



News Release

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Nuclear Power's Role in Our Energy Future

by J. Brad Edwards

Across the country, political leaders are joining those of us in the electric industry in calling for ways to meet our rapidly-growing need for safe, dependable and economical electric resources. The need is great and time is short, but we have one answer readily available to us now if we will think about it logically: the nuclear facilities that already provide 20% of our overall power.

As an engineer who has spent my entire career in the nuclear power field, I have witnessed the industry make many improvements over the past 25 years. Following the incident at the Three Mile Island nuclear facility in 1979 and during the early 1980s, the industry faced many difficult issues. Construction cost over-runs were widespread, interest rates were in the double digits, inflation was rampant, and utilities operating nuclear units sometimes struggled to keep those units on-line. Capability factors, a measure of unit availability, averaged around 60% and maintenance and refueling outages were unpredictable, often requiring 60 to 90 days for completion.

After Three Mile Island, the Institute of Nuclear Power Operations (INPO) was founded and funded by the industry. Its mission was to serve as a centralized organization dedicated to promoting plant assessment and improvement, sharing industry experiences and good practices, and assessing and grading individual plant performance. Today, nearly 30 years later, the industry's capability factors average around 93% and refueling/maintenance outages are routinely completed in less than 30 days. Reliability has improved dramatically and, in fact, some units are running continuously for nearly two years between refueling outages.

Our dependence on foreign oil and the rising cost of energy has brought about much debate about the best course of action to achieve national energy independence and price stability. It is a very difficult problem, but when all is said and done, the solutions must realistically address what can be accomplished and at what price.

We know there is a very real need for new sources to generate electricity. What makes nuclear power especially attractive for new base load generation is its predictability and cost stability. While initial capital costs for construction are higher than traditional sources, the industry is working to identify new designs and reduce building costs. Fuel costs for nuclear plants, however, constitute only 26% of their total production costs, unlike other facilities that may use 50-90% of their budgets to buy fuel, making

the cost to produce nuclear power much less susceptible to fluctuations compared to the market prices of other fuels.

Public and political support for construction of new nuclear units has been steadily increasing, with some of the strongest support occurring in the communities where existing units are located. In Mississippi, where South Mississippi Electric owns 10% of Grand Gulf Nuclear Station in Port Gibson, support for another unit at that facility is strong. The governor and numerous other elected officials understand how important such a project can be for the region, although ultimately the state's public service commission will have to approve any plans.

Grand Gulf's Unit 1 currently employs more than 500 people with a payroll of more than \$60 million. It pays more than \$20 million in local and state taxes each year. A second unit at Grand Gulf would bring significant investment to the state, including as many as 2000-3000 construction jobs, hundreds of new permanent jobs and additional tax revenues.

To further gain public support and the backing of financial investors, the industry is addressing the issues of safety and security, predictability in the licensing and construction process, and the disposition of nuclear waste.

Proposed new reactor designs are even more advanced than older models, primarily due to the use of passive safety features which use natural circulation and ambient cooling instead of mechanical systems. U.S. nuclear facilities, already some of the most secure facilities in the world, were further fortified after the events of September 11, 2001.

The U.S. Nuclear Regulatory Commission, the agency responsible for approving and issuing operating licenses, has streamlined the process for license approval. The process today is designed to eliminate regulatory uncertainty, and many utilities have joined consortiums to test the new process. To help "jump start" the development of new projects, the U.S. government has authorized the Department of Energy to approve loan guarantees and potential production tax credits for the first few new domestic nuclear units constructed under the plan.

The industry also is evaluating methods to reprocess spent nuclear fuel in order to be more efficient. When discharged now, spent fuel still contains nearly 90% of its original uranium content, most of which can be recovered through reprocessing. Each of the nation's 104 nuclear units store its spent fuel in on-site pools or dry steel and concrete casks, awaiting approval and construction of a planned national repository. Reprocessing would not only reduce the volume of spent fuel but would also significantly reduce the radioactivity level of the end product.

While new nuclear generation is not the only answer to all of our energy problems, safe, efficient, cost-effective nuclear units are increasingly being viewed as a larger part of the solution. Those of us in the nuclear industry have worked hard to address the issues and risks associated with our facilities. I have no doubt we have positioned nuclear power at a place where it can play an expanded and prominent role in our energy future.

Brad Edwards is the nuclear specialist for South Mississippi Electric assigned to the Grand Gulf Nuclear Station. He graduated from Mississippi State University with a bachelor of science degree in mechanical engineering. During his 24 years at Grand Gulf, Edwards held several positions, including General

Manager of Plant Operations. He received his Senior Reactor Operator Certification and completed the Senior Nuclear Plant Managers program at the Institute of Nuclear Power Operations.

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