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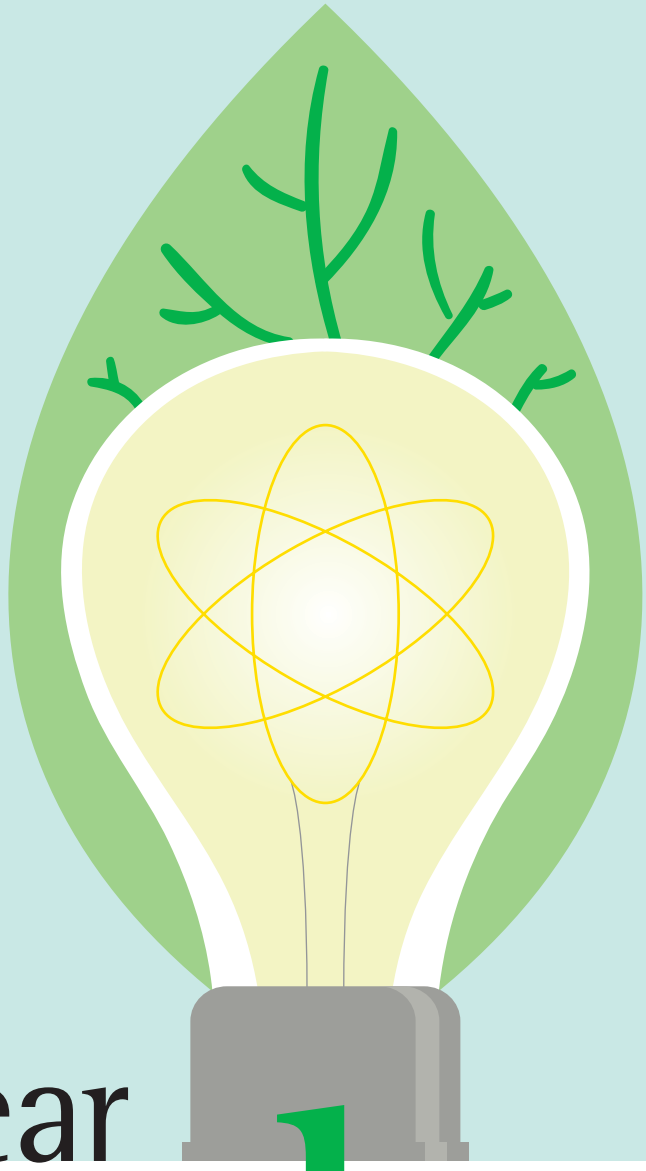

nuclear redux

As talk of new reactors heats up, the industry is exuding fresh confidence.

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International Irradiation Association

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Don't look now, but nuclear power has become the energy sector's comeback kid. For the first time in a quarter century, experts are not only speaking favorably about nuclear power, but there's also optimism about building new reactors. Even some environmentalists are beginning to soften their opposition. Put it all together and what had been an almost forgotten fuel is suddenly once again holding center stage. "We are in the beginning of the nuclear renaissance," says John Ritch, director general of the World Nuclear Association in London.

On this side of the pond, President George Bush is a believer. He threw the power of the Oval Office behind nuclear energy during a June 2005 visit to the Calvert Cliffs nuclear plant in Lusby, Md. The last time a sitting President visited a nuclear facility was in 1979, when Jimmy Carter toured Three Mile Island, after its partial meltdown brought America's nuclear dreams to a halt. This was a far happier time, and Bush gave a speech that said as much. "There is a growing consensus that more nuclear power will lead to a cleaner, safer nation," said the President, adding: "It is time for this country to start building nuclear power plants again."

Nuclear power, an almost forgotten part of the energy equation, has suddenly moved back to center stage.

In his speech, Bush made the point that the United States—which has seen no new orders for nuclear reactors in 25 years—runs the risk of falling behind other power-conscious nations. About two dozen nuclear plants are now under construction around the world, including eight in India, four in Russia, and three in Japan. China has indicated it plans to build 10 or so reactors in its part of the globe, and renewed interest is showing up in Britain, Switzerland, and Finland.

Getting Things Going

What's happening in other parts of the world hasn't been ignored by the U.S. generators of electricity, which produce about 20% of the nation's electricity from a nuclear fleet they acknowledge is getting on in years. At least eight power companies have taken initial steps to commission new reactors. The Atlanta-based Southern Co., for one, is actively investigating bringing a new nuclear reactor online perhaps by 2015, says Barnie Beasley, president and CEO of Southern Nuclear, which currently operates three nuclear plants in Alabama and Georgia. Southern Nuclear has indicated it plans a 2006 filing for an Early Site Permit, a step that gets the licensing process moving. Beasley stresses that applying for a permit isn't a commitment to build, but is the start of a process that could take ten years before a new plant comes on line. But the filing gives the company some flexibility.

