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Nuclear Industry on Verge of Y2K Readiness

With six months to go, all items related to plant safety are complete

With the new millennium six months away, all U.S. nuclear power plants have a clear path to achieving Y2K readiness. Two years of closely coordinated industry effort has paid off.

A July 2 status report indicates that 68 of the nation's 103 nuclear power plants have completed all remediation. Only 58 computer items remain to be corrected at 35 plants. None of the remaining items affect plant safety—21 plants are correcting operating or support systems, and

14 are fixing support systems that do not affect operations.

"The nuclear energy industry has taken early and thorough action on its Y2K readiness program and is on track to achieve full Y2K readiness well before the Year 2000 rollover," said Ralph Beedle, senior vice

president and chief nuclear officer at the Nuclear Energy Institute. "Most important, safety functions will not be affected by Y2K issues."

During the past three years, U.S. nuclear power plants have followed a coor-

dinated, comprehensive, industrywide program to achieve Y2K readiness. They have tested some 200,000 items potentially susceptible to Y2K issues. Some 5 percent of these, or approximately 10,000 items, needed

fixing.

As for the 58 items that await remediation, firm completion schedules leave the industry "confident that plants will continue to provide 20 percent of the

Continued on page 2

Another Nuclear Plant Purchased

Acquisition of Nine Mile Point bolsters belief that nuclear power plants are valuable assets

AmerGen Energy Corp. provided further proof last month that it believes in the economics of well-run nuclear power plants in a competitive market. It agreed to buy Nine Mile Point 1 from Niagara Mohawk Power Corp., as well as the ownership shares of Unit 2 held by Niagara Mohawk and the New York State Electric & Gas Corp.

In less than a year, AmerGen—a joint venture of Philadelphia-based PECO

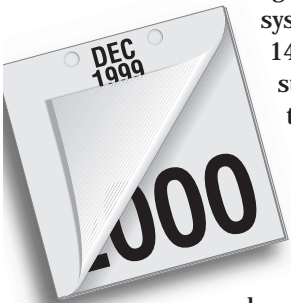
Energy and British Energy—has grown from zero holdings to agreements to buy four nuclear units, including Three Mile Island 1 in Pennsylvania and the Clinton plant in Illinois. A deal for a fifth nuclear plant, Vermont Yankee, is in the works.

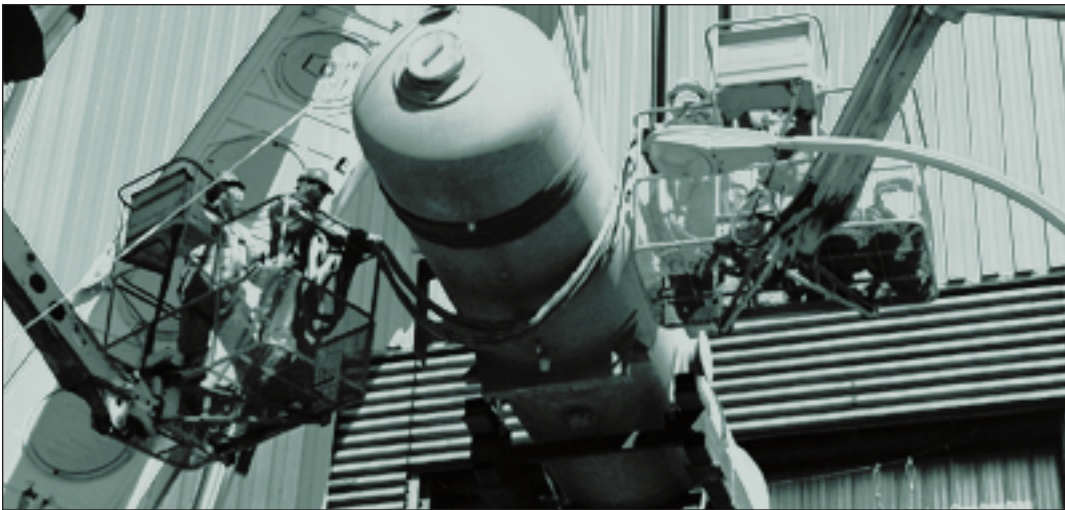
The Nine Mile Point acquisition furthers AmerGen's quest to become a leading operator of nuclear plants in the United States. It also allows the New York utilities to pursue their strategies to

exit the generation business.

