

insight99

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Reinvented Industry Wins Favor on Wall St.

Financial analysts view the nuclear industry's ongoing effort to position itself for competition, and they like what they see

What's in: license renewal and acquisitions of U.S. nuclear power plants.

What's out: talk of a growing trend toward premature closures of U.S. nuclear power plants.

In the past year, the outlook for America's nuclear plants has turned nearly 180 degrees. Today, most of the country's 103 nuclear units are seen as having a bright future.

And that's not just the industry's view—although efforts to reinvent itself for competition in the electric generating industry warrant optimism from many nuclear plant owners and operators.

A growing contingent of policymakers, financial analysts and the public also is rediscovering the virtues and benefits of nuclear energy.

"A lot of good things are happening" in the nuclear industry, said Caren Byrd, principal with Morgan Stanley Dean Witter, following a January briefing of financial analysts by nuclear

industry executives.

Among the positive developments, she said, are decisions by companies to extend the operating licenses of existing plants, license transfers as part of an industry consolidation, and the acquisition of operating nuclear power plants. AmerGen Energy is buying Three Mile Island 1 from GPU Inc., and Entergy Nuclear won the bidding for Boston Edison's Pilgrim plant.

What a difference a year makes. Byrd noted that last January a similar briefing focused, in part, on premature plant closures—a reflection of Wall Street's concern about nuclear energy's viability once the generating market opens to competition.

"There was no mention of plant closures this year," Byrd said. Rather, the financial community wanted to know more about the industry's efforts to reinvent itself.

"As an industry, one of our top priorities is ensuring that companies can undertake new business arrange-

ments—sales and purchases, consolidating ownership positions, creating new operating companies—in a timely way," Joe Colvin, president and CEO of the Nuclear Energy Institute, told about 40 financial analysts at the Jan. 22 briefing in New York City. "We must ensure that our companies have as much flexibility as possible to reposition their nuclear generating assets."

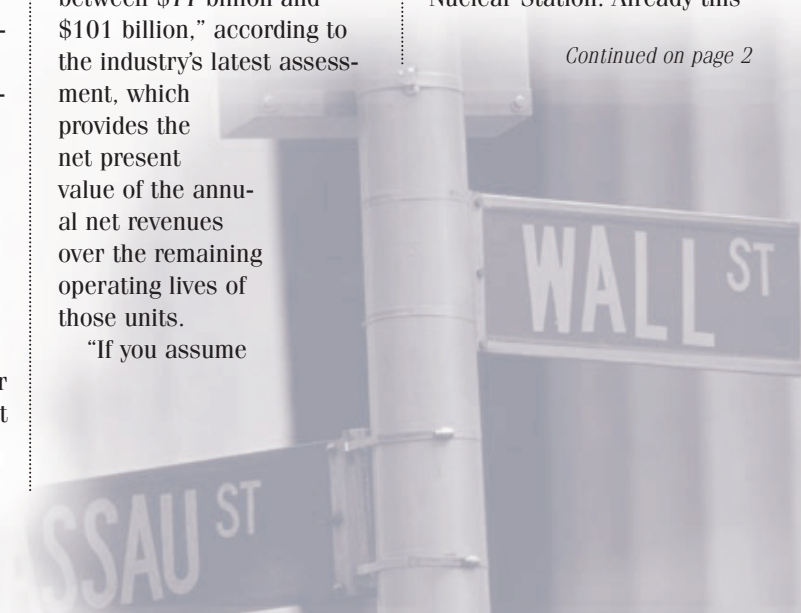
Colvin reported that "the remaining economic value of the U.S. nuclear units likely to be competitive ranges between \$77 billion and \$101 billion," according to the industry's latest assessment, which provides the net present value of the annual net revenues over the remaining operating lives of those units.

"If you assume

license renewal and another 20 years of operation, the economic value still waiting to be captured increases to between \$112 billion and \$144.5 billion," Colvin said. "That should help explain why there is growing interest in the industry in license renewal."

In 1998, Baltimore Gas and Electric and Duke Power became the first U.S. electric utilities to pursue license renewal, submitting applications for the two units at the Calvert Cliffs nuclear plant and the three-unit Oconee Nuclear Station. Already this

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year, Entergy Nuclear has announced plans to extend the license of Unit 1 at its Arkansas Nuclear One facility. As many as half a dozen other nuclear utilities are expected to follow suit.

