the
17 major pipelines in our area have forward haul capacity sufficient to serve new gas-fired
18 generation facilities. That means we would be required to pay for any pipeline expansion
19 necessary to transport natural gas so we could meet the commodity contract volume
20 obligations.

1 **IV. CO₂ PRICES**

2 **Q: What are KCP&L's expectations regarding the future price of CO₂?**

3 A: CONFIDENTIAL Schedule WEB2011-14 shows the CO₂ price forecast KCP&L used
4 for its analysis regarding environmental retrofits at the La Cygne Generating Station.

5 **Q: How does KCP&L develop long-term price forecasts for emissions allowances?**

6 A: As I discussed with natural gas, KCP&L uses composite price forecasts for fuel and
7 emission allowance commodities. The various commodity price forecasts used in the
8 composite price forecasts are obtained from independent consulting firms and/or
9 government agencies that have expert knowledge and experience with the particular
10 commodity. KCP&L also uses the set of commodity price forecasts to develop
11 probability distributions for each.

12 **Q: What independent consulting firms and/or government agencies did you use in
13 developing your CO₂ forecast?**

14 A: The CO₂ composite price forecast was developed from forecasts by CERA, Synapse,
15 PIRA, EVA, EIA, Environmental Protection Agency ("EPA"), and JD Energy.

16 **V. SUMMARY**

17 **Q: How would you summarize your testimony?**

18 A: My testimony has discussed how natural gas markets have demonstrated volatility and
19 uncertainty. I created a simple example to show how the volatility in natural gas prices
20 can create material financial risk. I then compared the natural gas market risks with
21 similar risks for coal. My testimony went on to describe how KCP&L forecasts fuel and
22 emission market prices. I also presented graphs illustrating key forecasts relevant to this
23 case.

1 **Q: What do you think is a key take-away from your testimony?**

2 A: Placing a long-term bet on natural gas as a primary fuel source has greater market-related
3 risk than a similar commitment to coal.

4 **Q: Does that conclude your testimony?**

5 A: Yes, it does.

**BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS**

**In the Matter of the Petition of Kansas
City Power & Light Company ("KCP&L")
for Determination of the Ratemaking
Principles and Treatment that Will Apply
to the Recovery in Rates of the Cost to be
Incurred by KCP&L for Certain Electric
Generation Facilities Under K.S.A. 2003
SUPP. 66-1239**)
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Docket No. 11-KCPE-____-PRE

AFFIDAVIT OF WILLIAM EDWARD BLUNK

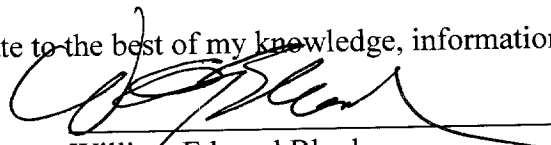
STATE OF MISSOURI)
) ss
COUNTY OF JACKSON)

William Edward Blunk, appearing before me, affirms and states:

1. My name is William Edward Blunk. I work in Kansas City, Missouri, and I am employed by Kansas City Power & Light Company as Supply Planning Manager.

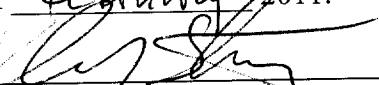
2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Kansas City Power & Light Company consisting of Seventeen (17) pages, having been prepared in written form for introduction into evidence in the above-captioned docket.

3. I have knowledge of the matters set forth therein. I hereby affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereof, are true and accurate to the best of my knowledge, information and belief.



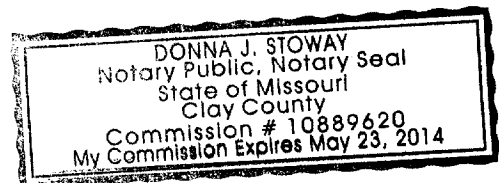
William Edward Blunk

Subscribed and affirmed before me this 1st day of February 2011.

