NUCLEAR POLICY
Outlook

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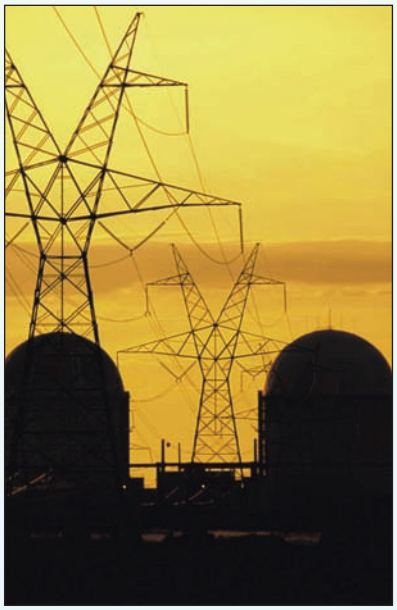
Policy Matters That Affect Your Business

In This Issue...

Building new U.S. generating plants and revitalizing the transmission system calls for large-scale reinvestments. Clearly, the country needs to expand all available energy sources, including new reactors. How can public-private partnerships, including loan guarantees and risk protection insurance, help companies building these first plants? What historical precedents exist for such programs? This issue of Nuclear Policy Outlook examines how government and industry can make these approaches work.



Facing Up to America's Energy Investment Crisis

America's electric infrastructure is showing signs of strain. Almost one-half of U.S. electric generating capacity is more than 30 years old, and the transmission system is struggling to keep pace with growing electricity demand. As such, the electric sector faces staggering investment requirements between now and 2020. Meeting these investment needs will require an unprecedented degree of cooperation between the public and private sectors, as well as innovative approaches combining all the financing capabilities and tools available to the private sector, the federal government and state governments.

Constructing new reactors and other large generating plants will help meet growing demand.

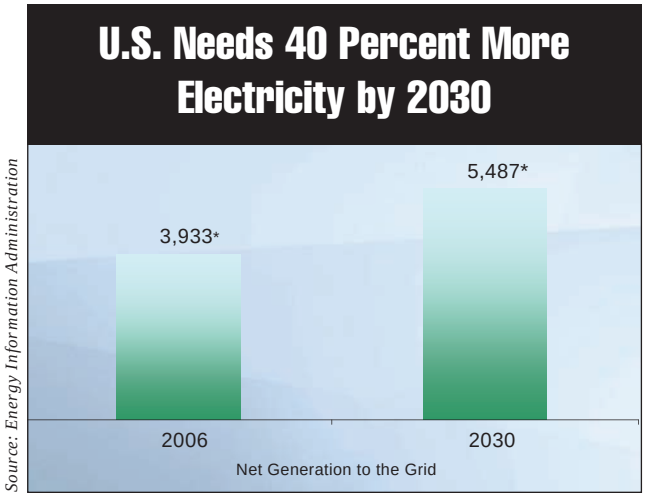
"The impulse to act on energy is the strongest I've seen since 1974," said Phil Sharp, president of Resources for the Future and a former congressman who sat on the House Energy and Commerce Committee and chaired the National Commission on Energy Policy. "But we don't know how to act ... what the path forward should be. We need to strengthen the network of leadership in business, [non-governmental organizations] and political circles to address energy and climate change, and have a sustained effort that leads to success."

America's commercial nuclear energy industry was born out of a partnership between the federal government and the electric power industry, when the Shippingport reactor in Pennsylvania first generated power 50 years ago. The transition to new reactor technology will require a similar partnership. Thanks to the investment incentives and investment protection provided by the Energy Policy Act of 2005, the building blocks for a new public-private partnership are in place. Making these programs work is imperative if nuclear energy is to play its role in meeting the country's future electricity needs. This issue of Outlook explores the factors at play, together with challenges ahead.

REBUILDING THE ELECTRIC INFRASTRUCTURE

The U.S. Department of Energy's Energy Information Administration predicts that electricity demand in the United States will grow 40 percent by the year 2030.