GOOD BUSINESS

While Wall Street obviously is interested in the industry's efforts to maintain and enhance the value of its assets, the financial analysts were particularly attentive during a discussion about regulatory reform.

"We recognize—as do you in the financial community—that the regulatory process is the single largest business uncertainty for the U.S. nuclear industry," Colvin said during the January briefing. "The industry has argued for some time that the regulatory process has not matured as the industry has matured, that it does not reflect sustained improvements in safety performance, that it uses regulatory instruments...that are, at best, subjective, with no clear nexus to well-defined safety standards."

That situation is rapidly changing, said Ralph Beedle, NEI senior vice president and chief nuclear officer.

"During the last 12 months, we've seen extraordinary improvements in the regulatory environment and real progress toward regulatory reform," he said, citing a "new openness" at the Nuclear Regulatory Commission and opportunity for the industry and other stakeholders "to engage the regulator in productive dialogue."

The pace of change has been particularly swift since last July, when the Senate held the first NRC oversight hearing in more than four years. (See page 4 for cover-

age of the subcommittee's follow-up hearing Feb. 4.)

Beedle praised the NRC's decision to suspend the subjective plant assessment known as the Systematic Assessment of Licensee Performance (SALP) and extend the so-called "watch list" of plants requiring increased attention from a six- to a 12-month cycle. "The industry had long been concerned that these tools are highly subjective and that the watch list appears to serve a largely punitive function," he said. "These two actions signaled major change in the regulatory environment."

Beedle also described a new objective, safety-focused assessment process that the NRC expects to finalize in the coming months (see story on page 5).

"The new process will provide a sharper focus on public health and safety. It will be much easier for utilities and the public to understand the regulatory expectations in nuclear power plant operations," Beedle said. The new process "gives a much clearer indication of plant safety performance" than the SALP process and watch list.

REGULATION 'CHANGING RAPIDLY'

Financial analysts seemed impressed—if not surprised—by the pace of change.

In response to the briefing, PaineWebber's weekly electric utilities *Research Note* said that "nuclear regulation is changing rapidly and for the better" and noted that the NRC has been "developing a new enforcement process that places less emphasis on violations that have no risk significance. ...

"[I]t seems that there is a window of opportunity for the nuclear industry to get

Energy Executives Optimistic About Nuclear Energy

Confidence in the viability of nuclear plants has "significantly increased" in the past year, says a new survey of North American electric utility executives.

Sixty-five percent of respondents think that the nation's nuclear plants will operate through their initial license term—compared with 49 percent who held that view a year ago, says the Washington International Energy Group in its *1999 Energy Industry Outlook*.

Just as positive, 47 percent believe that most plants will extend their operating licenses. Last year, 30 percent thought plants would opt for license renewal.

Asked if nuclear plants

can compete "in a price-conscious market," 51 percent said yes, compared with 42 percent last year and 44 percent the year before.

"The best nuclear plants have now proved that on a sustained basis they can generate electricity at very low cost compared to all but some hydro units," say the *Outlook* authors.

Despite the pessimism evident in last year's survey, the Washington International Energy Group said it saw change coming. In the 1998 version of the survey, the group had written: "[B]ased on our own observations, [we] believe attitudes are indeed changing so that talking about a future for nuclear is worthwhile." ■

changes completed," PaineWebber added. "This window has been created by the nuclear industry's strong performance during the past few years."

Kevin Rose, a vice president and senior analyst at Moody's Investment Service, reiterated the conclusions of a June 1998 report that he co-authored, which said: "Although the jury is still out on how U.S. investor-owned utilities will ultimately fare in a deregulated environment, there is a glimmer of optimism developing that credit quality will improve for a larger number of companies than originally anticipated, especially in cases in which nuclear plant ownership is

involved."

Following the January briefing, Rose said that while Moody's would like to see issues like the used fuel stalemate settled "sooner than later," other developments "bode well for the future credit quality" of a number of nuclear utilities. Specifically, he said increased certainty in the ability of nuclear plant owners to recover so-called stranded costs "has caused us to feel less concerned about companies' credit quality."

