

Summary of Waste Electronics Consultation Process

Conducted by the Minnesota Office of Environmental Assistance
2004

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Summary of Waste Electronics Consultation Process

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Introduction

Following the conclusion of the 2004 legislative session and consideration of House File 882 and Senate File 838, OEA was charged by the Governor's Office and legislative committees to convene a consultation process to inform policymaking on waste electronics during the 2005 legislative session.

The OEA held four meetings with manufacturers and retailers from July through October 2004. In addition, the OEA sponsored two public forums for interested parties such as representatives from local government, waste haulers, environmental advocacy organizations, trade associations, and others.

The meetings and forums were designed to solicit input on a variety of topics related to the management of electronic waste, including financing mechanisms, collection strategies, environmentally sound management standards, and the role of various parties in the collection and recycling infrastructure. Products within the scope of the discussions included televisions, computer monitors, computer processing units (CPUs), laptops, small computer peripherals (keyboards, mice, etc.), and printers as agreed to in the National Electronic Product Stewardship Initiative (NEPSI), a multi-stakeholder dialogue convened from 2001 to 2005 to develop a national approach to managing waste electronics.

Given the lack of agreement among the manufacturers of electronic products on the most efficient and equitable funding mechanism, the majority of the consultation process was devoted to an analysis and discussion of potential financing options to support the collection and recycling of old electronic products.

Description of Policy Options

Three policy options for financing a statewide waste electronics recycling program received significant attention during the meetings.

Option 1: Advance Recycling Fee

Financing: An advance recycling fee (ARF) option requires consumers and business to pay a fee at point of sale on televisions, computer monitors, and laptops. The fee applies to both household and business sales. The accumulated fees will cover all the costs necessary to support the collection and recycling of discarded electronic products.

Manufacturers are responsible for informing retailers which products carry the fee. Retailers will receive five percent of the fee to cover their administrative costs.

Orphaned/abandoned waste: The ARF funds the collection and recycling of the following discarded products: computer monitors, televisions, laptops, CPUs, small peripherals (e.g. keyboards, mice), and printers, regardless of when the product was manufactured or if the manufacturer is still in business.

Program management: The ARF will be transferred to the Electronics Stewardship Association (ESA), a non-profit organization that will be responsible for implementing the program.

The ESA, modeled on the Insurance Guaranty Association (Minn. Stat. § 60C), is to be governed by a board of directors composed of representatives from electronic product manufacturers, local government, retailers and non-governmental organizations. The responsibilities of the ESA will include management of the

collection and recycling program, setting the ARF on an annual basis to ensure that sufficient funds are available to operate the program, and conducting public information and outreach on collection opportunities for Minnesota residents.

Collection: The ESA will reimburse entities such as local government, haulers, retailers, and others engaged in the collection of discarded products. The ESA will offer competitive contracting opportunities for recyclers to process material collected in Minnesota.

Environmentally sound management: The contracts will stipulate environmentally sound management standards to ensure that collected products are handled safely.

State fiscal impact: The advance recycling fee will generate an estimated \$15 million per year.

Example: The Electronic Waste Recycling Act enacted in California in 2003.

Option 2: Individual Responsibility

Financing: In contrast to the advance recycling fee funding mechanism, the cost-internalization financing model does not require a visible fee applied to products at point of sale. To compel participation in the program, individual manufacturers have the responsibility to register with the state in order to sell products in Minnesota.

Program management: The individual responsibility mechanism does not create an implementation organization although the manufacturers may choose to do so voluntarily. To fulfill their obligations, individual manufacturers would have the responsibility to transport and recycle material collected at consolidation facilities located across the state. Manufacturers could fulfill this responsibility on an individual basis or by working collectively and contracting for services.

Orphaned/abandoned waste: The amount of product that each company would be responsible for would be determined annually and based upon the percentage of a company's product in the total amount collected for recycling. This same percentage would then also be applied to the collected products of manufacturers that are not fulfilling their responsibility, are no longer in business, or whose manufacturer cannot be identified.

