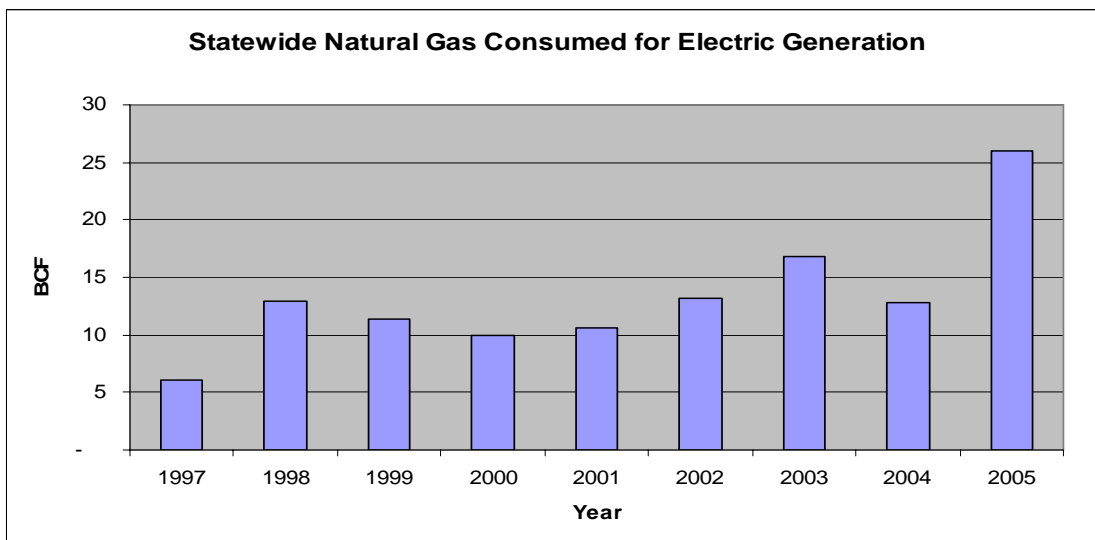


Natural Gas in Minnesota

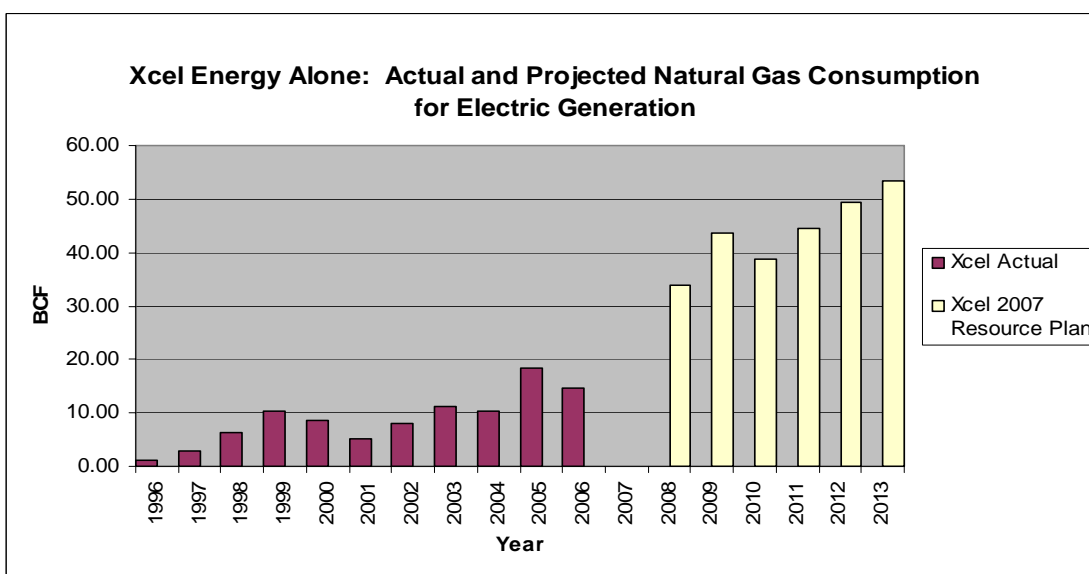
The Increase in Natural Gas Consumption for Electric Generation is Alarming