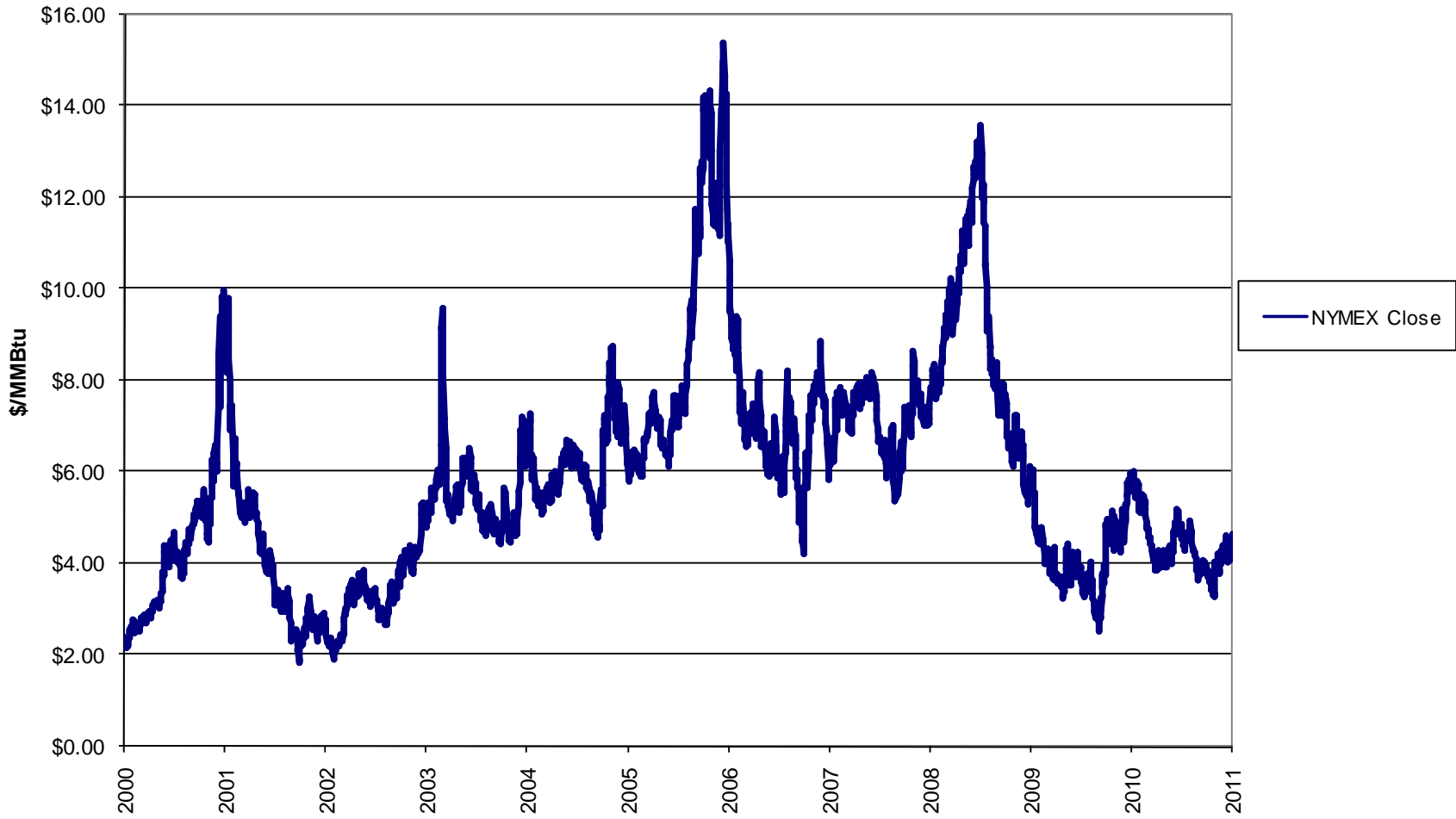


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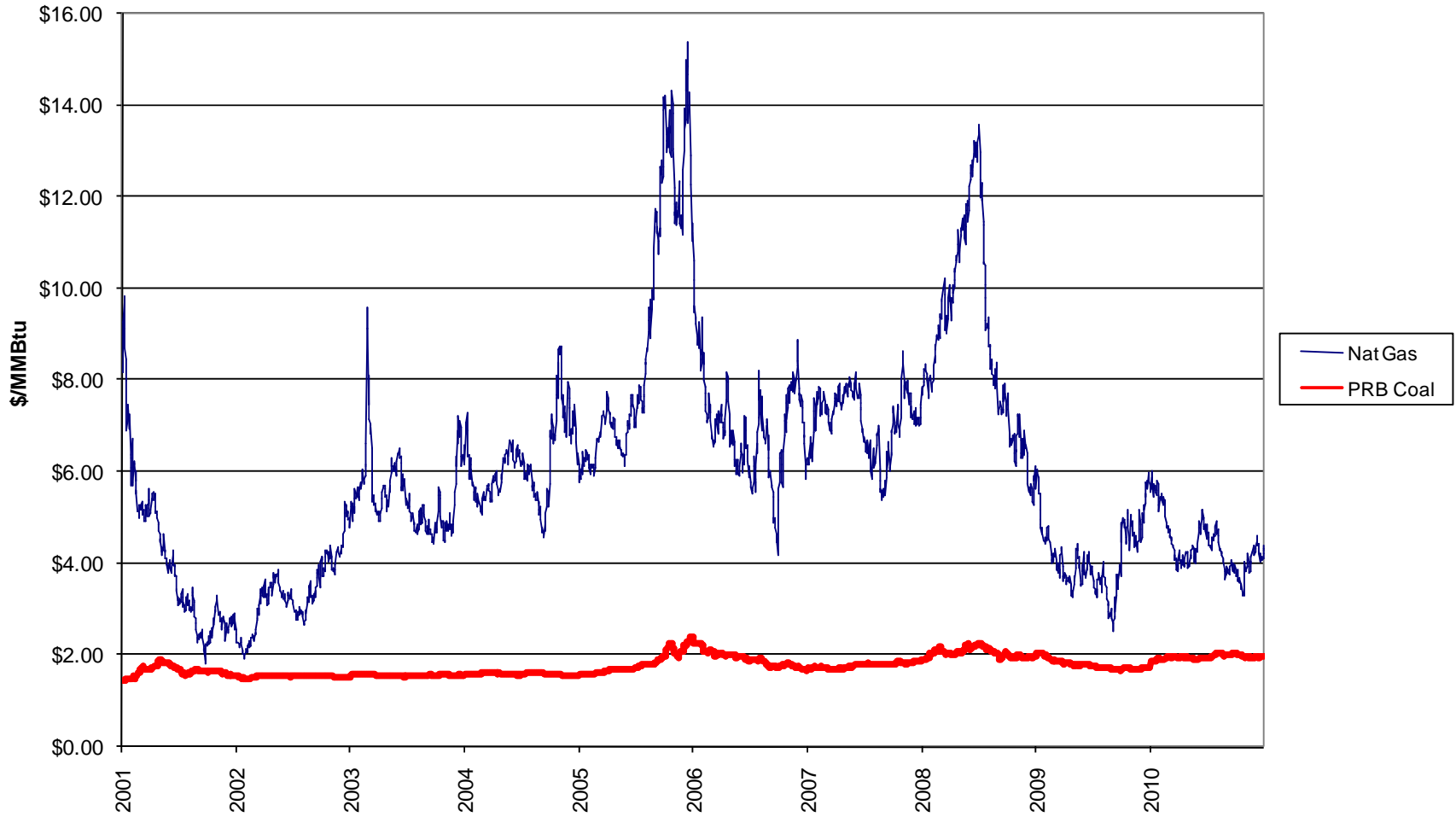
My commission expires: May 23, 2014



