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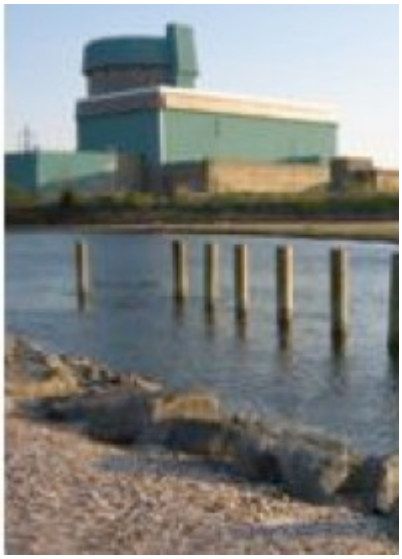
A Tale of Two Reactors



When the metal is put in a precise geometric formation along with other materials and surrounded by water, it becomes a source of heat energy like man has never seen on this Earth. A typical nuclear plant can generate 1,000 Megawatts of power, 24 hours per day, 365 days per year, except for occasional outages for refueling and maintenance. The Watts Bar 1 reactor in Tennessee recently set a record of 512 days of continuous operation — day and night, whether or not the wind was blowing.

Figures like 1,000 Megawatts (MW) are difficult to get one's mind around. But most of us can imagine being in a new fuel-injected, V-6, Ford F150 pickup truck that is loaded and screaming up a hill at full throttle. Now stretch your mind to picture a line of such vehicles, bumper-to-bumper, 22 miles long — 6,635 trucks — all operating at maximum performance. That is the equivalent of the electrical power of a 1,000 Megawatt power plant. To create such power with coal requires 100 coal cars per day, each with 100 tons of coal.

Shoreham Nuclear Power Plant

In 1965, the Long Island Lighting Company (LILCO) announced plans to construct a power plant to be known as Shoreham. It was to be relatively small, with an electrical output of 540 MW (only 3,593 pickups), and cost between $65 million and $75 million. In those days the Atomic Energy Commission was encouraging utilities to build nuclear plants, and little did LILCO President John Touhy know he was signing his company's death warrant.

The capacity of the proposed plant was increased to 820 MW in 1968 due to the rapidly increasing demand for power on Long Island. Construction began in 1973, but was plagued by union slowdowns, alleged organized crime influences on local labor, and Nuclear Regulatory Commission (NRC) mandates causing the cost estimate for building the plant to soar to $2 billion. Then came the partial meltdown at Three Mile Island, which despite the media hype resulted in a release of radiation far below that which would cause adverse effects.* Yet the Three Mile Island accident and its inflammatory coverage by the media led to 15,000 people demonstrating against the Shoreham reactor on June 3, 1979.

Shoreham's trial run was delayed until 1985, the plant having finally received federal permission for low-power (five-percent capacity) testing. However, more pseudo-environmentalist and regulatory harassment followed. While Three Mile Island had proven to scientists and engineers that evacuations

of a populace were more dangerous than a nuclear meltdown,† radical anti-nuke forces insisted that the reactor not be allowed to operate until LILCO created and received approval for evacuation plans and routes, which were to be widely publicized. Obviously, the intent was to convince the unknowing public of a false sense of radioactive peril, constantly reinforced by signs and "public service" announcements.

The evacuation propaganda proved to be the plant's undoing, and in 1983, 15 members of the Suffolk County Legislature doomed themselves and their constituents to high utility rates by voting that the county could not be safely evacuated. Democratic Governor Mario Cuomo went along by ordering his representatives not to sign a proposed Emergency Evacuation Plan or approve any plan put forth by LILCO. Consequently LILCO was forced to sell their spanking-new nuclear plant to the State of New York (for a dollar), whereupon it was dismantled and decommissioned. The decommissioning process cost the same as if the plant had been generating power for 40 years instead of just doing low-power testing. These unnecessary costs were borne by both taxpayers and ratepayers, who were to suffer a three-percent surcharge for 30 years. They are still suffering. In 2006, the NY State Comptroller announced an expected increase of 17 percent to Long Island utility bills, which were already the fourth-highest in the nation (with Alaskan communities taking the booby prize.)

After nearly 20 years of litigation, the final cost of Shoreham rose to $6 billion plus $186 million for decommissioning. Zero power put on the grid.

