Background; February 27 2020

If you think that the idea of marketing Small Modular Nuclear Reactors (SMNRs) is a relatively new phenomenon, think again. Here is a link to a lecture I gave three decades ago in opposition to the SLOWPOKE District Heating Reactor, an SMNR project that was being promoted way back in the 1980s.

https://youtu.be/UEqGxbkkbuI

According to Atomic Energy of Canada Limited (AECL), a corporation wholly owned by the Government of Canada, *"The SLOWPOKE Energy System [is] a benign nuclear heat source designed to supply 10 thermal megawatts in the form of hot water for local heating systems in buildings and institutions.... A demonstration unit has been constructed in Canada [at AECL's Whiteshell Nuclear Research Establishment located at Pinawa, Manitoba] and is currently undergoing an extensive test program. Because the nuclear heat source is small, operates at atmospheric pressure, and produces hot water below 100 degrees Celsius intrinsic safety features will permit minimum operator attention and allow the heat source to be located close to the load and hence to people. In this way, a SLOWPOKE Energy System can be considered much like the oil- or coal-fired furnace it is designed to replace. The low capital investment requirements, coupled with a high degree of localization, even for the first unit, are seen as attractive features for the implementation of SLOWPOKE Energy Systems in many countries."* Source: https://inis.iaea.org/search/search.aspx?orig_q=RN:20052922

The original SLOWPOKE reactor design [SLOWPOKE = Safe LOW Power Kritical Experiment] dated back to 1967. It was a very small, subcritical nuclear reactor, rated to produce only 20 kilowatts of heat, using weapons-grade uranium metal alloy (93 percent enriched) in a cylindrical core 9 inches high and 9 inches in diameter. Beryllium reflectors were used to magnify the neutron flux so to make a chain reaction achievable. These original SLOWPOKEs were used as neutron sources for research at a number of Canadian universities.

The "SLOWPOKE Energy System", conceived about 20 years later, bears little or no resemblance to the original SLOWPOKE reactors. In fact the owners of the original SLOWPOKEs were very unhappy that AECL was compromising the reputation of their tiny research reactors by using the same name for a newly designed District Heating Reactor, 500 times more powerful, with low-enriched uranium fuel at the 5 percent enrichment level, rated to generate 10,000 kilowatts (10 megawatts) of heat in a commercial environment.

As you will see from the lecture (linked above) that was recorded on October 2, 1989, in Saskatoon Saskatchewan, the issues surrounding Small Modular Nuclear Reactors today are not much different than they were in 1989.

Gordon Edwards.

P.S. After several fruitless efforts to give away a FREE Slowpoke District Heating Reactor, in order to have a showcase in Canada that could be used to sell these devices all around the world, the entire plan was abandoned. In fact the only “Slowpoke Energy System” ever built — at the Whiteshell Establishment — never got an operating licence because of unresolved safety issues. Thus ended the short unhappy life of the Slowpoke District Heating Reactor. As Wikipedia says, "The project was terminated after market interest in a nuclear heating system dwindled.” In fact, market interest was never there in the first place.

G.E.