

Creating a Circular Economy for Hard Disk Drives – A Shared Vision

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Value Recovery from Used Electronics

Name	Company
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Alex King (retired)	Critical Materials Institute
Mark Glick	Echo Environmental
Wayne Rifer	GEC Emeritus
Gary Spencer	GEODIS
Ikenna Ike, Ines Sousa	Google
Ruby Nguyen	Idaho National Laboratory
Carleen Matuska	Microsoft
Preston Bryant	Momentum Technology
Tim McIntyre, Jonathan Harter, Tim Burress, Jason Pries, Ramesh Bhave	Oak Ridge National Laboratory
Carol Handwerker, Kali Frost, Nehika Mathur	Purdue University
Joanne Larson, Laura Yurik, Monty Forehand, Wade Fott	Seagate
Ian Lovell, Kong-Meng Lee, Xavier Hubert, Chris Tejeda	Teleplan
Hongyue Jin	University of Arizona
Alex Bevan, Peter Afiuny, Catalina Tudor, Miha Zakotnik	Urban Mining Company

Leverage Points

Incentivize Coordinated Action for
Value Recovery from Hard Disk Drives

The Tools of Leverage

The tools of leverage include:

- Demonstration of value recovery pathways
- Specifications
- Partnerships

Demonstration of value recovery pathways

- Decision trees that lay out recovery options
- Design guides to facilitate product recoverability, reuse, remanfg.
- Best practice guides for processing and case studies

Specifications

- Industry norms and voluntary industry agreements (e.g. EICC)
- Purchasing specifications by institutional buyers
- Product standards (e.g. EPEAT)
- Recovery system standards (e.g. R2, eStewards)

The Tools of Leverage

Partnerships – for stakeholder teams to develop a functioning circular economy for HDDs

- **Having streams of EoL drives available for recovery**
- **Creating a recovery supply chain**
- **Converting the existing enthusiasm for value recovery into a will to action with industry partners – requires up-front capital investment and process development to make this happen**
- **Evolving legislation to permit circularity - transboundary restrictions on “e-waste” don’t make sense anymore**
- **Developing new recovery models: local/regional, economic, incentives, business models**