

Exhibit No.:

Issues: Gas Costs

Witness: Joseph M. O'Donnell

Sponsoring Party: Aquila Networks-MPS
& L&P

Case No.: ER-2004-0034 &
HR-2004-0024
(Consolidated)

Before the Public Service Commission
of the State of Missouri

FILED⁴

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Rebuttal Testimony

of

Joseph M. O'Donnell

Missouri Public
Service Commission

Exhibit No. 110
Case No(s) ER-2004-0034
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JOSEPH M. O'DONNELL
AQUILA, INC. D/B/A AQUILA NETWORKS-MPS
AND AQUILA NETWORKS-L&P
CASE NOS. ER-2004-0034 AND HR-2004-0024
(CONSOLIDATED)**

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**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI
REBUTTAL TESTIMONY OF JOSEPH M. O'DONNELL
ON BEHALF OF AQUILA, INC.
D/B/A AQUILA NETWORKS-MPS AND AQUILA NETWORKS-L&P
CASE NOS. ER-2004-0034 AND HR-2004-0024 (CONSOLIDATED)**

1 Q. Please state your name.

2 A. My name is Joseph M. O'Donnell.

3 Q. By whom are you employed and in what capacity?

4 A. I am employed by Aquila, Inc., 20 West 9th Street, Kansas City, MO 64106 as
5 the Director of Market Analysis.

6 Q. What is the purpose of your rebuttal testimony in this case before the Missouri
7 Public Service Commission ("Commission")?

8 A. I will address certain matters contained in the direct testimony of staff witness
9 Graham Vesely, Office of the Public Counsel witness James A. Busch, and
10 Brubaker & Associates, Inc. witnesses Robert R. Stephens and Maurice
11 Brubaker involving the determination of an appropriate level of natural gas
12 fuel costs for generation.

13 Q. What is your understanding of the method used by Mr. Vesely to arrive
14 at his recommended gas price for this case?

15 A. Mr. Vesely uses the average of the actual gas cost incurred, on a plant-by-
16 plant basis, over a 21-month period running from January 2002 through
17 September 2003.

18 Q. Why did he use this approach?

1 A. His stated reason is that this method was used to levelize the volatility of the
2 actual monthly costs without bias to the results.

3 Q. Do you have any comments with respect to Mr. Vesely's method?

4 A. Yes, in my view his method is inappropriate.

5 Q. Please explain.

6 A. Costs from 2002 are not representative of what Aquila has paid in 2003 or
7 what it expects to pay in the future. In this regard, it appears that Mr. Vesely
8 made no attempt to analyze the current condition of the U.S. natural gas
9 market.

10 Q. Why do you say that gas prices from 2002 are not representative with respect
11 to current prices or in estimating the future prices of gas?

12 A. During 2003, the average price of New York Mercantile Exchange
13 ("NYMEX") natural gas futures, for natural gas to be delivered in calendar
14 year 2004, was \$4.958 per MMBtu and ranged between a low of \$4.359 on
15 Jan. 27, 2003 to a high of \$5.678 on Dec. 18, 2003.¹ At no time during 2003,
16 would Aquila have been able to purchase NYMEX natural gas, for 2004
17 consumption, below these prices. (See Schedule JMO-1)
18 The U.S. Energy Information Administration ("EIA"), in its January 2004
19 Short Term Outlook, projected that "...spot prices well above \$5 per million
20 Btu remain likely over the next few months if normal, or colder, weather
21 prevails, especially with oil prices remaining at relatively high levels."² The

¹ Source: New York Mercantile Exchange (NYMEX), http://www.nymex.com/jsp/markets/ng_fut_histor.jsp?, Average price of the 12 month calendar 2004 futures strip (contracts for Jan '04 through Dec '04 delivery).

² U.S. Energy Information Administration, <http://www.eia.doe.gov/emeu/steo/pub/pdf/jan04.pdf>

1 EIA also projects prices above \$6.00 per MMBtu, which might occur if cold
2 weather persists and oil prices remain high³. (See Schedule JMO-2)

3 Q. Please discuss the NYMEX Exchange

4 A. The NYMEX exchange provides natural gas market participants with several
5 important benefits as set out below:

6 Price Discovery

7 NYMEX prices are observable on a minute-by-minute basis. The NYMEX
8 exchange is an efficient market that provides the economic function of price
9 discovery, helps market participants understand the price effects of supply and
10 demand conditions, and allows market participants to make production or
11 consumption decisions based upon market prices. The NYMEX price is also
12 the price at which market participants can purchase natural gas for future
13 delivery at a fixed price quoted in advance. The price at which a particular
14 contract is trading can be known instantly by all participants from anywhere in
15 the world.

16 A Robust Market

17 During 2003, a monthly average of 3.38 trillion cubic feet (Tcf) of natural gas,
18 to be delivered in calendar 2004, was traded on the NYMEX. During 2003, a
19 total of 40.56 Tcf of natural gas, to be delivered in 2004, was traded on the
20 exchange, which amounted to about 180% of total U.S. consumption. (See
21 schedule JMO-3, JMO-4, & JMO-5)

22

Short-Term Energy Outlook, January 2004, Page 2

³ U.S. Energy Information Administration, <http://www.eia.doe.gov/emeu/steo/pub/pdf/jan04.pdf>
Short-Term Energy Outlook, January 2004, Figure 8-Page 11

1 Risk Transference

2 The NYMEX futures exchange provides risk transference, which is a
3 mechanism to transfer price risk from those who are unwilling to bear this risk
4 to those market participants who are willing. It provides a financial "hedging"
5 mechanism to help minimize price volatility.

6 Elimination Of Counter-Party Credit Risk

7 The NYMEX exchange also guarantees contractual performance, which
8 eliminates counter-party credit (default or bankruptcy) risk that is associated
9 with bi-lateral or Over-The-Counter ("OTC") type transactions.

10 NYMEX Is A Regulated Exchange

11 The NYMEX and its Members operate in accordance with the requirements
12 and regulations of the U.S. Commodity Futures Trading Commission
13 ("CFTC"), which requires the observance of the highest standards of service
14 and contract security to the benefit of all users. Trading on the NYMEX is
15 continuously monitored and irregularities are quickly detected. Audit trails
16 and surveillance systems support compliance with CFTC federal regulations.
17 Although it is possible that the spot price of natural gas in July of 2004 will
18 differ from the price that is currently being quoted in the futures markets, I
19 strongly advocate the use of NYMEX energy futures as a tool to help
20 minimize price volatility and financial risk. There are many market
21 participants with access to considerable information about supply, demand
22 and the market prices.

1 Q. What is the current state of the U.S. natural gas market?

2 A. The current state of the U.S. natural gas market could be characterized as a
3 market that is constrained by available supply and balanced by industrial
4 demand destruction. The U.S. natural gas market could also be described as
5 *operating under an economic scarcity-pricing scenario and subject to severe*
6 *price shocks.*

7 Q. Please discuss the fundamental economic factors influencing U.S. natural gas
8 prices.

9 Limited natural gas supply response to price signals.

10 A. Recent U.S. natural gas production has been observed to be relatively price
11 inelastic. A significant production response to repeated price shocks and
12 rising prices has not been observed. The NYMEX prompt month natural gas
13 futures price increased 86% from an annual average of \$2.32 per MMBtu in
14 1999 to annual average of \$4.32 per MMBtu in 2000. The NYMEX natural
15 gas price also peaked at \$9.98 per MMBtu on Dec. 27, 2000. However, total
16 U.S. natural gas production increased only 1.9% from an annual daily average
17 of 52.4 billion cubic feet per day (Bcf/d) in 1999 to 53.9 Bcf/d in 2000. (See
18 Schedule JMO-6)

19 U.S. Natural Gas Production Is Insufficient To Meet U.S. Demand

20 Regarding the production issue, total productive capacity of the mature U.S.
21 natural gas basins has been declining. U.S. natural gas production has been on
22 a treadmill and barely adequate to meet annual U.S. demand. During the
23 period 1992 to 2002, annual U.S. dry natural gas production increased from

1 17,840 Bcf to 19,047 Bcf, an average annual increase of 0.6%. More recently,
2 annual natural gas production declined 630 Bcf, or -3.2%, from 19,676 BCF
3 in 2001 to 19,047 Bcf in 2002⁴.

4 Q. What is the situation with respect to U.S. natural gas reserves?

5 A. During the period from 1977 to 2002, U.S. operators have had an average net
6 reduction in U.S. natural gas reserves of 1,013 billion cubic feet (Bcf) per
7 year.⁵ During the period from 1992 to 1999, proved natural gas reserves
8 increased only slightly from 165,015 Bcf to 167,406 Bcf respectively⁶, an
9 average annual increase of less than 0.2%. During the period from 1999 to
10 2002, proved natural gas reserves increased from 167,406 Bcf to 186,946 Bcf
11 respectively⁷, an average annual increase of about 3.6%. Much of this
12 increase, 50%, can be attributed to reserve recovery appreciation (or
13 extensions) of existing natural gas wells.

14 The relationship between proved reserves and production levels, expressed as
15 the ratio of reserves to production (R/P ratio), is a useful analytic tool. From
16 2001 to 2002 the U.S. average R/P ratio for natural gas increased from 9.2 to
17 9.4.⁸ Although this was an improvement over the prior year, reserves are

⁴ U.S. Energy Information Administration (EIA), <http://www.eia.doe.gov/emeu/mer/natgas.html>
December 2003 Monthly Energy Review, Natural Gas Production Data, Table 4.2

⁵ U.S. Energy Information Administration (EIA), U.S. Crude Oil, Natural Gas and Natural Gas Liquids
Reserves, 2002 Annual Report published December 2003, Page 9

⁶ U.S. Energy Information Administration (EIA), U.S. Crude Oil, Natural Gas and Natural Gas
Liquids Reserves, 2002 Annual Report published December 2003, Page 4 - Table 1 & Page 6-Figure 3.

⁷ U.S. Energy Information Administration (EIA), U.S. Crude Oil, Natural Gas and Natural Gas
Liquids Reserves, 2002 Annual Report published December 2003, Page 4-Table 1 & Page 6-figure3

⁸ U.S. Energy Information Administration (EIA), U.S. Crude Oil, Natural Gas and Natural Gas
Liquids Reserves, 2002 Annual Report published December 2003, Page 15 & Page 16-Figure 12

1 much lower than in the mid 1980's when the R/P ratio was above 12 and well
2 below the R/P ratio of 20 that was observed in the 1960's. (See Schedule
3 JMO-7).

4 Several major gas producing regions, Texas, the Gulf of Mexico Offshore, and
5 Oklahoma, have R/P ratios below the National average. The area with the
6 largest decline in proven reserves has been in the Shallow Water Gulf of
7 Mexico, LA/TX ("SWGOM"). In this region, reserves declined by 1,221
8 Bcf, or 6.5%, from a total of 19,721 Bcf as of Dec. 31, 2001 to 18,500 Bcf the
9 following year⁹. Areas with higher R/P ratios than the National average are in
10 the Western U.S. and include the Pacific Offshore, Rockies, Wyoming, and
11 Colorado. The pipeline infrastructure to move substantial amounts of Rockies
12 and Wyoming gas supply across the Continental Divide and into the Midwest
13 has not been developed yet.

14 Q. What is the situation with respect to the United States' ability to import
15 natural gas and increase the available domestic supply?

