# CANS

## The sustainable solution for 21st Century packaging

## Packaging and Sustainability

We live in a world of finite resources and those resources are being depleted at an alarming rate. Emerging economies like China and India are developing rapidly, increasing global demand for oil, timber, agricultural products and other natural resources. The world's population is rising, as its demand for goods and services. Our natural environment is being stressed and the next generation faces the very real prospect of inheriting a planet significantly more degraded than the one left to the current generation.

**How can we meet the needs of today without impairing the ability of the next generation to meet its needs?**

The essence of sustainability is making the most use of what we have and minimizing our depletion of natural resources. Packaging can play and important role by reducing food waste and spoilage and thereby easing pressure on the agricultural sector. Packaging can also help save energy by preserving food in a stable environment that doesn't require refrigeration and freezing.

Finally, the packaging itself should minimize planetary stress by reusing materials through recycling, which not only cuts down on landfill waste but reduces the need for new raw materials.

The can is the only food package that truly excels on all of those fronts. Other packages claim to be sustainable, but when you look beyond a few carefully selected data points and examine the full life-cycle impact of the package and the product inside, the can stands alone the sustainable, 21st Century package.

The can is 100% infinitely recyclable. It is made from recycled and abundant materials, it saves energy, it provides the best protection of product quality and minimizes food waste, and it is an economically efficient package for producers, retailers and consumers.

Simply put, **the can is the sustainable solution** for 21st Century packaging.

# The Can is the Sustainable Solution.

Here's why:

1. Cans are the most recycled food package in the U.S.
2. Cans are produced with abundant and recycled materials.
3. Cans save energy.
4. Cans ensure safe and nutritious food.
5. Cans prevent spoilage and product waste.
6. Cans are an economically efficient container.

