



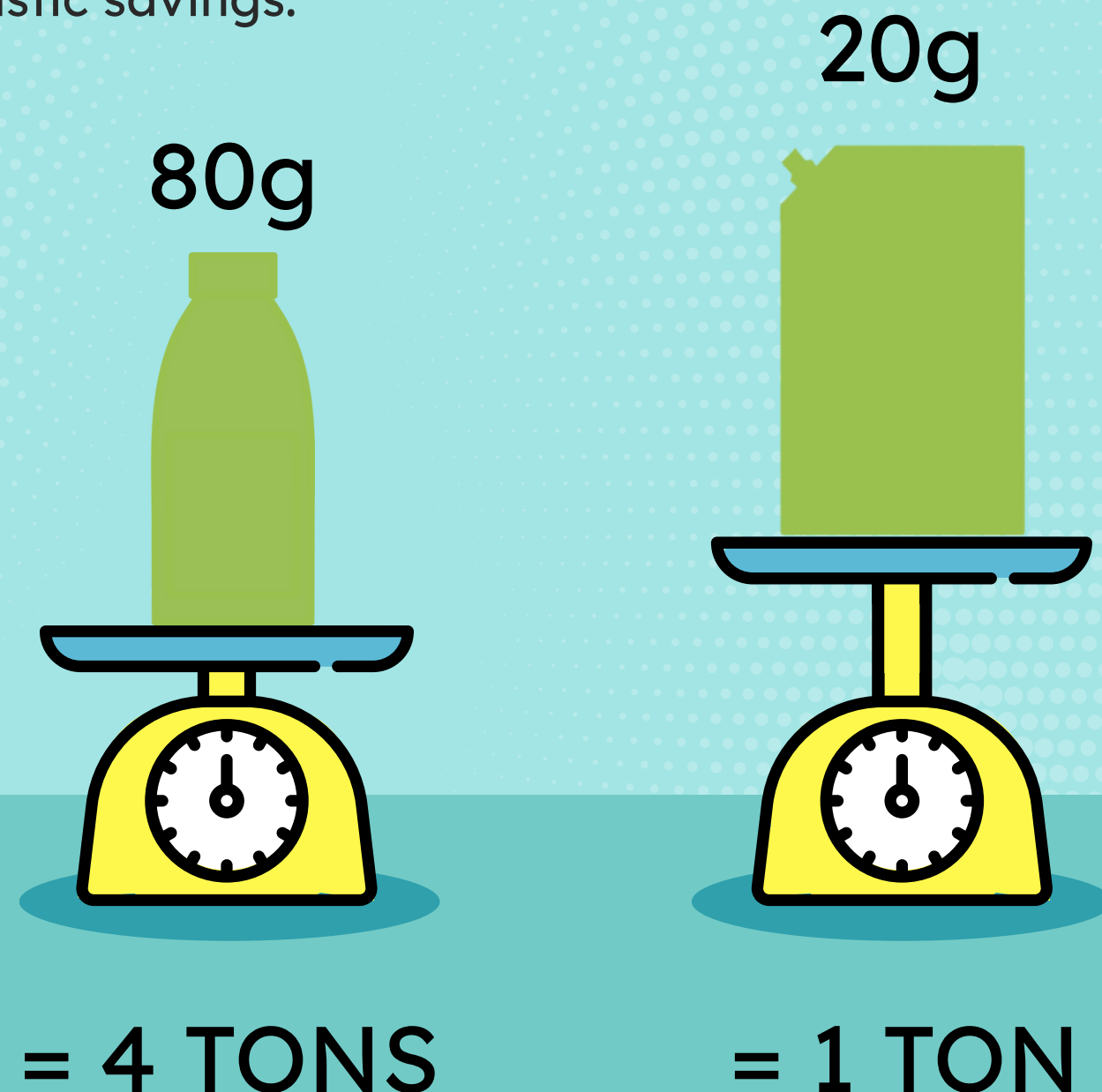
FLEXIBLE POUCH **SUSTAINABILITY FACTS**

A leading solution to achieve sustainability goals



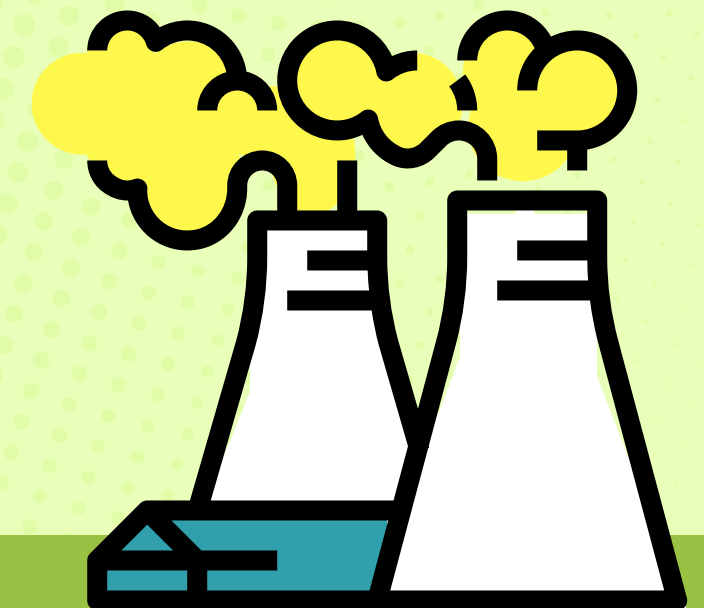
Flexible pouches reduce material usage by up to 80% compared to rigid packaging.

