



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

November 1, 2021

Dr. Martin van Staden  
Vice President, Xe-100 Program Manager  
X Energy, LLC  
801 Thompson Avenue  
Rockville, MD 20852

SUBJECT: X ENERGY, LLC – NRC FEEDBACK REGARDING XE-100 WHITE PAPER:  
LICENSING APPLICATION CONTENT AND REGULATORY ANALYSIS (EPID  
NO. L-2021-LRO-0025)

Dear Dr. van Staden:

On April 30, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21120A338), X Energy LLC (X-energy) submitted to the U.S. Nuclear Regulatory Commission (NRC) the white paper, "Xe-100 White Paper: Licensing Application Content and Regulatory Analysis". On August 5, 2021 (ADAMS Accession No. ML21221A039), as requested by the NRC staff, X-energy resubmitted the white paper to provide the properly marked proprietary version and a non-proprietary version. This white paper provides X-energy's assessment of regulatory applicability of certain parts of Title 10 of the *Code of Federal Regulations* (10 CFR), assessment of anticipated exemptions required under 10 CFR 50.12, "Specific exemptions," and annotated outline that forms a basis for ongoing safety analysis report development.

X-energy requested the NRC staff to review this white paper and provide feedback. The NRC staff completed its review of the submittal and noted that, in general, X-energy provided a logical roadmap on how it plans to address various regulations in 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The NRC staff held a meeting with X-energy on October 20, 2021, to discuss the submittal and the NRC staff observations. The enclosure of this letter provides the staff's detailed observations for X-energy to consider.

The NRC staff's comments provided in the attachment are specific to the white paper as submitted. The white paper also mentions X-energy's intent to engage in additional pre-application activities with the NRC staff, including submission of topical reports. The NRC staff encourages further pre-application engagement, especially for novel design features or planned approaches that differ from currently operating reactors.

The Enclosure to this letter contains Proprietary information. When separated from the Enclosure, this document is DECONTROLLED.

M. van Staden

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If you have questions about this matter, please contact Lucieann Vechioli at (301) 415-6035 or [Lucieann.VechioliFeliciano@nrc.gov](mailto:Lucieann.VechioliFeliciano@nrc.gov).

Sincerely,



Signed by Kennedy, William  
on 11/01/21

William Kennedy, Acting Chief  
Advanced Reactor Licensing Branch  
Division of Advanced Reactors and Non-Power  
Production and Utilization Facilities  
Office of Nuclear Reactor Regulation

Project No.: 99902071

Enclosure:  
As stated

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NO. L-2021-LRO-0025) DATED: OCTOBER 22, 2021

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**ADAMS Accession Nos. Pkg: ML21271A630**

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**Enclosure: ML21272A140**

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