

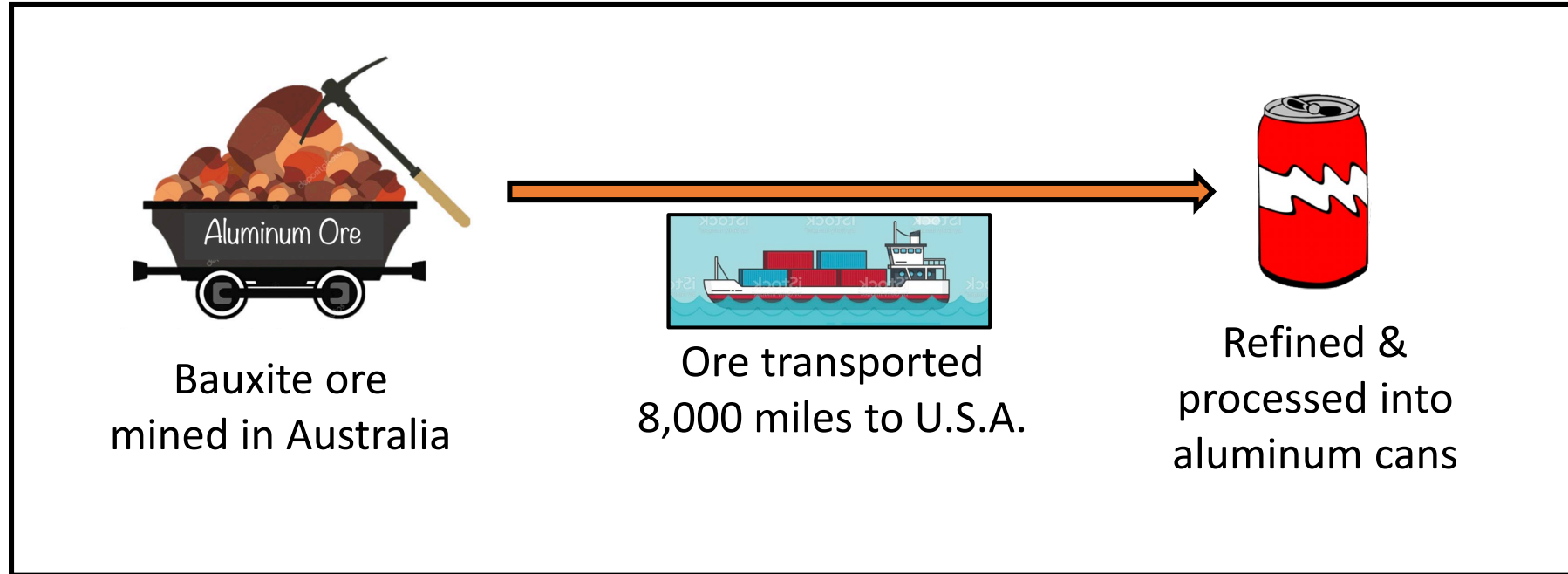
Recycling at Home: Can You Make a Difference?
Bill Stigliani, Co-chair, Care for Creation Committee



