TRUE

Total

Resource

Use and

Efficiency

TRUE

Certification TRUE Advisor Projects

Steven Stelzer

Program Director, City Of Houston Green Building Resource Center

TRUE Advisor


NOT SURE IF SINCERE YAY
OR SARCASTIC YAY?
quickmeme.com

The **TRUE Zero Waste certification system** enables facilities to define, pursue and achieve their zero waste goals, cutting carbon emissions and supporting public health.

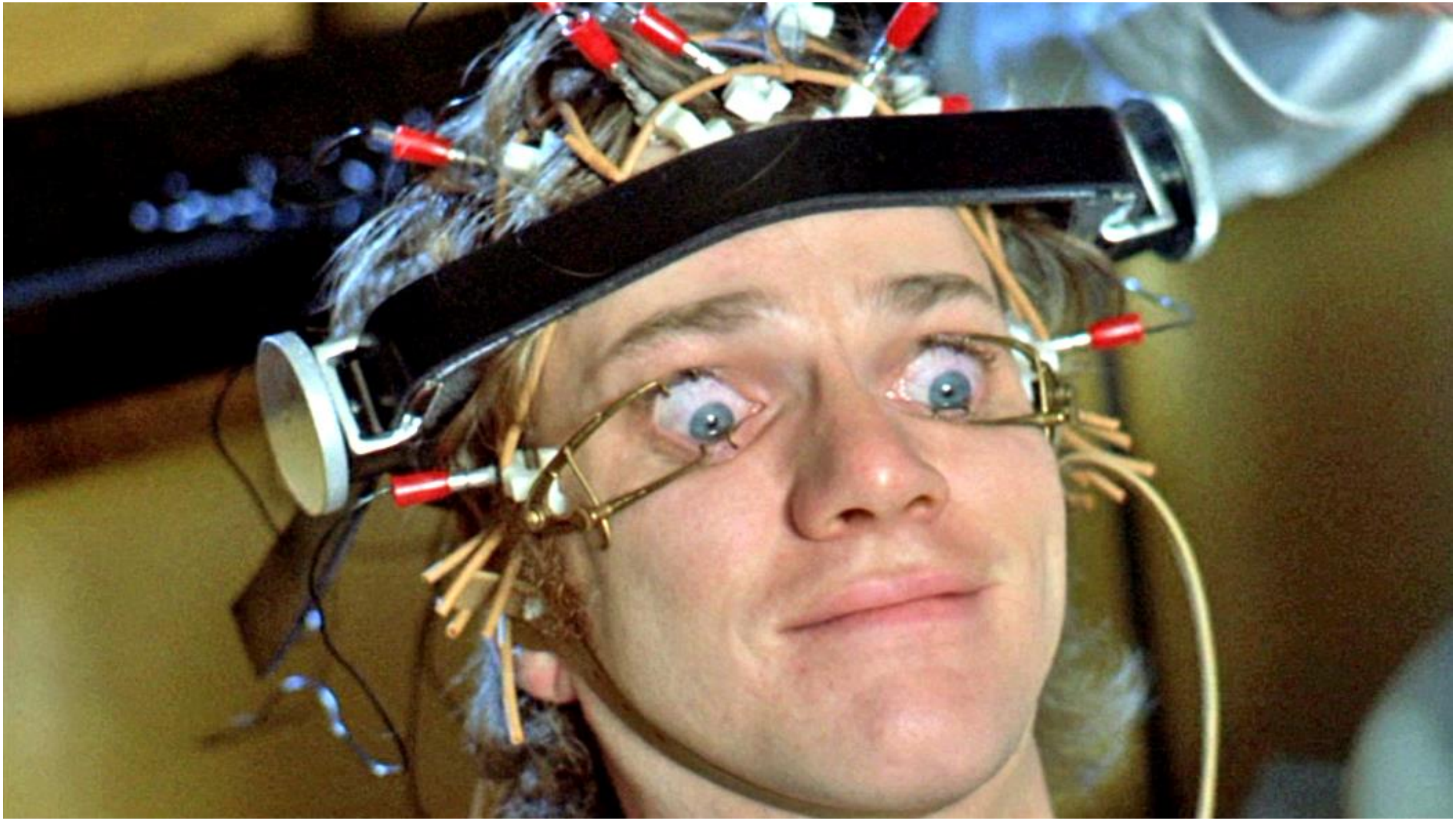
TRUE Zero Waste certification with GBCI

- ✓ Supports public health & ecosystems
- ✓ Helps you cut your ecological footprint
- ✓ Advances a green economy
- ✓ Supports the definition of no waste to landfill, incineration (waste-to-energy) & the environment
- ✓ Meets zero waste businesses request for a valid & comprehensive third party certification
- ✓ Showcases a business or organization's responsibility & commitment to their communities
- ✓ Emphasizes strong total participation
- ✓ Benefits the triple bottom line
- ✓ Helps companies turn waste into savings & additional income steams


Falling asleep
at work?

REQUIREMENTS for certification:

- ✓ Zero Waste policy in place
- ✓ 90% overall diversion from landfill, incineration (waste-to-energy) & the environment
- ✓ Meet all federal, state/provincial, and local solid waste and recycling regulations
- ✓ Data documents a base year and measurements since the base year
- ✓ Commit to submit 12 months of data to GBCI annually
- ✓ Contamination is not to exceed 10% of each material stream once it leaves the company site



TRUE Zero Waste Certification Levels | 81 TOTAL POINTS

BRONZE	31-37 points
SILVER	38-35 points
GOLD	46-63 points
PLATINUM	64-81 points

TRUE ADVISOR ONLINE TRAINING

01. Introduction

02. Overview of Zero Waste and a Zero Waste Facility

03. TRUE Zero Waste Certification and the Role of the TRUE Advisor

04. Redesign, Reduce and Reuse

05. Bin Right Sizing

06. Compost (Re-earth) and Recycle

07. Zero Waste Reporting and Diversion from Landfill, Incineration (WTE) and Environment

08. Zero Waste Metrics

09. Zero Waste Purchasing, Leadership, Training and Zero Waste Analysis

10. Zero Waste Audits

11. Upstream Management, Hazardous Waste Prevention, Closed Loop and Innovation

12. Conclusion and Next Steps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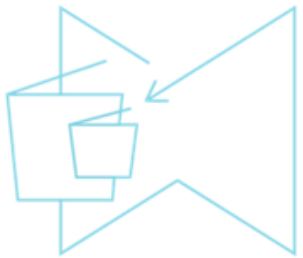
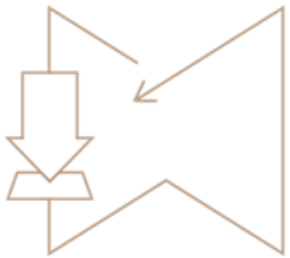
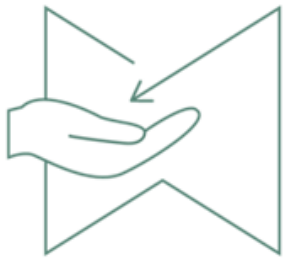
TRUE Zero Waste categories



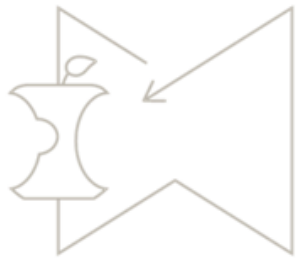
REDESIGN



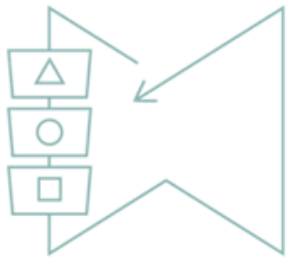
REDUCE



REUSE



COMPOST (RE-EARTH)



RECYCLING

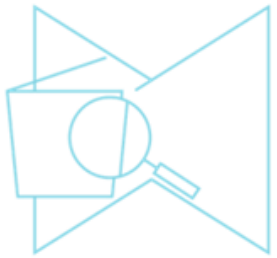
ZERO WASTE REPORTING

DIVERSION FROM LANDFILL, INCINERATION (WTE) & ENVIRONMENT

ZERO WASTE PURCHASING

LEADERSHIP

TRAINING



ZERO WASTE ANALYSIS

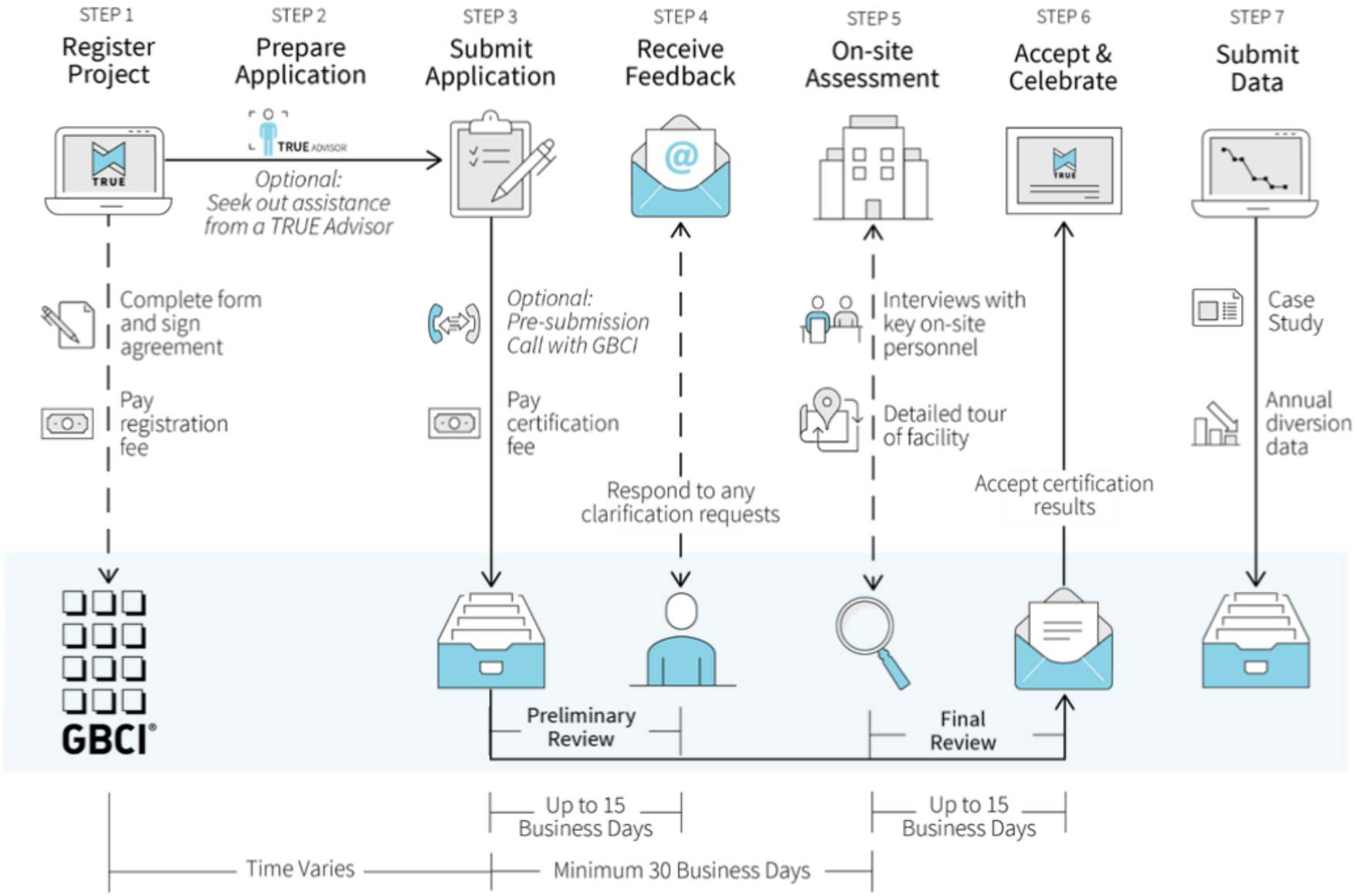
UPSTREAM MANAGEMENT

HAZARDOUS WASTE PREVENTION

CLOSED LOOP SYSTEM

INNOVATION

TRUE Zero Waste certification process




JUST SHOOT
ME NOW
MON098143 [RF] © www.visualphotos.com
memegenerator.net


why?


TRUE


In the past 50 years,
HUMANS HAVE CONSUMED MORE RESOURCES
THAN IN ALL PREVIOUS HISTORY.


Between 1960 and 2008,
CONSUMPTION IN THE UNITED STATES
HAS NEARLY TRIPLED.


WHAT do we throw away?
75%
PRODUCTS
25%
ORGANIC
MATERIALS
The average American throws away
4.4 POUNDS OF TRASH EACH DAY.


795 MILLION PEOPLE AROUND THE WORLD ARE SUFFERING FROM CHRONIC UNDERNOURISHMENT.
If just one-fourth of food waste were donated, it would be enough to feed
870 MILLION PEOPLE.

The “wasteberg”

5-10% of all materials purchased by typical companies go to produce the product.

90-95% is wasted.

Materials associated with extraction, transportation, processing and other activities.

Businesses often externalize the cost of their generated waste and pass it on to the consumer and municipalities.


How much
WASTE
are YOU for?
WASTE IS A SIGN OF INEFFICIENCY

The definition of zero waste

Zero waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where **all discarded materials are designed to become resources for others** to use.

Zero waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and **not burn or bury them**.

Implementing Zero waste will **eliminate all discharges to land, water or air** that are a threat to planetary, human, animal or plant health.

Source: Zero Waste International Alliance


NO WAIT...
THIS IS GETTING GOOD

The “R” conversation

REDUCE

REUSE

REDESIGN

RE-EARTH

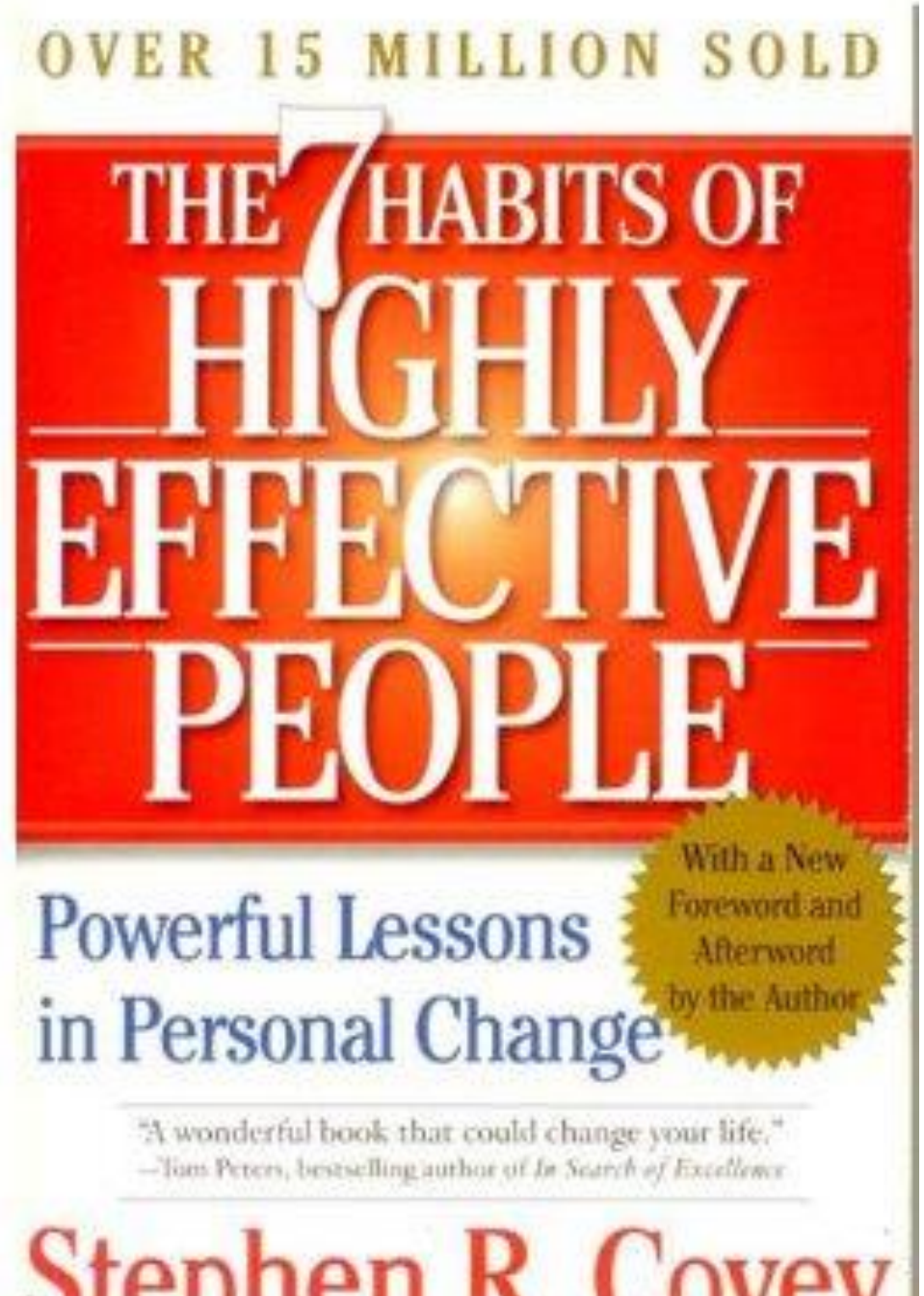
RECYCLE

CLICK ON EACH R-WORD TO SEE A DEFINITION

CLICK NEXT TO CONTINUE

Begin with the End in Mind

"To begin with the end in mind means to start with a clear understanding of your destination. It means to know where you are going so that you better understand where you are now and so that the steps you take are always in the right direction"