Rose added, "There's no disputing the significant progress made at various plants." ■

With Competition Looming, U.S. Nuclear Plants Prove Worth

In 1998, U.S. nuclear plants used strong—sometimes record-breaking—performance to back up claims that they're ready to compete in a restructured electric-generating market.

The Palo Verde Nuclear Generating Station was among those whose performance spoke the loudest about the nuclear industry's preparedness for competition. The three-unit Arizona plant produced

year. CP&L's Robinson, Harris and Brunswick nuclear plants generated 25.5 billion kilowatt-hours of electricity during 1998, accounting for 44.7 percent of the company's total electric generation—enough electricity to supply nearly two million residential customers for a year. The 1998 total topped the previous year's record of 25 billion kWh.

Meanwhile, CP&L continued to lower its average cost of nuclear generation. During 1998, nuclear production costs were 3.2 percent lower than in 1997—down from 1.54 cents per kWh to 1.49 cents/kWh. The U.S. nuclear industry average in 1996 was 1.91 cents/kWh—just behind coal, which is the low-cost leader at 1.83 cents/kWh.

"Having this kind of excellent, efficient performance from our nuclear plants has been the largest single factor in helping us lower customer bills during the 1990s," said Scotty Hinnant, CP&L's senior vice president and chief nuclear officer. "Nuclear generation is our most cost-efficient source of electricity, and when our plants run at high capacity, we save on the

cost of other types of power plant fuel. And that means lower rates for our customers."

In Ohio, First Energy's Perry nuclear plant completed its best operating year since it went into service in 1987. Perry generated 10.5 billion kWh of electricity while operating 362 out of 365 days in 1998. That level of production enabled the plant to compile a 98.6 percent capacity factor, shattering its previous best of 87.5 percent, set in 1995. Capacity factor is a measure of plant efficiency. The industry average for operating plants was 79.6 percent in 1997.

Three-year-old Watts Bar 1, the nation's newest nuclear plant, also

enjoyed a strong year. On March 10, it began what would become a record for continuous operation by a Tennessee Valley Authority pressurized water reactor. Watts Bar 1 broke TVA's old record of 306 consecutive days Jan. 12.

For most U.S. nuclear power plants, a 300-day run would be a stellar achievement. Three Mile Island 1, however, is not like most plants. The current world-record holder for continuous days of operation at a light water reactor—616, ending in mid-1997—Three Mile Island 1 was in the midst of its third run of more than 400 straight days when 1998 ended. That round-the-clock performance in 1998 enabled the GPU Nuclear plant—which is being acquired by AmerGen Energy—to compile a capacity factor of 102.5 percent. The plant was able to top 100 percent, because in cool weather it was able to exceed its maximum rated output potential.

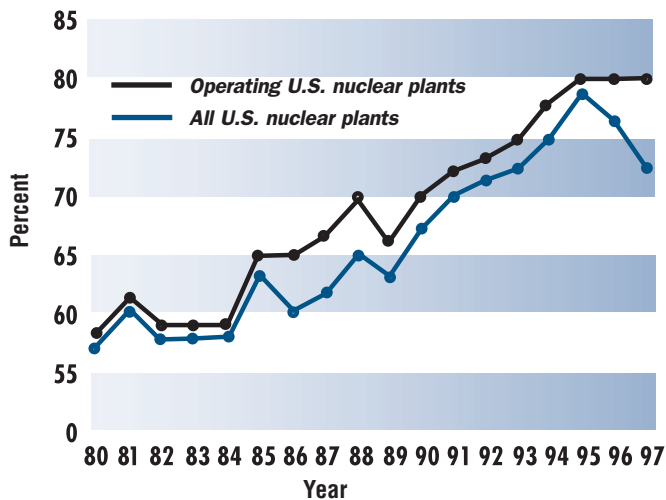
Another member of the 100 percent capacity factor club was Rochester Gas & Electric's Ginna nuclear plant. It operated every day in 1998 en route to compiling a 102.47 percent capacity factor—a performance that compelled a plant spokesman to call Ginna "quite competitive, and the record bears that out."

Others setting records in 1998 were: ■ Entergy Operations' Grand Gulf plant in Louisiana, which set a three-year average capacity factor of 93.2 percent—the best ever for the facility—and its Arkansas Nuclear One station, which set a site record for average annual generation over a three-year period.

