President Bush Launches the Hydrogen Fuel Initiative

"Tonight I am proposing $1.2 billion in research funding so that America can lead the world in developing clean, hydrogen-powered automobiles."

"A simple chemical reaction between hydrogen and oxygen generates energy, which can be used to power a car producing only water, not exhaust fumes. With a new national commitment, our scientists and engineers will overcome obstacles to taking these cars from laboratory to showroom so that the first car driven by a child born today could be powered by hydrogen, and pollution-free."

"Join me in this important innovation to make our air significantly cleaner, and our country much less dependent on foreign sources of energy."

President George W. Bush
2003 State of the Union Address
January 28, 2003

Benefits of a Hydrogen Economy

The President's FreedomCAR and Hydrogen Fuel Initiative is designed to reverse America's growing dependence on foreign oil by developing the technology to enable production of hydrogen-powered fuel cell vehicles and fueling infrastructure to support them. This initiative was chosen not only because of the energy security benefits associated with a domestic fuel that can be produced from a wide range of feedstocks, but also because of the potential environmental benefits in both transportation and stationary markets.

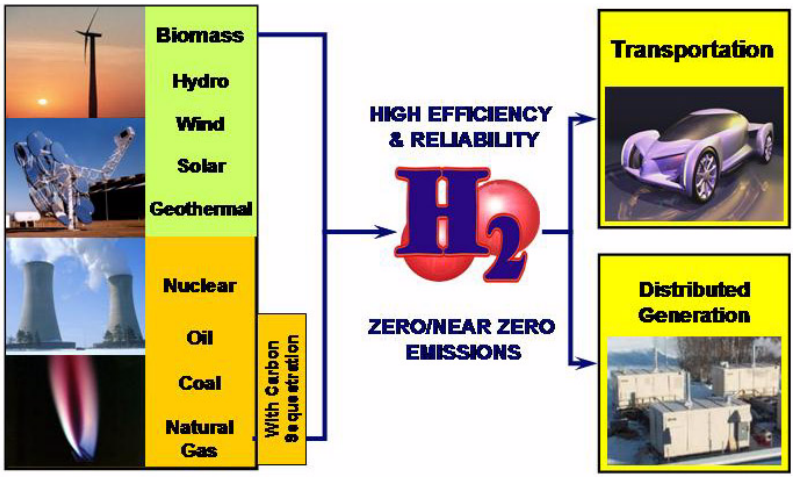
Energy Security

America's transportation sector relies almost exclusively on refined petroleum products. More than one-half of the petroleum consumed in the United States is imported, and that percentage is expected to rise steadily for the foreseeable future. Even with the significant energy efficiency benefits that gasoline-electric hybrid vehicles and diesels can provide, we must ultimately find an alternative fuel that can be domestically produced. Hydrogen (along with biofuels) is a versatile energy carrier that is environmentally clean and could be produced in large quantities entirely from domestic sources. Traditional sources of energy - fossil fuels like natural gas and coal; renewable energy sources such as solar radiation, wind and biomass; and nuclear energy can all be used to produce hydrogen. Its use as a major energy carrier would provide the United States with a more diversified energy infrastructure.

> ***"Hydrogen fuel cells represent one of the most encouraging, innovative technologies of our era.... One of the greatest results of using hydrogen power, of course, will be energy independence for this nation... think about a legacy here at home, about making investments today that will make future citizens of our country less dependent on foreign sources of energy. And so that's why I'm going to work with the Congress to move this nation forward on hydrogen fuel cell technologies. It is in our national interest that we do so."***
>
> President George W. Bush
> The National Building Museum
> February 6, 2003

Environmental

While addressing the energy security issue, we must also address our environmental viability. Air quality is a major national concern. It has been estimated that 60% of Americans live in areas where levels of one or more air pollutants are high enough to affect public health and/or the environment. Personal vehicles and electric power plants are significant contributors to the nation's air quality problems. Most states are now developing strategies for bringing their major metropolitan areas into compliance with the requirements of the Clean Air Act. Widespread use of fuel cell vehicles, because they are zero-emission vehicles and have no on-road emission deterioration, could have a measurable effect on reducing nitrogen oxides, volatile organic compounds, and particulate matter produced by light-duty vehicles.



Emission of greenhouse gases, such as carbon dioxide and methane, has been cited as a major global concern. Build-up of these gases in the atmosphere is thought to have detrimental effects on the global climate. Although there is not yet agreement on what the exact impact will be, when it will be realized, or how best to address the issue, there is agreement that emissions of these gases needs to be reduced. Hydrogen offers a unique opportunity to address this problem, since carbon emissions can be decoupled from energy use and power generation. When used in a fuel cell, the only emission is water vapor. Efficient hydrogen production technologies and the possibility of carbon sequestration make natural gas and coal viable feedstock options, even in a carbon-constrained environment. In the case of renewable and nuclear options, greenhouse gases can virtually be eliminated.

Economic Competitiveness

Abundant, reliable, and affordable energy is an essential component in a healthy economy. When energy prices spike, as has occurred several times recently due to supply interruptions and/or high demand, Americans suffer, particularly those in lower-income brackets. Hydrogen offers unique opportunities to drastically increase the efficiency with which we generate and use energy. And because it can be produced from a wide variety of domestically-available resources, we can reduce the impact of externalities on energy prices.

The technical and economic success of hydrogen-based distributed energy systems will stimulate new business ventures. Hydrogen power parks will provide an economic development path for the integrated production of energy services such as electricity, transportation fuels, and heating and cooling. This may lead to the creation of high-tech jobs to build and maintain these systems. Hydrogen also offers a wide variety of opportunities for the development of new centers of economic growth in both rural and urban areas that are currently too far off-line to attract investment in our centralized energy system.

The success of current U.S. industry is also of vital importance to the well-being of our people and of the Nation as a whole. For example, the U.S. auto industry is the largest automotive industry in the world, producing 30% more vehicles than the second largest producer, Japan. For every worker directly employed by an auto manufacturer, there are nearly seven spin-off jobs. America's automakers are among the largest purchasers of aluminum, copper, iron, lead, plastics, rubber, textiles, vinyl, steel and computer chips. The auto industry is also a major exporter, accounting for 12% of all non-agricultural exports. Remaining competitive in the international market is essential to the U.S. economy.