1. Cans are the most recycled food package in the U.S.

*Minimizing landfill waste*

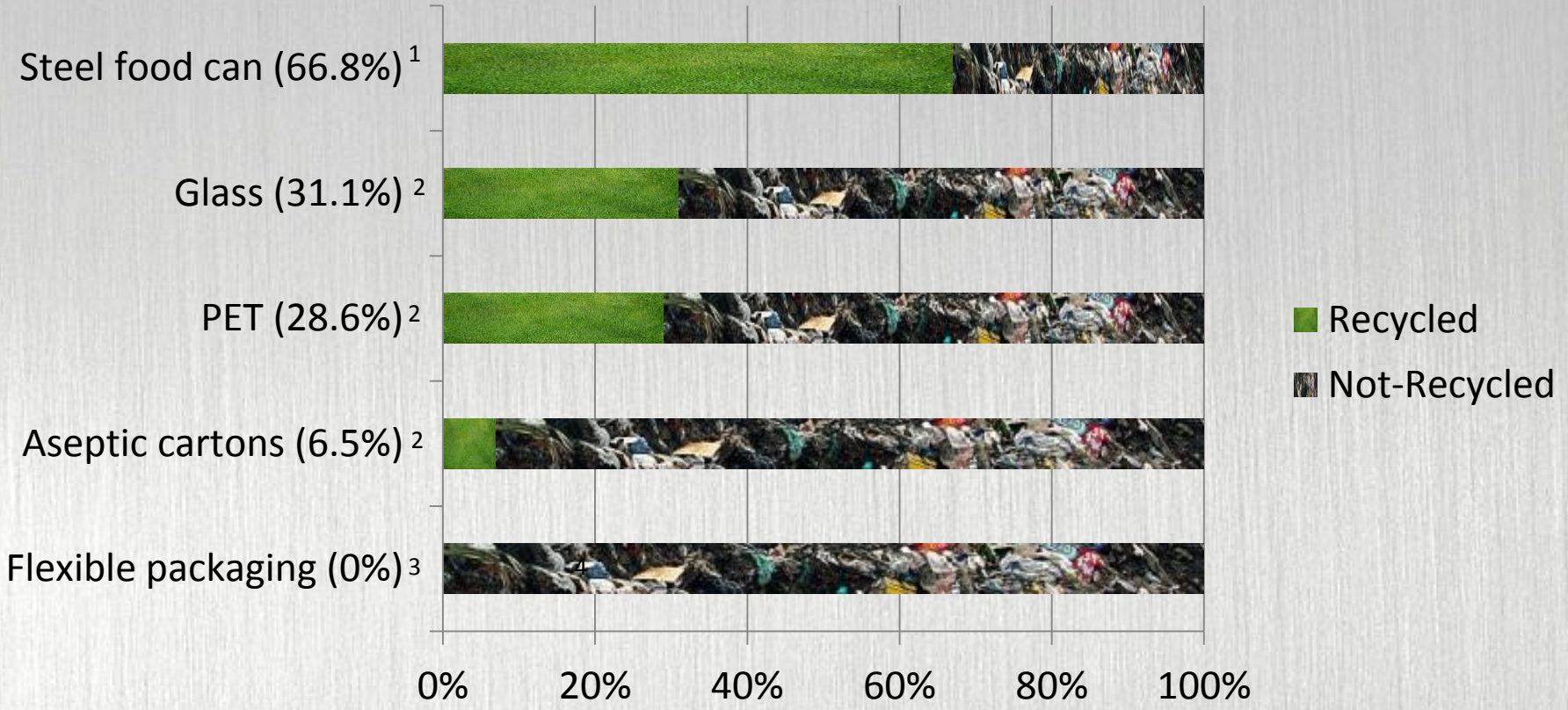
# Recyclable v. Recycled

*There's a big difference.*

Many packages claim to be **recyclable...**

...But when it comes to which actually *are* **recycled**, no other package stacks up to the can.

# Which packages actually get recycled?




1 "2009 Steel Recycling Rates." Steel Recycling Institute. 2009.
2 "Municipal Waste in the United States." U.S. Environmental Protection Agency. 2009.
3 EPA lists a broad category of "bags , sacks and wraps" in its recycling data (recycling rate of 9.4%), but does not break out flexible plastic packaging. The Flexible Packaging Association does not claim that flexible packaging is recyclable and instead claims that flexible containers are "pre-cycled."

# Recycling facts: Glass

31%

## Little value in recycling stream

- There is generally little market for used glass.
- The virgin materials for making glass are fairly inexpensive, minimizing the market for recycled material.
- Glass can also be difficult to handle through the recycling stream. It requires color sorting and it breaks easily, which can cause costly delays in the recycling process.
- It therefore is not surprising that glass has a recycling rate less than half that of steel cans.

***"U.S. EPA Reports Glass Container Recycling Jumped to 31% in 2009."*** – Glass Packaging Institute website

While that improvement is laudable, **the recycling rate for steel food cans is more than double that number.**

**The can is the sustainable solution.**

# Recycling facts: PET

29%

## Recycling v. “Down-cycling”

- PET is often “down-cycled,” meaning it is turned into different types of products that are often considered to be of lower quality and unrecyclable – in other words, the material in a PET container will likely end up in a landfill at some point.

- Unlike metal, which maintains it’s molecular structure and can therefore be infinitely recycled, the recycling process degrades PET and limits its recycling potential.

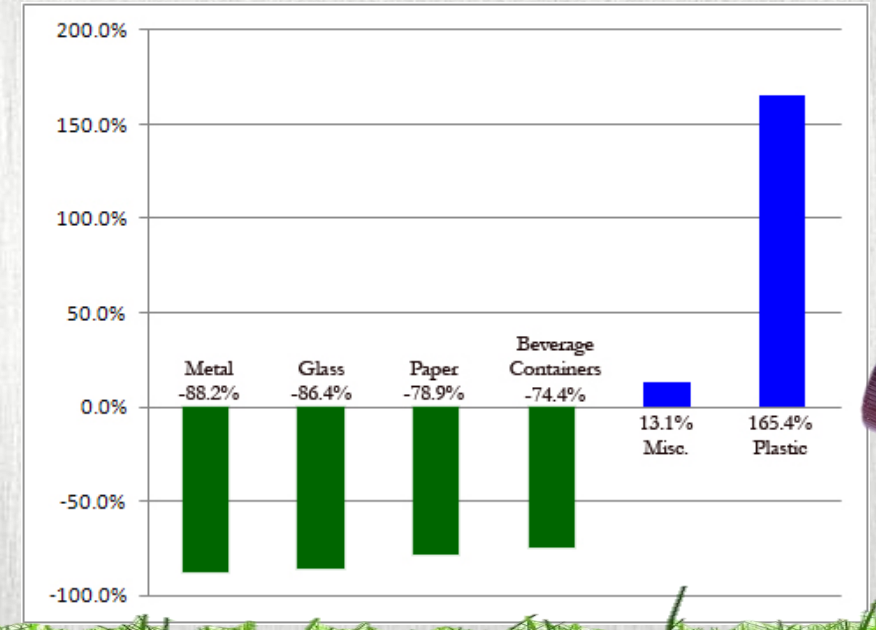
# Recycling facts: PET

29%

## A growing source of litter

Plastic is the source of more litter than metal and glass combined – nearly twice as much – and the amount of plastic litter has dramatically increased in the past 40 years, according to a comprehensive 2009 study on litter by Keep America Beautiful. It is true that there is more plastic packaging today than there was in 1969, the base year of the study, but there is also more metal and glass packaging, yet the litter rates for those materials have significantly declined.

