



Westinghouse Powers Up

Nuclear: At Long Last Love?

BY LLEWELLYN KING

There is a quickening of the pace. There is a feeling that after nearly 35 years of drought, some rain is going to fall on the nuclear meadow; that this year, or next, the first new nuclear plant in decades will be ordered in the United States.

If so, a return to nuclear is not only long overdue. It also is an environmental necessity and a national security imperative.

Slowly, ever so slowly, the forces of public policy are waking up to the reality that if the United States wants abundant electricity, essentially for all time, it has to rediscover nuclear as the low-impact form of electric generation. The facts are catching up with the malicious fiction that consigned nuclear—the high-technology, alternative way to produce electricity—to limbo.

We can spend a lot of time discussing what went wrong with the nuclear way: misguided environmentalism, muddled science and irrational fear. Add to that the appearance of the aero derivative turbine, with its high efficiency and reduced emissions. Here a good technology, unfortunately dependent on a limited fuel source, delayed a serious new look at nuclear power.

Not only is the United States looking afresh at nuclear, but some stubbornly hostile foreign governments have already done so, or are doing so. Finland with a small population, dedicated to the environment, realized that it could not increase its dependence on Russian natural gas and reluctantly ordered its fifth reactor. British Prime Minister Tony Blair, against the rump of his Labor Party, is advocating more nuclear power. Blair is interesting because he has spared no effort in promoting alternative generation. But he has come to realize that Britain needs nuclear power; that alternatives will not fill the gap; and that his only other option is gas from Russia—a mercurial supplier at best.

The days of anything-but-nuclear are not over, but the crushing demands of the U.S. economy point to the need for a reliable electric base that will extend 50 years into the future, not just to the next election cycle.

Talking of the elections, the Democrats remain a problem for nuclear power. They have been skittish about it since the days of Jimmy Carter and have focused their disaffection on the proposed waste repository at Yucca Mountain in Nevada. Sen. John Kerry (D-Mass.) came out against Yucca Mountain, and the Democratic minority leader in the Sen-

(Continued on p. 5)

Westinghouse Chief: New Nukes Coming In Unexpected Places

BY JEFF BEATTIE

Although the widespread resurgence of interest in nuclear power has gotten plenty of attention in recent months, Westinghouse Electric Co. Chief Executive Officer and President Stephen Tritch says many people still don't realize just how many new nuclear reactors are likely to come on-line over the next 15 years.

Overseas, Tritch says several countries—including some with no experience in nuclear power—are mulling new nuclear plants, as are some in Europe that in the past have discussed shutting down their nuclear power programs entirely.

And in the United States, several companies—beyond those who have already made their interest public—also are considering building new reactors, Tritch told *The Energy Daily* in an interview last week.

He declined to identify the U.S. firms that are quietly looking at the nuclear option, but described most of them as companies “with nuclear experience.”

However, Tritch suggested that the U.S. nuclear market may also see some new entrants because the economics of nuclear power have become so compelling that other companies with no nuclear experience are getting interested.

“The driving force here ends up being economics; you just look at where generation is going to be needed, you go back to the basic fundamentals. Other people are at least talking about it,” said Tritch, who took over as head of Westinghouse in 2002 after heading its steadily profitable nuclear services unit.

When Tritch took over, not one U.S. utility had indicated a serious interest in building what would be the first new U.S. nuclear plant in more than two decades.

Since then, nearly every major U.S. nuclear utility has announced it is considering the option, enticed in part by substantial economic incentives in the Energy Policy Act of 2005, passed last August.

Rising prices for coal and natural gas—the two other main fuels for generation—have also helped to fuel new interest in nuclear power.



Steve Tritch

(Continued on p. 4)

Westinghouse Powers Up

New Nukes... (Continued from p. 3)

Currently, the number of potential new U.S. reactors under consideration—depending on who you ask—is anywhere between 16 and 25 (the number cited by President Bush in a recent visit to the Limerick nuclear in Pennsylvania).

“Almost weekly, this number is moving around and growing,” Tritch said. “I think that by the middle to end of the next decade you’ll see at least double-digit nuclear plants coming on line” in the United States.

His enthusiasm probably stems in part from Westinghouse’s success in the process thus far: Of the companies that have identified which reactor technology they plan to use, more have selected Westinghouse’s advanced pressurized water design, known as the AP1000, than any other reactor.

Among other improvements to reactors in use today, the AP1000 employs passive safety features—using forces like gravity, for example—to trigger safety systems rather than relying on human intervention or electrical components.