"There's a secondary market for plants, which is positive because there are a lot of companies that own one unit, two units, and I don't think they want to be in the business over the long term," says Robert Rubin, a utility analyst at Bear, Stearns & Co. "It's always a good thing to let people do what they want to do. And AmerGen is allowing utilities that feel that nuclear is not in their

Continued on page 2





Niagara Mohawk workers hoist a feedwater heater into Nine Mile Point 1, which is being acquired by AmerGen Energy—a joint venture that aims to become one of the leading nuclear generating companies in the United States.

PLANT PURCHASE *from page 1*
companies' best interest to exit."

Rubin says the deals are great for companies that want to increase their nuclear holdings—like AmerGen and Entergy, which last year submitted the winning bid for Boston Edison's Pilgrim plant and completed the sale July 13—because "the prices paid for assets thus far have been pretty consistent. ...If you want to sell a nuclear plant, \$100-125 a kilowatt is what you should expect."

The deals have the added benefit of keeping emission-free nuclear plants on line, which will become increasingly significant as more stringent clean air restrictions take effect.

Had Nine Mile Point been shut down rather than sold, its generating capacity likely would have been replaced by natural gas plants. For a state like New York, which already is unable to comply with nitrogen oxide emission standards, the substitution of about 1,750 megawatts of gas-fired electricity would result in emissions of about 3,675 tons of NOx annually.

"These plant sales are a

win-win-win for all involved," said Maureen Koetz, director of environmental policy at the Nuclear Energy Institute. "The seller receives a return on its asset. The buyer receives a good plant at a fair price. And, perhaps most important, an environmentally friendly power plant stays in operation, thus continuing to avoid the emission of nitrogen oxides, sulfur dioxide and carbon dioxide. Selling nuclear plants rather than closing them preserves our ability to attain air quality goals."

One of the winners, AmerGen, called the agreement "real progress in our North American strategy. We are committed to delivering shareholder value and growth, and we are confident both units at Nine Mile Point will play a significant role as AmerGen realizes its commercial potential in North America's electricity market," said Robin Jeffrey, AmerGen president and executive director of British Energy's North American ventures.

Said AmerGen Vice Chairman Dickinson Smith: "When the sale is completed, our business goals will be to operate the units with a total commitment to safety, to pro-

vide reliable, efficient energy for the region for many years to come, and to continue Niagara Mohawk's tradition of being a good, involved neighbor in the community."

The Nuclear Regulatory Commission, Federal Energy Regulatory Commission, New York State Public Service Commission and other regulatory bodies must approve the sale. Completion of the sale is expected early next year.

Niagara Mohawk CEO William Davis said: "The sale

Y2K READINESS *from page 1*
nation's electricity needs as reliably on Jan. 1, 2000, as they do today," said Jim Davis, NEI director of operations and Y2K project manager.

Davis said that many of the computer items will be fixed during planned refueling outages in the fall, "enabling nuclear plants to continue to generate economical, environmentally friendly energy during the hot summer months.

"Reaching this point is the result of a unique, highly

to AmerGen puts the plants in the hands of a proven operator committed to pursuing growth in the nuclear generation business. That is good news for the plants' employees and the region's economy."

Under the agreement, AmerGen will retain the 1,330 employees at the two units and will accept the current collective bargaining agreement with the International Brotherhood of Electrical Workers Local 97.

The agreement also calls for Niagara Mohawk and New York State Electric & Gas to purchase Unit 2 electricity from AmerGen at negotiated prices for three years. A similar five-year agreement is in place between Niagara Mohawk and AmerGen for electricity from Unit 1.

