

Evaluation of Logistics Systems for the Collection, Preprocessing and Production of Secondary Feedstocks from E-waste – Idaho National Lab, SunnKing

Node Alignment: Recycling & Recovery

Project Type: Full

- Electronics recycling in the U.S. has grown over the last two decades to include hundreds of organizations and tens of thousands of workers, but the industry continues to face challenges. Most e-waste is failing to enter the recycling stream. A survey of recyclers identified that industrial e-waste comprises nearly 75% of total material entering the recycling stream, while residential users are the major electronics consumers.
- The inability to capture the most plentiful segment of the potential recycling stream suggests inefficiency in the current logistics system. Two reasons for difficulty in accessing residential e-wastes are ineffective placement of collection facilities and low-economic incentives. This results in low availability of raw feedstocks, therefore causing higher costs due to competition between recyclers.
- Further inefficiency occurs from stakeholders' lack of understanding of the entire supply system. In general, many of the supply chain stakeholders focus on the reduction of costs or increased productivity of their individual systems.
- REMADE Technical Performance Metrics (TPMs) Being Addressed:
 - Reducing energy demand of secondary feedstock processing by 30% in 5 years, and 50% in 10 years;
 - Better than cost and energy parity for key secondary materials.
- Technology/Knowledge Gaps Being Addressed:
 - The recycling and recovery industry lacks a systems-level understanding of how to efficiently link disparate elements of the eco-system that begins with material pre-processing and ends with eventual sale of secondary feedstocks.