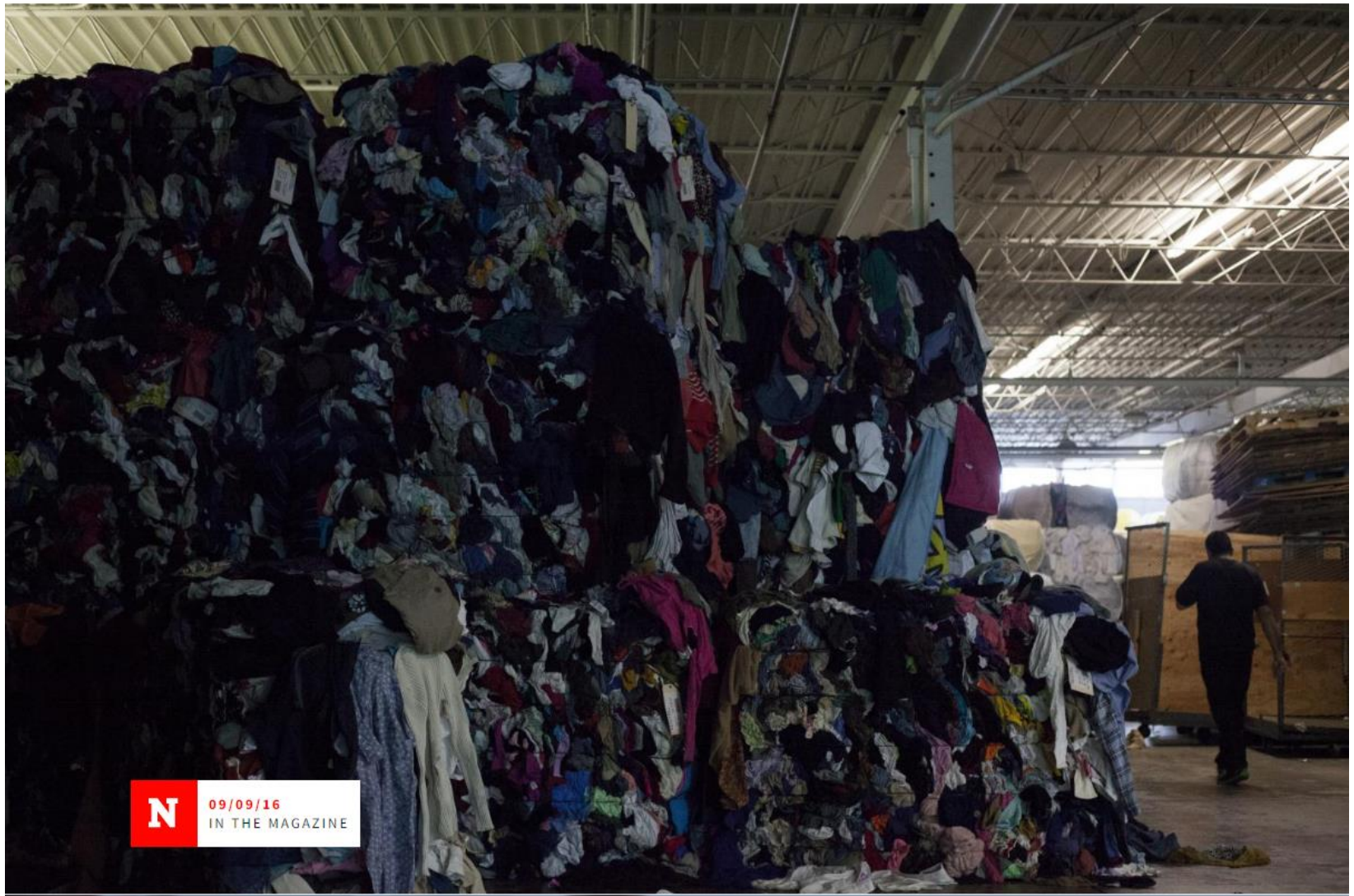
EMBODIED ENERGY & MATERIAL TO LANDFILL


DOES NOT
WORK FOR
FOOD!

TECH & SCIENCE

FAST FASHION IS CREATING AN ENVIRONMENTAL CRISIS

BY ALDEN WICKER ON 9/1/16 AT 6:40 AM



CREDIT MENU: TRAINING

Click on each credit below. You must review all credits to continue.

Credit 1: Provide zero waste goal/policy to all employees	**Credit 2:** Incorporate zero waste into employee orientation	**Credit 3:** Communicate with employees about zero waste activities quarterly
Credit 4: Clearly label all collection receptacles	**Credit 5:** Train purchasing agents	**Credit 6:** Include zero waste in evaluation process and/or bonus structure
Credit 7: Dedicate at least one person for zero waste leadership role	**Credit 8:** Provide all employees access to zero waste training	


INCONCEIVABLE!

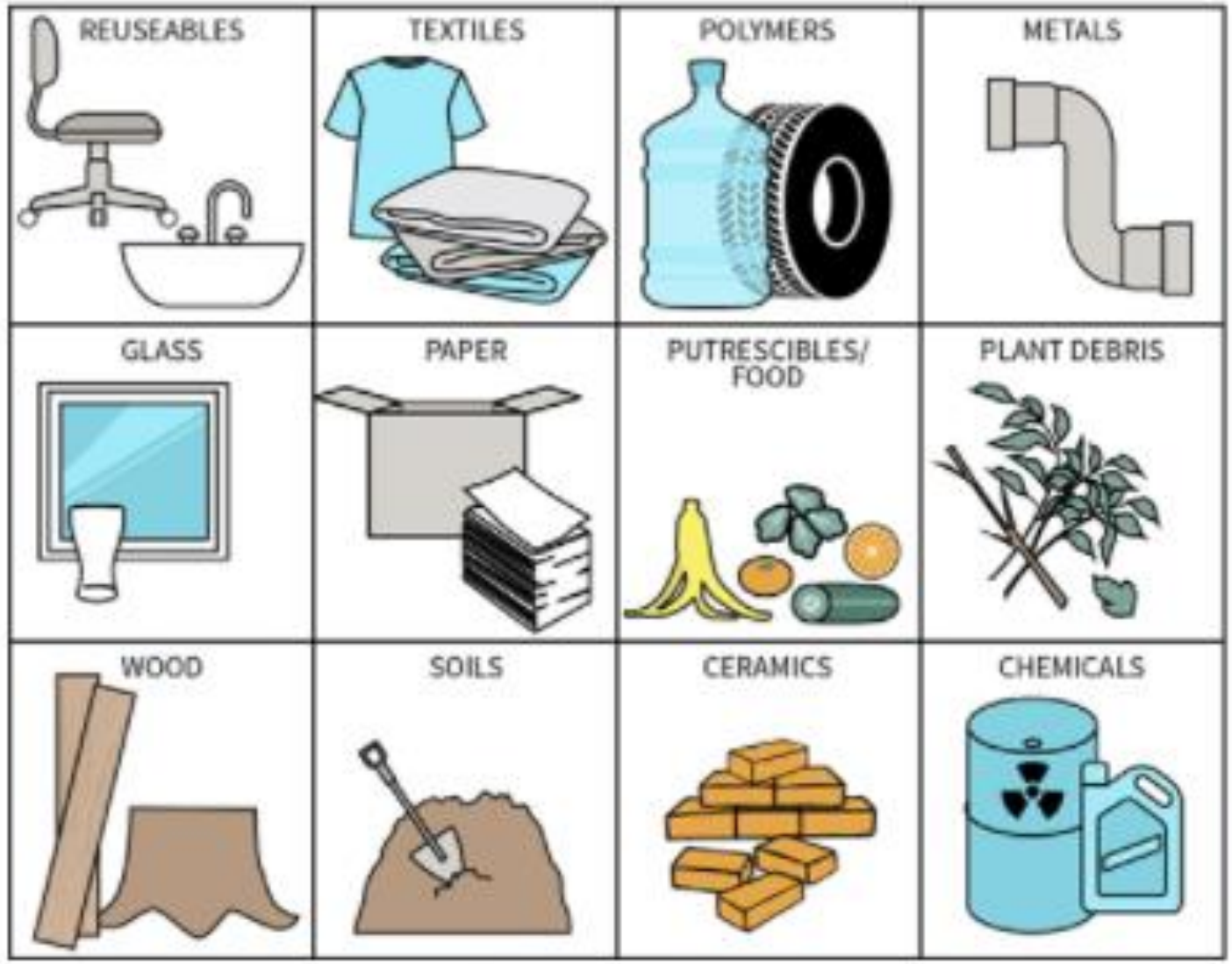
BENEFITS OF TRUE ZERO WASTE CERTIFICATION:

SAVE MONEY:
Waste is a sign of inefficiency; the reduction of waste reduces costs.

FASTER PROGRESS:
A zero waste strategy improves upon production processes and environmental prevention strategies, which leads to taking larger, more innovative steps.

SUPPORT SUSTAINABILITY:
A zero waste strategy supports the three "P"s: people, planet, and profit.

To understand generation of every commodity or waste at the facility and how these materials are processed.



EXAMPLE: FOLLETT HIGHER EDUCATION GROUP DIST. CENTER

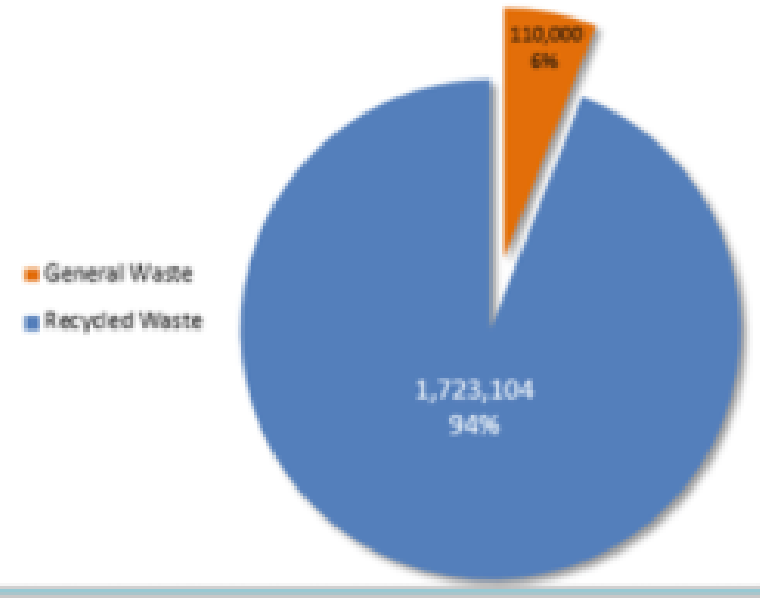
Aurora, IL • 550,200 sq. ft.

Gathered data on weights and volumes of all material streams for their baseline year and the current year to date, including: invoices, receipts, and other documents from service providers.

	PTD	YTD
% of Recycled Waste	95.1%	94.0%
Follett Target Goal	95.0%	95.0%
Industry Best Practice	90.0%	90.0%
Variance to Follett Goal	**0.1%**	**-1.0%**
Variance to Best Practice	**106%**	**104%**

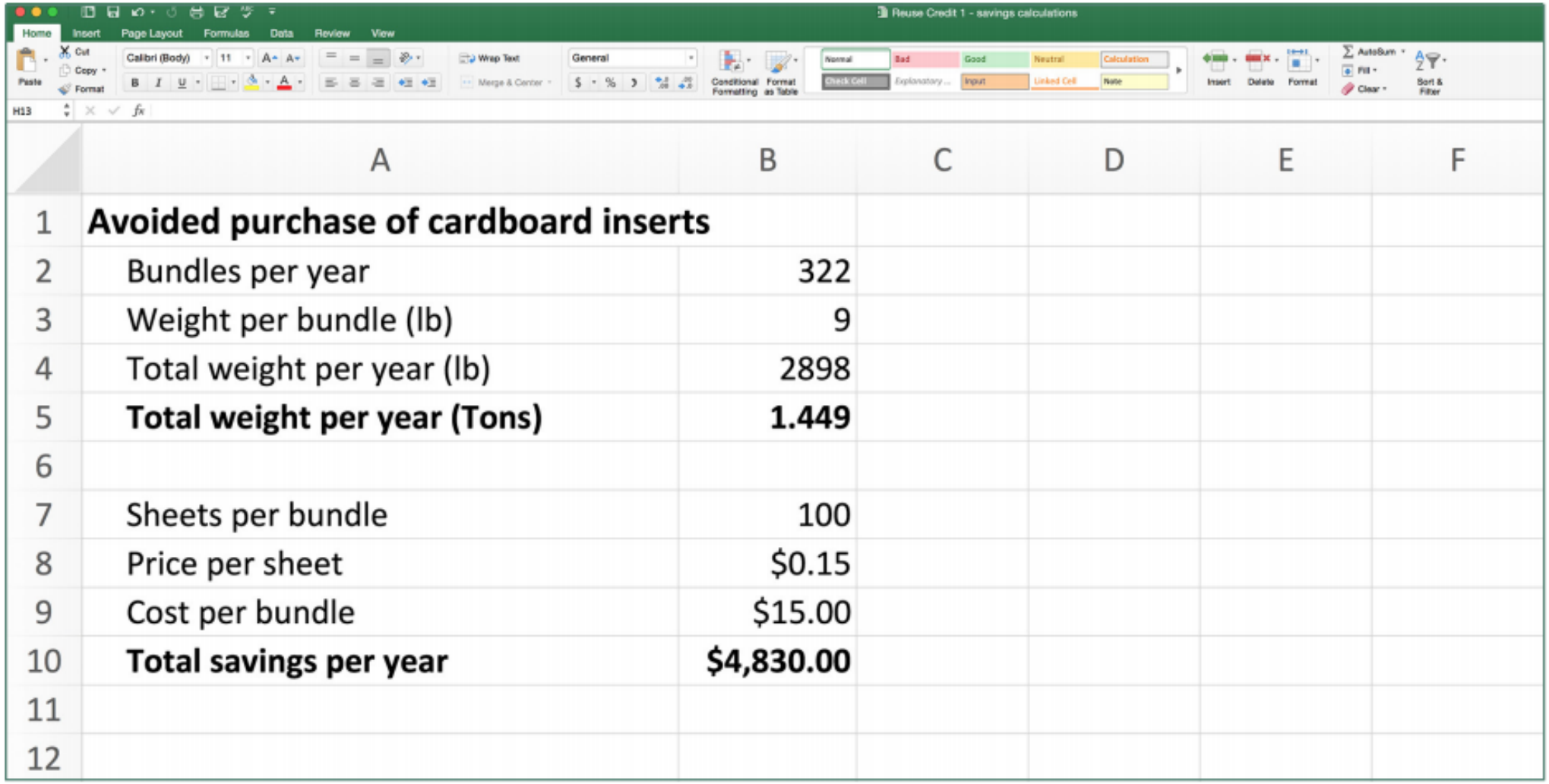
	PTD	%	YTD	%
Recycled Waste	125,459	95%	1,723,104	94%
General Waste	6,500	5%	110,000	6%
Total Waste	131,959	7%	1,833,104	

Pounds of Waste	PTD	%	YTD	%
General Waste	6,500	5%	110,000	6%
Baled OCC	45,125	34%	619,091	34%
Mixed Paper	6,880	5%	31,580	2%
Mixed Books	25,500	19%	603,208	33%
Kraft Paper	1,670	1%	28,806	2%
Mixed Plastic, Shrink Wrap, Strapping	2,705	2%	30,961	2%
Mixed Metals	2,995	2%	23,226	1%
Wood	40,584	31%	386,232	21%
	131,959	7%	**1,833,104**	



EARTH FRIENDLY PRODUCTS SAVINGS SAMPLE

REUSE Credit 1



	A	B	C	D	E	F
1	**Avoided purchase of cardboard inserts**					
2	Bundles per year	322				
3	Weight per bundle (lb)	9				
4	Total weight per year (lb)	2898				
5	**Total weight per year (Tons)**	**1.449**				
6						
7	Sheets per bundle	100				
8	Price per sheet	$0.15				
9	Cost per bundle	$15.00				
10	**Total savings per year**	**$4,830.00**				
11						
12						

SIERRA NEVADA BREWING CO.