AmerGen will assume responsibility for decommissioning Nine Mile Point 1 and its eventual ownership share of Unit 2. The decommissioning fund will be prefunded to a fixed amount by the sellers, with all additional costs paid by AmerGen. ■

coordinated, industrywide program involving a standardized manual, numerous workshops and cross-utility visits," Davis added. "Information-sharing ensured that good ideas were available to all companies, saving everyone time and resources." ■



Decommissioning: New Business Conditions Require New Tax Policy

As state restructuring initiatives bring competition to the electric power industry, legislation has been introduced in both the House and the Senate that updates the tax treatment of nuclear plant decommissioning to reflect the new business conditions.

Since 1984, U.S. tax policy has treated annual contributions to decommissioning funds as a deductible expense—recognizing that nuclear plant decommissioning is a significant financial commitment with major public health and safety implications. State restructuring initiatives and the emergence of competition have a major impact on decommissioning funding, which is addressed in the House and Senate bills.

The Nuclear Decommissioning Funds Clarification Act—introduced in June in the House by Reps. Jerry Weller (R-Ill.) and Ben Cardin (D-Md.) and in the Senate by Alaska Republican Frank Murkowski and Louisiana Democrat John Breaux—would ensure that restructuring and deregulation do not create adverse tax consequences for decommissioning trust funds.

The legislation also provides the flexibility that is essential for the nuclear energy industry to respond to state restructuring initiatives. It would update the tax code so nuclear companies can “reposition their nuclear generating assets, buy and sell units, consolidate ownership positions, and form operating and/or generating companies,” said Marvin Fertel, senior vice president of nuclear infrastructure support and international programs at the Nuclear Energy Institute.

Restructuring has “triggered unforeseen tax consequences that, if not corrected, could force the early shutdown of nuclear units that cannot be sold,” Weller said. “Hence, a number of nuclear power plants may be forced to shut down before their licenses expire, resulting in the loss of jobs and a reduction of energy supply.”

Weller explained that “in a competitive market, companies will no longer

operate in a regulated, cost-of-service environment and will not be able to deduct contributions to decommissioning funds.”

Murkowski, who chairs the Senate Energy and Natural Resources Committee, said the legislation “clarifies the



Proposed legislation will “ensure that nuclear utilities can operate effectively in this new competitive environment.”

— Sen. Frank Murkowski
Chairman, Energy and Natural Resources Committee

deductibility of nuclear decommissioning costs in a market environment” and will “ensure that nuclear utilities can operate effectively in this new competitive environment.”

RESPONDING TO STATE RESTRUCTURING INITIATIVES

As competition develops, prices for electricity are set by the market rather than through cost-of-service regulation. As a result, under current tax law, electric utilities that are not subject to cost-of-service regulation cannot treat contributions to decommissioning funds as a deductible expense.

In addition, when nuclear plants are sold, the buyer assumes the seller’s obligation to decommission the nuclear plant and, in return, must receive the decommissioning funds already collected by the seller. Under current tax law, these transfers would be taxable. For plant sales to occur, it is essential that decommissioning funds can be transferred from seller to buyer on a tax-neutral basis, according to Fertel.

“There will be attempts to tie this tax legislation to federal restructuring legislation, or to other restructuring-related tax issues,” NEI’s Fertel observed. “There is no connection. The changes to the tax treatment of decommissioning are a necessary response to restructuring initiatives already undertaken by the states.”

Initiatives in many states are providing an incentive for utilities to divest generation assets, including nuclear plants, as a condition for the recovery of so-called stranded costs—generally, capital expenses associated with plant construction and improvements that were deemed prudent by state regulators.

Even without this incentive to divest generation, the nuclear industry recognizes the need to consolidate plant ownership and operating responsibility into larger operating and generating companies to achieve economies of scale.

This consolidation already has started: In the last 18 months, six units have been offered for sale. AmerGen Energy, a joint venture of PECO Energy and British Energy, and Entergy are the buyers. Four Midwestern utilities—Northern States Power, Wisconsin Electric Power, Wisconsin Public Service and Alliant Energy—have announced plans to form a management company to run their combined seven nuclear units. And FirstEnergy has swapped ownership of jointly owned coal-fired generation for Duquesne Light’s shares in three nuclear units.

