

**DOE-NE Microreactor Program
Winter Review Meeting
Los Alamos National Laboratory
March 4 - 5, 2025**



Meeting Objectives

This Program Review will be focused on ongoing progress for each Technical Focus Area and discussion of path forward for the remainder of FY25. Discussions will highlight:

- Accomplishments to date and progress on key efforts
- Issues/concerns related to meeting FY25 goals and M2 milestones
- Potential collaboration with other NE programs
- Initial thoughts on priorities for FY26 and beyond
- Review participant questions

Program Vision

Through cross-cutting research and development and technology demonstration support, the Microreactor Program will enable broad deployment of microreactor technology by:

- Achieve technological breakthroughs for key features of microreactors
- Identifying and addressing technology solutions to improve the economic viability and licensing readiness of microreactors
- Enable successful demonstrations of multiple domestic commercial microreactors

Program Objectives

1. Address critical, cross-cutting R&D needs that require unique national lab or university expertise or capabilities
2. Develop R&D infrastructure to support design, demonstration, regulatory issue resolution, and M&S code validation
3. Develop advanced technologies that enable improvements in microreactor viability

Agenda

Tuesday, March 4th, 2025, LANL 03-0261-T148 (Otowi Building)

(note: all times are MST)

8:00	Welcome	Rian Bahrn
8:05	Introduction to MRP Winter Meeting	Diana Li
8:15	Purpose, Expectations, and Program Overview	John Jackson
8:25	System Integration and Analysis Overview	Alex Huning
8:40 – 9:10	Microreactor Cost Basis	Abdalla Abou-Jaoude
9:10 – 9:30	CRAB/MELCOR - FATE Code to Code Comparison.....	Manit Shah
9:30 – 10:00	Planning for Microreactor Transportation	Steve Maheras
10:00 – 10:25	(NEUP Project 23-29622) Development of the Technical Bases to Support Flexible Siting of Microreactors Based on Right-Sized Emergency Planning Zones	Saya Lee
10:25 – 10:35	(NEUP Project 24-32112) Feasibility Study of Micro-Nuclear Reactor Thermal Output for Air Rotary Kilns in the High-Temperature Manufacturing of Portland Cement Clinker	Martin Nieto Perez
10:35 – 10:40	Wrap Up	Alex Huning
10:40	Break	ALL
11:00	Demonstration Capabilities Overview	Piyush Sabharwall
11:20 – 11:50	SPHERE Testing and Validation	Zach Sellers
11:50 – 12:10	MAGNET Brayton Cycle PCU Integration	TJ Morton
12:10	Working Lunch	
	High Temperature Moderator Work at LANL	Caitlin Kohnert / Topher Matthews
1:15 – 1:35	(NEUP Project 21-24152) Direct Heating of Chemical Catalysts for Hydrogen and Fertilizer Production using Microreactors.....	Hitesh Bindra
1:35 – 1:55	(NEUP Project 24-31551) Sodium Heat Pipes; Design and Failure Mode Assessment for Micro-Reactor Applications	Mark Anderson
1:55 – 2:15	Demonstration Capabilities Wrap Up	Piyush Sabharwall
2:15	Microreactor Application	Abdalla Abou-Jaoude
	2:15 – 2:45 MARVEL Microreactor Project	Abdalla Abou-Jaoude
2:45	Optional Tours of LANL Materials / Hydriding Facilities (Materials Science Laboratory and SIGMA at TA3)	Onsite attendees
5:30	Adjourn Day 1	All
6:00	No Host Dinner	All

Blue Window Bistro. 1789 Central Ave. Los Alamos, NM

Agenda

Wednesday, March 5th, 2025 03-0261-T148 (Otowi Building)

(note: all times are MST)

8:00	Welcome to Day 2	John Jackson
8:05	Technology Maturation Overview	Holly Trelue
	8:20 – 8:45 High Temperature Moderator Containment.....	Latif Yacout / Sumit Bhattacharya
	8:45 – 9:05 Analysis of HFIR Irradiated YH	Kory Linton
	9:05 – 9:25 Instrumentation and Sensors – Microreactor Automatic Control System (MACS) Hardware in the Loop	Tony Crawford
	9:25 – 9:45 Instrumentation and Sensors – Microreactor Automatic Control System (MACS) Software Development	Pradeep Ramuhali
	9:45 – 10:05 Instrumentation and Sensors – Acoustics in Graphite	Paul Geimer
	10:05 – 10:25 Instrumentation and Sensors – Conductivity in Graphite.....	Chris Petrie
10:40	Break	ALL
	11:00 – 11:20 Graphite Test Article and Heat Pipes (Heat Transfer)	Katrina Sweetland
	11:20 – 11:40 Structural Materials - PM-HIP Code Case	Tate Patterson
	11:40 – 11:50 Wrap Up Technology Maturation.....	Holly Trelue
11:50	Working Lunch	
	Reactor Related Critical Experiments	Holly Trelue
	1:00 – 1:25 (NEUP Project 21-24226) Cost Reduction of Advanced Integration Heat Exchanger Technology for Micro-Reactors	Curtis Foster (Greg Nellis)
	1:25 – 1:50 (NEUP Project 22-27123) Development of Hydrogen Transport Models for High Temperature Metal Hydride Moderators.....	Jeff King
	2:15 – 2:40 (NEUP Project 22-26910) Demonstrating Autonomous Control, Remote Operation, and Human Factors for Microreactors.....	Stylianios Chatzidakis
	2:40 – 3:15 (Project 23-29784) Deciphering Irradiation Effects of YHx Through In-Situ Evaluation and Micromechanics for Microreactor Applications	Eric Lang
	3:15 – 3:40 (Project 23-29834) Transforming Microreactor Economics Through Hydride Moderator Enabled Neutron Economy.....	Jason Trelewicz
	3:40 Highlight Actions and Next Steps	John Jackson
	3:55 Optional Tour of LANL Heat Pipe Facility (TA35, Building 128)	Onsite attendees
	5:30 Adjourn	All