At 50,000 units, this translates to 3 tons of plastic savings.*



Flexible pouches generate 70% fewer greenhouse gas (GHG) emissions than HDPE canisters.

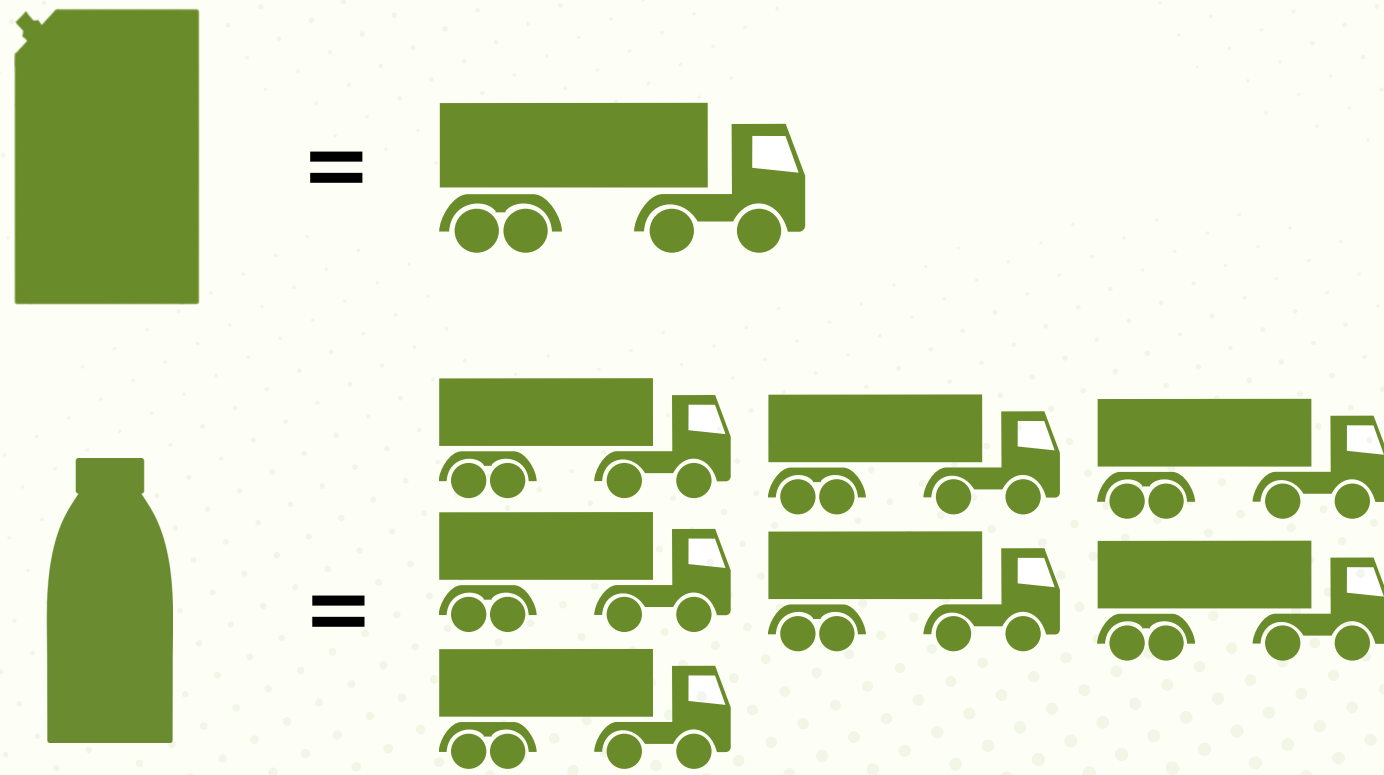
Flexible pouches generate the lowest production GHG emissions.