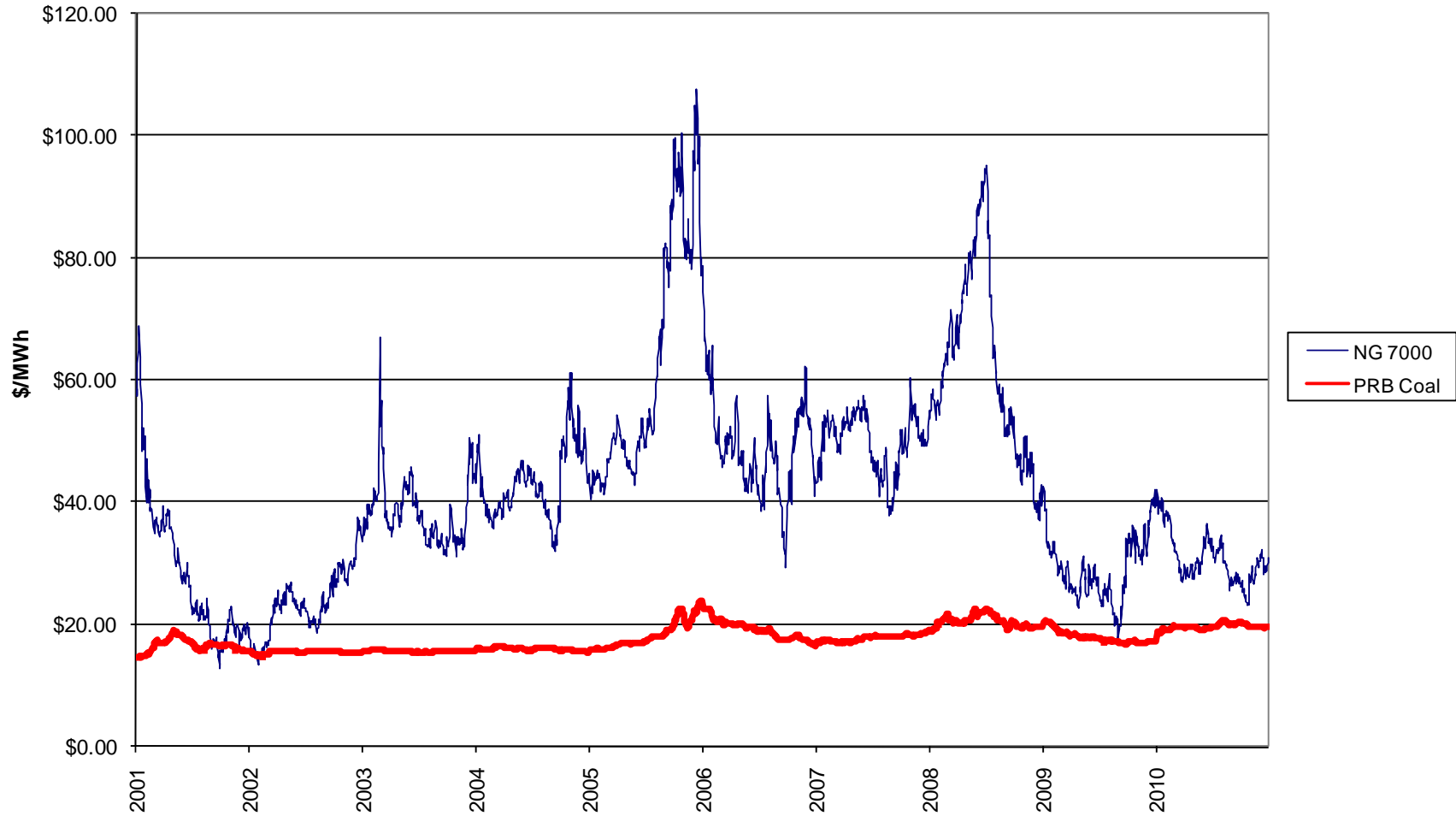
NYMEX Natural Gas Closing Price of Near-Month Contract