REPORTING Credit 2

MILLS RIVER - 2015 Diversion Data	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
Cardboard	33,100	63,540	33,860	34,320	0	59,346	50,240	39,186	18,362	133,254	51,636	50,496	**567,340**	
Plastic*	5,180	5,660	6,140	5,580	0	9,540	5,868	6,190	3,786	7,184	3,490	5,978	**64,596**	
Paper**	5,000	5,000	5,000	5,000	5,000	5,528	5,000	5,000	448	3,600	910	1,992	**47,478**	
Metal***	0	11,249	12,362	38,351	12,248	18,252	1,591	9,100	2,472	1,242	36,495	7,086	**150,448**	
Glass	24,860	21,900	23,180	35,720	41,660	21,240	57,340	41,300	41,320	44,760	34,160	33,600	**421,040**	
Organics	39,600	38,900	47,940	18,260	17,300	16,180	25,280	38,740	52,440	40,400	55,600	44,400	**435,040**	
Comingled	1,500	1,500	1,500	1,500	1,500	3,500	3,180	2,560	820	1,200	2,460	2,320	**23,540**	
Wood	82,160	20,500	50,640	52,820	100,600	73,320	13,640	54,820	30,520	55,060	57,320	35,800	**627,200**	
Other	28,880	0	3,360	107,420	41,460	16,760	39,820	47,646	5,366	5,580	16,900	68,202	**381,396**	
Spent Grain	2,089,900	1,851,340	2,168,340	2,000,120	2,086,660	1,890,320	3,004,940	2,447,560	2,738,160	2,930,160	2,320,600	3,571,640	**29,099,740**	
Total	2,310,180	2,019,589	2,352,322	2,299,091	2,306,428	2,113,986	3,206,899	2,692,102	2,893,694	3,222,440	2,579,571	3,821,514	**31,817,818**	
Sent to Landfill	41,700	52,900	45,420	42,060	29,660	36,817	30,880	19,280	14,080	20,760	14,920	6,900	**355,377**	
Diversion	98.23%	97.45%	98.11%	98.20%	98.73%	98.29%	99.05%	99.29%	99.52%	99.36%	99.42%	99.82%	**98.90%**	
Diversion w/out grain	84.08%	76.08%	80.20%	87.67%	88.11%	85.87%	86.74%	92.69%	91.70%	93.37%	94.55%	97.31%	**89.68%**	
Total Cost	$8,729.53	$6,155.21	$7,406.51	$10,578.26	$6,994.55	$4,546.43	$7,538.38	$6,782.98	$5,478.86	$6,772.35	$5,824.11	$5,270.08	**$82,077.25**	with spent grain
Avoided cost w/out spent grain	$10,903.86	$7,655.33	$9,107.11	$14,051.64	$12,087.24	$9,729.47	$13,329.32	$21,152.84	$12,520.52	$15,637.00	$24,343.31	$40,354.72	**$190,872.35**	**$2,025,880.95**
Revenue	$1,028.46	$4,065.37	$4,650.65	$6,756.44	$4,338.36	$5,761.56	$2,649.94	$2,489.10	$2,254.53	$3,439.32	$2,715.59	$2,289.72	**$42,439.04**	**$309,991.41**
Net Savings w/out grain	$3,202.79	$5,565.49	$6,351.25	$10,229.82	$9,431.05	$10,944.60	$8,440.88	$16,858.96	$9,296.19	$12,303.97	$21,234.79	$37,374.36	**$151,234.14**	**$2,253,795.11**

Sample diversion spreadsheet

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	YTD
Total Generated	147,378	94,823	113,806	107,365	94,712	107,876	67,431	119,236	127,829	91,019	109,153	100,931	1,281,559
Total Landfill	20,228	8,903	8,463	8,633	6,882	7,067	3,792	6,285	9,275	6,322	5,417	8,286	99,473
Total Recycled	108,460	70,341	81,703	77,212	66,385	76,409	46,839	88,851	88,109	60,070	80,032	67,611	912,022
Total Reused	18,690	15,579	23,640	21,520	21,445	24,400	16,800	24,180	30,445	24,627	23,704	25,034	270,064
Diversion Rate	86.3%	90.6%	92.6%	92.0%	92.7%	93.4%	94.4%	94.8%	92.7%	93.1%	95.8%	91.8%	92.2%
Diversion Goal	90.5%	90.5%	90.5%	90.5%	90.5%	90.5%	90.5%	90.5%	90.5%	90.5%	90.5%	90.5%	90.5%
Zero Sort Recycling	**11,778**	**9,871**	**20,703**	**14,992**	**9,493**	**14,642**	**11,260**	**13,026**	**18,707**	**12,189**	**13,908**	**13,650**	**164,219**
Meyers Recycling	11,778	9,871	20,703	14,992	9,493	14,642	11,260	13,026	18,707	12,189	13,908	13,650	
Fiber (Cardboard/Paper)	**16,562**	**18,991**	**19,568**	**18,796**	**17,872**	**18,762**	**13,679**	**14,276**	**18,899**	**9,442**	**18,017**	**23,735**	**207,939**
Cardboard	14,669	15,227	17,125	14,290	15,205	16,274	11,441	12,930	16,336	7,461	16,240	22,152	179,340
Label Backing	1,843	3,764	2,443	4,506	2,667	2,488	1,638	1,346	2,563	1,981	1,777	1,583	28,599
Confidential Paper	0	0	0	0	0	0	0	0	0	0	0	0	0
Reuse (Rebox)	0	0	0	0	0	0	0	0	0	0	0	0	0
Plastic	**4,273**	**3,490**	**3,010**	**4,720**	**4,180**	**2,755**	**2,477**	**3,585**	**4,355**	**1,310**	**4,000**	**2,787**	**40,862**
LDPE Film	4,273	3,490	3,010	4,720	4,180	2,755	2,477	3,585	4,355	1,310	4,000	2,787	
Compost	**6,107**	**5,858**	**9,622**	**9,504**	**5,320**	**10,010**	**5,623**	**8,524**	**8,408**	**6,889**	**6,267**	**9,839**	**92,371**
Food Waste	6,107	5,858	9,622	9,504	5,320	10,010	5,623	8,524	8,408	6,889	6,267	9,839	92,371
Reuse	**18,690**	**15,579**	**23,640**	**21,520**	**21,445**	**24,400**	**16,800**	**24,180**	**30,445**	**24,627**	**23,704**	**25,034**	**270,064**
5 gallon pails	290	0	0	0	1,125	0	0	2,160	0	701	426	1,913	6,615
Cardboard	0	0	0	0	0	0	0	0	0	0	0	0	0
250 gallon totes	480	1,560	0	0	0	0	0	0	0	0	0		2,040
Supersacks	0	966	0	0	0	0	0	0	0	0	0	0	966
Fiber Drums	0	0	0	0	0	0	0	0	0	0	0	0	0
Plastic Drums	0	253	0	0	0	0	0	460	0	0	0	0	713
Plastic Pallets	0	0	0	0	0	0	0	0	0	0	0	0	0
Wood Pallets	17,920	12,800	23,640	21,520	20,320	24,400	16,800	21,560	25,480	21,440	20,660	21,760	248,200
Maple Syrup	4,037	1,356	3,597	11,761	24,731	6,685	4,837	0	4,965	2,486	2,718	1,361	68,534
Wood	**28,800**	**19,640**	**28,800**	**28,800**	**29,520**	**30,240**	**14,400**	**30,240**	**30,240**	**30,240**	**37,840**	**17,600**	**326,360**
Wood -Misc Scrap	0	0	0	0	0	0	0	0	0	0	0	0	0
Wood Pallets	28,800	19,640	28,800	28,800	29,520	30,240	14,400	30,240	30,240	30,240	37,840	17,600	326,360
Metal	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Scrap Metal Misc	0	0	0	0	0	0	0	0	0	0	0	0	0
Drums	0	0	0	0	0	0	0	0	0	0	0	0	0
Electronics	**0**	**129**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**129**
E-Waste	0	129	0	0	0	0	0	0	0	0	130	0	
Toner Cartridges	0	0	0	0	0	0	0	0	0	0	0	0	
Animal Feed	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,500**	**0**	**0**	**0**	
Animal Feed	0	0	0	0	0	0	0	0	7,500	0	0	0	
Misc Recycling	**41,000**	**12,362**	**0**	**0**	**0**	**0**	**0**	**19,280**	**0**	**0**	**0**	**0**	**72,642**
Other	41,000	12,362	0	0	0	0	0	19,280	0	0	0	0	

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plus.usgbc.org/the-power-of-zero/
Apps Bookmarks Microsoft Office Hom Go Green Community CitizensNet (4) Citizens' Environm CMS Dashboard City of Houston - Tale ProjectDox PWE Service Portal - rebuildaresilienthous 2017 ASHRAE Buildin Clty Of Houston LEED Other bookmarks

Brian Balukonis manages solid waste processes for Raytheon's Integrated Defense Systems. Photo: Fran Brophy

THE RAYTHEON COMPANY

Major defense contractor Raytheon had six Massachusetts facilities zero waste certified in 2015—five at the gold level and one platinum—but the company's commitment to its zero waste efforts goes back a lot further than that.

In 2005, Raytheon signed a resource management contract with Massachusetts waste hauler E.L. Harvey & Sons, incentivizing waste reduction, reuse, and recycling, rather than simply paying the hauler by the ton to cart away its trash. Then, in 2008, the company set a goal of reducing the amount of waste it sent to landfills and incinerators by 35 percent by 2015. When 2015 came, the company had easily passed that marker, reducing waste by 56 percent from the 2008 baseline.

Next, the company plans to bump up its waste diversion rate by one percentage point per year until 2020, and to have 20 sites certified by that year.

"It's not something you can do overnight," says Frank Marino, senior manager for environmental health, safety, and sustainability at Raytheon. "It takes a bit of foundation building and culture building and supplier partnerships to make it work."

"We've been doing this for years, leading up to the official certification," says Brian Balukonis, who manages solid waste processes for Raytheon's Integrated Defense Systems business unit. "Part of the certification process is, you have to have established certain criteria to even apply into the program, and one of the major criteria is achieving at least a 90 percent diversion rate. We had already done that [at the six sites]."

While Raytheon worked for years to divert waste from landfills and incinerators before ever pursuing Zero Waste certification, Marino and Balukonis say they see value in the certification process—both because it standardizes language and benchmarks around zero waste initiatives, and because it encourages companies to strive toward metrics-based goals.

"That's a key trigger," says Marino. "We're really metrics driven, and we've been tracking [waste] diversion for around 20 years. At Raytheon, if you put a goal around something and you put visibility on it, you get action, and you get the resources that you need."

"You hear a lot of businesses talk about zero waste, and then when you get into details, their definition is zero waste to landfill," says Balukonis, noting that many of these companies still send substantial waste to incinerators. "Quite frankly, Raytheon has been zero waste to landfill for 25 years in New England. We didn't feel like that was something to brag about. This was a higher level of zero waste—really focusing on what trash is going

Frank Marino is senior manager for environmental health, safety,

Type here to search 6:12 PM 4/19/2018

MICROSOFT CORPORATION

Redmond, WA • Campus with 75 buildings

Established the "Misfit Produce Program" to help reduce or eliminate waste by rescuing damaged produce.

The café receives "misfit" produce from local vendors that do not make it to the shelves or are not sold due to the shape, color, and overall look of the produce and use the produce in their soups, sauces, and salads.

"IF YOU CAN'T MEASURE IT,
YOU CAN'T
MANAGE IT"

-PETER DRUCKER

Profit

- Cost versus savings from program efforts:
    - Return on investment
    - Simple payback
    - Overhead
    - Revenue generation
- Avoided disposal cost
- Partnerships with suppliers and vendors
- Supporting local businesses
- Process efficiency and eliminating waste from operations
- Meeting corporate goals
- Upcycling opportunities

Present annual numbers

$3M Waste collected annually + **$2M** Tipping fees and hauling charges = **$5M** Total cost annually

$3M Waste collected annually + **$1.2M** Processing, labor, equipment and supplies - **$2.1M** Savings from recycling, reuse and avoided disposal fees = **$2.1M** Total cost annually

= **$2.9M** Total Savings annually

The Tesla Factory:

- Received Zero Waste Gold certification
- The 5.3 million square foot manufacturing and office facility diverts around 99% of its waste from landfills.
- About 2% of the facility's waste goes to waste-to-energy facilities. This ensures that certain discard materials don't end up on the secondary market.
- In 2016, Tesla sent 1.9 million pounds of compostable materials to a commercial composting facility near the Tesla factory.

Agriculture Science Facility at Walt Disney World Resort:

- Received Zero Waste Platinum certification
- Has diverted over 98% of its waste by implementing an advanced source separation system, waste prevention, and engaging employees and interns.
- The park uses an anaerobic digestion system to convert food waste into fertilizer and energy,keeping the food scraps out of the trash stream and producing clean electricity in the process.

The links between climate change and waste

Here are the important links between climate change and waste that all green building champions should understand:

- **Emissions from extraction of resources**: Trees, minerals, oil and other basic components of materials we use must be extracted from the environment. The extraction process and resulting depletion of resources releases GHGs and disrupts the ecosystem.

- **Transportation of goods and materials**: Raw materials must be transported to processing and manufacturing facilities. Most finished goods include excessive packaging, which has several stages of extraction and transportation. The materials or finished goods are repacked from one destination to another, adding to the climate impact. Finished goods must be transported to retail facilities or consumers. Finally, after consumption the materials (especially packaging) are transported several times to landfill, waste to energy or recycling facilities.

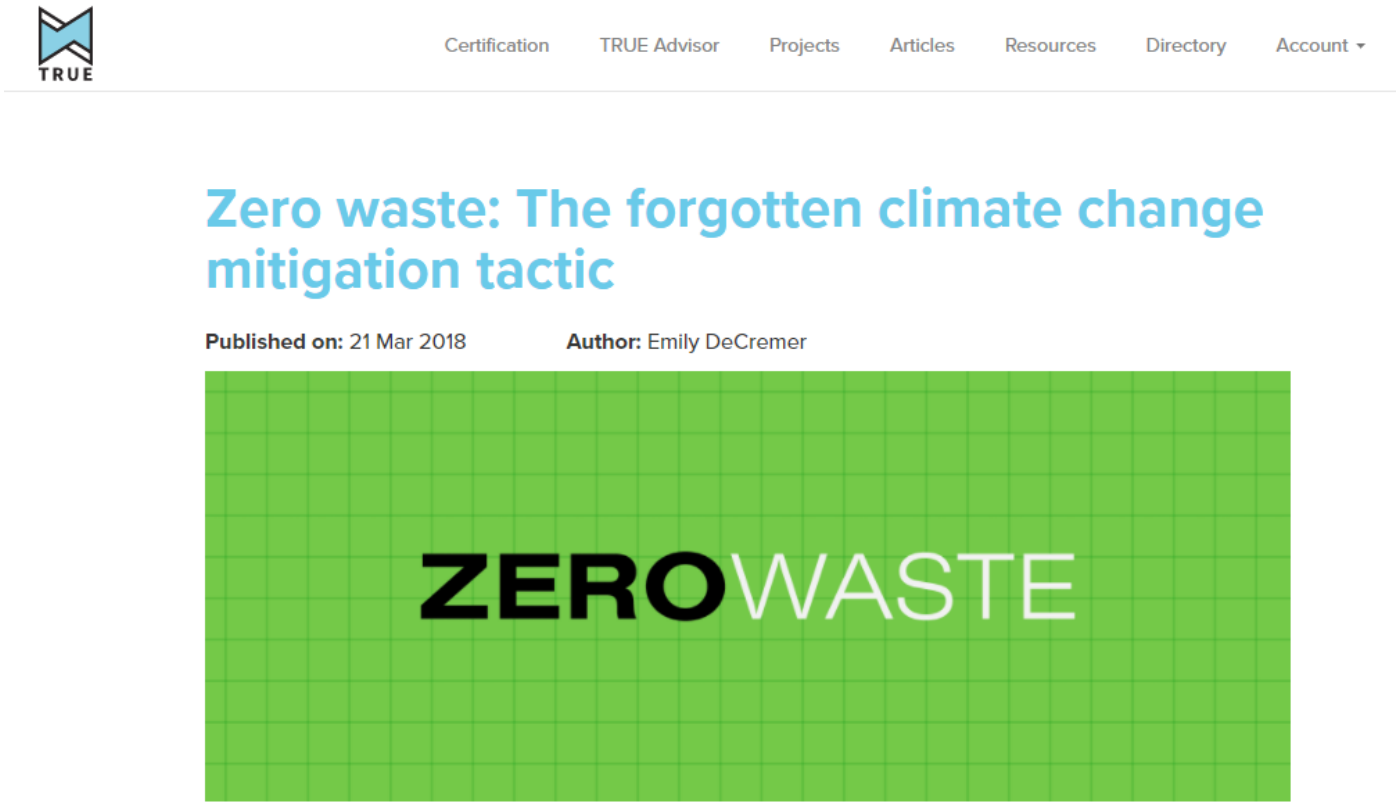
- **Manufacturing emissions:** The production of goods and materials also has associated emissions. This can be direct emissions output from the manufacturing facility itself, or indirect output through the energy it uses.

