

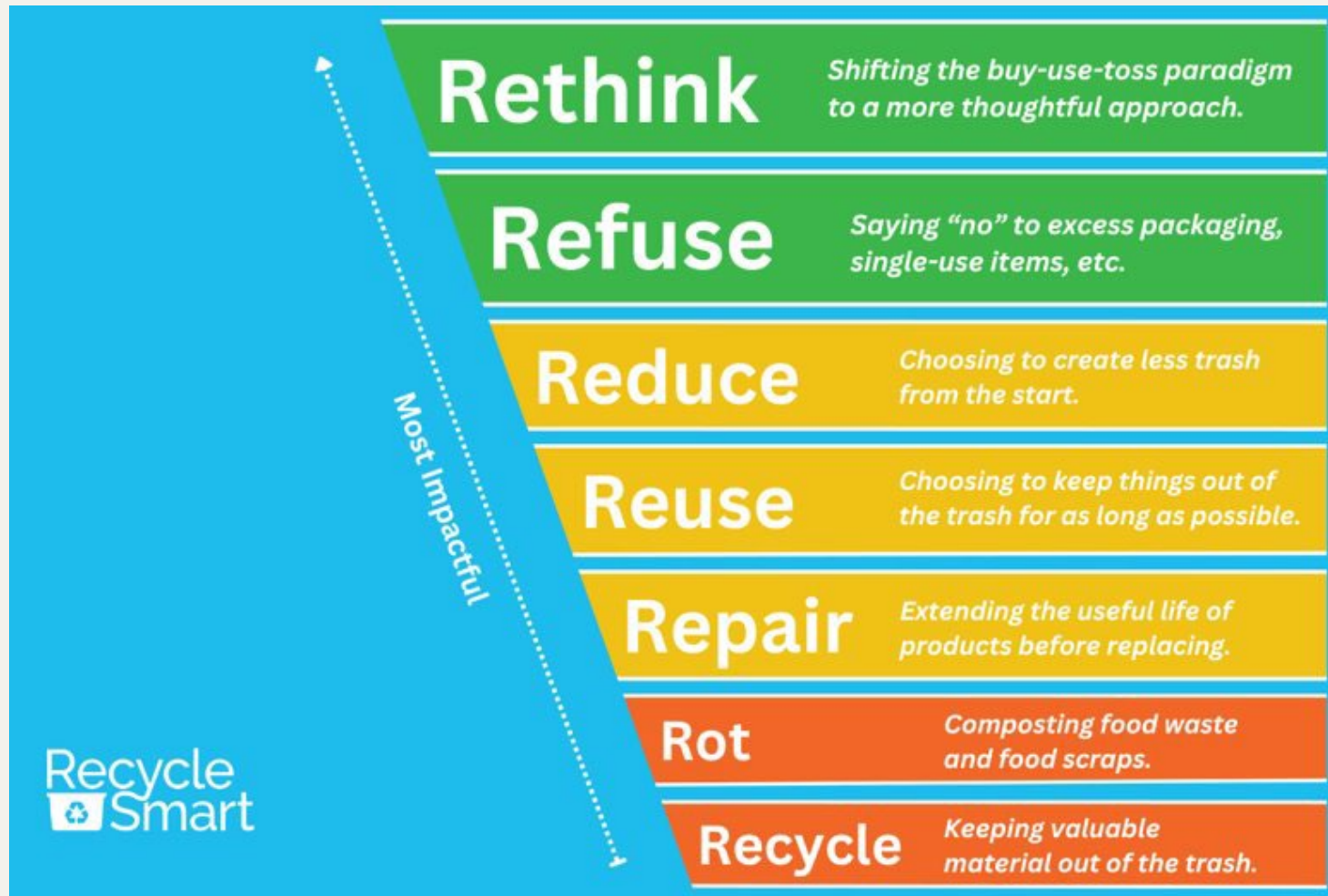
Reduce & Reuse in Massachusetts



MassDEP
Department of Environmental Protection

NEWMOA Materials Management 101
July 15, 2026

The Waste Hierarchy

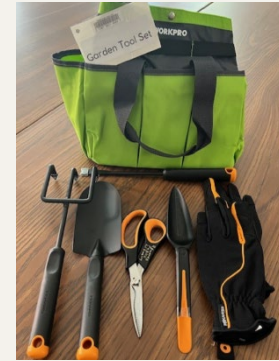


Reuse Programs & Activities

- Community programs
 - Tool libraries and libraries of things
 - Swap shops and zero waste days
 - Repair cafes & fixit clinics
- Secondhand shops and refilleries
 - Furniture banks, thrift shops, bulky grocery
- Food rescue
- Reusable food ware (restaurants, business/college campuses, K-12 schools)
- Textile and clothing donation
- Online material exchanges

Reuse Policies

- Single-use bans (plastic bags, Styrofoam, water bottles, black plastic, etc.)
- Skip the Stuff
- Surplus management requirements
- Procurement policies focused on buying durable, repairable, refurbished or remanufactured goods
- Demolition delays
- Deconstruction ordinances
- Extended Producer Responsibility



Reduce & Reuse Action Plan



Single-use
Packaging



Building
Materials



Textiles &
Clothing



Electronics



Household
Durable Goods



Business & Institutional
Furniture, Fixtures and
Equipment

Common Barriers to Reuse



Cultural



Awareness and access



Storage, storage, storage!



Outlets and markets

Our MassDEP Tools

Grants and financial incentives

Technical assistance

Education and outreach

Network building

Grants to Expand Reuse Systems



UMass Amherst New2U
campus thrift shop expansion



HandUp bilingual advertising and
digital ad pilots for mattress resale



Carey Company deconstruction pilot on Nantucket



Untold Brewing reusable
pallet wrap pilot



Computers 4 People computer repair and
redistribution to those in need



Swanson's Fabrics mending
workshops



Clean Water Action support of Truro Community Kitchen's transition to reusables for free meal service



Arlington Public Schools switch to reusable utensils, trays, and condiment dispensers



Wachusett Earthday Inc. Furniture Pavilion



Spoonfuls truck for rescued food distribution

Technical Assistance to Support Best Practices

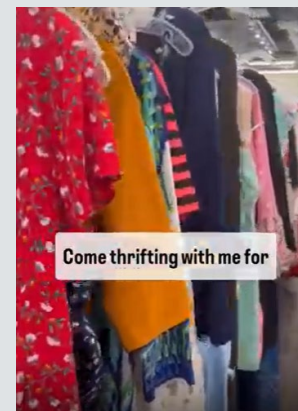
- RecyclingWorks in MA guides, templates, case studies, and one-on-one assistance
- [Best Management Practices for Reusable Takeout Containers](#) (BMPs)
 - Guidance for food establishments interested in replacing single-use takeout containers with reusable service ware



Photo credit: The New York Times [Care About Food Waste? In Massachusetts, You Can Be a Compost Consultant.](#)

Education & Outreach

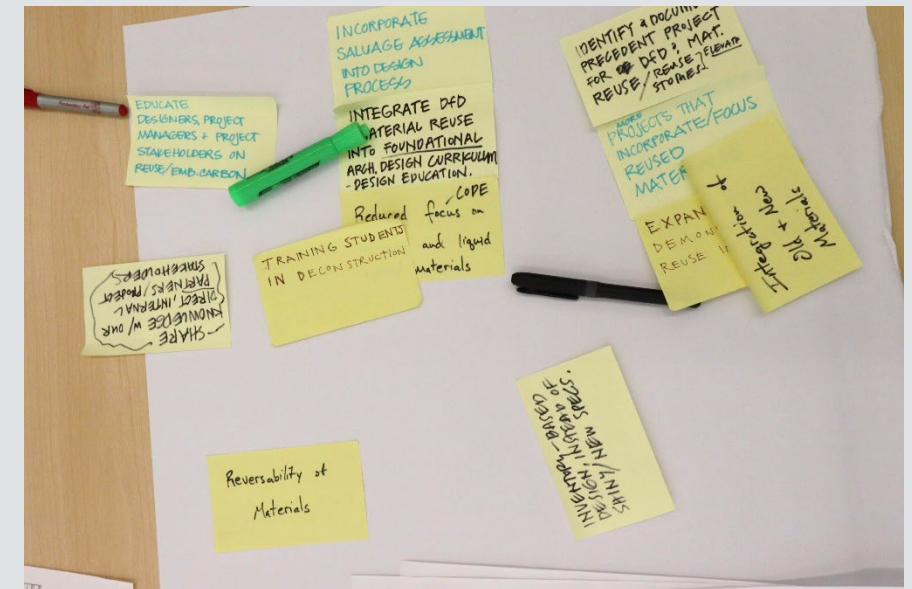
- Host educational webinars on reuse topics
- Educate the public on reuse and repair in daily life and spread awareness of local opportunities



Fostering Connections

Deconstruction Workshop In-person, October 2025

- About 70 participants, private and public sector
- Mapped steps to move the needle on deconstruction in MA
- Report with recommendations coming soon



We're Continuing to Build a Network

Reduce & Reuse Network

- 1,300+ members and growing

Deconstruction Work Group

- General contractors, designers, building officials, historic preservationists, etc.

Bulky Item Work Group

- Facilities managers, remanufacturers, furniture banks, junk removal companies, municipalities, etc.



**Connect
with us!**

Kathi Mirza: kathi.mirza@mass.gov

Janice Paré: janice.pare@mass.gov

Leah Kelleher: leah.kelleher@mass.gov

Learn more and find past meeting recordings:
[MassDEP Reduce & Reuse Working Group](#)



PIRG

NEWMOA Reuse Webinar | Right to Repair

About U.S. PIRG

United States Public Interest Research Group (U.S. PIRG) is an advocacy organization, focusing on consumer safety, public health, and environmental issues.