How Recycling Saves the Planet

Let's Take the Example of the Common Aluminum Can

Flow of Primary Production from Mining to Finished Product

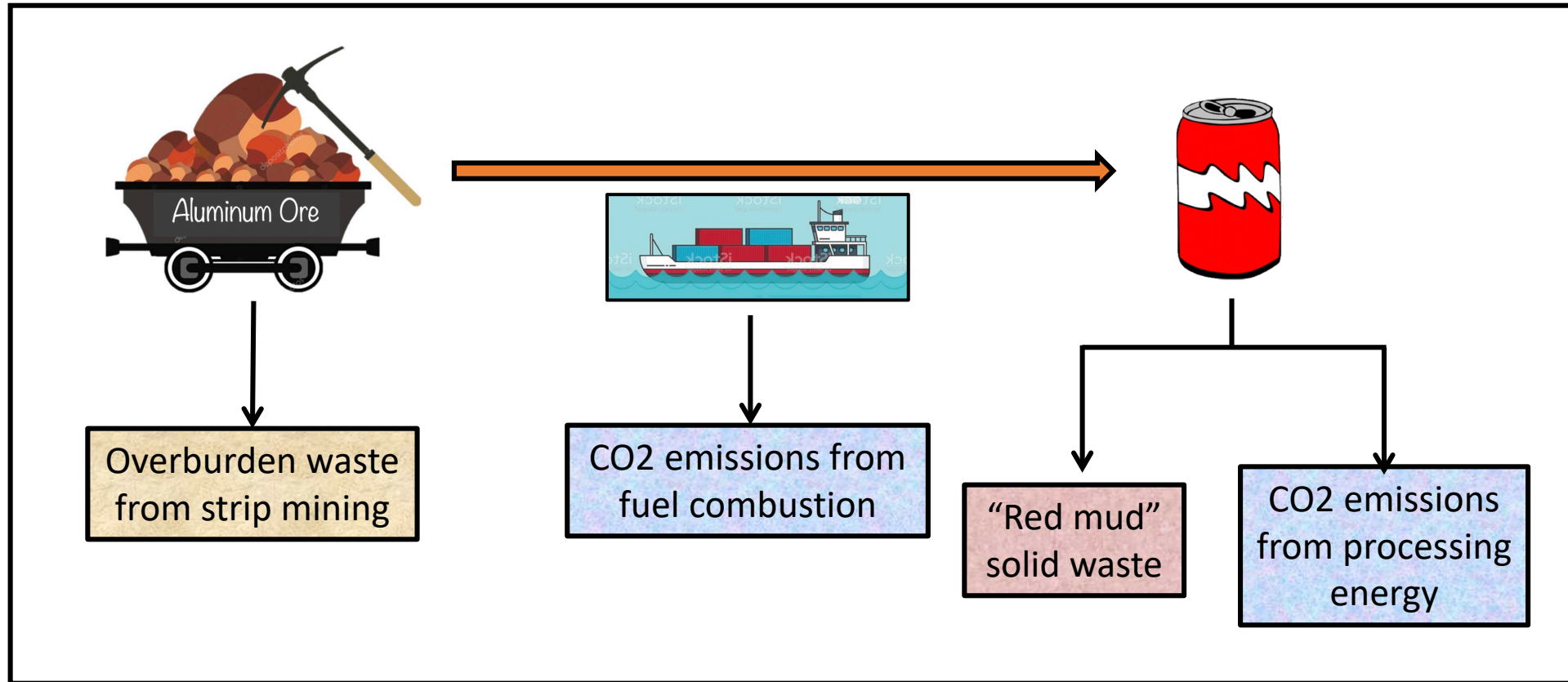


Total energy requirement to produce a ton of aluminum cans from bauxite ore is about 52,500 megajoules. This is the equivalent of the energy contained in 1,600 gallons of gasoline.