- **Landfill methane**: As some materials degrade in the anaerobic environment of a landfill, methane is released. Methane is a potent GHG, with as high as 72 times the impact on warming the climate than CO_2. In California, landfills are one of the top five sources of GHG emissions. This is why zero waste was tied into one of the most sweeping pieces of climate mitigation legislation in the country, California Assembly Bill 32. The bill supports infrastructure and programs to decrease methane emissions from resource management activities and the increase of diversion efforts.

- **Emissions from incineration**: Even with emission controls, some GHG and other air pollutants are produced from these processes. Energy recovery capabilities at these facilities can help to negate climate impact. However, as with landfills, it is still not the most desirable outcome for residuals. This is because the materials are permanently destroyed, which necessitates starting over again by extracting new raw materials. The best approach is to prevent the need for disposal in the first place by reducing, reusing and recreating products. Instead of destroying the materials, this mitigates climate impacts upstream.

- **Ocean pollution:** Litter, particularly single-use plastic items, and polluted runoff enter our oceans, damaging its ecosystem. Healthy oceans are critical to maintaining a healthy climate, and acidification and warming ocean temperature may amplify overall warming.

- **Destruction of forests**: Trees cut down for the production of paper-based products can no longer filter our air or sequester carbon. We must preserve elements of our ecosystem that mitigate climate change impacts.



Donald J. Trump

@realDonaldTrump

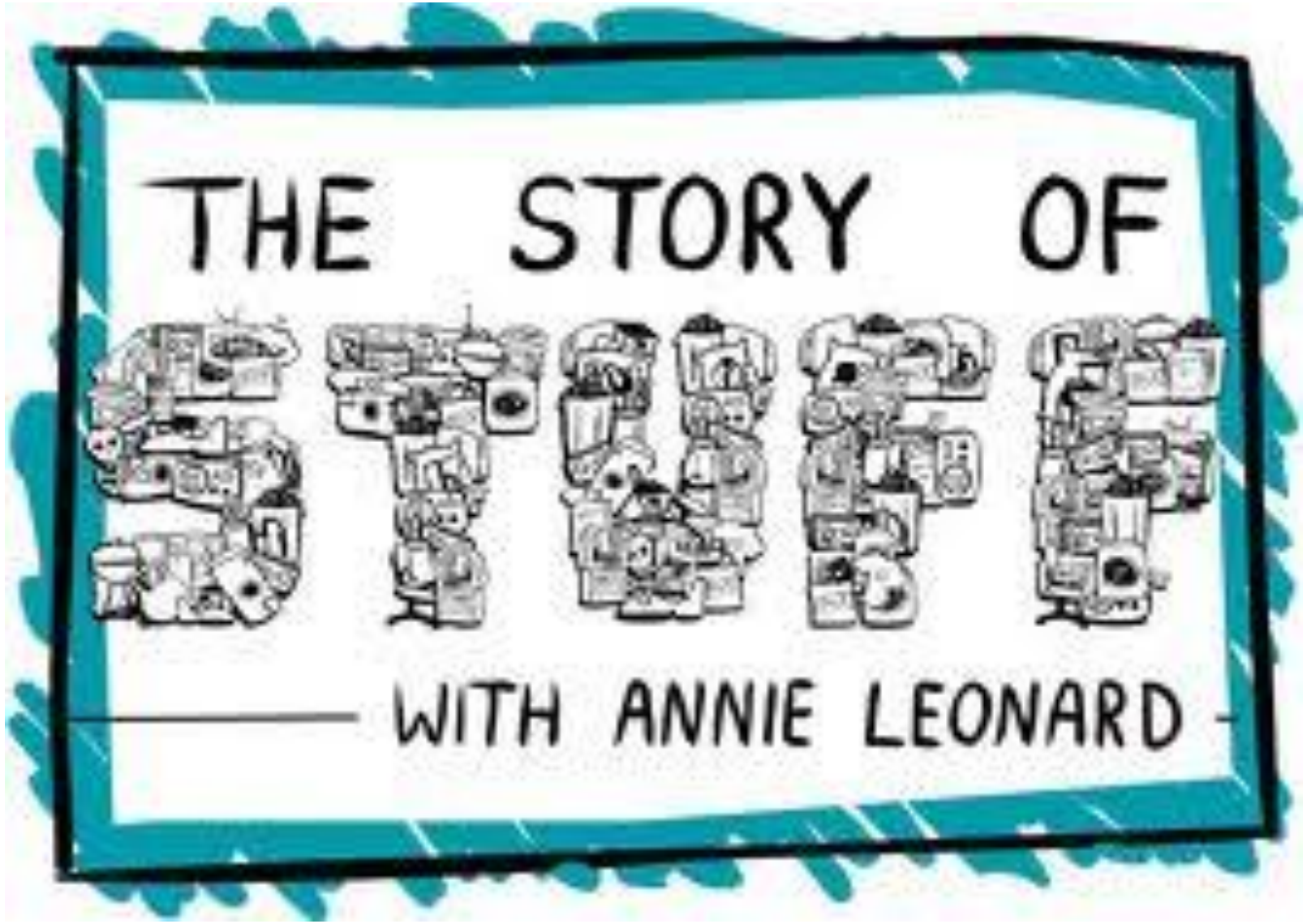
Follow

The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.

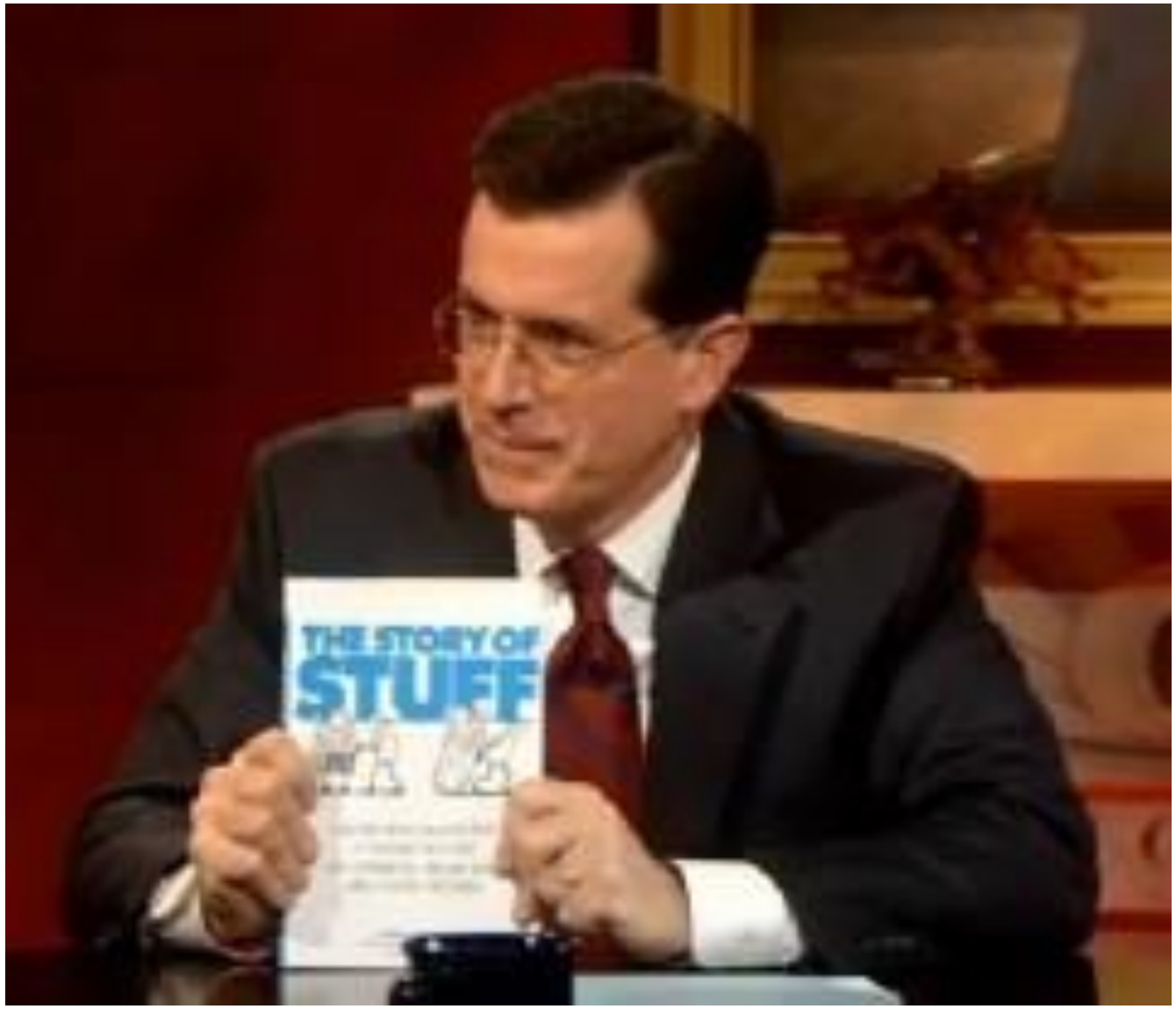
7:15 PM - 6 Nov 2012

104,720 67,134

What Else Can YOU Do?



Watch the Story of Stuff YouTubes



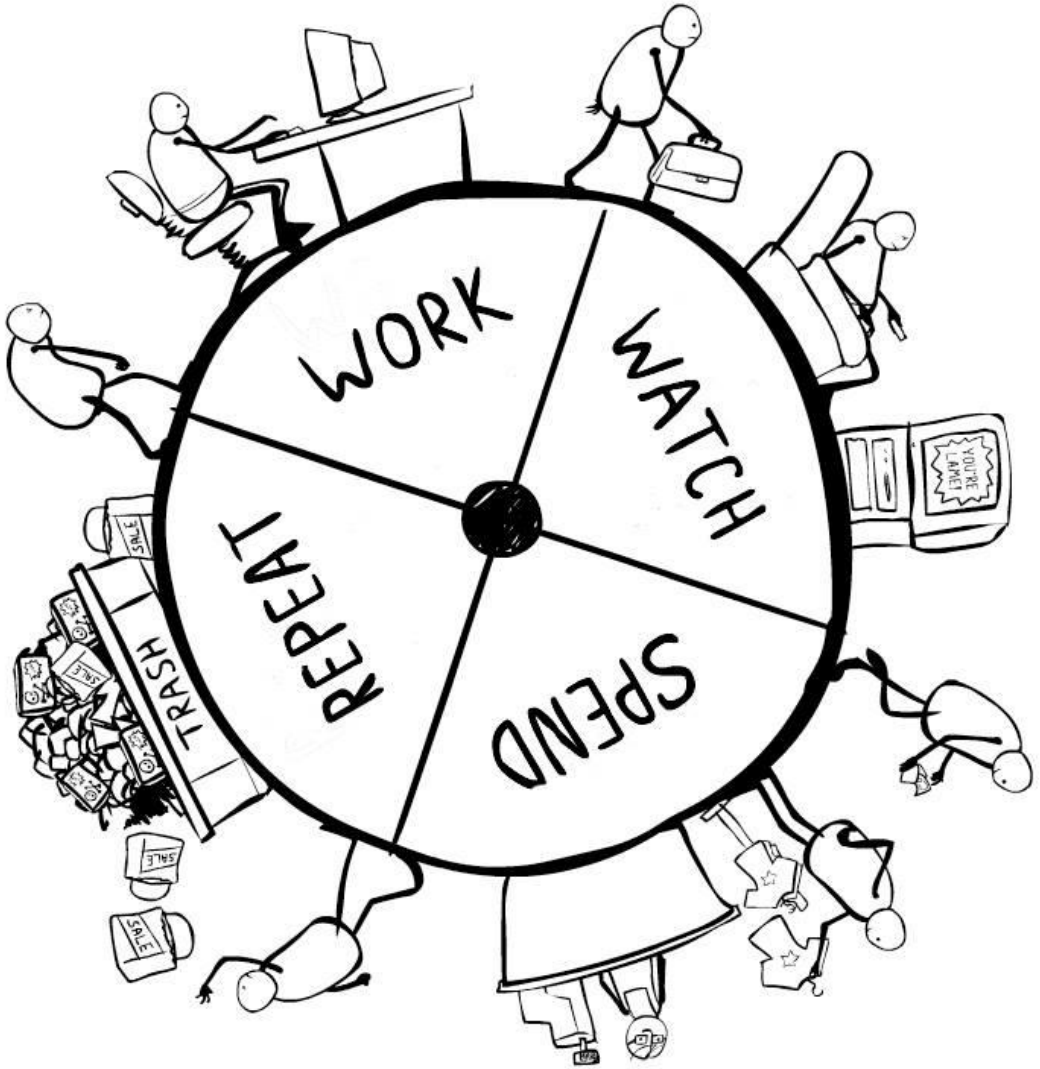
Then read the book

Annie Leonard

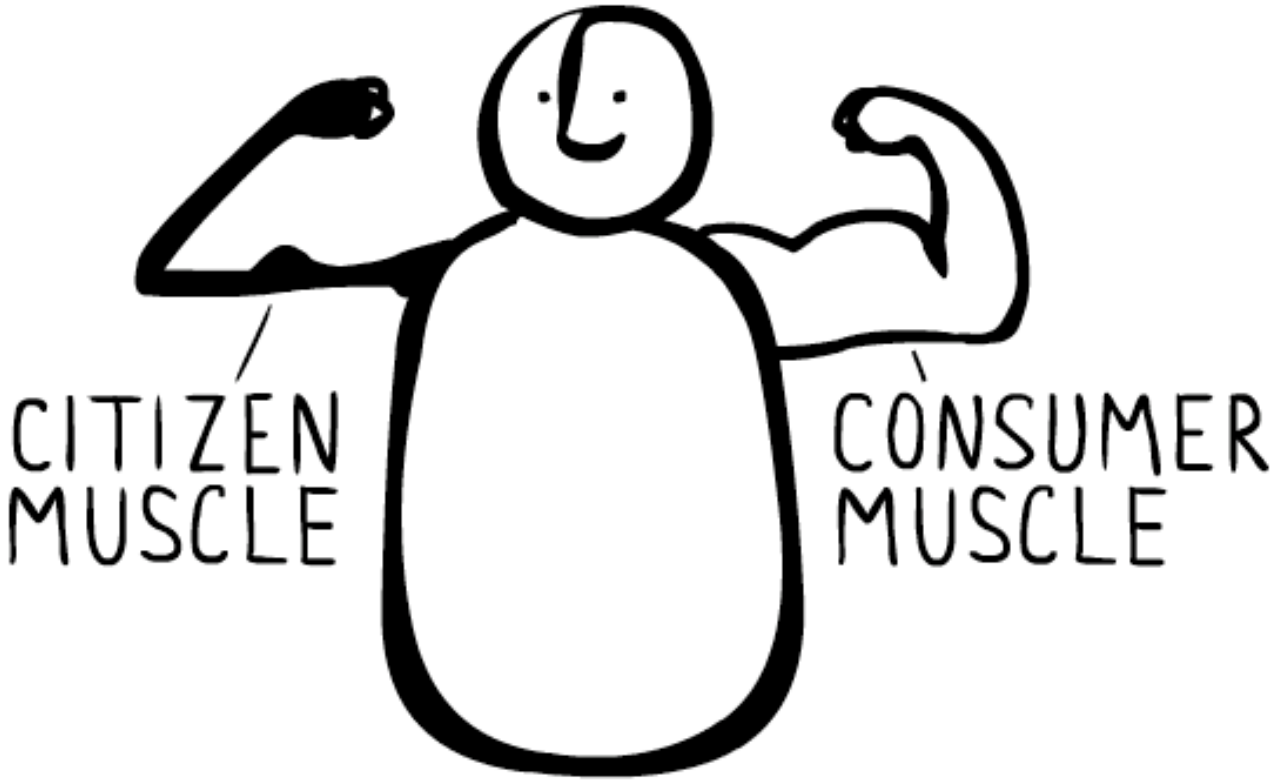
This is what we do to make Stuff for us to buy