■ Virginia Power's two-unit North Anna and Surry nuclear plants. Paced by Surry 2's 102.3 percent capacity factor, the four units combined for a 91.7 capacity factor, breaking the old record for the company's nuclear plants: 91.1 percent set in 1997.

■ Southern Nuclear's two-unit Plant Hatch, which set a new station best for total generation: 12.8 billion kWh. Unit 1 at the company's Vogtle station established new milestones for capacity factor (100.4 percent) and total generation (10.2 billion kWh). ■

Rising capacity factors at U.S. nuclear plants demonstrate that the industry is well-positioned for competition. Preliminary 1998 data show that capacity factors should jump at least five percentage points, thanks to improved production and the fact that most of the plants that were off line in 1997 returned to service last year.



more than 30.2 billion kilowatt-hours of electricity in 1998, making it the first generating plant of any type in the United States to cross the 30-billion-kWh threshold. Palo Verde's previous record was 29.5 billion kWh set in 1997.

"Palo Verde's electricity supports economic development across the Southwest and, overall, provides a long-term source of safe, reliable power for millions of people. It would be tough to replace," said Jim Levine, senior vice president-nuclear for Arizona Public Service Generation.

Carolina Power & Light's four nuclear units also enjoyed a record year, combining to break the company's record for total generation for a fifth consecutive

NRC 'Making Turn' on Road to Reform

But the journey has just begun, commissioners and industry executives tell Senate oversight committee

There's a picture of a meandering road in the office of Shirley Ann Jackson, chairman of the Nuclear Regulatory Commission. The caption reads: "A bend in the road is not the end of the road, unless you fail to make the turn."

In fulfilling the congressional mandate to reform the regulatory process, "the NRC



Sen. James Inhofe

is making the turn," Jackson assured the Senate Subcommittee on Clean Air, Wetlands, Private Property and Nuclear Safety in a Feb. 4 oversight hearing.

Last July, Subcommittee Chairman James Inhofe (R-Okla.) convened the first NRC oversight hearing in four years. Inhofe and other members of Congress have been outspoken about the need to reform the regulatory process as a way to ensure the viability of nuclear technologies—and to continue their benefits, such as nuclear energy's role in ensuring a diverse energy portfolio and its environmental benefits as an emission-free source of electricity generation, as well as use of radioisotopes in nuclear medicine.

At the February hearing, Jackson described several of the "substantial regulatory improvements" in the past six months, including the "complete revision" of the plant assessment process (see story on page 5), expediting the adjudicatory process for license reviews, and increasing stakeholder involvement—all part of what she called "a fundamental shift in the regulatory paradigm."

Jackson also indicated that—barring any "hiccups"—the NRC should complete its review of Baltimore Gas and Electric's license



Shirley Ann Jackson

renewal application for its Calvert Cliffs nuclear power plant in just 25 months, with a decision expected in May 2000. Several times last year, Jackson had committed to finishing the process in 30-36 months.

Also significant was Jackson's recognition that the NRC could be instrumental in supporting the economic prospects of the industry it regulates. The chairman identified four areas where the agency could play a role:

- "how we conduct our business"—shifting, for example, to a risk-informed plant assessment process "focused on the right things...with clear thresholds...but no unnecessary burden"
- facilitating continued operation of existing plants
- being responsive to new ownership options and business arrangements in restructuring
- being prepared to license new plants.

Joe Colvin, president and CEO of the Nuclear Energy Institute, acknowledged the efforts of the commissioners and the NRC staff, saying "they have demonstrated that difficult issues can be resolved and important decisions made in an efficient and timely manner."

Nonetheless, much work remains, Colvin said.



Joe Colvin

"The single most important challenge facing the nuclear energy industry in the near term is a regulatory process that consumes licensee and NRC resources on issues that have little or no safety significance, and that produces

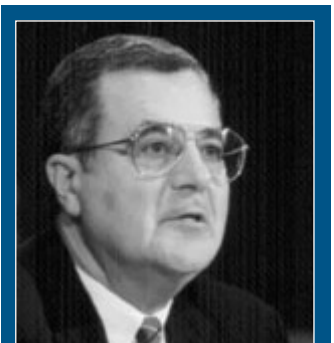
inconsistency in assessing plant performance and enforcement," he said. Colvin explained that these issues must be resolved, for America's nuclear plants to compete on a level playing field with natural gas, coal and other sources of electricity generation once the market is opened to competition.