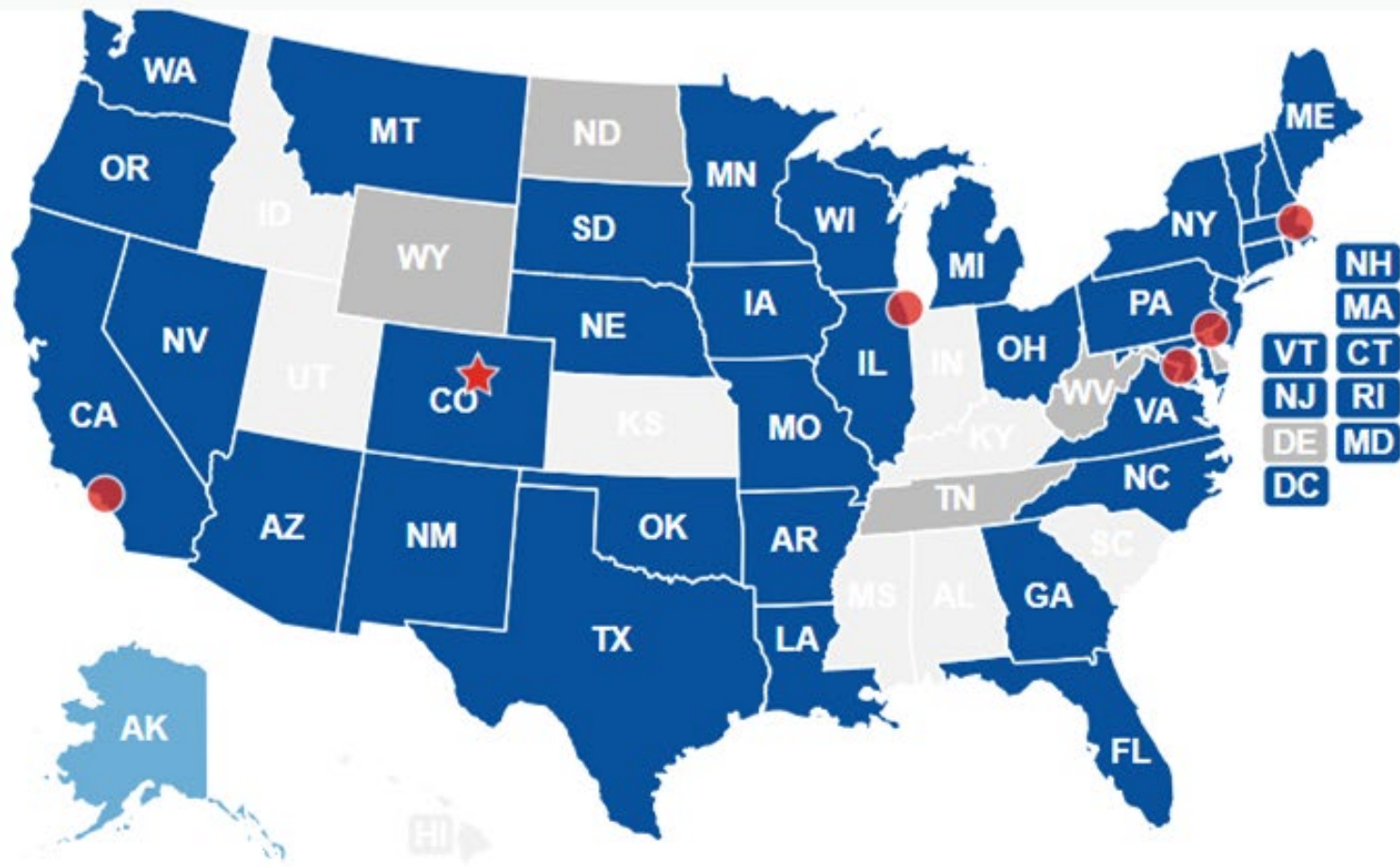
U.S. PIRG is a federation of state organizations employing close to 400 organizers, policy analysts, scientists and attorneys, and are active in 47 states, with a federal lobby office in Washington, D.C.



PIRG's Lucas Gutterman calls on Google to take steps to improve the lifespan of Chromebook at a media event.



testified in front of U.S. Congress on repair restrictions in the fall of 2022.



PIRG



Key

- Our groups
- Our affiliates
- Rotating field office
- Hub office

The electronics problem.

America's electronic waste is piling up



6.9 MILLION
TONS PER YEAR

The average family generates 176 pounds of electronic waste each year, and the United States generates some 6.9 million tons nationally.