**Change in litter since 1969:**




Litter composition on U.S. roadways:

**Plastic: 19.3%**

Glass: 4.5%

Metal 5.8%

SOURCE: "Litter in America." Keep America Beautiful. 2009.

# Recycling facts: Cartons

7%

**A package that is less than the sum of its parts.**

- Individual layers of aseptic cartons are generally recyclable – paper, plastic, aluminum. However, when fused together in this type of container, the multiple layers of material often pose problems for recycling facilities and, for most of the country, the cartons are simply not recyclable.
- **Tetra Pak notes that 20% of Americans have access to carton recycling.[1]** ***What about the remaining 80%?***
- In those areas where carton recycling is available, the material generally goes through a "down-cycling," like PET, often returning in a lower quality, non-recyclable product such as tissue paper.

1 "Too Good for the Garbage Can." Tetra Pak.com. 2010. http://www.tetrapak.com/us/environment/recycle/pages/recycling.aspx.

# Recycling facts: Flexible pouches

0%

***"The United States is in no danger of running out of landfill space any time soon."*** – Flexible Packaging Association[1]

- The Flexible Packaging Association (FPA) does not claim that flexible food containers are recyclable. [1]
- They argue that their packaging is "pre-cycled," indicating that it contains less material in the first place and therefore takes up less room in U.S. landfills, which they claim have "sufficient" capacity.[1]
- FPA's sustainability claims are generally based on analyses that examine a few carefully selected metrics such as product-to-packaging ratio, packaging weight and "MSW Landfill per 100 g Product."[2]

**When examining the sustainability of flexible packaging, the important questions to ask are:**

1. Is it generally recycled? **NO**
2. Is it primarily produced with recycled and abundant materials? **NO**

1 "Source Reduction FAQs." Flexpak.org. Flexible Packaging Association. 2011.
2 "Flexible Packaging Fast Facts, third edition," Flexible Packaging Institute. 2009.

# Recycling facts: Food Cans

67%

- The **highest recycling rate** of all food packages. *By far*.
- **100% recyclable.**
- **Infinitely recyclable** back into new cans or other steel products.
- Steel is the **most recycled material** in the world.

**CANS: INFINITELY RECYCLABLE** SM

**The can is the sustainable solution.**

# **Steel:** The most recycled material in the world

**More steel is recycled each year than all other materials combined.** In 2008, more than 82 million tons of steel were recycled in the U.S. alone.

Because of its magnetic properties, steel can be easily and quickly reclaimed from the waste stream.

And then the material continues its life, being recycled into another can, a bridge, a car…after which it will be recycled into yet another product.

**The can is the sustainable solution.**

## 2. Cans are produced with abundant and recycled materials.

*Minimizing natural resource depletion*

# We live on a planet with finite resources.

Meeting the needs of today while ensuring the availability of resources for future generations is the *essence of sustainability*.

# The can is the packaging option that best minimizes resource depletion.

Here's why:

1. Cans have high recycled content – old cans, scrap metal and other used metal products provide more than a quarter of the material in a new steel can.
2. The remaining virgin material that goes into a can, iron, is one of the most abundant elements on Earth.

# Recycled content

Because cans are infinitely recyclable, they provide feedstock for new cans and other metal products.  As such, cans are made with more recycled content than other food and beverage packages.

*Average recycled content by package type:*


1 American Iron and Steel Institute.
2 "Cradle-to-Cradle Life Cycle Assessment of North American Container Glass." Glass Packaging Institute. 2010
3 "2009 Report on Post Consumer PET Container Recycling Activity." NAPCOR. 2009.
4 "**Recycling officer, Jenny Walden, from Tetra Pak answers your recycling questions." My Zero Waste.** June 8, 2009.
5 CMI has been unable to locate any information indicating that flexible packaging contains any recycled content.

