

Natural gas continues to be best choice for generating electricity

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Electric power generation is the largest consumer of energy in the United States and also the single largest source of harmful air quality emissions. According to the Environmental Protection Agency (EPA), in 2004, power generation was responsible for 67 percent of the oxides of sulphur (SO_x), 22 percent of the oxides of nitrogen (NO_x) and 34 percent of the carbon dioxide (CO₂) emissions in the United States.

Consequently, the energy industry is at a crossroads as demand for electricity climbs, concern over mounting costs increases, and environmental health, reliability and energy security are questioned. As a result, policymakers are focused on developing prudent regulations that will address these issues in the best ways possible.

El Paso Corporation believes that the best approach to addressing these issues is to use a mix of available fuel sources that include natural gas, coal and renewable energy sources. We are focused, however, on using the nation's natural gas assets in conjunction with its vast coal reserves to sustain economic growth, support environmental objectives and reduce our dependence on foreign energy

We must employ available technology to transform coal into a synthetic gas that is clean-burning and pipeline quality – ready to be transported through a well-established, reliable, interstate natural gas pipeline transmission network to local natural gas distribution companies and other end-use customers, including millions upon millions of homes, commercial and industrial concerns, as well as natural gas-fired power generation plants.

Using this technology will:

- Take advantage of billions of dollars of investment in existing natural gas-fired generation plants and pipeline infrastructure
- Reduce greenhouse gas (GHG) emissions and criteria pollutants
- Prudently use our abundant resources of natural gas and coal

Consider this: The Energy Information Administration (EIA) predicts in its 2007 Annual Energy Outlook that electricity demand will increase 1.5 percent each year through 2030. To satisfy that demand, the power industry will add 139 GW of net coal-fired capacity to its existing generation fleet. Under this scenario, power generation from coal, as a percentage of the total, will climb from 52 percent to 59 percent. And, according to Platt's NewGen, as of the end of November 2006, more than 129 GW of new capacity is planned to be in service by 2013. Of this, pulverized coal represents 42 percent, or 54 GW.

But because of issues related to clean air, cost efficiency and energy security, we as a nation must:

- Encourage the construction and use of gas-fired power generation plants;

- Provide incentives for the development of coal gasification plants with methanation; and
- Provide incentives for the construction of CO₂ pipelines and the development of carbon sequestration alternatives.

Indisputably, natural gas is the cleanest burning fossil fuel, and natural gas-fired power generation plants offer the greatest flexibility in providing reliable electricity.

With its clean burning benefit, Congress favored natural gas in the Energy Policy Act of 1992. During the next 10 years, natural gas-fired generation capacity grew and prices have increased in response to the resulting tightening supply/demand balance. The good news is that the price increase has resulted in significant investments to grow domestic natural gas production and expand gas-pipeline transportation capacity. But despite the advantages of natural gas, recent high gas prices and the perception of a declining domestic supply have placed natural gas at a disadvantage vis-à-vis coal with electricity providers and policymakers. But that doesn't change the fact that natural gas-fired power plants remain the best solution to providing competitive and environmentally responsible electricity to meet our nation's growing near-term needs.

The case for natural gas is strong: It is clean, it is cost-competitive and it is abundant.

- Natural gas is a clean-burning fuel: According to several studies cited by the Pew Center on Global Climate Change, natural gas-fired power plants per GWh emit 95 percent and 83 percent fewer metric tons of SO_x and NO_x, respectively, than the average coal plant. These plants also emit less than one-half the CO₂ per GWh than the average coal plant. Natural gas combined cycle (NGCC) power plants also enjoy a lower capital risk, full load energy efficiency advantage, and a lower emissions profile (or penalty), making them easier to permit.
- The cost of natural gas is highly competitive: One reference case sets the capital cost of a new natural gas combined cycle plant at \$800/kW versus a \$1,600/kW cost for a supercritical pulverized coal unit. This capital cost advantage is sufficient to offset \$2.40/MMBtu of the delivered coal price advantage. Under current fuel and allowance prices, the average delivered coal price advantage must exceed \$3.34/MMBtu for coal to overcome its capital, efficiency and environmental penalty needed to provide a lower overall cost of electricity.
- Natural gas is abundant: During the 10 years following the Energy Policy Act in 1992, more than 80 percent of new power generation was natural gas-fired, and today natural gas generation accounts for 40 percent of the nation's total generation capacity. The increased usage resulted in upward price pressure, but the rising prices produced a side benefit – increased investment in drilling, pipeline capacity and new LNG receiving terminals. The EIA expects this supply-side growth to hold natural gas prices in the \$5 to \$6/MMBtu range through 2030.

In the near term, El Paso expects federal regulations to order an initial round of stabilization, or capping of base levels of pollutants for a certain number of years, before

seeking reductions. Until that happens, using natural gas as a primary source for electric generation will help to contain emissions levels.

Considering the break-even analysis presented above, natural gas is a very competitive and, in some cases, less expensive option than a coal-fired plant. This is especially true in light of related increased capital expenditures such as nearly certain carbon-mitigation federal regulations.

Also, increased investment in domestic natural gas production and LNG imports will stabilize natural gas prices at levels that make it extremely competitive with pulverized coal and in some cases even less expensive.

Finally, gas-fired generation does not increase or prolong our dependence on foreign energy sources and, quite importantly, it can provide the bridge between today's clean burning natural gas and tomorrow's clean burning synthetic natural gas made from our nation's abundant coal resources.

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