This is what we do to make us buy Stuff

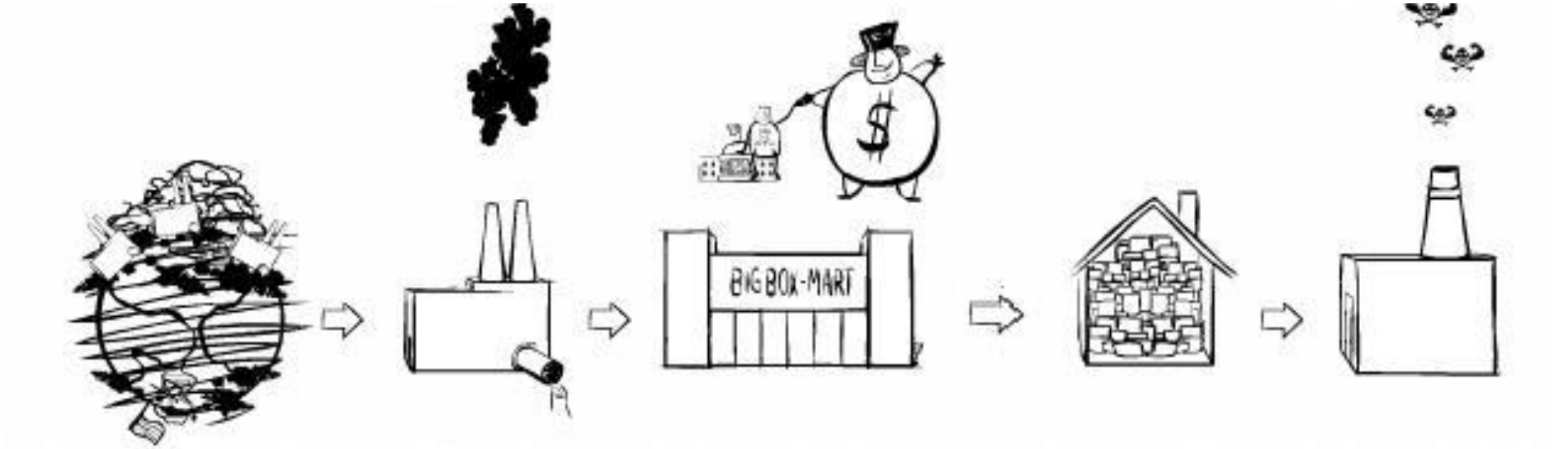
This is what we do for Stuff

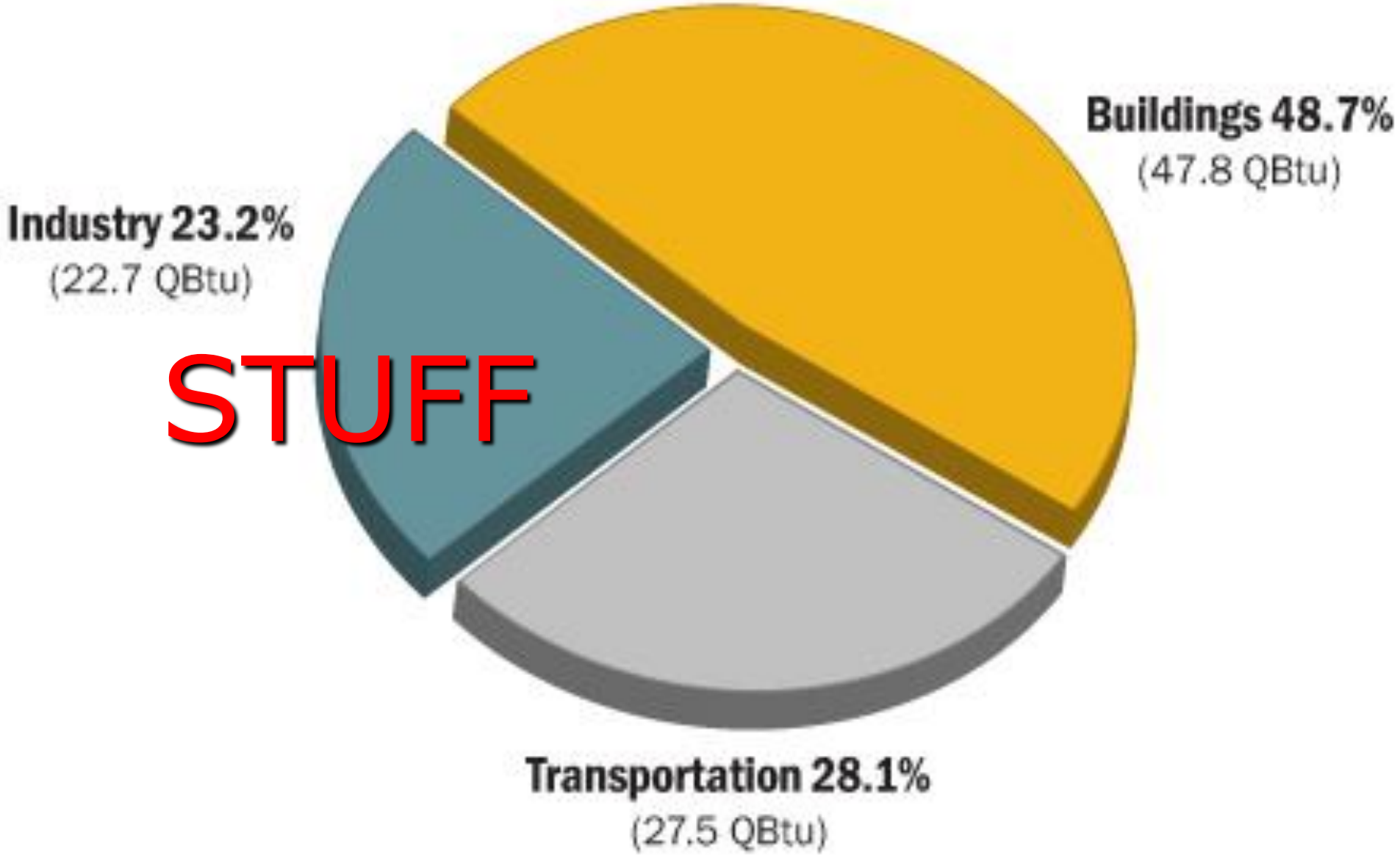


This is who we are



This is the story now.....

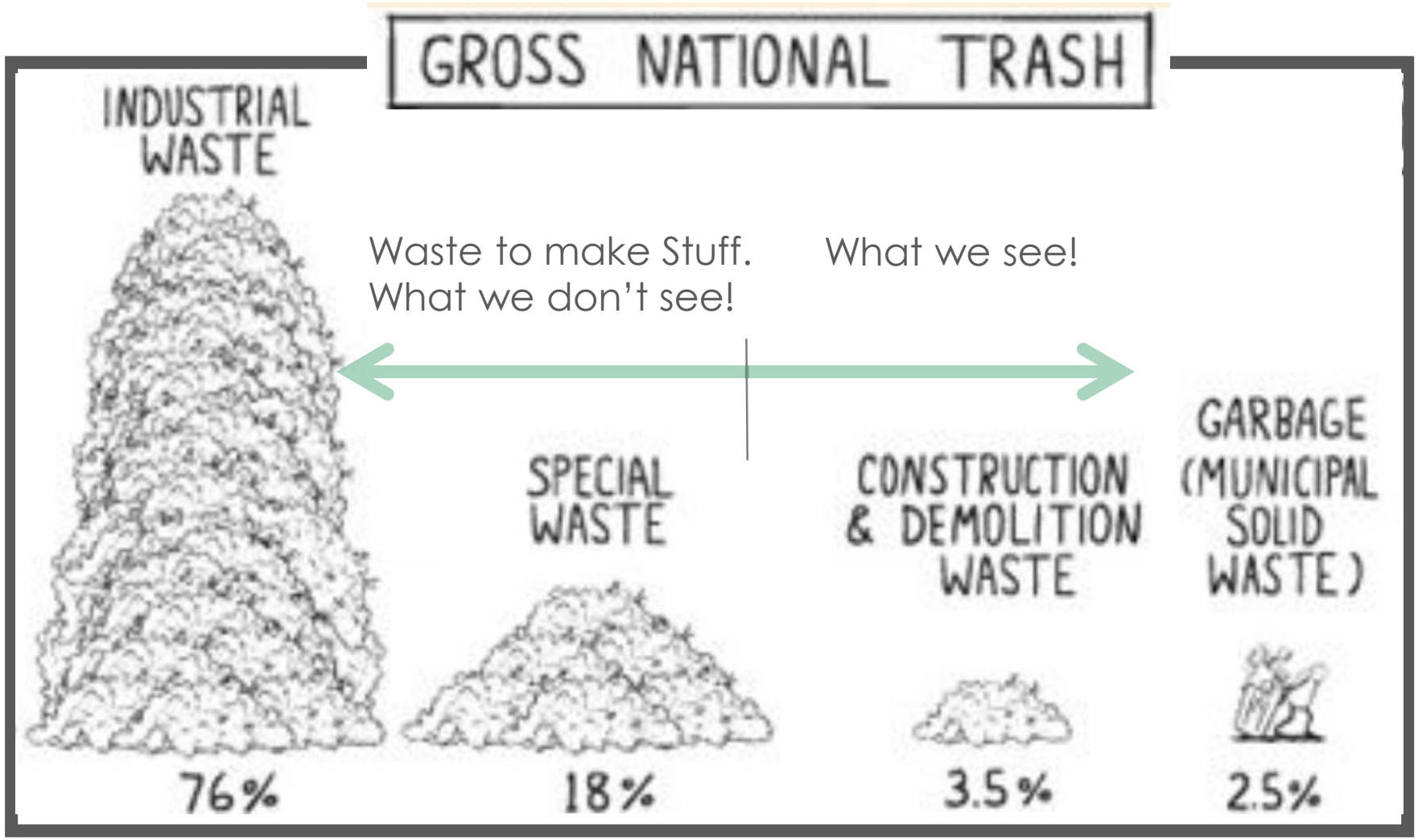




U.S. Energy Consumption by Sector

Source: ©2011 2030, Inc. / Architecture 2030. All Rights Reserved.
Data Source: U.S. Energy Information Administration (2011)

The BIG Waste Story

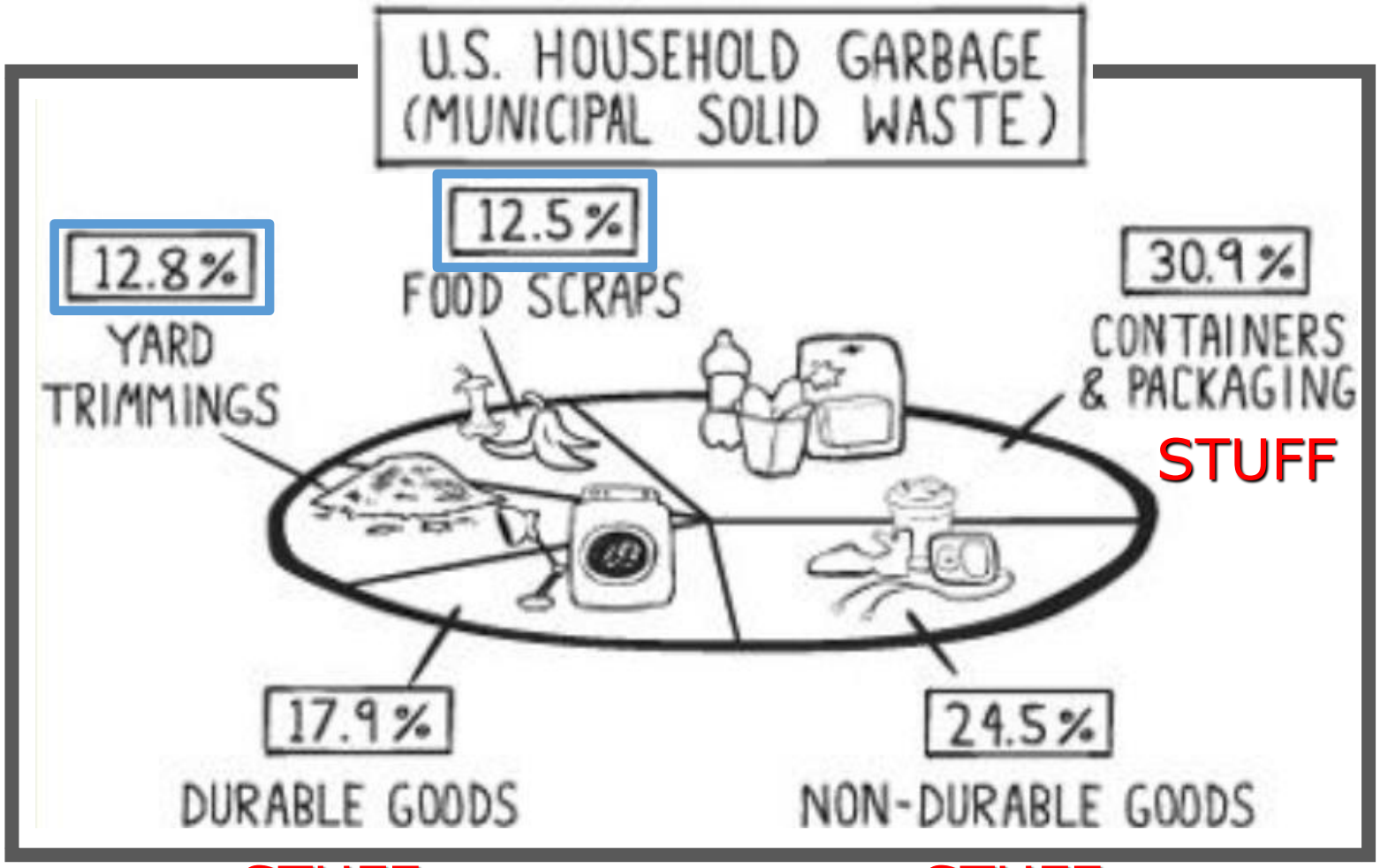


EMBODIED ENERGY & MATERIAL TO LANDFILL

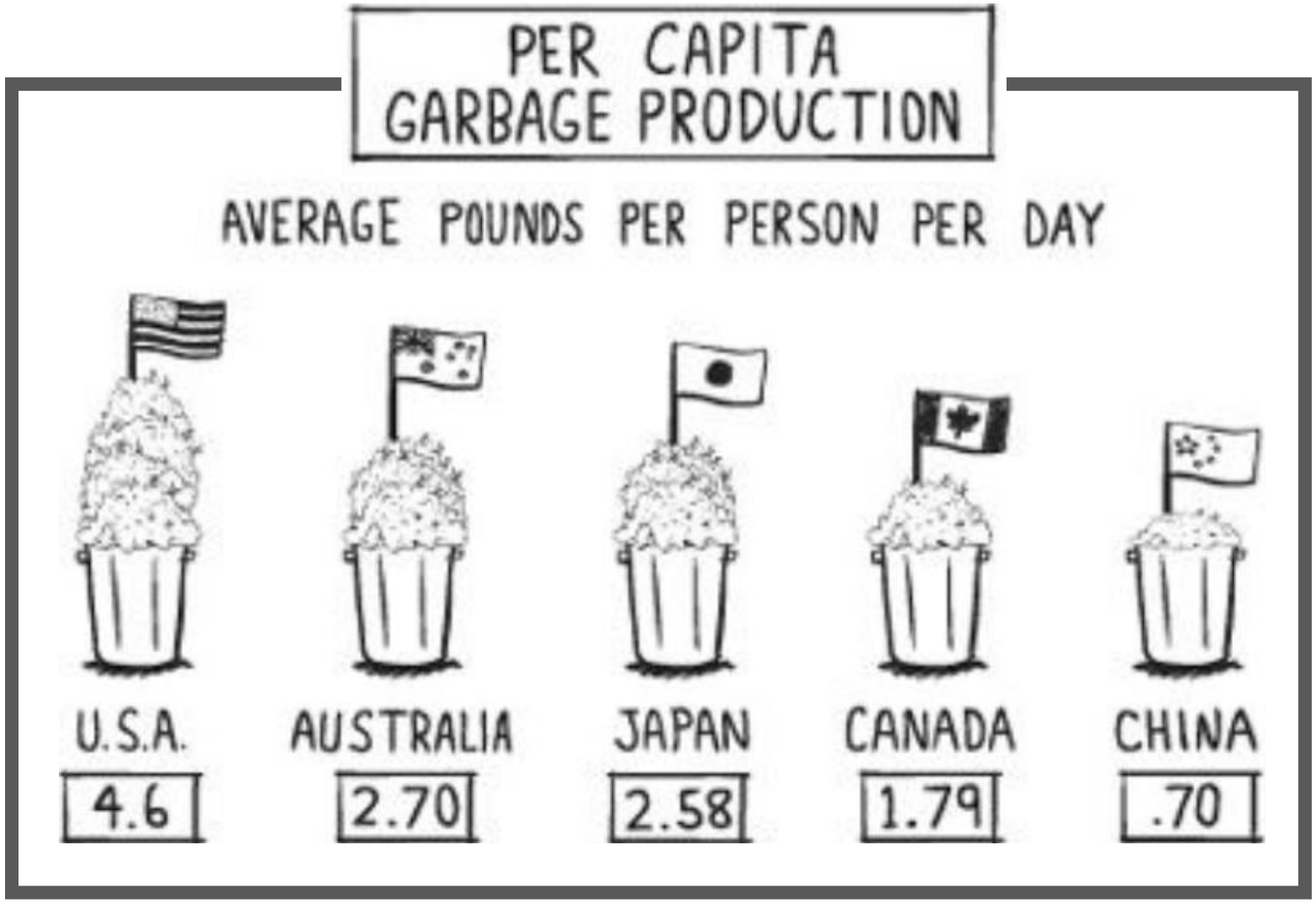
GARBAGE (MUNICIPAL SOLID WASTE)

