

## **Breakout Session 2: Reduction of Waste in Manufacturing Processes**

### **Focus question #1: VISION AND GOALS**

- Reduce Use of Water :
  - Reduce water usage by 20% by 2020.
  - Reduce cost of industrial water treatment by 50%
- Reduce Material Use:
  - Reduce coolant and metal working fluids by 50%.
  - For 25% of the Small Manufactures, reduce material use by 10%
- Increase Reuse:
  - Increase scrap metal reuse by factor of 2 by 2020
  - Increase end-of-life design by 100% 2030

## **Breakout Session 2: Challenges And Barriers**

### **Technology**

- Availability of sensors/ smart process equipment for process control
- Process /technology gap to re-engineer / cost efficiently recycle of spent finished products

### **Knowledge Gap**

- Lack of open knowledge of industry specific waste footprint to facilitate innovation and entrepreneurship
- Lack of publically available benchmarking data

### **Testbed / demo facility**

- Need for testbeds / modular systems that enable integration of emerging technologies at intermediate scale to demonstrate performance, costs, & lower risk

### **Resource / funding**

- Lack of incentives, commitment, resources

### **Stakeholder Buy in**

- Economics – what is the business model, metrics, etc...
- Education of key stakeholders – manufacturer leadership, consumers

## Breakout Session 2: R&D Focus Area

### Technology: Smart Process Control

- Real-time measurement of complex processes
- Ability to characterize complex, multi-variable process enabling computational modelling and process prediction

### Technology: Multi-material recycling

- Design rules which consider total life cycle to make items more recyclable
- Enhanced “scrap” collection and separation techniques which limit recycled feedstock contamination

### Knowledge Gap: Metrics & Measures for Open Waste Inventory

- Open data base and common format of information that is industry aggregated
- Waste stream analysis for multiple industry, and identification of sustainability opportunities

### Testbed / Demo facility

- Reduce risk of innovation technologies
- Better understanding of technology advantages and limitations

### Resource / Funding / Stakeholder Buy in

- Define industry focused business models
- Stakeholder education
- Clear understanding of different sustainability processes to understand benefit & ROI