

100% E-WASTE RECYCLING

A BILL TO IMPROVE ELECTRONIC WASTE COLLECTION

METALS FOR ENERGY TRANSITION

Minnesota's annual electronic waste stream contains \$3 billion dollars worth of precious metals.

By recycling our e-waste, we can create 1700 direct jobs, and get back on track for supplying metals for the energy transition.

HF3566 / SF3940: a Path to 100%

Expand the definition

By creating a comprehensive definition of electronic waste to enable 100% collection

Provide free collection for all

Removing the financial barrier for all Minnesotans. Funded by manufacturers of some products, and a retailer fee for the remainder of electronic devices

Incentives for waste diversion.

Directly reimburse collection sites for the electronics recycled

Inaction is costing us. Batteries from electronic devices are increasingly causing local landfill fires. In 2023 Rice County Landfill had a battery fire that polluted the air, water and crops for miles.

It is time to replace our program from 2007 that relies heavily on county solid waste money and sends most of its funds out of Minnesota.

! WORKERS AT RISK !

Weekly U.S. hauling truck fires are caused by batteries from electronic devices,



70%
Of landfill lead pollution is from discarded electronics.



March 6, 2024

House Environment and Natural Resources Finance and Policy
10 State Office Building, 100 Rev. Dr. Martin Luther King Jr. Blvd.
Saint Paul, MN 55155

Re: Testimony in Support of HF3566

Dear Representative Hansen and members of the Committee,

My name is Kathleen Doran-Norton. I am a member and volunteer with the League of Women Voters Minnesota.

I live in Bridgewater Township, Rice County where last May a landfill fire sparked by a battery grew the size of a football field, and 30 feet deep, so this issue is personal for me.

When the current bi-partisan electronic waste recycling bill passed in 2007, it recycled 70% of electronics. But today, with changes in technology, we only recycle 24% of electronics. Current laws and programs must be updated to deal with an increase of electronics in our waste stream.

When it comes to environmental protection and pollution control, the League believes in a problem solving approach. We believe that this bill offers a solution to the damaging effects of electronic waste. The fees collected would encourage and allow counties in Minnesota to collect all electronics. Managing waste should be considered a cost of providing a product or service, and consumers must expect to pay some of it.

Moreover, by reducing what goes into incinerators and landfills, we reduce the pollutants that often have more impact on vulnerable Minnesota neighborhoods and communities, a racial justice issue. There is a landfill on the banks of the wild and scenic Cannon River in my township which should also compel us to take action to protect our pristine land and water.

Lastly, collecting and recycling 100% of electronics creates the opportunity for new jobs and new businesses by reclaiming enough copper for 155,000 EV's annually as well as 16 other metals and minerals. Using the resources that are instead wasted for our renewable economy is just common sense. This bill allows Minnesota to grow our economy, clean up our air and water, and think about the next generation.

Please support 100% electronics recycling, HF3566, now. Thank you.

Sincerely,

Kathleen Doran-Norton - Member & Volunteer, League of Women Voters Minnesota



Community Power
2720 E 22nd St.
Minneapolis, MN 55407

Letter of Support for SF3940/HF3566 the
"100% Electronics Recycling Bill"

Dear Chairperson,

Community Power offers our strong support for the SF3940/HF3566 called the "100% Electronics Recycling Bill." Community Power is a Minneapolis-rooted energy democracy organization that supports residents and community-based organizations across Minnesota to build a clean, local, equitable, affordable, and reliable energy future.

Minnesota's annual e-waste stream contains \$3 billion dollars worth of critical metals we need and use in our renewable energy and storage transition, and yet data shows us we are facing critical metals shortages that puts our energy transition in jeopardy¹ - metals which could be recovered from this reliable stream of electronic waste. We must begin harvesting this untapped resource, and also attend to the problems created by leaving it unaddressed. Not only would recycling our e-waste through enacting SF3940/HF3566 unblock these shortages, but it would also address multiple other needs of our state:

- **New job creation:** We can create 1700 direct jobs just in our state, and effective collection is the first step towards getting there.
- **Reduce pressure on landfills and associated pollution:** In Minnesota we only collect around 20% of our e-waste - and much of the rest ends up in landfills where it contributes 70% of lead contamination (please refer to the US EPA report provided). As we know, pollution from our waste disproportionately affects our most marginalized communities who consistently have higher exposure. SF3940 will greatly reduce how much lead pollution is present in our waste stream.
- **Reducing costly fire incidents at landfills:** Inaction is costing us more every year. Minnesota landfill operators and material recovery facilities (MRFs) report battery fires every few days - whereas small fires cost an average \$2,600 dollars to MRFs. Large fires cost up to 50 million dollars. The frequency of these fires is increasing every year. Please see the RRS report of lithium battery fires provided. In 2018 we lost a 20 million dollar transfer station due to a discarded battery. Last year Rice County Landfill had a battery fire that burned for almost a week straight. SF3940 will greatly reduce how many batteries end up in our waste stream - and thus save Minnesota taxpayers and businesses millions of dollars a year.

¹ Data on this shortage can be found in the economic opportunity report provided



Community Power
2720 E 22nd St.
Minneapolis, MN 55407

- **Keep more money within local communities instead of out of state:** our program from 2007 that sends most of its funds out-of-State. Relies heavily on charging Minnesota residents per item recycled, and relies on Minnesota tax dollars to subsidize its shortcomings.

What specifically is needed, and how does SF3940/HF3566 accomplish them?

1. An expanded definition of e-waste: The e-waste stream changes constantly - we don't want to have to meet back here every couple of years to add to our definitions! The current program covers TVs and computers.

SF3940/HF3566 will cover the whole e-waste stream.

2. Making sure the cost of recycling is covered before an item is purchased by a consumer. Financial barriers for those seeking to recyclers disincentivizes proper disposal. Taking care of the cost upstream in the cycle is essential to make sure we don't miss the majority of recyclables.

SF3940/HF3566 removes the financial barrier for recycling for all Minnesota residents.

3. Create incentives for increased collection rates. Directly reimbursing collection sites for the electronics recycled adds a financial support for those sites to put in the staff time, labor and materials needed to understand and accommodate more recyclables, expanded definitions and the do the work of educating visitors to the site.

SF3940/HF3566 provides an incentive to collect more material regardless of type - and provides sufficient funds for them to spend on education and marketing to raise awareness among residents.

Thank you for learning and leading on this issue.

/s/ Alice Madden

Alice Madden
Energy Democracy Staff
Community Power
alice@communitypowermn.org



March 4, 2024

RE: Letter of Support for SF 3940/HF 3566 - 100% Electronics Recycling Bill

CURE is pleased to offer our support for SF 3940/HF 3566, also known as the 100% Electronics Recycling Bill. As a community-based organization dedicated to uplifting rural voices and strengthening rural communities, we are proud to join the coalition of organizations and community members from across the state who believe that this bill is an important step towards addressing the crisis of waste in Minnesota which causes unnecessary environmental and economic harms for both rural and urban communities.

E-waste is the fastest growing portion of the municipal waste stream as consumers dispose of more phones, televisions, computers, and electronic devices every year. And while e-waste represents a limited portion of the overall waste stream, it contains a disproportionate amount of heavy metals like lead and other toxic materials—when inappropriately disposed of in landfills or incinerators which are largely sited in rural and suburban locations it poses a severe risk to the water and air quality of surrounding communities.

The increase in e-waste is also leading to an increase in materials sorting facility, landfill, and hauling truck fires caused by the lithium batteries found in an ever-growing number of electronic products, posing a risk to operators, workers, and residents in the vicinity. The waste industry should not have to pay for frequent and sometimes catastrophic fires caused by a small number of cheap electronics with embedded batteries. Improperly disposed of lithium batteries also add to the growing threat of wildfire in Minnesota's forests and grasslands. A "disposable" e-cigarette powered by a lithium-ion battery casually discarded on a grassy roadside, and potentially crushed by an unsuspecting public employee on a riding mower, becomes a lethal risk as Minnesota emerges from a low-precipitation winter into a likely hot summer with an increased likelihood of wildfires.

E-waste also poses unique logistical and financial challenges to rural communities and counties. E-waste disposal sites are few and far between outside of Minnesota's dense population centers, and those that exist only accept a limited type of electronics and often charge fees that are a regressive burden on those who can least afford it. Widespread collection requires staff, facilities, and funding that can be a challenge for under-resourced counties and municipalities. But ignoring the problem will not make it go away, and resources must be allocated to help rural communities build this capacity. All manufacturers of these products must pay for their responsible disposal. This legislation will not create additional state government expense but rather will provide counties and other entities with the necessary resources needed to reliably collect and transport e-waste so that it can be responsibly recycled, reused, and disposed of.