All of these restructurings and consolidations have decommissioning tax implications. ■

ONE ON ONE

The Inside Story on the NRC's Landmark Changes: An Interview With Shirley Ann Jackson



On July 1, Shirley Ann Jackson became the 18th president of Rensselaer Polytechnic Institute in Troy, N.Y. That also was the fourth anniversary of the day she became chairman of the Nuclear Regulatory Commission.

In that span, Jackson helped to reshape the NRC and prepare it for the same rigors of competition that face the nuclear power plants her agency regulates. During her chairmanship, the NRC initiated programs to implement regulation focused more on safety and to reform the way it assesses plant performance.

In the following interview with Nuclear Energy Insight—conducted in June at NRC headquarters—Jackson reflects on the NRC and the key accomplishments of her term.

Q. How would you characterize the current relationship and state of communications between the Nuclear Regulatory Commission and the regulated community?

A. They are better than at any time in the last four or five years. We have come a long way in terms of communication and openness. Some of it has been needs-driven—the need to make progress in a number of areas that have been of longstanding concern to us, as regulators, and to the regulated community. Initially, there were elements of people talking past each other. But in the end, I think people recognized that if we were ever going to make progress, people had to talk directly to each other.

Q. At the Nuclear Energy Assembly in May, Commissioner Diaz said there is an expectation that nuclear power plants will be better, safer, than other types of facilities. Is such an expectation fair?

A. Rather than fighting that perception or expectation, the industry should accept it as a reality and take pride in it. Of course, this has to be balanced against what it costs to run plants. That's why I am a proponent of risk-informed, performance-based regulation. I think that allows the regulator to establish a rational basis for what we require of our licensees.

Q. The agency and the industry are pilot testing a new process for

maintaining NRC oversight of nuclear power plants. The industry believes the new process will be far more efficient than the current process. To what extent will it allow the agency to achieve greater economy (i.e., reductions in staffing and budget)?

A. We are just starting a pilot project. I make no predictions about how it will come out. For the NRC, as the regulator, the issue is to focus on the right areas and to be performance- and outcomes-oriented in terms of what we expect of licensees. In principle, if we are focusing better—in terms of where the risks are greatest—then, theoretically, one is doing a better job in planning the work. The NRC is taking a much more businesslike approach [to its activities] today, and tying those activities clearly to goals. That, in itself, leads to greater efficiency.

Q. The agency has made remarkable progress in developing the new oversight process—especially over the past year. Would the NRC have come this far, this rapidly, without strong support from Congress?

A. The NRC has to be responsive to Congress, but what I have preached during the past year is “responsible responsiveness.” We have an obligation, under the law, to be mindful of our fundamental mission: protecting public health and safety. Whatever we do, the NRC must be true to its mission.

Congress certainly has helped to give increased focus to our activities, but the kinds of changes we have accomplished don't come about overnight. These are very complex issues we are dealing with. The NRC would not have been able to develop the oversight process by this time without already having laid the groundwork. But even as we were laying the groundwork, we had some people who were not totally on board. There is nothing like support from Congress to help to get people focused.

Q. Of the NRC's many accomplishments while you have chaired the commission, which ones give you the greatest satisfaction? What do you see as your legacy?

A. I think the question of legacy is best left to others. But I am asked the question often enough that I've had to think about it a little. In terms of a short list, I would mention six major accomplishments of my term:

■ Almost the day I walked in the door at the NRC, I started a strategic assessment and rebaselining of the agency. One major outcome of this work is the planning, budgeting and performance management process. It means that the NRC plans better, is more businesslike in its approach, and more actively seeks to involve stakeholders in its activities.

■ I think I have been able to articulate and begin to implement risk-informed, performance-based regulation, as both an overall concept as well as a methodology for nuclear regulation. I have made the agency more outcomes-oriented, both in its internal mechanisms and in its expectations of the regulated community.

■ The agency has developed a more objective and even more safety-focused new process for maintaining oversight of nuclear power plants.

■ We have put the license renewal process on a firm footing. It is a well-focused, well-planned, fair and predictable process—to the point that the agency now anticipates more license renewal applications than we had anticipated even a year ago.

■ I reorganized NRC and put into place a new generation of managers who have a different outlook. In the end, they are the ultimate legacy that I might have.

