
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 FY22. Discussions will highlight:

- Accomplishments to date and progress on key efforts
- Issues/concerns related to meeting FY22 goals and M2 milestones
- Potential collaboration with other NE programs
- Initial thoughts on priorities for FY23 and beyond
- Review participant questions

Program Vision

Through cross-cutting research and development and technology demonstration support, by 2025 the Microreactor Program will:

- Achieve technological breakthroughs for key features of microreactors
- Empower initial demonstration of the next advanced reactor in the US
- Enable successful demonstrations of multiple domestic commercial microreactors

Program Objectives

1. Meet critical R&D needs of existing developers that require national lab or university expertise or capabilities
2. Develop R&D infrastructure to support design, demonstration, regulatory, and safety-related tests and to collect data to validate M&S tools.
3. Develop advanced technologies and concepts for next-generation microreactor applications and systems
4. Enable future microreactor applications (e.g., district heat, hydrogen production, and defense applications).

Agenda

Thursday, March 3rd, 2022

(note: all times are EST)

Meeting Overview and Objectives

- 10:00 **Welcome and introduction to MRP Winter Meeting**..... Diana Li
- 10:10 **Purpose, expectations, and program overview** John Jackson
- 10:25 **System Integration and Analysis Overview.** Alex Huning
- 10:40 – 11:10 Global Market AnalysisDavid Shropshire
- 11:10 – 11:40 Regulatory support for Microreactors..... Jason Christensen
- 11:40 – 12:00 (NEUP Project 20-19042) Flexible Siting Criteria and Staff Minimization
 for Micro-Reactors Edward Garcia and Isabel Naranjo
- 12:00 – 12:20 (NEUP Project 20-19693) Evaluation of micro-reactor requirements and
 performance in an existing well-characterized micro-grid Caleb Brooks
- 12:20 – 12:35 Wrap UpAlex Huning
- 12:35 **Break** **ALL**
- 1:00 **Technology Maturation Overview****Holly Trelue**
- 1:15 – 2:00 High Temperature Moderator MaterialChase Taylor and Alex Long
- 2:00 – 2:30 Instrumentation and Sensors Chris Petrie
- 2:30 –3:15 37 Heat Pipe Test Article (Heat Transfer)..... Bob Reid and Holly Trelue
- 3:15 – 3:35 (NEUP Project 19-16980) Determining the Effects of Neutron Irradiation
 on the Structural Integrity of Additively Manufactured Heat Exchangers for Very Small
 Modular Reactor Applications..... Bart Prorok
- 3:35 – 3:55 (NEUP Project 19-17416) Experiments and computations to address the
 safety case of heat pipe failures in Special Purpose Reactors Victor Petrov
- 3:55 – 4:15 (NEUP Project 21-24226) Cost Reduction of Advanced Integration Heat
 Exchanger Technology for Micro-Reactors Gregory Nellis
- 4:15 – 4:30 Wrap Up Holly Trelue
- 4:30 **Day 1 Wrap up**..... **John Jackson**

Friday, March 4th, 2022

- 10:00 **Welcome to day 2** **John Jackson**
- 10:05 **Demonstration Capabilities Overview.** **Piyush Sabharwall**
- 10:20 – 10:50 SPHERE Jeremy Hartvigsen
 - 10:50 – 11:20 MAGNET TJ Morton
 - 11:40 – 12:00 (NEUP Project 20-19735) Experiments for Modeling and Validation of Liquid-Metal Heat Pipe Simulation Tools for Micro-Reactor Yassin Hassan
 - 12:00 – 12:20 (NEUP Project 21-24152) Direct heating of chemical catalysts for hydrogen and fertilizer production using Microreactors Hitesh Bindra
 - 12:20 – 12:40 Wrap Up Piyush Sabharwall
- 12:40 **Break** **ALL**
- 1:00 **Microreactor Application Overview** **Yasir Arafat**
- 1:10 – 1:25 MARVEL Interim Design Review MW Patterson
 - 1:25 – 1:45 MARVEL PCAT Blair Grover, Scott Reed
 - 1:45 – 2:00 MARVEL Structural Design Evolution Luke Andrew
 - 2:15 – 2:30 MARVEL Instrumentation & Control System Benjamin Baker
 - 2:30 – 2:45 MARVEL Reactivity Shutdown Rod Anthony Crawford
 - 2:45 – 3:05 (NEUP Project 19-16802) Evaluation of Semi-Autonomous Passive Control Systems for HTGR Type Special Purpose Reactors Brendan Kochunas
 - 3:05 – 3:25 (NEUP Project 19-17185) Demonstrating Reactor Autonomous Control Framework Using Graphite Exponential Pile Bren Phillips
 - 3:25 – 3:40 Wrap Up Yasir Arafat
- 3:40 **Highlight actions and next steps** **John Jackson**
- 4:00 **Adjourn** **ALL**