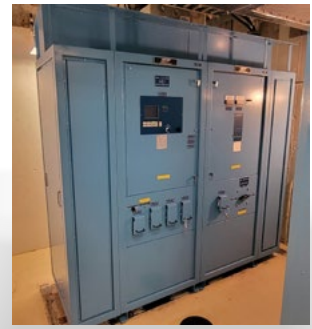


# NUCLEAR INVERTER CASE STUDY

## Public Service Enterprise Group (PSEG)



AMETEK Solidstate Controls recently worked with Public Service Enterprise Group (PSEG) to replace class 1E safety-related and non-class 1E inverter systems that were obsolete equipment. PSEG desired one manufacturer for their new equipment and wanted the systems to be digitally controlled.

### Project Overview

PSEG, based in New Jersey, operates Hope Creek and Salem Nuclear Generating Stations. These sister facilities had their operating licenses for their three total units extended to 2046, 2036 and 2040. These plants have both 1E safety-related and non-class 1E inverter systems that are no longer qualified. In addition, the existing equipment is obsolete and at the end of their design life, making it so the original equipment manufacturer can no longer support the equipment.

### Challenge

PSEG needed to replace obsolete equipment with new systems that could be supported by a manufacturer for their extended contract period. They wanted a supplier who could provide both class 1E safety-related and non-class 1E equipment as well as meet their desire to move to digitally-controlled inverters.

PSEG searched for:

- A trusted partner with extensive knowledge of their needs and a demonstrated ability to meet all the required specifications of class 1E safety-related
- A supplier who could provide digitally-controlled inverters
- A manufacturer with a long-standing reputation in the nuclear industry

### Solution

PSEG chose AMETEK Solidstate Controls' 40-year design life, class 1E safety-related nuclear digital system and non-class 1E digital Pulse Width Modulated (PWM) inverter as replacements for their obsolete systems. They liked that Solidstate Controls could provide both types of systems as well as meet their requirements for digitally-controlled inverters. Solidstate Controls' engineering team worked closely with PSEG to ensure all pieces of equipment met the specifications and needs of their facility.

### Results

Solidstate Controls was able to successfully work with PSEG Hope Creek to install their new inverters during COVID-19 while maintaining all safety standards and procedures. As a result of how successful the partnership was, PSEG and Solidstate Controls had the honor of accepting the 2023 Nuclear Energy Institute TIP Award in Washington DC in May 2023. This award celebrates the nuclear industry's most innovative techniques and ideas while keeping safety and reliability at its core. Watch the PSEG TIP Award video [here](#).

The implementation of the newly designed safety-related digital inverters made PSEG's Hope Creek facility the first in the United States to utilize these systems.



Upon full implementation we will have unified equipment across three units, which will allow us to reap the benefits of simplified training and common component knowledge. Additionally, the new machines use digital technology which is safer and more efficient to maintain and adjust. I'm proud of the team that brought this vision to the reality. The product is first rate, we're looking forward to many years of safe, reliable service."

- Jon Paes - Salem and Hope Creek Uninterruptible Power Supply (UPS) Project Manager