

Detroit Edison and nuclear power

The Detroit Edison Co., citing an inability to raise capital for major construction because of low profits, severely cut back its construction program in 1974. While some limited construction has been authorized by the company's board of directors at the Enrico Fermi 2 nuclear power plant project in Monroe County and at the Greenwood 1 oil fired power plant near Port Huron, the board has not authorized a general resumption of construction.

The utility's interest in the development of nuclear technology was evidenced in its participation in the Enrico Fermi 1 Liquid Metal Cooled Fast Breeder Reactor project in the late 1950's and 1960's. Cooled by liquid sodium and designed to convert U^{238} into more easily fissionable Pu^{239} , a fuel melting incident in 1966 sparked considerable public debate. Damage because of the incident was restricted to the plant's fuel core, there was no release of radioactivity, and the plant was successfully repaired and operated afterward.

Dr. Wayne Jens, who was involved in the development program for Enrico Fermi 1 and currently Detroit Edison Co.'s manager of engineering and construction, made the following observations in a recent interview:

"We would have a building program of a mixture of nuclear plants and coal fired plants, (if Detroit Edison resumed full construction). ... I would guess at this point that we project about half coal and half nuclear, and the reason for that is that even though nuclear plants show an economic advantage, that advantage would quickly disappear if there wasn't competition on the fuel. And we believe that you have to build both types of plants so that one is competing against the other. ... Furthermore, it's difficult over a period — it takes 10 to 12 years from inception to the final commissioning of a nuclear plant — it's difficult to know at the end of that period of time that those conditions you have forecasted when you began the project will prevail. So you always have to keep both options open. ...

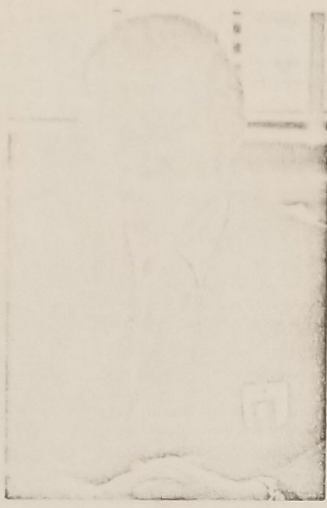
"The capital investment to a utility for nuclear power plants as opposed to coal fired plants is about the same. ... We find in our company that there is very little difference. Some companies find there's a 20% difference in capital investment. The breeder might add another 10% difference, although until we build the big breeders, we have no idea of what they might cost. ... All we do know is that if they don't cost much more than 10% over a thermal water reactor, they will be a very worth while thing to build. ..."

THE FERMI 1 INCIDENT:

"Fermi 1 was a plant built, owned, and operated by Power Reactor Development Co. Detroit Edison was a contributor to the project and since January 1 of this year the plant has been decommissioned ... and turned over to Detroit Edison. We're now the custodians of the plant. ...

"Fermi 1, although it had many problems, before we decommissioned it was running very well ... to use up all the fuel that we had on hand. We wanted to continue to run it but we couldn't find the support — financial support — throughout the utility industry and within the government to run it. ...

"You know we had a situation — an accident at the plant. ... There's a piece of shielding at the bottom of the plenum. It was fastened in such a way that it vibrated and broke loose of its fastening. It then floated up with the high velocity coolant and was implanted against the support plate, where it blocked the flow to the two subassemblies. And, because they were starved of coolant, the fuel melted in those subassemblies. And we had the equivalent of melting one complete subassembly. That was detected as the power was being increased in the plant, and as the power was increased, more and more fuel melted, and we



lost what we called "reactivity." We lost "reactivity" so as the power was increased, the control rods had to be taken out because fuel was being lost. So it virtually shut itself off at around 34 megawatts. The plant went 34 megawatts thermal and it was designed for 200 megawatts. So that before we never got to anywhere like full power, we couldn't get any higher. ..."

PIRGIM'S ENERGY INITIATIVE:

"If you were to enact this (the PIRGIM Safe Energy Initiative) in the form of legislation, it would have the same effect as a moratorium, because these are impossible things to fulfill. Now, there's another side to that — one can say that we don't think it's necessary. ..."

FULL LIABILITY:

"In 1957 there were two studies made — one by the University of Michigan for the Fermi 1 plant, one by the Brookhaven Laboratory for the industry in general. It was at the time that Congress was considering enacting the Price-Anderson Indemnification Act. And what they were seeking was — could you define an upper limit on how much property damage and public liability protection one would need for this industry. ... And both studies came out with roughly the same (conclusion) — there's a lot of potential damage (from a catastrophic nuclear plant accident). It's measured in billions of dollars and thousands of lives.

"In 1964, the Atomic Energy Comm. realized these (nuclear) plants were getting bigger and bigger and the amount of damage they can do varies with the size. So they asked Brookhaven to redo the study. They also asked ... for a little more feeling of the probability of these accidents. Because it isn't only the upper limit that counts — it's how probable they are.

"So they went back to Brookhaven and Brookhaven struggled and struggled with it, they really didn't put much of an effort on it ... and the AEC tried to suppress the report. I think in good conscience what they said was, 'Why come out with this report? It hasn't shed any new light on anything. We didn't do the job we were supposed to.' So it was not released. ...

"Well, in the last several years, the AEC, now the Nuclear Regulatory Comm., has made a study — it's the Rasmussen report — in which they spent the right kind of money. ... And it was demonstrated that the probability of an accident is very small, even though the limits are very high. ... So I think that is now what we're using as a basis for saying that nuclear power is safe."

SAFETY DEVICES:

"Conlon properly cites tests that were initially run in the Emergency Core Cooling System program as demonstrating that the system doesn't work. The first tests of models of the system showed that something was wrong — it doesn't work. The industry has gone back and examined that model. Well, it turned out that we weren't modeling the system. We were modeling something else. ... When they went back and truly modeled the system by putting in more than one (cooling water) loop, they found out it works perfectly all right. ... The latest tests run on more realistic models have shown that everything is all right. ...

"Now the other charge that he (Conlon) makes is that at no time did the complete ECCS system, a full sized system, be tested. And that's true. ... It can't be done. I mean, what you'd have to do is take one of the commercial plants that we now have ... (and) simulate an accident. The accident that the ECCS is designed to handle is where the largest pipe in the core cooling system ruptures ... and the two ends come apart. When you do that ... the whole plant's equipment is damaged and would require extensive repairs. And what does that prove? Well, you would prove that plant survived that one accident. But our plants are designed to handle a whole spectrum of accidents. So, we'd have PIRGIM coming in again and saying, 'That was just one accident — try the other one over there, will you?' They'd shut down the nuclear industry by this process. ...

"What we do is test all the components in the ECCS periodically. We'll test the pump once a week, or we'll test the valves once a month. ... We test the emergency diesel generators which supply electric power for all these systems once a week."