



# Introducing the newly-minted Tennessee Materials Marketplace

# The Circular Economy

## PRINCIPLE 1

# 1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows  
 ReSOLVE levers: regenerate, virtualise, exchange



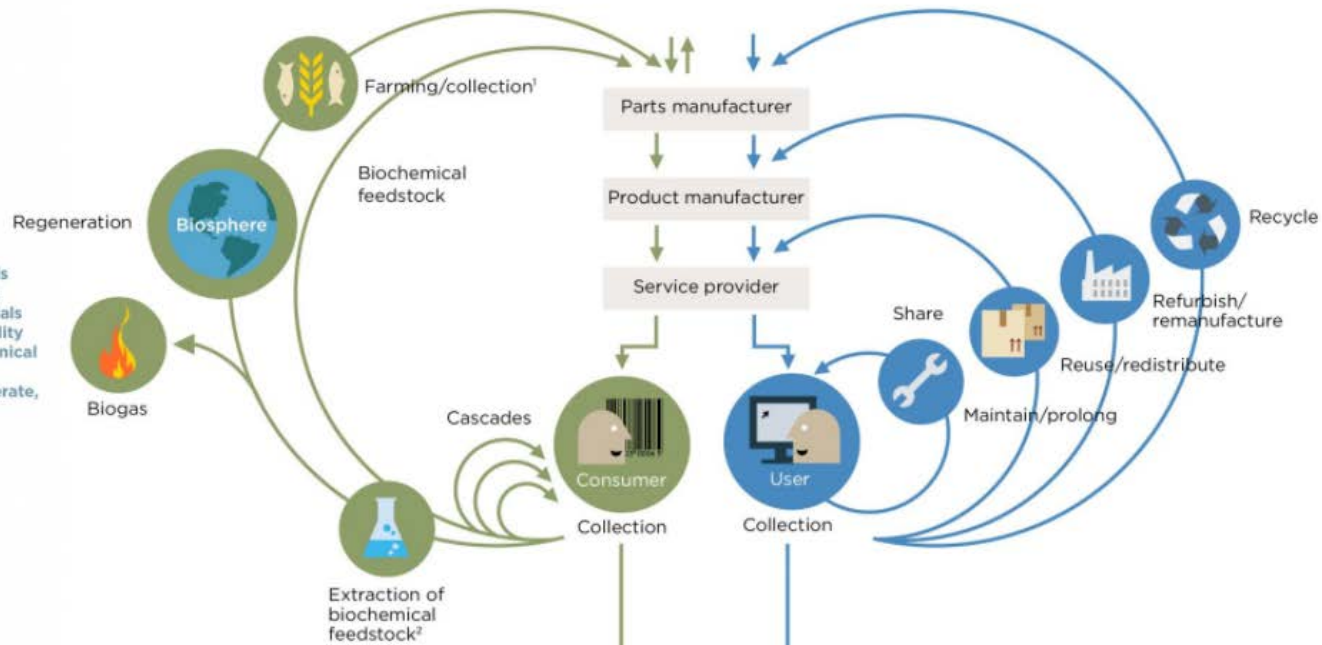
Renewables flow management

Stock management

## PRINCIPLE 2

# 2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles  
 ReSOLVE levers: regenerate, share, optimise, loop



## PRINCIPLE 3

# 3

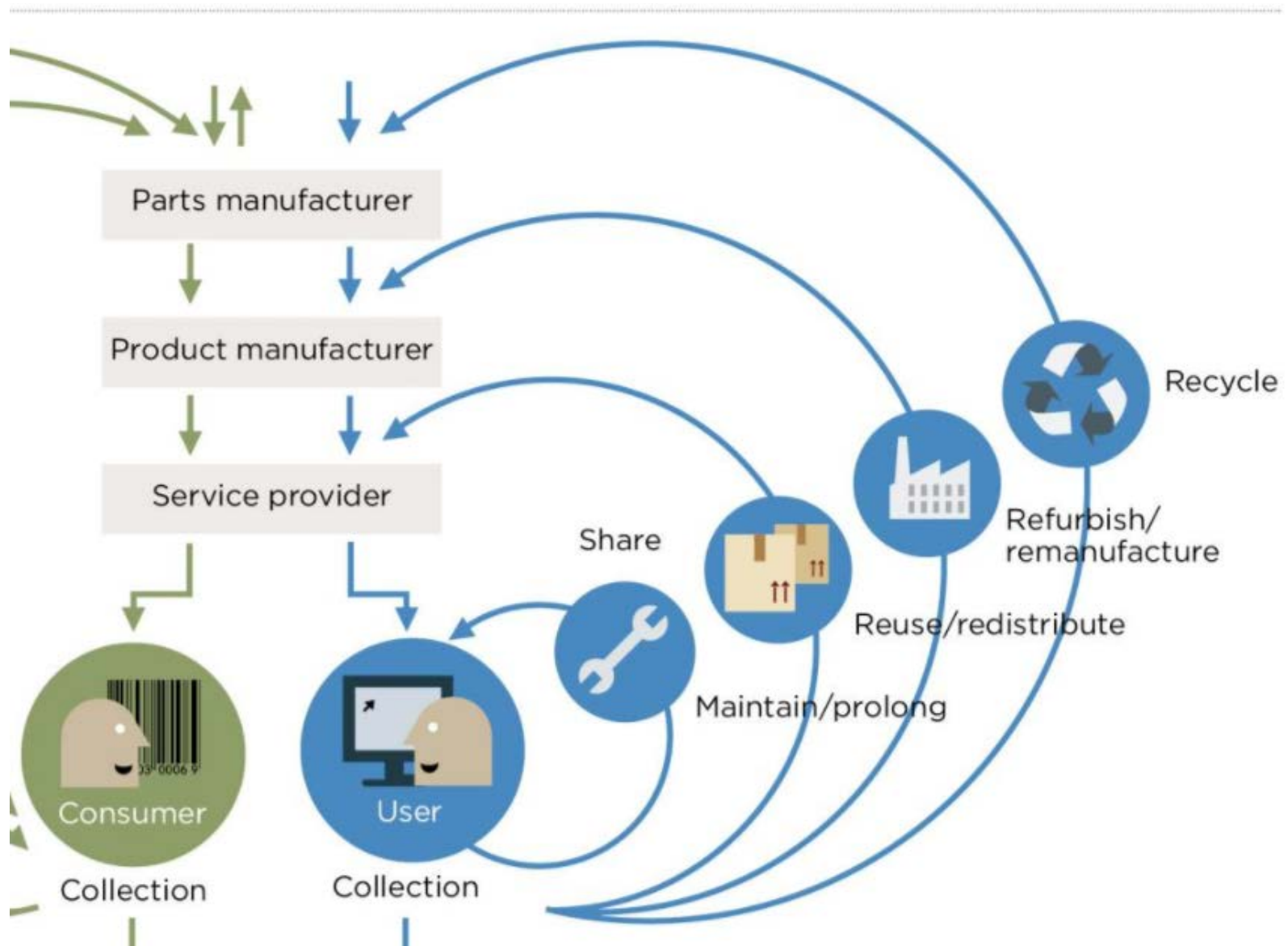
Foster system effectiveness by revealing and designing out negative externalities  
 All ReSOLVE levers

Minimise systematic leakage and negative externalities

1. Hunting and fishing  
 2. Can take both post-harvest and post-consumer waste as an input

Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

# The Circular Economy



# Tennessee Materials Marketplace

tennessee  
materials  
marketplace

THE CIRCULAR

## Join the Circular Economy in Tennessee

Join the Tennessee Materials Marketplace and divert waste from landfills, generate significant cost savings, energy savings, and create new jobs and business opportunities.