Manufacturing represents one of the largest contributors to packaging-related greenhouse gas emissions.

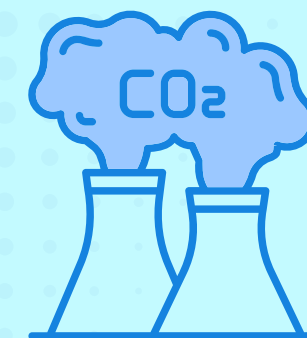
Flexible pouch requires fewer trucks, resulting in overall **less fuel** to transport.

Empty pouches are 7x more space-efficient, reducing trucking and costs.



According to the Life Cycle Assessment (LCA), flexible pouches have less of a negative environmental impact.

The refill pouch system delivers measurable environmental benefits over traditional rigid packaging.



Fossil Fuel Use



Water Use



Resources Use



GHG
Emissions



GHG
Emissions

What If Scenario....

247M Facial cleansers sold annually in the US in 2023



Traditional bottles

29,640 tons of plastic

If we switch
just half
of the bottles to refill pouches...



Annually, we can save
11,731 tons of plastic

Source: www.statista.com (sold units are in 2023)

Assumption: all facial cleansers are sold in bottles with average weight of 120g and one refill pouch weighs 25g

Motor Oil Packaging Comparison

Package Type/Product Weight	Structure (package weight)	Photo
Stand-up pouch w fitment- 28 fl. oz. (828.1 ml)	Stand-up pouch - 60 ga. BON/6 mil HDPE - 16.3g	
	Spout/Fitment - LDPE - 2.0g	
	Cap - LDPE - 0.9g	
	TOTAL = 19.2g	
HDPE bottle – 32 fl. oz. (946.4 ml)	Bottle - HDPE - 53.6g	
	Closure - PP – 2.8g	
	TOTAL = 56.4g	