More comprehensive and efficient collection of electronic waste also offers myriad opportunities for Minnesota including the ability to access high-value minerals such as gold, copper, silver, and platinum group metals that could be recycled and reused instead of ending up in landfills and

incinerators. In fact, it's estimated that in Minnesota alone \$3.2 billion worth of high value metals and minerals contained in e-waste is dumped or burned instead of captured and recycled each year. Electronics recycling has the potential to create needed jobs in deindustrialized rural communities that bring economic benefits while helping reduce air, land and water pollution.

That's why we need to update Minnesota's e-waste recycling law and programs to address the current harms and harness the opportunities. SF 3940/HF 3566 will achieve this by increasing access and funding state-wide to e-waste recycling sites and resources, and reducing the barriers to wide-scale e-waste recycling for all Minnesotans.

Sincerely,

/s/Hudson Kingston
Legal Director
CURE
P.O. Box 712
Ely, MN 55731

Letter in support of the 100% Electronics Recycling Bill SF3940/ HF3566

Dear Chairperson,

The Climate Action Team of the Unitarian Universalist Congregation of Duluth has voted its unanimous support of the work of RECA, after having the opportunity to learn about the practical, effective and much needed program they are proposing for our state.

There are several reasons that convinced us that this bill would be an excellent step toward care of our communities and our earth home. As RECA has articulated them,

1. The pending shortage of critical metals puts our clean energy transition in jeopardy. Our congregation has invested in a solar array toward this transition and we strongly support actions that move us all to cleaner air and water and a more stable climate. Critical metals can be recovered from our electronic waste. Minnesota's annual e-waste stream contains \$3 billion dollars worth of all the metals we need.
2. By recycling our e-waste, we can create 1700 direct jobs just in our state and effective collection is the first step towards getting there.
3. We need to collect our e-waste. In Minnesota we only collect around 20% of our e-waste - and much of the rest ends up in landfills where it contributes 70% of lead contamination . This pollution disproportionately affects our most marginalized communities, urban and rural, across the state.
4. Landfill fires need to be addressed - they are costly in dollars and in toxic air pollution. Minnesota landfill operators and material recovery facilities(MRFs) report battery fires every few days. Small fires cost an average \$2,600 dollars to MRFs. Large fires cost up to 50 million dollars. The frequency of these fires is increasing every year. In 2018 we lost a 20 million dollar transfer station due to a discarded battery. Last year Rice County Landfill had a battery fire that burned for almost a week straight. SF3940 will greatly reduce how many batteries end up in our waste stream, eliminating fires that cost taxpayers and businesses millions of dollars a year.

It is time to replace our program from 2007 that sends most of its funds out-of-State, relies on charging Minnesota residents per item recycled, and relies on Minnesota tax dollars to subsidize its shortcomings.

Our Team supports the recommended three steps to fix this collection system:

1. An expanded definition. The e-waste stream changes constantly - we don't want to have to meet back here every couple of years to add to our definitions! The current program covers TVs and computers - SF 3940 will cover the whole e-waste stream.
2. Make sure the cost of recycling is covered before the item is purchased. SF 3940 removes the financial barrier for recycling for all Minnesota residents.
3. Create incentives for increased collection rates. By directly reimbursing collection sites for the electronics recycled, SF 3940 provides an incentive to collect more material regardless of type - and provides sufficient funds for them to spend on education and marketing to raise awareness among residents.

Thank you for your attention to the e-waste problems and the solutions offered in this bill.

Sincerely,

Beth Tamminen, Chair

Climate Action Team

Unitarian Universalist Congregation of Duluth

835 W. College St. Duluth MN

Letter of Support SF3940 / HF 3566

the 100% Electronics Recycling Bill



RECA
RECYCLING ELECTRONICS
FOR CLIMATE ACTION

The pending shortage of critical metals puts our energy transition in jeopardy - metals which could be recovered from our electronic waste. Minnesota's annual e-waste stream contains \$3 billion dollars worth of all the metals we need. This data can be found in the economic opportunity report provided.

By recycling our e-waste, we can create 1700 direct jobs just in our state, and effective collection is the first step towards getting there.

In Minnesota we only collect around 20% of our e-waste - and much of the rest ends up in landfills where it contributes 70% of lead contamination (please refer to the US EPA report provided). As we know, pollution from our waste disproportionately affects our most marginalized communities who consistently have higher exposure. SF3940 will greatly reduce how much lead pollution is present in our waste stream. Inaction is costing us more every year. Minnesota landfill operators and material recovery facilities(MRFs) report battery fires every few days - whereas small fires cost an average \$2,600 dollars to MRFs. Large fires cost up to 50 million dollars. The frequency of these fires is increasing every year. Please see the RRS report of lithium battery fires provided.

In 2018 Blaine Minnesota lost a 20 million dollar transfer station due to a discarded battery. Last year Rice County Landfill had a battery fire that burned for almost a week straight. SF3940 will greatly reduce how many batteries end up in our waste stream - and thus save Minnesota taxpayers and businesses millions of dollars a year.

It is time to replace our program from 2007 that sends most of its funds out-of-State, relies heavily on charging Minnesota residents per item recycled, and relies on Minnesota tax dollars to subsidize its shortcomings.

Three things are needed to fix this collection system:

- 1. An expanded definition.** The e-waste stream changes constantly - we don't want to have to meet back here every couple of years to add to our definitions! The current program covers TVs and computers - SF 3940 will cover the whole e-waste stream.
- 2. Make sure the cost of recycling is covered before the item is purchased.** SF 3940 removes the financial barrier for recycling for all Minnesota residents.
- 3. Create incentives for increased collection rates.** By directly reimbursing collection sites for the electronics recycled, SF 3940 provides an incentive to collect more material regardless of type - and provides sufficient funds for them to spend on education and marketing to raise awareness among residents.

Thank you for supporting SF3940 / HF 3566.



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mjensen@reca-us.org

Supporters



RECA
RECYCLING ELECTRONICS
FOR CLIMATE ACTION

Eureka Recycling
Cosmic Recycling LLC
MN Tech for Success
Electronics Recycling of Minnesota
Repowered
Free Geek

Talon Metals

Minnesota Farmers Union

Sierra Club - North Star Chapter
Clean Water Action Minnesota
MN Zero Waste Coalition
MN350 Action
Minnesota Center for Environmental Advocacy
Friends of the Boundary Waters Wilderness
CURE

Iron Range Partnership for Sustainability
Ely Climate Group
Northern Progressives

Continued on following page..



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Supporters



RECA
RECYCLING ELECTRONICS
FOR CLIMATE ACTION

Unitarian Universalist Congregation of Duluth Climate Action
Lutheran Advocacy - Minnesota
MN Interfaith Power & Light

R.I.S.E. Coalition

Health Professionals for a Healthy Climate
MN Division of the Izaak Walton League of America
Elders Climate Action of the Twin Cities
Northeast Metro Climate Action
Climate Generation
Project Earth
Citizens Climate Lobby
Vadnais Heights Green Team
Beyond Plastics Mankato Area
Coalition for Plastic Reduction
Community Power
Itasca Clean Energy Team
Giving Circle SEED-MN

Avalon School

Growing Futures LLC
Lichen Labs LLC



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mjensen@reca-us.org

https://www.southernminn.com/faribault_daily_news/news/landfill-fire-nearly-out-fire-chief-lithium-ion-batteries-likely-culprit/article_be28a408-017b-11ee-a759-6794443ce9b7.html

SPOTLIGHT

UPDATE

Landfill fire nearly out; fire chief: lithium-ion batteries 'likely culprit'

By COLTON KEMP colton.kemp@apgsomn.com

Jun 2, 2023

The Rice County Solid Waste Facility landfill is still slightly smoldering, but the fire suppression work is nearly complete, according to Faribault Fire Chief Dustin Dienst.

The landfill reopened to the general public on Tuesday, after about a week of being closed after a fire broke out.

Improper disposal of a cellphone, laptop and other wireless electronic may be the source of the fire.



The Rice County Solid Waste Facility burns on Thursday, May 25. The fire would continue for at least another week. (Photo courtesy of Rice County)

"We will never know for sure what caused this fire, but improperly disposed lithium-ion batteries are a likely culprit," Dienst said. "Staff see phones, computers, tools, etc. on a daily basis in with the household trash. ... I can confidently say that we need to stress to the general public the importance of properly disposing of batteries and other items that require special attention."

Before the fire started on May 22, an air quality alert had been issued by the National Weather Service, due to Canadian wildfire smoke that was passing through Minnesota.

Along with the heat, humidity and other weather conditions, the Weather Service advised those with pre-existing conditions to limit outdoor exposure. They also advised everyone to limit activities that cause pollution.

