



TAPE
WEEK
2025

Beyond Waste: A Sustainable Future for Pressure-Sensitive Materials

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Subject Matter

- This presentation examines global waste that will grow from 2.3 billion tons in 2023 to 3.8 billion tons by 2050. Packaging and suppliers to packaging, specifically plastic and fiber, make up almost 35 – 40% of the total. We must change our linear habits and become more circular. Packaging must be designed with a suitable material that is recycle friendly or include an alternative to landfilling/incineration for non recyclables. Using non recyclable substrates as a feedstock for an energy application is an acceptable solution and meets developing EPR legislation and regulation.
- **(2023 – US generated 350 million tons MSW)**

Agenda

- Who is Channeled Resources and what do we do?
- Waste – What is it and how much do we have
- How does the tape and packaging industry fit into waste
- What are the “hot” spots for tape and packaging
- How do legislative and regulations affect your business
- Waste – What is it and how much do we have
- Solutions and responsibility (Next Steps)

Who is Channeled Resources?

- 47 years old
- 3 Manufacturing facilities in North America
- 165 Employees
- Reprocess 20% Manufacturers 80%
- Release Liner
- Blank Labels
- Have spent millions on waste diversion and are about 90% landfill free

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Brian McLaren – Center for Action and Contemplation

“Our global civilization as currently structured is unacceptable and unsustainable. Ecologically our civilization sucks out too much of the earth’s resources for the earth to replenish and it pumps out too much waste for the earth to detoxify.”

WASTE

WATER

ENERGY

EXTRACTION

What we need instead

Is the value chart of Ecology?

- Respect
- Harmony
- Friendship
- Humor
- Equality
- Authenticity
- History
- Balance
- Generosity

Break Free From Plastics (BFFP)

- Global audit #7 lists the worst of plastic polluters
- 250 Brand Audits
- 880 Volunteers
- 41 Countries

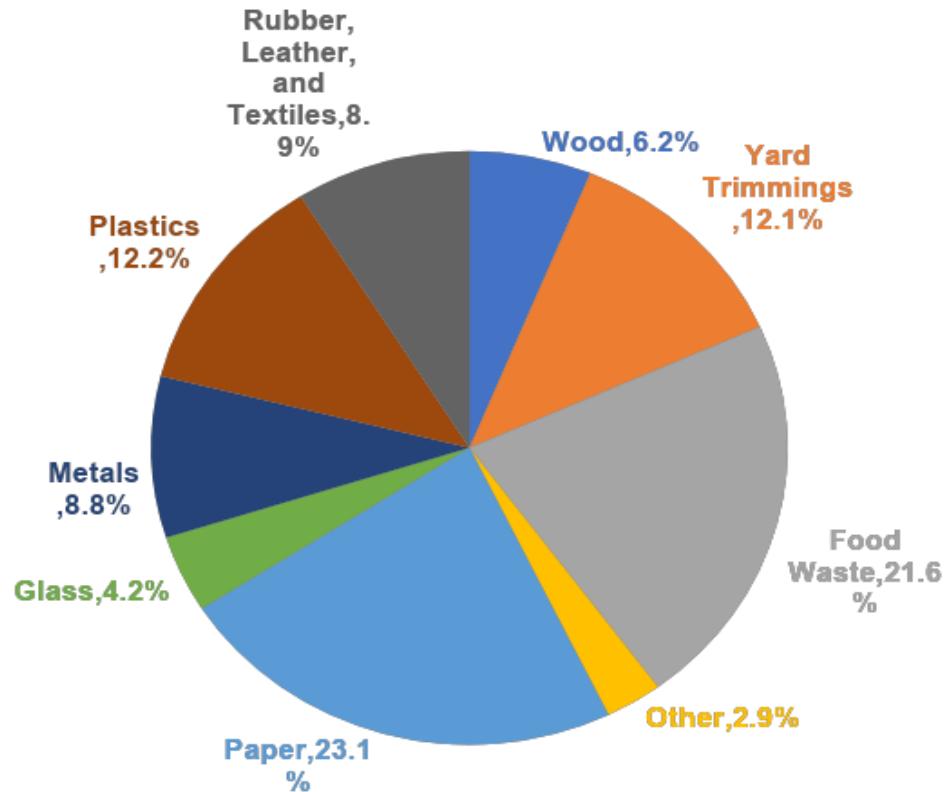
- Definition of Top Plastic Polluters:

“The parent company according to the data from the brand audit is responsible for the most waste in the most countries”

And the winners are....

