

It's Not 'Star Wars'

ENERGY'S FUTURE: Robert Hefner says natural gas offers a bridge to a squeaky-clean 'hydrogen economy.'

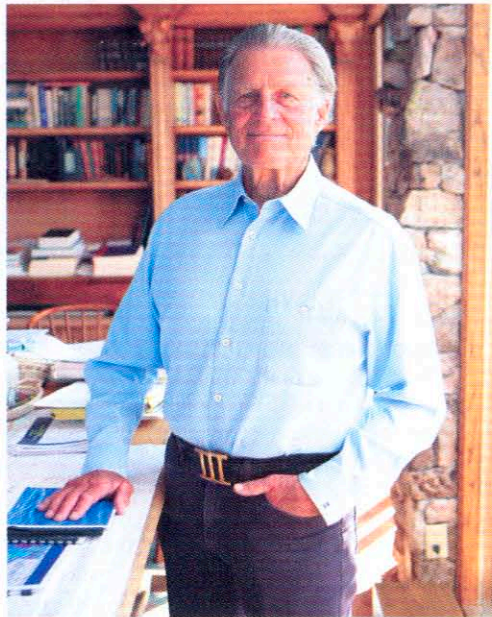
BEFORE ROBERT A. HEFNER III came along, many people assumed natural gas was limited in its quantity and uses. But since its founding in 1959, Hefner's company GHK alone has discovered more than 3 trillion cubic feet of natural gas around the world. The company also pioneered the technology now used by all major companies in the United States to reach deep, high-pressure wells. Hefner recently spoke with NEWSWEEK's Fareed Zakaria about why he thinks natural gas needs to be central to any strategy to transition beyond fossil fuels. Excerpts:

ZAKARIA: Natural gas is plentiful and clean, but when you add up the costs of exploration, storage and delivery, it's also expensive.

HEFNER: When the pollution costs of coal are included, like health costs and acid rain, the cost of natural-gas-generated electricity is actually *less* than coal. For transport, it costs less than gasoline. Over 5 million vehicles around the world run on natural gas.

How would you factor external costs into the price of coal? Do you want a tax on "bad energy" and a subsidy for the good stuff? Coal and oil have become by far America's largest energy problems. Together, they produce about 80 percent of our CO₂ emissions, and our addiction to foreign oil creates very large problems and risks. So I believe we should phase in taxes on coal and oil and oil products—say, over the next five years, so everyone has the chance to adapt. Our principal energy solutions are natural gas, solar, wind and efficiency; policy should encourage their use. One more thought on policy: as we phase in consumption taxes on coal and oil, we should recycle the revenue to eliminate payroll taxes and lower income and capital taxes. Philosophically, I believe it is much better to tax consumption that is creating great costs and risks to society than to tax labor and capital that we want to grow and flourish.

Could you use the grid that pipes gas into people's homes to deliver natural gas as fuel for cars?



GASSED: Hefner is optimistic about U.S. reserves

byproduct of the oil industry. Also, oil companies have deliberately underestimated supplies. In the 1970s, Big Oil convinced Congress that we were running out of natural gas. Exxon testified that the United States had about 300 trillion cubic feet of natural-gas supplies remaining, and it wouldn't be long before schools and offices that relied on natural gas would be closed.

What are the actual numbers?

At the time the Fuel Use Act was being debated, my estimates were that the U.S. had 1,500 to 2,000 trillion cubic feet of natural gas remaining. My estimates were called irresponsible, but the big oil companies were wrong. We have produced 585 trillion subsequent to that time, and today most estimators believe that we have at least 1,500 to 2,000 trillion remaining. At today's rate of consumption, that leaves [America] a 70- to 100-year supply.

What does the future of energy look like? Can we move to an entirely natural-gas-generated economy?

Fifty years from now we will have developed a new energy infrastructure that is many times more efficient, largely through natural gas, solar and wind-powered electric generation, hydrogen fuel cells

Somewhere in the second half of this century, civilization will have ... an energy system that can power its economic growth on an environmentally stabilized Earth. —ROBERT A. HEFNER III

America has a very undervalued asset in the million-mile pipeline grid that delivers natural gas to towns and cities, and directly to over 60 million American homes. You can put a small compressor appliance in your garage and fuel your automobile every night from the natural gas that is already connected to your house. Natural gas is also an excellent fuel to generate electricity. Prior to the Fuel Use Act in 1978 that prohibited the use of natural gas for power generation, Oklahoma generated over 80 percent of its electricity with natural gas. Today about 85 percent of Singapore's electricity is generated by natural gas, and they are headed toward 100 percent.

Why aren't we moving faster toward a natural-gas economy?

Two reasons. First, natural gas has never had a political lobby, so there's never been policy to foster the development of natural gas. For most of the last 100 years natural gas has been an underappreciated

in the transportation sector and massive increases in end-use efficiency. We will then be entering the hydrogen economy as a result of a transition that began with natural gas.

The hydrogen economy?

An economy powered by hydrogen gas released from seawater by electrical current, produced by solar or wind generation. Although this process of electrolysis has been known and used for over 100 years, it is not commercial for our economy today. We have already powered automobiles, boats, airplanes and towns on hydrogen, so we know we can do it. And it's 100 percent clean. It is not as if it is some "Star Wars" technology. Somewhere in the second half of this century, civilization will have finally achieved an energy system that can power its economic growth on an environmentally stabilized Earth. The hydrogen economy should be civilization's energy endgame.

(N) More of Zakaria's Future of Energy interviews are at xtra.Newsweek.com