

Chapter G2:

Technical and Economic Descriptions of the Seabrook and Pilgrim Facilities

G2-1 OPERATIONAL PROFILE

a. Seabrook

The Seabrook power plant operates one 1,240 MW nuclear unit. The unit began operation in July of 1990 and uses cooling water withdrawn from the Atlantic ocean. Seabrook's total net generation in 1999 was 8.7 million MWh; its capacity utilization was 79.9 percent. Table G2-1 presents generator details for the Seabrook power plant.

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Table G2-1: Generator Detail of the Seabrook Plant (1999)

Generator ID	Capacity (MW)	Prime Mover ^a	Energy Source ^b	In-Service Date	Operating Status	Net Generation (MWh)	Capacity Utilization ^c	ID of Associated CWIS
PP01	1,240	NP	UR	Jul. 1990	Operating	8,681,836	79.9%	CW
Total	1,240					8,681,836	79.9%	

^a Prime mover categories: NP = nuclear.

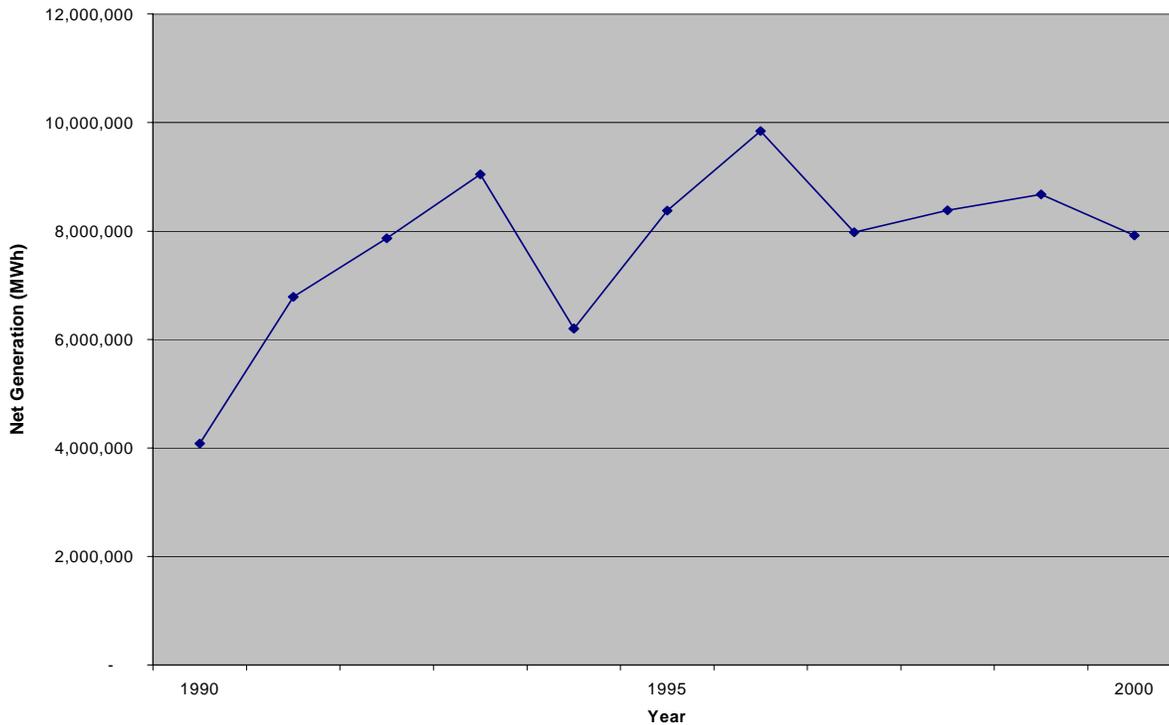
^b Energy source categories: UR = uranium.

^c Capacity utilization was calculated by dividing the unit's actual net generation by the potential generation if the unit ran at full capacity all the time (i.e., capacity * 24 hours * 365 days).

Source: U.S. Department of Energy, 2001a, 2001b.

Figure G2-1 below presents Seabrook’s electricity generation history between 1990 and 2000.

Figure G2-1: Seabrook Net Electricity Generation 1990 - 2000 (in MWh)



Source: U.S. Department of Energy, 2001d.

b. Pilgrim

The Pilgrim power plant operates one 670 MW nuclear unit. The unit began operation in December of 1972 and uses cooling water withdrawn from Cape Cod Bay. Pilgrim’s total net generation in 1999 was 4.5 million MWh. Its capacity utilization was 76.2 percent. The plant was sold to Entergy Nuclear, a nonutility, in July of 1999. Table G2-2 presents generator details for the Pilgrim power plant.

Table G2-2: Pilgrim Generator Characteristics (1999)

Generator ID	Capacity (MW)	Prime Mover ^a	Energy Source ^b	In-Service Date	Operating Status ^c	Net Generation (MWh)	Capacity Utilization ^d	ID of Associated CWIS
1	670	NB	UR	Dec. 1972	SD - Jul. 1999	4,473,327	76.2%	27
Total	670					4,473,327	76.2%	

^a Prime mover categories: NB = nuclear.