- Coca Cola
- Nestle
- Unilever
- Pepsico
- Mondelez
- Mars
- Procter & Gamble
- Dannon
- Altria
- British American Tobacco

Municipal Solid Waste Circle Chart



- The paper and plastic are from the packaging industry
- Alternatives
- WTE
- Composting (34%)
- Problems
- Constant change in regulation and legislation
- Cost

Terms that are used when we talk about MSW

Compostable

- Construction & Demolition (C&D)
- Waste to Energy – (WTE)
- Transfer Station – Ultimately Landfill
- Material Recovery Facility – (MRF)

Constant change driven by

- Regulation
- Legislation
- Consolidation
- Cost

Double Packaging



What about our waste?

PSA – (Matrix)

- Release Liner (Carrier), multi layered???
 - Flexible Packaging
 - Shrink Sleeve
 - Pressure Sensitive Tape
-
- Solutions
 - Matrix – Need to package and divert into energy
 - Release Liner – divert and recycle
 - Flexible Packaging – package and divert into energy
 - Shrink Sleeve – eliminate

(This is all part of the 40% of 2.5 billion tons of waste projected to grow to 3.8 billion)

Hot Spots

- Our manufacturing facilities
- Our Customers
- Contract Packagers (fulfillment)

Problems:

- Logistics
- Packaging
- Legislative and regulations
- Cost – Landfill vs diversion

Solutions

Commitment

- Waste Reduction a priority
- A core focus/value
- Capex

Follow your waste

- Landfill
- Pyrolysis Or RNG
- Fuel
-
- Use bio based materials or packaging
- Use raw materials that have a % of secondary
- UN Report

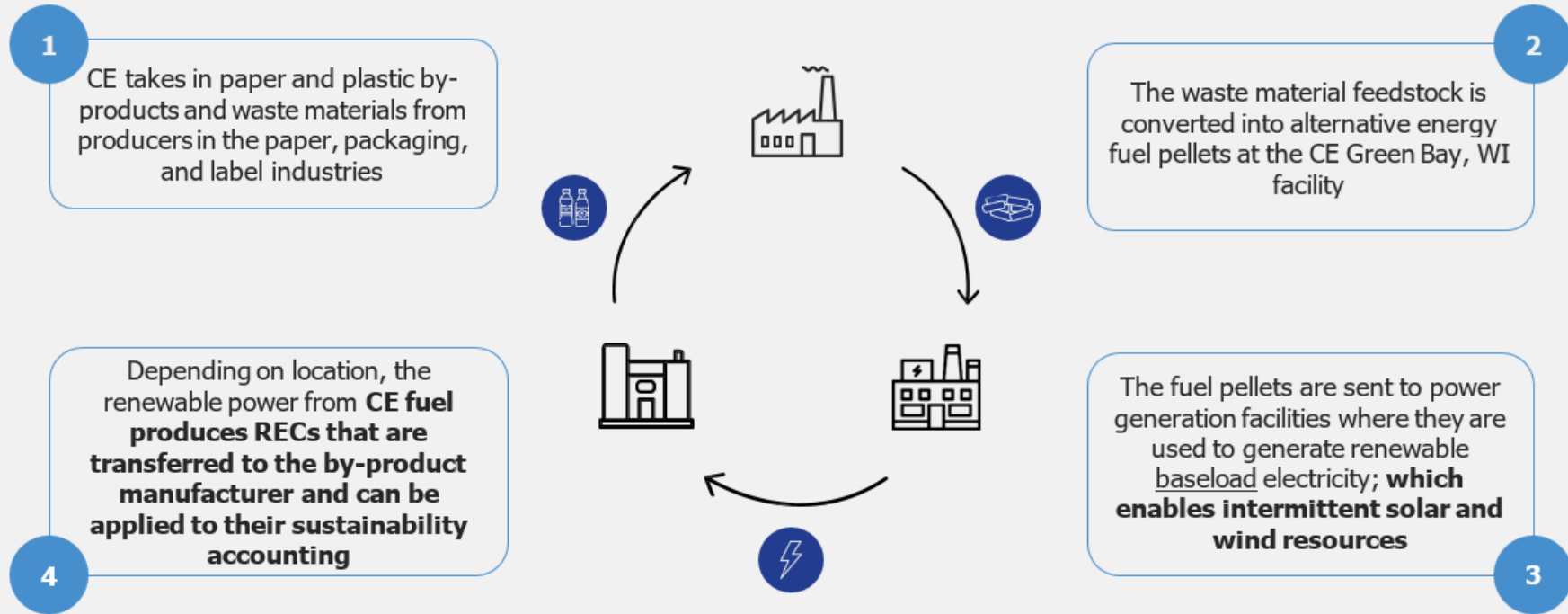
“The world must move beyond the waste era and turn rubbish into resources”