The North American Electric Reliability Corporation (NERC), in its 2007 Long-Term Reliability Assessment, said electricity usage in the United States will double twice as fast as committed resources over the next 10 years. Absent new resources brought into service, some areas could fall below their reserve capacity margins within two or three years, NERC predicted.



"We are at the stage where emergency situations are becoming more frequent. Though some improvements have been made, we are requiring our aging grid to bear more and more strain, and are operating the system at or near its limits more than ever before," said Rick Sergel, NERC president and CEO. "As operating margins decrease, we are limiting our ability to manage unplanned events like equipment failures and extreme weather."

David Nevius, NERC senior vice president and director of reliability and performance analysis, stressed that new generation sources are needed as soon as 2010.

The investment challenge, too, is daunting. Morgan Stanley and others estimate the electricity sector needs $750 billion to $1 trillion in investments by 2020–for new electric generating capacity, new transmission and distribution infrastructure, demand-side management, and environmental control technology to enable older fossil-fueled power plants to meet tighter air quality standards.

"The country has delayed investment in new capital-intensive baseload power plants and new transmission," said Richard Myers, NEI's vice president of policy development. This is largely the result of the business environment in the 1990s. The Energy Policy Act of 1992 deregulated wholesale power markets and led to major restructuring of the electricity sector in many states. This created great uncertainty for electric utilities, and at times of uncertainty companies tend to become more risk-averse. As a result, the industry built almost 300,000 megawatts of new gas-fired generating capacity between the early 1990s and 2005, because it represented the lowest investment risk. This placed unsustainable pressure on natural gas supply and prices.

The core problem–inadequate investment–extends beyond generating capacity. Transmission investment started to decline in the late 1970s and virtually collapsed in the 1990s, even though electricity demand and the demands on the transmission system increased dramatically during that time. Transmission investment has turned around in the last several years, as power companies race to catch up with the demands being placed on the electric grid. "It's time–probably past time–for dramatic increases in investment in new baseload generating capacity," Myers says.

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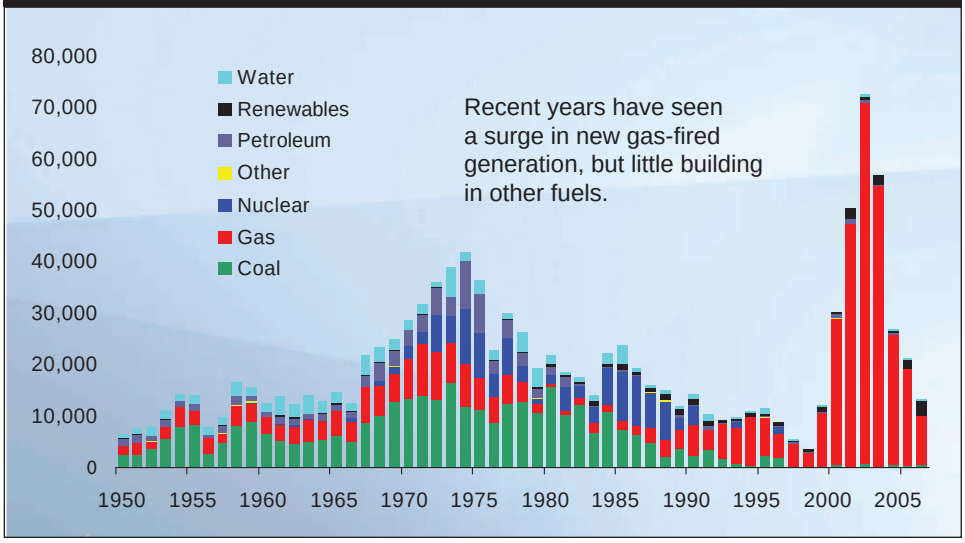
> Vice President of
> Policy Development
> Nuclear Energy Institute

"If we do not rise to meet these challenges—and do it soon—our country's economy could derail. No 21st-century economy can move forward unless it is running along a strong, dynamic and reliable energy infrastructure. When the power stops flowing, both the knowledge economy and the information superhighway shut down."