2.5%

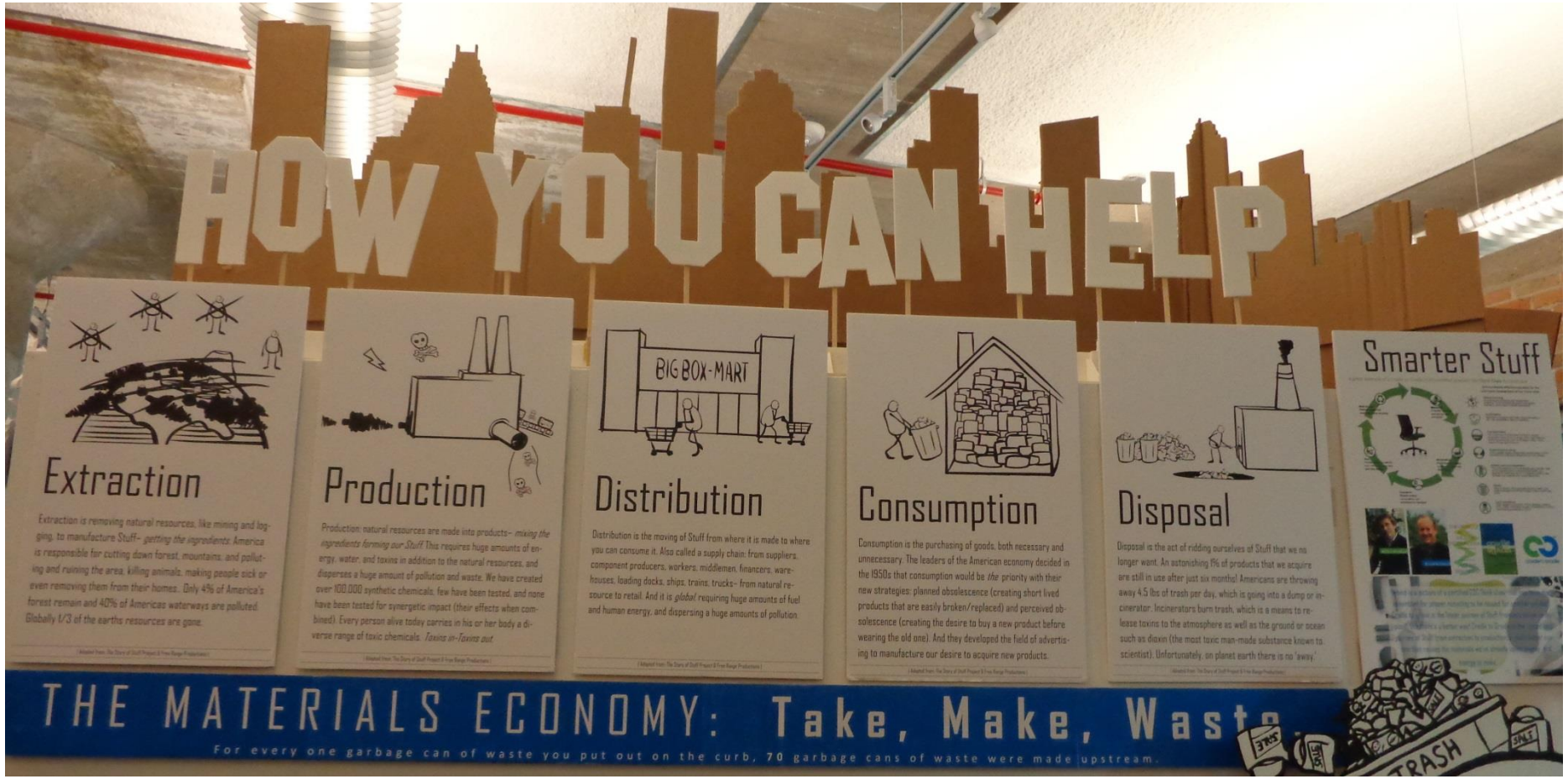
Compost Opportunity!

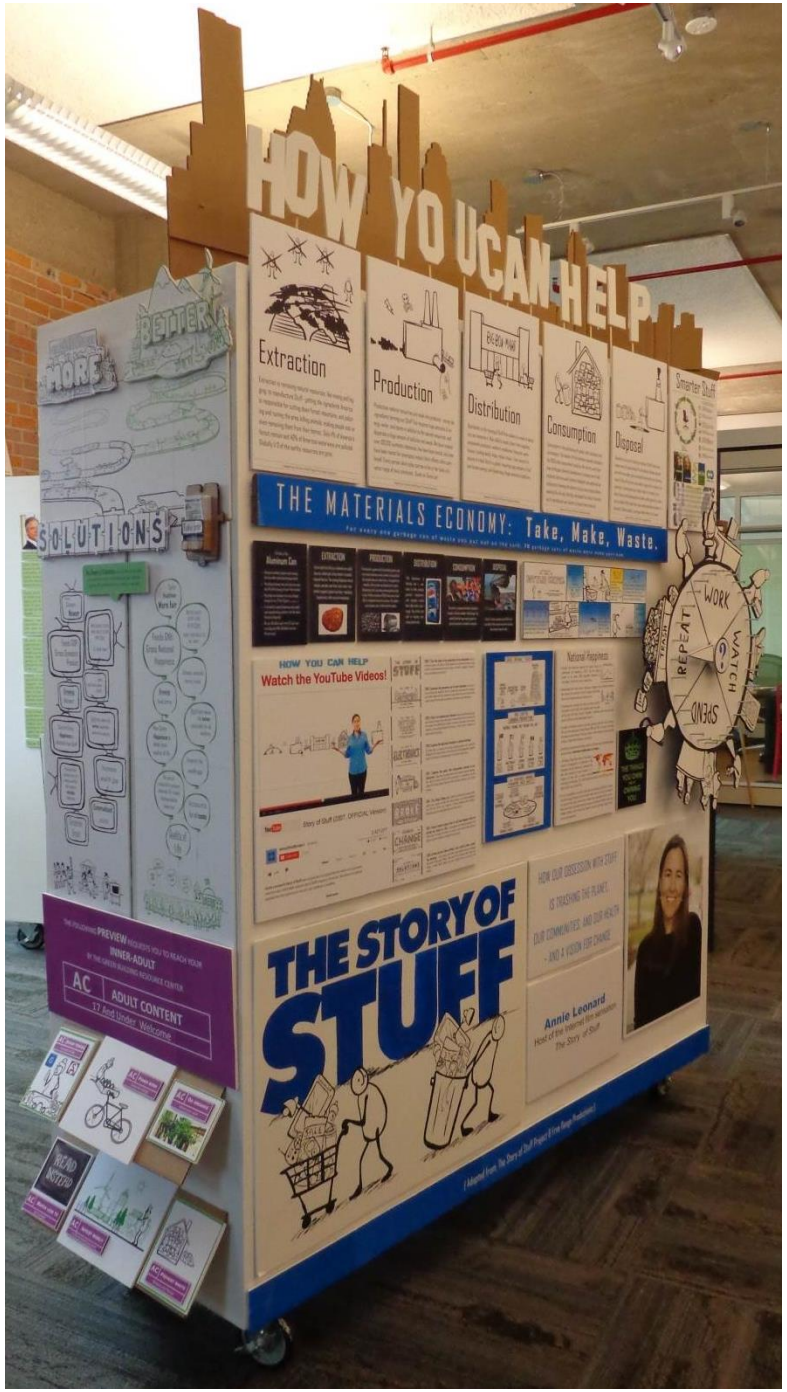


Compared to Others



Our Story of Stuff Display




HOW YOU CAN HELP
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Distribution
Consumption
Disposal
Smarter Stuff
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The BIG Waste Story

The value of a ton of mixed paper in the Northwest has dropped 95% in the past 12 months.

Recycling is Broken, and Here is Why

Published on April 22, 2018

Richard Coupland, III | Follow
Vice President, Municipal Sales at Republic Services

47 6 14

Many Municipal leaders, and the public, are not yet fully aware of the structural changes that have occurred to the recycling industry over the past decade. The reality is that the recycling business model in the United States is fundamentally broken, and that the success and long term duration of programs is in danger unless change is implemented. Here is a glimpse into why:

- **Changes in packaging** - manufacturers continue to innovate new packaging for their products, like juice pouches, or aseptic containers. Unfortunately, many are not recyclable, or have limited end markets for beneficial use which renders them unmarketable.

- **Light-weighting** - many packages have been designed to be lighter, to lean out the material costs needed for the manufacturer to produce the package. Think of water bottles, and how they barely stand up. It takes twice the number of water bottles to make a ton of recyclables today, yet recycling "success" is measured by weight (tons). The industry must still process each water bottle, so we need to run the equipment twice as long to aggregate a ton of water bottles. Programs therefore miss the reality that the community is actually recycling more (in terms of transactions), because we only measure weight to monitor success.

- **Public Education and Contamination** - A vast majority of the public are not aware of what to recycle, nor how to recycle properly. Absent this knowledge, they throw items in the bin that they think (or hope) are recyclable, but in reality are trash. This contamination degrades the value of the actual commodity we try to sell, and drives additional cost to transport and dispose of the trash at a landfill.

- **Placing Diversion over Sustainability Objectives** - many city goals have drifted, from doing the right thing for the planet, to simply driving to achieve maximum diversion rates in a short period of time. We see a steady increase in contamination and residual rates (and therefore costs) because people are "diverting" more trash into the recycling bin. Unfortunately, because the material is not recyclable, or has no end market in the local region, it is trash. Many cities measure the weight of collected material as diverted, rather than the actual weight of commodity processed (without the contamination and residual material pulled out). Programs must shift to measure success using Sustainable Materials Management (SMM) approaches to better look at the true benefits of the material being diverted.

- **Major disruption in Commodity Markets** - In 2017, China announced dramatic structural changes to what commodity they would accept into their country. As a major consumer of the recycled commodities from the US, these changes mean that the costs structure of the industry will now change as the world shifts to this new norm. The market value for the commodities impacted by China (eg: mixed paper) have fallen 95% in the past months.

The result of these realities is that the financials of recycling are no longer in alignment, or sustainable without changes. In the past, the price for collection on your curb was very low, because the value of the processed commodities was able to offset the costs to collect and process. Today, all that is changed, and the business model must change.

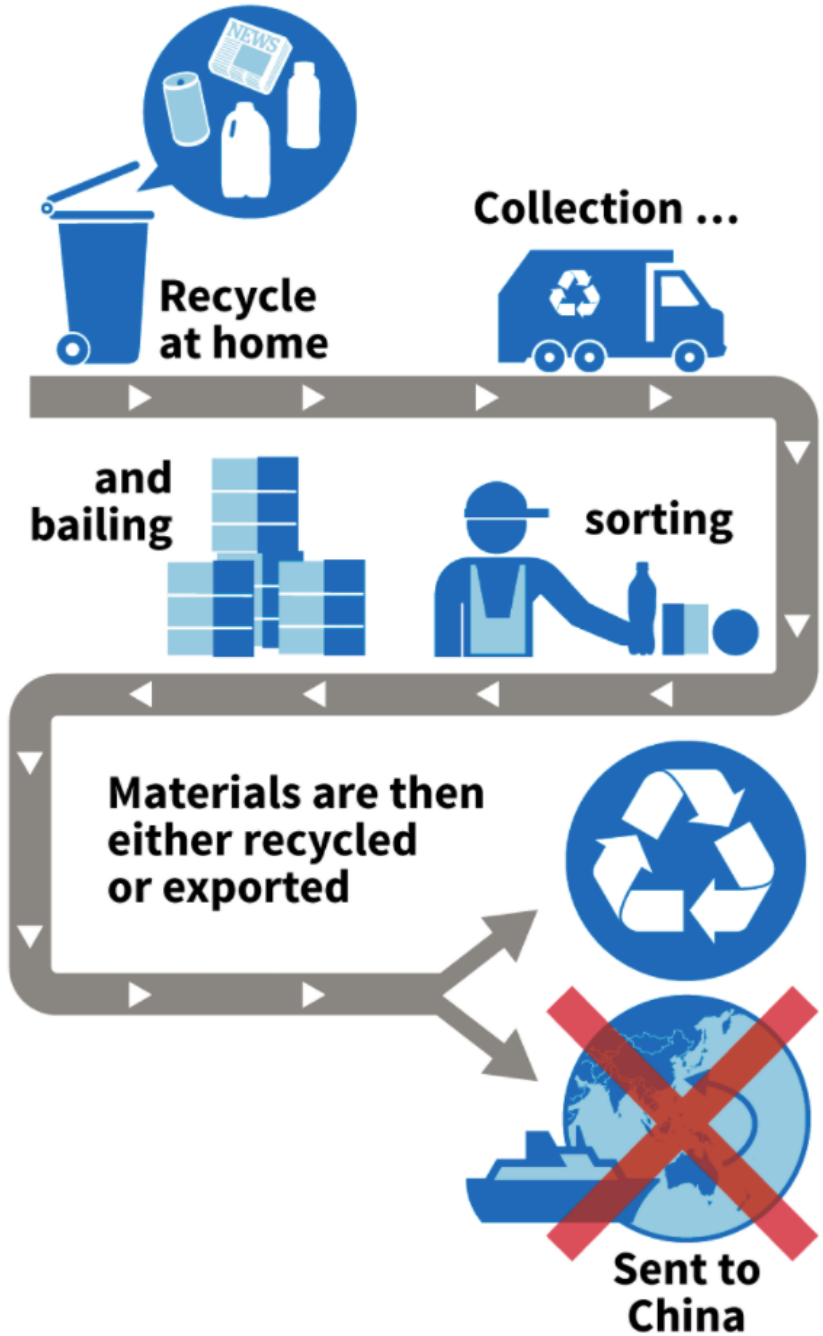
1. Public education must increase across the country, so that people understand the true costs of a recycling program, as well as what to recycle, and how to recycle properly. The quality of the recycling material stream can make the difference between marketable commodity and contaminated trash. Remember, *Empty. Clean. Dry.*

2. The service to run trucks and collect material on the curb must stand on its own. That means that the price we pay for trucks to collect our trash and the price we pay for trucks to collect recyclables should be comparable, and the public needs to tell their elected officials that they are willing to pay to have recycling in their community.

3. The service to process collected material and sell commodity on the market must stand on its own. The Net Processing Price should include costs to process, separate, dispose of contamination and residual, offset by the value of commodities sold at market. When commodity value is not able to offset the processing costs, these shortfalls should be passed to the Municipality or rate payer. This ensures the programs are durable and can stand up over the changing years.

4. Lastly, Municipalities who embrace a durable model should share in the risk (and reward) of the Commodity value of their materials. By doing this, the incentives and rewards of proper and sustained public education are directly tied to the returns a Municipality can enjoy.

The end of the road for recycling?



The BIG Picture Question

- Do we need to feel guilty if we consume?
- Could we consume more thoughtfully?
- Don’t we need to influence INDUSTRY?
- How do we do that?

Recycling crisis: More than 200 dangerous stockpiles found in Victoria

By Adam Carey

Updated 25 April 2018 — 11:15pm, first published at 5:37pm

A A A

1 View all comments

Talking points

- Victoria generated 12.67 million tonnes of waste in 2015/16
- 86 per cent of recyclable waste remained in Victoria
- 14 per cent of recyclable waste was exported overseas

More than 200 dangerous stockpiles of recycling waste have been found across Victoria by the state's environmental watchdog as the garbage crisis deepens.

Ten months after China announced it would no longer import "foreign garbage", Victoria is yet to find a way out of the crisis gripping its $4 billion recycling system.

The industry is warning that it has no choice but to continue to stockpile recycled material, despite the fire risk.

The threat of stockpiled recycling was brought home to Victorians when the SKM recycling plant in Coolaroo caught fire in July last year.