GET INVOLVED



<https://tennessee.materialsmarketplace.org>

TN

# Intent of the Marketplace

Tennessee  
Materials  
Marketplace  
in a nutshell



Create Value



Reduce CO2



Do Good for the Environment



Stimulate & Inspire Local Jobs

# Intent of the Marketplace

Tennessee  
Materials  
Marketplace  
in a nutshell

Monetize  
Waste Streams



Create Value



Reduce CO2



Do Good for the Environment



Stimulate & Inspire Local Jobs

# Materials on the Marketplace

Try to search the material name, zip code, city name, company name...



Grid view List view Map view

## Available Materials

## Wanted Materials



Lira 50

### Monitors

Available  
34040 Bayrampaşa/Istanbul

Electronics

Electronics (functional)

Quantity 500 Unit



Lira 250

### Office desks

Available  
34040 Bayrampaşa/Istanbul

Business Furniture, Fixture and Equipment

Business Furniture

Quantity 100 Unit



### Bauxite residual (red mud)

Available  
34040 Bayrampaşa/Istanbul

Filter Cake and Sludge

Sludge

Quantity 1000000 ton (t)

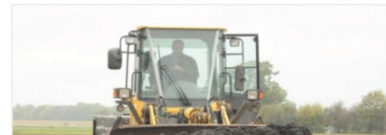


### Waste paper

Available  
34040 Bayrampaşa/Istanbul

Paper and Cardboard

Quantity 20000 ton (t)





# Wanted Materials

[Home](#)[Materials](#)[My Materials](#)[Add Material](#)[My Activities](#)[Users](#)[Settings](#)[Language](#)[Welcome, Rui](#)[Log out](#)[Grid view](#)[List view](#)[Map view](#)[Available Materials](#)[Wanted Materials](#)

Wanted

## Aluminum Cans (wanted material)

Post-consumer aluminum cans that can be recycled to make new aluminum.

[Info →](#)

Wanted

## Waste paper (wanted material)

Post-consumer paper wastes that can be recycled to make new paper products

[Info →](#)

Wanted

## Waste oil (wanted material)

Waste oil that has a calorific value of over 6000 btu/lb to be reused as alternative fuel in the cement kiln

[Info →](#)

# Detailed View

[Home](#)[Materials](#)[My Materials](#)[Add Material](#)[My Activities](#)[Users](#)[Settings](#)[Language](#)

Welcome, Rui

[Log out](#)

## Bauxite residual (red mud)

Qty: 1000000 ton (t)

[Filter Cake and Sludge](#)[Sludge](#)

### Company

USBCSD

### Location

Başak, 34306 Başakşehir/İstanbul, Turkey

### Description of the Resource:

Bauxite residue is a by-product in the production of alumina. The resulting residue is high in alkalinity, but can be neutralized.

### Frequency

Yearly

### Size Description

### Components Description

Sodalite: 4-40%, Alumino-geothite: 10-30%, Hematite: 10-30%

### Disposal Method

Disposed in red mud pond

### Conditions Info

### Attachments

[← Back](#)[Add to watchlist](#)[Contact](#)

# Audience



Home

Materials

My Materials

Add Material

My Activities

Users

Settings



Language

Welcome, Rui

Log out

## Add available material

Basic Info

Specific Info

Attachments

Price

Audience

### Audience

- Public (viewable to everyone)
- MM users (only MM participants and project staff can view)
- Internal (only users within the company and project staff can view)

Previous

Save



# Starting the Conversation



Home

Materials

My Materials

Add Material

My Activities

Users

Settings



Language

Welcome, Rui

Log out

## Conversation

### Conversation

I want to start the conversation because

I am interested in this material and I need to consult more people

My current role is

buyer

Start

Cancel

## Material



Steel Slag

Price: \$14 / ton (t)

Qty: 1000000

# User Roles



Home

Materials

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Add Material

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Users

Settings



Language

Welcome, Rui

Log out

## Conversation

### Conversation

I want to start the conversation because

I am interested in this material and I need to consult more people

My current role is

- ✓ buyer
- owner
- facilitator
- processor
- transportation
- expert

## Material



### Steel Slag

Price: \$14 / ton (t)

Qty: 1000000

# Discussion and Negotiation



## Conversation

### Conversation

+invite



Rui HE

2016-11-21T21:44:03.000Z

Hello, Campbell. I would like to reuse some of your steel slag in my cement production process. Could you please give me more details on your material? Thanks!