- In 1997, the state as a whole consumed approximately 6.1 billion cubic feet (BCF) of natural gas for electric power generation, while in 2005 the state consumed approximately 26 BCF, an increase of 19.9 BCF, or roughly 325 percent.¹



Source: U.S. Department of Energy, Energy Information Administration, Minnesota Natural Gas Deliveries to Electric Power Consumers, available at <http://tonto.eia.doe.gov/dnav/ng/hist/n3045mn2A.htm>

- In its December 14, 2007 Integrated Resource Plan filing, Xcel indicated that Xcel Energy alone would consume 53 BCF for power generation by 2013.



Sources: FERC Forms 423, 906, 920; Xcel Energy 2007 Resource Plan, p. 7-7, fig. 7-3.

¹ U.S. Department of Energy, Energy Information Administration, Minnesota Natural Gas Deliveries to Electric Power Consumers, available at <http://tonto.eia.doe.gov/dnav/ng/hist/n3045mn2A.htm>.

- In 1997, the electric power sector consumed approximately 1.7% of total natural gas consumption in Minnesota for all purposes (home heating, industrial and power generation). In 2005, the percentage of statewide natural gas consumption attributable to electric power generation increased to 7.1%.²
- The amount and percentage of statewide use of natural gas consumed for power generation will increase dramatically from 2005 levels between 2008 and 2010. In 2008 and 2009 Xcel Energy alone will bring its new 515-megawatt High Bridge and 439-megawatt Riverside natural gas plants on line (the result of Xcel's voluntary, \$1-billion-plus Metropolitan Emission Reduction Project, or MERP). In 2002 when seeking approval of its MERP proposal, Xcel estimated that the new High Bridge and Riverside plants alone would annually consume between 30 BCF and 43 BCF of natural gas,³ more than all of the natural gas consumed for power generation throughout the state in 2005.
- The total amount of natural gas used by all residents of the cities of Minneapolis and St. Paul combined during a typical home heating season is approximately 22.6 BCF.⁴ Therefore, from a home heating perspective the 30–43 BCF of natural gas Xcel estimates will be needed to operate just the High Bridge and Riverside plants would be the equivalent of almost doubling the population of Minneapolis and St. Paul. In addition, the High Bridge and Riverside plants will consume much more natural gas than all of the 120,800 households in Minnesota that receive energy assistance.⁵ In years of higher consumption, the High Bridge and Riverside plants will consume more natural gas than all of the households in Hennepin County.⁶

² Total natural gas consumption in Minnesota was 354.0 BCF in 1997 and 368.0 BCF in 2005. U.S. Department of Energy, Energy Information Administration, Minnesota Natural Gas Total Consumption, available at http://tonto.eia.doe.gov/dnav/ng/hist/na1490_smn_2a.htm. Minnesota utilities consumed a total of 6.1 BCF of natural gas for electric generation in 1997 and 26.0 BCF in 2005. U.S. Department of Energy, Energy Information Administration, Minnesota Natural Gas Deliveries to Electric Power Consumers, available at <http://tonto.eia.doe.gov/dnav/ng/hist/n3045mn2a.htm>.

³ Xcel Energy Response to Minnesota Department of Commerce Information Request 25, Oct. 2, 2002, Table 25.2, Proposed Plan Average Yearly Gas Burn in BCF (2010–2020), Docket No. E002/M-02-633.