The total weight of a
stand-up pouch with
fitment is only

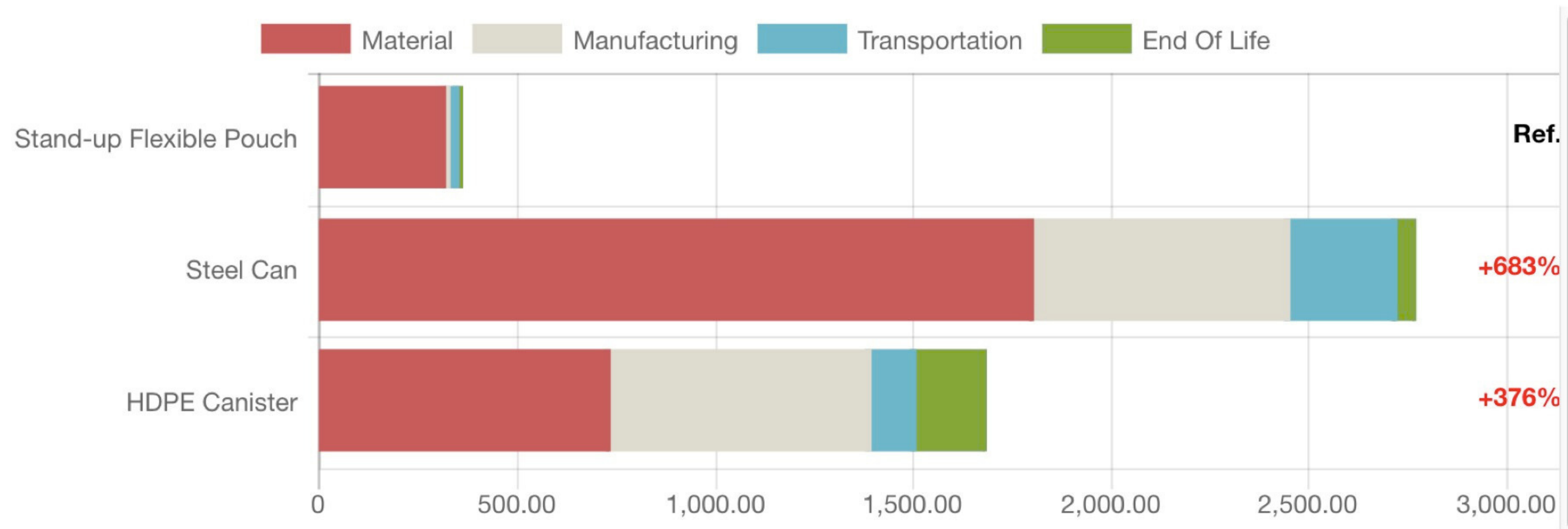
34%

of the total weight
of a HDPE bottle

Source: A Holistic View of the Role of Flexible Packaging in a Sustainable World (FPA), 2018

The GHG emissions of Stand-up Flexible Pouch is **SIGNIFICANTLY LOWER** than Steel Can or HPDE Canister.

GHG Emission (kg CO2-Equiv)

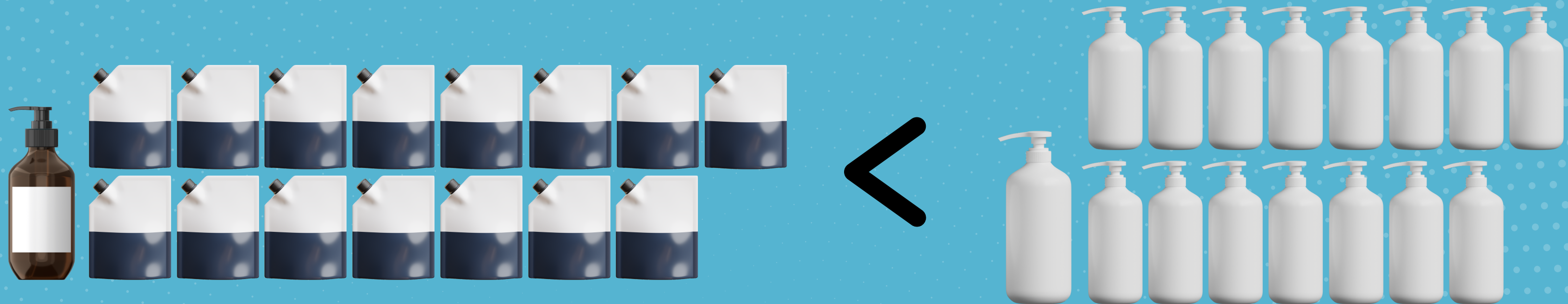


Source: A Holistic View of the Role of Flexible Packaging in a Sustainable World (FPA), 2018

-25% GHG EMISSIONS

Refilling a glass bottle 15-20 times with a refill pouch results in a 25% reduction of GHG emissions than using 15-20 HDPE bottles.

Source: McKinsey & Company July 2022 report | Climate Impact of Plastics



The weight of a flexible pouch is the **LEAST** among different types of packaging, while having the **HIGHEST PRODUCT-TO-PACKAGING RATIO**.