That's when the landfill caught on fire.

The following Sunday and Monday the National Weather Service issued a second warning, due to the ground-level ozone reaching orange, or unhealthy for at-risk groups.

Rice County officials were loaned equipment to monitor the air quality from residences within a mile of the landfill. Officials reported "no readings of concern," and sent air samples to be analyzed in a lab, according to a county press release issued Thursday evening.

After speaking with the Environmental Protection Agency, the Minnesota Pollution Control Agency and the State Fire Marshall, local fire departments were directed to smother the remaining fire with dirt.

"There is some very minor smoldering going on as of (Thursday) morning," Dienst said. "Crews are working on covering the entire area that was on fire, but the slope is causing a bit of a challenge. ... We will be having an after-action meeting with all stakeholders involved in this incident and talk about mitigation strategies."

The fire, and concerns from some nearby residents about air quality, attracted media attention from around the state.

A webpage was set up for updates about the landfill fire (www.RiceCountyMN.gov/694/Landfill-Fire-Updates). A timeline, as well as numerous press releases, can be found on the page.

Reach Reporter Colton Kemp at 507-333-3129. © Copyright 2023 APG Media of Southern Minnesota. All rights reserved.

Colton Kemp



Chair and Members of the Committee: My name is Tamara Gillard, Executive Director of Minnesota Tech for Success, formerly Minnesota Computers for Schools. Tech for Success (MTFS) is a nonprofit organization, now in its 27th year. Our mission is to create digital equity for students by partnering with schools and educational organizations to provide technology access, engaging STEM Programming, and IT workforce development in underserved communities.

MN Tech for Success recycles, refurbishes and repairs donated computer technology, which is placed in schools and nonprofits in Minnesota. Since our founding in 1997, we have placed over 110,000 computers in Minnesota, creating digital equity for students across the state by increasing access to technology. We also provide free IT certification training for individuals, most from underrepresented populations who are preparing for entry level employment in the IT field. We also offer opportunities to our IT graduates for paid internships to gain hands-on skills refurbishing computer equipment, better preparing them for the workforce.

I am in support of the SF3940 / HF3566 - 100% e-Waste Collection Bills.

Minnesota's electronic waste contains metals that are needed for clean energy - Minnesota's annual e-waste stream contains \$3 billion dollars' worth of precious metals. By recycling our e-waste, we can create 1700 direct jobs, and get back on track for supplying metals for the energy transition and SF3940 / HF3566 is the first step.

It is extremely important that we have the necessary bills in place to save our state's environment. MTFS is NAID AAA certified, R2v3 certified, and ISO 9001:2015 14001:2015 and 45001:2018 certified.

With the motto of “Test, Repair, Reuse, Recycle,” R2 is setting the standards for used electronics. We take the mission to heart, refurbishing donated computers and giving them to students. Reusing technology in such a way helps create digital equity while keeping e-waste out of the landfill.

R2 requires recyclers to assure that toxic material streams are managed safely and responsibly by downstream vendors all the way to final disposition and prohibits them from exporting these toxic materials to certain countries.

Our **R2v3** certification is testament to strengthened data security controls and enhanced controls for test, repair and reuse operations, and we were one of the first organizations in the state certified with this enhanced standard.

We spend a lot of time and expense to ensure we keep these certifications up. I bring this up as these bills will require recyclers to handle this equipment in an environmentally responsible way. These types of certifications attest to that importance and for the importance of the passage of bills SF3940 / HF3566.

People do not like to pay to recycle their devices. We hear this all the time. By passing SF3940 and HF 3566, we will be able to provide free recycling, and this will increase how much material we can divert from landfills!

Sincerely, Tamara Gillard, Executive Director MN Tech for Success



Electronics Recycling of Minnesota

Letter of Support for SF 3940/ HF3566

Dear Chair Hawj,

As a small business owner and an electronic waste collector and recycler, I am writing to support SF 3490. This bill will provide an opportunity for collectors like us to provide free electronic waste recycling for all Minnesotan residents. So often we have folks who bring us their old electronics, but when they find out there is a charge – they leave with the item, and choose not to recycle.

Not only will this bill allow us to collect for free from residents, but it will create a significant business opportunity for us – allowing us to invest in community education and build awareness within the community about the need to properly recycle old electronics. We look forward to expanding our footprint and hiring new staff to meet this opportunity.

Thank you,

A handwritten signature in black ink, appearing to read "Derek McCormack". The signature is fluid and cursive, written on a light-colored background.

Derek McCormack

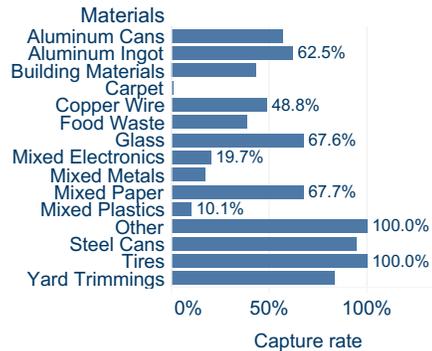
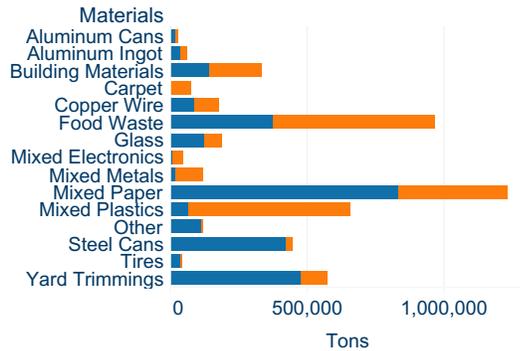
2/28/2024

President of Operations, Electronics Recycling of Minnesota

Reuse: Capture rate by material

By accounting for the total discarded amount of a *specific material*, capture rates inherently set a target for how much additional material is available to capture for recycling. In the current system, it's unrealistic to achieve a *recycling rate* of 100 percent as not all of the material Minnesotans discard can be easily recycled. In an ideal scenario, it would be feasible to reach a 100% *capture rate* for some traditionally recycled materials (like aluminum). As the chart below shows, some materials already have relatively high capture rates statewide, like mixed paper and steel. This means of all the discarded mixed paper, Minnesota captured about 67.7%.

■ Recycled Tons ■ Wasted Tons



Materials	Recycled Tons	Wasted Tons	Total generation	Capture rate
Aluminum Cans	17,554	13,259	30,814	57.0%
Aluminum Ingot	38,630	23,204	61,834	62.5%
Building Materials	144,993	188,947	333,940	43.4%
Carpet	16	76,242	76,257	0.0%
Copper Wire	85,476	89,501	174,977	48.8%
Food Waste	376,024	590,044	966,068	38.9%
Glass	124,279	59,667	183,946	67.6%
Mixed Electronics	9,786	39,778	49,564	19.7%
Mixed Metals	21,087	99,446	120,532	17.5%
Mixed Paper	834,419	397,783	1,232,202	67.7%
Mixed Plastics	66,375	590,044	656,420	10.1%
Other	116,134	0	116,134	100.0%
Steel Cans	423,997	23,204	447,201	94.8%
Tires	35,822	0	35,822	100.0%
Yard Trimmings	476,008	92,816	568,824	83.7%

* includes boxboard and cardboard

Jump to section:

Reduction

Reuse

Recycling

Waste to Energy

Landfilling

Region

- Statewide
- Greater MN
- Metropolitan Area

County

All

[2013 Statewide Waste Characterization Study](#)