# **Metal:** A permanent resource for current and future generations.

Unlike other materials, such as PET, metal maintains its molecular structure throughout the recycling process, enabling it to be infinitely recycled into new products.

**Chances are, the next can you pick up will contain metal that was used by your grandparent's generation and will someday be used by your grandchildren's generation.**

# **Metal:** A permanent resource for current and future generations.

Metal packaging contributes to society and every-day life

Metal has many applications

Ore supplies are abundant, and once extracted, are permanently available and infinitely recyclable

Credit: Metal Packaging Europe

**The can is the sustainable solution.**

# **Less metal needed** to produce today's cans

The industry has greatly reduced the amount of steel needed to produce a can.

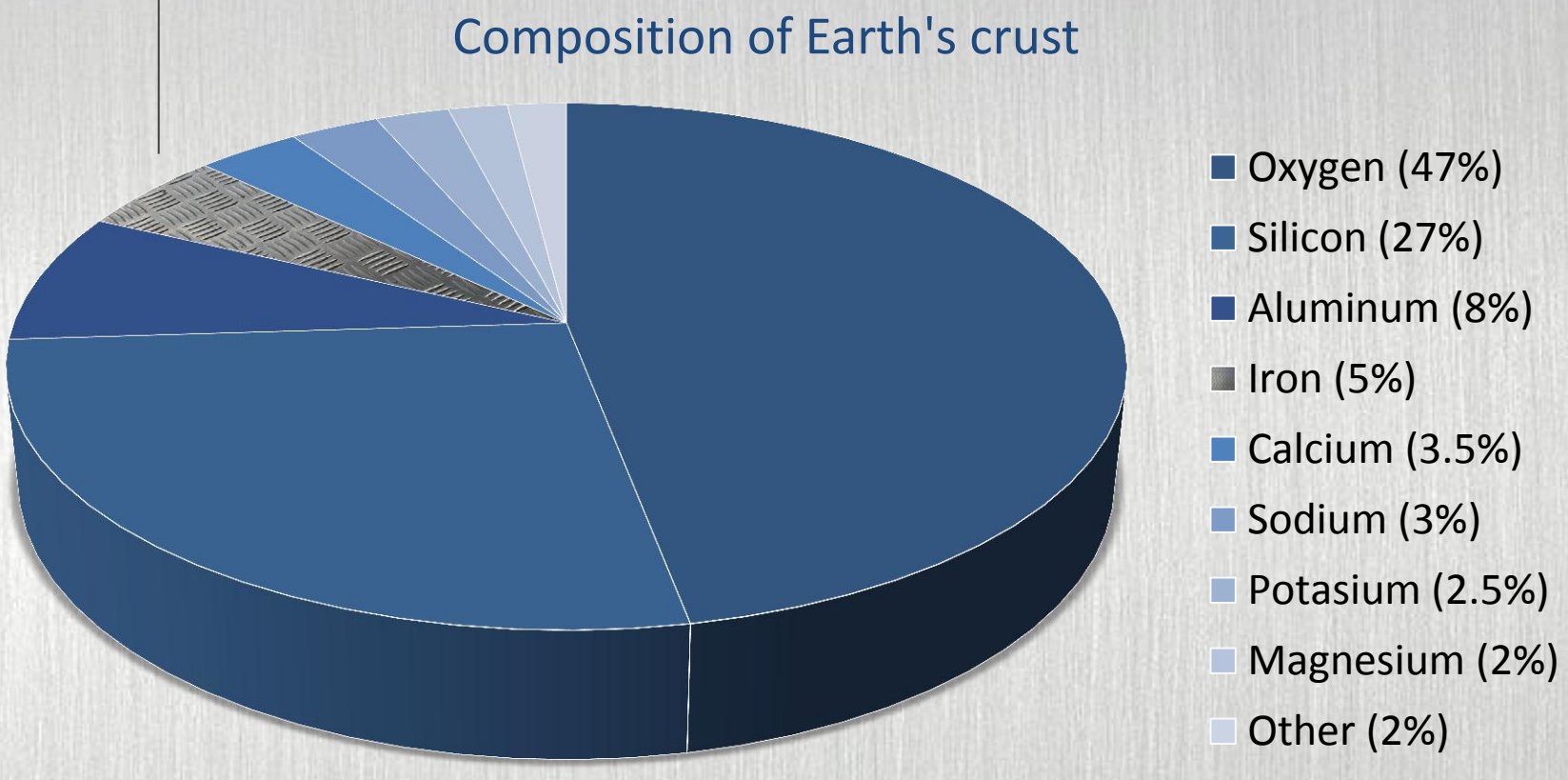
Due to innovations in "light weighting" technology, today's cans are made with nearly a third less steel than cans made two decades ago.