Natural Gas vs Delivered Coal Price



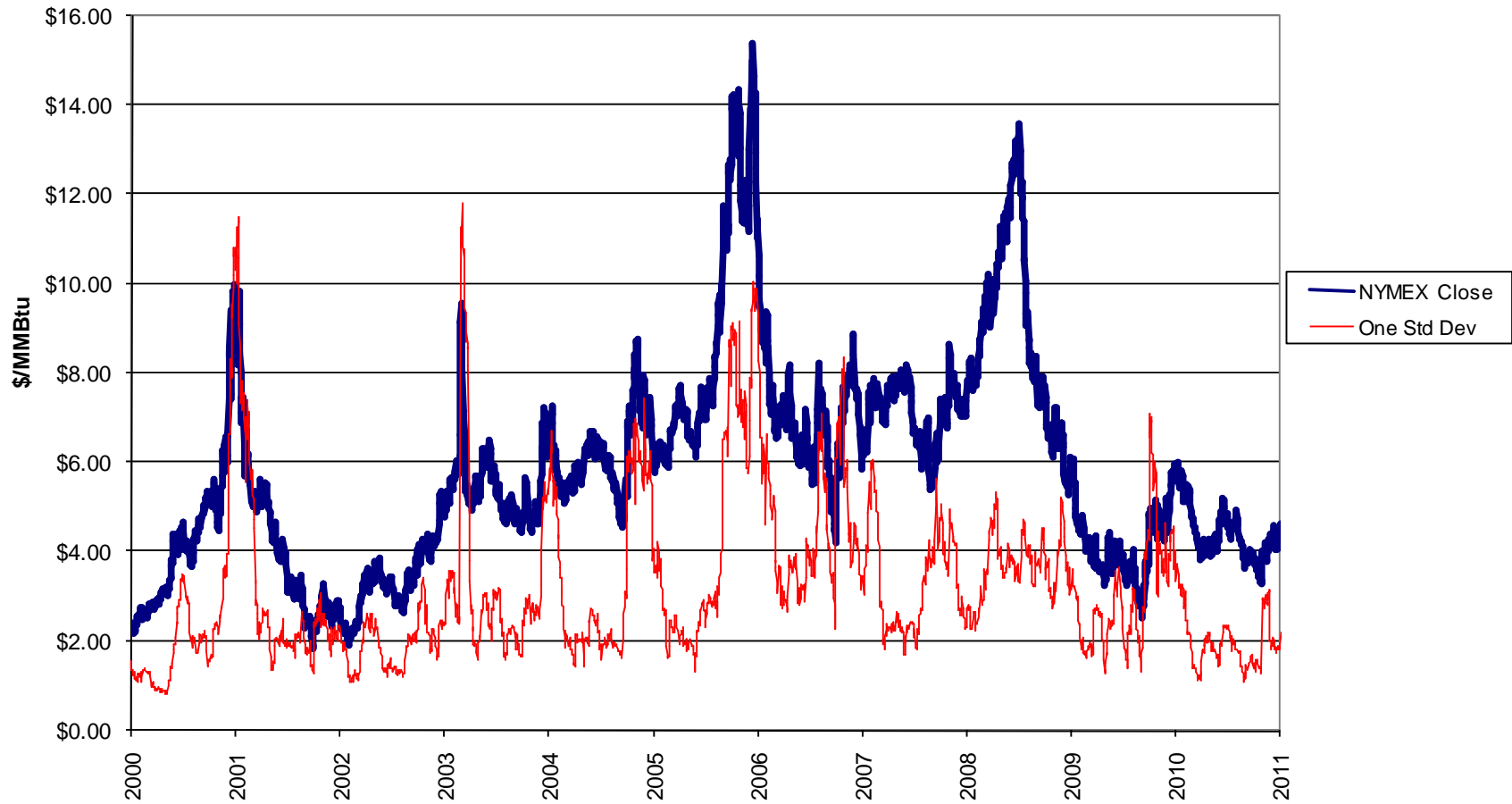
Natural Gas vs Coal - Dispatch Cost



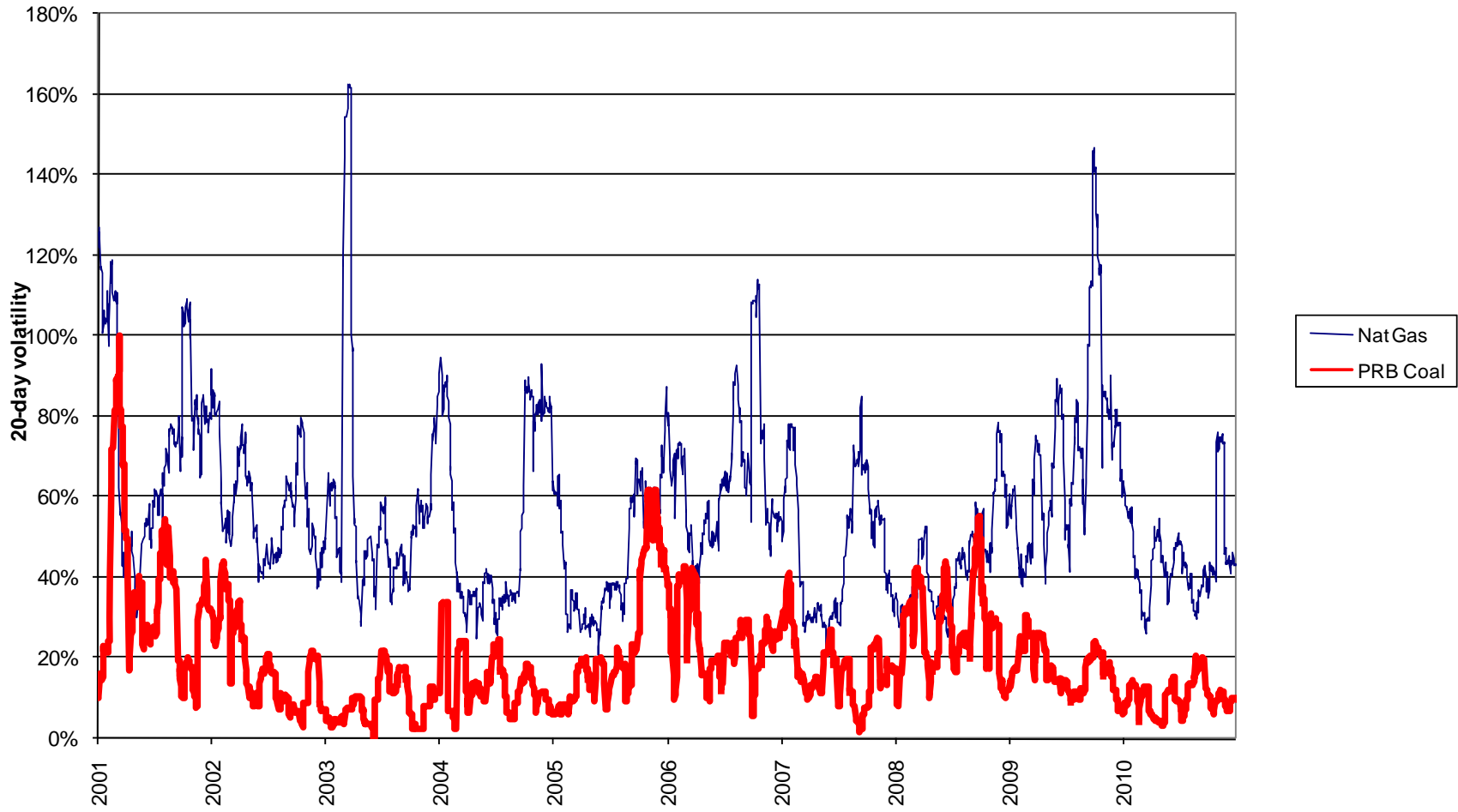
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THROUGH WEB2011-5
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NYMEX Natural Gas