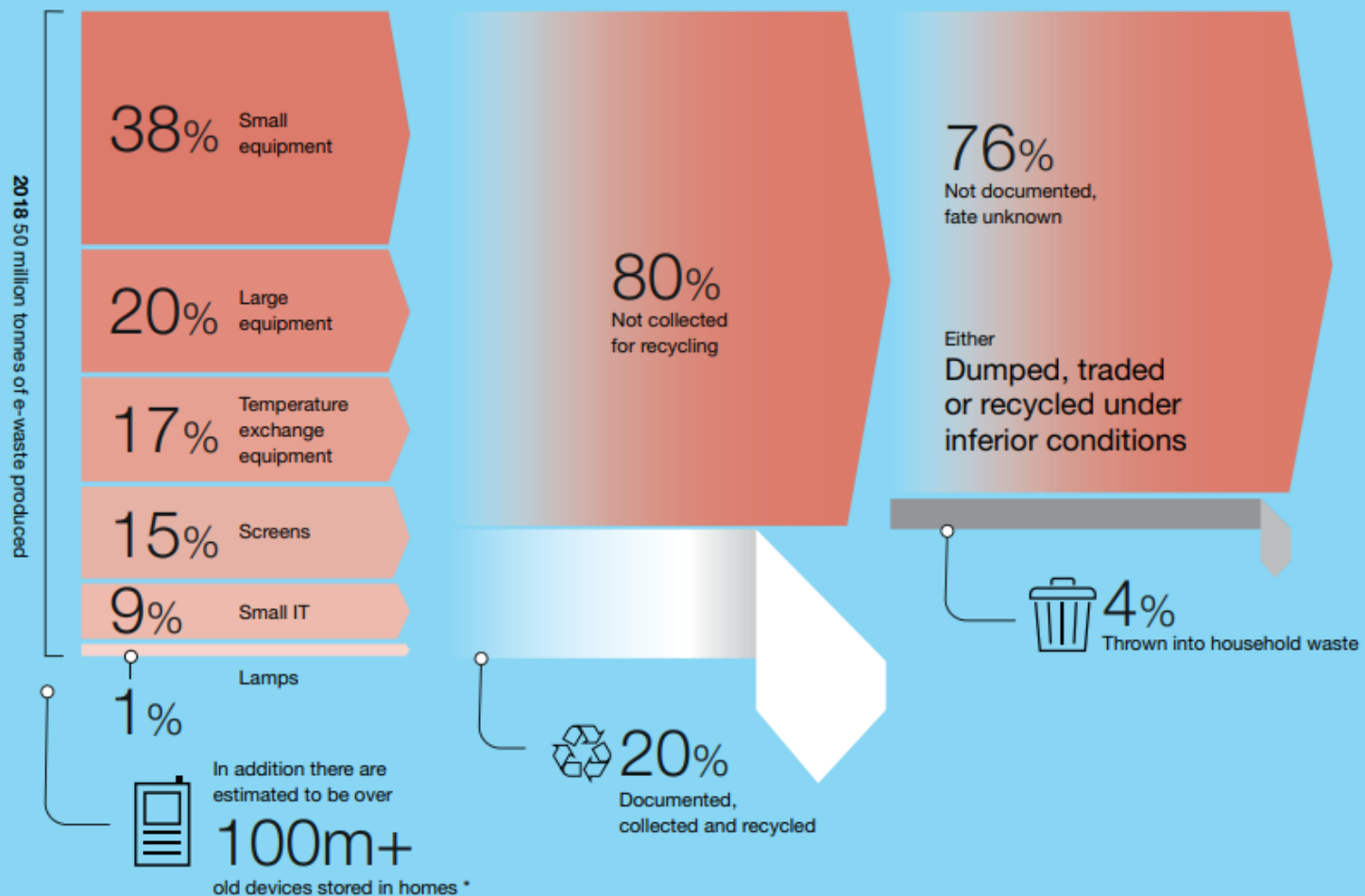
On average, Americans dispose of

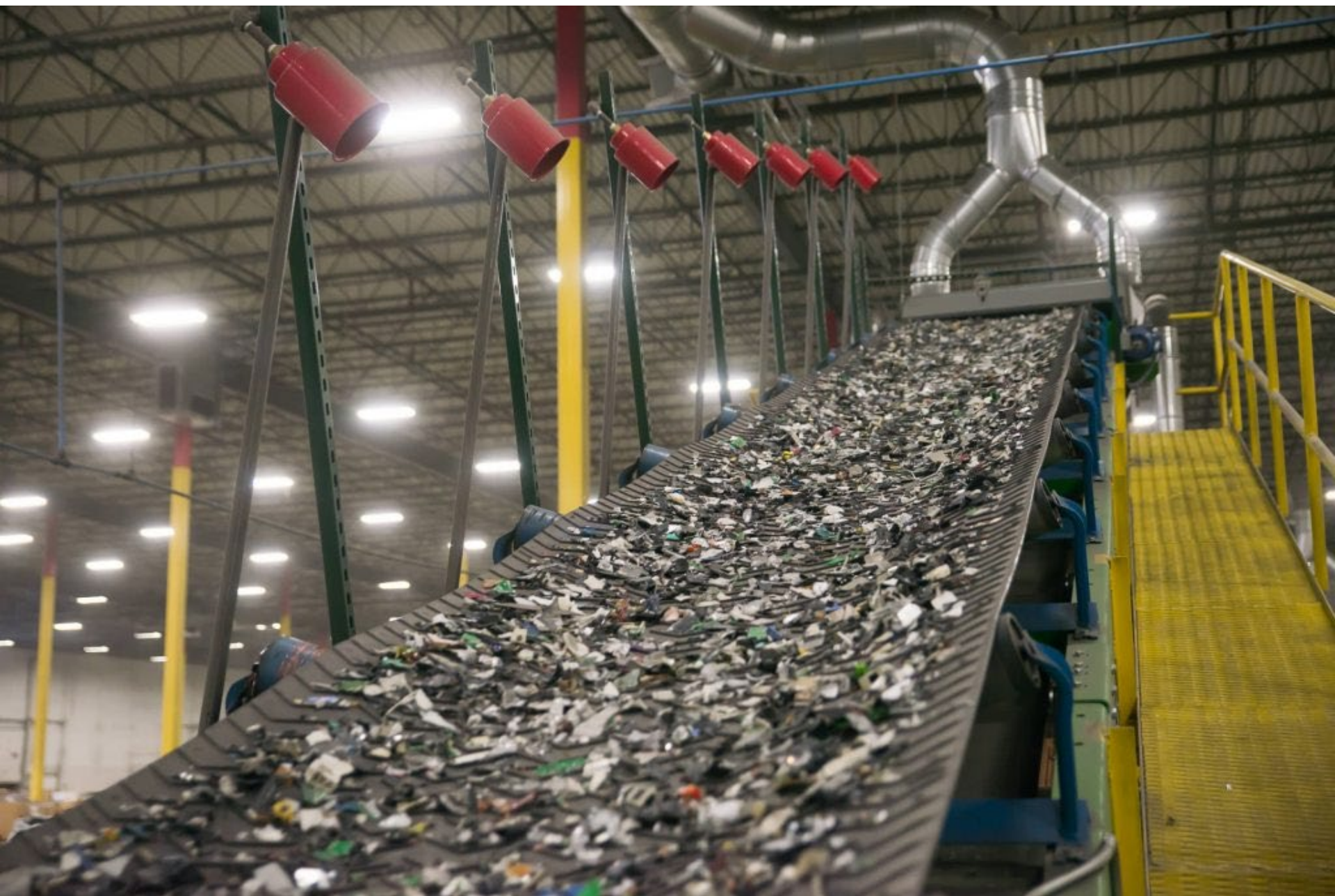
416,000

Phones Every Day

Image: Fairphone / Close the Loop

GLOBAL E-WASTE FLOWS





PRODUCTION and CONSUMPTION



The constant churn of new devices...

- Generates **green house gas emissions**
- Requires the **mining** of lithium and rare-earth minerals in vulnerable places without environmental precautions.
- Exploits **human labor** in harsh conditions and low wages.



The dystopian lake filled by the world's tech lust

Every year,

275

MILLION

PCs/laptops are made.



The manufacturing of one year's
worth of laptops alone emits

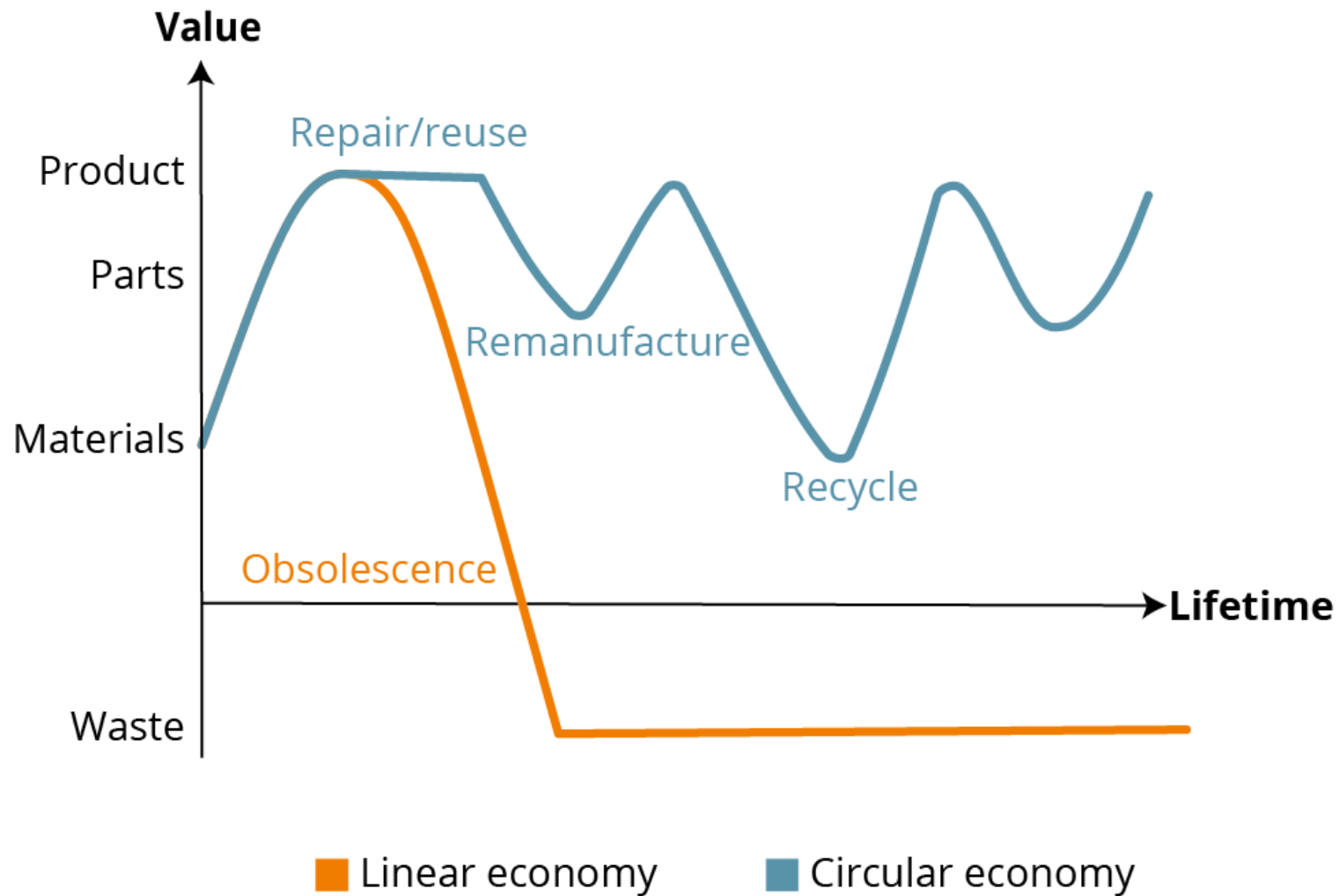
150.6

BILLION

pounds of CO2 equivalent.



Rethinking the model for our electronics



Microsoft Design for Repair GhG Impact

An assessment of the greenhouse gas emissions and waste impacts from improving the repairability of Microsoft devices

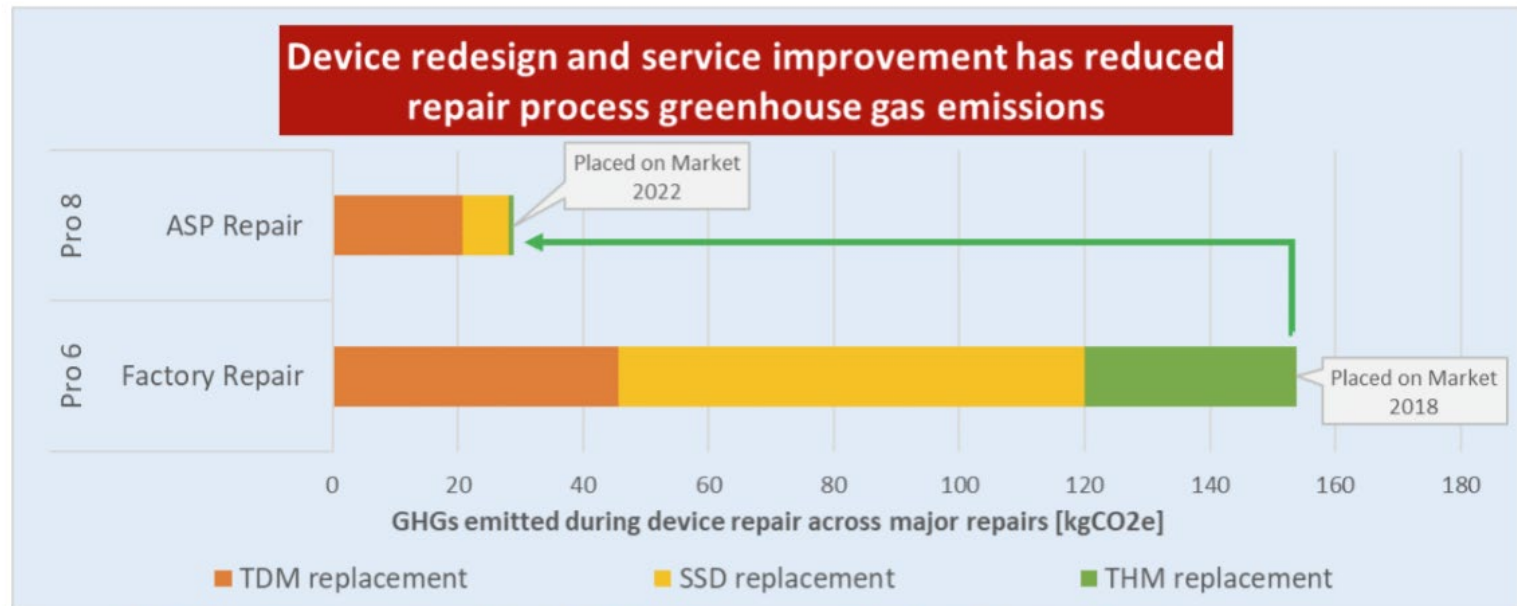


Figure 5: GHG emission impacts of Pro 8 ASP Repair compared to Pro 6 Factory Repair

Why doesn't more stuff get fixed?