■ In the international arena, I have helped to clarify what a regulatory agency like the NRC should be doing in terms of international nuclear safety. I especially am proud of having spearheaded the formation [in 1997] of the International Nuclear Regulators Association, which provides a forum for candid policy, definitional and action-oriented discussion among senior regulators in key countries. [Editor's note: Jackson was elected as the group's first chairman. The association comprises the most senior nuclear regulatory officials from Canada, France, Germany, Japan, Spain, Sweden, the United Kingdom and the United States.]

Q. When people in the nuclear energy industry recall the name "Shirley Ann Jackson," what would you like them to remember about you?

A. That as chairman of the NRC, I was a visionary, but pragmatic. That I defined and gave programmatic meaning to risk-informed, performance-based regulation. That I put the NRC on a more businesslike footing. That I was firm and

fair. That I was not afraid to make tough decisions. That I was a change agent. That I believed in the role of the strong, independent nuclear regulator. And that I believed in the future of nuclear power in the United States. ■

Shorter Refueling Outages Translate to Improved Safety, Lower Costs

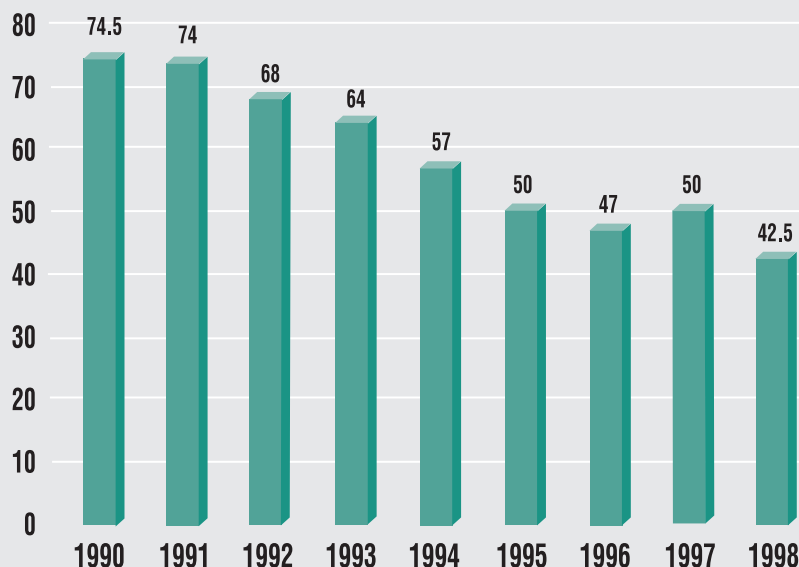
The phrase "time equals money" aptly describes nuclear power plant refueling outages. Every day out of service can cost plant owners up to \$500,000 in replacement power and additional manpower.

Throughout the 1990s, the U.S. industry has successfully cut the median refueling outage from about 10 1/2 weeks to about six—a 43 percent improvement. South Texas Project 2 holds the U.S. record for the shortest outage: 17 days, 14 hours in 1997.

One reason for shorter outages is the trend toward on-line maintenance, rather than all work bunched during outages. Not only does on-line maintenance save money through shorter outages, it cuts the time that certain safety systems are out of service.

A second reason for shorter outages is smarter management. At least one utility plans its outages not by the day—but by the minute. For instance, 20 minutes before a shift change, a replacement worker arrives to observe the work in progress; as the shift change occurs, the new worker takes over without missing a beat.

Median Duration of U.S. Nuclear Power Plant Refueling Outages (Days)



Source: Institute of Nuclear Power Operations (INPO)

Committee-Approved Nuclear Waste Legislation Removes Points of Contention

Administration hard-pressed to oppose substitute bill

Sen. Frank Murkowski's Energy and Natural Resources Committee last month approved nuclear waste legislation that "gives [the Department of Energy] the tools needed" to complete a repository at Yucca Mountain in Nevada and to meet its longstanding obligation to move used fuel from nuclear power plant sites.

Just as important, said the Alaska Republican, the bill removes just about every point of contention that has been raised by the Clinton administration, which for years has opposed legislation.