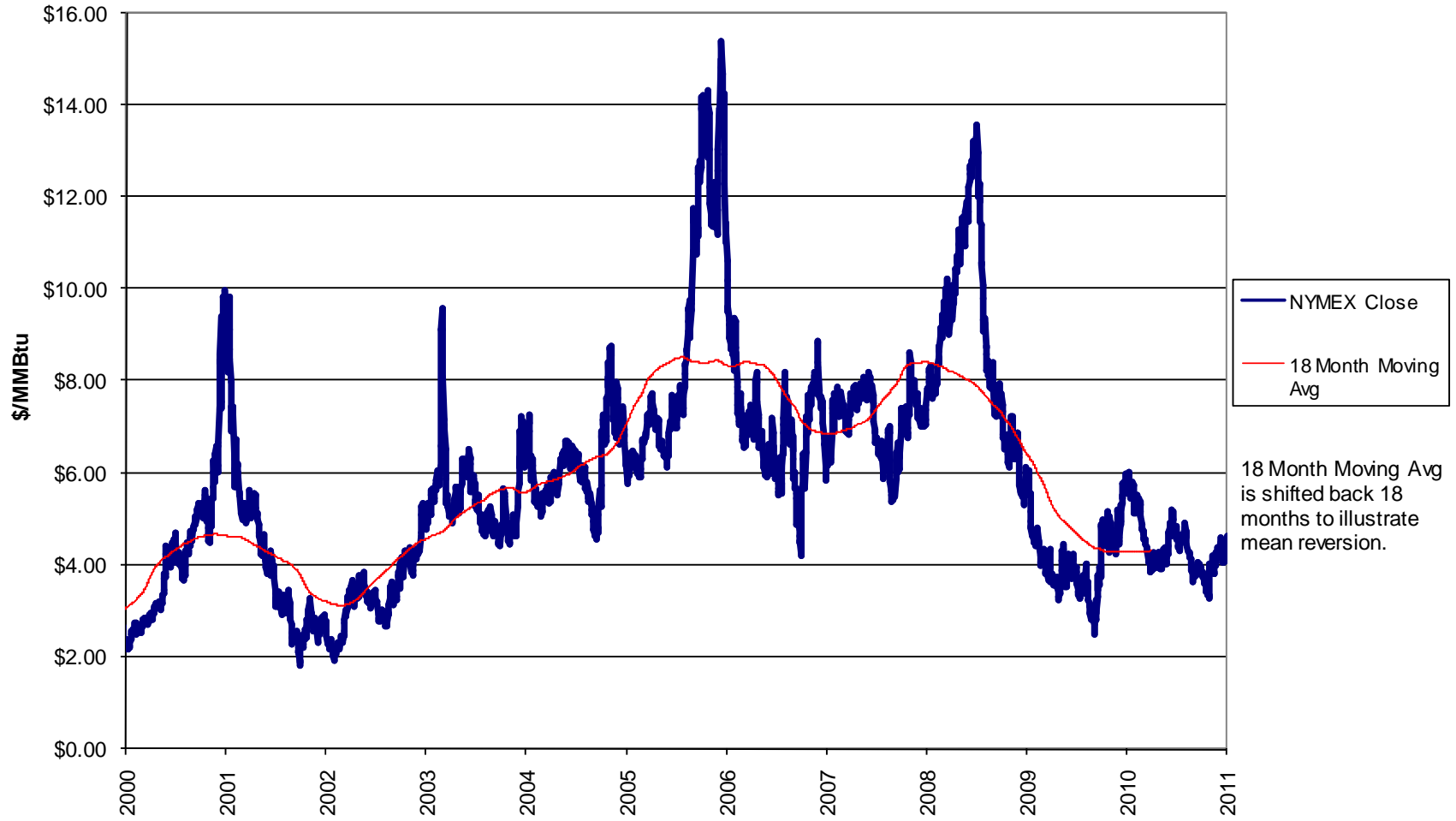
Closing Price vs. One Standard Deviation (20-day volatility)