⁴ The average household consumes 80,500 cubic feet of natural gas in a typical home heating season (November through March). Minnesota Department of Commerce, Average Heating Costs for the Past 7 Winters, available at <http://www.state.mn.us/portal/mn/jsp/content.do?subchannel=-536881511&programid=536908164&sc3=-536889049&sc2=-536889043&id=-536881350&agency=Commerce>. According to the Office of the State Demographer, there were 167,317 households in Minneapolis, and 113,574 households in St. Paul in the year 2006. Minnesota Office of the State Demographer, Annual Estimates of City and Township Population, Households and Persons per Household, 2000 to 2006, available at http://www.demography.state.mn.us/documents/MCDEST2000_2006.csv. Therefore, the 280,891 households in Minneapolis and St. Paul would collectively consume roughly 22.6 BCF of natural gas during each heating season.

⁵ Minnesota Department of Administration, Division of Energy, Home Energy Assistance, 10/1/2006 to 9/30/2007, available at <https://www2.mainserver.state.mn.us/eHEAT/reports/eapFederalFiscalYear.do>.

⁶ In 2006, Hennepin County had 479,483 households. Minnesota Office of the State Demographer, Annual Estimates of City and Township Population, Households and Persons per Household, 2000 to 2006, available at http://www.demography.state.mn.us/documents/MCDEST2000_2006.csv. Multiplying 479,483 households times 80,500 cubic feet of natural gas per household yields 38.6 BCF.

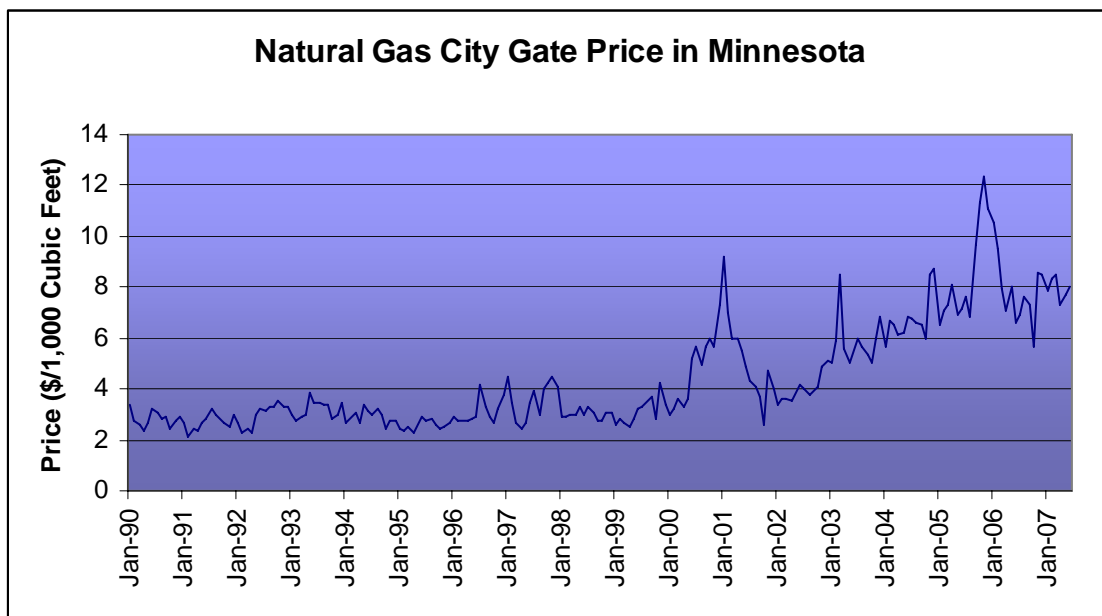
- The increased gas use by the Riverside and High Bridge plants is just the tip of the iceberg. Between 2005 and 2010, Xcel Energy is also scheduled to add approximately 722 MW of new natural gas-fired capacity to its system under contract, in addition to the 954 MW increase caused by the Riverside and High Bridge conversions.⁷
- Beyond Xcel's increased natural gas consumption, all Minnesota utilities are currently assessing how they will meet Minnesota's groundbreaking renewable energy standard, which requires at least 25 percent of the electricity produced in the state to be from renewable sources by the year 2025.⁸ Given the variability of wind power, natural gas plants will be needed to back up wind turbines to ensure a reliable source of energy. This increased use of natural gas, which will depend on the variation of weather and wind turbine availability, could further expose Minnesota ratepayers to volatile natural gas prices.

