Circular Economy Business Briefing

～ ”Circular Economy Business” through Automobile Recycling Initiatives ～

October 14, 2025

Toyota Tsusho Corporation
Circular Economy Division

The “Uniquely Competitive” and “Higher Dimension” to be Achieved by the Circular Economy Division

Be the Right ONE

- **Uniquely Competitive: Unprecedented arterial and venous integrated business model**
- **Inevitable and difficult-to-imitate growth opportunities: Social demands and Toyota Group initiatives**
- **Higher Dimension: Become the world’s leading CE provider through integration of Radius’s businesses**
- **Financial target: Achieve ROIC of 10%**

Overall Image of the CE Division's Business: An Unprecedented Arterial and Venous Integrated Business Model

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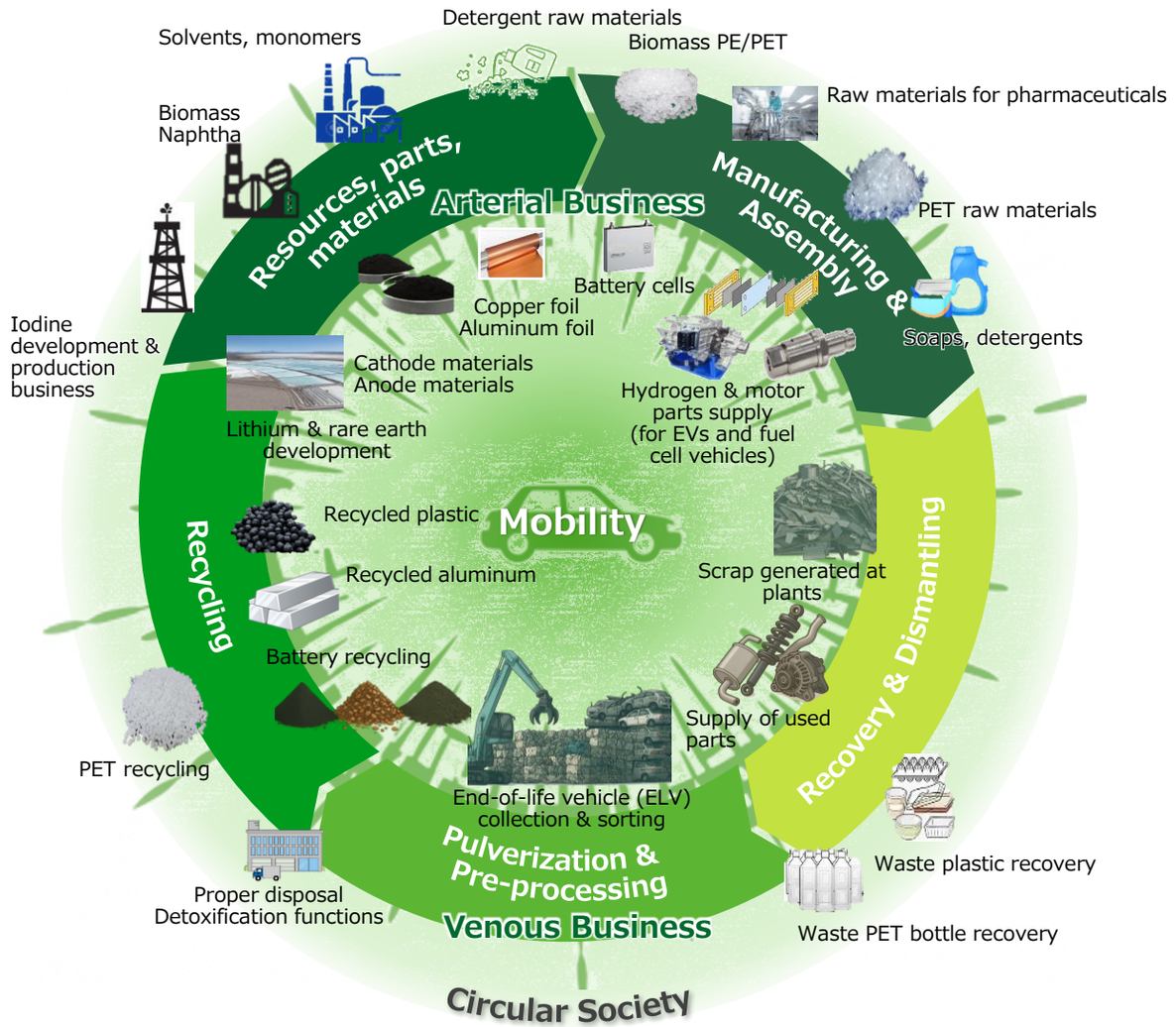
The arterial and venous integrated business model that we have advanced for more than 50 years will transform social challenges into growth opportunities

Overall Image of the CE Division's Business



SBU Business Summaries

Resources Development SBU	Development of critical metals (essential metals) needed for the electrification of automobiles and rare inorganic resources that are essential for daily life and manufacture of intermediate products. Examples of products: Lithium, rare earths, iodine, others
Sustainable Materials SBU	Sale of raw materials and products for detergents, sanitary materials, pharmaceuticals, and packaging and coating materials, operation of manufacturing business, handling of biochemicals, and operation and promotion of plastic and solvent recycling business Examples of products: Synthetic resins, Bio-PE, detergents, pharmaceuticals, others
E-Mobility Supply Chain SBU	Import/export, third-country trading, and domestic sale of batteries and electronic materials and related business planning and operation Examples of products: Parts and materials for electric and fuel cell vehicles, semiconductor materials, others
Resources Recycling SBU	Provision of arterial and venous integrated functions from supply of materials that support new manufacturing with resource circulation in mind to recovered resource collection, recycling, and recycled raw material production Examples of businesses: Recycling resources from waste material collected from factories and markets (metal and plastic recycling, aluminum melting), others