An Alternative

One way to close the loop is with a Convergen Energy Solution

Closing the Loop

Closing the Loop

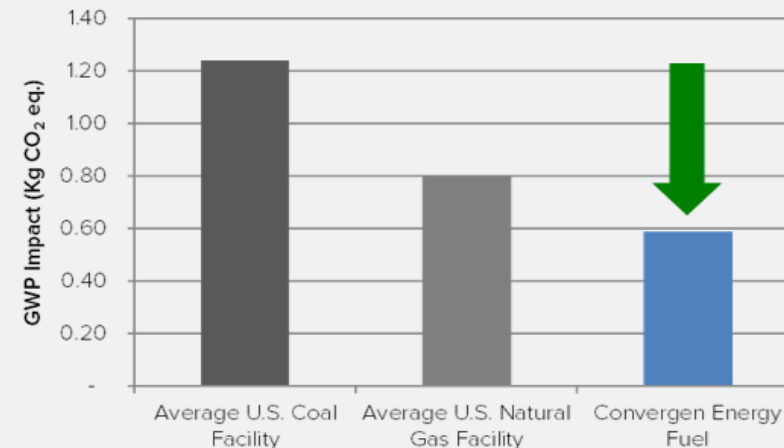


Measuring Success

Measuring Success

- Third-party Life Cycle Analysis (LCA) assessed global warming potential (GWP) for CO₂ emissions and other environmental factors[†]
- “Cradle-to-grave” approach - tracks the GWP impact from the by-product producers’ gates through use of the fuel for energy production
- **LCA compared energy produced from CE fuel with every other form of baseload power and, except for hydro and nuclear, CE-generated power had the lowest GWP**
- Critically, by-product producers can take ownership of this environmental benefit by purchasing REC’s from CE-generated power
- **These REC’s can benefit the producer in their renewable energy and science-based targets sustainability accounting**

[†] See Zemen, Jeff *et al.*, Comparative Life Cycle Assessment of Engineered Fuel Pellets: In Accordance with ISO 14040 and 14044. True North Collective Sustainability Consulting. August 2021.

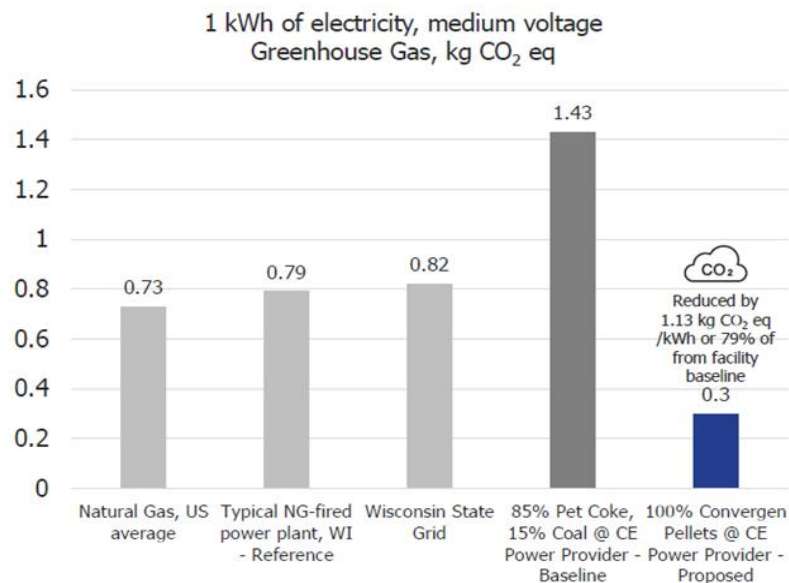


Convergen| products replace fossil fuels and reduce CO₂ emissions by as much as 73% in comparison to other baseload power generation sources

Life Cycle Analysis

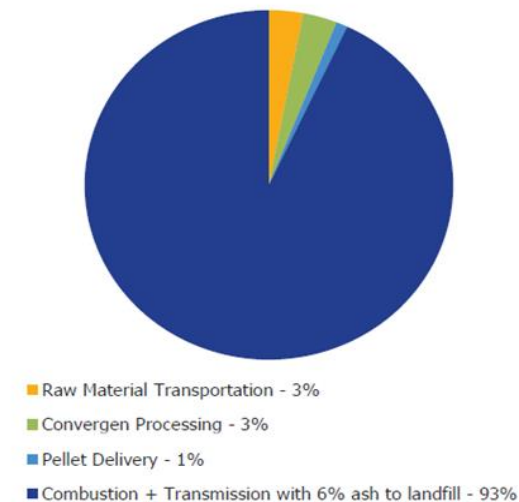
Life Cycle Analysis

Life Cycle Analysis Preliminary Results



Performed by TrueNorth Collective: <https://www.truenorthcollective.net>
The information contained in this presentation has not completed third party review as of 4/20/2021.