Notably, however, no U.S. utility has committed to building a new reactor of any brand, only to take the first steps in that direction.

According to some sources, that has frustrated Bush administration officials, who have been enormously supportive of nuclear power and would like to see ground broken on a new reactor before they leave office.

Some observers suggest that the recent rush of utility announcements about possible new reactors in reality amounts to the utilities lining up for perks offered in the recently passed Energy Policy Act of 2005, some of which are limited to the first six new reactors.

According to that line of thinking, some of the utilities are taking whatever steps they need to take now to remain eligible for the federal financial benefits, but are still a long way from writing a check for a new reactor.

Tritch does not buy it.

“What I’d say, without naming specific utilities, is that these utilities are generally very serious about making sure they have this option to consider,” he said. “They look at their load growth, they look at their reserve capacity; they need baseload capacity to come on-line in the middle of the next decade.”

Tritch said that means utilities are facing a choice of coal or nuclear plants, with the sustained high price of natural gas having rendered baseload gas plants uneconomic some time ago.

Tritch readily says there will be a future role for all major power sources in the United States, including coal. But he gently suggests that nuclear has a particularly bright future, particularly given growing concern about global warming. That is because nuclear emits virtually no carbon dioxide or other heat-trapping greenhouse gasses.

When you look at “the environmental impacts and the possibility at some point in the future of some kind of carbon tax happening...these utilities are very serious about at least doing all the work they need to do over the next year or two to be ready to make a decision [on building a new nucle-

ar plant] when they have to make a decision,” Tritch said.

OVERSEAS

The same set of forces—rising concern about global warming and nuclear’s low operating costs—will probably pry open markets in some surprising places overseas over the next few years, Tritch says.

Among the possibilities, Tritch says, are some European countries where antinuclear forces have forced governments to consider mothballing their nuclear power programs entirely.

“Those governments tend to re-evaluate their positions regularly,” he said. “One day they are talking about the possibility of closing all their nuclear plants, then six months later you’ll hear a recognition that to meet their energy need and continue demonstrating concern for environmental issues they...at least need to consider continue running their existing plants longer, and consider new ones.”

As examples, Tritch cited Sweden, Switzerland and Belgium, three countries with substantial nuclear programs whose governments have considered backing out of the industry.

In the United Kingdom, the government seems on the verge of backing construction of several new reactors to replace part of the country’s aging fleet. And in the Czech Republic, officials have also said they are looking at new nuclear plants, Tritch points out.

If Europe as a whole is still wrestling with whether to embrace nuclear again, several Asian countries have no such reservations—and are set to provide tens billions of dollars in new reactor orders.

Chief among them is China, where officials say they plan to build 25-30 reactors over the coming decades to meet soaring demand for power.

For the first four reactors, Westinghouse is locked in a bidding war with Areva Group, a vendor backed by the French government and Westinghouse’s chief competition in the market for pressurized water reactors.

Bids were submitted 15 months ago, and sources say the process has dragged on in part because Chinese officials are negotiating not merely to purchase the reactors but also for more proprietary design technology than the vendors want to give up.

Elsewhere in Asia, Tritch points out that India plans to bring a “significant number” of new nuclear power plants on-line in the coming decades, although he acknowledges that current U.S. policy bars U.S. nuclear firms like Westinghouse from doing business there.

That all may change, however, if President Bush wins congressional approval for a landmark nuclear deal with India. The agreement would open Indian nuclear markets for the first time to U.S. companies, even though India has never signed the Nuclear Non-Proliferation Treaty, the centerpiece of international efforts to control the spread of nuclear material.

And in what would be a new market in Asia, he notes that officials in Vietnam have recently said that they, too, are considering the possibility of new nuclear plants.

Westinghouse Powers Up

TOUGH CHOICES

All of this activity adds up to sunny days for Westinghouse and the nuclear industry generally, both of which faced far dimmer prospects just a few years ago.

By way of example, Tritch described a serious staffing quandary that Westinghouse faced in 1997.

Westinghouse had offered jobs to about 100 college graduates, expecting about 50 to accept, at most. Instead, 75 accepted, handing Westinghouse more highly paid staff than it needed at a time when the market for new reactors looked small indeed.

“That was a bit daunting, because it was 25 extra people, and [we wondered], ‘was the market going to be there?’” Tritch said.

Westinghouse honored its offer to hire all 75, and “we’re very glad we did,” he said with a smile.