Collection: The individual responsibility approach would not specify responsibility for collection but it is expected that local governments, retailers, haulers, and others will voluntarily provide collection services and ensure that material is transported to consolidation facilities. The consolidation facilities would be designated by the OEA through an RFP process to ensure geographic diversity and performance capability. It is expected that a variety of entities including local government, haulers, recyclers and others would apply to serve as consolidation facilities.

The collection agents may charge a fee to cover collection costs but would deliver the collected material to the point of consolidation for no charge.

State government has responsibility to ensure participation and compliance with this system and would report to the Legislature on progress toward meeting program objectives.

State fiscal impact: No fees are enacted or appropriations required. OEA and PCA estimated that 0.5 full-time equivalent (FTE) staff person would be necessary to accomplish the responsibilities included in language considered by the 2004 Legislature.

Examples: Electronics Recycling program adopted in Maine in 2004; HF 882/SF 838 considered during the 2004 Legislature.

Option 3: Hybrid Financing Model

Financing: The hybrid financing model combines the advance recycling fee (ARF) financing approach for televisions with the individual responsibility model for information technology (IT) equipment. The recycling of computer equipment would be addressed through individual manufacturer responsibility with no fee at point of sale as described above.

Orphaned/abandoned waste: Orphaned/abandoned products would be handled by each product sector and the respective financing method.

Program management: An ARF would be placed on televisions at point of sale and remitted by the retailer to a third-party organization created to manage the program. The third-party organization would have the responsibility for ensuring the transportation and recycling of collected product from consolidation centers.

Manufacturers of IT products would fulfill the program requirements either individually or by participating in the third-party organization established to manage discarded televisions. The IT manufacturers would take back collected products from the consolidation points themselves or contract for recycling services.

State fiscal impact: The OEA has not prepared a fiscal note regarding FTE necessary to carry out the responsibilities for the state.

Example: No hybrid financing mechanisms have been adopted.

Evaluation of Policy Options and Desired Attributes

The OEA identified six attributes necessary for an effective recycling program for Minnesota residents. The OEA analyzed the various financing models against their ability to fulfill the following attributes:

- **Convenient**

Advance Recycling Fee: Due to the availability of a reimbursement payment for collection services, the advance recycling fee provides an incentive for multiple entities to offer collection services.

Individual Responsibility: The individual responsibility approach does not assign specific collection responsibilities or provide a defined source of funding for collection, factors that may have an impact on the number of available collection opportunities. Collection agents will be permitted to charge a small end of life fee to cover the costs of collection and transportation to consolidation facilities.

Hybrid System: As indicated above, the hybrid system would place an ARF on televisions and require individual manufacturer responsibility for IT equipment. However, in order to prevent the cross-subsidization of product categories, the ARF funds would be used for the recycling of products from the point of consolidation only. Due to the presence of an ARF on televisions at point of sale, this may restrict the viability on the use of end of life fees for collection services thus impacting convenience.

- **Accountability**

Advance Recycling Fee: The advance recycling fee model offers several elements to ensure participation in the program and result in accountability. The advance recycling fee at point of sale ensures that manufacturers that sell products through retailers located in Minnesota will carry the fee. Retailers and manufacturers who sell directly to consumers will be required to notify the Electronic Stewardship Association of their intent to sell products in Minnesota. Ensuring the remittance of the ARF from online sellers remains a concern, particularly for IT equipment, but the OEA is closely monitoring the implementation and compliance of the retail fee in California to accurately assess what enforcement tools will be necessary to ensure adequate program funding.

Individual Responsibility: To ensure participation in the program, the individual responsibility model requires manufacturers to register with the state in order to sell products in Minnesota. Individual manufacturers must report annually regarding the amount of waste electronics they managed for recycling. Compelling registration by manufacturers, particularly by those located overseas, may be a challenge but given the individual responsibility program in place in Maine, a precedent has been established.

Hybrid System: The hybrid institutes the accountability mechanisms inherent in the ARF and individual responsibility options for their respective product categories.

- **Environmentally sound management (ESM)**

Advance Recycling Fee: This policy option will promote environmentally sound management of collected waste electronics and ensure that such waste is handled safely and not exported to countries with inadequate environmental standards. This will be executed through contractual obligations between the third-party organization and its vendors.