31% reduction in steel since 1990[1]

1 "Sustainability and Steel Packaging." www.steel.org. American Iron and Steel Institute. 2011.

# The remaining steel that is required to produce a can is made from one of the **most abundant materials on Earth:**

**Iron** – 4th most abundant element




Source: DJ Jeffery, UNLV 2004

**The can is the sustainable solution.**

# By comparison…

Other packages are made from resources that are much less abundant.

## OIL

Oil, the primary material in PET and flexible pouches, is being depleted rapidly, with some experts predicting that “peak oil” – the point at which more than half of the world’s oil reserves is exhausted – has been or will soon be reached.

Furthermore, as supplies are being depleted, the demand for oil is rising sharply, fueled by rapid economic growth in China and other developing nations.

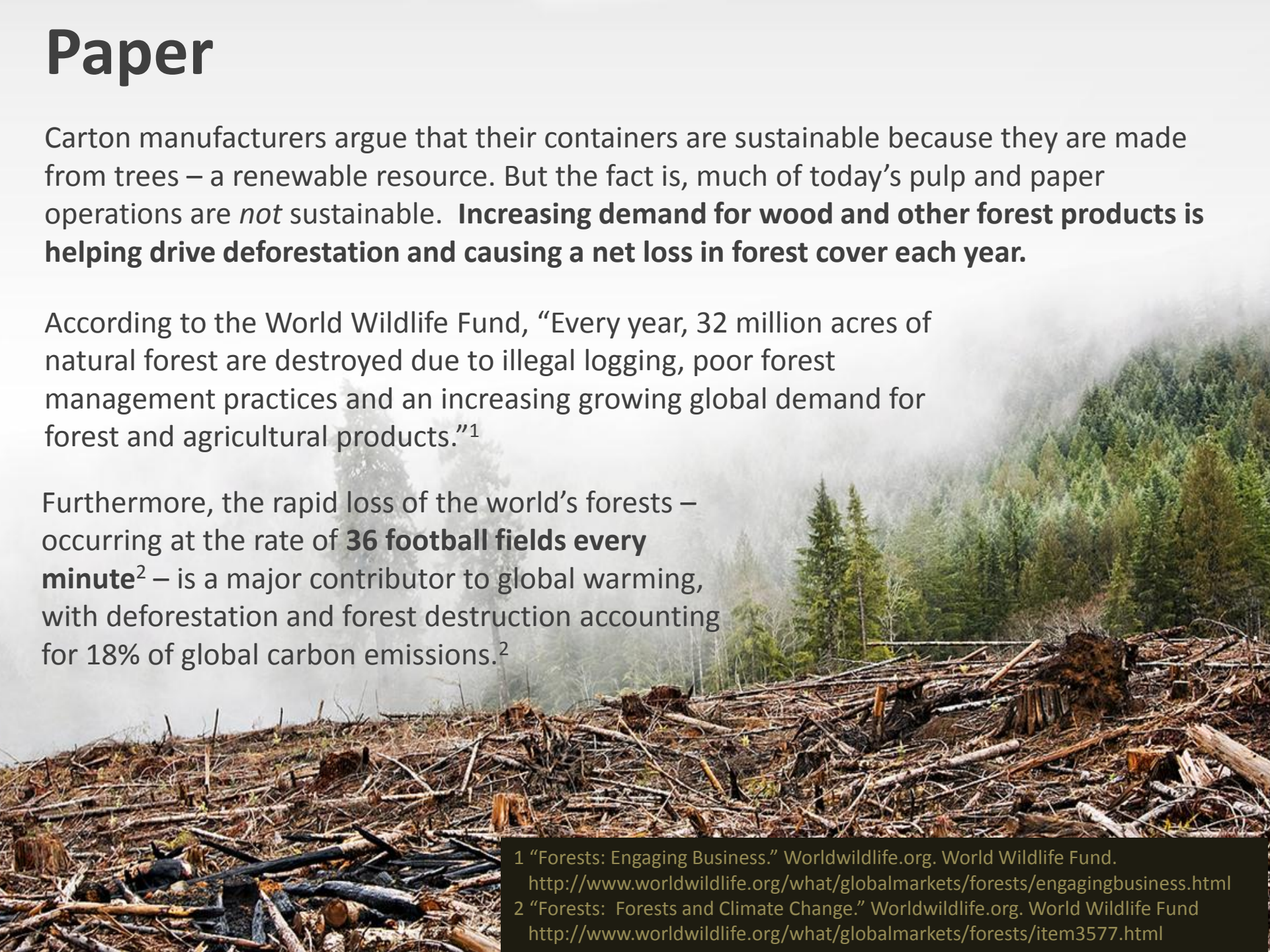
The timeline for replenishing oil reserves is in the millions of years.  So once it’s gone, it’s gone.

