
□ U.S. NATIONAL ENERGY POLICY AND GLOBAL ENERGY SECURITY

By Spencer Abraham, U.S. Secretary of Energy

Meeting the world's energy challenges will require a determined, sustained global effort over decades, says Abraham. The United States must balance increased energy production with clean and efficient energy use by developing international partnerships, expanding and diversifying its supplies, and promoting competitive markets and sound public policies. At the center of these efforts are new technologies that promise to change the way we produce and consume energy.

Meeting the world's energy challenges will require a sustained global effort over many decades. As the largest single market in an increasingly integrated world energy system, the United States affects and is affected by developments around the world. As a result, U.S. energy policy plays an influential role in maintaining global energy security.

Recognizing the growing strains on energy systems as he took office, President Bush sought to develop a comprehensive and balanced energy policy that could help the private sector and state and local governments "promote dependable, affordable, and environmentally sound production and distribution of energy for the future." The result was the National Energy Policy (NEP) report, which since its publication in May 2001 has guided U.S. energy policy.

ENERGY OUTLOOK

The Energy Information Administration's (EIA) most recent projections paint a clear picture of future energy challenges in the United States. Despite continued advances in technology, total U.S. energy consumption is projected to increase from 98 quadrillion British thermal units (Btus) in 2002 to 136 quadrillion Btus in 2025. Because of slow growth in domestic energy production, net energy imports are projected to grow from about one-quarter to just over one-third of U.S. demand in 2025.

Oil imports account for a large portion of imported energy, and the Organization of Petroleum Exporting Countries (OPEC) is expected to be the principal source

of marginal supply to meet increased oil demand. By 2025, OPEC production is expected to nearly double, and projected growth in demand points to a world price of about \$27 per barrel in real 2002 dollars.

Assuming an increase in gross domestic product of about 3 percent per year over the same period, total U.S. petroleum demand could grow from about 20 million to 28 million barrels per day. As a result, net petroleum imports to the United States could jump from 53 percent to 70 percent, with much of the oil coming from the Persian Gulf. And with refinery capacity growth constrained by regulations and economics, refined products are projected to represent a growing share of these imports, reaching an estimated 20 percent of total net oil imports by 2025.

Although most of the United States' natural gas can be supplied currently by North American production, the trend here is also toward a greater share for gas imported from outside the Western Hemisphere. Even with an accelerated increase in energy efficiency, the United States will still be highly dependent on energy imports to meet future consumption needs.

PRESIDENT BUSH'S NATIONAL ENERGY POLICY

These trends make clear the need for a long-term plan for energy security. The NEP is a revolutionary roadmap that taps into a diverse array of energy sources to enhance U.S. energy security, economic competitiveness, and environmental performance. From the U.S. perspective, energy security is more than a matter of assuring short-term supplies; reliable access to affordable, clean, and efficient energy services also is critical to economic growth and development.

Our approach to our energy security is informed by the following principles. First, we must balance increased production with a renewed focus on the clean and efficient use of energy. Second, we must expand international engagement with consuming and producing nations. Third, we must expand and diversify our

sources of supply. And finally, we must encourage energy decisions guided by competitive markets and public policies that stimulate efficient outcomes.

Achieving the vision of a secure and sustainable energy supply will require transition to advanced energy systems. Therefore, a central aspect of U.S. energy policy is a portfolio of breakthrough technologies that promise to alter fundamentally the way we produce and consume energy. Our efforts also take advantage of public-private partnerships, market-enhancing policy tools, and international cooperation.

CLOSING THE GAP BETWEEN SUPPLY AND DEMAND

A balanced, comprehensive energy policy is imperative to the long-term strength of U.S. economic and national security. Increasing domestic production of traditional energy sources such as oil and gas is obviously an important aspect of the U.S. approach to curbing imports. But the United States also recognizes that it must take greater advantage of a diverse array of other domestic energy sources.

The president's FreedomCAR and Hydrogen Fuel Initiative promise just that. Hydrogen can be produced from a broad range of domestic sources — from renewables to fossil fuels to nuclear — and has the potential to free us from reliance on foreign energy imports. The president's Hydrogen Initiative represents a commitment to the future hydrogen economy, and it has already generated tremendous enthusiasm among the energy and auto industries. Over the next five years, the United States plans to commit \$1.7 billion to overcoming several significant technical and economic barriers to the development and expanded use of hydrogen, fuel-cell, and advanced automotive technologies. The first \$350 million in grants to achieve this objective were announced in late April.

If we are successful, commercialization of fuel-cell vehicles, hydrogen production, and refueling infrastructure could take place by 2015, with hydrogen-powered vehicles appearing in automobile showrooms by 2020. By 2040, hydrogen could replace over 11 million barrels of oil per day — nearly equivalent to current U.S. oil imports.

Like many other nations, the United States has abundant resources of coal, but its use poses environmental

challenges. The administration's FutureGen project is an initiative to design, build, and operate the world's first coal-fired emissions-free power plant. Working with the private sector, this \$1 billion project will employ the latest technologies to generate electricity, produce hydrogen, and sequester carbon emissions from coal. FutureGen simultaneously supports several of the administration's environmental and energy goals, and through this research coal can continue to be part of a diverse energy portfolio well into the future.