How Recycling Saves the Planet

Let's Trace the Environmental Costs of Making Aluminum Cans from Scratch

Flow of Environmental Impacts from Mining to Finished Product



Environmental Burden of Producing an Aluminum Can from Scratch

The weight of aluminum in finished can is **0.5 ounces**



Wastes Generated

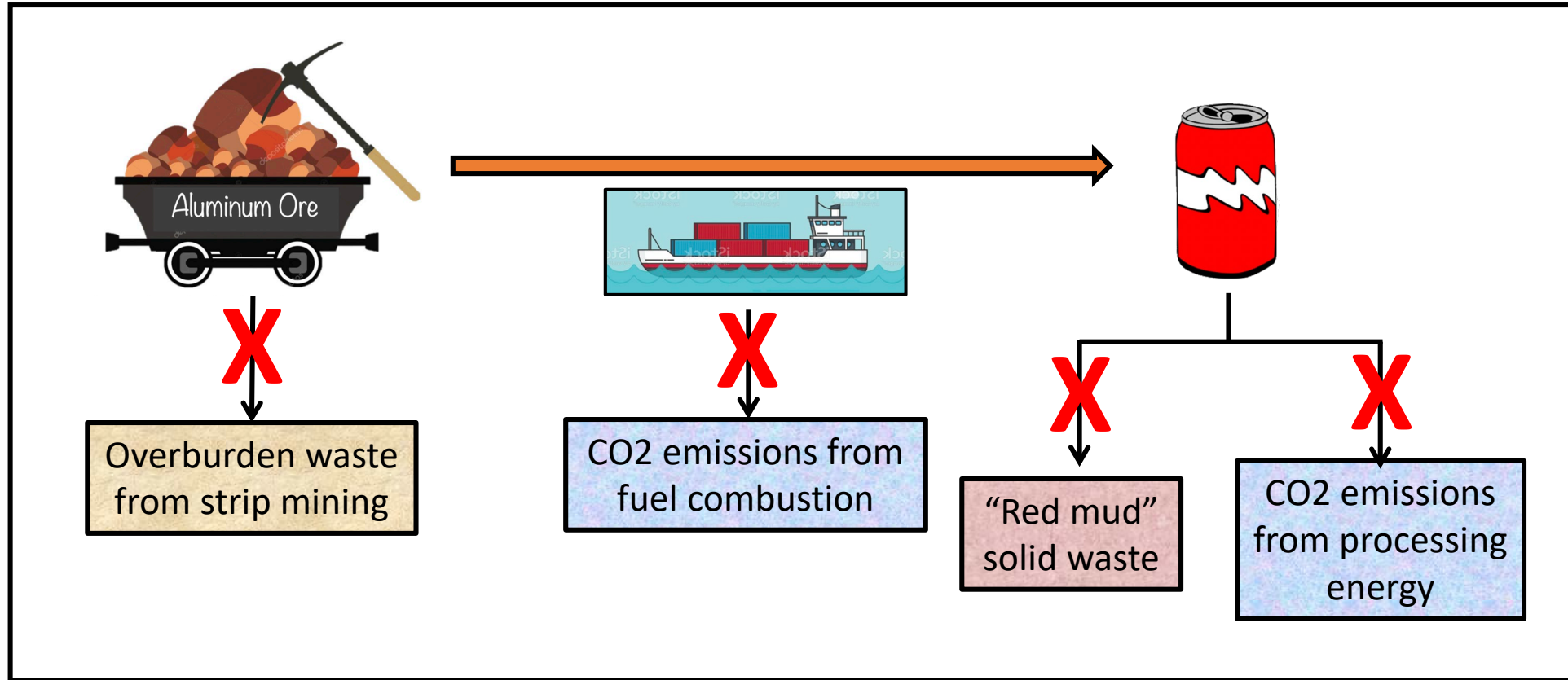
- 1.0 ounces of strip mining wastes.
- 1.0 ounces of toxic red mud.
- 8.7 ounces of CO₂ from fossil fuel burning

Total weight of waste = 10.7 ounces

The weight of waste generated is more than 20 times heavier than the weight of the can!!!

How Recycling Saves the Planet

When Aluminum Cans are Made from Recycled Cans
All the Wastes from Primary Production are Avoided



This is true of all other recyclable products as well!

Benefits of Making Aluminum Cans from Recycled cans



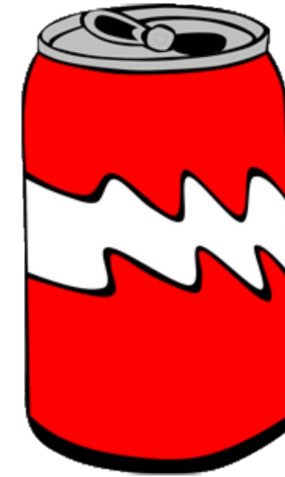
- Energy use reduced by 88%.
- Recycling a single can saves enough energy to power a standard laptop for 11 hours.
- Generated solid wastes reduced by 75%.



Benefits of Making Aluminum Cans from Recycled cans



- CO2 emissions reduced by 70%.
- Each recycled can saves 10 times its weight in CO2 emissions.
- Recycling 100 cans saves enough CO2 to offset the CO2 emissions from driving your car for 50 miles.