Rui HE (buyer)  
(you)



Campbell McNeill  
(owner)

2016-11-25T03:48:01.000Z

Campbell McNeill



Ok, we generate 1 million tons of these slag material at our plant in Texas. We know they make perfect cement clinker. You can crush them into finer sizes if you like.

Enter message text

Send

## Material



### Steel Slag

Price: \$14 / ton (t)

Qty: 1000000

## Transactions

Quantity

500000 / 1000000

Pending

Cancel the transaction

# Activities

[Home](#)[Materials](#)[My Materials](#)[Add Material](#)[My Activities](#)[Users](#)[Settings](#)[Language](#)

Welcome, Rui

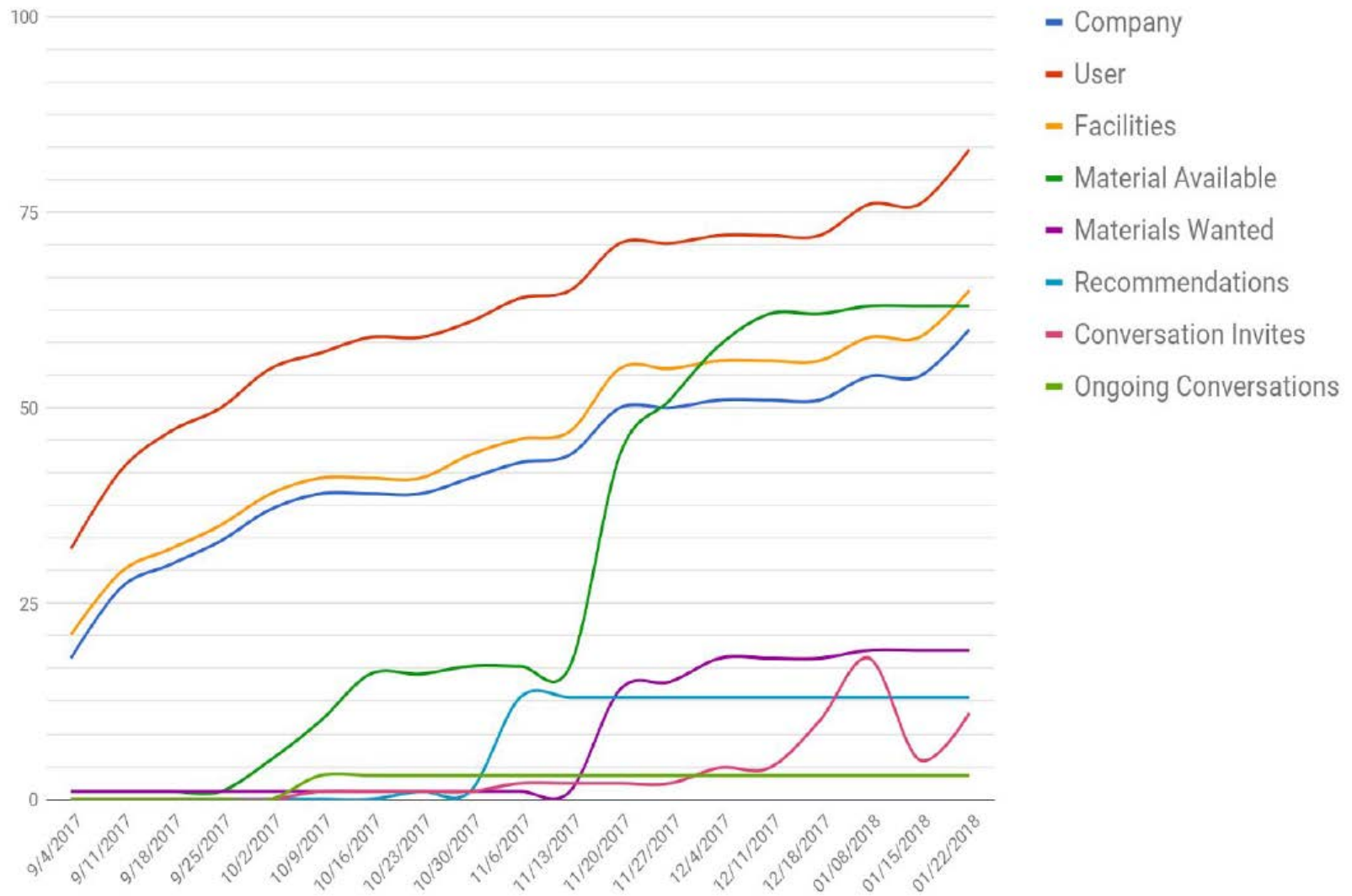
[Log out](#)[Ongoing Conversation](#)[Conversation Invites](#)[Recommendation](#)[Completed Transaction](#)[Cancelled Transaction](#)[Watch List](#)

