

NE-23-31110 – Development of Cladding Protective Coating for FOAK ARC-100 Reactor Facility

ARC Clean Technology, Inc. (ARC) is located in Washington D.C. Their purpose is to reshape the energy industry by providing affordable electricity and industrial heat that is scalable and carbon free.

Fuel qualification for commercial nuclear facilities is dimensionally different from fuel used in operating tests reactors and must remain fit for service for longer than the time for which operational and experimental data are available. This project will support the qualification of ARC's fuel, by demonstrating the potential use of a barrier on the cladding to prevent fuel cladding chemical interaction (FCCI).

ARC will work with Argonne National Laboratory (ANL) and Idaho National Laboratory (INL) to conduct a series of experiments in which different percentages of lanthanides are reacted with uncoated and coated HT9 cladding material with protective barrier film placed between the fuel alloy and the cladding. The proposed innovation in coating solutions will have a direct impact on the licensing and deployment of these systems.