16 A. The U.S. relies on imported natural gas to make up its annual consumption
17 deficit and most of it is imported from Canada via pipeline. (See Schedule
18 JMO-8) Unlike the crude oil industry, the U.S. lacks significant capacity to
19 import natural gas from other regions of the world and is predominately
20 reliant on mature North American supply basins. Although Liquefied Natural
21 Gas ("LNG") has been imported into the United States for more than three
22 decades, in 2001 LNG imports represented about only 6% of total U.S. gas

⁹ U.S. Energy Information Administration (EIA), *U.S. Crude Oil, Natural Gas and Natural Gas Liquids Reserves, 2002 Annual Report* published December 2003, Table 8, Page 30

1 imports¹⁰. Only four U.S. marine facilities currently exist that can receive
2 LNG and the combined daily send out capacity of these four facilities is less
3 than 4% of average U.S daily consumption.¹¹ (See Schedule JMO-9)

4 Q. When can we expect additions to the U.S. natural gas supply?

5 A. It will be years before there is any significant addition to the North American
6 Natural Gas Supply and sustained higher prices will be required to attract the
7 required capital investment. North American natural gas reserves exist in
8 "frontier" regions such as the Alaskan North Slope, the Artic Canadian
9 MacKenzie Delta, the Nova Scotian shelf, and in the Deep Water of the Gulf
10 of Mexico ("DWGOM"). It is industry consensus that new supplies from the
11 Deep Water Gulf of Mexico are needed to simply offset the decline in
12 Shallow Water Gulf of Mexico production previously discussed. Deep water
13 drilling requires considerable capital and technical competence. On July 3,
14 2000, ExxonMobil announced the start-up of the world's deepest water
15 drilling and production platform, to drill in the Hoover Diana fields located
16 200 miles South of Houston, TX, in 4,800 feet of water, at a cost of \$1.1
17 billion dollars¹². Sustained higher natural gas prices will be required to attract
18 these capital-intensive investments. Natural gas production from the Alaskan

¹⁰ Energy Information Administration, *Natural Gas Monthly*, May 2002, Table 5

¹¹ U.S. Energy Information Administration,
http://www.eia.doe.gov/pub/oil_gas/natural_gas/feature_articles/2003/lng/lng2003.pdf
LNG Markets and Uses, January 2003, Page 6, Table 1

¹² IRVING, TX – July 3, 2000 ExxonMobil Press release,
http://www2.exxonmobil.com/Corporate/Newsroom/Newsreleases/Corp_xom_nr_030700.asp
World's Deepest Water Drilling and Production Platform Completed by ExxonMobil

1 North Slope and the Canadian MacKenzie delta is not expected to occur until
2 later in this decade.

3 Q. What is the situation regarding United States' demand for natural gas?

4 A. Regarding natural gas demand issues, residential natural gas is primarily used
5 as a home heating fuel. Homeowners need to keep warm and residential
6 consumption is more highly correlated to temperature (weather) than price.
7 Residential natural gas consumption increased in 2003 relative to the prior
8 year even while wellhead prices increased considerably. (See Schedule JMO-
9 10)

10 Industrial consumption of natural gas is used primarily in manufacturing or
11 chemical feedstock processes and is highly price sensitive. Industrial
12 consumption of natural gas has declined from a high of 8,511 bcf in 1997 to
13 7,203 Bcf in 2002, an average annual decline of 3.3% per year. During the
14 natural gas price shock that occurred in the Winter of 2000-2001, industrial
15 consumption of natural gas declined by 779 Bcf, or 9.6%, from 8,142 in 2000
16 to 7,363 in 2001¹³ and is illustrative of how the natural gas market is being
17 balanced. Industrial consumption declined even further in 2002 to 7,203 Bcf.
18 Schedule JMO-11 illustrates the monthly average consumption of natural gas
19 by the industrial sector and illustrates this decline and price sensitivity.

20 Q. Are there other reasons why historical prices do not reflect current market
21 conditions?

¹³ S. Energy Information Administration (EIA), <http://www.eia.doe.gov/emeu/mer/natgas.html>
December 2003 Monthly Energy Review, Natural Gas Production Data, Table 4.4

1 A. Yes, during the period from 1999 through 2003, more than 195,000
2 Megawatts of new electric power generation capacity was added in the lower
3 48 U.S. states¹⁴. This is enough new electric power generation capacity to
4 power a city that is twenty-four times as large as New York City, N.Y. on its
5 peak summer day¹⁵ and more than 95% of this new capacity uses natural gas
6 as its primary fuel. Total U.S. electric production tends to be highly correlated
7 to the real U.S. gross domestic product and the U.S. economy was in a
8 recession during 2001. Total annual U.S. electric output declined 0.6% from
9 3,648,596 Gigawatt-hours (GWh) in 2000 to 3,627,684 GWh in 2001¹⁶. This
10 is another reason why historical 2001 prices do not reflect current market
11 conditions.

12 Q. Does the status of the U.S. economy impact this issue?

13 A. Yes, unlike 2002, we now see a rebounding economy and a marketplace that
14 has already absorbed most of the demand destruction and fuel switching that
15 is likely to take place. It is the consensus of the top U.S. economists that
16 2004 will see the largest calendar increase in real GDP in 19 years. The
17 current consensus GDP forecast is 4.6% this year and would be the largest
18 increase since 1984.¹⁷ Total U.S. electric production can be expected to
19 increase in 2004 along with demand for natural gas. (See Schedule JMO-12)

¹⁴ Platts Powerdat database, Nov. 2003

¹⁵ Con Edison Report, *CON EDISON FACTS for the periods ended December 31, 2002 and 2001*,
<http://www.coned.com/about/about.asp?subframe=facts>, 2002 NY peak customer load 7,874
Megawatts

¹⁶ Edison Electric Institute,
http://www.eei.org/products_and_services/descriptions_and_access/wkly_elec_output.htm, *Weekly
Electric Output*

¹⁷ Blue Chip Economic Indicators, *Top Analysts' Forecast Of The U.S. Economic Outlook For The
Year Ahead*, Vol. 29, No. 1 January 10, 2004

1 Q. Do crude oil prices impact this issue?

2 A. Yes, crude oil and fuel oil prices have risen considerably over the last year,
3 driven in part by a decline in the U.S. dollar relative to the EURO. (See
4 schedules JMO-13, & JMO-14)

5 A senior Iranian oil official, Hossein Kazempour Ardebili, who is Iran's
6 Organization of Petroleum Exporting Countries (OPEC) governor, recently
7 reported that, "...compared with a year ago, each barrel of oil has lost \$5 of
8 value (USD) because of the drop in the dollar...I don't think that the price in
9 real terms is high."¹⁸ Iran is OPEC's second largest oil producer.

10 Saudi Arabia, the world's largest oil exporter, announced its intention to keep
11 oil shipments unchanged. Ali al-Maimi, Saudi Arabia's oil minister, said last
12 month that OPEC would be unlikely to boost output in response to higher oil
13 prices.¹⁹

14 Referring back to the EIA's January 2004 natural gas projections, "...spot
15 prices well above \$5 per million Btu remain likely over the next few months if
16 normal, or colder, weather prevails, especially with oil prices remaining at
17 relatively high levels." Total U.S. crude oil inventories are currently well
18 below the five-year average and are at a five-year low (See Schedule JMO-15)
19 and it is highly probable that high oil prices will be sustained throughout
20 2004.

21 Again, the consequence of these conditions is a natural gas market that is
22 constrained by available supply, balanced by industrial demand destruction

¹⁸ Bloomberg News, Jan. 05, 2004, *Iran Official Say Weaker U.S. Dollar Justifies High Oil Prices*

¹⁹ Bloomberg News, Jan. 13, 2004, *Saudi Aribai Keeps U.S. Oil Shipments Unchanged in February*

1 and subject to severe price shocks. (See Schedule JMO-16). In an effort to
2 effect this demand destruction, natural gas prices have risen above the price of
3 alternative fuels, and are likely to remain above fuel oil prices until the supply
4 outlook improves considerably. The spot price of residual fuel oil²⁰ averaged
5 \$4.91 per MMBtu over the last year. As long as the U.S. supply of natural gas
6 remains constrained with marginal total inventories, it is likely that natural gas
7 prices will remain above the price of the alternative, #6 fuel oil. Schedule
8 JMO-17 illustrates the relative price of fuels observed during 2003 in U.S.
9 dollars per MMBtu.

10 Q. What is the status of U.S. Natural Gas Inventories?

11 A. The U.S. natural gas market can be characterized as a market that is very
12 sensitive to the adequacy of natural gas in storage required to meet winter
13 demand. Schedule JMO-18 is a scatter plot that illustrates the sensitivity of
14 prices to the total U.S. natural gas storage surplus (deficit) in Bcf relative to
15 the five-year average. The historical correlation is over 73%.
16 For the week ending January 16, 2004, the U.S. Energy Information reported
17 that total U.S. natural gas in storage was 2,258 Bcf, or 9.3% above the five-
18 year average. For the week ending Jan 18, 2002, the U.S. Energy Information
19 reported that total U.S. natural gas in storage was 2,522 Bcf, or 22.9% above
20 the five-year average. In contrast to current conditions, total U.S. natural gas
21 in storage remained at a five-year maximum level throughout most of 2002.
22 (See Schedule JMO-19)

²⁰ Source: Platts Spot #6 Fuel Oil Price, 1% Sulphur, New York Cargo with \$3.50 per barrel NY tax adder

1 Q. What has been the political reaction to high natural gas prices?

2 A. Alan Greenspan, Chairman of The U.S. Federal Reserve System, in his
3 testimony to the U.S. Joint Economic Committee in the spring of 2003,
4 summarized the condition of the U.S. natural gas market. He said "And if, on
5 the one hand, we have encouraged, as we have, very significant growth in
6 domestic demand for natural gas, but very readily constrained by our ability to
7 increase supply, then something has got to give. And what is giving, of
8 course, is price. And price, now its \$6 per million MCF is pressing down, ...,
9 on a number of industries which rely very heavily on natural gas. ... And we
10 have, I'd say, contradictory federal policy."²¹

11 Mr. Greenspan later testified on the natural gas industry before the House
12 Energy and Commerce Committee and said, "Today's tight natural gas
13 markets have been a long time in coming, and futures prices suggest that we
14 are not apt to return to earlier periods of relative abundance and low prices
15 anytime soon."²²

16 In this same testimony, Mr. Greenspan also commented "...our limited
17 capacity to import liquefied natural gas ("LNG") effectively restricts our
18 access to the world's abundant supplies of gas. Our inability to increase
19 imports to close a modest gap between North American demand and
20 production (a gap we can almost always close in oil) is largely responsible for
21 the marked rise in natural gas prices over the past year."

22 Q. Please summarize your rebuttal to Mr. Vesely.

²¹ Bloomberg L.P., *Greenspan Testimony to Joint Economic Committee: Q&A Part VI*, May 21, 2003

²² Bloomberg L.P., *Text of Fed Chairman Greenspan's Testimony on Natural Gas*, Jun 10, 2003

1 A. Summarizing, natural gas production will likely remain constrained until the
2 latter half of this decade. Natural gas supply relief will occur only if U.S.
3 LNG import capacity is increased or if the frontier natural gas regions are
4 developed. Sustained higher natural gas prices will be required to affect this
5 increase in supply.

6 The economy is rebounding and electric power production and natural gas
7 demand should increase accordingly. In the interim, market prices will most
8 likely continue to be very sensitive to the adequacy of natural gas storage
9 levels required to meet winter heating demand. Should storage levels decline
10 below the five year average, then natural gas prices well above \$5.00 per
11 MMBtu are plausible as noted by the EIA in its January 2004 Short term
12 Outlook.

13 In his testimony, Mr. Vesely notes that the price of natural gas tends to
14 fluctuate up and down, and that it is common to use some kind of averaging
15 method.²³

16 I agree with Mr. Vesely but would recommend the use of cost averaging in the
17 NYMEX futures markets where prices are more reflective of current market
18 conditions and price expectations rather than using historical data. This
19 methodology would result in a 2004 average price of \$4.958 that was
20 observed in 2003.

21 **James A. Busch Testimony**

22
23 Q. What is your understanding of the method recommended by Mr. Busch to
24 determine the price of natural gas in this case?

²³ Direct Testimony of Graham A. Vesely to the Missouri Public Service Commission, Page 9

1 A. Mr. Busch uses a four-year average of historical and future prices weighted by
2 the actual average monthly volumes of gas burned by Aquila. Three of the
3 four years are historical using NYMEX settled prices for 2001, 2002, and
4 2003. The fourth year is the 2004 NYMEX futures strip. He calculated a
5 recommended price of \$3.99/mcf including the average basis between
6 NYMEX Henry Hub and Williams Natural Gas ("WNG") of \$0.179/mcf
7 (negative with respect to the Hub). To restate the recommended price at
8 NYMEX, the basis must be removed to arrive at \$4.169/mcf.

9 Q. Do you have any comments regarding Mr. Busch's method and
10 recommendation?

11 A. Yes, Mr. Busch's use of the NYMEX futures price on Nov. 20, 2003 is very
12 subjective, is below the average observed in 2003 and represents a single data
13 point in a larger data series. (See schedule JMO-1) Also, the prices from 2001
14 and 2002 are not meaningful for setting rates in this case for the same reasons
15 I discussed earlier with respect to Mr. Vesely's testimony. Historical prices
16 are not indicative of future market prices.

17 Q. Do you have other comments concerning Mr. Busch's testimony?

18 A. Yes, Mr. Busch used "weighted" monthly average prices using historical plant
19 consumption data. Weather patterns can vary greatly over a ten-year period
20 and actual monthly plant fuel consumption can vary greatly year-over-year,
21 especially in the winter, spring and fall months when extended periods of
22 warm (or cold) weather can greatly reduce (or increase) plant fuel
23 consumption.