The Nuclear Waste Policy Act, S. 1287, that cleared the Energy Committee 14-6 is a streamlined version of comprehensive legislation that Congress has considered since 1996. Nonetheless, it achieves the essential elements the industry has sought during the past four years.

"This mark[up] reflects significant changes from my previous bill," Murkowski said shortly before the June 16 committee vote. Despite the changes, Murkowski said the substitute "reflects the five points I believe are necessary for any legislation." They include:

- allowing early receipt of used fuel in 2007 at or near the Yucca Mountain repository site in Nevada
- authorizing the secretary of energy to take title to used nuclear power plant fuel as an option for settling lawsuits with utilities for the government's failure to begin moving used fuel by 1998
- increasing the nuclear waste fee above the current rate of 1/10th of a cent per kilowatt-hour
- authorizing the Nuclear Regulatory Commission rather than the Environmental Protection Agency to set the radiation protection standard for Yucca Mountain
- using the transportation model established for the Waste Isolation Pilot Plant in New Mexico, including

increased state involvement in route selection and more rigorous training and safety requirements.

The legislation also authorizes the transfer of used fuel to a private storage facility for cases where continued plant operation is jeopardized unless used fuel is removed from the nuclear plant site.

Joe Colvin, president and CEO of the

Nuclear Energy Institute, said the bill "retains the essential concepts for carrying out the Department of Energy's used nuclear fuel management program, including the establishment of a realistic date—2007—for early acceptance of fuel at Yucca Mountain before a repository opens in lieu of interim storage." ■

Senate Approves Nuclear R&D Programs in DOE's Budget

Two years after Congress phased out support for nuclear energy research programs, federal funding for nuclear R&D is on the road to recovery.

The Senate last month approved \$287.7 million for the Energy Department's nuclear energy programs in fiscal year 2000—\$18.4 million more than the agency requested. Included is \$30 million for two research and development programs—\$25 million for year two of DOE's Nuclear Energy Research Initiative (NERI) and \$5 million to launch the Nuclear Energy Plant Optimization (NEPO) program.

NERI research will focus on new reactor designs, advanced nuclear fuels, nuclear waste management technologies, proliferation-resistant reactors and/or fuel cycles, and fundamental nuclear science.

The NEPO program would fund efforts to improve the productivity and efficiency of America's existing fleet of nuclear power plants.

"We applaud the Senate's firm commitment to support nuclear energy through this allocation," said John

Kane, vice president of governmental affairs at the Nuclear Energy Institute. "The Senate has clearly recognized the importance of maintaining a viable nuclear energy industry, and R&D is a crucial part of that."

Funding for other nuclear-energy related programs includes:

- nuclear waste management program activities, \$355 million—\$54 million less than DOE requested
- Nuclear Regulatory Commission, \$465.4 million—\$6 million less than the agency requested
- university reactor fuel assistance and support, \$12 million
- medical isotope program, \$15.5 million
- uranium enrichment decontamination and decommissioning fund, \$200 million
- uranium supply and enrichment activities, \$39 million
- fissile materials control and disposition, \$205 million
- international nuclear safety and cooperation, which supports improvements to the physical condition and operational safety of Soviet-designed nuclear power plants, \$34 million. ■

AROUND THE STATES

IF YOU THOUGHT 1998 WAS A GOOD YEAR FOR NUCLEAR ENERGY... Almost any way you slice it, America's nuclear plants performed at their most efficient levels yet in 1998:

- Average capacity factor (a measure of efficiency) hit a record high of 79.5 percent.

- Production returned to record levels, as U.S. nuclear plants generated 673.7 billion kilowatt-hours of electricity—slightly less than the all-time high of 674.7 billion kWh set in 1996.

That momentum is carrying forward into 1999.

First-quarter figures show that U.S. nuclear power plants produced 181.1 billion kWh of electricity, up 11.4

percent from the first three months of 1998 (162.6 billion kWh), according to the Energy Department's Energy Information Administration.

the first quarter of 1999. In 1998, nuclear's share of electric utility generation was about 20 percent; its share of U.S. electricity production—including non-utility generation—was 18.5 percent.