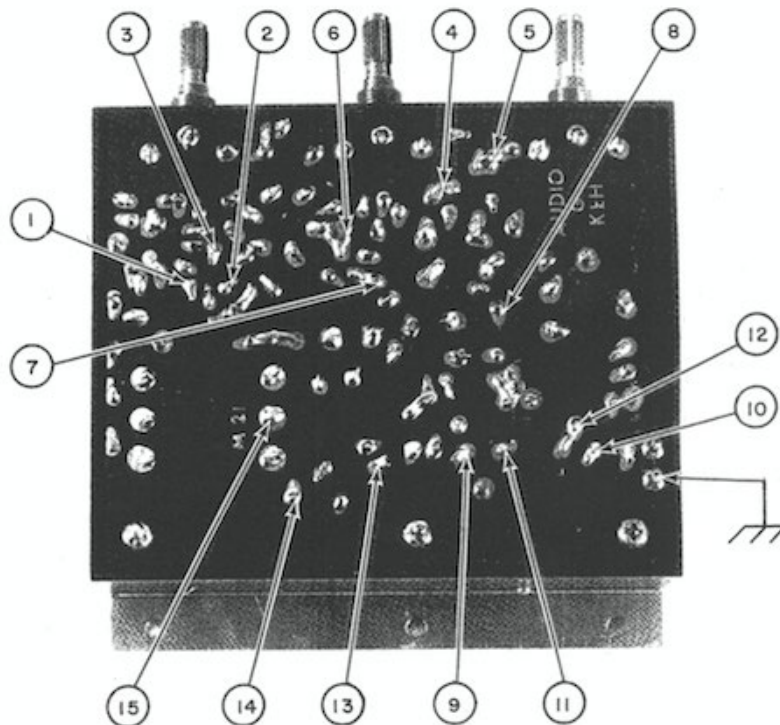
Press ESC to exit full screen



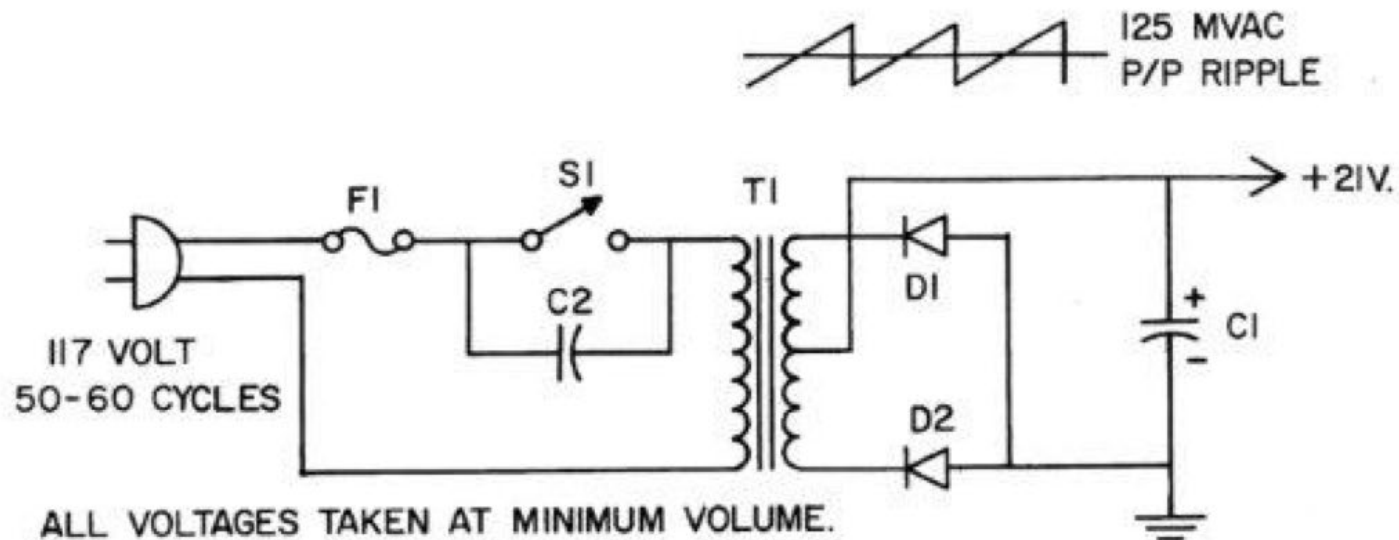


	+ D.C. VOLTS	RESISTANCE TO GROUND
1	1.36 Volts	8.5K ohms
2	.72 Volts	2.2K ohms
3	9 Volts	23K ohms
4	.615 Volts	1.25K ohms
5	.038 Volts	240 ohms
6	3.6 Volts	325 ohms
7	3.08 Volts	330 ohms
8	18.6 Volts	130K ohms
9	21.8 Volts	1.3K ohms
10	10.4 Volts	1K ohms
11	22 Volts	1.25K ohms
12	10.48 Volt	950 ohms
13	11.5 Volts	1K ohms
14	10.95 Volt	1K ohms
15	21.8 Volts	1.5K ohms

KLH MODEL 21 AUDIO AMPLIFIER BOARD



M-21 POWER SUPPLY



F1 = 1/4 AMP. SLOW BLOW FUSE.

SI = OFF-ON (VOLUME).

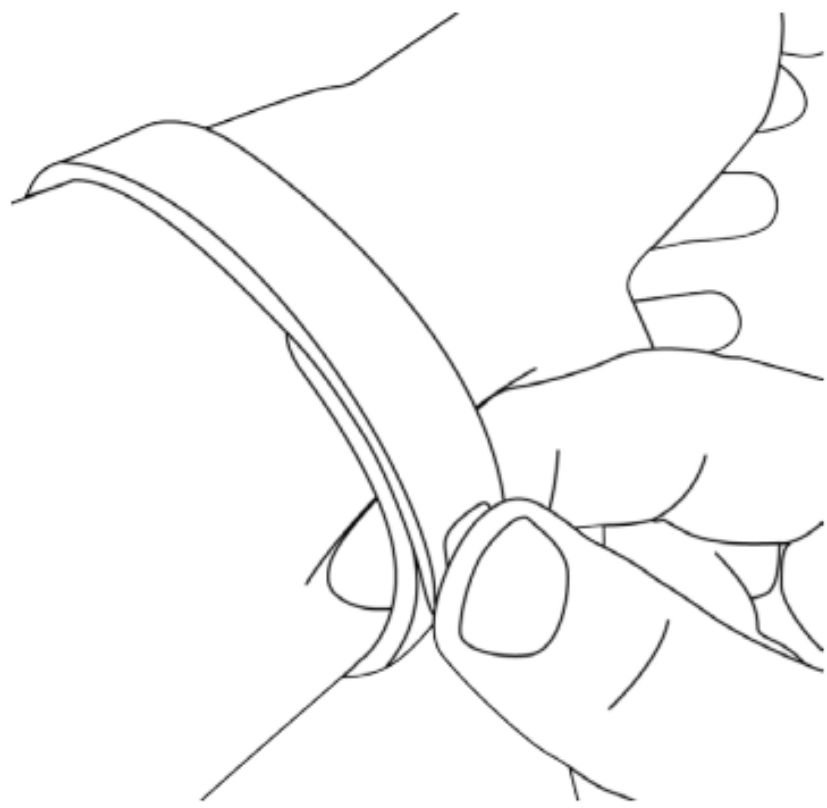
C1 = 2000 μ F / 30 VOLT.

C2 = .005 μ F / 1400 VOLT (U.L.).

D1 & D2 = 1N2859.

T1 = KLH PART NO. E01093.

