Energy Realities

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Fossil fuel technologies in free market settings have displaced once dominant technologies that are politically favored, such as electric vehicles at the turn of the century and solar water heaters in the 1940s.

Natural gas technologies on the power generation side and reformulated gasoline on the transportation side are setting the competitive pace. This could continue for decades. Fuel-cell hydrogen vehicles are decades away from mass commercialization at best, and they must get their energy from either fossil fuels directly (on-board conversion) or indirectly (electrolization).

Environmentalists touting renewable energy are really touting certain renewable energies at the expense of other renewable energies. Their opposition to hydroelectric power, both with existing facilities and new facilities, can alone cancel out capacity additions with the more supply-constrained wind power. Solar power is so much more expensive than other renewable and nonrenewable alternatives where grid electricity is available that not even the Department of Energy foresees significant market penetration.

There is plenty of energy hype in the air, and this will continue for the indefinite future. DOE Secretary Bill Richardson recently announced the Clinton Administration's plan for wind to have a 5% share of the U.S. generation market by 2020. That compares to a prediction for wind from DOE's forecasting arm (Energy Information Administration) of .19% by 2020.

Snowballing energy realities favor conventional energies and work against politically correct (government subsidized) energies. Here are some examples:

- Hydrocarbon prices have been falling in the 1990s and in some cases (oil products) have set record lows.

- Gas-fired generation is dominating the market for new generation with a bit of coal thrown in. Gas-fired combined cycle is the choice for baseload generation; gas turbines are the choice for peaking load.

- Total wind and solar last year made up about 1/3 of 1% of electric generation and .12% of total U.S. energy consumption. They are not capable of becoming primary energies to meet the mandates of the Kyoto Protocol. Politically favored renewables prospectively face a "depletion problem." This is due to siting constraints because of economics as well as environmental issues. In the years ahead, renewable quotas may well lead to an environmental backlash as more and more sensitive sites are forced into energy production.

- Geothermal output has declined in recent years due to depleting output at The Geysers and siting constraints with new capacity.

- Biopower is being counted on to keep total renewable output from falling, but it is more expensive than well-sited wind in many cases and is land intensive. Outside of closed-loop systems, it is a net emitter of CO_2 as well.

- Hydrogen fuel-cell vehicles as a transportation-side savior are decades from having a real impact even if technology breakthroughs occur. Daimler-Chrysler's plan to bring 100,000 fuel-cell vehicles to market by 2005, even if it is realized, is a tiny percentage (.2%) of what now is a 50 million annual new-car market. Fuel-cell vehicles a decade from now may be where wind and solar were in the 1970s and 1980s.

- Energy efficiency is a mirage to meet Kyoto even counting on future reductions in energy intensity. The U.S. is one-third more energy efficient now than in 1973, but is using 20% more electricity. There are simply more and more things we are plugging into walls. A recent study by Lawrence Berkley National Laboratory identified 90 miscellaneous uses of electricity that are unregulated versus high profile regulated household appliances such as water heaters and refrigerators. The miscellaneous category includes such things as computers and heated pools/spas. All totaled they are antici-

pated to account for 40% of electricity demand growth by 2010 in the U.S. A new study by Mark Mills documents the great growth of electricity usage from the sale of 100 million personal computers in the last five years in the U.S. alone.

- Energy service companies (ESCOs), which offer out-sourcing energy services for commercial and industrial companies, can reduce energy usage by as much as 10%-20% for customers. But they also say that many customers, such as the larger industrial customers, who are not signing up for outsourcing energy services, are in much better shape with their demand-side management. (Residential customers, on the other hand, are in a business-as-usual mode with more things to plug in.) In the aggregate for business, the energy savings will be nowhere near the 50% claim that energy environmentalists Joe Romm or Amory Lovins claim.

ABOUT THE AUTHOR

Robert J. Bradley, Jr., is president of the Institute for Energy Research. He has recently been named an adjunct scholar of the Center for the Advancement of Energy Markets (CAEM.) This new venture is a non-profit, independent organization focusing on the future of energy markets transformed by technology and restructuring.

Dr. Bradley's IER works within the free market movement to identify new research projects to popularize energy realities, and expose energy "hype."

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