Individual Responsibility: Ensuring environmentally sound management of products in the cost internalization financing approach would require specific language in statute and some degree of oversight by the MPCA.

Hybrid System: ESM is to be accomplished through contracting requirements for the third-party organization designated for the management of waste televisions. For those IT manufacturers who are not participating in the third-party organization, specific management requirements will be required in statute.

- **Supports existing infrastructure**

Advance Recycling Fee: Due to the availability of a defined source of financing, the ARF policy option may support existing collection infrastructure, particularly operated by local government, more effectively than other policy options. The ARF option may also more effectively utilize existing recyclers due to the presence of collective contracting through the third-party organization.

Individual Responsibility: Since the individual responsibility approach does not require manufacturers to offer collection or raise revenue through a fee, it must rely on voluntary collection efforts by local government, retailers, haulers, and others.

Hybrid System: The hybrid financing approach supports the existing infrastructure to the same degree as the advance recycling fee due to the presence of a fee for televisions and manufacturer responsibility for the collection, transportation, and recycling of IT equipment.

- **Incentives for Design for the Environment**

Advance Recycling Fee: The OEA recognizes the importance of supporting design for environment efforts to promote recyclability of products, reduce toxic constituents, and recognize resource conservation. The proposed recommendation may not provide the same level of incentive for design for environment activities as a strict individual responsibility financing mechanism but the ability of one state to influence design changes using financial incentives may be limited. Recognizing the lack of drivers for design change inherent in the ARF approach, California requires compliance with the restrictions on hazardous substances (lead, mercury, hexavalent chromium and cadmium) adopted by the European Union. It is expected that only a minority of products sold in the US market will now be out of compliance with those restrictions.

Individual Responsibility: Since individual manufacturers are responsible for funding recycling activities for their share of collected products, this approach to financing would provide a more direct

economic signal to manufacturers to further consider design for environment practices. This is particularly true for manufacturers that operate recycling programs for their own and similar products. Given the shorter lifespan and turnover for IT equipment, recognizing and incorporating design-for-the-environment practices is more relevant than for televisions, which have an average lifespan of 15-17 years.

Hybrid System: IT manufacturers have the same incentives for design for the environment as addressed in the individual responsibility approach while the incentive for television manufacturers is negligible.

- **Private management of the program**

Advance Recycling Fee: With the creation of the Electronics Stewardship Association, a multi-stakeholder board will provide program management and oversight of the program. Not only will the ESA ensure that the necessary parties participate in operating the system, but also ensure that resources from state government are kept at a minimum.

Individual Responsibility: Since manufacturers are individually responsible for managing discarded products and no fee is collected, few resources from government are required to implement and operate the program. This approach encourages the development of partnerships directly between manufacturers and collection agents such as retailers and haulers.

Hybrid System: Private management of the program is expected under a hybrid model with television manufacturers participating in a statutorily created third-party organization and IT manufacturers choosing to fulfill their responsibility individually or through the third-party organization.

OEA Recommendation

After an evaluation of the three policy options and the desired attributes, the OEA recommends that the Legislature enact an advance recycling fee (ARF) to finance the collection and recycling of waste electronics. The OEA recommends an ARF based on its ability to provide reliable and defined funding for collection services as well as for orphaned and abandoned products. The OEA also believes that the ARF offers the greatest potential for broad participation from manufacturers and retailers.

Unlike the Electronic Waste Recycling Act enacted in California in 2003, the OEA recommends that implementation and management of the program be carried out by a third-party organization rather than by state government. The third-party organization would be created by statute and managed by a board of directors composed of representatives of manufacturers, retailers, local government, and environmental advocates. This approach engages all parties in program management, increasing the program's overall effectiveness while decreasing the need for state resources.

The management structure of the third-party organization and its ability to execute contracts with recyclers to process collected material offer strong opportunities to achieve cost efficiencies. The third-party organization would require environmentally sound management standards for the collected materials, including restrictions on the export of material to countries with weaker environmental standards.