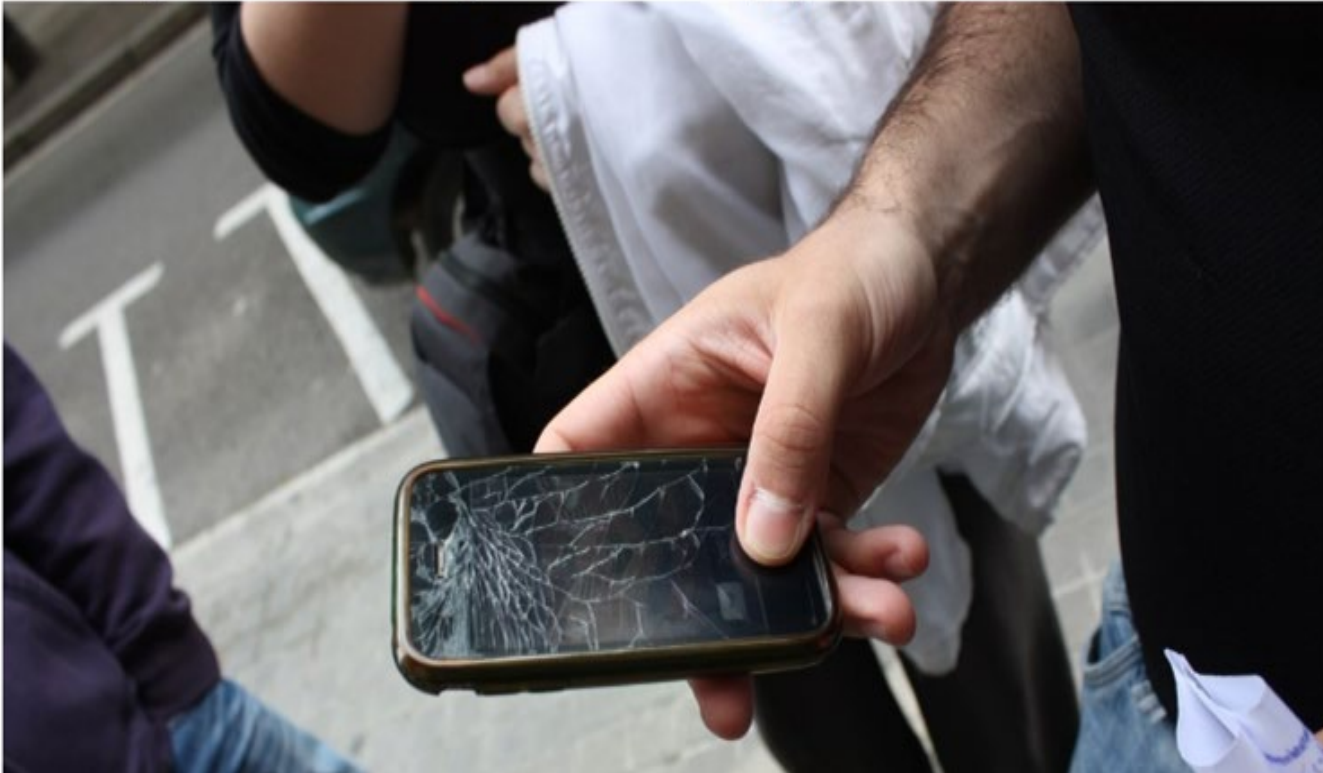






Oregon Lawmakers Want to Help Mom-and-Pop Shops Repair Your iPhone. They'll Have to Get Past Apple First.

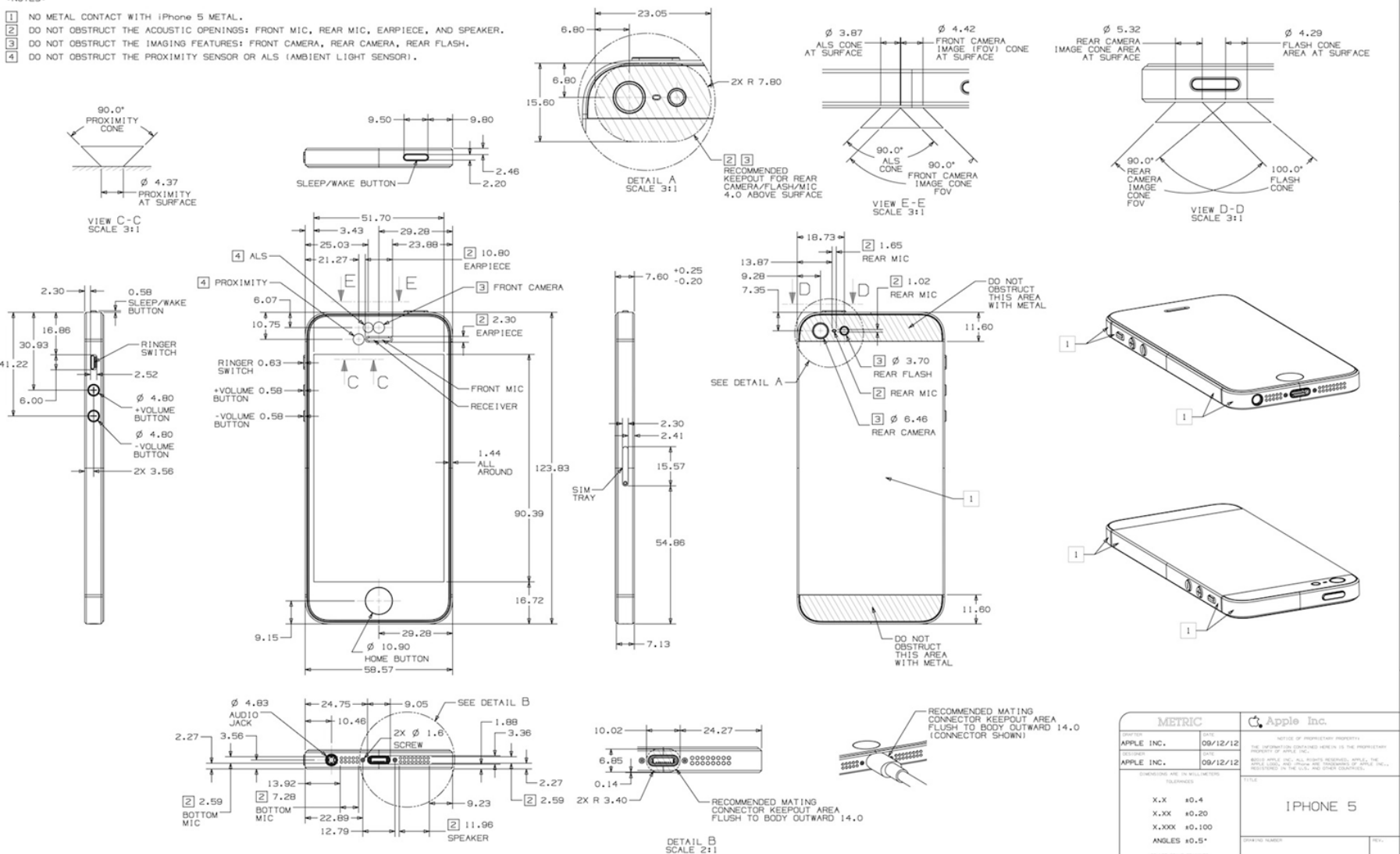
No state legislature has successfully addressed the monopoly on tech repairs.



Rep. Jeff Barker (D-Portland) doesn't support the current version of the bill but hopes backers can "tailor a bill that doesn't go after super-secret information that industries have."

•NOTES•

- 1 NO METAL CONTACT WITH iPhone 5 METAL.
- 2 DO NOT OBSTRUCT THE ACOUSTIC OPENINGS: FRONT MIC, REAR MIC, EARPIECE, AND SPEAKER.
- 3 DO NOT OBSTRUCT THE IMAGING FEATURES: FRONT CAMERA, REAR CAMERA, REAR FLASH.
- 4 DO NOT OBSTRUCT THE PROXIMITY SENSOR OR ALS (AMBIENT LIGHT SENSOR).



METRIC		Apple Inc.	
DATE	09/12/12	DATE	09/12/12
REVISION		REVISION	
DESCRIPTION	THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF APPLE INC. ALL RIGHTS RESERVED. APPLE, THE APPLE LOGO, AND iPhone ARE TRADEMARKS OF APPLE INC., REGISTERED IN THE U.S. AND OTHER COUNTRIES.		
ITEM	IPHONE 5		
QUANTITY		SCALE	NONE
DATE		SHEET	1 OF 1

DOCKFLEX B2B (USB VBUS, MENU BTN, SPEAKER, HP, HP EXTMIC, NAVAJO, ANTENNA LAT SW CTRL, MIC1 (PRIMARY MIC), ACC DET/ID/PWR, E75 DIFFPAIRS)

尾插接口

供电电压
NAVAJO:
VDD (1.8V)
VBOOST (18V)
BOOST_EN

sydzt.taobao.com
思源电子
为您提供苹果维修图纸, 维修视频
更多更新更全敬请关注!
QQ: 2356146104

耳机
HPHONE:
HS3/HS4,
HPDET,
HS3/HS4 REF,
(+EXTMIC)
HS3/HS4 CTRL

菜单键接口
MENU BUTTON

MIC接口
MIC1
(PRIMARY MIC)

天线
ANTENNA:
PAC 2.65v

扬声器
SPEAKER:
SPEAKER LEADS
VSENSE

USB充电接口
USB VBUS

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SPI总线信号
NAVAJO:
VDD (3.0V)
SPI

