U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

Revision 5 to Regulatory Guide 1.9, "Application and Testing of Onsite Emergency Alternating Current Power Sources in Nuclear Power Plants"

Public Meeting with NEI

August 11, 2021

Introduction

- ✓ Current NRC guidance in Regulatory Guide 1.9 has not been updated since 2007. It does not reflect all the possible types of alternative onsite emergency AC power sources.
- ✓ The NRC is issuing Revision 5 of Regulatory Guide 1.9:
  - Endorse new and updated IEEE standards
  - Introduce technology-neutral guidance other than diesels, to include combustion turbine generators (CTGs) and other types of the emergency power sources for the onsite alternative alternating current (AC) electric power system.
- ✓ Purpose of introducing technology-neutral provisions:
  - Acknowledge that future applications may use alternative onsite emergency power supplies for advanced reactors and nuclear facilities.
  - Provide an initial path in the regulatory review process for alternative power supplies.
  - Establish a foundation for alternative power supplies by describing acceptance criteria.

Existing NRC Guidance

- ✓ Regulatory Guide 1.9, "Application and Testing of Safety-Related Diesel Generators in Nuclear Power Plants" was last updated in 2007 to Revision 4.

- ✓ Regulatory Guide 1.9 provides guidance that the NRC staff considers as an acceptable method for satisfying NRC regulations (mainly GDC 17 and 18) with respect to the design, qualification, and testing of emergency power sources used in onsite AC electric power systems for nuclear power facilities.

Significant Changes

- ✓ This revision (Rev 5) endorses one new and updates another IEEE standard in full, with supplements and clarifications:

  - IEEE Standard 387-2017, “IEEE Standard for Criteria for Diesel Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations”
    - IEEE Standard 387-2017 was updated from 1995 version
    - Includes specific details on design and testing considerations

Significant Changes (cont.)

- IEEE Standard 2420-2019, “IEEE Standard Criteria for Combustion Turbine-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations”

  - Industry developed this new standard in 2019 based upon Interim Staff Guidance (DC/COL-ISG-021)
  - Specifically includes additional guidance on CTG’s principal design criteria, design features, qualification considerations, and testing requirements.

Significant Changes (cont.)

- ✓ Includes provisions for alternatives for onsite standby emergency AC power supplies that meet the intent of 10 CFR 50 and 10 CFR Part 52 requirements in consideration for small modular reactors, advanced reactors, and other nuclear facilities.
  - Includes criteria derived from General Design Criteria (GDC) 17 and GDC 18 (e.g., information on capacity, capability, independence, redundancy, testability, inspection, qualification, etc.).
  - References applicable guidance provided in Regulatory Guides: 1.75, 1.6, 1.81, 1.118, 1.89, 1.100, 1.164, 1.28, 1.155 and 1.189
- ✓ Includes additional design and testing considerations for EDGs, CTGs, and other emergency AC power sources.

Other Important Changes

- ✓Removal of testing and design requirements from Rev 4 because they have been incorporated in the updated IEEE 387-2017.

- ✓Title of Regulatory Guide 1.9 changed to be more technology neutral, “Application and Testing of Onsite Emergency Alternating Current Power Sources in Nuclear Power Plants.”

Steps Towards Issuance

Completed

- The Office of General Counsel (OGC) has provided No Legal Objection (NLO).
- Briefed Advisory Committee Reactor Safeguards (ACRS) subcommittee and received feedback.
- Briefed Committee to Review Generic Requirements (CRGR) on NEI's contentions of possible backfit and determine no backfit concern.
- Briefed ACRS Full Committee and received feedback .

To be completed:

- NRC staff hosting Public Meeting to provide NEI opportunity to clarify comments.
- NRC staff is currently reviewing ACRS Full Committee feedback and preparing a response to ACRS.
- NRC staff is working on the necessary changes to RG 1.9 Rev 5, and if significant changes are made, then the staff will issue an updated version to revision 5 for public comment.
- NRC staff will update the ACRS subcommittee on changes made.
- NRC staff will publish Revision 5 of RG 1.9.

Publicly Available Documents

- Pre-Decisional RG 1.9, Revision 5 (ML21181A249)
- Draft Public Comment/Response (ML21049A262)
- ACRS Letter on Proposed Draft Regulatory Guide 1.9, Revision 5 (ML21202149)