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U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555-0001

**Submission of X Energy, LLC (X-energy) Xe-100 Licensing Topical Report: Risk-informed Performance-Based Licensing Basis Development**

The purpose of this letter is to submit the subject licensing topical report on behalf of X Energy, LLC (“X-energy”). This submission provides a description of the approach taken by X-energy to develop a technology-inclusive, risk-informed, and performance-based process for the selection of licensing basis events (LBEs), safety classification of structures, systems, and components (SSCs), to include associated risk-informed special treatments, and a determination of defense-in-depth (DID) adequacy that will form a portion of the Xe-100 licensing bases. Based on the general nature of the content and on-going participation in NEI 18-04-related activities, X-energy has determined this report is available for unrestricted release. The specific review schedule will continue to be developed with X-energy’s NRC project manager, however, we request that acceptance review and schedule planning occur within 60 days of commencement and a review duration of 12 months be considered.

As the Xe-100 design, safety analyses, and PRA model mature and the implementation of NEI 18-04 continues to progress, X-energy plans on providing the staff, for information, a current list of the Xe-100 licensing basis events, required safety functions and associated required functional design criteria, and SSC classifications associated with the preliminary design phase. X-energy believes that if the staff has an opportunity to understand how the Xe-100 program developed the preliminary set of NEI 18-04 activities, efficiencies can be gained in the review of future licensing submittals. Details of such submissions will be made through on-going review engagements between the NRC staff and X-energy team.

If you have any questions or require additional information, please contact Stephen Vaughn at [svaughn@x-energy.com](mailto:svaughn@x-energy.com).

Sincerely,

DocuSigned by:  
*Martin van Staden*

Dr. Martin van Staden  
Vice President, Xe-100 Program Manager  
X Energy, LLC



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Enclosures:

1) Xe-100 Licensing Topical Report: Risk-Informed Performance-Based Licensing Basis Development