耳机音频
HPHONE AUDIO

电池温度检测
BATTERY NTC

天线
ANTENNA:
LAT SW CTRL

E75 DIFFPAIRS

附件
ACCESSORY:
DETECT
ID, PWR

sydzt.taobao.com

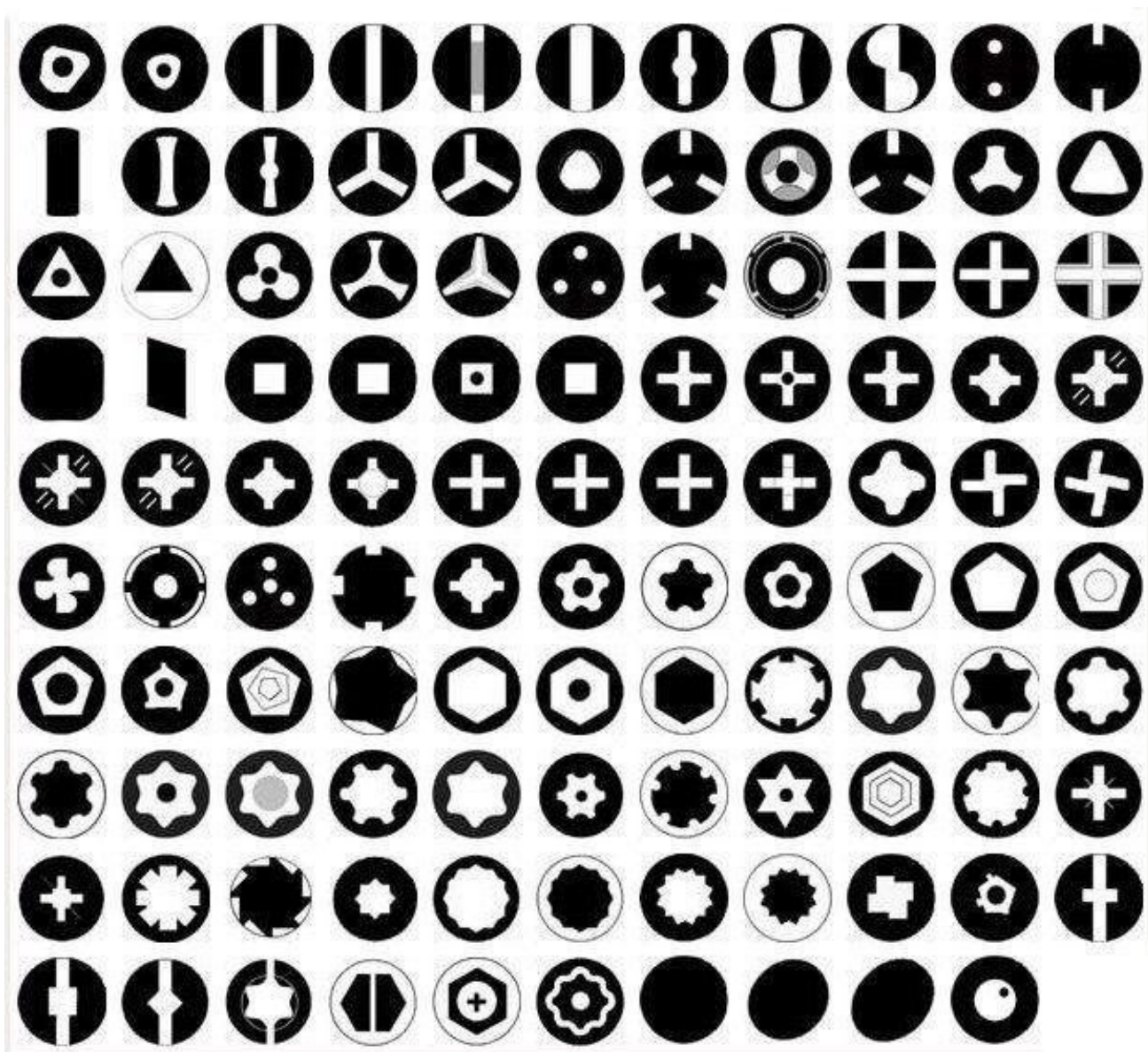
思源电子

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更多更新更全敬请关注!

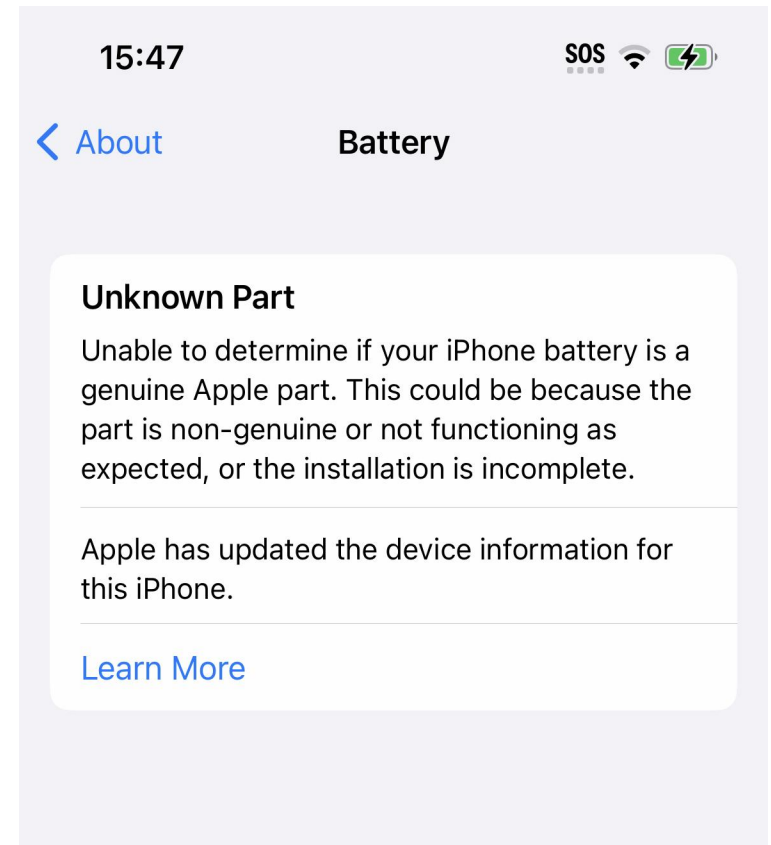
QQ: 2356146104

尾插接口



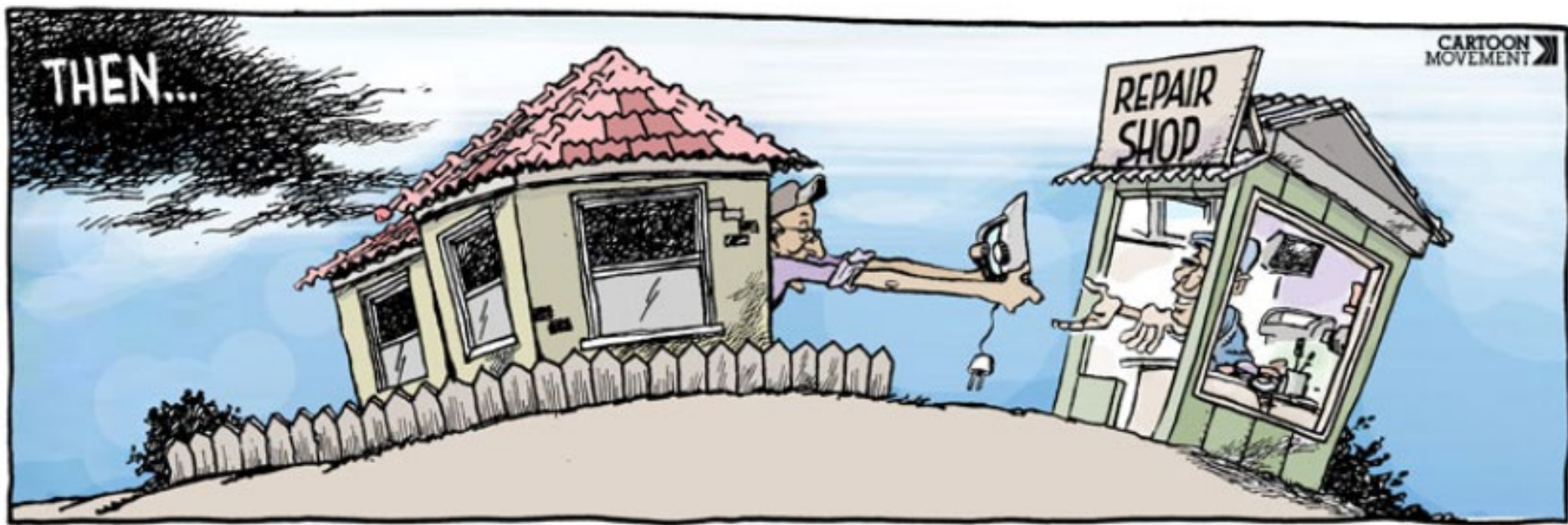








THEN...



NOW...



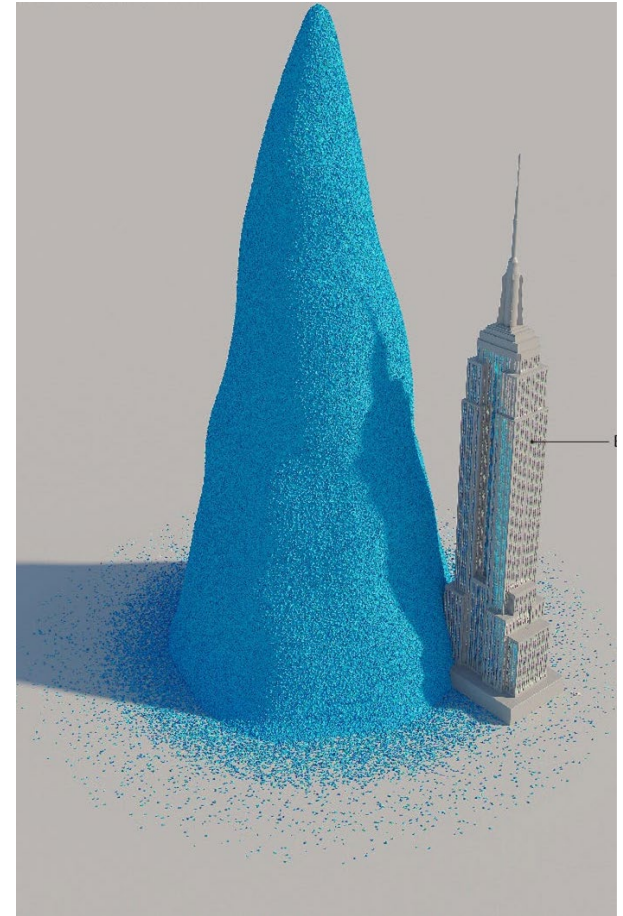
What are the problems we are trying to solve?

1. Behaviors

- a. OEMS monopolize repairs
- b. Products designed hostile to repair
- c. Consumers' throwaway mentality

2. Impacts

- a. Repair price gouging
- b. Repair shops drying up
- c. Forced upgrades are routine
- d. Rapidly growing churn of devices
- e. Digital divide
- f. Climate impact from device manufacturing
- g. Wasting scarce resources



New York state passes first-ever 'right to repair' law for electronics

50

'Repairs should become less expensive and more comprehensive' because of the new measure, says iFixit

By [Russell Brandom](#) | Jun 3, 2022, 2:40pm EDT

If you buy something from a Verge link, Vox Media may earn a commission. See our [ethics statement](#).



SHARE





Tractor repair
restrictions:
FIXED
PIRG
Rocky Mountain
Farmers
Union

Farmers for
Right To
Repair
Rocky Mountain
Farmers
Union



COLORADO



With Kotek's signature, Oregon now has one of the nation's strongest 'right to repair' laws



By Dirk VanderHart (OPB)

March 28, 2024 3:27 p.m.