Each of the five commissioners agreed that the NRC has taken only the initial steps in reforming the regulatory process.

Jackson assured subcommittee members that the commission's goal is "not just short-term adjustments, but building a legacy for the 21st century."

The other commissioners also articulated their support for reform and their commitment to continuing the process after Jackson steps down as chairman, when her term expires June 30.

Commissioner Greta Dicus reminded the Senate panel that while "the commission is committed to these activities, reform takes time." She explained the effort requires members of the NRC and the industry, "who have used one



James Rhodes

method of regulation for 25 years, to shift to a fundamentally new form of regulation.”

Commissioner Nils Diaz told the subcommittee that his goal is to bring “due process” to all aspects of regulation. “At every level, the rules must be clear” and uniformly applied and communicated, he said.

Commissioner Edward McGaffigan called the past six months “one of the most productive periods” in the NRC’s 24-year history. As an example of the reforms being introduced by the agency since the July hearing, McGaffigan pointed to the substantial reduction in Level IV violations—those with no safety significance.

Such changes are warranted, given the industry’s steadily improving performance, said James Rhodes, chairman, president and CEO of the Institute of Nuclear Power Operations.

As an example, he testified that the number of “significant events” had decreased from 2.38 per unit in 1985 to just 0.04 per unit in 1998. Similarly, he said that in 1998, 31 U.S. nuclear units were recognized as being category one—or excellent—performers by INPO. The highest total previously was 27 units in 1995 and 1996.

To ensure that the needed pace and scope of reform continue, Colvin urged Congress to:

- direct the NRC to present to the subcommittee a multi-year strategic plan to achieve a safety-focused, results-oriented regulatory process, including more measurable annual goals and objectives
- ensure that the NRC complies fully with the requirements of the Omnibus Budget and Reconciliation Act of 1990, and—if necessary—direct the NRC to submit leg-

islation that would modify its current fee structure so nuclear power plant licensees are assessed fees only for those NRC programs related directly to licensee regulation

- request the NRC to identify legislative changes needed to proceed with timely regulatory reform, such as amending the Atomic Energy Act with

respect to foreign ownership, antitrust reviews and the adjudicatory hearing process

- resolve the impasse between the NRC and the Environmental Protection Agency over the establishment of dual regulations for radiation protection standards
- hold regular oversight hearings until lawmakers are

satisfied with the NRC’s progress and assured that it will be sustained.

Inhofe pledged to hold “continued hearings—at least as long as I chair this committee.” He ended the two-hour hearing by scheduling a follow-up session Sept. 23. ■

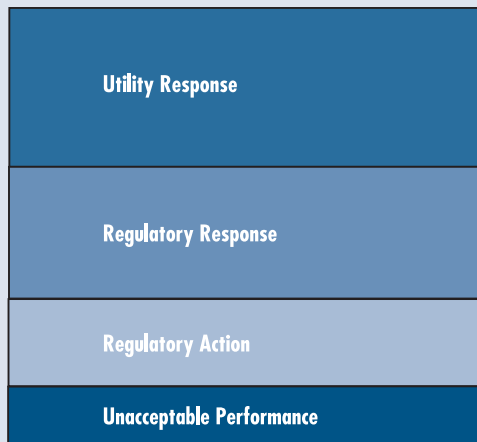
Coming Soon: Better Oversight of Nuclear Power Plants

Last year marked a clear shift in the Nuclear Regulatory Commission’s approach to nuclear power plant oversight.

The goal is greater emphasis on safety—and less on subjective evaluations of plant performance. The agency also wants to make clearer to utilities and the public what the regulator expects of a nuclear plant.

This spring, the NRC will begin pilot testing a new, risk-informed approach to assessing nuclear power plant performance.

Under the NRC’s proposed assessment program, nuclear plants would fall into one of four “performance bands,” which would dictate varying levels of oversight.



“The new process has strong support among industry professionals, who see it as a tremendous improvement,” said Ralph Beedle, senior vice president and chief nuclear officer at the Nuclear Energy Institute. “The new approach is far more objective. It also has a sharper focus on what matters most—safety.”