ID	Last Update	Material	Participants	Role	Activity Type	Quantity	Action
2	Nov 18, 2016 8:17:37 AM	Steel Slag	Daniel Kietzer (Participant Role: buyer) Rui HE (Participant Role: owner)	owner	Conversation Invites	2	<a href="#">View</a>
3	Nov 21, 2016 2:35:12 PM	Bauxite residual (red mud)	Rui HE (Participant Role: buyer) Campbell McNeill (Participant Role: owner)	buyer	Conversation Invites	500000	<a href="#">View</a>
5	Nov 21, 2016 3:43:09 PM	Steel Slag	Rui HE (Participant Role: buyer) Campbell McNeill (Participant Role: owner)	buyer	Conversation Invites	500000	<a href="#">View</a>

Showing 1 - 5 of 5 items.

[Previous](#) [1](#) [Next](#)

# Broad Report



# Specific Report

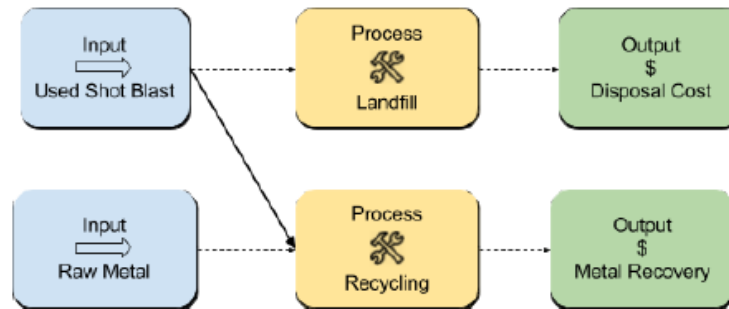
## Used Shot Blast Recycling

Materials Marketplace Network: Tennessee Materials Marketplace

Timeline: one-time on 01/25/2018

Participants: David Choate, Shiloh Industries (Owner), Queen City Metals (Taker)

### Flow Chart



### Description

Shiloh Industries manufactures a variety of light-weight automobile parts. Their blasting process uses cast steel abrasive for treating aluminum surfaces. After the abrasive is used, the shot blast residue is mixed with aluminum and is no longer useful. However the high steel content still makes the material highly desirable for metal recycling. Through the Tennessee Materials Marketplace, Queen City Metals was able to get in touch with Shiloh and recycled all the 12 barrels (roughly 12 tons) of the used shot blast that Shiloh had.

### Estimated Benefits

Economic<sup>1</sup>: Owner savings: \$360<sup>2</sup>, Taker Savings: \$1440<sup>3</sup>.