The OEA recognizes that several parties that participated in the consultation process voiced concerns with the ARF, and will continue to work with those parties to address their concerns.

Description of 2004 Consultation Process

Following the conclusion of the 2004 legislative session, OEA convened a consultation process to examine policy options for legislative action on electronic waste. The process provided manufacturers, retailers, local government, environmental advocacy organizations, trade associations, recyclers, and others an opportunity to offer input and perspectives on various policy options for a state program. Please see Appendix B for a list of consultation process participants.

Manufacturers/Retailers Meetings

First meeting (July 14)

- Introduce process and outline objectives.
- Provide policy parameters from Governor's Office.
- Review legislative proposal from last session and outline approaches in California, Maine, and Alberta.
- Review history of issue in Minnesota (projects and policy).
- Facilitate discussion on various perspectives on financing models.

Objectives: Secure participant understanding of consultation objectives and begin discussion of potential financing options.

Second meeting (August 26)

- Continue discussion of financing models from July 14 meeting.
- Solicit feedback on specific financing models presented to participants.

Objective: Complete review of potential financing options.

Third meeting (September 21)

- Facilitate discussion on draft financing models.
- Introduce discussion of approach to providing collection services.
- Solicit feedback on approaches to development of performance measures.

Objective: Provide input to OEA on draft financing models.

Fourth meeting (October 18)

- Review draft financing options from OEA.
- Provide overview of next steps.

Objective: Secure participant understanding of draft financing options for Legislature.

Multi-stakeholder Forums

First meeting (August 5)

- Present overview of process and objectives.
- Solicit input on financing and collection strategies.
- Facilitate discussion on appropriate role for government.

Objectives: Secure understanding of process to develop recommendations.

Second meeting (October 7)

- Present methodology for determining performance metrics and solicit input on development of environmentally sound management standards.
- Review OEA draft recommendations.

Objectives: Secure understanding of draft recommendations.

Data Analysis

The following data may be useful to formulating a statewide policy on managing waste electronics.

Estimated Number of Electronics Sold in Minnesota in 2003 (units)

- Television sales: 608,000
- Desktop PC sales: 703,000
- Laptop sales: 266,000
- Printer sales: 570,000

Source: *Appliance Manufacturer Magazine*, EIA

U.S. Market Share by Brand

PCs

- Dell: 27.4 percent
- HP: 19.4 percent
- IBM: 4.6 percent
- Gateway: 3.3 percent
- Apple: 3 percent

Source: IDC U.S. data (3rd quarter 2004)

Televisions

1. Sony
 2. Panasonic
 3. Toshiba
 4. RCA
 5. Mitsubishi
- Top five brands: 54.2 percent
6. Hitachi
 7. Philips
 8. Samsung
 9. Sharp
 10. JVC
- Top ten brands: 76.4 percent

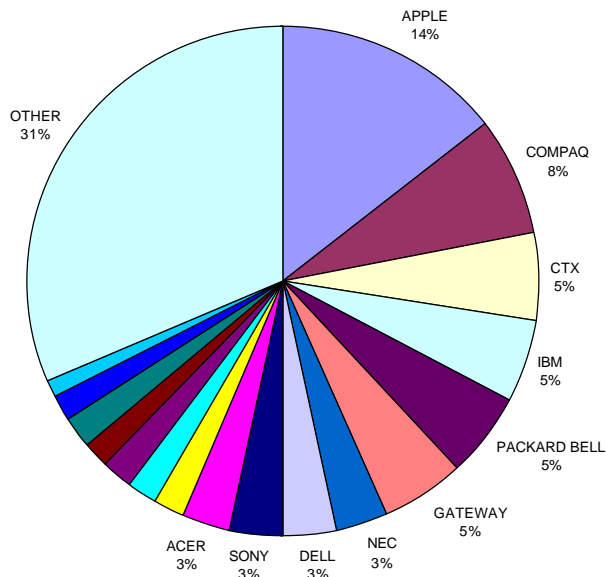
Source: NPD Consulting (2003)

Collected Material by Brand

The OEA conducted an analysis of brands and product vintage for electronics collected during an event in September 2004. The following data illustrates the brands that are being collected for recycling as well as how the return share for a particular manufacturer may help shape their preferred financing option.