As with the current regulatory process, the NRC will conduct inspections at every facility. Good performers will receive only the baseline risk-informed inspections—an estimated 1,800 hours per year. Other plants will be subject to additional inspection, targeted to address specific issues.

A key element of the process is the use of objective measures of plant performance. The NRC will assess performance in three major areas: nuclear safety, radiation protection and security. These areas are supported by seven cornerstones:

- challenges to plant safety systems
- how well safety systems respond to challenges
- integrity of barriers to the release of radiation
- emergency preparedness
- public radiation safety
- occupational radiation safety
- security.

The NRC and the industry are working to develop objective, meaningful performance measures for each cornerstone. Currently, the agency is considering 20 separate measures. A plant’s performance will be tracked over time, with each measure falling into one of four bands (see chart):

- Utility Response—Plant performance is within expected norms.
- Regulator Response—Plant performance is starting to depart from expected norms. The regulator exercises increased oversight of corrective actions at the plant.
- Regulatory Action—The margins of safety

Continued on page 6

Support for Waste Bill Strong—and Growing

Just a month after its introduction in the House of Representatives, the Nuclear Waste Policy Act is fast generating bipartisan support. By mid-February, 86 members had signed on as co-sponsors—54 Republicans, 32 Democrats.

That level of support played out in this year's most visible public forum to date on used fuel legislation: the 106th Congress' first hearing on the bill, H.R. 45.

Texas Republican Joe Barton, chairman of the House Commerce Subcommittee on Energy and Water, kicked off the Feb. 10 hearing by saying "this is the third Congress in a row to consider" the waste bill, and the "goals remain the same":

- ensuring the Department of Energy meets its obligation to begin accepting used fuel from nuclear plants by establishing a temporary storage facility
- protecting the integrity of the effort to build a permanent deep-geologic repository at Yucca Mountain in Nevada
- protecting consumers by halting the diversion of money in the Nuclear Waste Fund.

Rep. John Dingell (D-Mich.), ranking member of the full committee, said DOE's failure to meet its court-affirmed 1998 deadline for accepting used fuel causes "considerable concern for us." He added that the continued use of nuclear energy is "significantly impaired" by DOE's failure.

Michigan Republican Fred Upton, a co-author of H.R. 45, said he is working to build strong bipartisan support for the bill. That support could be bolstered by the fact that many House members have a "good relationship" with Energy Secretary Bill Richardson, who "did not oppose this legislation when he was a member of this committee from New Mexico," Upton said.

However, Lake Barrett, who heads DOE's Office of Civilian Radioactive Waste Management, testified that

Richardson, as well as President Clinton, opposes the legislation.

"H.R. 45 would force our focus [from Yucca Mountain] to a short-term solution," Barrett said, adding that

development of a temporary storage facility would "undermine our ability to open a repository by 2010."

Barton criticized the administration view that temporary storage would undermine either the repository program or public

confidence in DOE's resolve to build a permanent facility.

"What undermines public confidence is to see the government turn a blind eye to its obligations," he said, noting that more than a year has passed since DOE missed its Jan. 31, 1998, deadline.

David Joos, president and CEO at Consumers Energy, called on the administration to work with Congress to

reform the used fuel program.

"Despite the president's clearly stated commitment that Energy Secretary Bill Richardson would actively engage Congress...on nuclear waste disposal issues, there has been no real commitment from the White House or the Energy Department" to meet the government's 1998 obligation, Joos said.

Richard Abdo, president and CEO at Wisconsin Electric Power Co., said his company's Point Beach nuclear station will exhaust on-site fuel storage capacity by 2004 and face premature shutdown if the government does not develop a temporary storage facility.

"I am in the unenviable position of being perhaps the first in line to have a safe, efficient and fully operational nuclear plant shut down for lack of a storage solution," Abdo testified. He called H.R. 45 "perhaps our last best chance to force the government to live up to its responsibility to accept spent nuclear fuel" before plants like Point Beach are forced to shut down for a lack of on-site storage capacity. ■

What undermines public confidence is to see the government turn a blind eye to its obligations.

