



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

May 16, 2022

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

FROM: Lucieann Vechioli, Project Manager
Advanced Reactor Licensing Branch
Division of Advanced Reactors and Non-Power
Production and Utilization Facilities
Office of Nuclear Reactor Regulation

Lucieann Vechioli Feliciano

Signed by Vechioli, Lucieann
on 05/16/22

SUBJECT: SUMMARY OF THE FEBRUARY 16, 2022, PUBLIC MEETING
BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION
STAFF AND X ENERGY LLC REGARDING THE XE-100
APPROACH TO PLANT CONTROL AND PROTECTION

On February 16, 2022, the U.S. Nuclear Regulatory Commission (NRC) staff held a partially-closed public meeting with representatives from X Energy LLC (X-energy). The purpose of the meeting was for X-energy to communicate the Xe-100 plant control and protection approach to the NRC staff and get initial feedback before submitting the Xe-100 licensing application. The meeting notice can be located at Agencywide Documents Access and Management System (ADAMS) Accession No. ML22021B650 and the presentation slides for the open session of the meeting at ADAMS Accession No. ML22049A041. The Enclosure provides the list of meeting attendees.

The meeting began with an overview of the Xe-100 design and its required safety functions. The design of the Xe-100 plant follows a system engineering approach and the risk-informed performance-based methodology from NEI 18-04, "Risk-Informed Performance-Based Technology Inclusive Guidance for Non-Light Water Reactors," in developing the design and licensing bases. X-energy plans to submit a white paper related to this topic in the near future.

The discussion was followed by a presentation by X-energy staff about the major instrumentation and control (I&C) systems and their functionality. X-energy stated that the Xe-100 design will comprise four major I&C systems that will be integrated, but function independently: 1) Distributed Control System, 2) Investment Protection System, 3) Post Event Monitoring System, and 4) Reactor Protection System. The white paper will summarize the philosophy and strategy developed for the maintenance of the Xe-100 reactor. The methodology was developed by X-energy and the Electric Power Research Institute (EPRI). The time and personnel requirements were assessed

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through the use of the EPRI Preventive Maintenance Basis Database, EPRI Member experience, and EPRI Subject Matter Experts. X-energy pointed out that the information provided in the white paper is preliminary and subject to change as the design progresses. X-energy stated that it will revise and submit other reports as more information becomes available.

The open session of the meeting ended with the question and answer portion. During the meeting, the NRC staff provided their initial feedback of the presentation. One of the comments provided by the NRC staff was the interest in particular for the Post Event Monitoring System which X-energy has preliminarily classified as non-safety related. The NRC staff stated that it would like to learn more about X-energy's criteria and rationale for the classification.

Subsequently, X-energy representatives and the NRC staff continued with the closed session of the meeting to go over more technical details related to the I&C systems that involved proprietary information. The specific date of when X-energy plans to submit to the NRC the white paper related to this topic was not provided at the meeting.

Project No. 99902071

Enclosure:
List of Attendees

SUBJECT: SUMMARY OF THE FEBRUARY 16, 2022, PUBLIC MEETING BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION STAFF AND X ENERGY LLC REGARDING THE XE-100 APPROACH TO PLANT CONTROL AND PROTECTION DATED: MAY 16, 2022

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NAME	LVechioli	DGreene	WKennedy	LVechioli
DATE	4/28/2022	4/29/2022	5/13/2022	5/16/2022

OFFICIAL RECORD COPY

List of Attendees

**Public Meeting between the U.S. Nuclear Regulatory Commission staff
and X Energy LLC**

Wednesday, February 16, 2022

Name	Organization
Ian Jung	U.S. Nuclear Regulatory Commission (NRC)
William Kennedy	NRC
Justin Vazquez	NRC
Michael Orenak	NRC
Lucieann Vechioli	NRC
Brian Tindell	NRC
Eric Oesterle	NRC
Joseph Sebrosky	NRC
Boyce Travis	NRC
Ismael Garcia	NRC
Dinesh Taneja	NRC
Joseph Ascraft	NRC
Brian Green	NRC
Travis Chapman	X Energy LLC (X-energy)
Ingrid Nordby	X-energy
Chris Crefeld	X-energy
Shawn Hanvy	X-energy
Gregg Crannick	X-energy
Brandon Hartle	X-energy
Jason Pottorfr	X-energy
Yvotte Brits	X-energy
Matt Hertel	X-energy
Jeff Csuy	X-energy
Tom Braudt	X-energy
Roy Lindengren	X-energy
Ian Davis	X-energy
Alan Campbell	X-energy
Chip Moon	X-energy
Jana Bergman	Curtiss and Wright
Maury Pressburger	Sargent & Lundy
Ian Gifford	Terrapower
William Catullo	Member of the public