1 Beginning on page 5, line 22, Mr. Busch describes the Energy Information
2 Agency ("EIA") as being optimistic about the price of gas this winter and
3 expecting prices between \$4.50 and \$5.00/mmBtu. As previously discussed, the
4 latest EIA Short Term Energy Outlook, dated January 7, 2004, forecasts prices at
5 or above \$5.00 per MMBtu if the winter weather is warmer or colder than normal.
6 The report also warns, in its 2005 forecast, that "Without gains in new supply
7 over the next 2 years, increasing pressure from the economy is likely to translate
8 into renewed increases in natural gas prices." Based on the economic issues
9 previously discussed, the likelihood of additional supply seems to be poor.

10 **Robert R. Stephens Testimony**

11

12 Q. Please describe your understanding of the method recommended by Mr.

13 Stephens for determining the price of natural gas used in this case.

14 A. Mr. Stephens used a combination of the NYMEX futures for 2004 through
15 2006 and the forecast for 2004 from the EIA to calculate at a recommended
16 price of \$4.35/mcf. Mr. Stephens also used a 10-day average of the NYMEX
17 futures to smooth out any volatility in prices and derived a price of
18 \$4.709/mcf by taking the average of the 2004 through 2006 futures. The EIA
19 price used by Mr. Stephens was \$3.99/mcf at the wellhead. The
20 recommended price of \$4.35/mcf is the average of the EIA and average
21 futures prices.

22 Q. Do you have any comments concerning Mr. Stephens's method and
23 recommendation?

1 A. Yes, the use of EIA wellhead price is not appropriate as it is not comparable to
2 the Henry Hub based NYMEX. Mr. Stephens should use a market price at the
3 Henry Hub to avoid unrealistically low price calculations. In addition, the use
4 of a ten-day average is very subjective as the time-period that Mr. Stephens
5 selected is below the average price of \$4.958 observed during 2003.

6 Q. Is there more recent information that has a bearing on this issue?

7 A. Yes, after Mr. Stephens prepared his testimony, the EIA revised its 2004
8 forecast upward to a composite spot of \$5.14/mcf. If Mr. Stephens were to re-
9 file his testimony using December 19th data and the current EIA forecast, his
10 recommended price would be \$5.07/mcf.

11 **Maurice Brubaker Testimony**

12 Q. What comments do you have with respect to Mr. Brubaker's testimony?
13

14 A. On Page 4, Lines 16-20, Mr. Brubaker states:

15 *"I recommend that a more recent outlook for natural gas prices be used.*
16 *Mr. Stephens presents one such outlook in his testimony, and I expect*
17 *other witnesses will do so as well. When the Commission makes its final*
18 *decision, it should decide what is the most realistic outlook for natural gas*
19 *prices at that time, and incorporate those numbers into the fuel model for*
20 *purposes of determining the base values (i.e., the values before adding 50¢*
21 *per Mcf to gas prices) for the average cost of fuel..."*
22

23 I completely agree that the most realistic and most up-to-date price
24 information should be used for ratemaking. That would exclude the use of
25 historical costs from 2001 or 2002.

26 Q. In summary, what is your current recommendation for gas prices?

- 1 A. I can see no reason to abandon the \$5.14/mcf originally requested in this case.
- 2 Q. Does this conclude your testimony?
- 3 A. Yes.



Schedule JMO-1

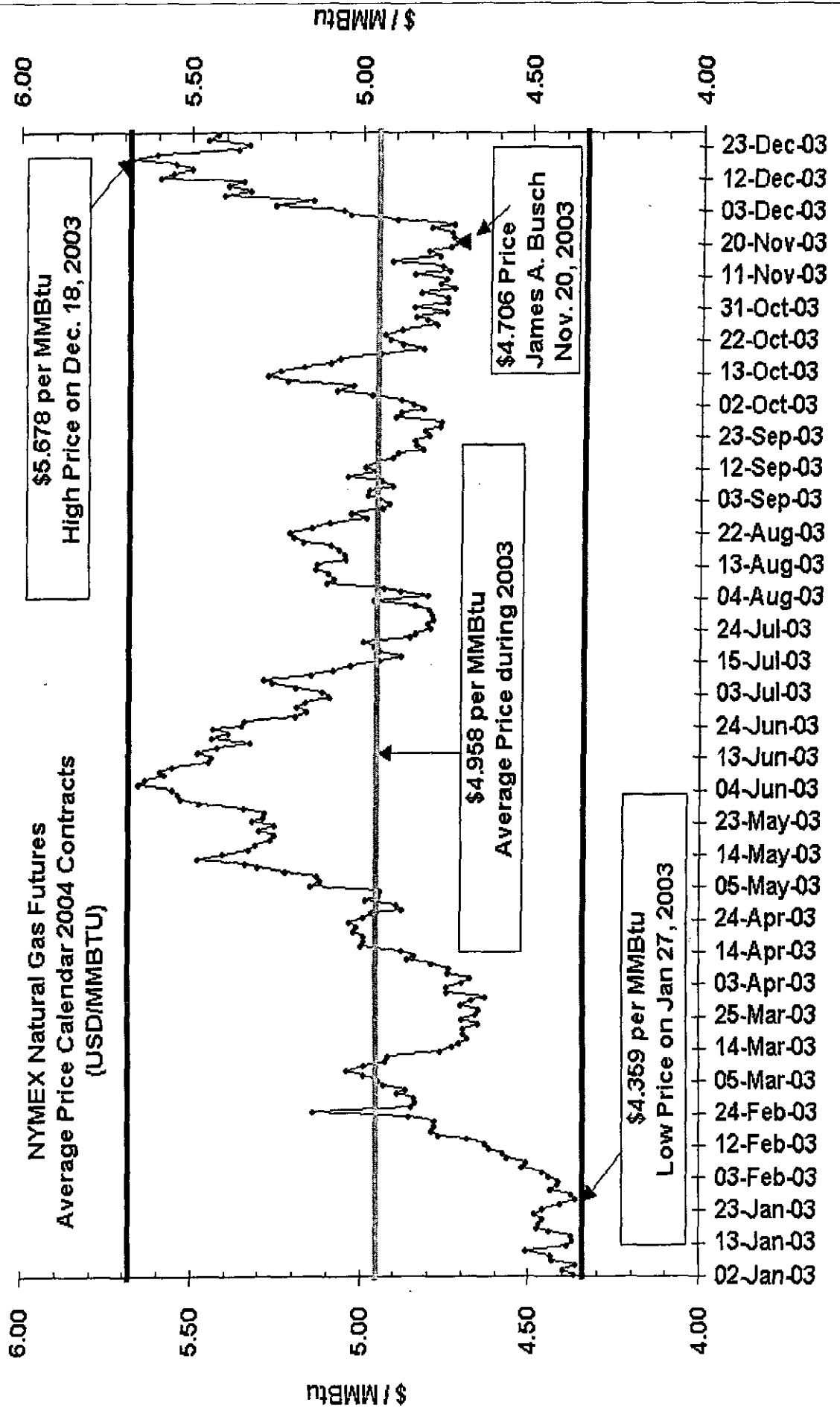
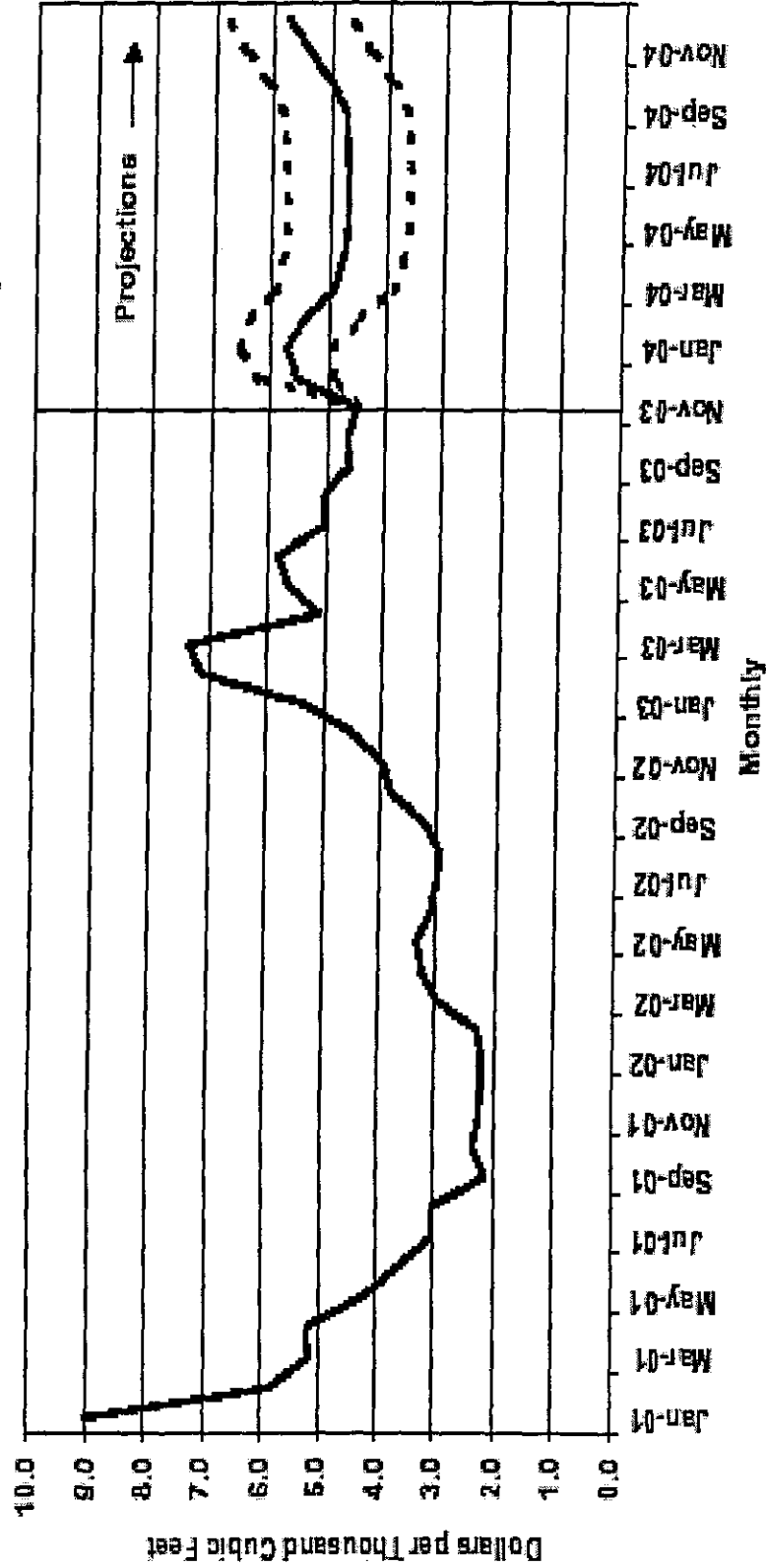




Figure 8. Natural Gas Spot Prices
(Base Case and 95% Confidence Interval*)



*The confidence intervals show +/- 2 standard errors based on the properties of the model. The ranges do not include the effects of major supply disruptions.

Sources: History: Natural Gas Week; Projections: Short-Term Energy Outlook, December 2003.