Environmental: 22 MTCO<sub>2</sub>e emission is avoided<sup>4</sup>, which is equivalent to conserving 2,474 gallons of gasoline.

Societal: NA

<sup>1</sup> Transportation cost and distance is not considered

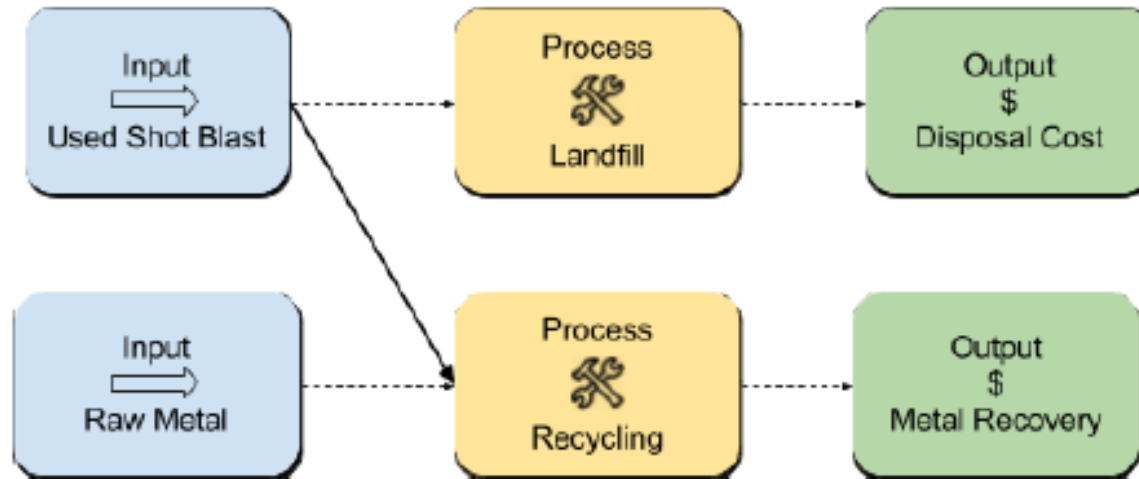
<sup>2</sup> Assuming a landfill tipping fee of \$30/ton

<sup>3</sup> Assuming a scrap steel price of \$0.06/lb (<https://rockawayrecycling.com/scrap-metal-prices/>)

<sup>4</sup> Based on EPA WARM V.14 ([https://www.epa.gov/warm/versions-waste-reduction-model-warm#warm Tool V14](https://www.epa.gov/warm/versions-waste-reduction-model-warm#warm%20Tool%20V14))

# Specific Report

Flow Chart



## Estimated Benefits

Economic<sup>1</sup>: Owner savings: \$360<sup>2</sup>, Taker Savings: \$1440<sup>3</sup>.

Environmental: 22 MTCO<sub>2</sub>e emission is avoided<sup>4</sup>, which is equivalent to conserving 2,474 gallons of gasoline.

Societal: NA

# Who's Involved

Akebono Brake Corporation

American Snuff Company

Brigestone

Caraustar

Carbide Industries LLC

Ceradyne, Inc., a 3M company

City of Chattanooga

Complete Recycling

DENSO Manufacturing TN, Inc.

EC Fibers LLC

Fibertronics

First Tennessee Development District

Florim USA, Inc

Fralely and Schilling Inc.

Franklin County Solid Waste Management

General Motors

Hankook Tire Manufacturing, Tennessee LP

Hawkins County Solid Waste

Ideal Clamp Products

Interlocal Solid Waste Authority

La Z Boy

Lucite International, Inc.

McKee Foods Corporation

Memphis-Shelby County Office of Sustainability

Metro Nashville Public Works

Newell Brands

Nissan North America, Inc.