# Paper

Carton manufacturers argue that their containers are sustainable because they are made from trees – a renewable resource. But the fact is, much of today's pulp and paper operations are *not* sustainable. **Increasing demand for wood and other forest products is helping drive deforestation and causing a net loss in forest cover each year.**

According to the World Wildlife Fund, "Every year, 32 million acres of natural forest are destroyed due to illegal logging, poor forest management practices and an increasing growing global demand for forest and agricultural products."[1]

Furthermore, the rapid loss of the world's forests – occurring at the rate of **36 football fields every minute**[2] – is a major contributor to global warming, with deforestation and forest destruction accounting for 18% of global carbon emissions.[2]



1 "Forests: Engaging Business." Worldwildlife.org. World Wildlife Fund. http://www.worldwildlife.org/what/globalmarkets/forests/engagingbusiness.html
2 "Forests: Forests and Climate Change." Worldwildlife.org. World Wildlife Fund http://www.worldwildlife.org/what/globalmarkets/forests/item3577.html

# 3. Cans save energy.

*Reducing pollution and carbon emissions*

# The can's infinite recyclability also saves significant energy.

Being infinitely recyclable doesn't just cut down on landfill space and the need for raw materials.

Each can that is recycled greatly reduces the energy and therefore the carbon footprint of the next. That's because it takes **75% less energy to make steel tinplate for cans when using recycled material**.

## Energy savings:


1 Awaiting citation from American Iron and Steel Institute.

# Every can recycled saves energy:

1 x  =  X 1 hour

=  1 load laundry

# And the energy savings don’t stop there.

Product packaged in cans **never requires freezing or refrigeration**. Indeed, Unlike refrigerated and frozen foods, canned foods require no energy at all during storage.[1] This saves energy for producers, shippers, retailers and consumers.


1 “From Farm to Table: An Energy Consumption Assessment of Refrigerated, Frozen and Canned Food Delivery.” Kirsten Ritchie, B.S., M.S., P.E., Scientific Certification Systems. 2005.

# 4. Cans ensure safe, nutritious food.

*Providing the highest degree of product quality*

# The best protection for your food

**Food packed in cans is protected by the most robust package available.**

The can's durable metal exterior, combined with an airtight seal, locks in product quality and nutrition, while locking out food-borne germs and other harmful agents.

It is the most robust, tamper-resistant and tamper-evident package on the market.

**Sealing a can is like locking a vault.  The food inside will be kept protected until the can is opened by the consumer.**

# Best protection against food-borne illnesses

According to the CDC, 48 million Americans fall ill and 3,000 die every year from food-borne diseases.[1]

The durable structure and air-tight seal on cans offers the most robust protection against food-borne illnesses.

Furthermore, the canning process itself kills off bacteria and other harmful agents, ensuring safe and nutritious food for the consumer.

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION™

1 "Estimates of Foodborne Illness in the United States." www.cdc.gov. Centers for Disease Control and Prevention. 2011.

# Farm-fresh quality long after the harvest

Canned food is picked at the peak of ripeness and immediately canned, locking in its flavor and nutrition. No other package offers better protection of product quality.

**Cans ensure farm-fresh taste and nutrition long after the product was harvested.**

There are myths that canned food contains preservatives and that its nutritional value is degraded. The fact is, most canned food is packed in just water or another liquid, with other ingredients sometimes added for flavor. And studies have shown that fresh, frozen and canned foods have about the same nutritional value at the time of consumption.[1]

1 "Nutritional Comparison of Fresh, Frozen and Canned Fruits and Vegetables." Joy C. Rickman, Diane M. Barrett, PhD, Christine M. Bruhn, Phd.