Aluminum Cans are Not the Only Household Item that Can be Recycled



- Plastics**
- PET (#1)
 - HDPE (#2)
 - PP (#5)
 - Mixed plastics

- Glass**
- White glass
 - Colored glass

- Metal**
- Aluminum cans
 - Steel cans

- Paper**
- Cardboard
 - Magazines
 - Newspapers
 - Mixed paper

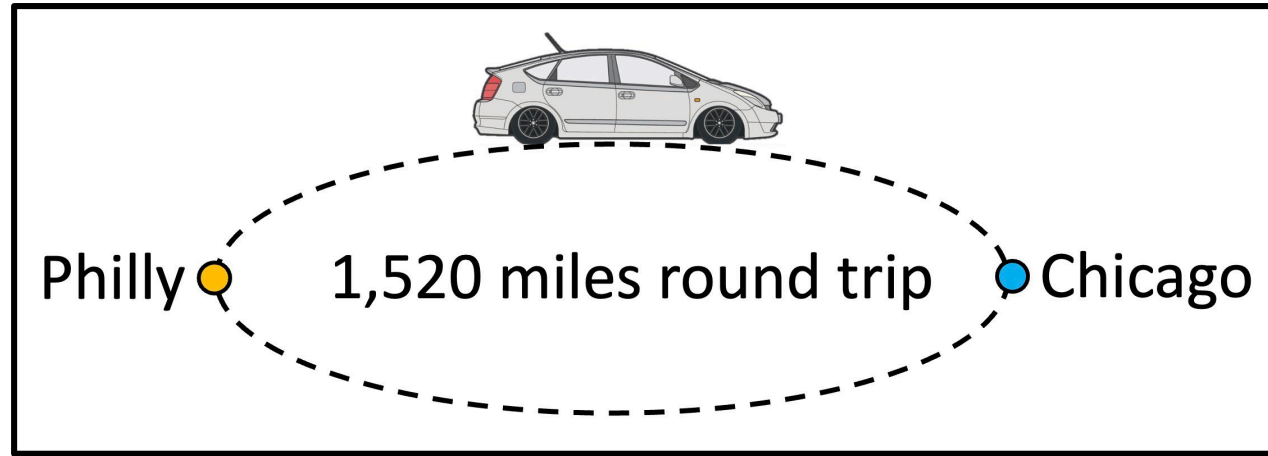
Bill's Recycling Record
January 1, 2022 – April 15, 2022

Material	Pounds of Material	Pounds CO2 Saved	Pounds CO2 per Pound Material
Glass	71.8 lbs	22.3 lbs	0.31
Metals	5.4 lbs	12.4 lbs	2.30
Plastic	6.1 lbs	6.6 lbs	1.08
Paper	36.0 lbs	132.0 lbs	3.67
Totals	119.3 lbs	173.3 lbs	1.45

Source for recycling calculations: U.S. Environmental Protection Agency, Office of Resource Conservation & Recovery (November 2022). Documentation for Greenhouse Gas Emission and Energy Factors Used in the Waste Reduction Model (WARM). *Containers, Packaging and Non-Durable Good Materials Chapters.*

Benefit of Bill's Recycling Effort on His Carbon Footprint

- Over the 3.5 month period of Bill's recycling initiative, he saved 173.3 pounds of CO₂ – pro-rated on annual basis this comes to 594 pounds CO₂ saved per year.
- 594 pounds of CO₂ is equivalent to offsetting the CO₂ emissions from burning 31.7 gallons of gasoline.
- Bill owns a 2015 Prius, and he can drive **1,520 miles** on 31.7 gallons of gasoline.
- This distance is more than he drives in a year, so his CO₂ savings from recycling are offsetting his CO₂ emissions from driving!



Benefits of Recycling

- Reduces the amount of waste sent to landfills and incinerators.
- Keeps plastics out of waterways and oceans.
- Conserves natural resources such as timber, water and minerals.
- Increases economic security by tapping a domestic source of materials.
- Prevents pollution by reducing the need to collect new raw materials.
- Saves energy.
- Supports American manufacturing and conserves valuable resources.
- Helps create jobs in the recycling and manufacturing industries in the United States.
 - 681,000 jobs
 - \$37.8 billion in wages
 - \$5.5 billion in tax revenues

Source: U.S. Environmental Protection Agency. <https://www.epa.gov/recycle/recycling-basics>

Home Recycling Resources

- Instructions for how to calculate CO2 savings from recycling is available as Excel file named “Recycling Tutorial.” You can access it on the Care for Creation webpage at:
<https://oldstjoseph.org/parish-life/care-for-creation/>
- For a comprehensive overview of the city of Philadelphia’s recycling services, see:
<https://www.phila.gov/programs/recycling-program/>