Plymouth First

Pilgrim Nuclear Power Station

A White Paper

The Pilgrim Nuclear Power Station (PNPS) located in Plymouth, Ma., was constructed in 1972 for Boston Edison. It has a single reactor and produces up to 685 megawatts of power which is sold to the New England electrical grid, and which is enough to power more than 600,000 homes.

In 1999 the Pilgrim facility was sold to the Entergy Corp., the current owner /licensee of the Pilgrim facility.

Nuclear power has been one of the cleanest sources of energy, and one of the least expensive to produce. In recent years, however, with the increased supply of natural gas, that source of energy has become less costly to produce than that of nuclear energy. As such, Entergy made the decision, stated for economic reasons, to shut down the Pilgrim facility. That facility is considered an aging facility, similar to others around the country of a similar age. As with other things that age, the operating costs of such facilities increase with time, due largely to outdated technology and aging parts and equipment.

Due largely to this, in more recent years, Pilgrim has been plagued by increased maintenance challenges and given the lowest rating by the NRC that will allow it to remain operational. As a result of that rating, the NRC has provided increased oversight of the PNPS to identify and assure that those challenges are addressed to their satisfaction. Those challenges were not, however, considered serious enough for the NRC to order the system to shut down.

Once the PNPS is permanently shut down the Town of Plymouth will lose most of the Payment in Lieu of Taxes (Pilot) payment currently at the level of $9 million for 2018, the majority of the 600+ highly skilled employees, and eventually almost all of them, the revenue those employees contribute to the local economy, and the volunteer contributions they make to local civic activities.

In 2015 Entergy Corp. announced that they will close the PNPS by May 31, 2019. That will mean that the reactor will be shut down and will no longer produce electricity, and that the decommissioning process will begin. That typically means that the reactor, the reactor building and the other support buildings on the site will be dismantled, and that the site will be “cleaned” to required levels of any radiation contamination.

Once the reactor is shut down the fuel rods inside the reactor will have to be transferred to the wet fuel storage pool inside the reactor building. They must remain there for at least three years in order to cool down enough to be able to be transferred to the dry cask storage containers on the outside storage pads.

By federal law, the responsibility for the storage of spent nuclear fuel rods is that of the U.S. Dept. of Energy (DOE), however, due to their never assuming that responsibility, the owners of nuclear facilities have had to assume that responsibility by storing such spent fuel on site at their own site facilities. The DOE had in the past, been preparing their storage facility at Yucca Mountain in Nevada for such storage, but the last administration in Washington defunded the additional funds DOE needed to complete the preparation of that facility, requiring the nuclear facility owners to continue to store their spent fuel on their local sites until such time as the DOE provides storage sites and resolves transportation issues of such spent fuel to those facilities.

Prior to the inception of the decommissioning process the owner / licensee will have to decide which of the two decommissioning plans offered / allowed by the NRC, it will choose, DECON or SAFSTOR. DECON is an expedited process that can take five or more years, while SAFSTOR is a much longer process, and is allowed up to sixty years to complete. SAFSTOR is the option most often chosen by the owner / licensee. At the moment, it appears as if SAFSTOR will be the option chosen by Entergy, for Pilgrim.

It is important to understand that the federal government, through the Nuclear Regulatory Commission (NRC), not the state or local government where the site is located, has regulatory control over the decommissioning process. The only exception being if the state has any radiation standards that would be applicable to the PNPS that exceed those of the NRC. In the case of Massachusetts, the state does not have such standards, so the NRC's standards will have to be met by the owner of Pilgrim during the decommissioning process.

The state of Massachusetts, however, has created the Mass. Nuclear Decommissioning Citizens Advisory Panel (MNDCAP) whose charge is to follow the decommissioning process, hold meetings to discuss it and inform the public of the decommissioning process, to encourage their comments, to receive reports on those plans and that process and any site assessment and post shutdown decommissioning assessment reports, provide a forum for receiving public comment on those plans and reports, and provide comments on those plans and reports to the Governor, the legislature and others, through an annual report, as the Panel sees fit. The Town of Plymouth appointed three official members to that Panel, and several other members who, either live in Plymouth, or the Plymouth area, and should have the best interests of Plymouth at heart.

At any time subsequent to the closing of the Pilgrim, a decision will have to be made as to what the future use of the parcel of undeveloped land (about 1,500 acres) adjacent to the PNPS site will be. The Town of Plymouth has a right of first refusal on that land with the current owner / licensee, which will likely become part of the negotiation process between Plymouth and Entergy.

Once the decommissioning process is complete, or prior to that, a decision will have to be made as to what use will be made of the land (134 acres on the shore of Plymouth / Cape Cod Bay) on which the PNPS currently located.

Note: Entergy's own web site is an informative source of information on the Pilgrim site: http://www.pilgrimpower.com/# . In addition, the NRC's web site is an informative source of information on the nuclear power industry and the NRC's regulatory oversite and jurisdiction over it in general, as well as the decommissioning of nuclear facilities, in specific: https://www.nrc.gov/waste/decommissioning.html

(The above was written independent of any of the following affiliations.)

Member of the Massachusetts Nuclear Decommissioning Citizens Advisory Panel (MNDCAP)

Member of the Plymouth Entergy Work Group (EWG)

Member of the Plymouth Nuclear Matters Committee (NMC)

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Decommissioning Pilgrim - What it means for Plymouth (pdf)