Floating Nuclear Power Plants: A Technical Solution to a Land-based Problem (Part I)

Some time ago, Russia announced it would build the world's first floating nuclear power plant to supply 70 megawatts of electricity to isolated communities. If successful, the plan would bring to fruition an idea hatched in the U.S. nearly a half-century ago. It's not widely known, but in 1971, Offshore Power Systems, a joint venture of Westinghouse Corporation and Tenneco, proposed manufacturing 1,200 MW plants at a $200 million facility near Jacksonville, Florida.

Placed on huge concrete barges, the plants would be towed to a string of breakwater-protected moorings off the East Coast. Using a generic manufacturing license and mass production techniques, Westinghouse President John Simpson predicted this approach could cut in half typical plant construction time and make floating reactors economical.

While Simpson touted their economic advantages, utilities wanted floating power plants to overcome mounting opposition to land-based reactors. Site selection had ground to a near halt in the Northeast and the West Coast due to public opposition, seismic worries and environmental concerns. In July 1971, a federal court complicated siting further by forcing the NRC's predecessor, the Atomic Energy Commission, to develop thorough Environmental Impact Statements for nuclear plant projects.

In fact, West Coast utilities met defeat so often on proposed coastal power plant sites they turned inland in an ill-fated move to find acceptable arid locations. By heading out to sea, Northeast utilities hoped they could overcome their political problems.

New Jersey's Public Service Electric and Gas Corporation responded enthusiastically and selected the first site, the Atlantic Generating Station, about 10 miles north of Atlantic City. A PSEG spokesman said floating reactors were "the only answer to the problem of siting nuclear power plants." Other reactor vendors, including General Electric, also studied the possibility of floating reactors.

A supportive regulatory response heartened OPS officials. The AEC's Advisory Committee for Reactor Safeguards issued a fairly positive assessment of floating reactors in late 1972. "We think this is a very favorable letter," a Westinghouse official said of the committee response, "and we don't see any delay whatsoever."

Westinghouse moved forward with its grand plan and built its manufacturing facility near Jacksonville. The facility included a gigantic crane that was 38 stories high — the world's tallest. It appeared to be smooth sailing ahead for floating plants with a RAND Corporation study that touted their ability to withstand earthquakes and other natural hazards. Spoiler alert: RAND selected for floating power plants one of the most ill-conceived yet prescient of acronyms, FLOPPS.

Exactly how the seas turned rough for floating plants is unveiled in Part II.

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