⁷ As part of the Metropolitan Emissions Reduction Project, Xcel Energy will convert its Riverside and High Bridge plants to run on natural gas, with capacity ratings of 439 MW and 515 MW, respectively. Minnesota Pollution Control Agency, Review of Xcel Energy's Metropolitan Emission Reduction Proposal, Dec. 30, 2002, p. 6, *available at* <http://proteus.pca.state.mn.us/publications/reports/xcelenergy-metroemissionproposal.pdf>. These plants are scheduled to come in service in 2009 and 2008, respectively. *Id.* Xcel Energy is also adding power purchase agreements with two natural gas-fired plants to its portfolio of supply options. The Minnesota Public Utilities Commission approved a contract that provides Xcel with 365 MW of base capacity from Mankato Energy Services. Minnesota Public Utilities Commission, Order Approving Power Purchase Agreement, Docket No. E002/M-04-451, Aug. 17, 2004, p. 1. The Calpine Mankato Energy Services plant reached commercial operation on July 17, 2006. Xcel Energy, Status Report, Docket No. E002/M-04-451, Aug. 8, 2006, p. 3. The Commission has also approved a contract between Xcel and Invenegy Cannon Falls that will provide 357 MW of natural gas-fired capacity. Minnesota Public Utilities Commission, Order Approving Replacement Purchase Power Agreement, Docket No. E002/M-04-1426, July 29, 2005, p. 2. The Invenegy facility is anticipated to reach commercial operation in June of 2008. Xcel Energy, Status Report, Docket No. E002/04-1426, Sept. 14, 2007, p. 3.

⁸ S.F. 4, 85th Legislature (2007).

Natural Gas Prices Have Increased and Become Highly Volatile

- While Minnesota's average natural gas city gate price in the 1990s was \$3.00 per thousand cubic feet, that average has more than doubled to \$6.25 for the period January 2000 through June 2007.⁹
- However, the increased average price only tells part of the story. In the 1990s, the difference between the highest price and the lowest price was only \$2.41. In the period from January 2000 through June 2007, that difference was \$9.74. In the 1990s, the standard deviation of city gate natural gas prices was 0.47; from 2000–2007, the standard deviation was over four times greater at 2.01.¹⁰ Therefore, natural gas prices in Minnesota have become much more volatile since the 1990s.



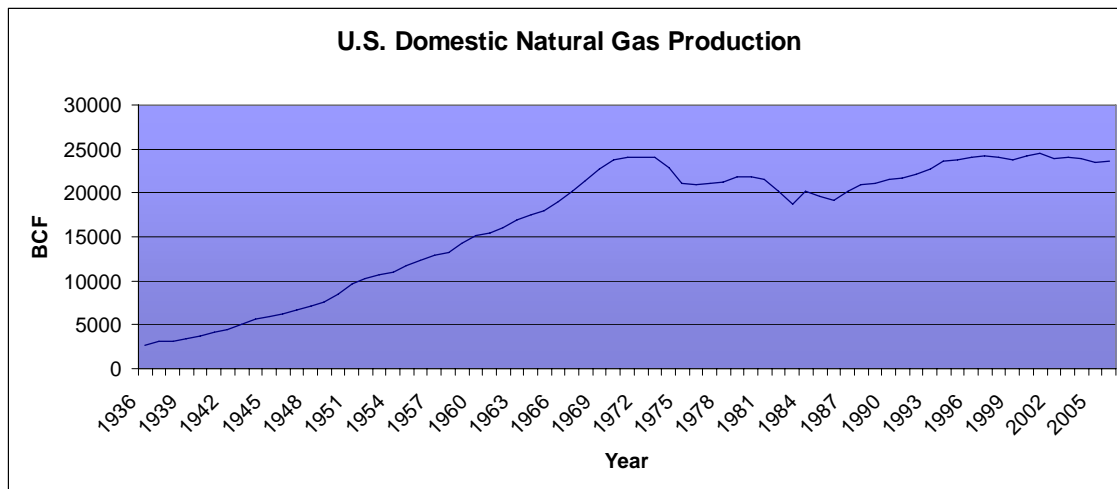
Source: U.S. Department of Energy, Energy Information Administration, Natural Gas City Gate Price in Minnesota, available at <http://tonto.eia.doe.gov/dnav/ng/hist/n3050mn3M.htm>.