Page 5 of 16

Reduction/Reuse Terms

Definitions

About

Download instructions

August 2023

The Economic Potential of E-Waste Recycling in Minnesota

A Pilot Study

Maria Jensen, Roopali Phadke, Keith Steva, Marlise Riffel

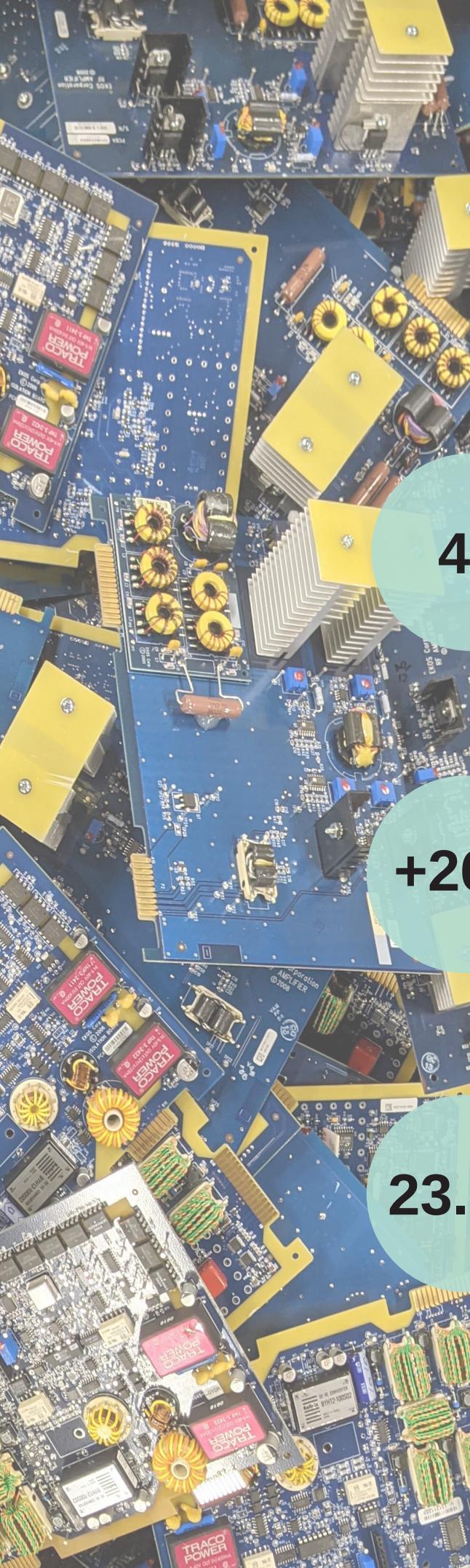
Maria Jensen, Corresponding author, Environmental Health and Safety, Repowered, 860 Vandalia St. St. Paul, jensi802@umn.edu

Roopali Phadke, Professor of Environmental Policy and Politics, Macalester College

Keith Steva, Iron Range Partnership for Sustainability

Marlise Riffel, Iron Range Partnership for Sustainability





E-waste by the numbers...

46

pounds per person

The U.S. currently generates about 46 pounds of e-waste per capita annually.¹

+266

million pounds annually

Over 266 million pounds of e-waste is available for recycling in Minnesota every year.

23.7%

of e-waste captured

Minnesota only captures 23.7% of e-waste for recycling; much of the remainder gets into traditional waste streams.^{12,17}

Background

Electronic waste is the fastest growing waste stream in the world, and it is full of valuable metals.¹ Although some traditional e-waste streams such as cathode-ray tube (CRT) TVs and VCR and DVD devices are declining, new electronic devices are coming onto the market more rapidly and will maintain an increasing e-waste stream.²⁻¹³ E-waste, also referred to as WEEE (waste electrical and electronic equipment), is growing at an annual rate of 3-5% globally.^{4,13-16} E-waste includes information technology equipment, communications equipment, as well as household appliances. The US currently generates about 46 pounds of e-waste per capita annually (P.72).^{1,3} Minnesota only captures 23.7% of e-waste for recycling; much of the remainder gets into traditional waste streams.^{12,17}

Landfilling or incinerating e-waste causes significant pollution and health problems. For example, 70% of the heavy metals (i.e., lead, mercury) present in landfills come from e-waste.¹⁸ Heavy metals cause a myriad of health effects, such as neurodegenerative effects, which are especially severe in children.¹⁹⁻²³ Throwing away electronics also wastes valuable material. By weight, metals account for 60% of the material composition of e-waste. The metals found in e-waste include copper, nickel, palladium, iron, lead, tin, aluminum, and zinc, among others.^{14,24-25} Metals are infinitely recyclable.²⁶ The avoided toxicity and high quality of recycled products makes recycling e-waste a win-win proposition for environmental and human health.

E-waste is also a promising source for metals that are facing increasing demand due to the transition to renewable energy. The International Energy Agency estimates that in order to reach net zero emissions by 2050, metal demand will increase 6-fold compared to 2022 levels.²⁷ Legislation such as the Inflation Reduction Act provides billions of dollars for electrification, energy storage, and wind and solar power, and finding responsible sources of metals to service these technologies is a national priority.²⁸ This study provides insight into the potential for e-waste to meet this demand by estimating the total weight of sixty-eight elements available for recycling within Minnesota's e-waste stream.

The authors of this study came together from industry, environmental activism, and academia. Repowered is a non-profit e-waste recycling and refurbishing company and one of the largest collectors in the state of Minnesota. Iron Range Partnership for Sustainability is an organization based in Virginia, Minnesota, whose mission is to facilitate collaboration toward a sustainable and thriving Iron Range. Dr. Roopali Phadke, a professor from Macalester College, has conducted research on recovery and sustainable use of precious metals. The group approached the subject matter with the lens of sustainable job creation for Northern Minnesota, and to that end, envisions this work as a pilot study that will lead the way to further research and investment in Minnesota's e-waste recycling capacity.

At a 100% recycling rate, Minnesota's e-waste stream could supply enough copper for 155,000 EVs per year.⁷³

Study

Methodology

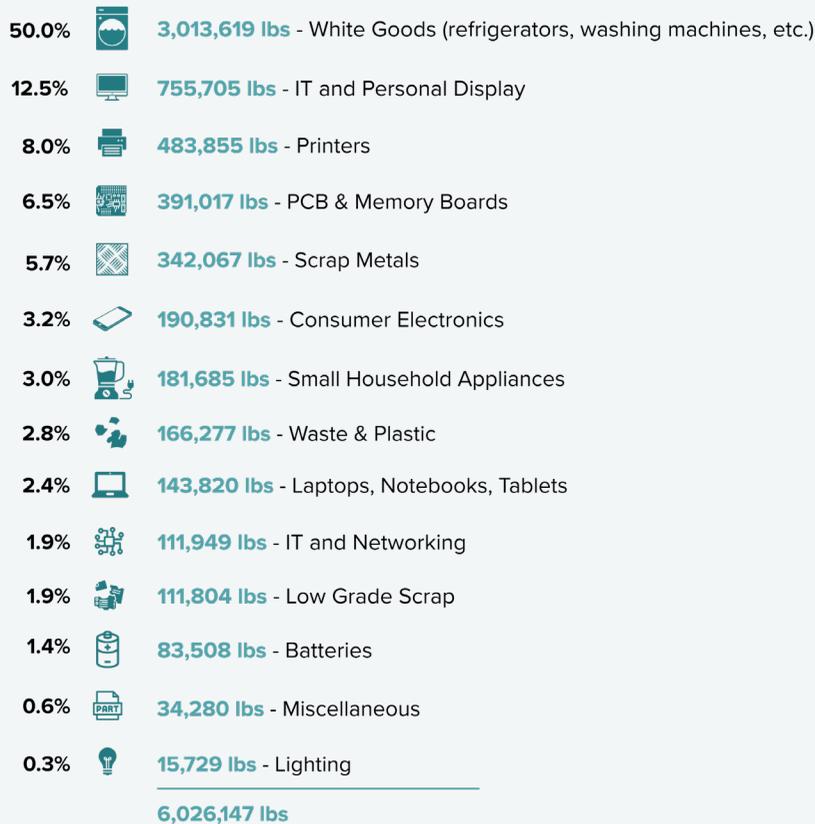
Using peer reviewed research, reports, and local data on e-waste, this study documents the elemental content in fourteen categories of e-waste. The research used in this study ranges predominantly from 2017 to 2022, with two studies each in the years 2011 to 2015 and one study from 2002.

01

Categorizing e-waste: An e-waste recycling facility based in St. Paul, MN provided data on e-waste category types and the proportion of each category by weight in a typical e-waste stream (see Figure 1).

Data on white goods (i.e., refrigerators, washing machines etc.), which typically make up about 50% of e-waste, was added to the facility data based on the findings of Ongondo (2011).²⁹

Figure 1: Categorization of materials mix from a sample e-waste collection facility



Study

Methodology *continued...*

02

Literature review: A comprehensive literature review was conducted to yield the proportion and weight of sixty-eight elements present in each e-waste category. For example, Buechler (2020) provided data on the breakout of fifty-six different elements in ten categories of e-waste. Data from ten similar studies were aggregated to understand the elemental composition of each e-waste category. There are many variations of batteries in the e-waste stream. For batteries, specific studies that established element content were used along with one manufacturer's data sheet.^{24, 30-46}

03

Minnesota: The population data used is the projected population for the state of Minnesota in 2023 (reference results section).⁴⁷ The per capita e-waste generation in the US provides the basis for calculating the total weight of e-waste available for recycling in the state of Minnesota.¹

04

Calculation of value: Where current market value data was available, the value of each element as of January 2023, was multiplied by the respective portion of the total weight and was used to calculate the total annual value of e-waste in Minnesota.⁴⁸⁻⁷¹

05

Jobs: According to the Coalition for American Electronics Recycling Jobs report, e-waste collection, demanufacturing, shredding and information technology asset collection/refurbishing activities generate one full time job for each 172,000 pounds of e-waste processed.^{20, 72, 75} This does not include any jobs involved in a final materials recovery process.