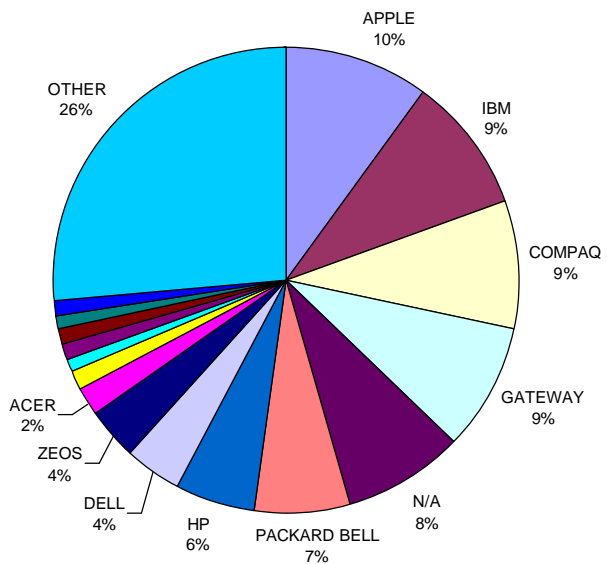
Monitors

Brand	Collected	Share	Weight (pounds)
APPLE	67	14.4%	2,006
COMPAQ	35	7.5%	1,100
CTX	25	5.4%	722
IBM	25	5.4%	649
PACKARD BELL	25	5.4%	670
GATEWAY	24	5.2%	844
NEC	16	3.4%	570
DELL	15	3.2%	596
SONY	15	3.2%	500
ACER	14	3.0%	390
N/A	10	2.1%	324
SAMSUNG	9	1.9%	252
VIEWSONIC	9	1.9%	332
GOLD STAR	8	1.7%	208
HP	8	1.7%	260
ZENITH	8	1.7%	214
MICRON	5	1.1%	188
OTHER	146	31.3%	4,347
TOTAL	466		14,254



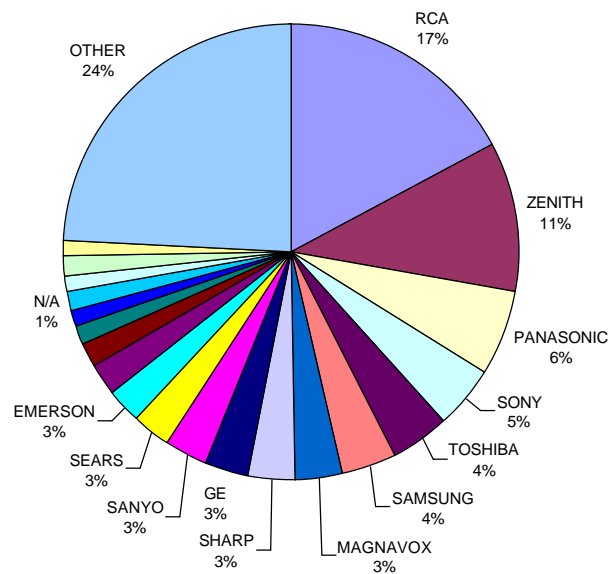
Desktop PCs

Brand	Collected	Share	Weight (pounds)
APPLE	30	10.0%	612
IBM	28	9.4%	668
COMPAQ	27	9.0%	696
GATEWAY	26	8.7%	678
N/A	25	8.4%	686
PACKARD BELL	20	6.7%	434
HP	17	5.7%	543
DELL	11	3.7%	310
ZEOS	11	3.7%	378
ACER	6	2.0%	130
EPSON	4	1.3%	104
NEC	3	1.0%	92
NORTHGATE	3	1.0%	106
PORTICO	3	1.0%	50
TANDY	3	1.0%	74
TIGER	3	1.0%	66
OTHER	79	26.4%	2,100
TOTAL	299		7,727