Northwest Tennessee Development District

Owens Corning

Patriot Recycling Inc

Perdue Farms

Peregi

Phoenix Foods

Plum Creek

Plum Creek Environmental

Red Knight Distribution

repurposedMATERIALS

Rockwood Recycling LLC

Suppliers Partnership for the Environment

Tennessee Manufacturing Association/Tennessee Chamber of Commerce & Industry

Tennessee Valley Authority

TN Dept. of Environment and Conservation

Upper Cumberland Development District

Volkswagen

Waste Management Recycle America

WestRock

Yazoo Brewing Company



# State Funded but run by USBCSD

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- We do not own the data

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- Aggregate data

# State Funded but run by USBCSD

- We do not own the data
- Proprietary information is kept private on marketplace server
- Aggregate data
  - Tonnages diverted, economic impacts, value of sales, material types

# Reporting to the State

- We do not own the data
- Proprietary information is kept private on marketplace server
- Aggregate data
  - Tonnages diverted, economic impacts, value of sales, material types
- Marketplace Policy Manual is in the works

# Relevance to Supplier's Partnership

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  - 81 respondents across TN industries

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# Relevance to Supplier's Partnership

- 2017 Tennessee Industry Survey
  - 81 respondents across TN industries
    - 8% are zero waste facilities
    - 62% recycle in-state
    - 51% produce special waste
    - 44% want assistance with beneficial end-use

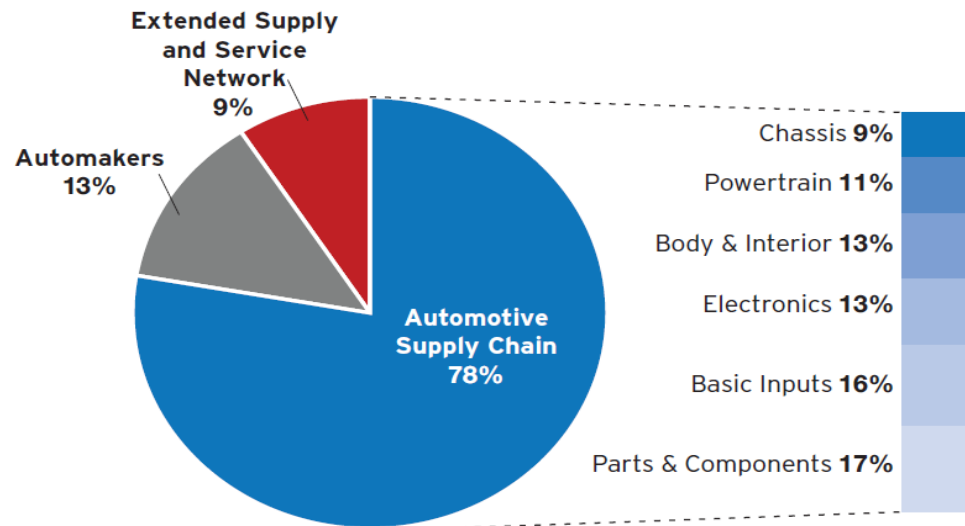
# Relevance to Supplier's Partnership

- 2013: **THE BROOKINGS INSTITUTION** | DRIVE! MOVING TENNESSEE'S AUTOMOTIVE SECTOR UP THE VALUE CHAIN

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**The automotive supply chain accounts for more than three-quarters of industry jobs in Tennessee, building all systems of the car**