Findings

At a 100% e-waste recycling rate in Minnesota, the following amount of “Top 10 Elements” made available (by weight in pounds) would be:

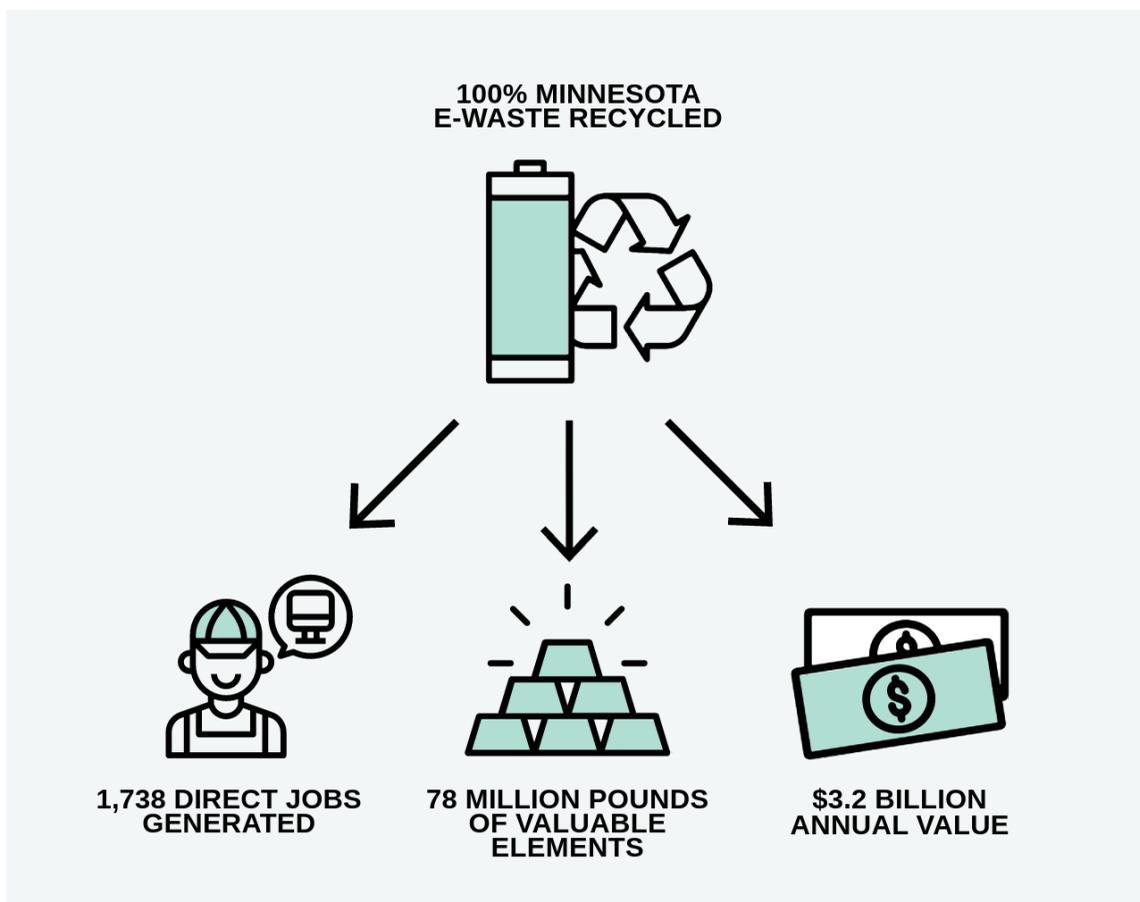
Figure 2: MN 2023 Total e-Waste Top 10 by WEIGHT		
Element	Weight (lbs)	Percent
Iron	31,948,426	40.6%
Copper	25,350,177	32.2%
Tin	7,575,259	9.6%
Aluminium	6,669,743	8.5%
Lead	2,596,846	3.3%
Zinc	1,966,195	2.5%
Barium	564,601	0.7%
Nickel	309,746	0.4%
Sulfur	283,289	0.4%
Manganese	216,608	0.3%
58 Other Elements	1,141,272	1.5%
Total Weight	78,622,162	100.0%

The value (in USD) of the “Top 10 Elements” at a 100% e-waste recycling rate in Minnesota would be:

Figure 3: MN 2023 Total e-Waste Top 10 by VALUE		
Element	Value US \$	Percent
Palladium	1,519,264,623	47.8%
Platinum	1,036,326,242	32.6%
Gold	343,116,072	10.8%
Copper	107,432,898	3.4%
Tin	100,940,322	3.2%
Lithium	14,287,284	0.4%
Iron	11,725,072	0.4%
Aluminium	7,997,629	0.3%
Silver	5,940,166	0.2%
Ruthenium	5,806,676	0.2%
58 Other Elements	28,335,108	0.9%
Total Value	3,181,172,092	100.0%

RESULTS

Over 266 million pounds of e-waste is available for recycling in Minnesota every year, including 78 million pounds of the sixty-eight valuable elements identified in this study. Based on the aforementioned market prices, the total estimated value of the sixty-eight elements in a single year's worth of e-waste generated in Minnesota is \$3.2 billion. The projected job creation, if 100% of e-waste in Minnesota were to be captured for recycling or refurbishment (not including the final step of material recovery), is 1,738 direct jobs, and a total of 3,345 new jobs. Figure 2 gives a breakout of the top ten elements by weight, and Figure 3 gives the top ten elements by value.



441,000 solar panels

At a 100% recycling rate, Minnesota would have enough silver to produce 441,000 solar panels per year from its e-waste.⁴⁶



155,000 EVs

At a 100% recycling rate, Minnesota's e-waste stream could supply enough copper for 155,000 EVs per year.⁷³

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OFFICE OF INSPECTOR GENERAL

Catalyst for Improving the Environment

Evaluation Report

Multiple Actions Taken to Address Electronic Waste, But EPA Needs to Provide Clear National Direction

Report No. 2004-P-00028

September 1, 2004





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
INSPECTOR GENERAL

September 1, 2004

MEMORANDUM

SUBJECT: Multiple Actions Taken to Address Electronic Waste,
But EPA Needs to Provide Clear National Direction
Report No. 2004-P-00028

FROM: Carolyn Copper /s/
Director for Program Evaluation
Hazardous Waste Issues

TO: Thomas P. Dunne
Acting Assistant Administrator
Office of Solid Waste and Emergency Response

This is the final report on our evaluation of the effectiveness of EPA's electronic waste programs and regulations conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains findings that describe the problems the OIG identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and the findings contained in this report do not necessarily represent the final EPA position. Final determination on matters in the report will be made by EPA managers in accordance with established resolution procedures.

Action Required

In accordance with EPA Manual 2750, you are required to provide a written response to this report within 90 days of the date of this report. You should include a corrective actions plan for agreed upon actions, including milestone dates. We have no objections to the further release of this report to the public.

If you or you staff have questions, I can be reached at (202) 566-0829, and Steve Hanna, Project Manager, can be reached at (415) 947-4527.

Executive Summary

Purpose

The use of electronic devices for both business and personal applications has increased dramatically in recent years. These electronic devices include computers, TVs, VCRs, DVD players, and cellular phones. Rapid turnover of these electronic devices is estimated to generate over 2 million tons of electronic waste (E-waste) per year, which raises environmental concerns due to both the E-waste volume and the quantity of hazardous chemicals associated with this waste stream. Approximately 70 percent of the heavy metals in municipal solid waste landfills are estimated to come from electronics discards. Heavy metals such as lead and mercury are highly toxic substances that can cause well-documented adverse health effects, particularly to children and developing fetuses.

The Environmental Protection Agency (EPA) has implemented many projects, including pilot programs, in efforts to address the E-waste management problem. The purpose of this report is to determine whether these programs have adequately addressed concerns associated with E-waste. Specifically, our review evaluated: the outcomes of EPA's E-waste projects and policies; the existing regulation of household hazardous waste; and the information EPA collects on E-waste.