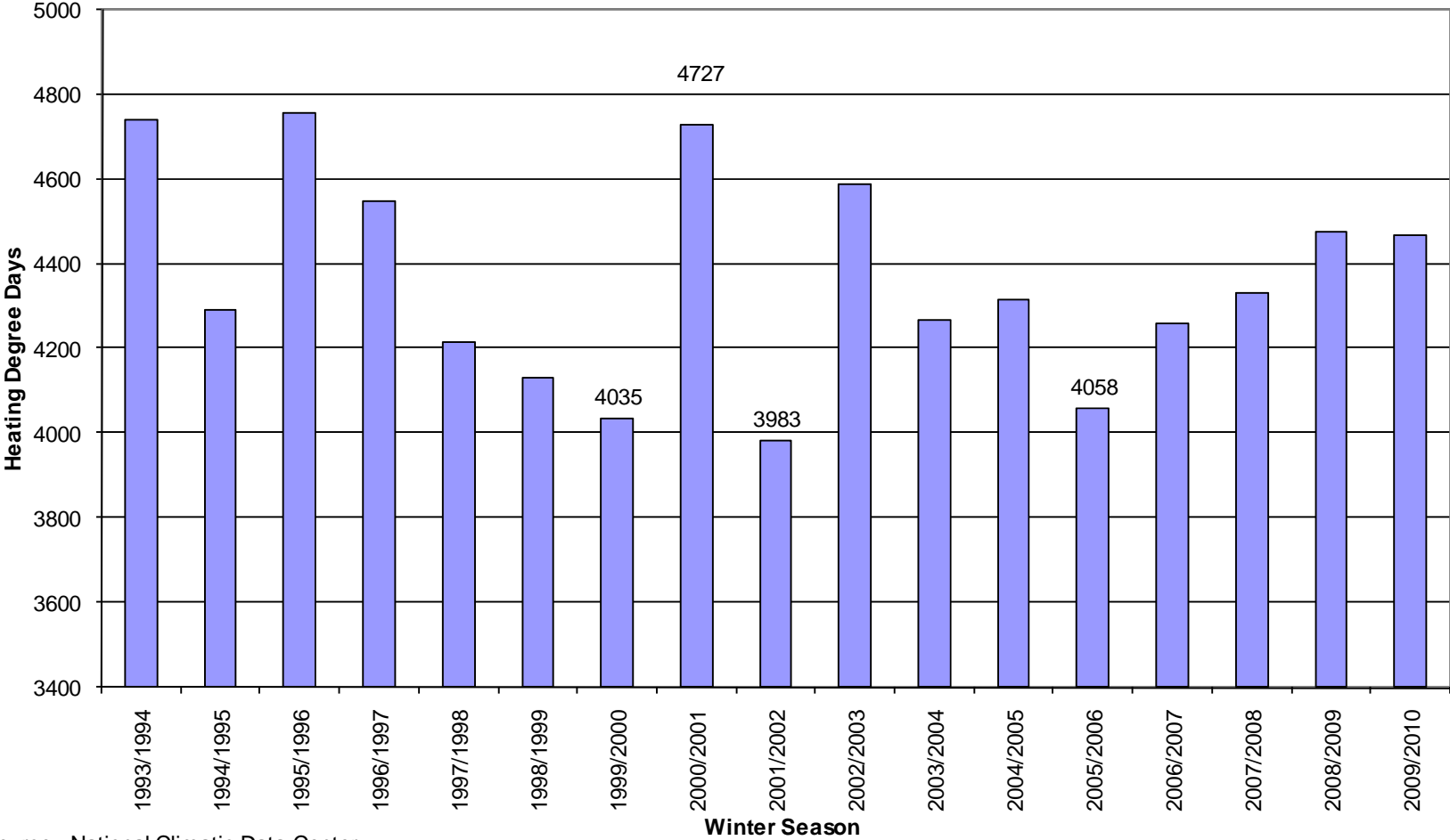
Natural Gas vs. Coal Price Volatility



Mean Reversion of Natural Gas Prices

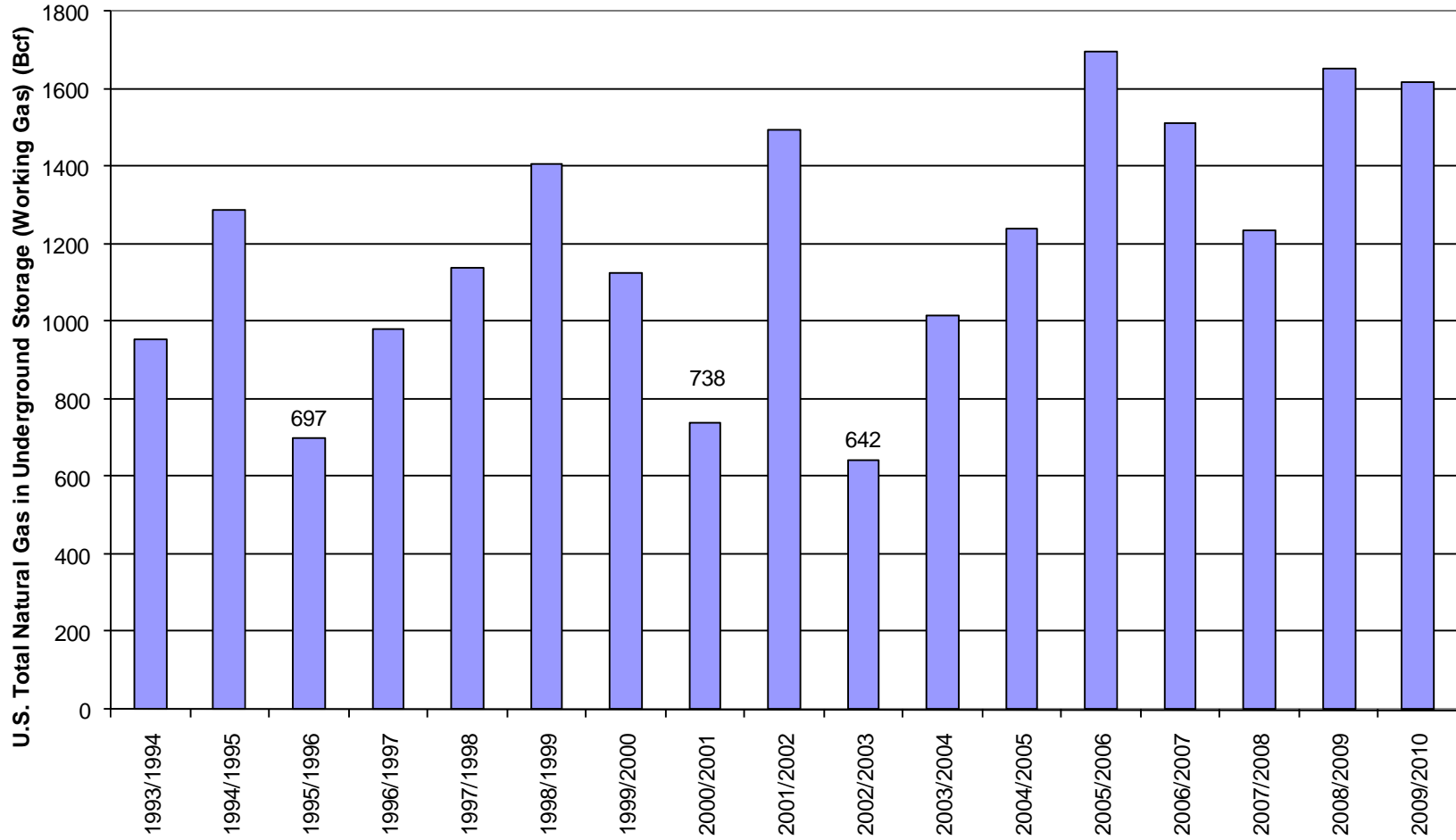


Population Weighted Heating Degree Days