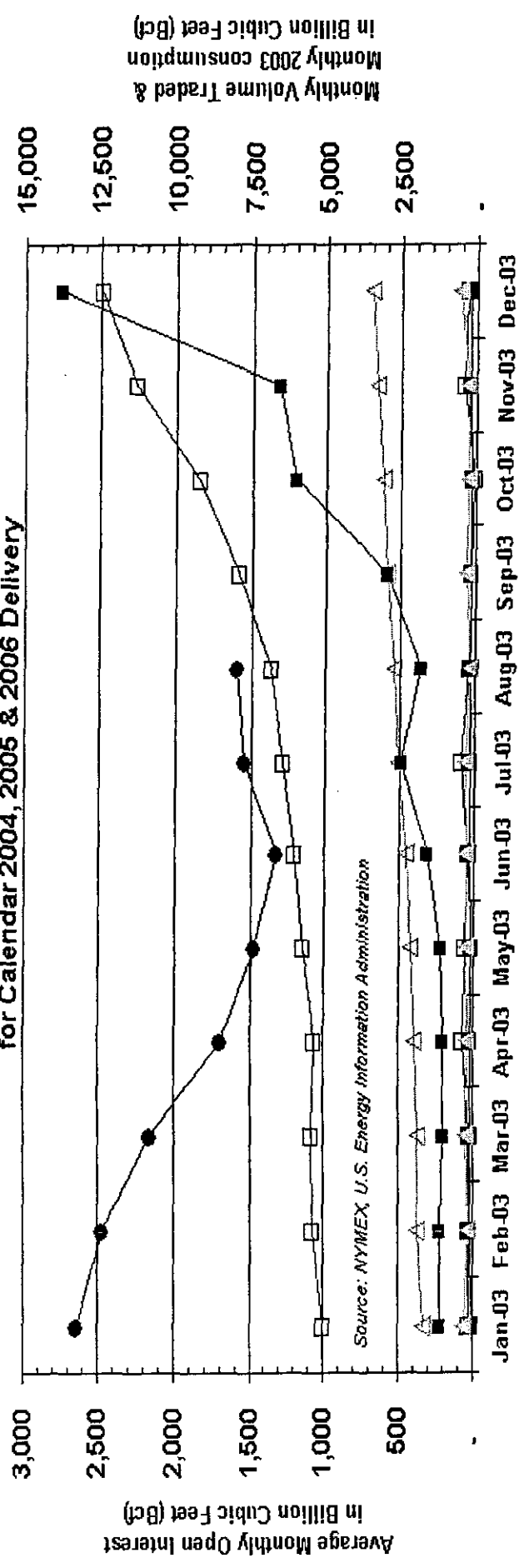




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Schedule JMO-3

**U.S. Monthly Natural Gas Consumption in 2003
versus
NYMEX Futures Monthly Total Volume and Average Open Interest
for Calendar 2004, 2005 & 2006 Delivery**



Source: NYMEX, U.S. Energy Information Administration

- NYMEX Natural Gas for Calendar 2004 Delivery, Average Monthly Open Interest (Bcf)
- △— NYMEX Natural Gas for Calendar 2005 Delivery, Average Monthly Open Interest (Bcf)
- NYMEX Natural Gas for Calendar 2006 Delivery, Total Monthly Volume Traded (Bcf)
- Actual Monthly 2003 Total Consumption in Billion Cubic Feet (Bcf)
- NYMEX Natural Gas for Calendar 2006 Delivery, Average Monthly Open Interest (Bcf)
- NYMEX Natural Gas for Calendar 2004 Delivery, Total Monthly Volume Traded (Bcf)
- ▲— NYMEX Natural Gas for Calendar 2005 Delivery, Total Monthly Volume Traded (Bcf)



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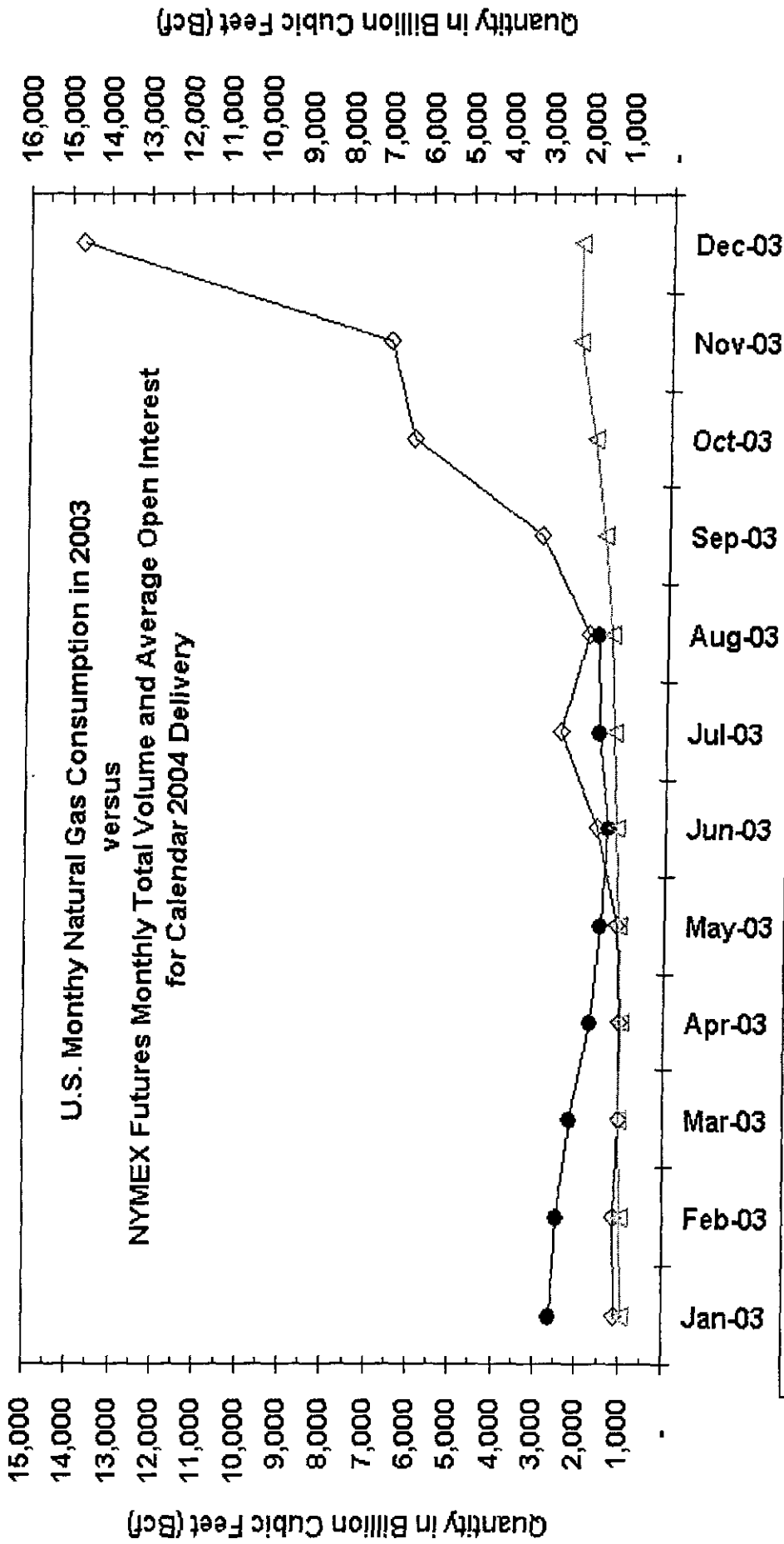
Schedule JMO-4

Month	NYMEX Natural Gas for Calendar 2004 Delivery Average Monthly Open Interest (Bcf)	NYMEX Natural Gas for Calendar 2003 Total 2004 Delivery Total Monthly Volume Traded (Bcf)	Actual Monthly Consumption in Billion Cubic Feet (Bcf) Source EIA
Jan-03	1,007	1,113	2,636
Feb-03	1,073	1,125	2,467
Mar-03	1,080	1,020	2,155
Apr-03	1,065	1,020	1,697
May-03	1,139	1,112	1,477
Jun-03	1,204	1,577	1,321
Jul-03	1,286	2,464	1,550
Aug-03	1,389	1,815	1,593
Sep-03	1,590	2,963	N/A
Oct-03	1,845	6,009	N/A
Nov-03	2,259	6,557	N/A
Dec-03	2,490	13,789	N/A
2003 Average	1,451	3,380	
2003 Total		40,563	



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Schedule JMO-5



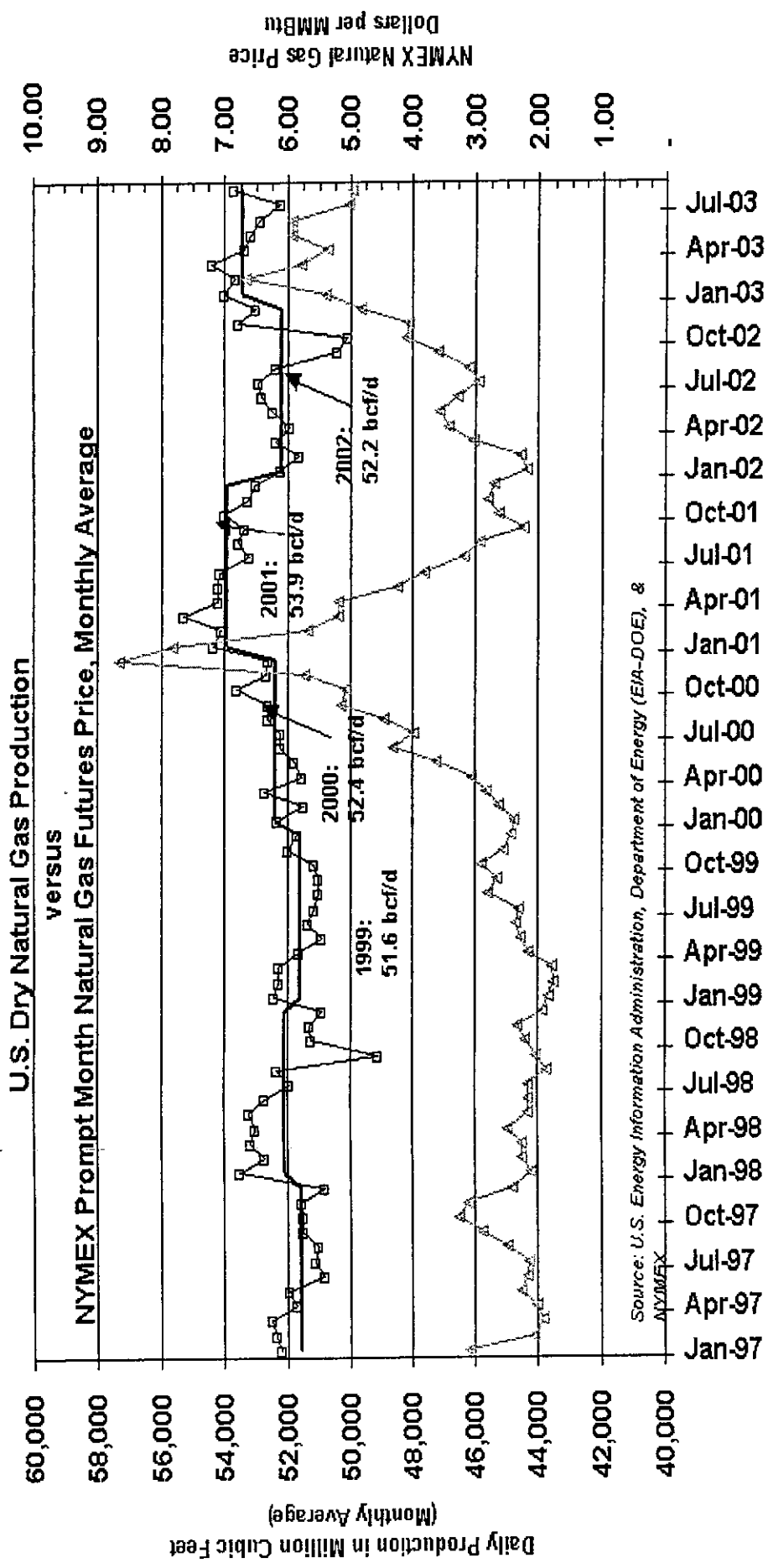
● Actual Monthly 2003 Total Consumption in Billion Cubic Feet (Bcf)
 ◇ NYMEX Natural Gas for Calendar 2004 Delivery, Total Monthly Volume Traded (Bcf)
 △ NYMEX Natural Gas for Calendar 2004 Delivery, Average Monthly Open Interest (Bcf)

Source: U.S. Energy Information Administration, Department of Energy (EIA-DDE), NYMEX



