

Draft for Comment



U.S. NUCLEAR REGULATORY COMMISSION **DESIGN-SPECIFIC REVIEW STANDARD FOR NuScale SMR DESIGN**

BRANCH TECHNICAL POSITION 8-2

USE OF ONSITE AC POWER SOURCES FOR PEAKING

REVIEW RESPONSIBILITIES

Primary - Organization responsible for electrical engineering

Secondary - None

A. BACKGROUND

General Design Criterion (GDC) 17 requires that provisions be included to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, loss of the main generator, loss of power from the grid, or loss of standby power supplies. Additionally, Institute of Electrical and Electronics Engineers (IEEE) Standard (Std.) 308, as endorsed by Regulatory Guide (RG) 1.32, states that the preferred (offsite) and standby power supplies should not be subject to common cause failures. Common cause failure is defined as “a mechanism by which a single design-basis event can cause redundant equipment to be inoperable.” Although IEEE Std. 308 does not preclude the use of onsite alternating current (ac) power sources for nonsafety purposes, the staff concludes that the potential for common cause failures should preclude interconnection of onsite and offsite power sources except for short periods for the purpose of load testing.

B. BRANCH TECHNICAL POSITION

The staff’s position regarding the use of onsite ac power sources for purposes other than that of supplying standby power when needed is that it presents an unacceptable common cause failure potential and that such use should be prohibited.

C. REFERENCES

1. Title 10 of the *Code of Federal Regulations*, Part 50, Appendix A, GDC 17, “Electric Power Systems.”
2. RG 1.32, “Criteria for Safety-Related Electric Power Systems for Nuclear Power Plants.”
3. IEEE Std. 308-2001, “IEEE Standard Criteria for Class 1E Systems for Nuclear Power Generating Stations.”