UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 15, 2020

Mr. Curtis Ashton, Chair
Energy Storage and Stationary Battery Committee
Power and Energy Society
Institute of Electrical and Electronics Engineers
American Power Systems
8160 Blakeland Dr., Unit E
Littleton, CO 80120

SUBJECT: PLAN FOR REVIEW AND ENDORSEMENT OF INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS STANDARDS AND NOMINATION OF NRC STAFF TO THE ENERGY STORAGE AND STATIONARY BATTERY COMMITTEE

Dear Mr. Ashton:

Thank you for your letter requesting priority for endorsement of several recently revised Institute of Electrical and Electronics Engineers (IEEE) standards. The U.S. Nuclear Regulatory Commission (NRC) staff responsible for the use of IEEE standards in the conduct of our regulatory activities considered your request. The NRC staff's feedback on the standards listed in your letter is provided below[1].

IEEE Standard (Std.) 450-2020, "IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications"

- NRC staff plans to review the published standard for endorsement in FY2021 and if appropriate, update Regulatory Guide (RG) 1.129, "Maintance, Testing, and Replacement of Vented Lead-Acid Storage Batteries for Nuclear Power Plants," Revision 3.

IEEE Std. 484-2020, "IEEE Recommended Practice for Installation Design and Installation of Vented Lead-Acid Batteries for Stationary Applications"
IEEE Std. 1635-2018 / ASHRAE 21, "IEEE/ASHRAE Guide for the Ventilation and Thermal Management of Batteries for Stationary Applications"

- NRC staff plans to review the revised IEEE Std. 484 for endorsement in FY2021 and if appropriate, update RG 1.128, "Installation Design and Installation of Vented Lead-Acid Storage Batteries in Nuclear Power Plants," Revision 2. Since IEEE Std. 484 addresses ventilation of battery areas, staff will consider endorsing IEEE Std. 1635 in RG 1.128.

IEEE Std. 485-2020, "IEEE Recommended Practice for Sizing of Lead-Acid Batteries for Stationary Applications"

- NRC staff plans to review the published standard for endorsement in FY2021 and if appropriate, update RG 1.212, "Sizing of Large Lead-Acid Storage Batteries," Revision 1.

[1] The feedback is based on staff plans as of April 2020. These plans are tentative and are subject to change.

IEEE Std. 535-2013, “IEEE Standard for Qualification of Class 1E Vented in Nuclear Power Generating Stations”

- NRC staff will review and consider for endorsement the revised standard after the revised standard is published; the review is anticipated in FY2023. The NRC staff will consider updating RG 1.158, “Qualification of Safety-Related Vented Lead-Acid Storage Batteries for Nuclear Power Plants,” Revision 1, to endorse this standard, accordingly.

IEEE Std. 946-2020, “IEEE Recommended Practice for the Design of DC Power Systems for Stationary Applications”
IEEE Std. 1189-2023, “IEEE Guide for Selection of Batteries for Standby Applications”
IEEE Std. 1375-1998, “IEEE Guide for the Protection of Stationary Battery Systems”
IEEE Std. 2405-2020 / NEMA PE 5, “IEEE/NEMA Standard for the Design of Battery Chargers Used in Stationary Applications”

- For the above four standards, NRC staff plans to review the standards for endorsement in a new RG when the revision to IEEE Std. 1189 is published; the review is anticipated in FY2023. This high-level RG on direct current (dc) power systems would cover design and protection of dc systems, selection of batteries, and design of battery chargers.

IEEE Std. 1106-2015, “IEEE Recommended Practice for Installation, Maintenance, Testing, and Replacement of Vented Nickel-Cadmium Batteries for Stationary Applications”
IEEE Std. 1115-2015, “IEEE Recommended Practice for Sizing Nickel-Cadmium Batteries for Stationary Applications”

- NRC staff will review the above two standards for endorsement when the new revisions are published; the review is anticipated in FY2025. NRC staff will consider developing a new RG on nickel-cadmium technology that endorses both standards.

IEEE Std. 1187-2013, “IEEE Recommended Practice for Installation Design and Installation of Valve-Regulated Lead-Acid Batteries for Stationary Applications”
IEEE Std. 1188-2020, “IEEE Recommended Practice for Maintenance, Testing, and Replacement and Installation of Valve-Regulated Lead-Acid (VRLA) Batteries for Stationary Applications”

- NRC staff will review the above two standards for endorsement when the new revisions are published; the review is anticipated in FY2023. NRC staff will consider developing a new RG on VRLA technology that endorses both standards.

In addition, I would like to nominate Mr. Matthew W. McConnell as the authorized NRC representative and Mr. Nadim Khan as the alternate representative on the IEEE Power and Energy Society, Energy Storage and Stationary Battery Committee. Mr. McConnell, Senior Electrical Engineer, and Mr. Khan, Electrical Engineer, are responsible for NRC activities related to maintenance, testing, design, installation, and qualification of batteries and battery chargers in nuclear power plants as well as the overall design of dc power systems.

In accordance with the Office of Management and Budget Circular No. A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities," January 26, 2016, the participation on a committee of an NRC-authorized representative does not connote agency agreement with, or endorsement of, decisions reached by the committee, or of standards approved and published as a result of the committee’s efforts. Agency representatives participating on consensus standards developing groups will, to the extent possible, ascertain the views of the agency on matters of interest and

will express views that are consistent with established agency views. However, the NRC's endorsement of these standards, if desired by the NRC, would be part of a separate activity, such as incorporation by reference into rulemaking or endorsement in an NRC RG.

Correspondence should be addressed to:

U.S. Nuclear Regulatory Commission ATTN: Mr. Matthew W. McConnell M/S: O9H4 Washington, D.C. 20555 Telephone: 301-415-1597 E-mail: matthew.mcconnell@nrc.gov	U.S. Nuclear Regulatory Commission ATTN: Mr. Nadim Khan M/S: O9H4 Washington, D.C. 20555 Telephone: 301-415-1119 E-mail: nadim.khan@nrc.gov

Thank you very much for providing NRC with the opportunity to participate in the work of your committee. If you have any questions, please contact Mr. McConnell, the NRC representative, or his alternate, Mr. Khan. You can reach them at 301-415-1597 (matthew.mcconnell@nrc.gov) and 301-415-1119 (nadim.khan@nrc.gov), respectively.

Sincerely,

/RA/

Louise Lund, NRC Standards Executive
Office of Nuclear Regulatory Research

cc:

EXTERNAL DISTRIBUTION:

Curtis Ashton (curtisashton@ampowersys.com)

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