Televisions

Brand	Collected	Share	Weight (pounds)
RCA	41	17.3%	2,583
ZENITH	25	10.5%	1,552
PANASONIC	14	5.9%	386
SONY	11	4.6%	640
TOSHIBA	10	4.2%	408
SAMSUNG	9	3.8%	338
MAGNAVOX	8	3.4%	504
SHARP	8	3.4%	294
GE	7	3.0%	216
SANYO	7	3.0%	274
SEARS	7	3.0%	274
EMERSON	6	2.5%	152
MITSUBISHI	5	2.1%	326
JVC	4	1.7%	136
FUNAI	3	1.3%	82
MONTGOMERY WARD	3	1.3%	64
N/A	3	1.3%	104
SYLVANIA	3	1.3%	222
SYMPHONIC	3	1.3%	110
WARD	3	1.3%	146
OTHER	57	24.1%	2,851
TOTAL	237		11,662



Residential Material Expected to be Collected and Recycled Statewide

The OEA estimates that if a statewide program for electronic waste is enacted, the following amount of electronic waste from residences will be collected for recycling for 2006-2008.

- 2006: 13.1 million pounds
- 2007: 15 million pounds
- 2008: 18 million pounds

The estimate is based on the per capita amount collected in the Hennepin County program for 2003 and applied statewide. The projection assumes a one percent annual increase in Minnesota's population and a 16 percent annual increase in the amount of material collected. The projected collection volumes from residences are expected regardless of the financing mechanism selected.

Employment Projections

Recognizing the economic development potential of increased waste electronics recycling, the OEA surveyed recyclers to estimate full-time equivalent (FTE). The OEA estimates that one FTE is required to process approximately 1 million pounds per year. This does not include FTE required for collection and transportation services. Given this estimate, the OEA projects the following additional FTE will be necessary to process the expected residential collection volumes from 2006-2008.

- 2006: 13 additional employees
- 2007: 16 additional employees
- 2008: 19 additional employees

Attachment A: Minnesota Electronics Timeline

1995

The Minnesota Office of Environmental Assistance issues **Management of Waste Electronic Appliances**, a report to the state Legislature that developed estimates of the number of waste electronics entering the waste stream and gathered information on the toxic materials they contain. The OEA outlined management options and gave recommendations for improving the handling of electronic products in waste.

1999

The Minnesota Office of Environmental Assistance (OEA) issues a product stewardship policy proposal that names electronics containing CRTs as one of three priority products. The proposal establishes a policy framework that states the principles and goals of product stewardship. The proposal calls on manufacturers to assume some costs and responsibility for getting old products collected and recycled, and outlines a process for bringing industry and government together to set recycling goals.

1999–2000

- The OEA, Sony Electronics, Panasonic-Matsushita, Waste Management's Asset Recovery Group, and the American Plastics Council jointly fund and conduct a statewide electronics collection and recycling project. The three-month project involved 64 collection sites and brought in 575 tons of old electronic products—twice the amount anticipated by the project partners. The project evaluated product composition and yielded valuable findings about the costs and benefits of various collection methods and markets for the materials.
- The OEA and the Solid Waste Management Coordinating Board of the Metropolitan Counties convene a task force on electronic products containing CRTs to examine management and financing options, and to assess various markets for materials from recovered electronic products. Task force members include electronics manufacturers, retailers, recyclers, and local and state government representatives.

2000

Sony Electronics announces that the company will recycle for free any Sony products collected from Minnesota residents. (Note, as of 2004, Recycle America Alliance had established 17 drop-off points in southern Minnesota and the Twin Cities area.)

2001

The National Electronic Product Stewardship Initiative (NEPSI) begins. NEPSI, a multistakeholder dialogue with manufacturers, state and local government, U.S. EPA, retailers, recyclers, and national environmental organizations, is convened to reach agreement on how to establish and fund a national program for the recovery, reuse, and recycling of used electronics.

2002

Representative Ozment introduces legislation establishing a statewide program for waste electronics. Bill is heard in committee, but no vote is taken.