— Thomas Farrell II
President and CEO
Dominion Resources

Projections are that labor and materials costs will continue to rise.

Capacity Brought On Line by Fuel Type
1950-2006 (Nameplate Capacity, MW)



WHAT IT WILL TAKE TO FIX THE PROBLEM

The fix will not be easy.

Baseload power plants, whether coal or nuclear, are large investments. Industry and investment community estimates are that a new nuclear reactor could cost between $5 billion and $6 billion. One of the most significant financing challenges is the cost of these projects relative to the size, market value and financing capability of the companies that will build them.

By itself, the financing challenge is daunting. For new nuclear projects, navigating the U.S. Nuclear Regulatory Commission's improved—but as yet untested—licensing process and managing the fast-rising cost of the commodities and components are major hurdles. In a September report analyzing what's driving increased electricity prices, the Edison Electric Institute (EEI) identified "substantial increases in the costs of building utility infrastructure projects" as a major factor. The increases are due to high global demand for commodities and manufactured goods, higher production and transportation costs, and a weakening U.S. dollar. The study also identified increased labor costs, which may continue to rise as the competition heats up for specialized and skilled labor.

These price increases have affected all electric sector projects, driving up the estimated cost of coal plants, nuclear plants, wind power projects, and transmission and distribution projects. Because of these cost increases, "the levelized cost component of baseload coal and nuclear plants has risen by $20 per megawatt hour or more," the report said.

All this raises a considerable challenge. As one utility executive put it recently: "What do I think is good for the country? Build a new nuclear plant. What do I think is good for my investors? On that I'm not so sure."

Richard McMahon, EEI executive director, said that despite economic challenges, construction of new power plants and transmission to meet the rising demand will happen, simply because it must.

"I think it's going to have to happen," McMahon said. "We want it put it in place in a prudent way that, at the end of the day, results in sufficient supply. Everyone needs to understand that those investments need to be made."

The Grand Gulf plant in Mississippi, one of many sites which could see new nuclear reactors to help meet growing U.S. energy needs.

WORKING TOWARD SOLUTIONS

U.S. utilities cannot fix this problem on the strength of their own balance sheets. Partnerships among the public, state and federal governments, and the private sector are a necessary part of the solution.

DOE's loan guarantee program, created by the 2005 Energy Policy Act, is one of the mechanisms necessary to enable investment in innovative energy technologies that reduce, prevent or sequester greenhouse gases.

Loan guarantees are a widely used and successful instrument for supporting private-sector investment in critical infrastructure. Former Texas Congressman Charles Stenholm boiled the issue down to its core at a recent Newsweek event on energy in Washington, D.C. "If you want more of something, you subsidize it," said the 13-term congressman. "If you want less, you tax it. It's that simple."

The federal government manages a loan guarantee portfolio of $1.1 trillion in such areas as shipbuilding, transportation infrastructure, exports of U.S. goods and services, and affordable housing. The president's budget request for fiscal 2008 proposed new loan guarantee authority of $290 billion across the federal government. (Congress has yet to approve a budget for this year.)

Supporting investment in critical energy infrastructure, including new nuclear power plants, is a national imperative, and "there's no reason that the energy loan guarantee program cannot be as successful as the Export-Import Bank and other federal loan guarantee programs," says NEI's Myers.

Loan guarantee programs produce major benefits. Some recent examples include:

- The Export-Import Bank long-term loan guarantee program achieves $23 of export value for every $1 in appropriations costs.
- The Maritime Administration loan guarantee program achieved more than $17 of shipyard activity for every $1 of budget costs in three of the past four years.
- The Air Transportation Stabilization Board approved $1.6 billion in loan guarantees for commercial airlines following the Sept. 11, 2001, terrorist attacks, recorded a single default of $20 million and generated net revenues of about $300 million.

Many of the companies developing new nuclear power plants need the investment support provided by the loan guarantee program.