^b Energy source categories: UR = uranium.

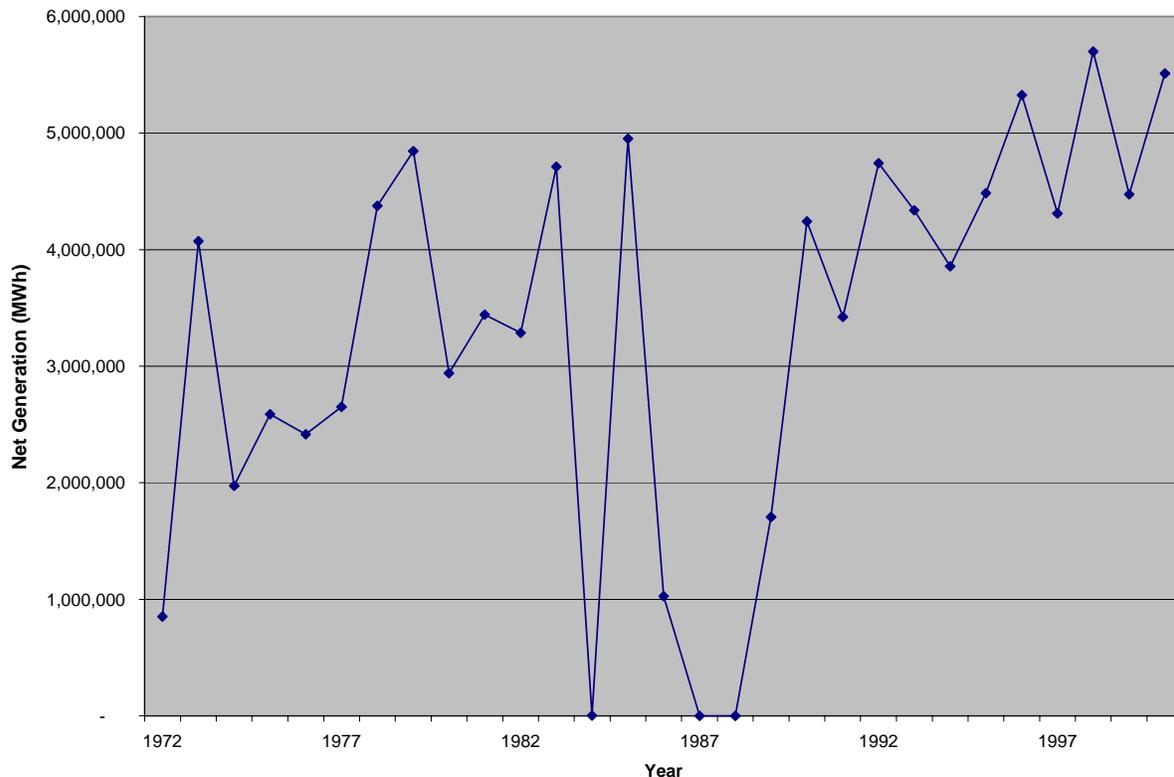
^c Operating Status: SD = sold to nonutility

^d Capacity utilization was calculated by dividing the unit’s actual net generation by the potential generation if the unit ran at full capacity all the time (i.e., capacity * 24 hours * 365 days).

Source: U.S. Department of Energy, 2001a, 2001b.

Figure G2-2 below presents Pilgrim's electricity generation history between 1972 and 2000.

Figure G2-2: Pilgrim Net Electricity Generation 1972 - 2000 (in MWh)



Source: U.S. Department of Energy, 2001d.

G2-2 CWIS CONFIGURATION AND WATER WITHDRAWAL

a. Seabrook

The Seabrook Power Station has an intake structure that is located 7,000 feet offshore in the Atlantic Ocean. The intake structure includes a velocity cap and screens. The facility's 1993 NPDES permit limited the approach velocity to 1.0 feet/second. Intake water flows through a 19-foot diameter tunnel to the plant. The design intake capacity is 918 cfs (593 mgd), which is also the approximate daily intake flow.

b. Pilgrim

The Pilgrim Power Station has two shoreline intakes that draw water from Cape Cod Bay. Intake water is obtained from an embayment, which is separated by two large breakwaters from the open waters of the Bay. The intake structures consist of a skimmer wall, vertical bar racks, and vertical conventional traveling screens. The average approach velocity is 1 foot per second. The screens are periodically rotated based on pressure differential as well as continuously at temperatures less than 30 degrees F to prevent freezing. The intake structure has a dual spray wash system with an initial low pressure wash to remove light fouling and organisms and a high pressure spray to remove debris. The design intake capacity is 693 cfs (448 mgd), which is also the approximate daily intake flow.