Collaboration is Key

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IN THIS PRESENTATION

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TN Material Reuse Project

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2015 IS A YEAR OF MAJOR ALIGNMENT AND HIGH VISIBILITY FOR MATERIALS RECOVERY ISSUES

Major NGO campaigns: NRDC- As You Sow Waste to Opportunity Report
“Wasting materials with significant economic value is an inefficient use of finite and dwindling raw material sources”

Life cycle management is the expectation

The 4R’s: Risk, Reputation, Revenue and Retention call for value chain collaboration

Source: Greenbiz Forum 2015
THE CIRCULAR ECONOMY

A SIMPLE DEFINITION

The evolution of industrial processes from Take ➔ Make ➔ Waste linear industrial processes to closed loop processes.

Results in more restorative mechanisms that keep resources in use for longer periods of time.

“It is a huge challenge to shift our economy from linear to circular...it requires systems redesign at every level.”

— Ellen MacArthur, MacArthur Foundation
SIGNIFICANT GHG BENEFITS FROM USE OF RECYCLED MATERIALS

The carbon footprint of recycled commodities at the MRF are 67% lower than virgin materials (per ton carbon equivalent)
Source: Earth Engineering Center, Columbia University

The actual amount of reduction varies depending on the material – aluminum, mixed paper (the latter degrades in landfills and emits methane, with 21x the global warming potential of CO2), plastics

MRF can provide a reliable source of recycled feedstock previously unavailable to end-use mills
RECOVERY VALUE CHAIN

- Manufacturers
- Converter
- Brands
- Retailers
- Consumers
- Reprocessors
- MRF/Composters
- Haulers
- Municipalities
- B2B Byproduct Exchange
DIFFERENT CATALYSTS FOR DIFFERENT ACTORS

- Pressure to accept more plastics
- Higher contamination
- Shifting cost model
- Green fence
- Burden on limited public resources
- State/local policy
- Source of litter and marine debris

POV from the Circular Value Chain for Packaging

- Customer requirements
- Regulatory risk
- NGO pressure
- Zero Waste
- Value recyclability
- Recycled content

Actors:
- Manufacturers
- Converters
- Brands
- Retailers
- Consumers
- Reprocessors
- Haulers
- Municipalities
- MRF/Composters
- B2B recovery systems
Which way is the dancer spinning?

If she spins clockwise, you’re using your right brain. If she spins counterclockwise, you’re using your left brain. Only about 15% of the US population can see her spin both ways—can you?
Industry Collaborations for Recovery Best Practices Deployment at Regional/Local levels

**National**
- AMERIPEN
- Carton Council

**Regional**
- Recycling Partnership

**Local**
- CART
- US BCSD
Tennessee is home to some of the strongest market demand for recycled materials in the US.

CART Mission: Accelerate recovery of high value recyclable materials through private-public partnership.

SUCCESSFUL RECYCLING
- Collection
- Feedstocks
- Markets
- Jobs
33,800 tons of scrap aluminum were generated in TN in one recent year.

~29,700 tons of aluminum cans are annually landfilled in TN with a value of $45.7 M.

87.9% LANDFILLED
Best Practice Municipalities Produce Stable Supply of Recycled Feedstock

Asheville, NC
Mebane, NC
Raleigh, NC
Nashville, TN
Knoxville, TN
Memphis, TN
Charlotte, NC

AVERAGE PERFORMANCE

OPPORTUNITY

Source: 2013 data based on publicly available state reporting.
6 Key Areas: Local Collaborations Focus on Recovery Best Practices to Drive Results

1. COLLECTION
2. PROCESSING
3. LOCAL GOVT
4. EDUCATION
5. STATE LEVEL
6. END MARKETS
Implementing roll cart collection and establishing a common suite of materials results in increased collection.

The EPA estimates between **71 and 74 percent** of the US population has access to curbside recycling.

But in Tennessee, that number is **only 25 percent**.

Hub and spoke processing increases household access to recycling.
Strategically investing in existing facilities LOWERS operational costs and INCREASES quantity and quality of stock.

Efficient processing multiplies results.

Single stream systems collect and process more types and quantities of material, more efficiently, which means: IMPROVED WORK FLOW, INCREASED CAPABILITIES, and ECONOMIC GROWTH.

Currently, single stream MRF infrastructure is lacking.
Implementing best practices into local programs boosts recovery.

Efficient and Effective:
Roll carts, single stream, and consistent materials

Increase lbs/household recycled to 400

Legend
Lbs/Household Recycled
> 50
50 - 200
200 - 500
500 - 400
> 400
Programs can boost citizen engagement and improve the economics of recycling by collecting a consistent and broad range of materials.

Education supports increasing VOLUME and good QUALITY material.

Investing in Education:

$1/HH to maintain high performing collection program

$3 - $4/HH to transition to a new collection system

More than 1/3 of disposed materials are recyclable.
Successful recycling is a multi-dimensional and compounding opportunity.

Attract and leverage private sector investment to strengthen local programs help limited state resources go further.
Tennessee has a strong manufacturing sector driving demand for recycled stock. There are about **30 end markets** throughout the state.

- paper
- plastic
- steel
- aluminum
- glass
INCREASING MATERIAL RECOVERY IN TENNESSEE WILL

- Benefit both the public and private sectors
- Produce thousands of processing and manufacturing jobs
- Build on an existing, steady base of infrastructure in the state.

LOCAL INDUSTRIES ARE HUNGRY FOR ADDITIONAL FEEDSTOCK.

- No single initiative or entity can increase recovery in a significant way, but partnering around this 6-PRONG Approach, we can effectively and efficiently drive recovery.
CART 2015 Project Work plan

1. Recycling Optimization and Networking Sessions
2. Build Network of Champions at the Local Level for private-public partnership
3. Communications campaign

Targeted Communities:
Memphis/Jackson
Nashville
Knoxville

1. Define quantities of recyclable commodities generated in a region and identify byproduct synergies via software tool. Focus on common manufacturing feedstocks – aluminum, plastics, fiber – but also gather data on special waste streams.

2. Engage reprocessor end markets. A critical mass of material – both industrial and residential - is required to develop reprocessing end markets.

3. Combined with CART, will equip MRFs and municipalities with shovel-ready local recycling plan for financing (Closed Loop Fund, state solid waste grants, Recycling Partnership, others)
PRIVATE- PUBLIC PARTNERSHIP BENEFITS

- Bring visibility to project to attract quality pool of potential partners
- Increase volume of recyclable materials
- Position for next phase investment to improve collection, attract end markets and increase recycling rates at a larger scale
All flexible packaging goes into the recycle bin and the recovery industry captures value from it.

- Widespread consumer access
- Highest and best value of materials
- Net financial benefits
- LCA positive impact
- Healthy workplace
A disjointed material path results in a substantial, cumulative loss of material and investment.

More cohesion = More material
RECOVERY VALUE CHAIN

Manufacturers
Brands
Retailers
Consumers
Municipalities
MRF/Composters
Reprocessors
Haulers
Municipalities

B2B byproduct exchange, resale, remanufacture, disassembly

Collaboration is key to success