

# **The Perfect Storm**

*How Convergence Of Shortages In the Three Major Energy Markets Could Threaten the American Economy*

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## **Overview:**

Each of the three major energy markets (petroleum, natural gas and electricity) faces a crunch of significantly increased demand and potentially dramatically higher prices over the next ten years. Taken together, these crunches could yield a profound crisis for the US economy. With little or no growth in production, the nation could see a 171% spike in its energy costs in ten years, with household energy costs skyrocketing from \$1,338 in 1997 to \$3,626 in 2010. A comprehensive, bipartisan approach – one which decreases demand, improves distribution, and increases domestic supply – is urgently needed to break congressional deadlock and head off a full-blown energy crisis.

## **Petroleum:**

The US uses more oil than any other form of energy, comprising 40 percent of all the energy this country consumes. Demand for petroleum is expected to grow by 17% over the next decade and given the current supply situation, crude oil prices will shoot up by 123%. Consumer products derived from oil include gasoline, motor oil, diesel fuel and home heating oil.

	<b>Current Prices<sup>1</sup></b>	<b>2003<sup>2</sup></b>	<b>2005<sup>2</sup></b>	<b>2010<sup>2</sup></b>
Crude Oil <sup>1</sup> (per barrel)	\$27.08	\$33.15	\$40.50	\$60.50
Heating Oil <sup>1</sup> (per gallon wholesale)	\$0.77	\$0.89	\$1.08	\$1.80
Gasoline <sup>1</sup> (per gallon wholesale)	\$.98	\$1.20	\$1.50	\$2.50

1) April 6, 2001 NYMEX prices

2) Projections from FIMAT Energy Risk Management Group

- Demand for petroleum in the US is expected to grow by 17% over the next 10 years, from

- current consumption of almost 20 million barrels a day to nearly 23 million barrels a day.
- Over the past 10 years, US demand for petroleum increased 17%.
- As of April 13, crude oil stocks were 313.3 million barrels, which is 8% below the 25-year average level for April of 340.2 million barrels, and 6% below the 10-year April average inventory of 332.3 million barrels.
- April inventories have been lower only twice since 1976.
- As of April 6, 2001, the price of crude oil price - at \$27.08 - is 50% higher than the 10-year average April price of \$18.05.
- The price of crude oil is down from a September 20, 2000 high of \$37.20, but it has hovered well above \$25 per barrel for most of this year.

## Natural Gas:

Natural gas provides almost one-quarter of all of the energy used in the United States and nearly half of all the energy used for cooking, heating, and other types of home appliances. This percentage is expected to increase as new natural gas-fired electricity generators go on-line to meet increased demand for electricity. Natural gas is colorless, shapeless, and in its pure form, odorless. Since it burns almost completely, it creates no ash and very little air pollution. Over the next decade, natural gas prices are expected to increase by 271% as demand grows.

	Current Prices <sup>1</sup>	2003 <sup>2</sup>	2005 <sup>2</sup>	2010 <sup>2</sup>
Natural Gas (per thousand cubic feet)	\$5.33	\$7.00	\$9.50	\$19.75

1) April 6, 2001 NYMEX prices

2) Projections from FIMAT Energy Risk Management Group

- Natural gas accounts for 23% of the United States' total energy consumption and its market share is projected to increase to 25-27% of the market by 2010.
- Demand for natural gas is projected to grow by 24% over the next 10 years - from current consumption of 22.7 trillion cubic feet (tcf) to 28.1 tcf in 2010.
- Over the past 10 years, US demand for natural gas has grown 19%.
- Natural gas imports to the United States have doubled over the last 10 years.
- As of April 6, natural gas stocks totaled 741 billion cubic feet (bcf) which is 52% below the historic natural gas inventory average of 1,548 bcf and the lowest recorded natural gas stock since 1976.
- At an April 6, 2001 price of \$5.33 per thousand cubic feet, the price of natural gas is 2.5 times the 10-year April average of \$1.91, and is nearly twice the April 2000 price of \$2.87.
- The highest April price recorded by US Energy Information Administration prior to this year was \$2.87, in both April 1984 and 2000.

## Electricity:

Demand for electricity has grown over the past decade due in part to the increased use of computers and other electronics as Information Technology has become an increasingly important part of the information-

based economy.

- US consumption of electricity is expected to increase by 22% over the next 10 years, from 3.62 billion megawatt hours (MwH) to 4.41 billion MwH.
- Over the past 10 years, US demand for electricity has grown by 26%, from 2.87 billion MwH to 3.62 billion MwH, while electricity supply has grown by only 24%, from 3.07 billion MwH to 3.81 billion MwH.
- When retirements of current plants are taken into consideration, the US is projected to need to add at least 700 new power plants in the next 10 years to meet demand. Roughly 300 new plants were brought on line or refurbished in the previous decade with a total generating capacity of 90,000 megawatts.
- While this tightening of supply and demand poses a significant reliability risk, it poses an even greater risk of price spikes - especially in states undergoing deregulation, where adequate supply is a key ingredient in ensuring the development of a competitive marketplace.

## **Recommendations:**

These supply, demand and price realities underscore the need for a bipartisan agenda that focuses both on increasing domestic supplies and reducing demand. This agenda should be based on the following recommendations:

### *Reducing Demand and Improving Efficiency:*

- Increase Federal fuel efficiency standards for light trucks, minivans and SUVs;
- Promote “Energy Star” products that significantly reduce power use for household appliances and office equipment;
- Increase tax incentives for the use of hybrid and alternative fueled vehicles;
- Encourage local utilities to aggressively implement innovative demand management techniques such as “real-time” pricing that other states have used to reduce industrial power usage during peak hours; and
- Increase residential, commercial and industrial incentives to invest in greater fuel efficiency and fuel efficient technologies.
- Restore proposed budget cuts to alternative energy research money, allowing fuel cells and other innovative alternative energy sources to be eligible for the solar and geothermal energy tax credit, and increase the tax credit from 10% to 25%. The President’s Budget proposes a 54% cut to solar energy programs, a 48% cut to wind programs, a 48% cut to geothermal programs, and a 46% cut to research and development.

### *Improving Distribution:*

- Use new superconducting technology to increase electricity transmission capacity to minimize the necessity of building new transmission lines;
- Streamline the siting process for new power plant construction, natural gas pipelines, and transmission lines; and
- Promote federal-state-local coordination among various agencies to create greater energy supply infrastructure while protecting environmental and community concerns.

### *Increasing Development:*

- Reduce the backlog of applications for development rights on federal lands already approved for oil and gas exploration and expand incentives for exploration and drilling on federal lands, such as areas

- in the Rocky Mountains and the Gulf of Mexico; and
- Build a new natural gas pipeline from Alaska to bring trillions of cubic feet of natural gas to the lower 48 states.

Sources: US Department of Energy, Energy Information Administration, FIMAT Energy Risk Management Group, President's Budget.