Impact breakdown of 1 kWh of electricity, 100% pellet
Total of 0.30 kg CO₂ eq



Sustainability breeds more Sustainability

Sustainability Breeds More Sustainability



- Importance of Scale
 - CE has built a supply chain that gets large quantities of non-recyclable by-products out of the landfill
 - Where others measure in pounds Convergen measures in tons
 - Other options simply cannot handle the volumes that CE can
 - **Additionally, the CE solution is far more economical – CE prices its services competitively, and often below landfill rates**
- The Convergen supply chain enables further upcycling
 - CE is developing its process to strip off certain materials which can be upcycled into components for future products
 - The CE solution also allows manufacturers to meet their EPR



Convergen provides a unique circular solution which allows customers to drive environmental benefits with potential for future upcycling



Convergen provides customers with a sustainable alternative to landfill; just one customer has avoided sending enough materials to fill over half of the Empire State Building since working with Convergen



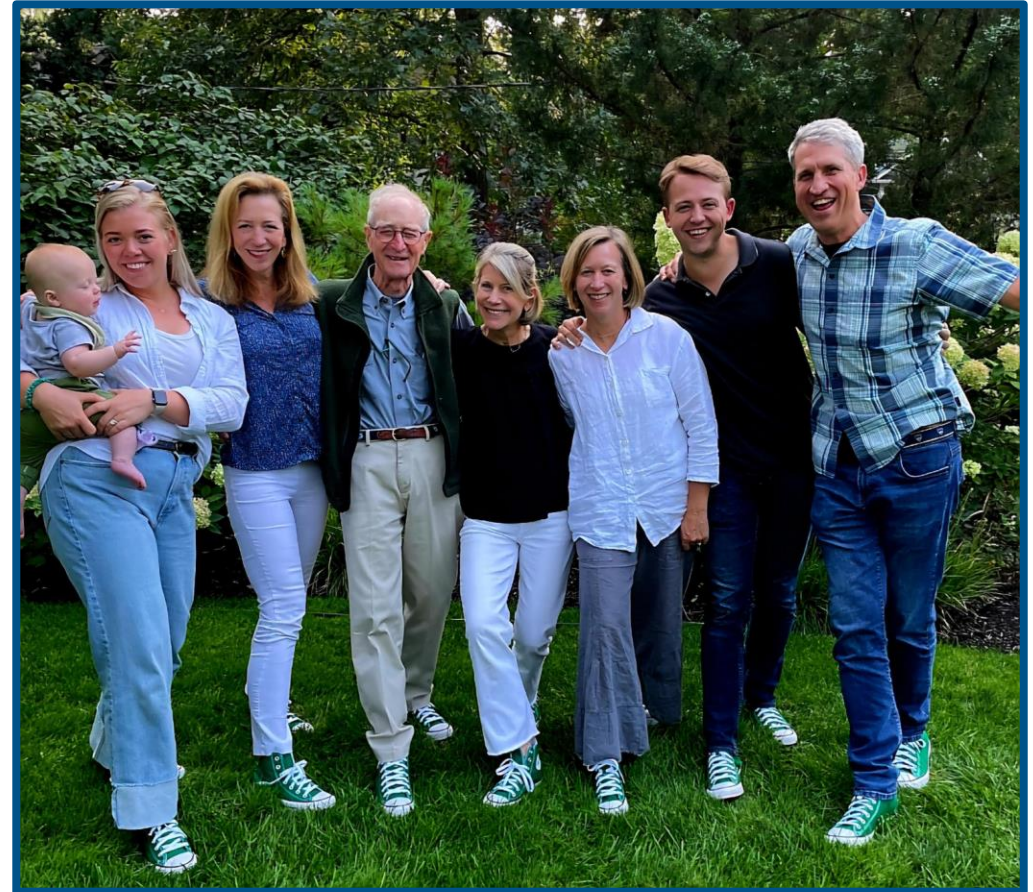
Convergen Energy



A Family Company

CRG was founded in 1978 by Calvin Frost as a traditional recycling company. In 1987, Calvin's daughter Cindy Frost joined the company. In 2012, CRG became a WBENC-certified woman-owned company when ownership was transferred to Calvin's daughters, Cindy, Debbie, and Sarah. In 2017 Calvin's daughter Sarah joined CRG.

CRG now employs three generations of the family.





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Contact Information

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