—Rep. Joe Barton
Chairman, Commerce Subcommittee on Energy and Water

PLANT ASSESSMENT from page 5

have been reduced to the point where the regulator increases inspection activity at the plant. The NRC will devote significant resources to plants whose performance on one or more indicators falls into this band.

■ Unacceptable Performance—The plant's performance—while safe—is significantly outside the expected norm. The NRC will issue a shutdown order and the plant will remain shut down until problems have been corrected.

Once the process is revised, the NRC plans to eliminate the "watch list"—plants it believes need increased oversight—and the Systematic Assessment of Licensee Performance—a retrospective look at plant performance over an 18-month period. The industry—and others—have frequently cited the subjectivity and lack of timeliness of these tools.

Instead, the agency will assess each plant annually based on performance data and inspection results.

The new process is expected to pro-

vide an early warning system of incipient problems at a given plant. If a performance trend line dips toward the regulator response band, the utility will be able to address the matter long before the plant's performance in that area becomes a concern for the agency. If the utility fails to stop the decline, the NRC will become increasingly involved.

The NRC plans a six-month pilot run of the new process at eight nuclear plants, starting mid-year. Full implementation will start in January. ■



BRITISH ENERGY: JOLLY GOOD SHOW

Profits at British Energy continue to rise—demonstrating that nuclear energy can be a sound investment.

When British Energy—the parent company of Nuclear Electric and Scottish Nuclear—was privatized in July 1996, the going price was 105 pence a share. On Feb. 2, the company was selling at 696.5 pence a share. And a day later, after British Energy announced that its profits for the 1998-99 operating year would be 11 percent to 22 percent higher than expected, the share price jumped to 723.5 pence.

The company, which owns and operates eight nuclear power plants in England, Scotland and Wales, reported a tenfold increase in before-tax profit for the first half of its 1998-99 operating year. Electricity sales increased by 5 percent, even though output slipped by 0.5 percent.

The higher sales are the result of an increase in national electricity prices as well as lower British Energy operating costs. For the full 1998-99 operating year, the company says output is up about 4 percent.

The company supplies 21 percent of Britain's electricity.

British Energy is also a player in the U.S. nuclear

energy business. Together with PECO Energy, it formed AmerGen Energy—a joint venture to buy and operate U.S. nuclear plants. Last year, AmerGen reached agreement with GPU Inc. to buy Three Mile Island 1.

IT MAY NOT REIGN IN SPAIN, BUT NUCLEAR RUNS A CLOSE SECOND

Record-breaking generation by Spain's nuclear power plants has nuclear energy running neck-and-neck with coal as the country's leading source of electricity.

Spain's nine nuclear generating units combined to produce nearly 59 billion kilowatt-hours of electricity in 1998—6.6 percent higher than the previous year—giving nuclear energy a 37.1 percent share of the country's electricity production.

Coal plants generated just over 60 billion kWh of electricity last year.

Environmental concerns soon could propel nuclear energy to the top spot in Spain.

In November, the Spanish environment minister told the national parliament that



increasing nuclear output and extending the lives of Spain's existing nuclear plants will play leading roles in the country's plan to reduce greenhouse gas emissions, according to Europe's NucNet news agency.

FINLAND SETS NUCLEAR GENERATING RECORD, EYES NEW PLANT

Finland's four nuclear power plants generated more electricity than ever in 1998, increasing their output 4.7 percent to produce nearly 21 billion kilowatt-hours of electricity.

The Nordic country's share of nuclear-generated electricity could rise from 27.4 percent, if the national parliament acts on a recommendation by researchers at the Technical Research Center of Finland.

A study by the center found that construction of a new 1,350-megawatt nuclear power plant would be the least-expensive way for Finland to meet international greenhouse gas reduction targets.

Momentum for construction of a fifth nuclear plant has been growing.

Last summer, Finland's finance minister acknowledged that the growing need for electricity—coupled with the country's obligation to reduce greenhouse gas emissions—soon will require the government to consider building a fifth nuclear power plant.

"The supply of baseload energy must be ensured, which in practice means additional nuclear capacity," said Finance Minister Sauli Niinistö. "Finland will not manage without additional nuclear power."



NUCLEAR'S SHARE GROWS IN SOUTH KOREA, DESPITE ASIAN RECESSION

With two new nuclear power units on line in 1998, South Korea's share of nuclear-generated electricity reached its highest level since 1992.