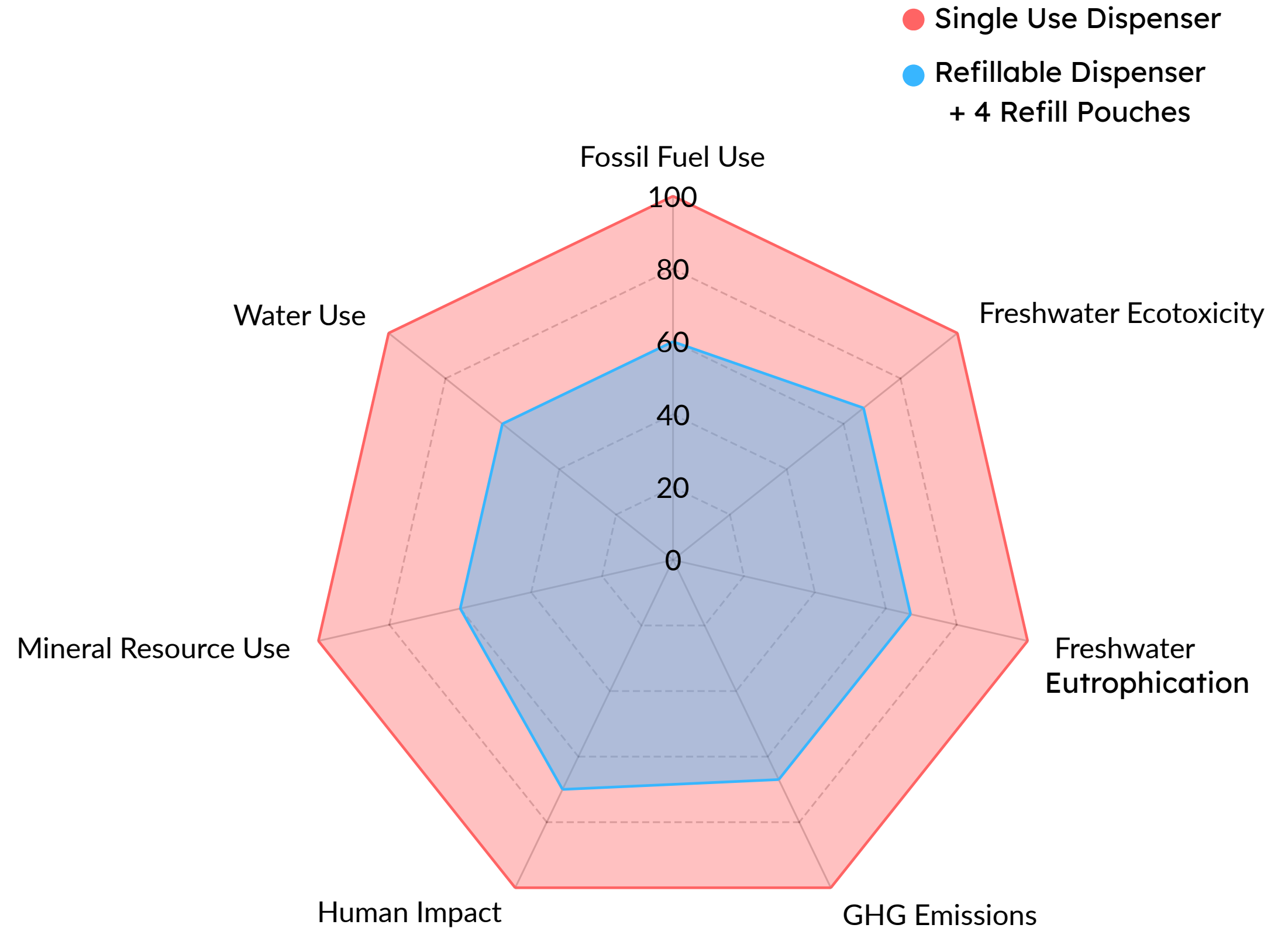
Examples of Beverage Packaging

PACKAGE TYPE	BEVERAGE WEIGHT	PACKAGE WEIGHT	PRODUCT - TO - PACKAGE RATIO	*MSW LANDFILL PER 100G PRODUCT	ENERGY CONSUMED MJ/8 OZ	EMISSIONS KG CO ₂ E /8 OZ
Glass Bottle & Metal Cap	8 oz (236 g)	198.4 g	1:1	54.5 g	3.36 g	0.29
Plastic PET Bottle & Cap	8 oz (236 g)	22.7 g	10:1	6.0 g	3.0	0.18
Aluminum Can	8 oz (236 g)	11.3 g	21:1	2.4 g	0.99	0.08
Flexible Standup Pouch	6.75 oz (199 g)	5.7 g	35:1	2.8 g	0.45	0.02

*recycling rates factored

Single vs Refill

The LCA of using rigid packaging together with refill pouches has lower environmental impact than using just rigid packaging.



LCA is a consumer (such as numbers of cycle) and location dependent. Information from COMPASS (Comparative Packaging Assessment) by TRAYAK.

Motor Oil (224 fl. oz.) Case Study

The LCA comparison shows that flexible pouch has
Lower Environmental impact than HDPE bottle

	FOSSIL FUEL CONSUMPTION (MJ-EQUIV)	GHG EMISSIONS (KG- CO2 EQUIV)	WATER CONSUMPTION (L)	PRODUCT-TO- PACKAGE RATIO	PKG LANDFILLED (G)/1000 KG MOTOR OIL
Stand-up Pouch with Fitment	14.12	0.5889	1.03	96:4	26,301
HPDE Bottle	38.58 (+173%)	1.52 (+153%)	6.33 (+513%)	94:6	45,501 (+73%)

Source: A Holistic View of the Role of Flexible Packaging in Sustainable World (FPA 2018)

Reduce

is the fastest way to
improve sustainability

Even if flexible pouches
don't get recycled, they
reduce plastics use
significantly

Recycling and Composting Trends

It is predicted that 20% of organizations with sustainable packaging goals will shift their focus from recycling and eliminating plastics to reducing the carbon footprint of their packaging by 2026.