GETTING MORE FOR ITS MONEY: FT. CALHOUN EYES LICENSE RENEWAL License renewal is a distinct possibility for Nebraska's Fort Calhoun nuclear power plant, whose board of directors last month authorized management to send a letter of intent to the Nuclear Regulatory Commission so the company can get on the NRC's review schedule.

Fort Calhoun, a 478-megawatt reactor, began

eight the number of companies that have stated their intention to apply for license renewal, or expressed an interest in doing so. The NRC is reviewing two applications: one for Baltimore Gas and Electric's two-unit Calvert Cliffs plant and a second for Duke Power's three-unit Oconee Nuclear Station.

Interest in extending Fort Calhoun's license is based on its excellent safety and operating records, says the company. A detailed analysis of the technical and economic feasibility of license renewal—to be completed by next spring—will "provide sufficient information to support a decision," according to the power district's board.

OPPD maintain economical electric rates.

In addition to economic benefits, utilities have discovered there are environmental advantages to running their nuclear plants longer.

Duke Power, for instance, determined that replacing Oconee's 2,500 megawatts of electricity with combined-cycle natural gas would annually emit:

- 4,700 tons of nitrogen oxides
- 310 tons of particulate matter
- 9.2 million tons of carbon dioxide.

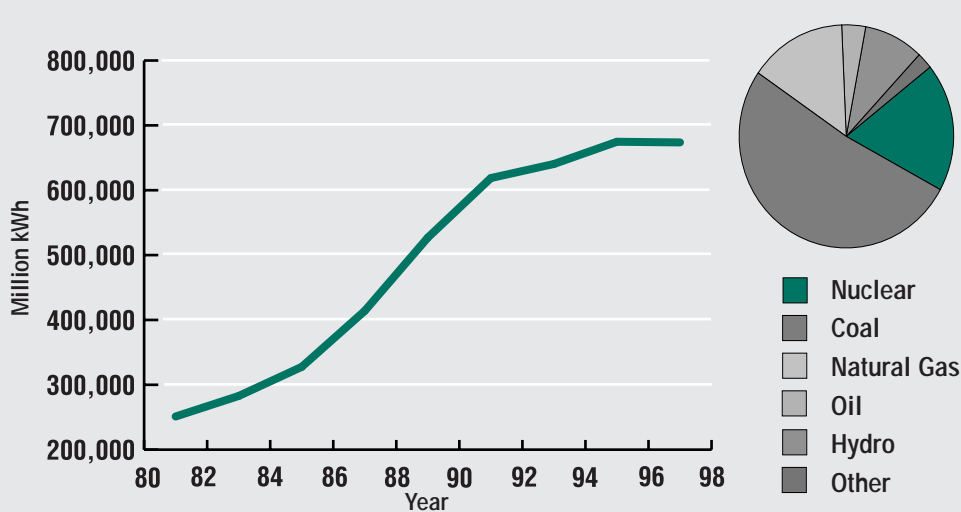
LOOK FOR COOK RESTART IN 2000, LICENSE RENEWAL AN OPTION

Not only will the Cook nuclear plant return to service next year, after being idle since 1997, American Electric Power Co. strongly hinted in June that license renewal may be in the Michigan facility's future.

After spending about \$574 million on engineering and materiel improvements, AEP expects Unit 2 to restart in April and Unit 1 to return to service next September.

"The Cook plant will be a more efficient and more predictable producer of energy and revenue. Moreover, as a result of the scope and thoroughness of the restart effort, the plant will be in the best possible position to satisfy the NRC's stringent requirements for relicensing and extended operation," said Bob Powers, senior vice president of nuclear generation. Renewing the plant's license for 20 years would allow units 1 and 2 to operate until 2035 and 2038, respectively. ■

Near-Record Nuclear Generation Accounts for Nearly 20 Percent of U.S. Electricity



Source: Energy Information Administration

operating in 1973. License renewal would allow the plant to run through 2033.