INCREASING DIVERSITY OF SUPPLY

To maintain energy security, the United States is also expanding and diversifying the types and sources of energy it imports. Helping to drive this effort are new opportunities for increased investment, trade, exploration, and development that go well beyond the bounds of traditional energy markets. U.S. goals are to diversify energy supplies and promote new resources in the Western Hemisphere, Russia, the Caspian region, and Africa, and to improve the dialogue with key producing and consuming countries to head off energy disruptions before they become crises.

The United States, Canada, and Mexico are working together to further integrate and strengthen the North American energy market by overcoming policy and technical obstacles to increased energy production and delivery. The United States also has been engaging with other countries in the Western Hemisphere. The Western Hemisphere now supplies half of all U.S. petroleum imports, and Trinidad and Tobago is the largest supplier of liquefied natural gas (LNG) to the United States.

Outside the Western Hemisphere, the United States continues to strengthen its energy relationship with Russia, now the world's second largest crude oil producer and exporter. In 2002, the Bush administration initiated a cooperative effort to help improve the regulatory and investment conditions required to increase energy and infrastructure development in Russia.

The United States also has been a strong supporter of oil and gas development in the Caspian region and has urged governments to establish the necessary legal, fiscal, and regulatory environments to safeguard the large investments required to develop these new resources. Reserves estimates suggest the Caspian Basin could produce 3.5 - 4 million barrels per day by 2010, and the

administration has advocated new pipeline capacity to link these resources to world markets.

Energy from Africa plays an increasingly important role in U.S. energy security, accounting for more than 10 percent of U.S. oil imports, and it is a key economic engine for the continent. Good governance and stable regulatory structures are critical prerequisites for private investment in the energy sector. Key energy producing African countries and the United States continue to work together to promote sustainable energy and economic development.

In addition to these efforts, the United States has been strengthening its dialogue with major producing and consuming countries to monitor market developments and respond to supply disruptions. The United States continues to participate in the International Energy Forum, a multilateral forum of oil-producing and -consuming nations, the key focus of which is an effort to improve the timeliness and accuracy of the data that guide oil markets.

The United States is also working closely with major consuming countries to address our common energy challenges. In 2002, energy ministers from the Group of Eight (G-8) countries met in Detroit and reaffirmed the importance of maintaining emergency oil reserves and coordinating their use and agreed to work together to encourage greater energy investment. In 2003, leaders of the Asia Pacific Economic Cooperation (APEC) forum endorsed a plan proposed by the United States to identify best practices for LNG trade and strategic oil reserves, finance clean energy, develop a framework for a hydrogen economy, and cooperate on methane hydrates.

The United States also has stepped up collaborative efforts on natural gas issues. Last December, it hosted the Liquefied Natural Gas Ministerial Summit, which brought together representatives from 24 countries to take a fresh look at the world LNG marketplace. The summit served as a forum to explore all aspects of the global natural gas production and distribution system.

STRENGTHENING INTERNATIONAL TECHNOLOGY COOPERATION

International collaboration is an essential aspect of U.S. technology strategy as well. The U.S. experience has been that well-designed international partnerships can add significantly to the store of human knowledge and propel

the development and commercialization of new technologies. The United States is working with many other countries to develop new technologies and energy sources to improve energy security. These international partnerships help leverage resources, increase the knowledge base, and expand markets for advanced energy technology.

For example, the U.S. led efforts to form the International Partnership for the Hydrogen Economy (IPHE) to coordinate and leverage multinational hydrogen research programs. IPHE will address the technological, financial, and institutional barriers to hydrogen and develop internationally recognized technology standards to speed market penetration of new technologies.

The multilateral Carbon Sequestration Leadership Forum, a presidential initiative launched in June 2003, will set a framework for international cooperation on sequestration technologies. The Forum's 16 partners also are eligible to participate in the FutureGen project.

The United States is also pursuing nuclear energy as a secure and clean energy choice. The Energy Department's Generation IV International Forum program, which has 10 international partners, is working on new fission reactor designs that are safe, economical, secure, and able to produce new products, such as hydrogen. And in 2003, President Bush announced that the United States would rejoin the International Thermonuclear Experimental Reactor, a project to develop nuclear fusion as a future energy source. Although the technical hurdles of fusion energy are immense, the promise of this technology is simply too great to ignore.

EMERGENCY STRATEGIES: RESPONSE TO SUPPLY DISRUPTIONS

All of these activities are directed at ensuring a reliable and affordable supply of energy, but the United States also appreciates the importance of protecting against the possibility of a severe supply disruption. The administration early on reaffirmed the importance of maintaining a strong Strategic Petroleum Reserve (SPR). In November 2001 the president directed that we begin to fill the SPR to its 700 million barrel capacity. Today it contains a record 640 million barrels of oil.

The United States also plays an active role in the

International Energy Agency (IEA), whose 26 member countries are committed to holding emergency oil reserves and taking common effective measures to meet oil supply emergencies. Together, IEA members' oil stocks total nearly 4 billion barrels, 1.4 billion barrels of which are under direct control of member governments, with the remainder in commercial stocks.

CONCLUSION

Today's energy challenges have been long in the making, and the solutions will require a determined, sustained global effort over decades. The United States remains committed to advancing energy security at home and

abroad, and we have developed a long-term strategy to make science and technology central to an integrated energy, environmental, and economic policy.

The Bush administration believes that the approach we have charted will put us on a path to ensuring secure, reliable, affordable, and clean energy to power economic growth across the globe. While the challenges we face are significant, the United States remains committed to leading the way to a bright energy future. □