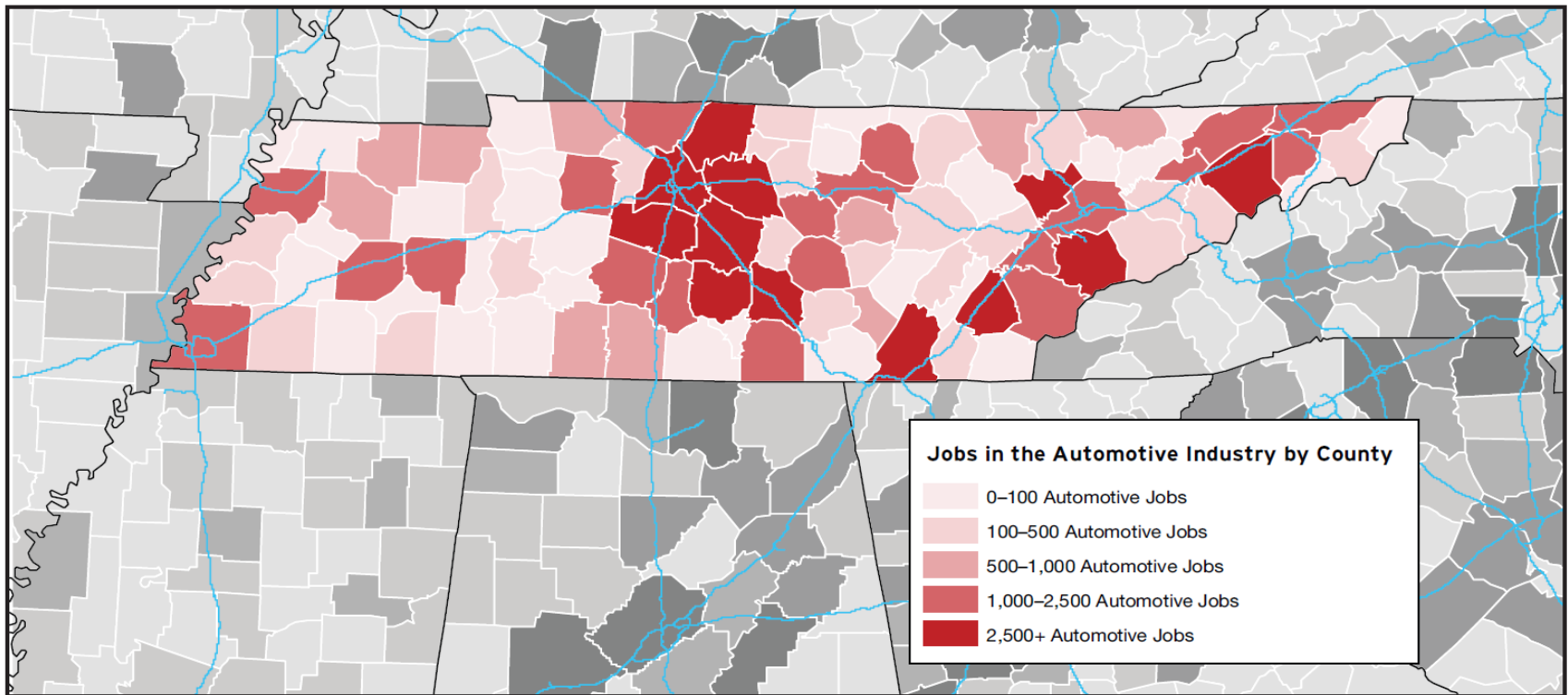


Source: Brookings analysis of data from Dun & Bradstreet, ELM Analytics, and MarkLines

# Relevance to Supplier's Partnership

- 2013: **THE BROOKINGS INSTITUTION** | DRIVE! MOVING TENNESSEE'S AUTOMOTIVE SECTOR UP THE VALUE CHAIN

**The automotive industry touches every corner of the state**



Source: Brookings analysis of data from Dun & Bradstreet, ELM Analytics, and MarkLines

# Relevance to Supplier's Partnership

- 2013: **THE BROOKINGS INSTITUTION** | DRIVE! MOVING TENNESSEE'S AUTOMOTIVE SECTOR UP THE VALUE CHAIN

“Taken together, these indicators confirm that Tennessee has emerged as one of the industry's most important supplier hubs not just in the region, but nationally and globally”

# Quick Plug



## TENNESSEE ENVIRONMENTAL CONFERENCE

Health • Industry • Economic Development • Environment

March 13- 15, 2018

Kingsport, TN

<https://www.tnenvironment.com/>

# Thank you

- Questions?

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731-512-1343