Oregon has become the latest state to enact a so-called "right to repair" law. Advocates say the bill signed by Gov. Tina Kotek on Wednesday creates the nation's strongest protections for consumers with broken tech devices.



T

O

Sig
arc
day

EMA

Re





Right to Repair

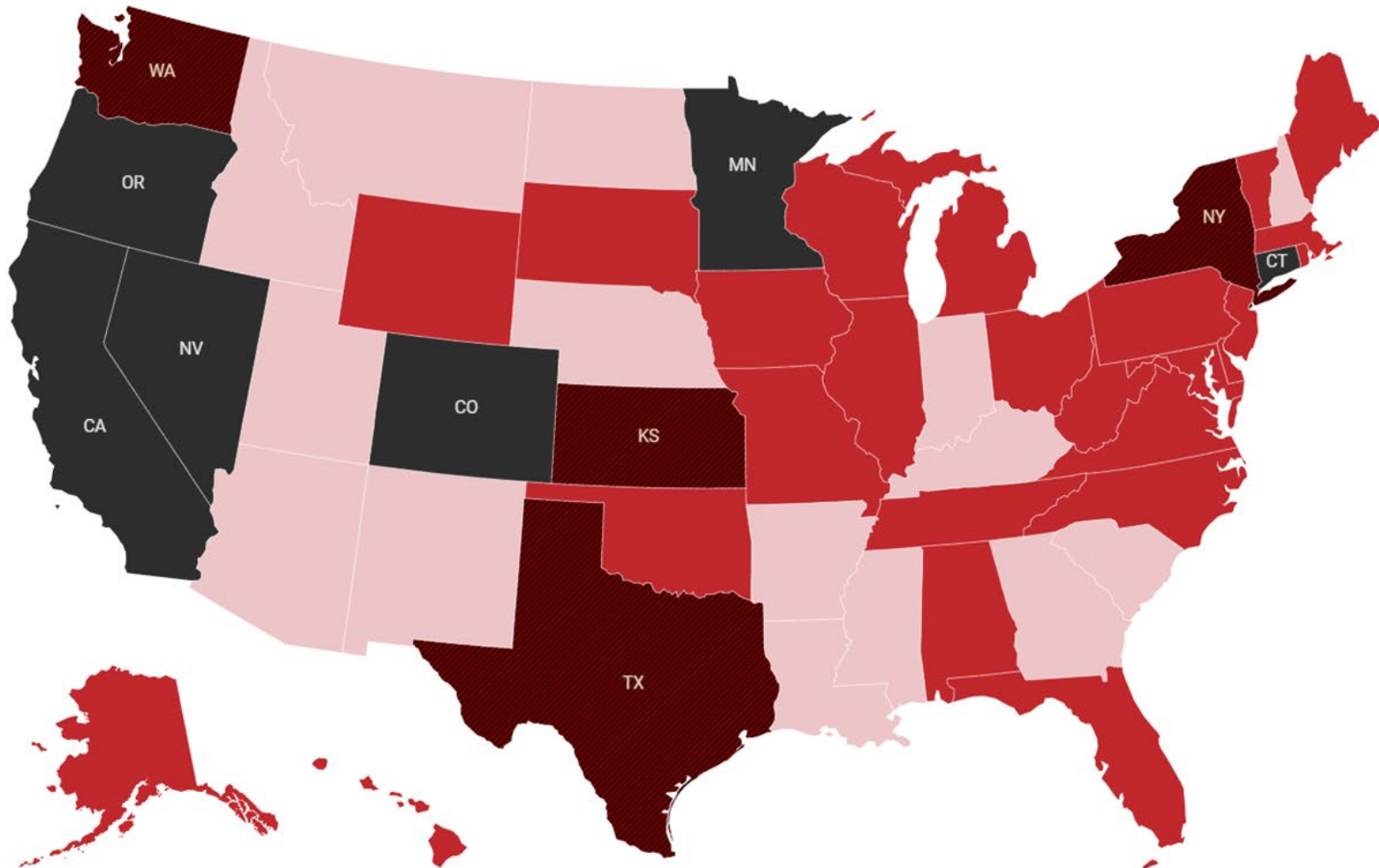
POLICY / LAW

Texas Right to Repair bill passes, heads to the governor's desk



/ Texas is poised to become the first state governed by Republicans with a law requiring manufacturers to make repair parts and info available.

☐ Farm Equipment
 ☐ Automotive
 ☐ Digital Electronic Equipment
 ☐ Appliances
 ☐ Medical
 ☐ Mobility
 ☐ Other
 ☒ Everything



■ Proposed / In Progress
 ■ Law Passed & Currently Proposed
 ■ Law Passed
 ■ Active Before 2026

Map: The Repair Association • [Get the data](#) • [Download image](#) • Created with [Datawrapper](#)



Right to Repair in the E.U.

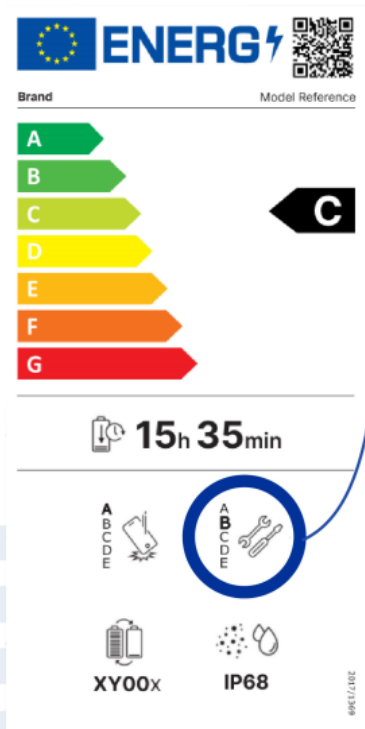
- Transparency around repairable designs
- Movement toward design directives mandating repairability
- Require OEMs to stock spare parts

Label

Colour corresponds to level of reparability in 2 point intervals



Do you know what these labels mean?



Repairability Score

A *Most repairable*
B
C
D
E *Least repairable*

How are they measured?

They are based on 6 factors:



Disassembly depth



Fasteners



Tools



Spare part availability



Software updates



Repair information

**REPAIR
SCORE**



6



**REPAIR
SCORE**



2.5

*Materials
Management 101:
Waste Reduction and
Reuse Strategies*
NEWMOA

July 15, 2026

Macy Zander, Senior Policy Officer





A leading change agency for reuse.

We're accelerating the transition to a **new reuse economy** for **packaging and foodware** that is regenerative, circular and equitable. In short, we're **making throw-away go away**.

Normalizing
reuse

Growing and
supporting
the reuse
service
industry

Creating an
enabling
policy
environment



Today, one trillion disposable food and beverage packaging items are used each year in the US, comprising

67%

of litter found in the environment.

The Throw-Away Economy



10% of all wood harvested ...



20% of all aluminum mined ...



40% of all plastic created ...



50% of all glass produced ...

..goes toward making single-use packaging.

*“We’re never going to be able to recycle or compost our way to a sustainable future. We **have to work upstream** to redesign the systems generating all the waste in the first place.”- Upstream Founders, Helen Spiegelman & Bill Sheehan*

90%

Reduction in packaging
sector GHG emissions
needed ASAP.

31%

= **MAX**reduction in packaging
emissions w/ PERFECTrecycling

Source: Oregon Dept. of Environmental Quality

Reusable dishes for dine-in, such as in a sit-down restaurant or school cafeteria. Dishes are owned by the venue and generally washed on site, though washing can be outsourced.



Refillable packaging is designed to be refilled by consumers multiple times for the same or similar purpose in its original format, and is sold or provided to consumers once for the duration of its usable life.



Returnable reusable packaging is designed to be recirculated multiple times for the same or similar purpose in its original format **in a reuse system**. It is owned by a producer or third party and returned to the producer or third party after each use.



Reuse system = packaging as a service



What is NOT Reuse

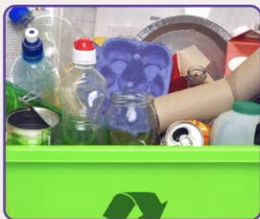


Andela Products

Crushed Glass and Other "Beneficial Reuse"

For landfill cover, landscaping, construction, asphalt, etc.

This involves a **change in form** and the secondary use is not the **same or similar purpose** as the original packaging or foodware.



Recycling

It's not reuse unless there's **no change in form**. "Reusing materials" is not the same as a reuse system.



Stasher®

Reusable Consumer Products

These are **products, not packaging**. Packaging EPR typically only covers the packaging, not the product itself. Familiar reusable products include BYO shopping bags, water bottles, and coffee mugs.



Consumer Repurposing

These items are not part of a **system** and may not be used for the **same or similar purpose**.



Dr. Teal's®

Resealable Packaging

This is not part of a **system** for reuse and is **not reused after** the product is consumed.



Long-term Storage Containers

Durable packaging intended for **long-term storage of 5 or more years** is almost always exempt from packaging EPR laws.