2003

Following consideration of a bill to enact a statewide program for waste electronics, the Legislature enacted a ban on the disposal of products containing cathode ray tubes starting July 1, 2005.

2004

- NEPSI holds its final meeting without reaching a financing mechanism acceptable to all dialogue participants.
- The Legislature considers HF 882 (Rep. Cox) and SF 838 (Senator Higgins).

Attachment B: 2004 Electronic Waste Consultation Process Participants

Manufacturers

- Doug Smith Sony
- Tim Mann IBM
- Valerie Pace IBM
- David Thompson Panasonic
- Butch Teglas Philips
- Michael Foulkes Apple
- Mike Longaker HP
- Renee St. Denis HP
- Mark Nelson HP
- Sonnie Elliot Lexmark
- Frank Marella Sharp

Retailers

- Laura Bishop Best Buy
- Sue Mills OfficeMax
- Kevin Johnson Target

State Government

- Senator Linda Higgins MN Senate
- Mike Bull Governor's Office
- Bob Eleff MN House Research
- Marilyn Brick MN Legislature
- Dave Weirens Association of MN Counties
- Ellen Telander MN Waste Wise
- Mike Robertson MN Chamber
- Tony Kwilas MN Chamber
- Jim Chiles MPCA
- Carol Nankivel MPCA
- Melissa Wenzel MPCA
- Rep. Ray Cox MN House
- Rep. Dennis Ozment MN House
- Jake Hamlin MN House
- Garth Hickle OEA
- Art Dunn OEA Director
- Caleb Werth OEA
- Anne Gelbmann OEA
- John Gilkeson OEA

Local Government

- Laura Villa Dakota County
- Dave Magnuson Dakota County
- Amy Roering Hennepin County
- Dave Kronlokken Blue Earth County
- George Minerich Stearns County
- Gary Noren Chisago County
- Tim Lundell WLSSD
- Lorilee Blais WLSSD

- Joe Wozniak Ramsey County
- Zack Hansen Ramsey County
- Mike Hanan Otter Tail County
- Amy Kowalzek Morrison County
- Phil Eckhert Hennepin County
- Mike Brandt Hennepin County
- Steve Steuber Scott County
- Paul Henrikson Lyon County
- Jim Kordiak SWMCB
- Nicola Blake-Bradley Sherburne County
- Mike Cook Rice County
- Paul Pieper Rice County
- Rick Frank Houston County
- Curt Gadacz Lake County
- Doug Morris Crow Wing County
- Anne Morse Winona County
- Gene Mossing Olmsted County
- Roger Schroeder Lyon County
- Kent Severson Clay County
- Ted Troolin St. Louis County
- Susan Young City of Minneapolis

Environmental Organizations

- Nina Axelson MCEA
- John Curry MCEA
- Cynthia Moore WI DNR
- Tim Rudnicki Computer Take Back Campaign
- Robin Schneider Computer Take Back Campaign
- Paul Gardner RAM
- Barry Tilley SWMCB
- Ted Smith Silicon Valley Toxics Coalition
- Cheryl Lofrano-Zaske RBRC
- Susan Hubbard Eureka Recycling

Trade Associations

- Todd Iverson Ewald & Associates
- Marnie Moore Cook Hill Girard
- Judy Cook Cook-Hill-Girard
- Kathie Doty Richardson Richter
- Bob Hentges Faegre & Benson
- Buzz Anderson MN Retailers Association
- Lloyd Grooms Winthrop & Weinstein
- Matthew Lemke Winthrop & Weinstein
- Peter Lindstrom MN High Tech Association
- Peg Larson RCS Consulting
- Kate Theisen Richardson Richter
- Doug Carnival McGrants Shea
- Sarah Psick Legislative Consultant, MN Hi-Tech Association

Recyclers

- David Paulson MN Computers for Schools
- Tamara Gillard MN Computers for Schools
- Jim Vosika J.R.'s Appliance
- Katy Boone J.R.'s Appliance
- Ryan Laber Asset Recovery Corp.
- Julie Ketchum Waste Management/RAA

Other

- Robert Dunn Moderator
- Joanie Burns Department of Environmental Protection – IRE