



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 FY26. Discussions will highlight:

- Accomplishments to date and progress on key efforts
- Issues/concerns related to meeting FY26 goals and M2 milestones
- Potential collaboration with other NE programs
- Initial thoughts on priorities for FY27 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 3^d, 2026

INL Engineering Research Office Bldg (EROB)

(note: all times are MST)

- 8:00 **Welcome and introduction to MRP Program Review** Rian Bahran/Diana Li
- 8:10 **Purpose, expectations, and program overview** John Jackson
- 8:30 **System Integration and Analysis Overview** Gale Hauck
- 8:50 – 9:20 Microreactor economics Botros Hanna
- 9:20 – 10:10 Microreactor Codes and Standards Chandu Bolisetti
- 10:10 **Break** All
- 10:20 – 10:50 Microreactor transportation Steve Maheras
- 10:50 – 11:10 (NEUP Project 23-29622) Development of the Technical Bases to Support Flexible Siting of Microreactors based on Right-Sized Emergency Planning Zones Saya Lee
- 11:10 – 11:30 (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
- 11:30 – 11:50 Wrap Up Gale Hauck
- 11:50 **Working Lunch “Nuclear powered microgrids and MAGNET power conversion demonstration”** All / Tim McJunkin/Ryan Davis
- 1:00 **Demonstration Capabilities Overview** Piyush Sabharwall
- 1:20 – 1:40 SPHERE testing and validation Jeremy Hartvigsen
- 1:40 – 1:55 SOCKEYE progress (NEAMS) Joshua Hansel
- 1:55 – 2:10 MAGNET Brayton Cycle PCU integration Katrina Sweetland
- 2:10 – 2:40 Triply Periodic heat exchangers Austen Fradeneck
- 2:40 – 3:00 (NEUP Project 24-31551) Sodium heat pipes; design and failure mode assessment for micro-reactor applications. **Nikona Rousseau (Mark Anderson)**
- 3:00 – 3:15 Demonstration Capabilities Wrap Up Piyush Sabharwall
- 3:15 **Optional Tours**
MAGNET-RTDS-MIB (Group A)
MACS/ViBRANT (Group B) Onsite attendees



Agenda

Wednesday, March 4th, 2026 *Engineering Research Office Bldg (EROB)* (note: all times are MST)

- 8:00 **Welcome to day 2** **John Jackson**
- 8:05 **Technology Maturation Overview** **Holly Trelue**
- 8:20 – 8:40 High Temperature Moderator Overview..... **Caitlin Kohnert**
- 8:40 – 9:10 High Temperature Moderator Containment **Latif Yacout/Sumit Bhattacharya**
- 9:10 – 9:40 Analysis of HFIR irradiated YH..... **Nedim Cinbiz**
- 9:40 – 10:05 Instrumentation and Sensors – Microreactor Automatic Control System (MACS) and Visual Benign Reactor as Analog to Nuclear Testing (ViBRANT)..... **Tony Crawford**
- 10:05 **Break** **All**
- 10:15 – 10:45 Instrumentation and Sensors – Acoustics..... **Paul Geimer**
- 10:45 – 11:15 Instrumentation and Sensors – Conductivity **Dan Sweeney**
- 11:15 – 11:40 Heat Transfer..... **Martin Ward**
- 11:40 – 11:50 Wrap Up Technology Maturation.....**Holly Trelue**
- 11:50 **Lunch “ACORN overview”** **All / Vivek Agarwal**
- 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**
- 1:50 – 2:15 (NEUP Project 22-26910) Demonstrating Autonomous Control, Remote Operation, and Human Factors for Microreactors..... **Stylianos Chatzidakis**
- 2:15 – 2:40 (Project 23-29784) Deciphering Irradiation Effects of YHx through In-situ Evaluation and Micromechanics for Microreactor Applications.....**Eric Lang**
- 2:40 – 3:05 (Project 23-29834) Transforming Microreactor Economics Through Hydride Moderator Enabled Neutron Economy.....**Jason Trelewicz**
- 3:05 **Highlight actions and next steps** **John Jackson**
- 3:15 **End Day 2**



Agenda – MARVEL Review

Thursday, March 5th, 2026

INL Engineering Research Office Bldg (EROB)

(note: all times are MST)

8:00	Welcome.....	John Jackson
8:10	MARVEL Mission and Overview.....	Abdalla Abou-Jaoude
8:30	MARVEL Fabrication	Reese Gannon
8:50	Reactivity Control System Assembly and Qualification	Tony Crawford
9:10	Heat Extraction System Design.....	Carl Bailey
9:30	Instrumentation and Controls	Andrew Heim
10:00	Break	All
10:30	Electricity Generation with Stirling Engines	Ben Baker
10:50	Process Heat Delivery System	Rami Saeed
11:10	TREAT Reactor Experiment Cell (TREX-C).....	Vincent Schwartz
11:30	MARVEL Dry Criticality Layout and Analysis	Travis Lange
11:50	MARVEL PDSA and SAR Preparation.....	Doug Gerstner
12:10	Working lunch National Reactor Innovation Center/SPARC	Adrian Collins/Nick Woolstenhulme

MARVEL Demonstrations

1:10	Assembly Sequence for Dry Criticality.....	Chad Ryan
1:30	Readiness and Transition to Operations.....	Travis King
1:50	Amazon Web Services – Powering a Data Center Module.....	Paolo Venneri
2:10	DCX – Powering an AI Computing Pod.....	George Slessman
2:30	Shepherd Power – Nuclear Heat for Oil & Gas Desalination	Nicholas Morriss
2:50	Radiation Detection Technologies – Testing Neutron Sensors	Taylor Ochs
3:10	General Electric Vernova – Remote Operations Testing.....	Faith Beck
3:30	Wrap up and adjourn.....	Abdalla Abou-Jaoude/John Jackson