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Schedule JMO-6



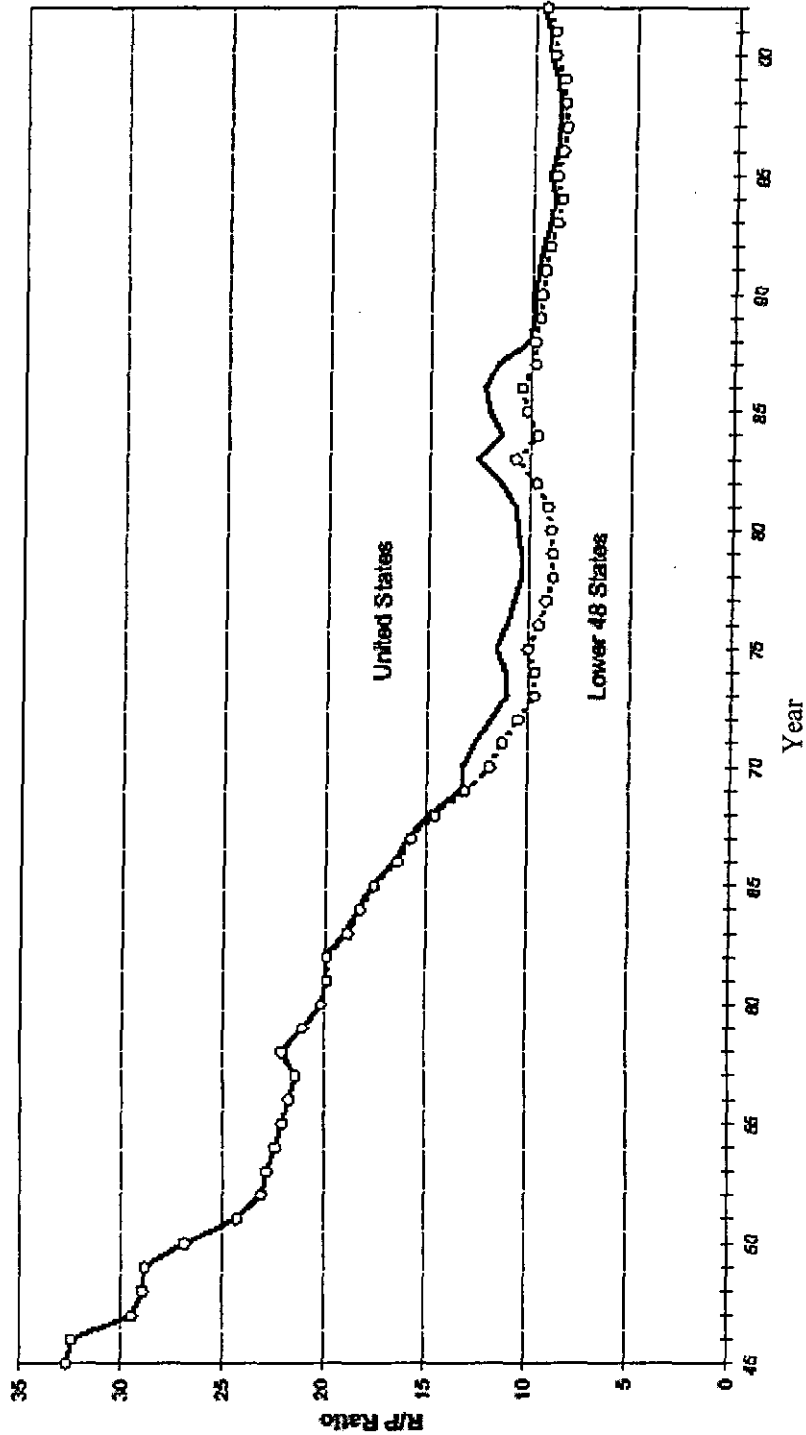
—□— U.S. Natural Gas Average Daily Production (MMcf)
 — U.S. Natural Gas Annual Average Daily Production (MMcf)
 —▲— Monthly Average U.S. Natural Gas Wellhead Price (\$/Mcf)



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Schedule JMO-7

Figure 12. Reserves-to-Production Ratios for Wet Natural Gas, 1945-2002

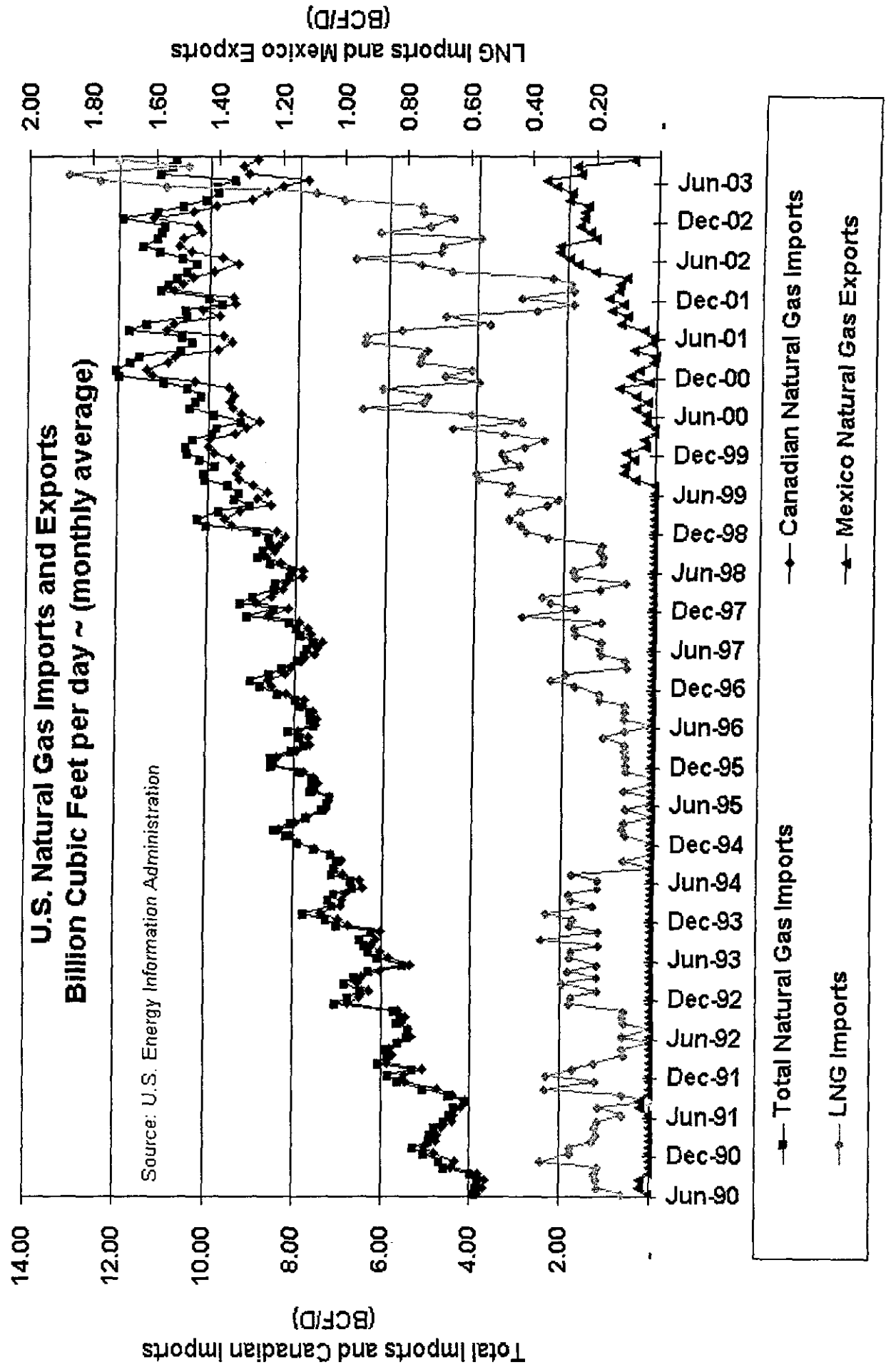


Sources: Annual reserves and production - American Petroleum Institute and American Gas Association (1945-1976) (32) and Energy Information Administration, Office of Oil and Gas (1977-2001) (1-25). Cumulative production: U.S. Oil and Gas Reserves by Year of Field Discovery (1977-1986) (33)



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Schedule JMO-8





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Schedule JMO-9

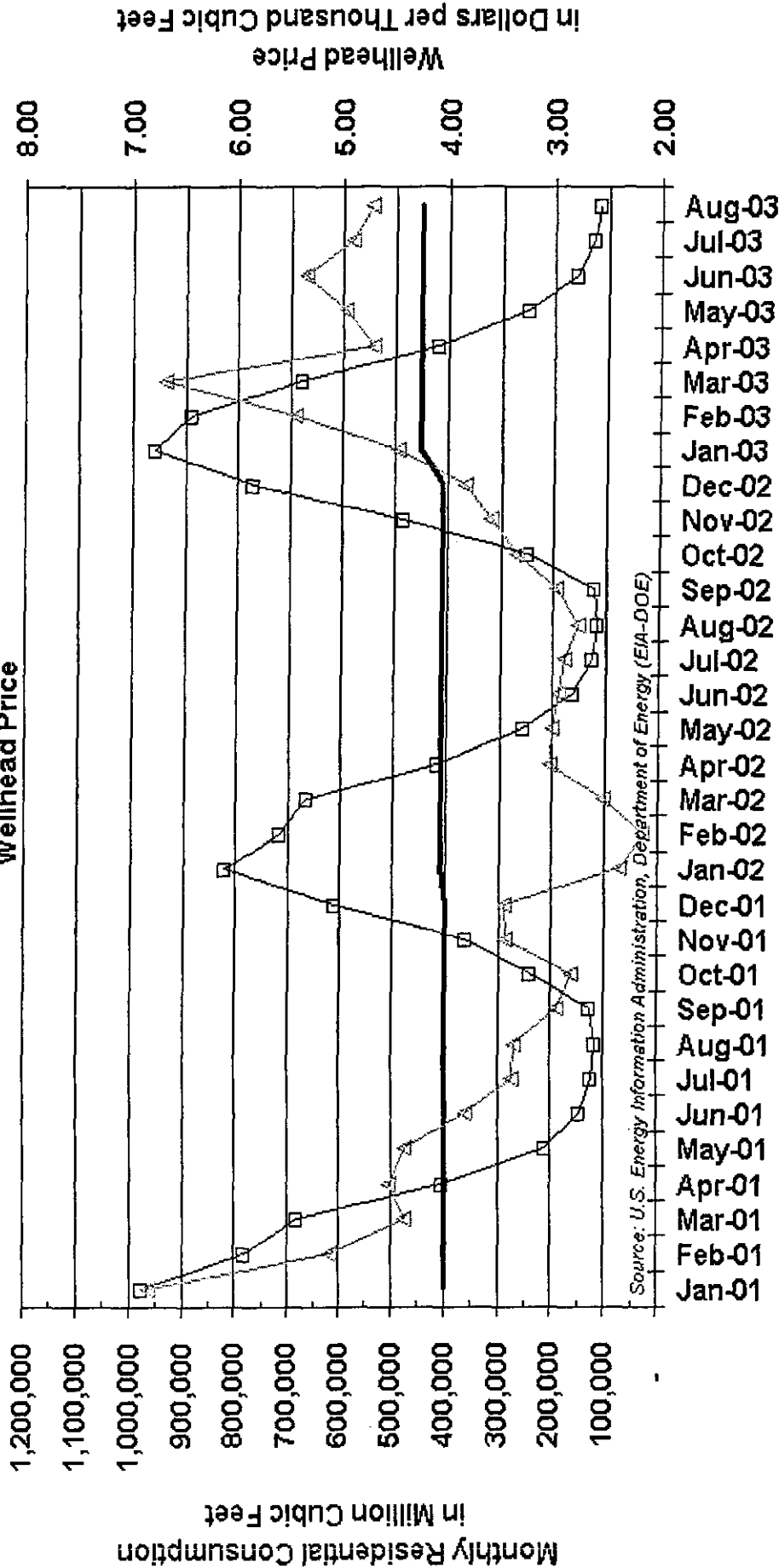
U.S. Baseload Marine Import Facilities	Daily Sendout (Bcf/d)		Max Storage (Bcf)	
	Current	Expanded	Current	Expanded
Everett, MA	0.435	0.915	3.50	4.35
Cove Point, MD	0.750	1.000	5.00	7.80
Savanna, GA	0.446	0.806	4.00	7.30
Lake Charles, LA	0.630	1.200	6.30	9.30
Total U.S. Marine LNG Import Capacity (Bcf/d)	2.261	3.921	18.80	28.75
85 percent of U.S. daily average consumption	6.70%	6.41%	30.73%	47.00%
Total U.S. Marine LNG Import Capacity (Bcf per month)	68.77	119.23		
U.S. Equipped Natural Gas Imports/Exports Bcf/Month				
Algeria LNG Import Volumes	10.89	4.19	2.79	5.46
Malaysia LNG Import Volumes	-	-	-	2.70
Nigeria LNG Import Volumes	2.60	11.29	11.24	2.77
OMAN LNG Import Volumes	-	-	-	2.79
QATAR LNG Import Volumes	-	-	-	2.99
Trinidad & Tobago LNG Import Volumes	19.18	30.34	33.89	44.56
United Arab Emirates LNG Import Volumes	-	-	-	-
Total Monthly U.S. LNG Imports (Bcf)	32.68	45.81	47.91	61.28
Total U.S. LNG Imports as percent of daily consumption	18.2%	2.4%	2.6%	3.2%
Total U.S. LNG Imports as percent of Maximum Daily Sendout	18.2%	65.4%	70.6%	87.4%
Japan LNG Export Volumes	5.61	3.80	3.50	8.55
Mexico LNG Export Volumes	0.03	0.03	0.02	-
Total U.S. LNG Exports	5.64	3.83	3.52	6.55
				5.15



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Schedule JMO-10

U.S. Natural Gas Residential Consumption versus Wellhead Price



Source: U.S. Energy Information Administration, Department of Energy (EIA-DOE)

- Monthly U.S. Natural Gas Residential Consumption (MMcf)
- Annual Average of Monthly U.S. Natural Gas Residential Consumption (MMcf)
- △ U.S. Natural Gas Wellhead Price (\$/Mcf)