"When you look at the initial round of construction, the federal loan guarantees are necessary. If at some point we are able to demonstrate that we have the know-how to build nuclear plants on time and on budget, then I think you might see companies more willing to finance new plants on their balance sheets," said Tom O'Neil, Exelon's vice president for new nuclear plants.

Exelon's Tom O'Neil

The federal government's participation can help reduce uncertainties about building new reactors, O'Neil said. "I see loan guarantees as a bridge to jumpstart the industry. It is a must if you believe the country needs 30, 40 or 50 nuclear plants in the next 50 years. After that, we won't need assistance from loan guarantees," he said.

State governments will play an important role, too. Several states—including Florida, Virginia, Louisiana, North and South Carolina—have passed new legislation or implemented regulations encouraging companies to develop new nuclear projects by attempting to provide greater assurance of cost recovery.

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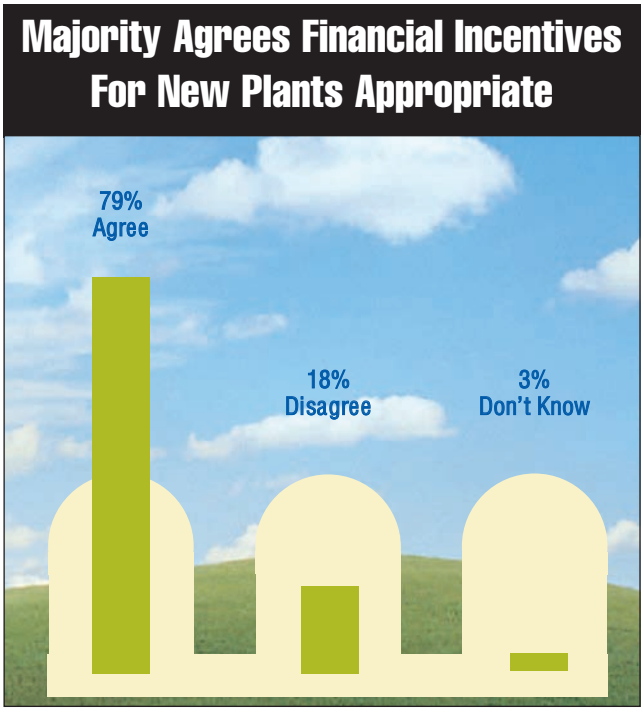
POLICYMAKERS, CITIZENS SEE NUCLEAR ENERGY AS SENSIBLE SOLUTION

New reactors offer clear advantages as part of the solution for growing demand for electricity, given their proven, safe performance. Moreover, nuclear power plants also help prevent production of greenhouse gases at a time of great uncertainty in how carbon will be regulated in the future. Uranium fuel is in abundant supply from stable trading partners.

Aggressive programs to communicate these messages have contributed to increasing support among policymakers and the public for new nuclear power generation.

Nearly 80 percent of Americans endorse the use of federal financial incentives to help jump-start construction of carbon-free energy technologies, according to an October national survey of 1,000 adults conducted for NEI by Bisconti Research Inc.



An October Bisconti Research Inc. poll asked Americans:

"Do you strongly agree, somewhat agree, somewhat disagree or strongly disagree with the following statement?"

Given the need for new electricity production by 2020, it is appropriate for the federal government to provide some financial assistance to jump-start nuclear, solar, wind and other carbon-free energy technologies in order to meet national clean-air and carbon-reduction goals and reduce the cost to consumers of building the facilities.

The survey shows that 79 percent of Americans believe "it is appropriate for the federal government to provide some financial assistance to jump-start nuclear, solar, wind and other carbon-free energy technologies in order to meet the national clean-air and carbon-reduction goals and reduce the cost to consumers of building the facilities."

Thomas Farrell II, president and CEO of Dominion Resources, put the importance of meeting the country's electricity needs into perspective at a National Association of Regulatory Utility Commissioners roundtable discussion earlier this year:

"If we do not rise to meet these challenges—and do it soon—our country's economy could derail. No 21st-century economy can move forward unless it is running along a strong, dynamic and reliable energy infrastructure. When the power stops flowing, both the knowledge economy and the information superhighway shut down."