



Assembly Standing Committee on Environmental Conservation,
Chair: Assembly Member Steve Englebright
Commission on Solid Waste Management,
Chair: Assembly Member Steven Otis
Commission on Toxic Substances and Hazardous Wastes,
Chair: Assembly Member Michael A. Simanowitz
Assembly Subcommittee on Oversight of the Department of Environmental Conservation,
Chair: Assembly Member Patricia A. Fahy

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Testimony of Gay Gordon-Byrne, Executive Director of The Repair Association (repair.org)

The Repair Association is a non-profit member owned 501(c) 6 Corporation, founded in 2013. Membership consists of leaders in the industry of repair, in the used equipment trading industry, of recycling organizations, zero waste advocates, and major consumer and digital rights organizations.

Our mission began as the Digital Right to Repair Coalition with a specific mission to promote right to repair legislation in states. We have helped legislators in four states file Fair Repair legislation, including New York.

E-Waste from the Perspective of Recyclers, Reusers and Repair Businesses

I asked to testify because nearly all of our members are directly engaged in the aftermarket for digital electronic products. We are the people that fix broken things, buy and sell used things, harvest spare parts for reuse, and recycle the remains. It is our industry that stands in between the retail shelf and the smelter.

We know there is too much e-waste because there is too little repair. We aren't allowed to fix all the things that could be reused because of manufacturer policies blocking repair. We see value in the parts that are being crushed, but we can't justify pulling them apart—because without a market for repair, there isn't a market for salvage parts. We don't want to throw anything away that can be reused, but we can't operate businesses without markets.

It is probably obvious that repair helps keep equipment in use and out of the waste stream. It is probably not known why this is difficult and what legislators can do to enable more repair and—through repair—allow consumers to create less waste.



Why equipment enters the waste stream as e-waste

The three drivers of discarded electronics are: a) physical obsolescence, b) functional obsolescence, and c) breakdowns.

Physical obsolescence is rare with electronics. Most products don't stay in use until they degrade into dust. Most end-of-life discards are functionally obsolete. People aren't trying to use dial-up modems any longer to access the Internet. These giant leaps of innovation are good reasons to replace electronics.

The bad reason to discard electronics is breakdowns. I just did this recently. My fancy \$600 microwave oven wouldn't turn on and digital display showed an error code. According to the error code, the circuit board had fried. I called GE for the part—and the part price was \$600. I did what anyone else would do too—I bought a new microwave for \$189. I've now contributed to both the solid waste problem and the e-waste problem.

Every consumer does this with every broken gadget. *Consumers Reports* advises their readers that if the cost of repair is more than half the price of the replacement—buy the replacement. The problem with this advice is that it masks the real problem—the market for repair is no longer competitive.

What is a manufacturer monopoly on repair?

Unlike non-electronic equipment, neither repair shops nor consumers can build a replacement circuit board in a garage workshop. The digital revolution has made things very complex and tiny. Parts only work in concert with integrated firmware. Without access to the same information the manufacturer uses to repair equipment under warranty—repair outside of warranty is impossible. It is out-of-warranty equipment that gets discarded if repair is too expensive or unavailable.

Over the past 10-20 years, manufacturers have learned from each other how easily they can thwart independent and DIY repair. Just stop printing manuals. Don't sell tools, diagnostics or parts. Put the library of firmware behind a paywall. Despite popular myth—manufacturers are not harmed by repair. They don't lose control of their proprietary software, patents or trade secrets. They just like the profits.

These are true monopolies that are killing the market for used equipment, killing the opportunity of repair, and throwing useful products into the waste stream at increasing rates.

How much e-waste could be repaired and reused?

We have some evidence to suggest that less than 15% of computer products that could be repaired and kept in use are repairable under current conditions. Since this is a very repairable sector of a vastly wider market, the big picture is undoubtedly far worse. We guesstimate for the wider world of repair,



repairable percentages are in the single digits. That gives us all the opportunity to favorably impact some portion of the 90% + of useful e-waste by keeping it out of the system for just a few more years.

Another way to come at the volume question is to look at what kinds of electronic devices are already in use and how those products become e-waste.

McKinsey & Company (advisor and counselor to many of the world's most influential businesses and institutions) estimated in 2011 that the average US household already owns 24 electronic devices. Others have estimated each person in the US owns 4 such gadgets. With 19.75 million New Yorkers—that's 79 million gadgets. Many of these will last only a few years before being discarded long before they would have been obsolete for good reasons.

The McKinsey estimate is only for consumers and it predates the Internet of Things. If the repair industry is not allowed to function, every one of these gadgets and gizmos will become part of the Internet of Broken Things. That scares us. We don't think public policy is prepared for the consequences of this much reliance on technology without the means to keep it up and running.

We need repair-friendly public policy

The reason our industry cannot legally repair, reuse, or resell these gadgets is not lack of repair skills, but lack of information that only the manufacturer can provide. While it is probably not economically worthwhile to repair a busted Mr. Coffee when a replacement is \$20, the opportunity needs to be there as a principle.

Repair-friendly public policy solution: "Fair Repair" S 3998A (Boyle) and A6068 (Morelle)

Fair Repair in electronics is not a unique fight. Automobile and heavy-duty motor vehicle consumers fought and won similar Right to Repair battles recently that are now adopted nationally. Fair Repair is modeled tightly after these agreements because they solve the problem of monopolized repair. The principles are the same because the electronic parts inside of motor vehicles are the same as other electronics.

Fair Repair legislation is currently under consideration by the Consumer Protection committees in both houses. The principle is very simple—consumers should have the opportunity to seek repair services without being limited to the manufacturer. More options and more competition for repair services means more availability and lower prices for consumers. Consumers will be helping to reduce e-waste without further mandates on them, and at no cost to the taxpayer.

Fair Repair will also restore value to used equipment. Used equipment trading is the most organized form of reuse. Broken equipment is hard to resell unless it is easily repaired. The cost of repair is a major



factor in business decisions to buy used equipment. Without repair monopolies—used equipment can have second, third, and fourth owners before being recycled.

Recyclers benefit directly as well. Harvesting valuable parts from waste electronics is a profitable business activity, provided there is a market for the parts. The longer people keep things in use—the more demand there is for used parts for repair. Recyclers that cannot engage in repair and reuse are limited to raw materials values, which are highly variable. We have heard that a number of recycling facilities have shut down due to low raw materials value.

Thank you for this opportunity to testify today. I am available to try to answer any questions you may have.

Gay Gordon-Byrne

Executive Director, The Repair Association

ggbyrne@repair.org