That is largely because Westinghouse’s commitment to hiring during the nuclear industry’s lean years kept the development of the AP 1000 on track. That now has Westinghouse in the enviable position of being the only reactor ven-

dor in the U.S. market with Nuclear Regulatory Commission (NRC) certification for its new breed of reactor design.

As for Westinghouse’s competitors, GE’s advanced boiling water reactor design is still under NRC review, although GE argues that it will be approved by the time any utility is ready to place an order.

Areva has taken only preliminary steps to win NRC approval for its evolutionary pressurized water reactor (EPR), but regularly touts the design as the first of the three that will actually come on-line anywhere in the world (one is under construction in Finland).

With the industry’s darker days over, so are Westinghouse’s worries about whether its nuclear business can support an extra 25 employees.

Last year, Westinghouse hired 800 people. Tritch said he plans to hire 500 more this year, and at least 2,000 over the next decade.

“Last year, bringing in over 800 people was not nearly as much of a question for us as bringing the first 75 way back when,” he said.

Nuclear: At Long Last Love?... (Continued from p. 1)

ate, Harry Reid of Nevada, remains adamant.

Yucca Mountain has been positioned by nuclear opponents as the indispensable next-step, if nuclear is to survive. Unfortunately, proponents have emphasized Yucca Mountain as well. Nonsense. Yucca Mountain is just one option for disposing of spent nuclear fuel. Britain, China, France and Japan do not have an equivalent of Yucca Mountain. And they have been saved from some of the most foolish discussion possible.

Now, the United States may be on the road to thinking about nuclear residue in a more constructive way. The Bush administration’s Global Nuclear Energy Partnership (GNEP) offers the beginning of a more logical future for nuclear waste: burn it in reactors. That eventually has to be the resolution that the United States and the world needs.

It is illogical to believe that technology can progress in every field except nuclear power—and that technology cannot mitigate the consequences of its own evolution. The world is harnessed with a vision of a technological future. But in nuclear, it is shackled to the solutions of the 1950s and 1960s.

Some of the folly of the nuclear debate has centered on providing a safe repository for nuclear waste for 300,000 years. Not to put too fine a point on it, but if we continue to burn fossil fuels with the abandon of the present day, the world in only thousands of years will be so polluted and denuded that poor old planet Earth will be fit for nothing but disposal of nuclear waste.

Even the environmental community is beginning to realize that if you want a lot of electricity permanently, from known sources, nuclear stands out as a domestic, reliable source and adds nothing to global warming. What is more, if progress continues in an evolutionary manner, and we proceed from light water reactors to breeder reactors, the elec-

tric future becomes infinite.

Two new technologies suggest that the need for electricity will increase rather than decline in the United States. The first is the plug-in hybrid car, and the second is the greater use of hydrogen in the economy. Both will reduce emissions. But if the new electric demand is met with fossil fuels, the pollution will simply be moved from the tailpipe to the smokestack.

With abundant electricity, the human prospect improves. Electricity has already transformed the world. It has improved the quality of life for hundreds of millions of people. Without it, only the rich could hope for lives of comfort. Without it, we would not have seen the migration from the North to the South, nor would women have escaped the drudgery of the home. It is so beneficial that, aside from clean water, it has no peer in the realm of human well-being.

I, for one, believe so deeply, so completely in the benefits of electricity, and I have so much confidence in our ability to engineer out our problems, that it seems incomprehensible that we do not pledge ourselves wholeheartedly to an electric future. Most of the railroads still await electrification. There is a glimmer of its possibility for automobiles, and cities need to rediscover trolleys and trams.

Back to the future, I say--the nuclear electric future which, by definition, is less volatile and more reverential of the environment.

For 30 years or more, we have talked about new technology--and meant computers. Because of social and cultural pressure, the truly exciting technology of the atom has been shunned.

Now we talk a lot about nanotechnology. But if we are to use the components of matter, atoms, we should also have the moral courage to split them for electric power.

WESTINGHOUSE HAS SOME

simple ideas,

TO ACCOMPLISH

great things.



WESTINGHOUSE ELECTRIC COMPANY LLC

Westinghouse's next generation nuclear power plant—the AP1000—has fewer components than today's plants. It is a simple design with safety systems that rely on condensation, gravity and natural circulation. And it is the only Generation III+ plant with design certification from the US Nuclear Regulatory Commission.

Westinghouse nuclear technology will help provide future generations with safe, clean and reliable electricity.

Check us out at www.westinghousenuclear.com



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