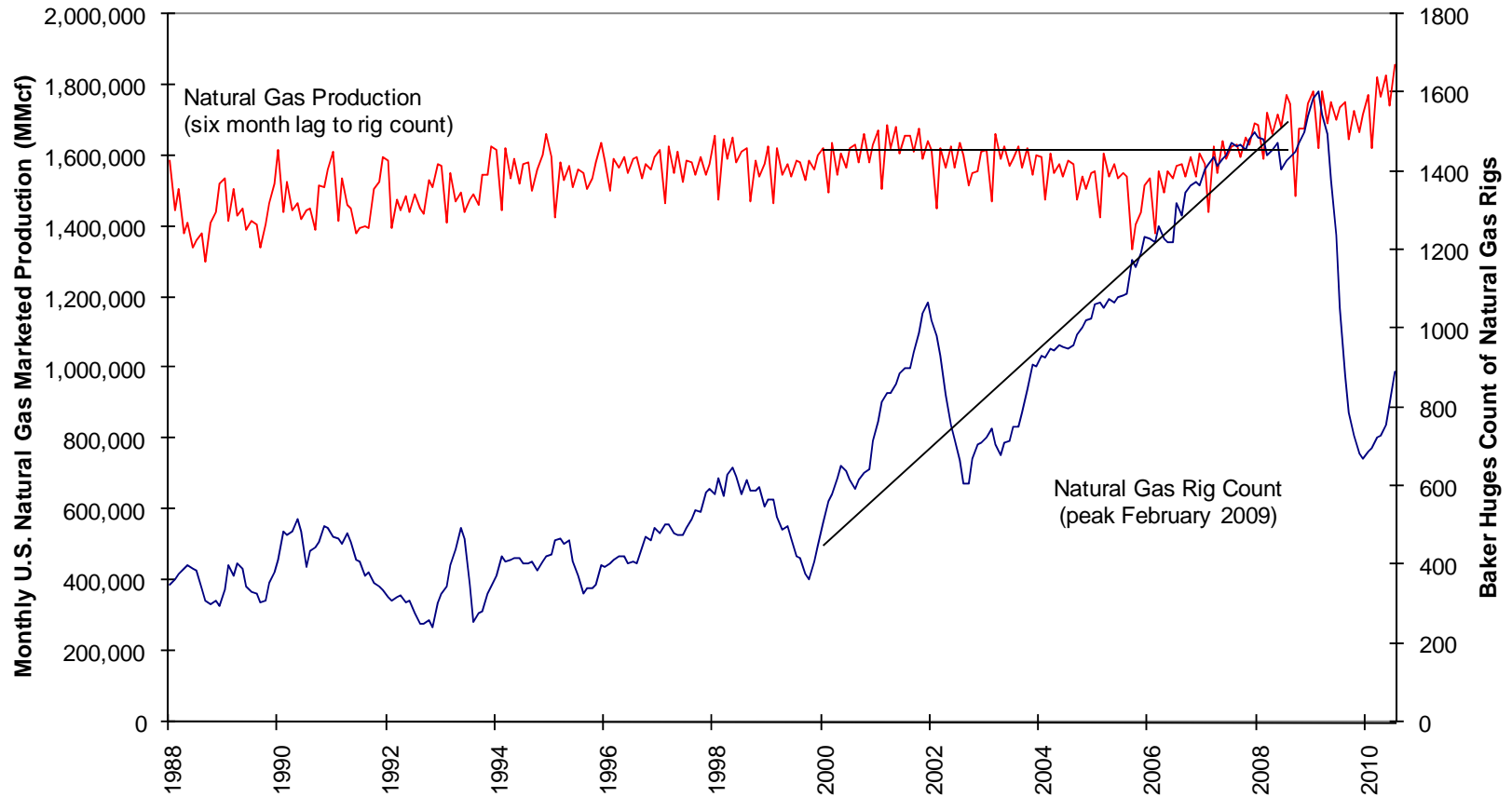
Source: National Climatic Data Center

Natural Gas Storage - Winter Low



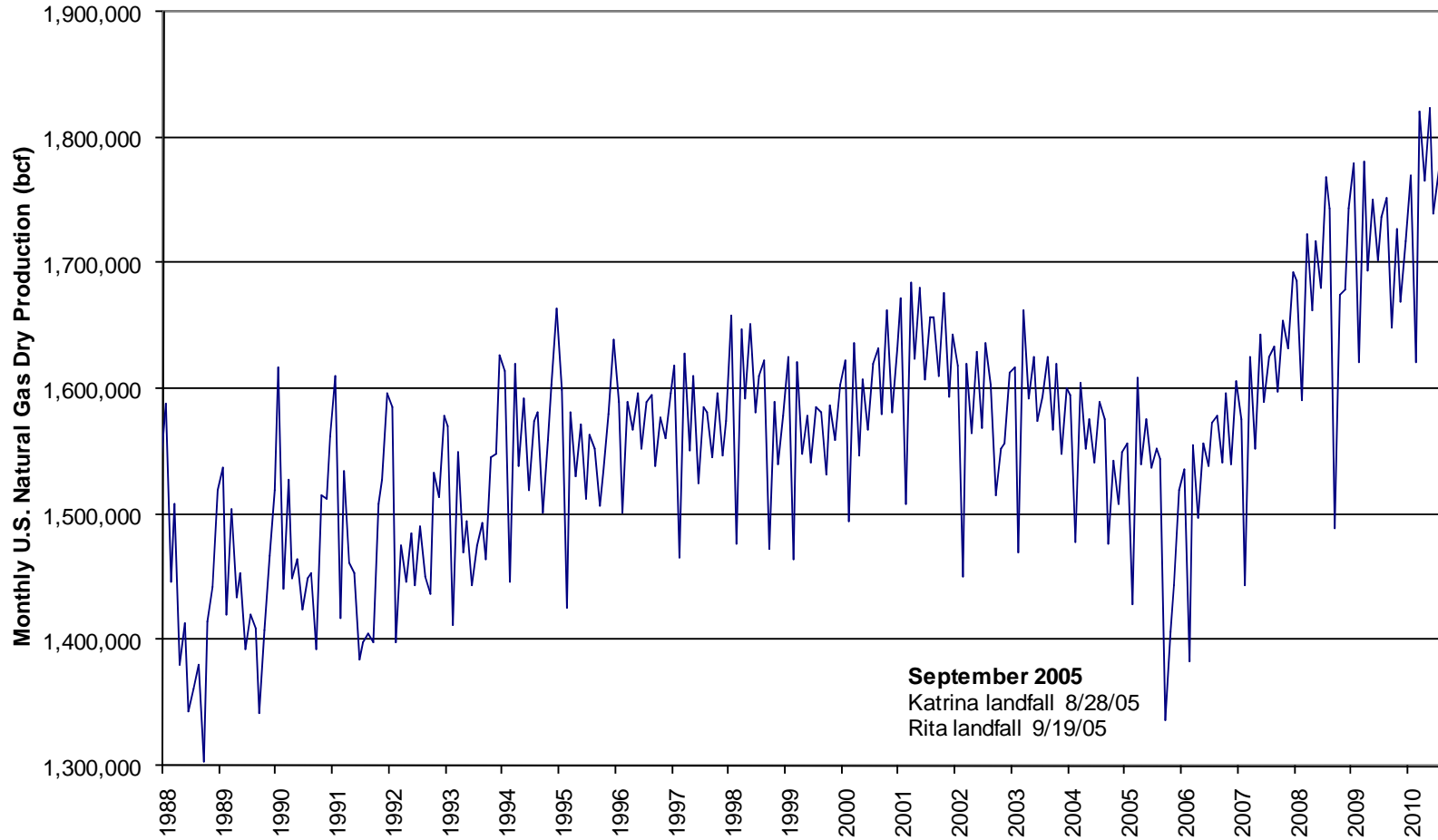
Source: Energy Information Administration

