Manufacturing USA

Participant members in Manufacturing USA Institutes

- **DMDII**: Digital Manufacturing & Design
  - Chicago, IL
- **REMADE INSTITUTE**: Sustainable Manufacturing
  - Rochester, NY
- **AIM photonics**: Integrated Photonics
  - Albany, NY
- **armi**: Regenerative Manufacturing
  - Manchester, NH
- **affoa**: Advanced Fibers and Textiles
  - Cambridge, MA
- **NEXTFLEX**: Flexible Hybrid Electronics
  - San Jose, CA
- **SMARTMANUFACTURING INSTITUTE**: Smart Sensors and Digital Process Control
  - Los Angeles, CA
- **RAPID**: Modular Chemical Process Intensification
  - New York, NY
- **NIIMBL**: Biopharmaceutical Manufacturing
  - Newark, DE
- **LIFT**: Lightweight Metals
  - Detroit, MI
- **America Makes**: Additive Manufacturing
  - Youngstown, OH
- **IACMI**: Advanced Composites
  - Knoxville, TN
- **aiim**: Advanced Robotics
  - Pittsburgh, PA
- **POWER AMERICA**: Wide Bandgap Semiconductors
  - Raleigh, NC
REMADE Institute Focus – Early stage applied R&D to reduce embodied energy & emissions

- **Energy**
  - Emissions
  - Yr 1
  - Yr 5
  - Reduce Primary Material Use

- **“Better than Cost and Energy Parity”**
  - Primary Feedstock
  - Secondary Feedstock

- **Widespread Application of New Technologies**
5 TECHNOLOGY NODES

- SYSTEM ANALYSIS INTERGRATION
- DESIGN FOR REUSE & DISASSEMBLY
- MANUFACTURING PROCESSES
- REMANUFACTURING/EOL REUSE
- RECYCLE & RECOVERY

5-YEAR INSTITUTE GOALS

- Reduce primary feedstock consumption in manufacturing by **30%**
- Achieve **25%** reduction in embodied energy of targeted materials
- Achieve cost parity for secondary materials
- Improve energy efficiency of secondary material processing by **30%**
- Increase size of remanufacturing industry by **100%**

4 MATERIAL CLASSES

- Metals
- Polymers
- E-waste
- Fiber
Testbeds to Aid Technology Transition

12 geographically distributed testbeds* provide mechanism to scale up early stage applied R&D

* Early stage R&D that enables validation in a relevant environment and is applicable to the four targeted material classes
Development of Widespread Technologies

Directed towards innovations that will

- Dramatically reduce the energy required to manufacture key materials, and
- Improve overall manufacturing energy efficiency through increased material reuse, recycling and remanufacturing.

1 Example of Ni MFA in 2010

1 Information Collection & Standardization Tools

2 Design Tools for Reman, Reuse, Disassembly

3 Rapid Sorting of Material Streams

4 Separation of mixed materials

5 Removal of Trace Contaminants

6 Reprocessing of Recovered Materials
REMADE Institute Membership

• **3 Tiers of Industry Memberships** for both Large and SMEs
  • Principal members (Tiers 1 & 2) commit to annual cash and cost share contributions in return for access to IP and federal funding
  • Tier 3 is an observer level. Nominal annual fee provides access to annual meetings, technology roadmaps, networking, workforce training

• **3 Tiers of Academic Memberships** require annual contributions of cost share (i.e., expert/researcher time, materials, test-bed usage) toward REMADE projects and technical priorities. Principal members have access to Institute IP and federal funding

• **No cost membership for relevant industry associations, not-for-profits and governments**. Benefits include access to annual meetings, technology roadmaps, networking, workforce training

• **No cost membership for 7 national labs** which will contribute expert/researcher time, materials, test-beds. Benefits include access to annual meetings, technology roadmaps, networking, workforce training
Questions and Answers

Additional questions can be emailed to: info@smialliance.org