NEUP Nuclear Energy University Program
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A Request for Replacement of the Control-Rod Drive System for The Ohio State University Research Reactor

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ABSTRACT:

Objective: Replacement of the control-rod drive mechanism (CRDM) system for the OSU Research Reactor (OSURR).

Description: The OSURR, a Nuclear Science User Facilities (NSUF) partner facility, is a unique and important asset to nuclear engineering education and research both within and outside The Ohio State University that is utilized for a wide range of research and educational endeavors. An evaluation of equipment essential for operation of the OSURR established that that the system most crucial for replacement for long-term availability of the reactor was the CRDM system, which is very old but is critical to safe operation of the reactor. In this funding request, we are proposing funding to complete the replacement of this system with a modern system that will help maximize long-term reactor availability, increase operational reliability, and improve safety.

Impact: The OSURR supports a variety of research that benefits a broad range of users, including both OSU and NSUF investigators. Replacement of the CRDM system will enable continued support for these users, and will support increased usage as the OSU Nuclear Reactor Laboratory (OSU-NRL) is able to broaden its user base and workload capabilities. The OSURR features large moveable external dry tubes as available irradiation locations, making it a unique and valuable resource, as it allows experiments such as investigation of advanced reactor instrumentation in a high-temperature radiation environment. The OSU-NRL was chosen to be an NSUF partner facility in 2017, and the OSU-NRL supports DOE through research interests in advanced reactor technologies and radioisotope power systems, and through the recruitment and preparation of high-quality students for the nuclear industry. Replacement of a system critical for long-term availability of the OSURR is crucial for continuing to support DOE in these ways.