



U.S. DEPARTMENT OF
ENERGY

Nuclear Energy

Nuclear Energy Enabling Technologies (NEET) Advanced Sensors and Instrumentation (ASI)

Suibel Schuppner

Office of Nuclear Energy
U.S. Department of Energy

Bruce Hallbert

Idaho National Laboratory

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Nuclear Energy Enabling Technologies: Advanced Sensors and Instrumentation

■ Vision

Develop the scientific basis for sensors and supporting infrastructure technology to address critical technology gaps for monitoring and controlling advanced reactors and fuel cycle facilities

■ Goal

To provide crosscutting research that:

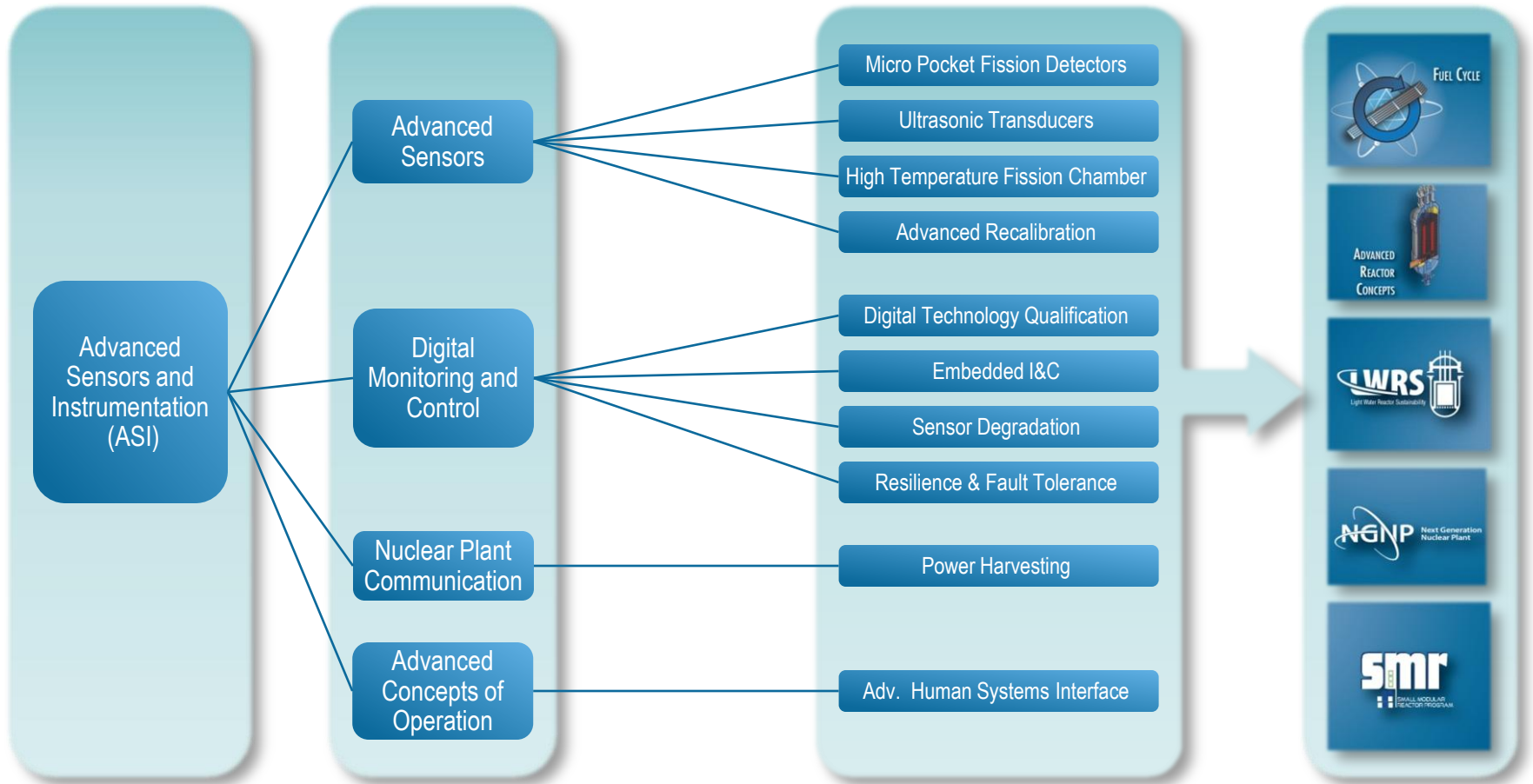
- Contributes to the success of the DOE-NE R&D programs
- Supports common I&C technology development needs
- Overcomes current I&C barriers to nuclear energy system deployments

A new model of I&C innovative RD&D to overcome nuclear power's impediments to new I&C technology usage



FY 2012 ASI Program Structure

NEET Program ...divided into...R&D Topics...target gaps that will be met through... R&D Projects ... that map to... NE R&D Programs Needs



10 FY 2012 Projects



Advanced Sensors and Instrumentation 2013 ANNUAL PROJECT REVIEW

- **Purpose: Review the 10 on-going ASI directed projects through PI presentations and discussion**
 - Inform the R&D Programs on ASI research
 - Evaluate first year of work

- **Outcome: Validation of research areas that support DOE-NE R&D programs**
 - Feedback from R&D Programs on benefits
 - Continuation of research through competitive solicitation

- **Materials: Summary of the meeting with presentations**
 - Posted on the NE website



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Advanced Sensors & Instrumentation 2013 Annual Project Review Meeting Agenda

Tuesday, May 21, 2013

9:00 am Opening Remarks (Shane Johnson/Suibel Schuppner)

9:15 am Overview (Suibel Schuppner/Bruce Hallbert)

Sensors:

9:30 am High Temperature Fission Chambers (Zane Bell) [NGNP, ARC, SMR, LWRS]

10:15 am Micro-Pocket Fission Detectors (Troy Unruh) [FCR&D, NGNP, ARC, LWRS]

11:00 am Irradiation Testing of Ultrasonic Transducers (Joshua Daw) [FCR&D, NGNP, ARC, LWRS]

11:45 am Recalibration Methodology for Transmitters and Instrumentation (Pradeep Ramuhalli)
[LWRS, NGNP, ARC, SMR, FCR&D]

12:30 pm Lunch Break

Digital Monitoring and Control:

1:30 pm Digital Technology Qualification (Richard Wood/Ken Thomas) [LWRS, SMR, NGNP, ARC]

2:15 pm Design for Fault Tolerance and Resilience (Rick Vilim/Ken Thomas) [LWRS, SMR, NGNP, ARC]

3:00 pm Sensor Degradation Control Systems (Rick Vilim) [LWRS, NGNP, ARC, SMR, FCR&D]

3:45 pm Embedded I&C for Extreme Environments (Roger Kisner) [SMR, NGNP, ARC, MPACT]

5:30pm Adjourn



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Advanced Sensors & Instrumentation **2013 Annual Project Review Meeting** Agenda

Wednesday, May 22, 2013

9:00 am Opening Remarks (Suibel Schuppner/ Bruce Hallbert)

Nuclear Plant Communication:

9:15 am Power Harvesting for Sensor Networks (Dwight Clayton)
[LWRS, SMR, UNFD, NGNP, ARC, MPACT]

Advanced Concepts of Operation:

10:00 am Advanced Human-System Interfaces (Jacques Hugo) [LWRS, SMR, NGNP, ARC, MPACT]

10:45am Feedback/Discussion (Bruce Hallbert)

11:45 am Concluding Remarks (Suibel Schuppner)

12:00pm Adjourn