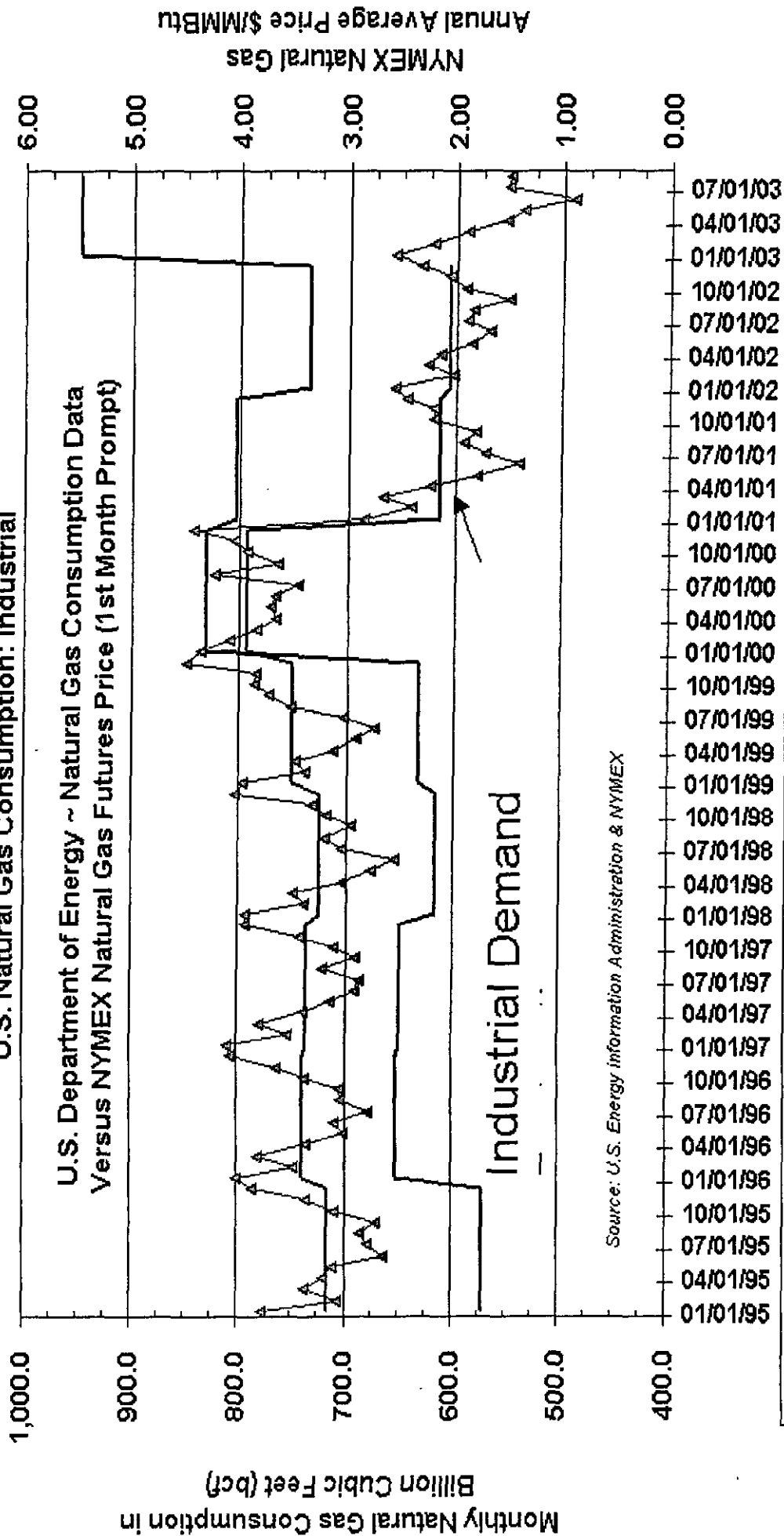


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Schedule JMO-11

U.S. Natural Gas Consumption: Industrial

U.S. Department of Energy ~ Natural Gas Consumption Data
Versus NYMEX Natural Gas Futures Price (1st Month Prompt)



Source: U.S. Energy Information Administration & NYMEX

- ▲ Monthly Natural Gas CONSUMPTION Industrial
- Annual Average ~ CONSUMPTION Industrial
- Yearly Average Price ~ 1st Month NYMEX Natural Gas Futures Price \$ / MMBtu, Daily Settlement

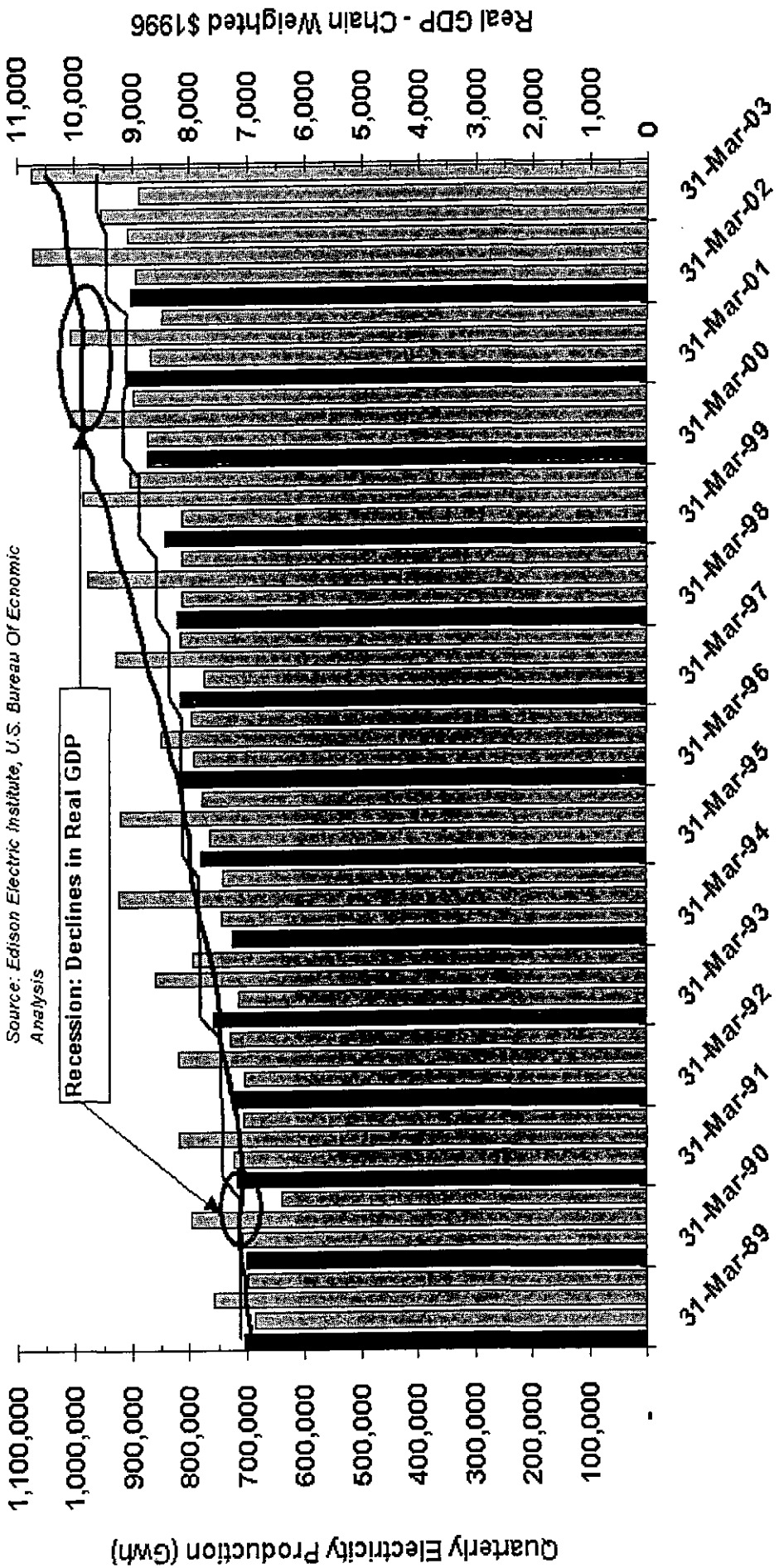


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Schedule JMO-12

Total U.S. Electric Production and Real GDP

Source: Edison Electric Institute, U.S. Bureau Of Economic Analysis



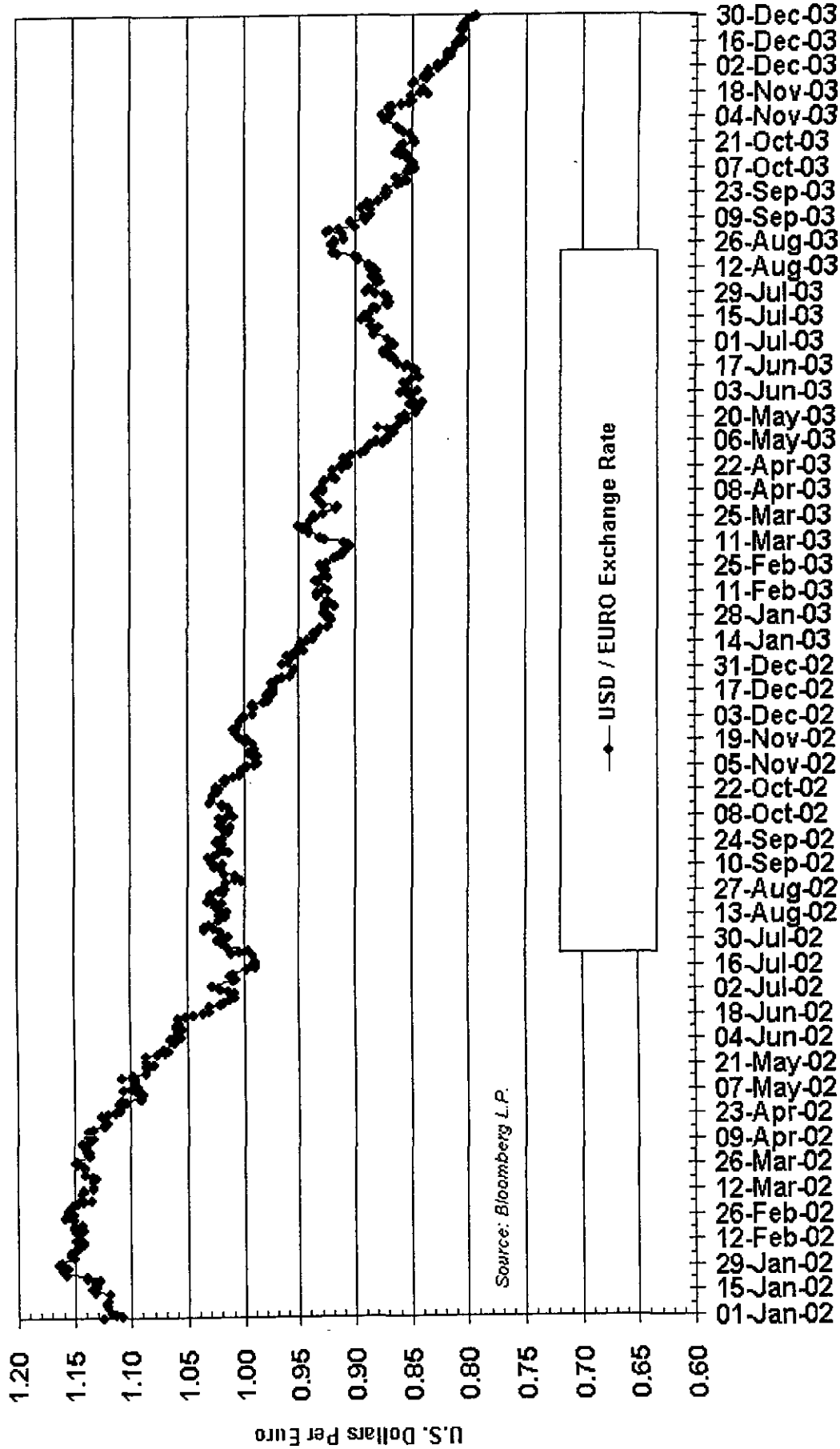
- Total U.S. Quarterly Electricity Production (Gwh Output, Source: EEI)
- Real U.S. Gross Domestic Product in billions of chained 2000 dollars
- Annual Quarterly Average U.S. Electricity Production (Gwh Output, Source: EEI)