Results

EPA's Office of Solid Waste (OSW) has implemented or participated in many recent projects that have enhanced the general awareness of E-waste issues and included a wide range of stakeholders. Stakeholders are complimentary of OSW's competence, enthusiasm, and dedication. OSW implemented or participated in its E-waste projects voluntarily as a result of their recognition of a developing problem, and not as the result of any mandate or new requirement. However, the potential benefits have not been fully realized because the projects have not been implemented or coordinated in support of a clear set of program goals and measures of effect. In addition, OSW has not finalized a long-delayed rulemaking on the regulation of Cathode Ray Tubes (CRTs), and was forced to withdraw from its own high-visibility product stewardship initiative due to potential cooperative agreement violations. Despite demonstrating some leadership in the effective management of E-waste, this has impacted OSW's leadership credibility in the development of national solutions to E-waste problems. Due to incomplete actions related to addressing E-waste, EPA cannot ensure that the human health and environmental risks associated with E-waste are being effectively addressed.

Under the Resource Conservation and Recovery Act, household hazardous waste, including E-waste, may be disposed at municipal solid waste landfills. To the

Environmental concerns with electronics are associated with the dramatic increase in the volume of E-waste – a waste stream estimated to be growing approximately three times as fast as the rest of the municipal waste streams. The national volume of E-waste is estimated at over 2 million tons per year, and approximately 90 percent of this waste may be ultimately disposed at municipal solid waste landfills.¹ This estimate includes approximately 50 million computers becoming obsolete each year, with over 300 million obsolete computers estimated by 2005.²

The problem with E-waste is not just the volume of waste generated, but also the volume of hazardous chemicals associated with E-waste. Most electronic devices contain a printed wiring board and battery, and these and other components may contain hazardous materials such as lead, mercury, hexavalent chromium, arsenic, beryllium, nickel, zinc, copper, cadmium, and flame retardants. Each CRT (cathode ray tube) contains approximately 4 to 8 pounds of lead,³ which correlates to 300 million pounds of lead from the 50 million computers estimated to become obsolete each year. Approximately 70 percent of the heavy metals in municipal solid waste landfills are estimated to come from electronics discards.⁴ Heavy metals such as lead and mercury are highly toxic substances that can cause well-documented adverse health effects, particularly to children and developing fetuses.

Regulation of E-waste by RCRA

E-waste is not explicitly regulated as hazardous waste at the national level. However, the Resource Conservation and Recovery Act (RCRA) Subtitle C was established to ensure that hazardous waste is managed in a manner that is protective of human health and the environment. Accordingly, hazardous waste disposed in a landfill must be disposed at designated hazardous waste landfills with additional regulatory controls, rather than municipal solid waste landfills. However, hazardous waste from households and businesses generating hazardous waste below the defined regulatory threshold may dispose of their waste at municipal solid waste landfills.

One way in which hazardous wastes may be defined under RCRA is their potential for leaching of hazardous chemicals. Among E-waste chemicals that have been tested, lead has been shown to exceed the leachate levels for cathode ray tubes, and OSW is currently finalizing a rule to define acceptable management standards for these devices. OSW is currently investigating which other types of E-waste, such as LCDs, computers, and keyboards, could present hazardous characteristics.

¹“Municipal Solid Waste in the United States: 2001 Facts and Figures. Appendix C, Computer Electronics in Municipal Solid Waste,” EPA.

²*Computerworld*, "Cleaning IT's Basement," Feb. 2004.

³Computer TakeBack Campaign and Californians Against Waste, "Poison PCs and Toxic TVs," Feb. 2004.

⁴"Computers, E-waste, and Product Stewardship: Is California Ready for the Challenge," report for EPA Region 9 prepared by the Global Futures Foundation, June 2001.



March 4, 2024

Minnesota House
Environment and Natural Resources Finance and Policy

Re: Electronic Waste (HF3566)

Dear Chair Hansen and Members of the Committee,

Eureka Recycling is committed to improving recycling and reducing waste in Minnesota. HF3566 is a key policy in helping us do this.

We are a non-profit, social enterprise, recycler here in the Twin Cities. We work to demonstrate that recycling can and should be done in ways that benefit our environment, communities, and the regional economy. Unfortunately, electronics placed in the recycling cart are increasingly impacting the health and safety of our workers and increasing the cost of doing business.

Over the past four years, we have experienced, on average, 17 fires a year in our Material Recovery Facility (MRF) or inside one of our recycling trucks. These fires are due to batteries in electronics that have been disposed of in residential recycling carts. As we've seen at recycling facilities around the country, these fires can very quickly spread to incredibly flammable plastic and paper streams. These fires and the toxic smoke associated with them are dangerous to our team members' health.

In addition to the danger of fires and exposure to toxic e-waste on our team members, there is a significant hard cost of e-waste on the recycling system. These costs include:

- **Insurance Costs:** We have seen a significant increase in the cost of insurance. Battery fires are preventing many recyclers, like us, from even securing insurance.
- **Disposal Costs:** Additionally, we dispose of, on average, 28 tons of e-waste each year costing us \$20,000 annually.
- **Equipment Costs:** While the impact on our equipment is difficult to measure, electronics in our stream increases the general wear and tear as fires weaken equipment due to exposure to heat.
- **Feedstock Costs:** Lastly, each fire burns up some of our recyclable material that we are unable to quantify (it isn't a huge amount but once it is up in smoke it is difficult to tell how much was lost).

The amount of e-waste is only expected to increase. We need a comprehensive approach to the problem that ensures all Minnesotans can easily and properly dispose of electronics. Inaction on e-waste will result in continued challenges for Minnesota's recycling industries and continued harm to human and environmental health. It is time the state took action to address the improper disposal of e-waste by passing HF3566.

We welcome you and your staff out to tour Eureka's MRF and see our team in action. We are happy to provide additional information on this issue and appreciate your consideration of our comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Lucy Mullany", written in a cursive style.

Lucy Mullany
Director of Policy & Advocacy, Eureka Recycling
lucym@eurekarecycling.org
www.eurekarecycling.org



February 27, 2024

Re: Support: 100% Electronics Recycling SF3940/HF3566

Clean Water Action has worked in Minnesota since 1982, focusing on finding solutions to health, consumer, environmental, and community problems; developing strong, community-based environmental leadership; and working for policies that improve lives and protect water. Our focus includes supporting environmental justice; protecting and restoring the Great Lakes for Minnesota; and ensuring safer chemicals for use in our homes and daily lives, as well as source and toxics reduction in plastics and other forms of waste. All our work culminates in the overarching goal of protecting the water we drink for generations to come.

Clean Water Action supports 100% Electronics Recycling Bill SF3940/HF3566 because we believe this is a good step toward cleaner water in Minnesota communities. The bill will expand the definition of electronic waste to enable 100% collection of electronics; creating an incentive for waste diversion by reimbursing collection sites for the electronics recycled; providing a free collection for all Minnesotans.

We are concerned with the amount of electronics that end up in landfills all across the state because the chemicals that are stored in landfills eventually seep into the groundwater. Of the 101 landfills in Minnesota, 98 are leaching. Discarded electronics cause 70% of all lead pollution in landfills, and eventually that lead will flow into our groundwater, and end up in our drinking water. We are also concerned that batteries from electronic devices are increasingly causing local landfill fires, such as the 2023 Rice County Landfill fire. This was a battery fire that polluted air, water, and crops for miles. SF3940/HF3566 will lower the amount of these fires occurring in our state, as well as lower the level of lead in our landfills, and possibly water.

In 2007, Minnesota created a program for waste that relies on county solid waste money and sends most of its funds out of state. It is time for us to replace this program with a much-improved one. The precious metals found in Minnesota's annual e-waste stream is equal to \$3 billion dollars. We are literally throwing away this money by dumping these metals into landfills every year. If we choose to start recycling our e-waste, we will be creating 1,700 jobs for our communities.

SF3940/HF3566 is a win-win for everyone; lessening the amount of pollution in landfills, saving precious metals and precious dollars, creating jobs, and getting back on track for supplying metals for the energy transition; all while being free for Minnesotans and free for collection sites. Thank you for taking time to read this letter and I urge you to support this bill as well.

Sincerely,
Nora Strande
Clean Water Action Legislative Intern



March 4, 2024

Minnesota House
Environment and Natural Resources Finance and Policy

Re: Electronic Waste (HF3566)

Dear Chair Hansen and Members of the Committee,

On behalf of the Minnesota Zero Waste Coalition, we are writing in support of HF3566.

The Minnesota Zero Waste Coalition is an alliance of Minnesota-based environmental organizations, environmental justice advocates, sustainable waste service providers, and community members committed to advancing a future for Minnesota without waste. Our movement centers the voices and experiences of frontline communities, who are most negatively and directly impacted by the extraction of resources, production of goods, and disposal of waste. With equitable zero-waste solutions, more people will have access to clean air, fresh water, green jobs, and healthier neighborhoods. **This bill supports equitable access to e-waste recycling and is needed to help us build a zero waste future for Minnesotans.**

Legislation enacted in 2007 only supported about 20 million pounds of collection in 2020, falling far short from the estimated 133 million pounds generated yearly. This means the majority of electronic waste (e-waste) is being improperly disposed of. Without proper disposal, we are putting the health and well-being of residents and our environment at risk.