Link

The BIG Picture Question

- Reduce
- Reuse

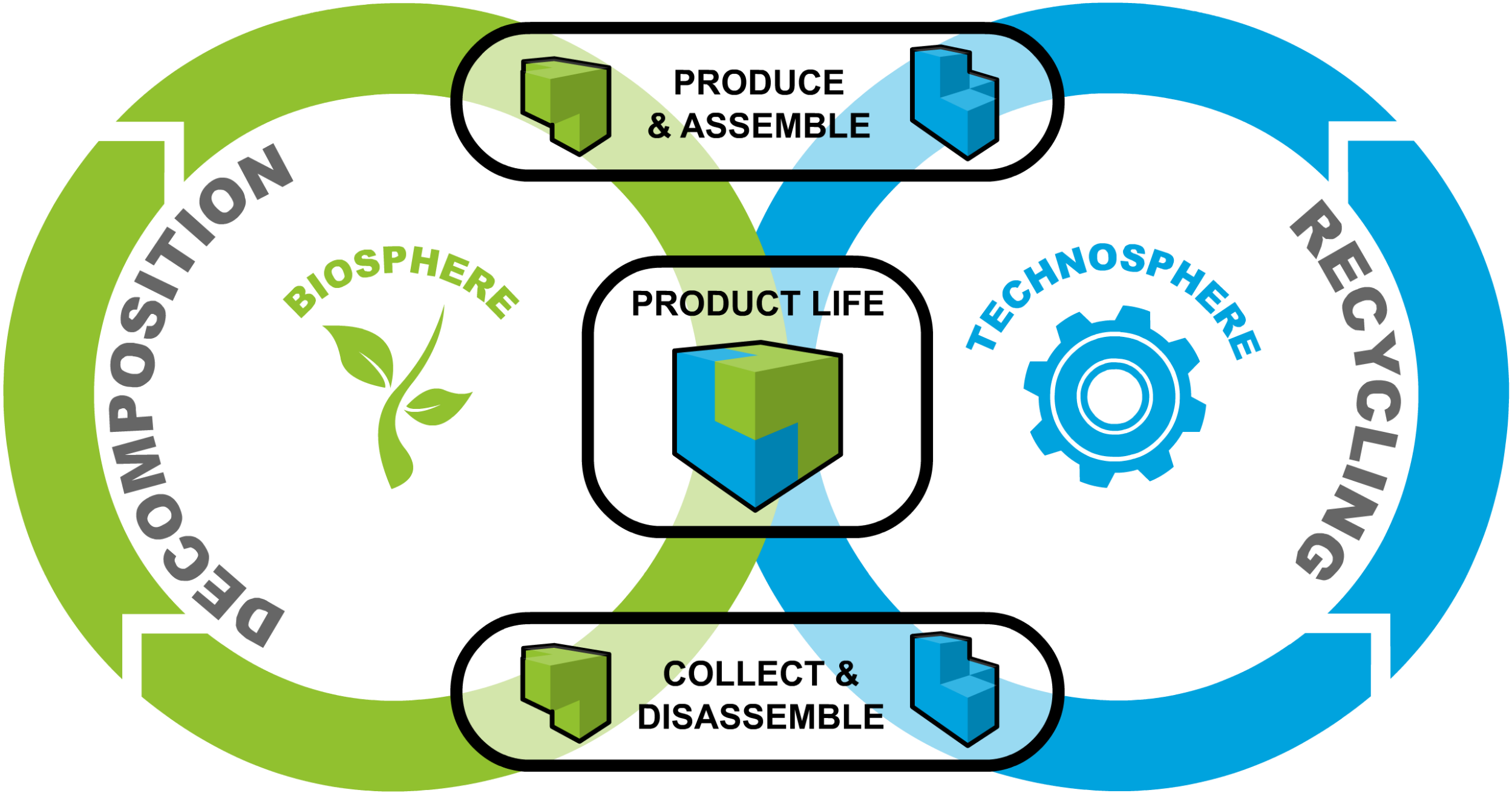
- Recycle is third for a reason

Zero Waste Initiative at Earth Day Houston

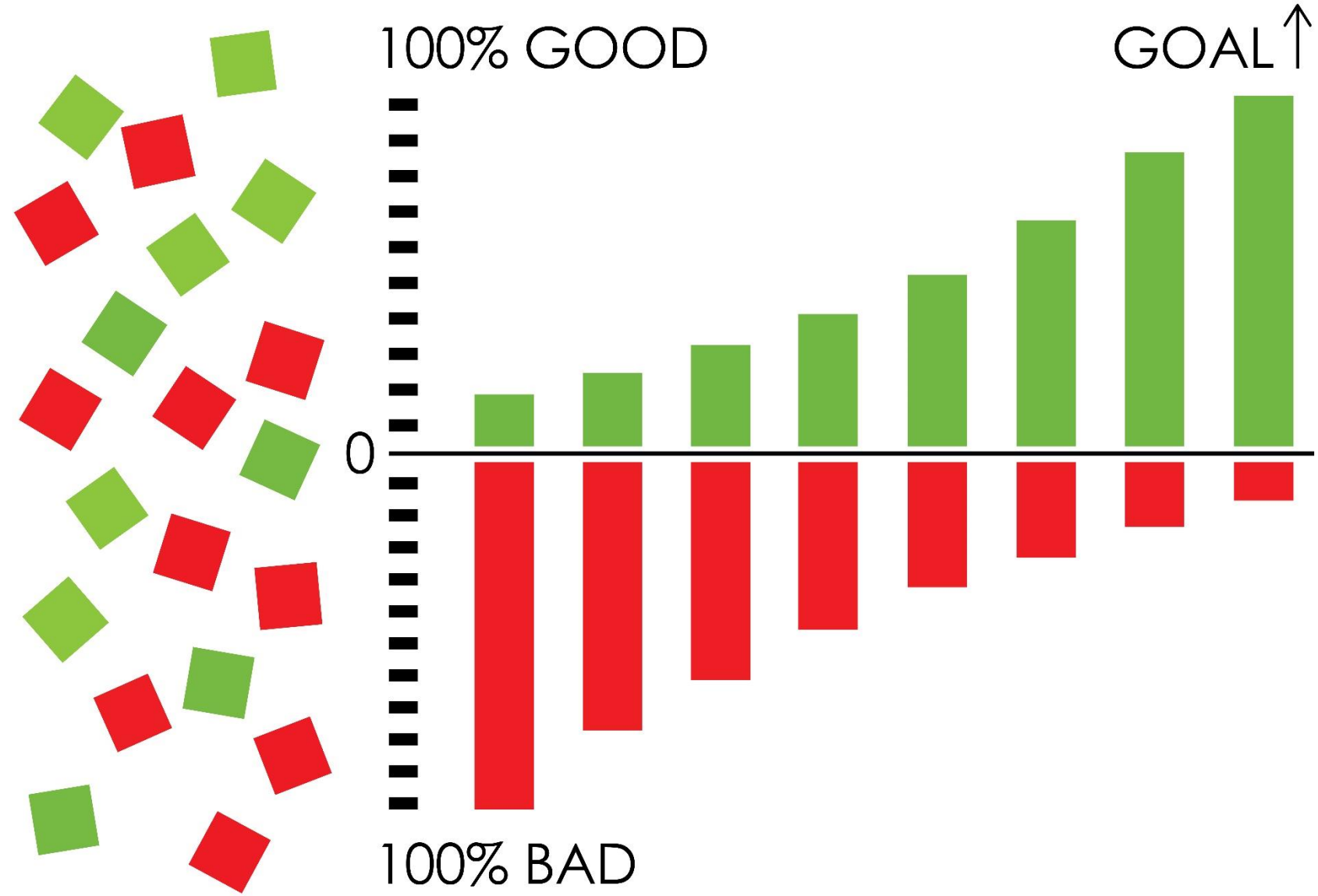
- https://www.facebook.com/EarthDayHouston/videos/1007509056076079/

We collected 338 pounds of total waste from our stations (157 lbs Compostable, 81 lbs Recycling, 100 lbs landfill). Plenty went somewhere else. Our Diversion rate is 70% (probably 15% error factor). 90% would qualify us for Zero Waste. I weighed 95% of it.

A Zero Waste Strategy


PRODUCE
& ASSEMBLE
BIOSPHERE
PRODUCT LIFE
TECHNOSPHERE
DECOMPOSITION
RECYCLING
COLLECT &
DISASSEMBLE

THE UPCYCLE CHART: Continuous Improvement



INVENTORY → ASSESS → OPTIMIZE

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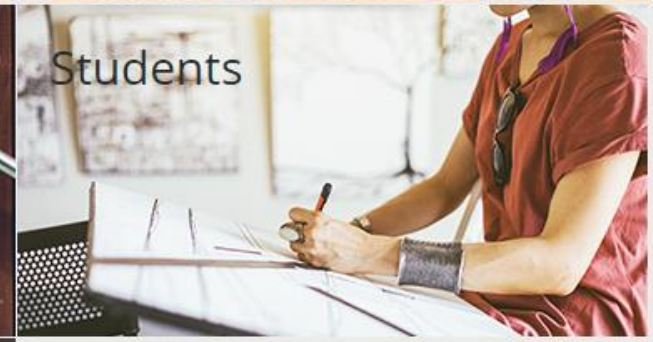
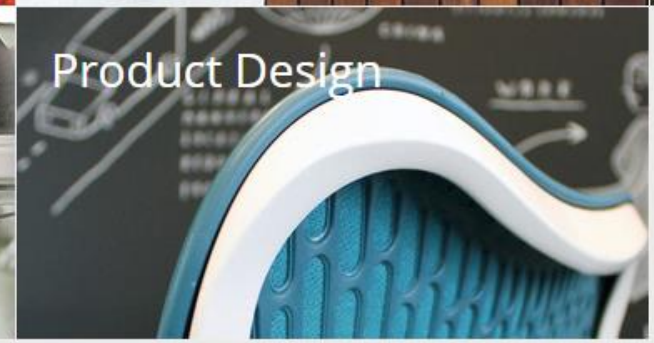
Drive Change

The Institute works with a powerful community of change-agents who, in their areas of specialty, are bringing about the next industrial revolution.





"But because of society's design strategies, that planned obsolescence brings with it a significant debt in terms of the raw technical materials put out of industry's reach in landfills. We know society has the capability of being more careful with its raw materials.

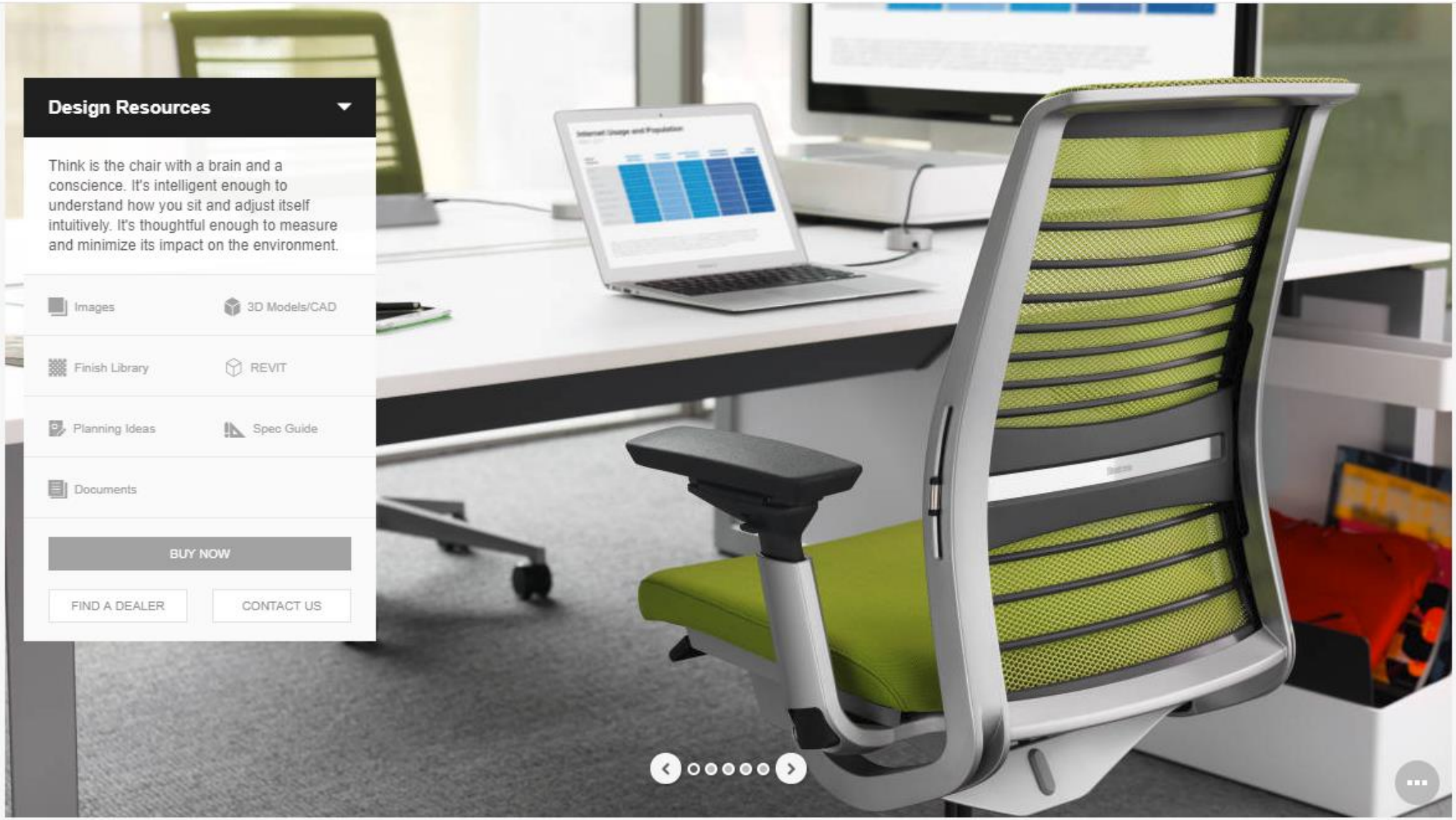
How do people treat gold, for example? Because society values gold, no one simply throws it out to be mashed in a dump or melted into a monstrous mess in an incinerator. That is unthinkable. Everyone would wonder how anybody could accidentally throw their gold away and how we could dig that gold out of the mountainous tons of waste to reuse it. Instead, people traditionally sell it in its whole form. …..

Now think of cobalt, used in medical implants. Indium used in LED lamps. Neodymium for wind turbines. Lithium for batteries. These rare-earth and heavy metals are truly precious because they allow us to have the needed and valued goods, such as lifesaving devices, renewable power, computers, cars, and so on.

But if people keep designing for one material use and not reuse, we “use up” clean forms of the technical nutrients needed to make the products for the future. This means we will all worry about “limits to growth” because we feel we are running out of resources.

Because of suboptimal design"

Think


Design Resources
Think is the chair with a brain and a conscience. It's intelligent enough to understand how you sit and adjust itself intuitively. It's thoughtful enough to measure and minimize its impact on the environment.
Images
3D Models/CAD
Finish Library
REVIT
Planning Ideas
Spec Guide
Documents
BUY NOW
FIND A DEALER
CONTACT US

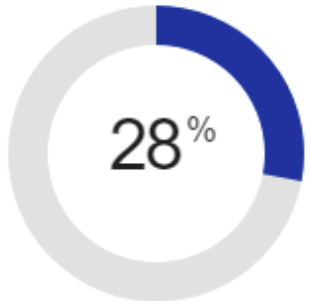
Sustainability

Overview | Life Cycle | LEED Contribution | Certificates

DESIGNING FOR SUSTAINABILITY

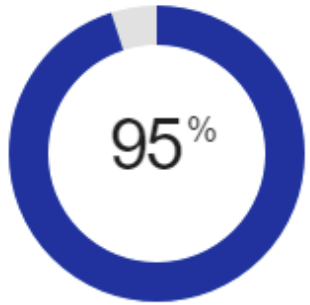
We believe the only way to provide the best office furniture solutions is to ensure they're the best products for the environment. That's why every step of the way – through design, manufacturing, delivery and product lifecycle – we consider the impact of our work on people and on the environment and uncover opportunities to make things better.

Read more



Up to

recycled content



Up to

recyclable

Sustainability

Overview | Life Cycle | LEED Contribution | Certificates

Certifications can help you choose products that are environmentally sustainable and just right for your project. Think has achieved the following certifications:

Cradle to Cradle Certified™

Bronze

SCS Indoor Air Advantage Certified

SCS IAQ Gold
SCS IAQ

View profile and certificates

Features

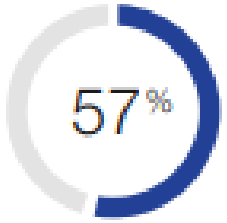
Smart. | Simple. | **Sustainable.** | Adjustability

Think, an environmentally-friendly, lightweight office chair, consists of up to 28% recycled material and is up to 95% recyclable.

SUSTAINABLE.

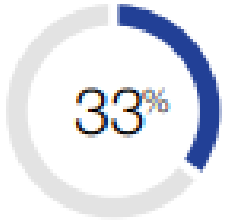
Think has measured and minimized its lifelong impact on both human and environmental health. The newly redesigned Think has fewer parts for easy recycling and even quicker disassembly. Steelcase can help you reuse or recycle the chair at end of its useful life.

Recycle + Reuse program



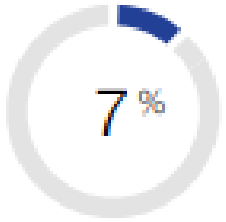
METALS

	kg	lb	%
Steel	4.6	10.2	28.9
Aluminum (cast)	4.5	9.9	28
Other	0.6	1.4	4
Zink (Zamak)	<0.1	0.1	0.4



PLASTICS

	kg	lb	%
Nylon (PA)	3.4	7.4	21
Polypropylene (PP)	1.6	3.6	10.2
Polyoxymethylene (POM)	0.1	0.2	0.8
Acrylonitrile butadiene styrene (ABS)	<0.1	0.1	0.3
Polyester (PET)	<0.1	0.1	0.3



OTHER MATERIALS

	kg	lb	%
Polyurethane foam	1	2.1	6
Fiberglass	0.1	0.2	0.6

TOTAL WEIGHT – incl. packaging	**15.9**	**35.0**

This needs to be TYPICAL language in product literature, don’t you think?

End of Use

Any product can become a resource itself, or be responsibly disposed of in different ways.

- **Designed to enable responsible end of use strategies** - re-selling, refurbishing, charitable donation or recycling.
- **Designed for quick and easy disassembly of materials** - with no permanent assembly.
- **Disassembly and recycling directions available upon request,** for a representative configuration.
- **95% effectively recyclable by weight**, according to the current waste disposal schemes.
- **100% effectively recyclable packaging.**
- **Primary plastic parts clearly labelled for easy sorting and effective recycling**, according to ISO 11469.