That's important to Southern, which notes that 16% of its electricity output is now generated by nuclear. "Nuclear is safe, reliable and affordable," says Beasley, who points out that all three of its plants are certified wildlife habitats that are home to innumerable deer and many other animals. "Our operating record is very strong." It also is a venerable record. Southern Nuclear's first plant was built in 1975, and its sister plants began operation in 1977 and 1987.

Beasley stresses that nuclear has two other compelling advantages. First, operating costs are comparatively low and stable. "Electricity produced by nuclear plants is among the lowest cost in the nation, and

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today's construction costs compare favorably with coal" says Beasley. That's important because natural gas, a widely used fuel in the power industry, has suffered from tremendous price volatility. Second, says Beasley, "Nuclear is an environmentally responsible fuel that emits no greenhouse gases."

The environmental argument, paradoxical as it might seem, is increasingly tilting the balance in favor of nuclear. So says the World Nuclear Association's John Ritch, who points out that the 1997 Kyoto Accord—which mandates reduction in greenhouse gases linked to global warming—effectively put nuclear back in the ball game. About 140 nations have ratified the Kyoto agreement and, although the U.S. is a holdout, the worldwide push for cleaner energy is palpable. Ritch stresses: "Humankind cannot conceivably achieve a global clean-energy revolution without a rapid expansion of nuclear." The only real alternatives are coal and natural gas, both of which produce significant amounts of carbon dioxide. "Nuclear may be the way to solve global warming," agrees Ed Kee, a Washington-based energy expert with PA Consulting Group, a management consulting firm headquartered in London.

Additional pressure to take a new look at nuclear comes from projections of electricity consumption. By 2025, says the federal Energy Information Agency, domestic electricity usage will increase by 50%. Some estimates say that more than 1,000 new power plants will be required to meet the projected 2025 demand. "It's obvious that the U.S. will need more power plants. Nuclear is the environmentally clean choice," says Ritch, a onetime U.S. ambassador to the International Atomic Energy Agency.

Plenty to Go Around

If the world suddenly rushes to embrace nuclear power, will we run out of uranium, the raw material that's used to power reactors? Probably not. "There's no shortage of uranium in the ground, but there is a shortage of known economic deposits," says Jerry Grandey, president and CEO of Cameco, the world's largest uranium producer accounting for 20% of global production. "Rising uranium prices have fuelled investment in exploration and mine development, and we're confident that new reserves will be discovered and brought into production." Grandey says the market is now searching for an equilibrium price that will provide sustainable profits for producers and a secure and affordable fuel supply for electricity generators. According to the World Nuclear Association, known reserves amount to about a 200-year supply, given current consumption rates. And that number is conservative, says Ritch, who indicates that increased demand would likely trigger technological innovations in mining

Irradiate This

Radiation is good for you. Outlandish as that claim might seem, it is an indicator of the degree to which radioactivity's reputation has improved. What's more, the claim happens to be true, says John Masefield, chairman of the International Irradiation Association, who points out that many businesses are finding new, powerful uses for radioactivity. "Around 50% of disposable medical supplies are sterilized with radiation," says Masefield, who indicates that low doses of radiation do the job.

Another important use centers on food, particularly fruits and vegetables, where radiation kills off parasites, bacteria, germs, and other causes of disease. Adoption of irradiation by food-processing companies has not been without some protest by concerned consumers, Masefield admits, but he claims that irradiation has won key approvals from the Food and Drug Administration. Bottom line: Just as nuclear power is winning new friends, so are other uses of radioactivity. Says Masefield: "It's very gratifying to see so much acceptance of the benefits of irradiation."

and exploration that would boost yields. "There is plenty of uranium," Ritch assures.

Crunch the data regarding nuclear, says consultant Kee, and it's clear that "the real issues with nuclear are political and financial, not technical." That said, however, Kee points out that caution is in order regarding construction of new nuclear reactors in the U.S. "It will require significant federal government financial support." Investors, he elaborates, lost hundreds of millions of dollars in the aftermath of Three Mile Island, and the financial community is understandably wary about multibillion dollar commitments involving nuclear energy.

This hesitation is also understood in Washington. "You don't want to go out and build a plant, spend all that money, and have the license jerked at the last minute," Bush observed in his Maryland speech. Both the Department of Energy and Congress are exploring ways to reduce uncertainties in nuclear plant licensing, promises Bush, who backed his words up with a $1.1 billion partnership between government and industry. Called the Nuclear Power 2010 Initiative, it is designed to get a new nuclear plant into construction before 2010.

Will it happen? Buoyed by heightened concerns about global warming, coupled with worries about natural gas availability, nuclear proponents are increasingly optimistic. "Within five years, construction of a new nuclear plant in the U.S. will in fact begin," says Ritch, who is convinced that favorable public opinion will be the driver. "People are accepting that this is the way to power our economies and solve global warming, too. That's the big change."

—Robert McGarvey

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