Though e-waste only makes up 2-3% of municipal solid waste by weight, it represents almost 70% of the toxic waste stream. Batteries in landfills, transfer stations, and recycling and waste streams cause fires. In May of this year, Rice County experienced a large fire caused by a battery in their landfill that burned for 5 days and polluted the air with smoke largely from burning plastic. This is just one of countless examples of electronics, improperly disposed of, causing fires. Our tax dollars are being used to clean up messes from improper e-waste disposal and our neighbors are burdened with the cost to their health.

Capturing our electronic waste should be a top priority for our state. Not only to keep this stream out of landfills and incinerators but to recapture the precious metals and reduce the need for extractive methods of metals production. HF3566 will provide universal, free drop off for ALL electronic waste and demystify the process for consumers.

We are happy to provide additional information and appreciate your consideration of our comments.

Sincerely,



Krystle D'Alencar
Member of the [MN Zero Waste Coalition](#)
Organizer, Minnesota Environmental Justice Table



Lucy Mullany
Member of the [MN Zero Waste Coalition](#)
Director of Policy & Advocacy, Eureka Recycling

Minnesota Zero Waste Coalition Members:

Beyond Plastic Mankato Area
Coalition to Reduce Plastic
Climate Generation
Clean Water Action / Fund
CURE Minnesota
Eureka Recycling
Health Professionals for a Healthy Climate (HPHC)
Minnesota Center for Environmental Advocacy
Minnesota Environmental Justice Table
Minnesota Interfaith Power & Light
MN350
Recycling Electronics for Climate Action (RECA)
Reuse Minnesota
Rusty & the Crew
Sierra Club North Star Chapter



FRIENDS OF
THE
BOUNDARY
WATERS

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St. Paul, MN 55114
612.332.9630
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House Environment and Natural Resources Finance and Policy Committee
Representative Rick Hansen
407 State Office Building
St. Paul, MN 55155

Re: Letter of support for SF3940/ HF3566 - 100% e-Waste Collection Bill

Dear Chair Hansen and Committee Members:

Friends of the Boundary Waters Wilderness has been the leader in protecting the Boundary Waters and the Greater Quetico-Superior Ecosystem for almost fifty years. As part of this work, we advocate for policy solutions that will ensure the Boundary Waters Wilderness continues to be a pristine wilderness for generations to come.

One of the biggest threats to the BWCA is mining metals such as copper and nickel that are used in the manufacturing of electronics such as phones, computers, TVs, and solar panels. There are more effective, less polluting ways to procure these metals than mining. Minnesota's electronic waste contains metals that are needed for these devices and electronics. In fact, Minnesota's annual e-waste stream contains \$3 billion dollars worth of precious metals. There is a further economic boost to this: By recycling our e-waste, we can create 1,700 direct jobs, and many more spinoff jobs.

Enacting SF3940 / HF3566 would allow the state to seize this economic opportunity and would be a major step in reducing the need for potentially dangerous mining activities near the Boundary Waters.

It is time to replace our current program from 2007 that relies heavily on tax dollars and sends most of its funds out of Minnesota. HF3566/ SF3940 will divert electronic waste to recycling in the following ways:

- **Expand the definition.** By creating a comprehensive definition of what materials need to be recycled, the 100% Collection Bill covers more items, such as items with batteries, and provides sustainability to the program as the e-waste stream changes.
- **Provide free collection for all.** By removing the financial barrier for all Minnesotans and many businesses, free collection will be funded by manufacturers and retail fees.
- **Create incentives for waste diversion.** By directly reimbursing collection sites for recycled electronics, the 100% Collection Bill provides an incentive to collect more, increasing the State's diversion rate.

On behalf of the Friends of the Boundary Waters Wilderness and on behalf of our members across the state of Minnesota, we urge the committee to support HF3566/ SF3940.

Thank you,

Chris Knopf
Executive Director, Friends of the Boundary Waters Wilderness



March 4, 2024

Chair Hansen and Members of the Committee:

Thank you for the opportunity to testify on HF 3566 (Hollins). Minnesota Center for Environmental Advocacy (MCEA) is a non-profit organization celebrating our 50th year of using law and science to protect the state's natural resources and the health of its people.

MCEA strongly supports HF 3566, which tackles electronic waste collection and processing in Minnesota. Minnesotans are sitting on a stockpile of valuable minerals that could be used to address the climate crisis, but it may not be one you think of. It's the pile of defunct and obsolete devices and cords in our junk drawers. One study found that the average American household has about 80 e-waste devices lying around. When it comes to meeting materials needs, there is no better source than the already-mined and already-processed minerals that are in electronic waste. Recycling is always cleaner, cheaper, and faster than new mining operations, meaning that if Minnesota wants to lead on the materials needed for the clean energy transition we should start here. MCEA's ["Mining the Climate Crisis"](#) series dug deep into this and is a good source of information about the potential that HF 3566 can unlock.

Currently, far too much of this valuable material is landfilled or incinerated. Using one metal as an example, the U.S. recycles just 33% of our copper, compared with a 60% recycling rate in Europe. In Minnesota, we captured just 23.7% of mixed electronics for recycling in 2020. A pilot study estimated that the value of capturing 100% of these devices in Minnesota would be \$2.8 billion per year.

Several features of HF 3566 are worth noting:

- A flexible definition of "electronics recyclable," compared to the current static list in statute, which gets more obsolete each year. With new products that eventually become e-waste entering the market each year, this change is important.
- Funding to pay for easy, convenient, free, statewide e-waste collection. If it is difficult and expensive for consumers to recycle e-waste, it will continue to accumulate in our "drawers of shame." The reimbursement for collectors in HF 3566 will create far more convenient options for consumers, leading to the collection of this valuable material.
- An electronics recycling advisory committee ensures that the program is updated using up-to-date experience from solid waste administrators, collectors, and others.
- An air quality improvement grant program helps electronics recyclers install equipment that protects the health of workers and the public.
- An electronics recycling study with a required report to the Legislature to identify and overcome barriers for increased electronics recycling.

Thank you to Rep. Hollins for authoring this important bill.

Aaron Klemz, Chief Strategy Officer
aklemz@mncenter.org, 763-788-0282

March 5, 2024

Representative Rick Hansen
Chair, House Environment and Natural Resources Finance and Policy Committee
407 State Office Building
St. Paul, MN 55155

RE: H.F. 3566

Dear Chair Hansen and Members of the House Environment and Natural Resources Finance and Policy Committee,

The Partnership on Waste and Energy (Partnership) is a Joint Powers Board consisting of Hennepin, Ramsey and Washington counties, formed to address waste management and energy issues. The Partnership seeks to end waste, promote renewable energy and enhance the health and resiliency of communities we serve while advancing equity and responding to the challenges of a changing climate.

Electronic waste must be kept out of the mixed municipal solid waste stream and disposal facilities to reduce waste toxicity and prevent risks to the environment and public health, as well as recover valuable products and essential materials for reuse and recycling.

Current law is outdated and is increasingly shifting financial and operational burdens onto counties. This is contrary to the original purpose of the statute to hold manufacturers responsible. The statute also does not adequately account for the significant change over the years in the nature and types of electronics that consumers purchase.

The Partnership on Waste and Energy supports legislative action to revise existing electronic waste recycling law to put more responsibility for managing these products on the electronics industry. Changes made to the law need to reflect the current nature of electronic products and provide flexibility for an evolving marketplace, as presented in the delete everything amendment to H.F. 3566.

Thank you, Chair Hansen, for hearing this bill. We encourage a thoughtful evaluation of proposed changes and advancement of a bill that makes recycling more convenient and less costly for consumers and relieves burdens on counties and taxpayers.

Sincerely,



Commissioner Victoria A. Reinhardt, Ramsey County
Chair, Partnership on Waste and Energy



Lutheran Advocacy - Minnesota

To: Chair Rick Hansen & Members
MN House Environment & Natural Resources Finance & Policy Committee

From: Tamela K. Walhof, Director
Lutheran Advocacy – Minnesota, ELCA

Re: Support for H.F. 3566

Date: March 5, 2024

Dear Chair Hansen and Members –

I write to you on behalf of Lutheran Advocacy-MN, which is a ministry of the Evangelical Lutheran Church in America and all six Minnesota ELCA Synods. Those synods are made up of almost 1000 ELCA churches and well over 600,000 baptized members statewide.

We support the Electronic Waste Recycling bill, H.F. 3566 and hope you will recognize its **importance to stewardship and care for the earth** (and its people).