Episode 121: Mega deals | Apple admits mistake, sa
Steve
Secure | https://www.computerworld.com/article/2505855/it-management/apple-admits-mistake--says-it-s-back-in-epeat.html
Apps | Bookmarks | Microsoft Office Hom | Go Green Community | CitizensNet | (4) Citizens' Environm | CMS | Dashboard | City of Houston - Tale | ProjectDox | PWE Service Portal - | rebuildaresilienthous | 2017 ASHRAE Buildin | City Of Houston LEED | Other bookmarks

NEWS

Apple admits mistake, says it's back in EPEAT

Bob Mansfield hints the return to EPEAT was in answer to customer complaints

By Martyn Williams
Senior Correspondent, IDG News Service | JUL 13, 2012 4:11 PM PT

See threats. Control access. Protect your data.
Unleash the power of your network.
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In a rare admission of error, Apple said Friday that it's back in EPEAT, the environmental standards group for electronics products that it withdrew from earlier this week.

"We've recently heard from many loyal Apple customers who were disappointed to learn that we had removed our products from the EPEAT rating system," read a letter from Bob Mansfield, Apple's senior vice president of hardware engineering, that was posted on the company's website. "I recognize that this was a mistake. Starting today, all eligible Apple products are back on EPEAT."

"It's important to know that our commitment to protecting the environment has never changed, and today it is as strong as ever. Apple makes the most environmentally responsible products in our industry," the letter said.

MORE LIKE THIS

Apple kerfuffle prompts EPEAT to review thin laptops

EPEAT green IT registry expanding to mobile phones

EPEAT finds thin laptops, including Macbook Air, meet its standard

VIDEO
Hoping for a raise in 2017? Here's the outlook for IT pay

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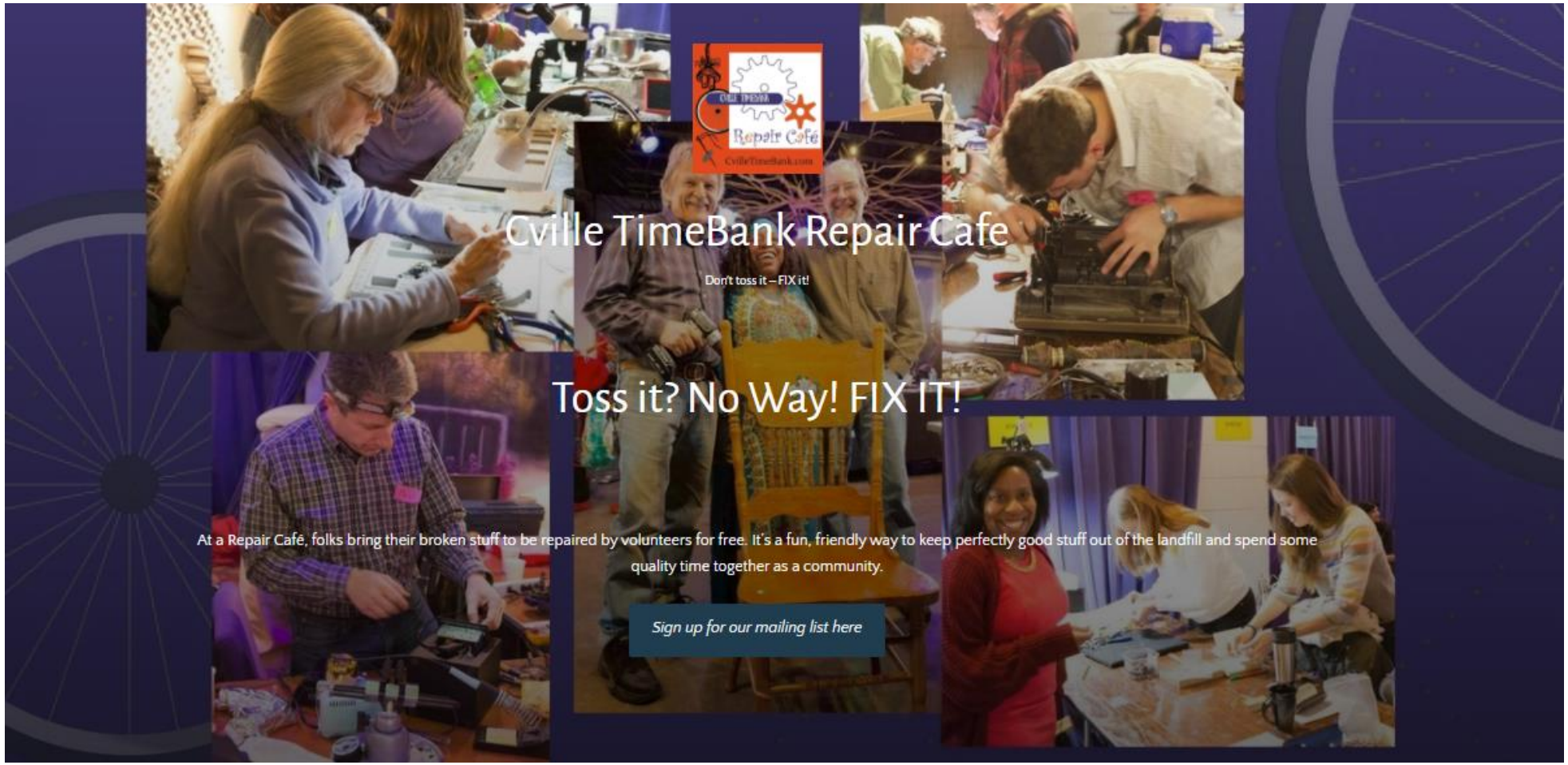
4/20/2018

Another Zero Waste Strategy


Repair Café
Cville TimeBank Repair Cafe
Don't toss it – FIX it!
Toss it? No Way! FIX IT!
At a Repair Café, folks bring their broken stuff to be repaired by volunteers for free. It's a fun, friendly way to keep perfectly good stuff out of the landfill and spend some quality time together as a community.
Sign up for our mailing list here

APL Events

Children Teen Adult

Show all events Calendar

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FixIt Clinic

Fixit Clinics are all about do-it-together, hands-on disassembly, troubleshooting and learning to repair.

Events

Saturday, March 24, 2018

12:00 PM **Fix-It Clinic - Bring your broken stuff and learn how to fix it!**
Austin Habitat for Humanity ReStore - 500 W. Ben White Blvd.
All ages are welcome, but children under the age of 13 must be accompanied by a parent or guardian. Click below to RSVP.

About iFixit

Want to know how things work around here? You've come to the right place.

About Us

iFixit is a wiki-based site that teaches people how to fix almost anything. Anyone can create a repair manual for a device, and anyone can also edit the existing set of manuals to improve them. Our site empowers individuals to share their technical knowledge with the rest of the world.

So what are you waiting for?

Start a new guide or improve an existing one!

Helpful Resources for Repair Guides

Repair Café, Palo Alto

@paloaltorepaircafe

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Toss it? No way!

Repair Café

A Repair Cafe celebrates fixing through a fun, collaborative, hands-on, fix-n-learn, community event. People bring us their broken items for assessment, disassembly and repair. Bring your toolkit and join us to have fun and learn while helping others troubleshoot and fix their broken stuff! Volunteers **assess**, **take apart**, and hopefully -- **REPAIR**.

Transition Houston is partnering with **TX/RX Labs**, the **City of Houston Green Building Resource Center**, **Houston Complete Communities**, **Citizens' Environmental Coalition**, **Texas Campaign for the Environment**, and the **Houston Peace and Justice Center** in this effort!

Do you have an item in need of repair?

We invite you to bring in a broken item and meet local people who have offered to share their skills to help you make repairs. If you have nothing to repair, you can enjoy a cup of tea or coffee. Or you can lend a hand with someone else's repair job. You can also get inspired at the reading table, by leafing through books on repairs and DIY.

Acceptable Items to Bring:
Clothing, Small Appliances, Bikes

Can you volunteer to help with repair or the event?

Calling all handywomen, handymen, handy kids, handy teens and families, tinkerers, and sewers! Volunteer to have fun and learn through helping others troubleshoot and fix their broken stuff. Volunteers are also needed on the day of the event as guides and to assist with general coordination.

Sign Up to Participate!

Online at: https://repaircafehouston.eventbrite.com use the QR code, or contact Steve Stelzer at 832.394.9050.

Why a Repair Cafe?

Our society revolves around consumption. Personal consumption of durable goods add up to 8% of GDP, and non-durable goods add up to 15%, totaling about $4 trillion dollars annually in the USA! The more we buy, the more we throw away, often during the first year! And... most people no longer know how to repair things. For more information, visit www.transitionhouston.org.

The Fixer's Manifesto

- If it's broken, fix it!
- Give your stuff a longer life
- Enjoy hands-on, fix-n-learn, community based discovery
- Nurture curiosity, share ideas and skills
- Fixing is good for us and good for the planet
- Disposability is a choice
- Make fixing a way of life!

House Rules & Guidelines

Please take a moment to **read the house rules outlining repair cafe and safety guidelines**. Participation in the event requires all attendees to agree and abide by these rules. In general,

- Local volunteers with a range of skills are available to give you ideas, suggestions or a helping hand if needed with a repair.
- Visitors carry out the repairs themselves whenever possible, but repair experts are on site and can help as needed.
- Please bring one broken or non-working item per person.*
- Carry-in items only (No stoves, refrigerators, or other large items)
- Volunteers offer no guarantee of items being repaired made by them or with their assistance, and are not liable if objects repaired do not work properly at home.
- Volunteers are not obliged to reassemble disassembled appliances that cannot be repaired.
- If you need replacement parts, such as plugs, fuses etc. you may need to pay for these or pop out and buy them from a local shop.
- Visitors to Repair Café are solely responsible for the removal of broken objects that could not be repaired.
- A voluntary donation for workshop tools and repair materials is greatly appreciated.

> * **Disclaimer** – Please know you bring your items to be repaired at your own risk. Because repairs are made by unpaid volunteers there may be risks. Neither the facilitators of Repair Cafés nor the repair volunteers are liable for any loss or damage that may result from advice or instructions, for the loss of items handed over for repair, for indirect or consequential loss, or for any other kind of loss resulting from repairs made by Repair Café.

Our Sponsors

TRANSITION HOUSTON

Green Building Resource Center

Houston Peace & Justice Center HPJC

HOUSTON COMPLETE COMMUNITIES

TXRXlabs

Citizens' Environmental Coalition

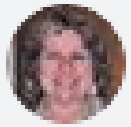
TEXAS CAMPAIGN FOR THE ENVIRONMENT

Transition Houston
October 28, 2017

Mary Lee Johns This looks really cool. When, where, how join, etc?

Like · Reply · 14w

1



Peggy Walton Looking forward to our next one. Thanks for sharing Gabriella Nissen.

Like · Reply · 14w · Edited

2

Monica Elizabeth Luna When is the next one?

Like · Reply · 11w

Carol Hendrix Burrus I was there! It was amazing. I will now plan to save things that break instead of figuring out how to recycle them. This service is a welcome return!

1

Molly Block is 3 attending Join Us at Houston's First Repair Cafe! with Steve Stelzer at TX/RX Labs.

October 28, 2017 · Houston ·

At Houston's first "repair cafe" today -- with volunteers who are lending their expertise to help extend the life of non-working items. Getting one of my not-quite-working vintage lamps looked at. (Carl, pictured, advises me to get a different socket.) Fun stuff!

Kudos to Steve Stelzer for coordinating this project -- a good thing for Houston! 🎉

ALERT! Shameless Self-Aggrandizement


B2


FIRE EXTINGUISHER
Not Buying It
THE BIG BOOK OF HACKS
HOW TO SHARPEN ANYTHING
Upholstery
DIY Home Energy Audit
10 COOL THINGS
62 PROJECTS TO MAKE YOUR DEAD COMPUTER

HPL plans to stay involved with and support the Repair Café program. We would like to pursue outreach opportunities and host a Repair Café in the near future.

Carmen P. Abrego
Assistant Manager
Library Events & Community Programs
500 McKinney | Houston, TX 77002

HOUSTON PUBLIC LIBRARY

We link people to the world.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Repair Café
HOUSTON *Toss it? No way!*

Date: 10/28/17	Male / Female	Age Group 0-20 21-40 ~~41-60~~ 61+
Name: Linda Foss		
Email Address: lindasfoss@gmail.com		☑ I agree to abide by the House Rules Zip Code 77006
Repair Number:		Repair made to: ☑ Small appliance: ~~ANTIQUE FAN~~, REPRO FAN ☐ Garment: _____ ☐ Tool / Knife: _____ ☐ Other: _____

Defect / Issue:
Fans Don't Turn

Were you helped?

☐ Yes. What was repaired? Fans 1 antique, 1 Reproduction.
repro- bearings seized
Antique- break in motor ~~wiring~~ coil wiring

☑ To a degree. Advice? Quality Electric → motor rewound
1004 Collingsworth on antique
713 225-6531
other needs motor or bearings replaced if possible

☐ No. Reason?

Helped By: Curtis & Wade

Comments / Suggestions


POST SEASON
Ozark

Repair Café
HOUSTON *Toss it? No way!*

Date: 10/28/17	Male / Female
Name: Qualy Antin	Age Group: 0-20 / 21-40 / 41-60 / 61+ ✓
Email Address:	☑ I agree to abide by the House Rules
	Zip Code: 77009
Repair Number: S-1	Repair made to: ☐ Small appliance: ☐ Garment: stuffed toys (dog) ☐ Tool / Knife: ☐ Other:
Defect / Issue: chewed + ∴ dangerous	

Were you helped?

☑ Yes. What was repaired? 8 holes dog chewed in their stuffed animals — important because the filler is carcinogenic if they swallow the particles.

☐ To a degree. Advice?

☐ No. Reason?

Helped By: 2 sewing ladies, Judy + ~~Ka~~ Karen

Comments / Suggestions

The 2 seamstresses were so very nice and very enthusiastic about repairing the animals

Repair Café
HOUSTON

Toss it? No way!

Date: 10.28.17

Male / Female

Age Group
0-20
21-40
41-60
61+

Email Address

☐ I agree to abide by the House Rules

Zip Code 77005

Repair Number:

T-2

Repair made to:
- ☐ Small appliance: _____
- ☐ Garment: _____
- ☒ Tool / Knife: _____
- ☐ Other: _____

Defect / Issue: Weed wacker string breaks constantly

Were you helped?
- ☒ Yes. What was repaired? Weed Whacker
- ☐ To a degree. Advice? (wound the wrong way)
- ☐ No. Reason?

Helped By: Wade / Curtis

Comments / Suggestions

Repair Café Houston

Saturday, October 28, 2017			TXRX Labs
Volunteer Fixers			10
Volunteer Guides			13
Pop Up Table Folks			4
Reception/Closeout Folks			2
Repairs	Success/total		16/20
Appliance			8/10
Tools/Sharpen			4/5
Sewing			4/5
Not recorded, but fixed			4 to 6

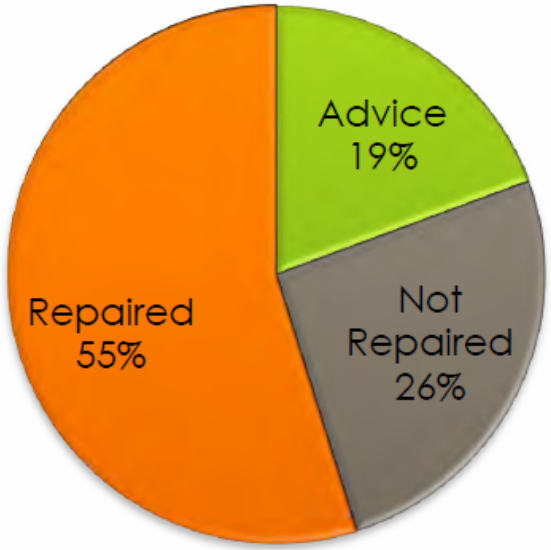
Repair Type & Status

Results	Advice	Needs Parts	Not Broken	Not Repaired	Repaired	Grand Total
Bicycle	**1**	**2**			**1**	**4**
Bike		1			1	2
Marin Bike	1	1				2
Other				**1**	**1**	**2**
Stool					1	1
Toilet Seat				1		1
Sewing / Mending					**5**	**5**
3 Skirts					1	1
Blanket					1	1
Jeans					1	1
Pants					1	1
Suitcase					1	1
Small Appliance	**4**	**4**	**1**	**3**	**8**	**20**
Apple cord	1					1
Clock	1					1
Computer speakers				1		1
Elec pencil sharpener					1	1
Elec toy car		1				1
Electronic keyboard					1	1
Fan					1	1
Fishing reels		1				1
Food processor		1				1
Ice maker	1					1
Iron				1		1
Lamp					2	2
Power washer			1			1
Roomba	1					1
Stereo receiver				1		1
Tape player					1	1
Tape recorder		1				1
Toaster					1	1
Vacuum					1	1
Grand Total	**5**	**6**	**1**	**4**	**15**	**31**

Repair Café April 2018

Small Appliances, Bikes, and Sewing / Mending

Items Repaired Report



Repair Status