Natural Gas Production vs. Rig Count



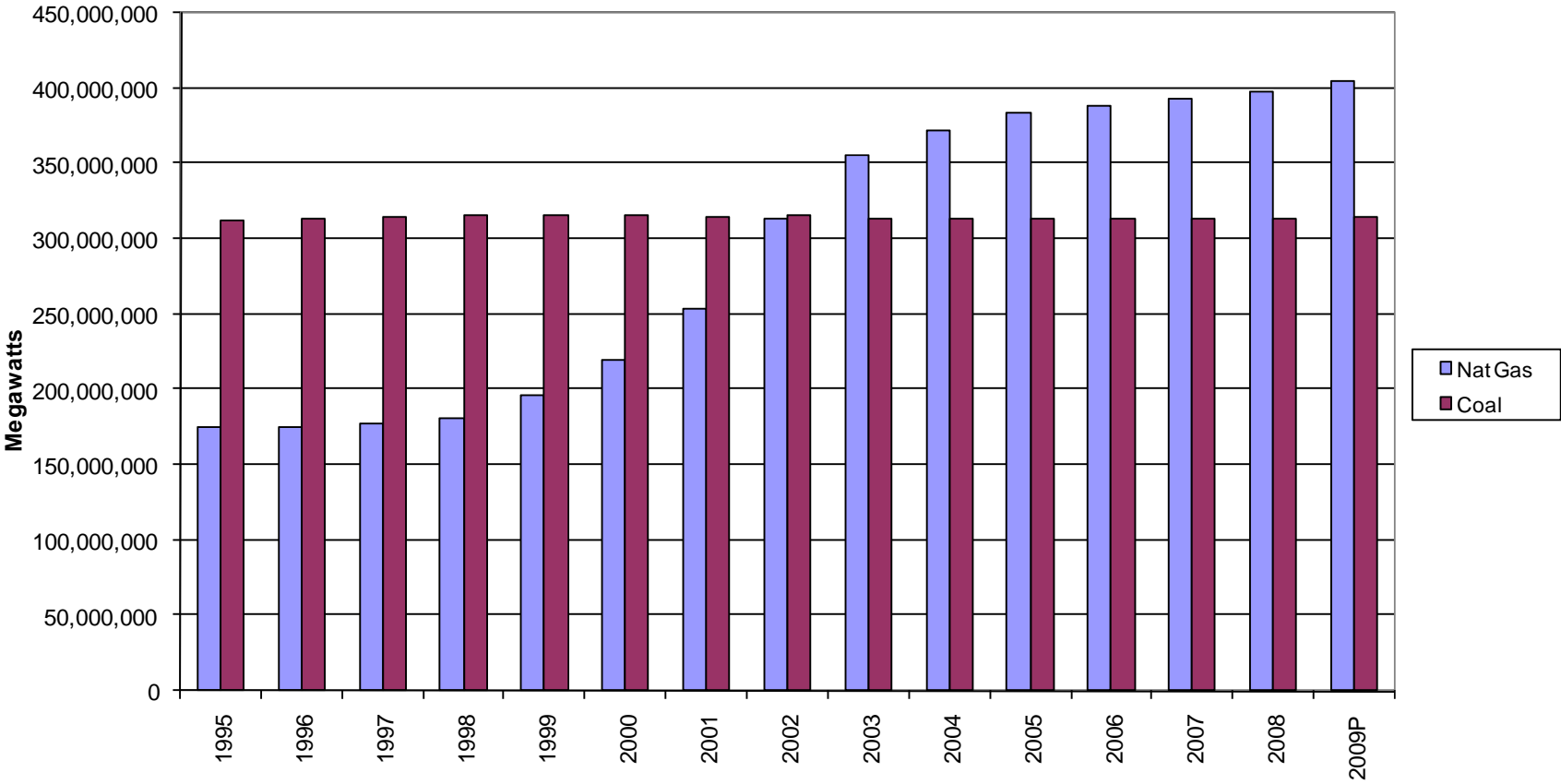
Sources: Energy Information Administration and Baker Hughes

U.S. Natural Gas - Dry Production



Source: Energy Information Administration

Electric Net Summer Capacity Natural Gas vs. Coal



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