South Korea's 14 nuclear units generated 89.7 billion kilowatt-hours of electricity—up from 77.1 billion kWh in 1997—for a 41.7 percent share. Nuclear energy's share in 1997 was 34.3 percent.

The significant increase in nuclear-generated electricity stands in stark contrast to the rest of the country's energy picture. Total electricity generation fell to 215.3 billion kWh in 1998 from 224.4 billion kWh a year earlier—the result of Asia's economic downturn.

Despite the ongoing recession in South Korea, the government remains committed to expanding its fleet of nuclear power plants.

The country's nuclear energy development plan calls for a total of 28 units to be operating by 2015. That plan assumes that plants will be built at three new sites and that two of South Korea's oldest units will be decommissioned before 2015. ■



R&D Proposals Recognize Need for Nuclear

But is funding level adequate to preserve its contributions?

The Clinton administration underscored its rediscovery of nuclear energy's benefits in early February, requesting funds for two research and development initiatives.

In announcing his department's proposed \$17.8 billion budget for fiscal year 2000, Energy Secretary Bill Richardson described funding for the Nuclear Energy Research Initiative and Nuclear Energy Plant Optimization as an "investment [that] will help ensure the viability of this energy option and will secure our leadership role in promoting the safe use of nuclear technologies."

Though the programs would be modestly funded at \$25 million and \$5 million, any level of administration support for nuclear energy R&D marks a significant turnaround from the mid-1990s, when funding evaporated with the successful completion of the Advanced Light Water Reactor program. That program produced three next-generation nuclear plant designs.

However, since 1997—when the President's Com-

mittee of Advisors on Science and Technology recommended a major investment in nuclear energy research and the President's Global Climate Change Initiative called for optimizing existing emission-free nuclear power plants—

Since Congress provided \$19 million last fall to launch the program, DOE has been swamped with nearly 300 innovative proposals to overcome obstacles to nuclear energy's future use. The agency expects to announce

"It is surprising that the request makes only a minimal investment in programs that would help nuclear energy play an even greater role in achieving the nation's environmental goals," said John Kane, NEI's vice president of governmental affairs.

Calling nuclear energy the "nation's workhorse in helping to achieve air-quality goals," Kane said DOE's "lopsided funding request for other non-emitting technologies that yield only a fraction of the clean-air benefits that nuclear energy does begs the question of how serious the administration really is about achieving those goals."

The FY2000 budget proposes \$466 million for solar and renewable technology programs, which supply about 0.04 percent of the nation's electricity. More than 100 nuclear power plants generate almost 20 percent of U.S. electricity.

Rep. Joseph Knollenberg (R-Mich.), a member of the House Appropriations Subcommittee on Energy and Water Development, is well aware of the funding disparity. Following the budget's release, he called nuclear R&D "woefully underfunded."

Two months ago, Knollenberg told a group of educators he would fight to boost the federal investment in nuclear energy.

"Money keeps pouring into some of these programs that claim to have promise five to 10 years down the road," the congressman said. "But we have something that works today: nuclear power." ■



We have something that works today: nuclear power.

— Rep. Joseph Knollenberg

the Clinton administration has renewed federal support for nuclear energy R&D.

First came the Nuclear Energy Research Initiative, established last year to address what DOE calls "the key issues affecting the future of nuclear energy," including:

- proliferation resistant reactors and fuel cycles
- new reactor designs with higher efficiency, lower cost and improved safety
- new techniques for storage and disposal of nuclear waste.

the project grants May 11.

While the Nuclear Energy Research Initiative looks to the future, the Nuclear Energy Plant Optimization program would protect the U.S. investment in the current fleet of nuclear power plants.

Though the program went unfunded by Congress last year, DOE in this year's budget request defends the initiative, noting that nuclear energy is "the only proven large-scale power source that has unlimited potential to provide clean and reliable electricity into the next century."

The plant optimization program would ensure that current nuclear plants "can continue to deliver adequate and affordable energy supplies up to and beyond their initial 40-year license period by...applying new technologies to improve plant economics, reliability and availability," says the budget request.

The Nuclear Energy Institute greeted DOE's budget request with some concern.

NUCLEAR ENERGY

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