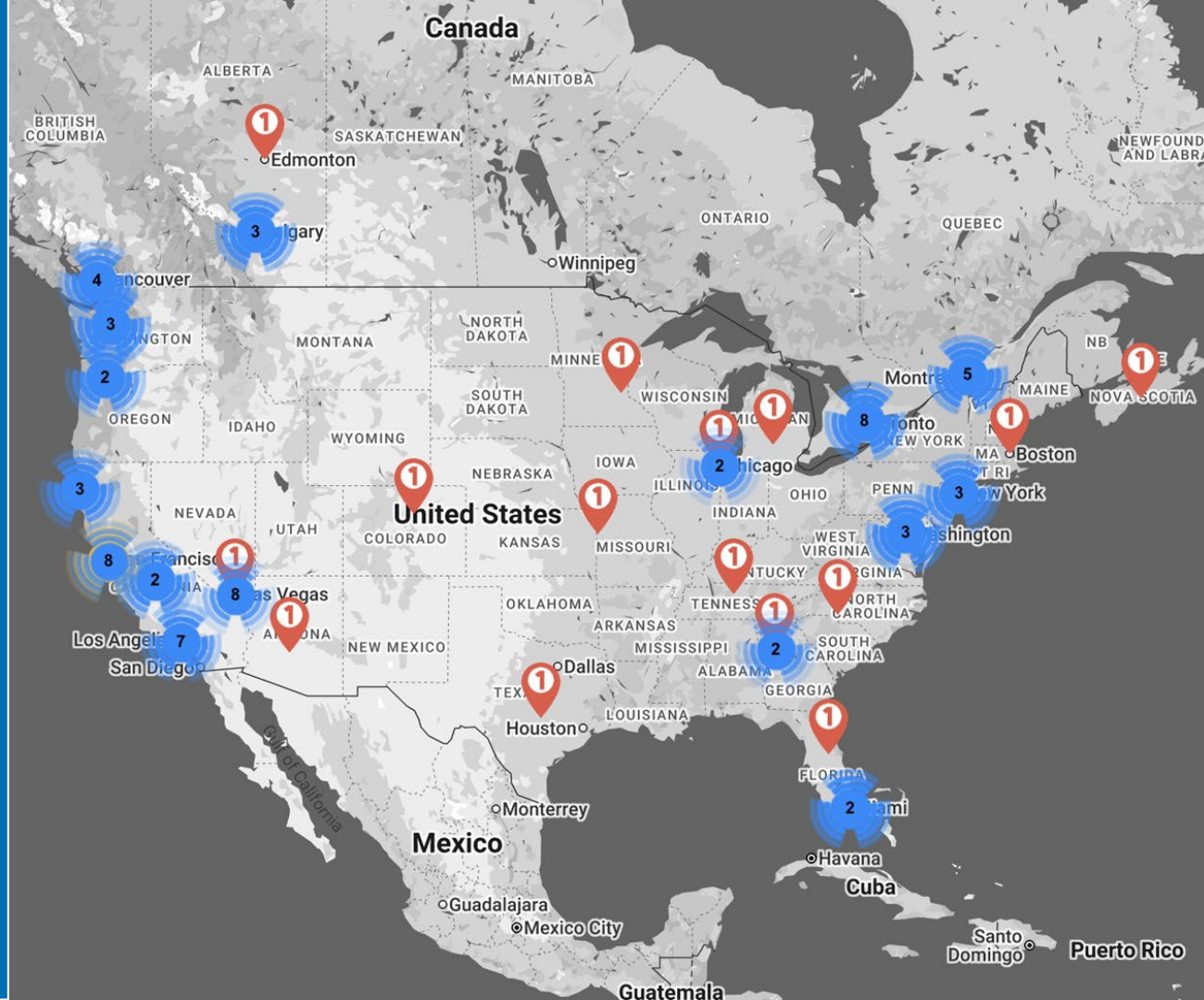
info@upstreamolutions.org

 **Upstream**
www.upstreamolutions.org

[Download the full factsheet](#)

The reuse industry is growing & standardizing

- ANSI Reuse standards
- Universal symbol
- Global Reuse Alliance



North American Reuse Service Provider Market

SECTORS

SPORTS & ENTERTAINMENT



CORPORATE + COLLEGE CAMPUS



TAKEOUT



RETAIL / CPG



WASHING / REVERSE LOGISTICS



REUSE TECHNOLOGY



This industry map is a snapshot of the 2025 landscape of growing reuse businesses. It highlights service providers operating across multiple venues, serving ongoing clients, or demonstrating intent to scale through growth, investment, or infrastructure. While not exhaustive, this snapshot offers a useful view of the ecosystem's structure. Categories reflect business function and market role. The industry is evolving quickly; we welcome corrections or updates at (email)

Key reuse opportunity: Events and venues

- Controlled Environments = Ideal Labs
- High Visibility = Culture Shift
- Reuse in **large-volume, closed-loop venues** is a powerful catalyst.



Resources: [Reuse Wins at Events](#) - [Reuse Playbook for Sports & Entertainment](#) - [Model RFP for venues](#) - [Sports & Entertainment Case Studies](#)

Key reuse opportunity: schools

- High volume
- Most food and drink is consumed on-site w/ few exit points from a school cafeteria
- Reduces exposure to toxins
- Matches daily practices with learnings in the classroom
- Creates school pride + Increases justice in a community
- Helps normalize reuse in society



Image: Re:Dish



Resources: [Conscious Cafeteria Report](#) - [Reuse in Schools](#) - [School Case Studies](#)

Policy Opportunities

Today in US & Canada:

120+ Reuse Laws

covering

80+ million people

See them all on [Upstream's Reuse Policy Tracker](#)



State of policy in the Northeast

Accessories on Request	BYO	Refill Stations	EPR	DRS (Bottle Bill)	Reuse for On-Site Dining
Brookline, MA	Maine	Maine	Maine	Connecticut	Falmouth, MA
East Hampton Village, NY	New York City*	Rhode Island		Maine ★	Needham, MA
Falmouth, MA				Massachusetts	New Jersey*
Needham, MA				New York	Newton, MA
New Jersey				Vermont	Stamford, CT
New York City					Wartown, MA
Newton, MA					York, ME
Sag Harbor, NY					
Stamford, CT					
Swampscott, MA					
Wartown, MA					
Wellesley, MA					
Westchester, NY					

Policy Levers to Catalyze *Reduction*

Focused on reducing the number of single-use items

Skip-the-stuff(accessories upon request)



Reduce Single-Use Disposable Foodware

To reduce waste, as of June 1, 2023, CB-014-2022 requires all food service businesses in Prince George's County to provide single-use foodware accessories and condiments to customers **upon request** or at self-serve stations for ready-to-eat foods.

Food facilities that use a third-party delivery platform must customize their menu with a list of single-use accessories/condiments that customers can request with their order in person, on the phone, or online.

What Foodware Are Included:

Single-use items, including straws*, utensils, condiment cups and packets, cup sleeves, splash sticks, stirrers, and napkins, provided with ready-to-eat food designed to be used once and discarded.

Customers will have to verbally **request** that they want single-use items, or select items from self-service bins instead of having them automatically included with a food order.



Straws



Eating Utensils



Condiment cups and Packets



Cup Sleeves **



Splash Sticks and Stirrers



Napkins

*compostable and paper straws are allowed under County law **Cup sleeves are permitted as deemed necessary by a business

Bag bans & fees

BAG IT RIGHT



NO MORE PLASTIC BAGS



10¢
(maximum fee)
PAY FOR A PAPER BAG



BRING YOUR OWN BAG

mypgc.us/bagitright

Cup/container fees

DISPOSABLE CUP AND TAKEOUT CONTAINER FEE

STARTING JANUARY 1 IN TOWN OF TRUCKEE



25¢



25¢

 KEEP TRUCKEE GREEN

Policy Levers to Catalyze *Refill*

Bring Your Own (BYO): Allowing, encouraging or requiring customer-owned containers for refill

(typically in foodservice but expanding into packaging)

Updating food codes

Food Code Fact Sheet #36

What you should know about the Code

WWW.HEALTHOREGON.ORG
/FOODSAFETY

3-304.17 Refilling Returnables

(A) Except as specified in (B) - (F) of this section, empty food containers returned to a food establishment for cleaning and refilling with food shall be cleaned and refilled in a regulated food processing plant. P

(B) A container may be refilled at a food establishment with food if the container: (1) Designed and constructed for reuse and in accordance with the requirements specified under Part 4-1 and 4-2; P Was initially provided by the food establishment to the consumer;

(2) Is returned to the food establishment or a designated collection point by the consumer;

(3) Is subject to the following actions by the food establishment before being refilled:

(a) Cleaned as specified (C) and Part 4-6, (b) Sanitized as specified under Part 4-7, P and

(c) Verified to continue to meet the re-

Refilling Returnable Containers

Food establishments, like restaurants and mobile units, may allow refillable containers under specific guidelines if they would like. **This is optional.** If you would like to do this in your licensed facility you have three choices. The requirements are:

- 1) Food containers may be **refilled at the food establishment by the consumer if the container:**

Refilled by Employees

Consumer-owned containers may be **refilled by employees** with any type of food.

- Containers must be designed for repeated use.
- Containers are visibly clean.
- Employees must fill containers using a contamination free process.



Requiring water refill stations

Policy Levers to Catalyze *Reuse Systems*

Reuse for on-site dining



Required reuse in schools



Reuse at events/lodging/venues



Extended Producer Responsibility(EPR) & Deposit Return Systems (DRS)

- ◆ Key reuse opportunity → Baking reuse into EPR & DRS policy
 - Reuse Requirements
 - Funding for Reuse Systems & Infrastructure

Upstream's Principles for Reuse in EPR & DRS

1. Include reusable packaging as a covered (designated) material.
2. Clearly define “reusable” packaging.
3. Include food service ware as covered material.
4. Institutionalize reuse by investing program funds into reuse systems.
5. Financially incentivize reuse within fee structures.
6. Mandate and measure reuse.
7. Enact DRS and EPR as complementary policies.
8. Center justice and equity in process and content.
9. Allow flexibility; avoid barriers to reuse (don't over-regulate!)
10. Ensure transparency.



[view online](#)

Stay in touch

Reach out → macy@upstream solutions.org

Resources → <https://upstream solutions.org>

Join the **REUSE SOLUTIONS
NETWORK**

<https://upstream solutions.org/rsn-sign-up-form>



@upstream solutions

THE
INDISPOSABLE
PODCAST



upstream solution



@weheartreuse