The 2007 Electronics Recycling Act has not adequately served our state for some time. It's time to **expand the definition of e-waste**, allowing for the new sources of batteries and waste that may not have even been conceived of yet. Currently, too many toxic metals and minerals are leaching into groundwater through landfills and spreading through the air due to being burned in incinerators or accidental fires.

We have been hearing from individuals and churches trying to do the right thing in electronic recycling, who cannot find how to dispose of it responsibly in their part of the state. **Free and accessible drop-off or collection** must be made available statewide, along with **education about what constitutes e-waste**. Until working on this bill, many of us had not considered the danger of improperly disposing of Bluetooth ear buds, “singing” greeting cards, and other small electronics (containing batteries and circuit boards) which pose fire hazards if thrown in the trash. Further, **collection and recycling needs to be incentivized**, both to guard against toxins in the air and water, and to extract the minerals that are needed in the production of more batteries and electronics. **True stewardship must consider all these concerns**.

The study from the Iron Range Partnership for Sustainability is already getting attention from some of our churches in the Northeastern Minnesota Synod. The value of what can be extracted from e-waste (\$2.8 billion) are another important form of “mining” and jobs (1700) for that region to consider. This is also important as the world works to move away from fossil fuels, since the minerals and metals in e-waste are increasingly in demand.

Once passed and implemented, **we intend to educate through our church networks to help dramatically increase electronic recycling**. Please don't let us down by not passing it!

Thanks so very much for your attention to electronic recycling!

Tammy Walhof, Director, Lutheran Advocacy-MN
(on behalf of our statewide church networks and synods)

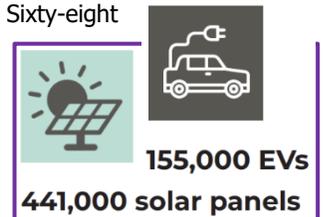
Issue: Electronic Waste

The Problem: Electronic waste is the fastest growing waste stream in the world, growing 3-5 percent per year. In fact, around 20 percent of waste globally is from e-waste, while it comprises 70 percent of toxins in landfills. Yet, most anything with a cord, battery or circuit board can be recycled. Out of 266 million pounds of e-waste generated annually in Minnesota, only about 24% is captured, recycled, and reused.



This presents a significant health risk, as well as an economic loss. E-waste in landfills leaches toxins into water supplies, while that burned in garbage incinerators puts dangerous toxins into the air we breathe. Some e-waste causes fires in waste hauling vehicles, landfills, buildings, and more. This adds expense to collection fees and taxes, not to mention damage to the health of nearby residents.

Economic Opportunity: A recent study discovered that if 100 percent of Minnesota's e-waste were recovered, it **could generate \$2.8 billion** and **create almost 1740 directly related jobs** (and many indirect jobs). Sixty-eight different minerals/metals are recoverable, the most valuable of which include Palladium, Platinum, Gold, Copper, Tin, Lithium, Iron, Aluminum, Silver, and Ruthenium. Enough silver can be recovered for 441,000 solar panels, and enough copper for 155,000 electric vehicles. [See [The Economic Potential of E-Waste Recycling in Minnesota: A Pilot Study](#) - p. 6 element charts; pictures/facts from p.7].



Past Legislation: Minnesota's Electronics Recycling Act, passed in 2007, is out of date. Some of what it defined as e-waste included electronics like CD/DVD players, VCRs, and other electronics that are no longer popular. Meanwhile, items like Bluetooth ear buds did not even exist until more recent years yet include lithium batteries and circuit boards. E-cigarettes didn't start infiltrating the U.S. market until the late 2000s (and in the case of disposable vapes, aren't even rechargeable). Also, smart phones which most of us now carry (and replace every couple of years) started gaining wide popularity in the years after the introduction of the iPhone at the end of June in 2007 (after the end of the legislative session which passed the Electronics Recycling Act).

At its peak, under the 2007 legislation, around 40 million pounds of e-waste was collected, but by 2021 that was down to only 20 million pounds. Currently, residents and businesses must pay fees (sometimes hefty amounts) to do the right thing by depositing e-waste for recycling. Limited drop-off locations and items collected present further barriers.

2024 Legislative Proposal: Lutheran Advocacy-MN is joining other organizations to pass legislation that would...

- 1) **Change the definition of e-waste** to include any device covered by electricity (This is a broad and flexible definition, which covers any device into the future, including those not yet conceived of)
Exclusions:
 - Lead acid batteries (a car battery buyback program already exists, resulting in a 95% recovery rate)
 - Electronic Vehicles & Infrastructure (recycled by a different process and different stakeholders)
 - White Waste – Refrigerators, washers, dryers,
- 2) Provide **free accessible drop-off or collection** of e-waste statewide for residents AND businesses
- 3) Collect **fees at the point of sale** of electronic items (3-4% of item cost) **to cover collection costs** including disposal, shipping, up to two employees per collector, and an additional incentive per pound.

[See KARE 11 News Coverage of the Study](#)

Sources:

1. Maria Jensen: Repowered (Environment, Health, & Safety); Recycling Electronics for Climate Action (RECA); Areas of Study: Public Health (Research Methods); Environmental Toxicology & Public Health. Presentations: MEP Climate & Energy Cluster; [Ely Tuesday Group](#)
2. Lucy Mullany: Eureka Recycling. Presentations/Discussions: MEP Climate & Energy Cluster
3. Jensen, Maria; Roopali Phadke; Keith Steva; Marlise Riffel. "[The Economic Potential of E-Waste Recycling in Minnesota: A Pilot Study.](#)" Iron Range Partnership for Sustainability; Repowered; Macalester College. August 2023.
4. "[Harnessing the Economic Potential of E-Waste Recycling: A New MN Study.](#)" Repowered.
5. Smieja, Jon. "[The Enormous Opportunity of E-Waste Recycling.](#)" World Economic Forum. March 24, 2023.



March 5, 2024

Chair Hansen & Members of the House Environment and Natural Resources Finance and Policy Committee:

Thank you for the opportunity to provide comments on HF 3566, Rep. Hollins' electronics recycling program bill, as proposed to be amended.

The Minnesota Retailers Association is comprised of 1,200 retail stores across the state, including main street retailers, regional/mid-sized retailers, and retailers with a national presence. Today's retail market is competitive, and consumers are mobile with many options for purchasing products, including across a state border, the country and in some cases even the world.

Minnesota has a strong history in its approach to e-waste. Beginning in 2007, manufacturers of video device displays have been responsible for funding end-of-product-life recycling. We should be proud that 488 million+ pounds of e-waste have been recycled through the current program. The accessible program, where today 93% of Minnesotans are within fifteen miles of an e-waste collection site according to MPCA, has driven e-waste down to a level where it makes up around two percent of our waste stream.

Can more be done? Absolutely. As Rep. Hollins and other stakeholders consider changes to Minnesota's program, we believe it is important to consider these items:

- Any system should include **strong consumer education at its core**, including manufacturers doubling down on consumer awareness and understanding of recycling options as we know this is a fundamental driver to increasing Minnesota e-waste recycling rates.
- A manufacturer funded system should rest on the **convenience of collection and payment of all end-of-product-life costs including collection and transportation** for responsible recycling.
- **Minnesotans should not be charged additional taxes or fees** under a manufacturer funded e-waste recycling program. Such point-of-sale fees/taxes raise great concern for the competitiveness of our retailers and directly impact the pocketbooks of our residents.
- In some Minnesota communities, **the additional 3.2% e-waste sales taxes will raise the consumer tax to among the highest in the country—13.075%**! This additional point of sale 3.2% e-waste tax would be added to our state general sales tax (6.875%), county taxes (some are .5%); city taxes (up to 1.5% when including St. Paul's April 1 roads and parks tax); metro area transportation tax (.75%); metro area housing tax (.5%), plus the recently passed \$.50 delivery fee. **While all for important causes, that is seven bites at the consumer.** In addition, consumers would be subject to a \$.90 fee on cellphones.
- A high sales tax rate will drive consumers across the state border. As an example, shoppers in St. Paul will have a 13.075% sales tax rates versus across the river in Hudson, where a consumer will be subject to a 5.5% sales tax. **Pushing sales across the border only undermines the financial support of the e-waste program**, not to mention the other missed sales taxes and the program those dollars support.

Retailers share your goal of being good stewards of the environment, and we hope you share our goal of fostering a marketplace where Minnesota's retailers can competitively serve their customers.

We look forward to working with Rep. Hollins on a system that works for Minnesota and our consumers.

Sincerely,

A handwritten signature in black ink, appearing to read 'BN', with a large, sweeping flourish at the end.

Bruce Nustad
president