Millstone 1 Nuclear Reactor

The Millstone 1 nuclear reactor, a near-twin sister to Shoreham that was approved in 1966, is a different story. Absent the sham-environmentalist and political opposition Shoreham encountered, the 660 MW Millstone 1 power station was licensed in 1970 and began producing full commercial power on January 6, 1971. It was the top-performing boiling water reactor in the world for 1983, 1988, and 1993 — no mean feat out of several hundred such reactors. It continued to produce power until 1995 when it was closed by bureaucratic fiat. The reactor had caused no injuries, no deaths, and no threat to public safety — but there had been shortcuts taken on refueling to lessen the $500,000 per day charge that its owner was required to pay for power when Millstone 1 was not in operation. It remained in limbo till 1998, when Connecticut Power & Light (CP&L) announced its closing. But based on the success of Millstone 1, Millstones 2 & 3 are still operating and providing 2,020 MW of safe, reliable electrical energy for the fortunate ratepayers of Connecticut.

Economic and Humanitarian Costs

It is difficult to comprehend what the economic loss of the $6 billion, operational Shoreham nuclear power plant really means. But let's look at the situation using our deluxe F150 pickup trucks, costing $32,000 from the showroom. Imagine a barge taking 1,000 new trucks out to the middle of the Atlantic Ocean and dumping them with their leather seats, GPSs, V-6s, and all the other options you can come up with into the briny depths never to be seen or used again. Then imagine this happens every day — for 187 days. That is approximately $6 billion dollars. Yet that's not the most expensive cost of New York's decision.

A major factor in "standard of living" is the access individuals have to affordable energy. Decreasing the overall wealth of a society by deep-sixing the equivalent of 187,000 new pickup trucks will no doubt have a negative affect on the well-being of a population. But when this terrible waste is that of a life-giving source of energy, it is a double disaster. For of all the factors that benefit the health and prosperity of a society, available energy is second only to liberty.

It is an undisputed economic axiom that the wealthier a society is, the higher its standard of living, including improvements in health and longevity. Two things happened when Shoreham was shoved over the cliff: the price of power increased thereby decreasing its availability to those such as the poor or sick who might be only marginally able to afford it; and more electricity was generated by coal-fired power plants.

Coal-fired power plants — as opposed to nuclear, hydroelectric, and natural-gas facilities — have a definite effect on human health. As long ago as 1976, Petr Beckmann cited in his classic *Health Hazards of NOT Going Nuclear* independent studies showing between 20 and 100 deaths per year from a 1,000 MW coal-fired plant. Thus in the 24 years that Shoreham could have been operating, between 300 and 1,500 people were doomed to an early death by the anti-nuclear radicals and their political and media lackeys. It is probably a good thing that the families of these departed are unaware that their elected representatives were complicit in these avoidable deaths.

One should understand, however, that the health hazards of burned coal pale in comparison to the health hazards of not having access to reliable electrical power. When we compare the obvious effects of emissions to the conditions in areas where there is no electricity and thus no water distribution, no sanitation, little lighting, only human and animal labor to perform the most grueling and repetitive tasks — a modern form of human bondage — only then do we realize how much our well-being is dependent on our access to electrical energy.

* As summarized by the U.S. Nuclear Regulatory Commission, “detailed studies of the radiological consequences of the accident have been conducted by the NRC, the Environmental Protection Agency, the Department of Health, Education and Welfare (now Health and Human Services), the Department of Energy, and the State of Pennsylvania,” and “several independent studies have also been conducted” that showed “the average dose to about 2 million people in the area was only about 1 millirem.” For comparison, passengers on a coast-to-coast jet flight receive about 5 additional millirems owing to cosmic radiation.

† An argument could be made for a temporary evacuation of the area near Chernobyl, but anti-nukes have carefully avoided addressing the differences in the Three Mile Island and Chernobyl reactors. The former (as is the case with all U.S. power reactors) is modulated by water, which when not present due to a coolant loss, stops the nuclear reaction. Moreover, all U.S. reactors have a containment structure for additional safety. Chernobyl did not. Chernobyl was moderated by flammable graphite which caught fire and “convected” radioactivity out of the burning reactor into the atmosphere. Even so, evidence accumulates that while fire fighters and rescue workers were killed in the early hours of the fire, there has been no harm to the public except for the stresses caused by forced evacuation.