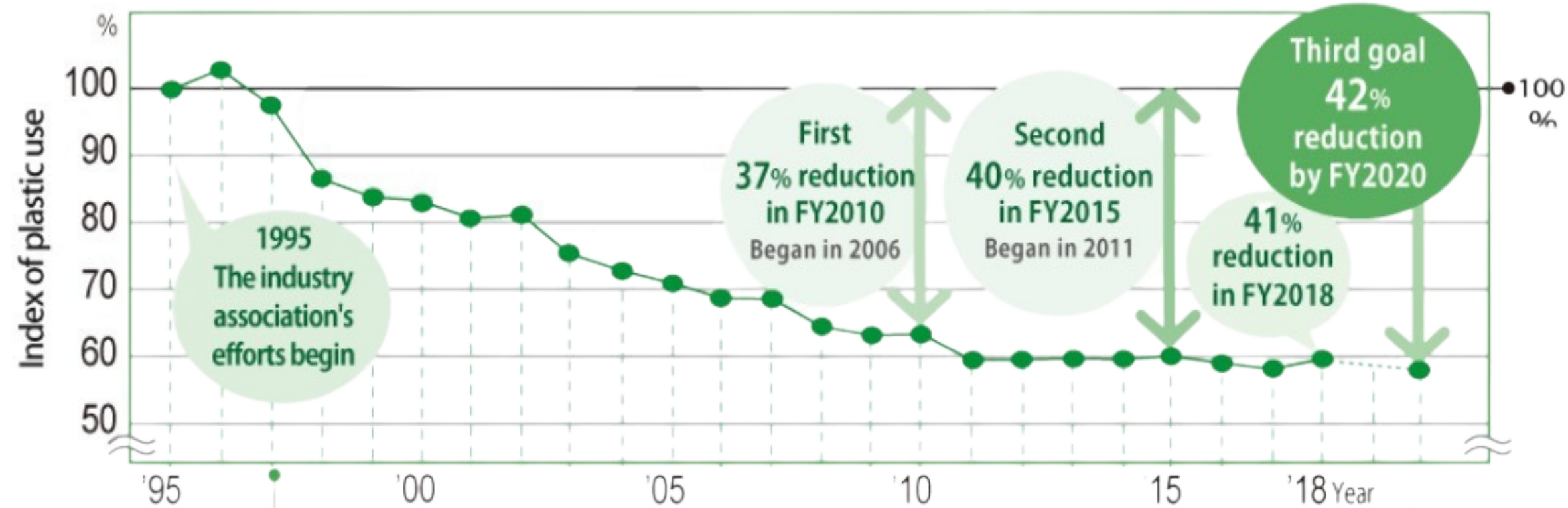
Recycling and composting as a percentage of generation

	1960	1970	1980	1990	2000	2005	2010	2015	2017	2018
Paper and Paperboard	17%	15%	21%	28%	43%	50%	63%	67%	66%	68%
Glass	2%	1%	5%	20%	23%	21%	27%	28%	25%	25%
Plastics	Neg.	Neg.	<1%	2%	6%	6%	8%	9%	9%	9%
Yard Trimmings	Neg.	Neg.	Neg.	12%	52%	62%	58%	61%	69%	63%
Lead-acid Batteries	Neg.	76%	70%	97%	93%	96%	99%	99%	99%	99%

Plastic Reduction Success Study

In Japan, refill pouches contributed to reduce plastic usage per product volume by -43% compared from 1995 to 2001

Index to
plastic use
per volume
vs.1995



1997: Containers and Packaging Recycling Law enacted
(Glass bottles and plastic beverage bottles)

2000: Containers and Packaging Recycling Law
(Paper and plastic enforced)

8 Key Product Categories

- Bleach and mildew cleaner
- Household cleaner
- Kitchen detergent
- Fabric softener
- Laundry detergent
- Shampoo and conditioner
- Hand soap
- Body shampoo



70-80%

of store shelves for the home
and personal care products in
Japan are refill pouches

[Click here to watch: Refill Pouches at the grocery store in Japan](#)

