



"Changing Course"

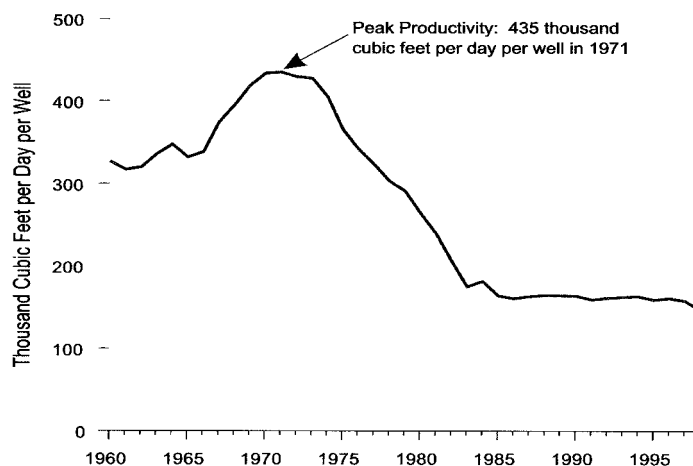


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The Bad News About Natural Gas

Virtually all of the new power plants under construction in the U.S. will be fueled by natural gas, a rapidly diminishing non-renewable resource that causes long-term environmental damage in its extraction process. According to the U.S. Energy Information Administration, U.S. natural gas production peaked at 435 thousand cubic feet per well per day in 1971, and then fell steeply through the mid-1980s. Productivity in 1998 was only 146 thousand cubic feet per well per day. According to a March 19, 2001 article in *The Wall Street Journal* on natural gas reserves in the U.S., "Drilling is up, inventories are low, and demand is strong." Moreover, the demand for natural gas is expected to increase 30% by the year 2010. Even Federal Reserve Chairman Alan Greenspan has warned that the natural gas shortages are real, and they threaten the economy recovery.

U.S. Natural Gas Well Productivity
(Source: U.S. Energy Information Administration)



One of the largest natural gas reserves are located in the Powder River Basin in Wyoming and Montana, where the Bush Administration has pledged to have natural gas producers drill over 75,000 coal bed methane wells over the next 10 years. If all goes well, an estimated 25 trillion cubic feet of natural gas will be recovered – *which is what the U.S. consumes each year.*

Temporary Gas production Results in Long-Term Environmental Costs

The most formidable obstacles in the Powder River Basin are not environmental groups, but Republican ranchers who are already being devastated by the of billions of gallons of what is referred to as “product water.” According an article in *U.S. News & World Report* (March 12, 2001), each natural gas well will typically produce about 12,000 gallons of this byproduct water daily -- or roughly 4.4 million gallons per year. Normally, water is a good thing, but in this case, the product water has such a high salt content that kills the crops and native grasses in the area. As Dennis Hemmer of the Wyoming Department of Environmental Quality indicated, the salty water seals the soil so crops are simply unable to grow. The 12,000 existing wells developed in the basin area have already left ugly scars on the landscape. An additional 77,000 wells would be potentially devastating. The pumping depletes the underground aquifers and threatens the long-term viability of agriculture in the region.

Other Environmental Costs

In addition to the problems of water contamination, ranchers in the area are forced to put up with the deafening noise coming from the natural gas compressor stations on the surface that roar like jet engines 24 hours a day, 7-days a week. In addition, the Bush Administration’s natural gas plan in the basin will require building over 17,000 miles of new roads for the 18-wheeler trucks that will rumble through the area 24-hours a day; 20,000 miles of pipelines; 200 compressor stations and approximately 5,000 containment pits for the product water. The ranchers, who typically do not own the mineral rights under their property, now realize that they are helpless as they watch the daily destruction of their way of life.

All of this unnecessary and long-term environmental damage is part of the “external costs” for only one year’s supply of natural gas. If that were not bad enough, there are also serious environmental problems associated with the emissions that will come from operating the natural gas-fueled power plants. Each power plant will emit thousands of tons of nitrogen oxides, carbon monoxide, carbon dioxide, volatile organic compounds, and particulates annually. In addition, these 30-year design life power plants will consume roughly 100,000 acre feet of water annually, and much of that water is intended to come from already seriously depleted groundwater supplies.

Mass-Produce Wind Systems Instead

Wind machines have been used for pumping water for over a thousand years, and they can now be mass-produced like automobiles to make the U.S. energy independent. Approximately 10 to 12 million one-megawatt wind-powered electrolyzers would make the U.S. independent of its current dependence on natural gas, coal, oil, and nuclear fuels. Moreover, given that over 17 million cars and trucks are manufactured in the U.S. each year, the 12 million wind systems could easily be built and installed within a five or ten year period. It is important to understand that the primary obstacles to large scale use of wind power is the fact that winds are unpredictable, and even at a good wind site, the wind typically only blows about one-third of the time. The other major limitation is that most of the existing high-voltage transmission lines needed to transport the wind-generated electricity are already full. However, both of these obstacles are eliminated if the wind machines produce hydrogen as their primary product, instead of just electricity.

Unlike electricity, hydrogen can be stored and transported to world markets just like oil or gasoline, and it can be used as a pollution-free “universal fuel” that can be used for the transportation sector as well as homes and power plants. As such, hydrogen is the critical element needed to make wind and other solar technologies practical, and if wind systems are mass-produced for large-scale hydrogen production, their contribution can be increased from less than 1% -- to over 100% of the U.S. energy requirements!

Millions of jobs will be created as the U.S. is transformed from the world's largest energy importer, to a Saudi Arabia-class energy exporter, with a pollution-free fuel that is inexhaustible. The necessary land exists in abundance in the U.S., where most ranchers and farmers will be able to earn more income from wind farming than they do with cattle or crops. However, the best areas to place most of the wind systems would be at sea where such “Windship” systems The Phoenix Project, could not only make America energy independent of natural gas, oil and nuclear power, but simultaneously provide a critical sanctuary for the ocean ecosystems that are rapidly being exterminated by oil spills and destructive fishing practices.

Only Harry Braun has a Phoenix Project plan that will allow us to “change course.” Harry has the new heading for a solar hydrogen economy. Please help him to “turn the wheel.”



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