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Schedule JMO-13

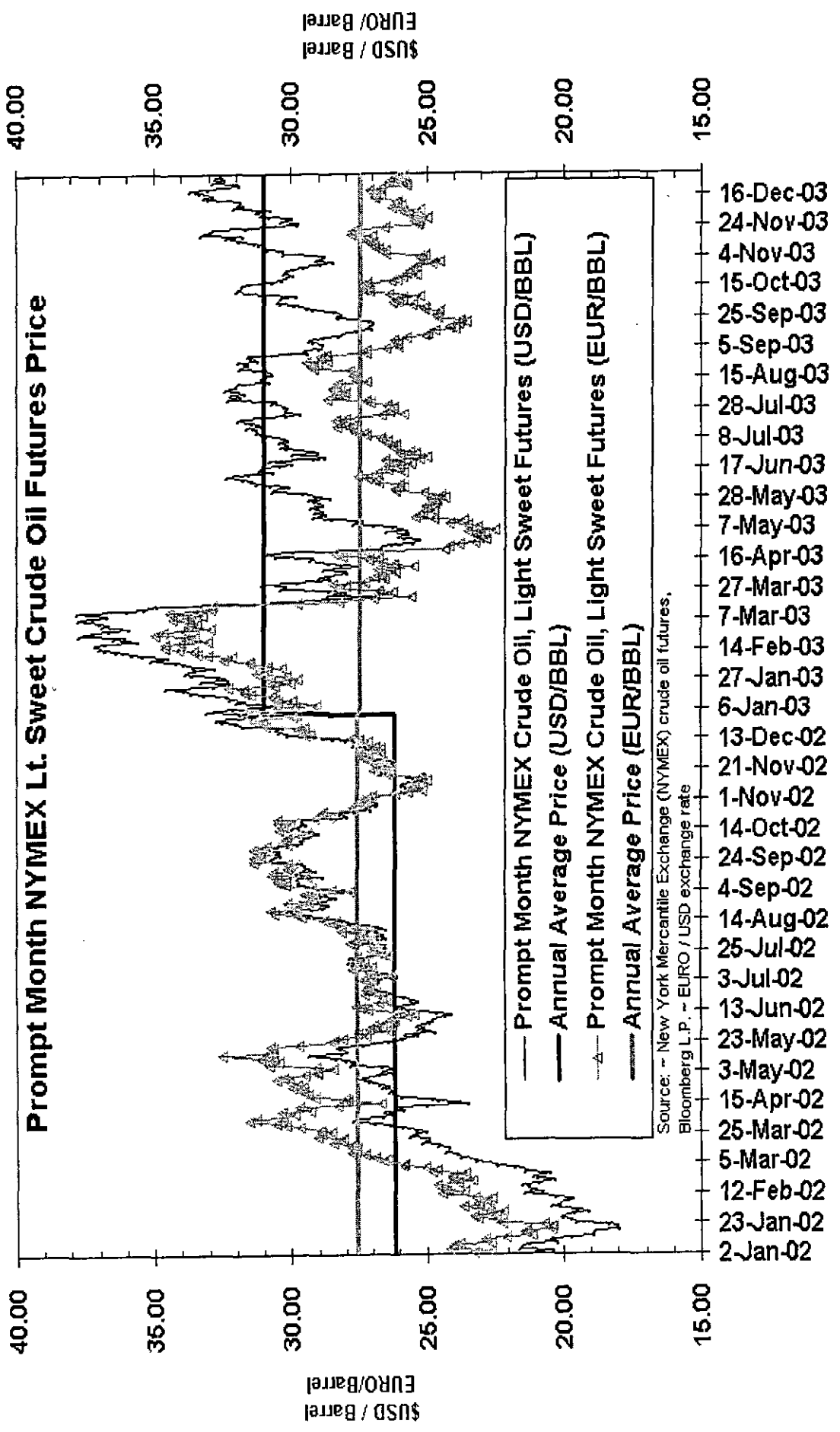
Foreign Exchange Rate
U.S. Dollars Per Euro





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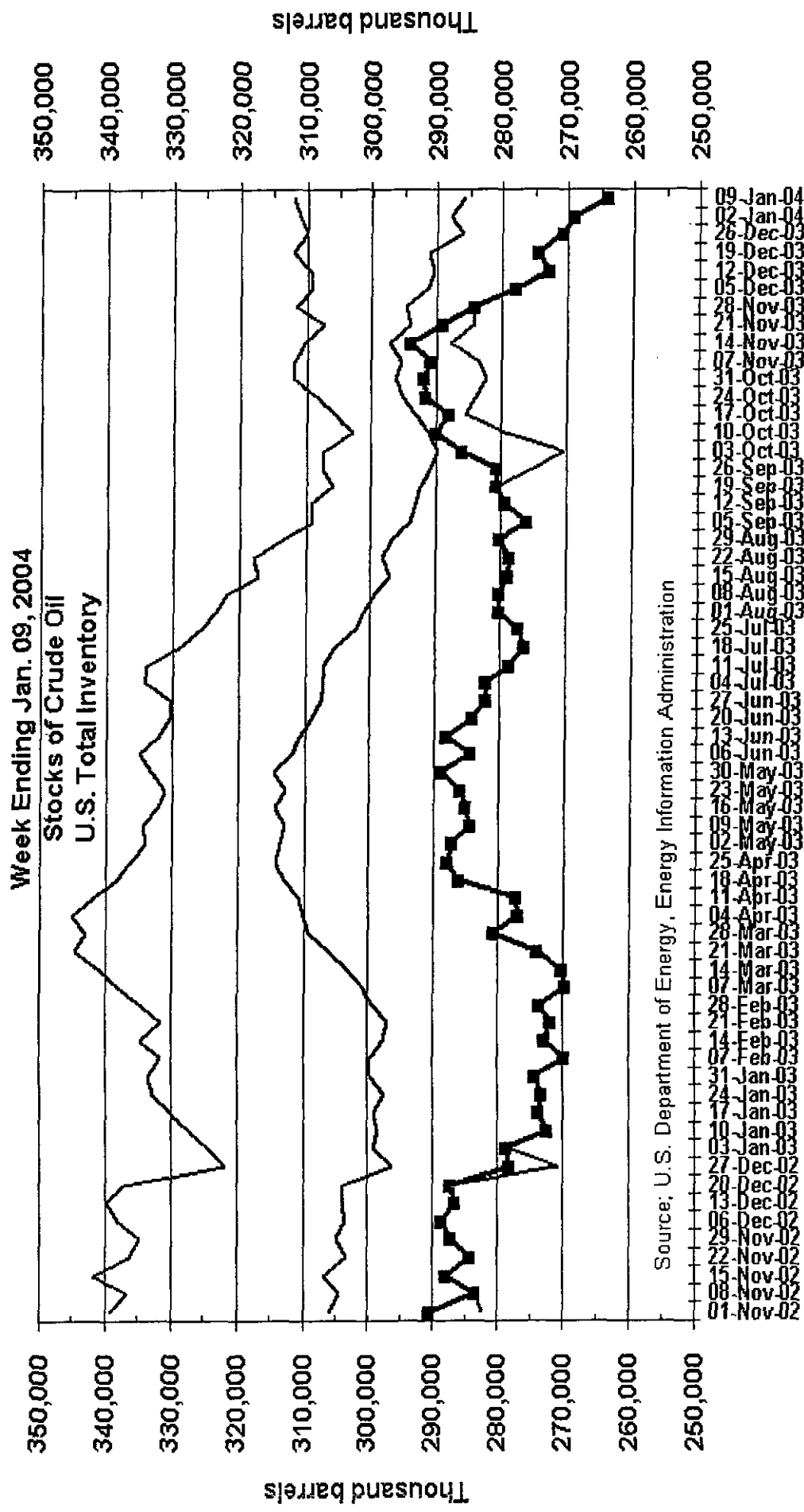
Schedule JMO-14





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Schedule JMO-15

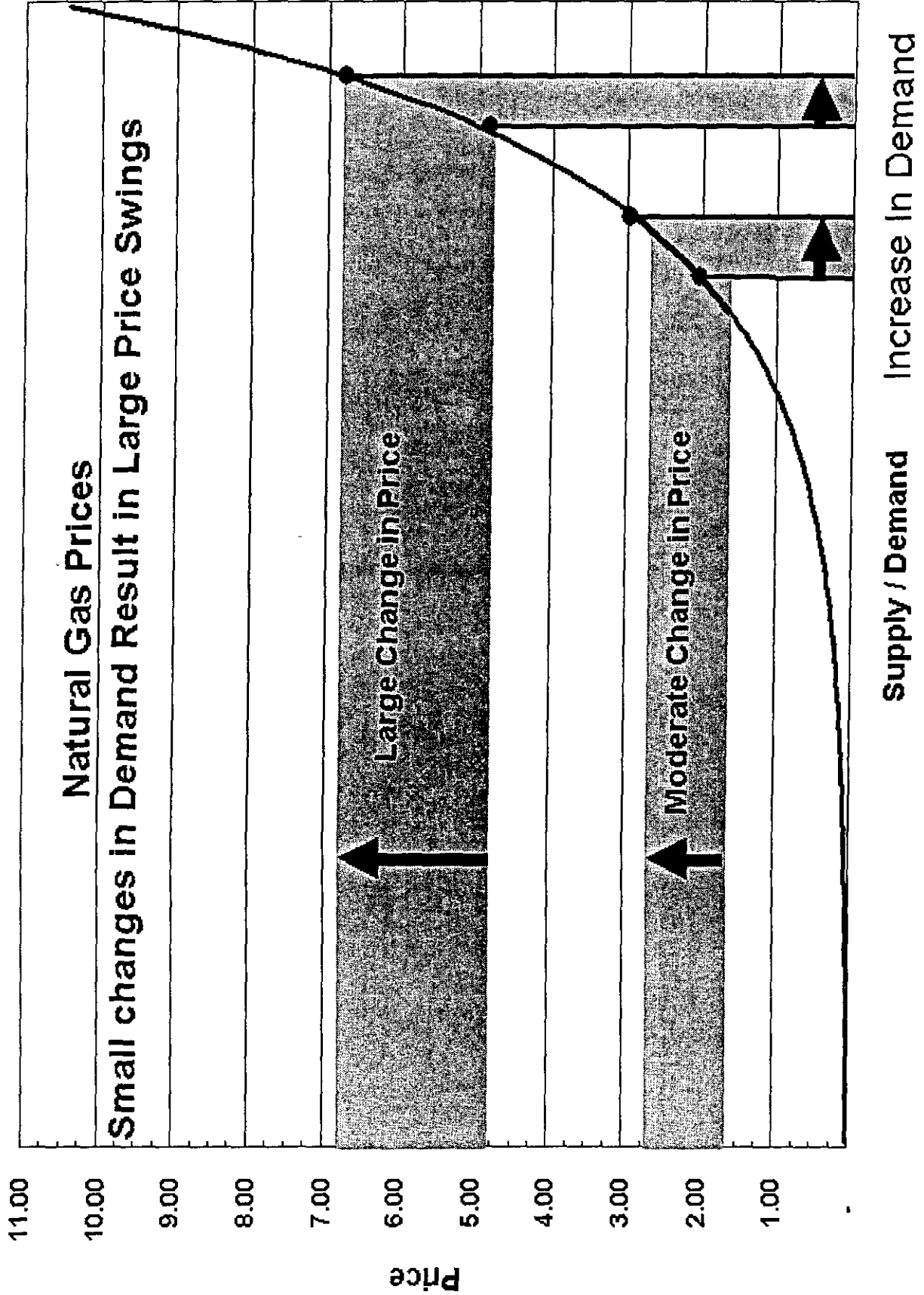


■ DOE Crude Oil Total Inventory
 — 5 Yr Max DOE Crude Oil
 — 5 Yr Min DOE Crude Oil