⁹ U.S. Department of Energy, Energy Information Administration, Natural Gas City Gate Price in Minnesota, available at http://tonto.eia.doe.gov/dnav/ng/xls/ng_pri_sum_dcu_smn_m.xls.

¹⁰ *Id.*

Domestic Production of Natural Gas Is Stagnant, Increasing the Nation's Dependence on Imported Energy

- Natural gas is increasingly an imported source of energy in Minnesota and the nation. In 1973, domestic production was 24,067 BCF.¹¹ In 2006, that number had actually decreased to 23,566 BCF.¹² Natural gas consumption in the nation has increased during that period, so imports made up the difference. In 1973, the U.S. had net imports of 956 BCF, while in 2006 that number increased to 3,463 BCF, or over 3.6 times greater than 1973 net imports.¹³



Source: U.S. Department of Energy, Energy Information Administration, U.S. Natural Gas Gross Withdrawals, available at <http://tonto.eia.doe.gov/dnav/ng/hist/n9010us2A.htm>.

- The United States has historically imported significant quantities of natural gas from Canada. For instance, Canada exported 3,600 BCF to the U.S. in 2006, representing 86 percent of total U.S. exports that year.¹⁴ Meanwhile, liquefied natural gas (“LNG”) terminals in the U.S. have continued to run at full capacity, allowing 631 BCF to be imported from Oman, Qatar, Nigeria, Malaysia, Egypt, Algeria, and Trinidad/Tobago.¹⁵
- Although U.S. imports from Canada currently dwarf natural gas imports from other nations, the U.S. Department of Energy predicts this arrangement will

¹¹ U.S. Department of Energy, Energy Information Administration, U.S. Natural Gas Gross Withdrawals, available at <http://tonto.eia.doe.gov/dnav/ng/hist/n9010us2A.htm>.

¹² *Id.*

¹³ U.S. Department of Energy, Energy Information Administration, U.S. Natural Gas Imports, available at <http://tonto.eia.doe.gov/dnav/ng/hist/n9100us2A.htm>; U.S. Department of Energy, Energy Information Administration, U.S. Natural Gas Exports, available at <http://tonto.eia.doe.gov/dnav/ng/hist/n9130us2A.htm>.

¹⁴ U.S. Department of Energy, Energy Information Administration, Country Analysis Briefs: Canada, p. 7, available at <http://www.eia.doe.gov/emeu/cabs/Canada/pdf.pdf>.

¹⁵ U.S. Department of Energy, Energy Information Administration, U.S. Natural Gas Imports and Exports: Issues and Trends 2005, p. 1, available at http://www.eia.doe.gov/pub/oil_gas/natural_gas/feature_articles/2007/ngimpexp/ngimpexp.pdf.

change significantly in coming years.¹⁶ The Canadian National Energy Board reports that Canadian exports to the U.S. will decline from 17.1 BCF per day in 2006 to 15.8 BCF per day in 2009 due to price volatility, which hinders drilling and development activity.¹⁷ Net imports from Canada are projected to fall from 3,600 BCF in 2006 to 1,200 BCF by 2030 due to decreasing production and increasing Canadian consumption of natural gas.¹⁸ This decline will be offset by LNG imports: by 2030, LNG imports are projected to reach 4,500 BCF, or over seven times their current levels.¹⁹