The Omaha Public Power District's decision to study the costs and benefits of extending Fort Calhoun's operating license brings to

OPPD officials say that renewing the plant's license "may save customer-owners millions of dollars over the cost of building a new plant to replace Fort Calhoun's generating capacity." License renewal also could help

percent from the first three months of 1998 (162.6 billion kWh), according to the Energy Department's Energy Information Administration.

Nuclear generation represented 23.3 percent of U.S. electric utility output during

A Breath of Fresh Air in CO₂ Emission Debate

American, British studies cite nuclear energy's crucial role

While climate change negotiators were in Bonn this spring addressing ways of reducing global carbon emissions, the U.S. Department of Energy and Britain's Royal Society were reporting a good solution: nuclear energy.

Improved performance at U.S. nuclear power plants accounted for the largest proportion of utility carbon dioxide emission reductions in 1997, according to DOE's Energy Information Administration. That's because nuclear-generated electricity emits no carbon dioxide, and as increased use of nuclear displaces the burning of fossil fuels, the nation's total CO₂ emissions decline.

"Mainly through significant advances in operating, maintenance, and refueling procedures, capacity factors at nuclear plants were increased, displacing fossil-based power generation," the agency said. Because nuclear plants are "invariably large baseload facilities, even a fairly small improvement in plant availability can lead to a

sizable reduction in fossil fuel consumption," EIA said.

EIA singled out the contributions of Tennessee Valley Authority's nuclear plants. Emission reductions for Browns Ferry 2 and 3 and Watts Bar 1 in 1997 are estimated at 22.9 million metric tons—"equal to 1.2 percent of all carbon dioxide emissions from the U.S. electricity sector in 1997," said EIA.

EXPAND USE OF NUCLEAR Nuclear energy's environmental benefits are similarly recognized in a new report from The Royal Society, in conjunction with The Royal Academy of Engineering.

The British organizations said the nuclear option must be retained, since the combination of efficiency, conservation and renewables probably are unlikely to meet environmental goals while providing a secure source of electricity.

"We view with great unease current policies that appear unperturbed by the prospect of all nuclear capacity disappearing from the U.K.

by the middle of the next century," noted *Nuclear Energy—The Future Climate*.

Britain has 35 nuclear units, but no more are

Kyoto Protocol noted that "emphasis should be placed on emission avoidance rather than emission reduction" for developing countries that are



By displacing fossil-fired generation, TVA's Watts Bar 1—which began operating in March 1996—reduced carbon emissions by 5.5 million metric tons in 1996 and by 7.1 million metric tons in 1997.

planned. That could eliminate the U.K.'s nuclear capacity by the middle of the 21st century, said the report. It endorses a 1998 recommendation by a parliamentary committee that new nuclear capacity may be required over the next two decades.

DON'T JUST CUT EMISSIONS, AVOID THEM

Coincident to the release of the two reports, subsidiary groups involved in United Nations climate change activities were meeting for the 10th time in Bonn to address the need to cut carbon emissions.

There, too, the role of emission-avoidance technologies like nuclear energy is becoming increasingly visible.

For instance, the chairman of the subsidiary body working on principles, rules and guidelines for the three mechanisms agreed to in the 1997


parties to the U.N. Framework Convention.

Similarly, the International Chamber of Commerce called for equal treatment for all fuel sources: Reduced emissions from power plants—whether from substitution by nuclear, hydro, solar or more efficient fossil fuel systems—should have equal value and not be treated differently."

The International Nuclear Forum—of which NEI is a member—released an update of its policy statement June 8 in Bonn. In addition to requesting that governments recognize nuclear projects in any implementation of the Kyoto mechanisms, the statement urges "equal application of full life-cycle analysis to all energy generation technologies in order to account for greenhouse gas emissions from every stage of energy generation." ■

NUCLEAR ENERGY

insight99



Editor
LESLIE LAMKIN

Managing Editor
ALAN CHAPPLE

Contributing Editors
ALICE CLAMP
LYNNE NEAL
WILLIAM SKAFF
RICHARD N. SMITH

Graphic Design
RAFY LEVY

NUCLEAR ENERGY INSTITUTE
1776 I Street, N.W., Suite 400
Washington, D.C. 20006-3708
202.739.8000 / www.nei.org

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