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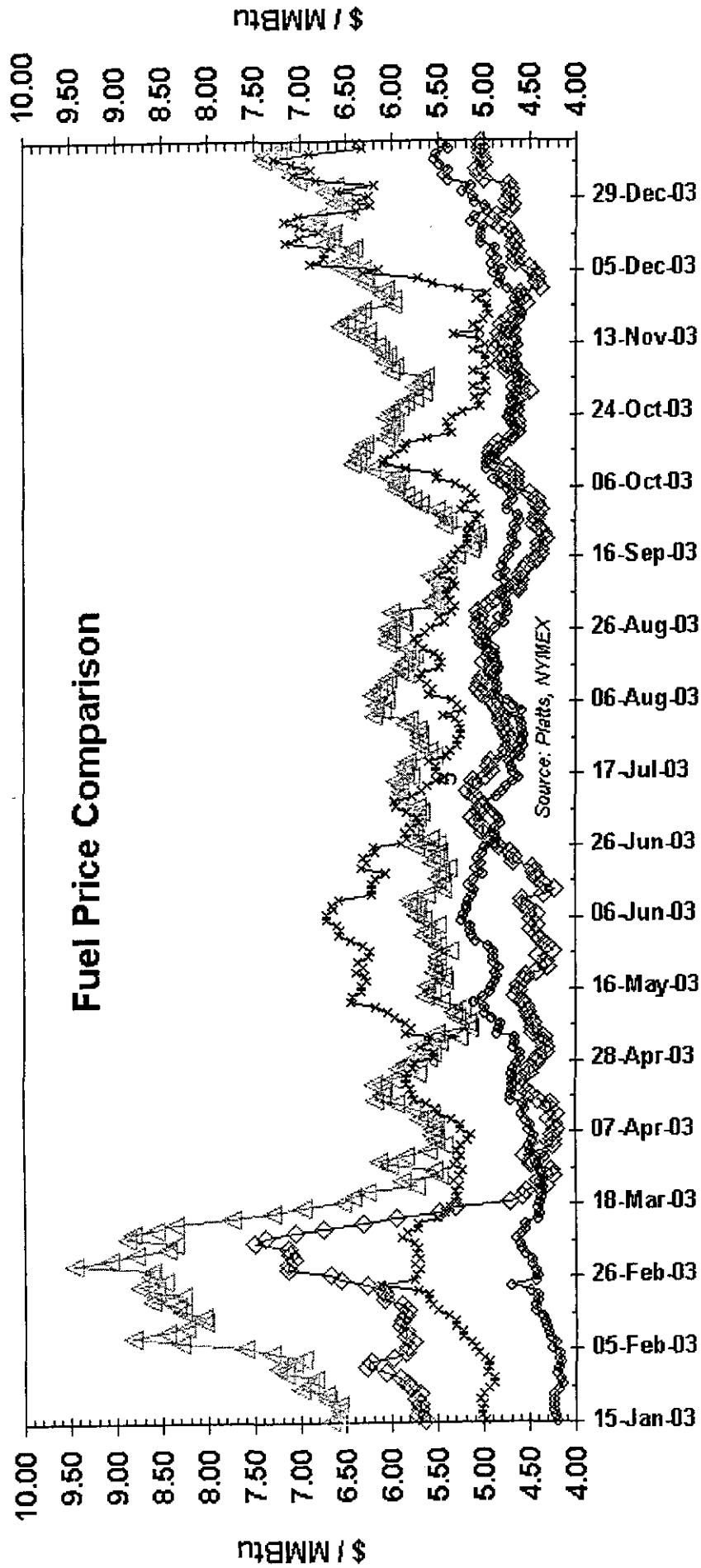
Schedule JMO-16



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Schedule JMO-17



—◇— NY #6 1.0% S Spot Cargo (\$/MMBtu)

—△— NY #2 Spot Cargo (\$/MMBtu)

—○— NYMEX Natural Gas Futures - Feb 04 Contract

—×— NYMEX Natural Gas Futures - Jul 04 Contract



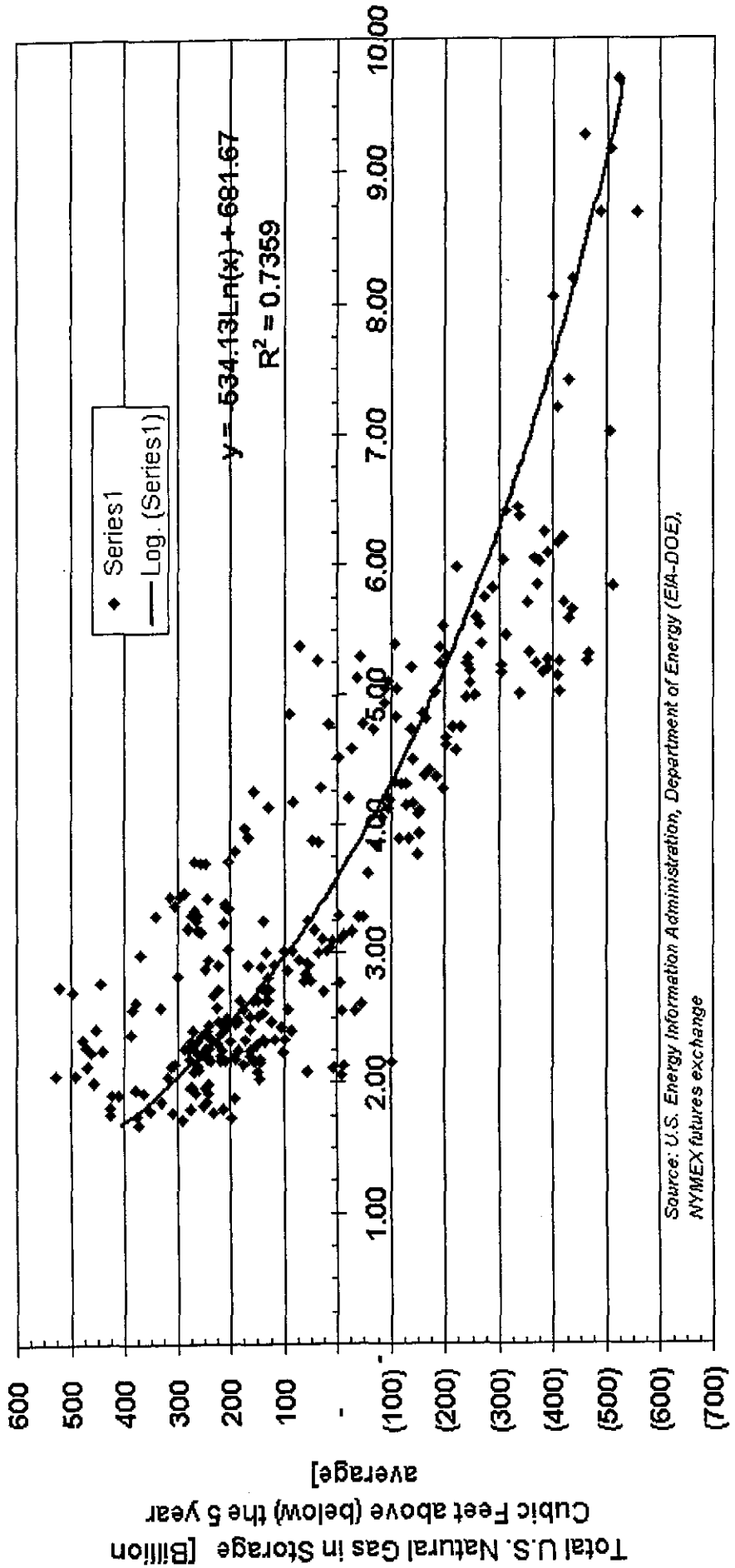
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Schedule JMO-18

Weekly Average Price
of NYMEX Natural Gas (1st Month)

versus

Total U.S. Natural Gas in Storage
[Billion Cubic Feet above (below) the 5 year average]



Weekly Average Price of NYMEX Natural Gas Futures (USD/MMBTU)

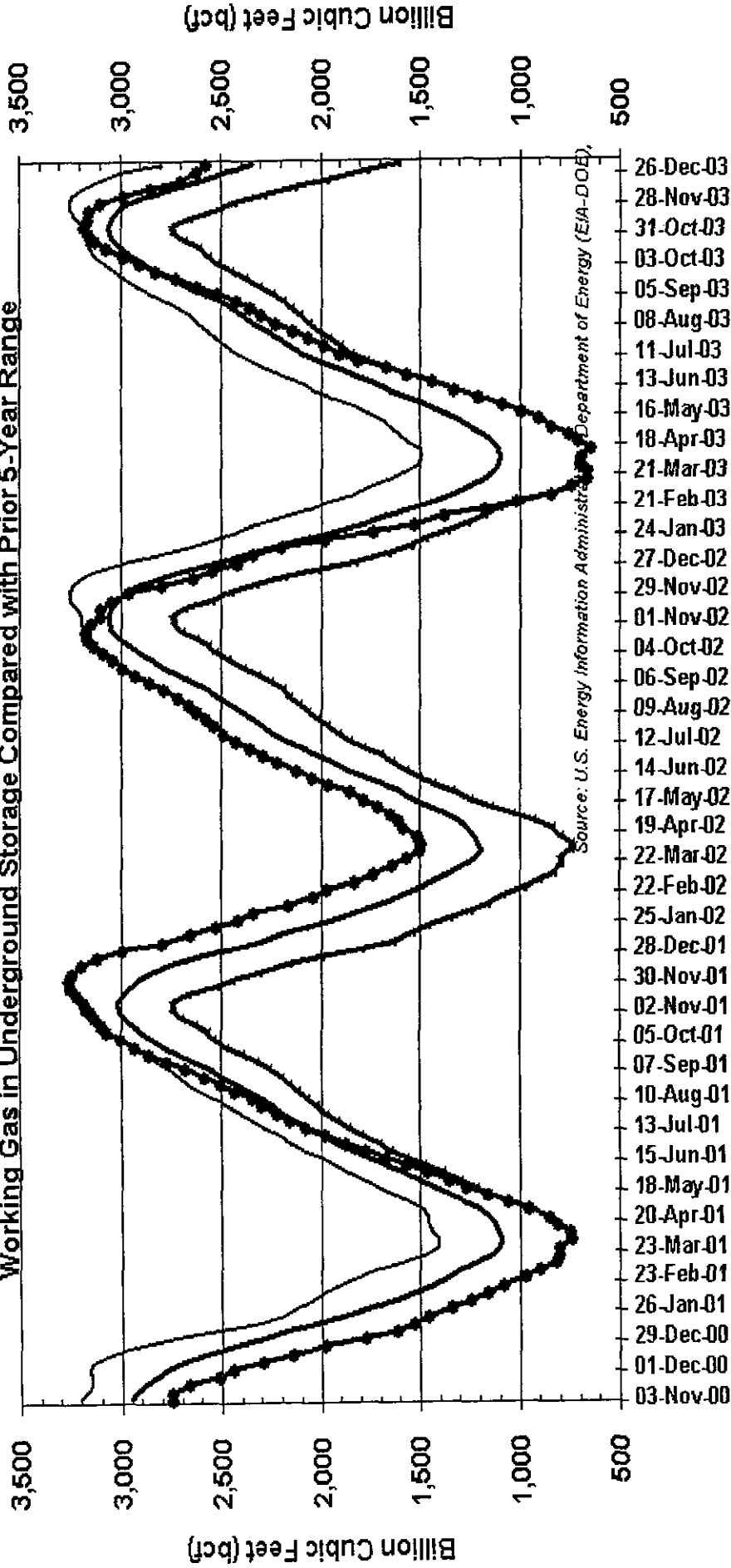


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Schedule JMO-19

Week Ending Jan. 02, 2004

Working Gas in Underground Storage Compared with Prior 5-Year Range



Source: U.S. Energy Information Administration, Department of Energy (EIA-DOE)

— Total U.S. Natural Gas in Storage (Lower 48) — 5 Yr Avg Total Lower 48 — 5 Yr Min Total Lower 48

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the matter of Aquila, Inc. d/b/a Aquila)
Networks-MPS and Aquila Networks-L&P,)
for authority to file tariffs increasing electric)
rates for the service provided to customers in)
the Aquila Networks-MPS and Aquila)
Networks-L&P area)

Case No. ER-2004-0034

In the matter of Aquila, Inc. d/b/a Aquila)
Networks-L&P, for authority to file tariffs)
Increasing steam rates for the service provided)
To customers in the Aquila Networks-L&P area)

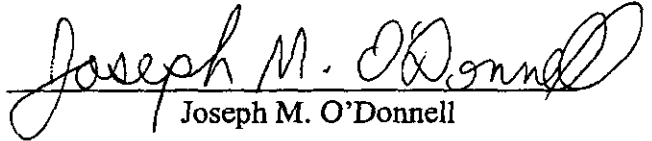
Case No. HR-2004-0024

County of Jackson)
State of Missouri)

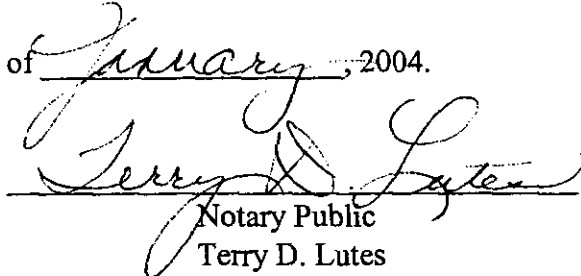
ss

AFFIDAVIT OF JOSEPH M. O'DONNELL

Joseph M. O'Donnell, being first duly sworn, deposes and says that he is the witness who sponsors the accompanying testimony entitled "Rebuttal Testimony of Joseph M. O'Donnell;" that said testimony was prepared by him and under his direction and supervision; that if inquiries were made as to the facts in said testimony and schedules, he would respond as therein set forth; and that the aforesaid testimony and schedules are true and correct to the best of his knowledge, information, and belief.


Joseph M. O'Donnell

Subscribed and sworn to before me this 26th day of January, 2004.


Notary Public
Terry D. Lutes

My Commission expires:

8-20-2004