High and Volatile Natural Gas Prices Hurt Minnesota Consumers and Businesses

- The trends in natural gas use, price, and production have had negative impacts on Minnesota businesses and consumers. After the 2006–2007 heating season, 208,000 Minnesota businesses and households had delinquent accounts with CenterPoint Energy. Of those delinquent customers, more than 104,000 of them were at least two months behind and owed an average of \$1,500. In total, CenterPoint had \$100 million in outstanding bills, double its typical amount. Meanwhile, Xcel Energy and Minnesota Energy Resources also reported increased delinquencies among their natural gas customers in Minnesota.²⁰
- Home Energy Assistance expenditures in Minnesota are on the rise. In the 2005 reporting year, the state spent \$47,358,264 or \$402 per household.²¹ In the first 11 months of the 2007 reporting year, that number has already increased to \$61,772,023 or \$511 per household. Therefore, Minnesota is set to dramatically increase its natural gas use for electric generation at a time when energy assistance expenditures are on the rise.
- Beyond negatively affecting consumers, natural gas volatility has a deleterious effect on the economy. The U.S. Department of Commerce has estimated that the U.S. lost 489,000 jobs per year from 2000 through 2004 due to higher natural gas prices.²² The National Corn Growers Association identified a need for relief from

¹⁶ U.S. Department of Energy, Energy Information Administration, Annual Energy Outlook 2007, p. 94.

¹⁷ Canadian National Energy Board, Short-Term Canadian Natural Gas Deliverability: 2007–2009, p. vi, available at <http://www.neb.gc.ca/clf-nsi/nrgynfntn/nrgyrprt/ntrlgs/ntrlgdvlvrblty20072009/ntrlgdvlvrblty20072009-eng.html>.

¹⁸ U.S. Department of Energy, Energy Information Administration, Country Analysis Briefs: Canada, p. 7, available at <http://www.eia.doe.gov/emeu/cabs/Canada/pdf.pdf>; U.S. Department of Energy, Energy Information Administration, Annual Energy Outlook 2007, p. 94.

¹⁹ U.S. Department of Energy, Energy Information Administration, Annual Energy Outlook 2007, p. 94.

²⁰ Minnesota Public Radio, Thousands of Minnesotans Have Their Natural Gas Cut Off, June 14, 2007, available at <http://minnesota.publicradio.org/display/web/2007/06/14/gascutoff/>.

²¹ State of Minnesota, Department of Administration, Division of Energy, Minnesota Energy Assistance Program Reports, available via <http://www.state.mn.us/portal/mn/jsp/content.do?subchannel=-536883553&programid=536904482&sc3=null&sc2=null&id=-536881374&agency=Commerce>.

²² Economics and Statistics Administration, U.S. Department of Energy, Impacts of Rising Natural Gas Prices on the U.S. Economy and Industries, June 29, 2005, p. 1, available at https://www.esa.doc.gov/natural_gas_final_report.pdf.

rising costs of natural gas so Midwestern farmers could afford to fertilize, irrigate, and dry crops; make crop-protection chemicals; and produce nitrogen fertilizer.²³ According to the American Chemistry Council, for every \$1.00 per 1000 cubic feet increase in the price of natural gas, the chemistry industry incurs an additional \$3.6 billion in costs. With a sustained \$3.61 per 1000 cubic feet increase in natural gas prices, the nation's GDP would be decreased by \$36 billion per year due to declines in the chemical industry.²⁴

²³ National Corn Growers Association, NCGA Encourages Members to Push for Natural Gas Legislation, December 21, 2005, *available at* <http://www.ncga.com/news/notd/2005/december/122105b.asp>.

²⁴ American Chemistry Council, Higher Natural Gas Prices Impact Manufacturing, pp. 2, 4, *available at* http://www.americanchemistry.com/s_acc/bin.asp?CID=311&DID=1710 &DOC=FILE.PDF. Natural gas measurements were converted from MMBtu to 1000 cubic feet using a conversion rate of 1,000 cubic feet = 1.031 MMBtu.