5. Cans prevent spoilage and product waste.

*Reducing food waste benefits consumers & society*

# Food waste: A problem for consumers, producers, retailers and society

## Nearly half of all food grown in the U.S. goes to waste.

According to a study by the University of Arizona, funded in part by the USDA, **40-50 percent of all harvestable food in the U.S. is discarded**.[1]

That rate of food loss **costs consumers and manufacturers tens of billions of dollars** annually.

Food waste also poses significant environmental problems. According to the EPA, food waste is now the **single largest component of the landfill stream** – a staggering **34 million tons of food is wasted each year**.[2]

1 Timothy Jones, PhD, Bureau of Applied Research in Anthropology, University of Arizona. 2004.
2 "Basic Information About Food Waste." www.epa.gov. U.S. Environmental Protection Agency. 2011.

# Solution: Cans

**Cans help minimize food waste by providing the longest shelf life of any package.**

Food packed in cans is protected from air, germs and other factors that cause food to spoil.

**Less spoilage = less waste.**

# Solution: Cans

A recent study by the USDA Economic Research Service examined fresh, frozen and canned varieties of various fruits and vegetables. For many of the products examined, canned varieties had the lowest consumer loss estimate. [1]

## Example: Sweet Corn

| Type | Consumer loss[2] |
|---|---|
| Fresh | 32% |
| Frozen | 36% |
| Canned | 7% |

1 "Consumer-Level Food Loss Estimates and their Use in the ERS Loss-Adjusted Food Availability Data." USDA Economic Research Service. 2011.
2 The estimates for frozen and canned come from USDA ERS's revised consumer loss estimates. A revised figure for fresh corn is yet to be determined; the figure cited in this example is from USDA ERS's previous estimate.

# Solution: Cans

## Example: Peaches

| Type | Consumer loss |
|---|---|
| Fresh | 42% |
| Frozen | 35% |
| Canned | 8% |

# Solution: Cans

## Example: Carrots

And the canned product with the highest rate of loss of the products examined, carrots, still had a lower loss rate than fresh and frozen.

| Type | Consumer loss |
|---|---|
| Fresh | 34% |
| Frozen | 34% |
| Canned | 31% |

# 6. Cans are economically efficient.

*Saving money for producers, retailers & consumers*

# Less food waste = Less money waste

*"…[S]ince we now throw away more food than anything else, that means we are throwing away a lot of our money. Often, simple changes in food purchasing, storage and preparation practices can yield significant reductions in food waste generation."* – U.S. EPA[1]

**Food waste costs the U.S. economy more than $1 billion each year.**[2]

**The average family of four throws away nearly $600 annually in food waste**.[2]

Cans help minimize food waste by providing the longest shelf life of any package. That means more profit for producers and retailers, and more money in the pockets of consumers.

1 "Basic Information About Food Waste." www.epa.gov. U.S. Environmental Protection Agency. 2011.
2 Timothy Jones, PhD, Bureau of Applied Research in Anthropology, University of Arizona. 2004.

# Economical to ship and store

**Shipping efficiencies**
The can's light weight and cubic efficiency allows more product to be shipped using less fuel, when compared with other packages such as glass.

**Energy savings**
Product packaged in cans requires no refrigeration or freezing, saving money through warehousing, shipping and retailing.

# In summary:

Packaging is not a panacea. It alone will not solve society's sustainability challenges. However, it can play an important role in minimizing the stress on our planet and should be viewed as part of the solution.

No package is perfect. They all necessarily require some degree of energy or natural resource inputs. The key is to determine which package provides the greatest overall benefit to consumers and society.

That package is the can. It has the highest recycling rate, minimizing landfill waste. It is made from recycled and abundant materials, minimizing the depletion of scarce resources. It's the most durable and robust container, minimizing spoilage and food wastes. And it does so without requiring refrigeration or freezing, minimizing energy consumption and saving money.

# In summary:

We in the can industry are proud of our environmental record. We have worked hard to increase recycling rates, reduce the amount of metal required to make a can and cut our energy and carbon intensity.

But we're not resting on our laurels. With the dedication and ingenuity of our more than 33,000 employees across the United States, we are continually striving to build upon our environmental record. We challenge other packages to do the same.

For producers, retailers and consumers, the can is the sustainable solution for 21st Century packaging.

Prepared by:

Can Manufacturers Institute

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Slide 1: CMI

Slide 20: Metal Packaging Europe

Slide 34, 35(canned corn): CMI