Circular Economy Business: Diverse Functions that Support “Uniquely Competitive”

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Our circular economy businesses are deeply involved in the Toyota Group’s manufacturing and provide unique functions for returning various materials, such as metals, resins, and batteries, to arterial business as resources

TTC’s Circular Economy Businesses in the Mobility Field

Scrap generated at plants

End-of-life vehicles (ELVs)

Collection & Dismantling

Collection – processing/shipment of waste materials at customer plants

GREEN METALS

Collection of ELVs & proper disposal in accordance with laws & regulations

Radius, MSTI
TOYOTA METAL partners

Management of waste release data, provision of data on proper disposal

JEMS

Shredding & Use of Used Parts

ELV shredding & processing

TOYOTA METAL

HV motor, waste catalyst, etc. dismantling

TOYOTSU RECYCLE

Used parts sales

JARA, Radius

Sorting & Pre-Processing

Sorting of metals, etc. by material

Ferrous

Non-ferrous

ASR*

* Automotive Shredder Residue

TOYOTA METAL

Scrap trading

TOYOTA TSUSHO MATERIAL

Recycling

Melting aluminum scrap

Toyotsu Smelting Technology, MOST, POLST etc.

Resin recycling

PLANIC

Recycling of rare metals from batteries

TOYOTA CHEMICAL ENGINEERING
Green Metals Battery Innovations

Manufacturing

Manufacture of steel materials, interior materials, etc.

Various manufacturers

Manufacture of batteries, etc.

Various manufacturers

Appropriate & detoxification processing of waste

TOYOTA CHEMICAL ENGINEERING

Automobiles

Becoming the World's No. 1: "Higher Dimension" through Integration of Radius's Business

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Elevation to a Higher Dimension

Become the World's Leading Circular Economy Provider

Business Integration of Radius

Combine our venous businesses, which have wide-ranging functions developed in the mobility field, with Radius's collection infrastructure and recycling base materials

TOYOTA TSUSHO

- Establishment of a closed loop (arterial-venous coordination)
- Recycling function valuation
- Recycling technology

radius recycling

- Base material collection network
- Abundant handling volume
- Processing/export sites

Current Circular Economy Businesses

Collection & Dismantling	Shredding & Use of Used Parts	Sorting & Pre-Processing	Recycling	Manufacturing
Collection – processing/shipment of waste materials at customer plants GREEN METALS	ELV shredding & processing TOYOTA METAL	Sorting of metals, etc. by material TOYOTA METAL	Melting aluminum scrap Toyotsu Smelting Technology, MOST, POLST etc.	Manufacture of steel materials, interior materials, etc. Various manufacturers
Collection of ELVs & proper disposal in accordance with laws & regulations Radius, MSTI TOYOTA METAL partners	HV motor, waste catalyst, etc. dismantling TOYOTSU RECYCLE	Scrap trading TOYOTA TSUSHO MATERIAL	Resin recycling PLANIC	Manufacture of batteries, etc. Various manufacturers
Management of waste release data, provision of data on proper disposal JEMS	Used parts sales JARA, Radius		Recycling of rare metals from batteries TOYOTA CHEMICAL ENGINEERING Green Metals Battery Innovations	Appropriate & detoxification processing of waste TOYOTA CHEMICAL ENGINEERING

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Resource Recycling Business

～ A group of unique functions that appropriately return diverse materials to arteries as resources ～

Ideal Image of the Resources Recycling Business

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Contribute to solutions to social problems through the resources recycling business to deliver a healthy and comfortable society to the children of the future

～ Become the world's leading CE company by leveraging our experience with venous supply chains and building a circular ecosystem ～

Strategy			
	Enter business by prioritizing, taking into account market and regional conditions	Bridge the gap between arteries and veins to promote collaboration between arteries and veins and build new supply chains centered on recycled resources	Conduct first-person measures to recycle batteries and resins, which will be a social issue in the future

TTC (Venous Supply Chains)

<Existing Supply Functions>

- ELV dismantling & shredding, ASR processing, precious metal recycling
- Manager services for waste generated at plants
- Processing technologies and stable supply capacity for high-purity recycled metal materials

<Main Functions to be Enhanced in the Future >

- Production and supply of high-quality battery raw materials (black mass)
- Production and supply of high-quality recycled resins
- Securing recycled raw materials with the quality and in the volumes required on the artery side

Customers (Venous Supply Chains)

<Expectations for Veins>

- Increase recycled material use rates (e.g., 30% by 2030)
- Respond to expanding responsibilities of producers in Europe, India, and China (perform the product collection obligations of OEMs)

<Issues>

- Securing adequate volumes of recycled raw materials
- Developing technologies to secure recycled materials with quality that allows for re-use

Overall Image of the Resources Recycling Business

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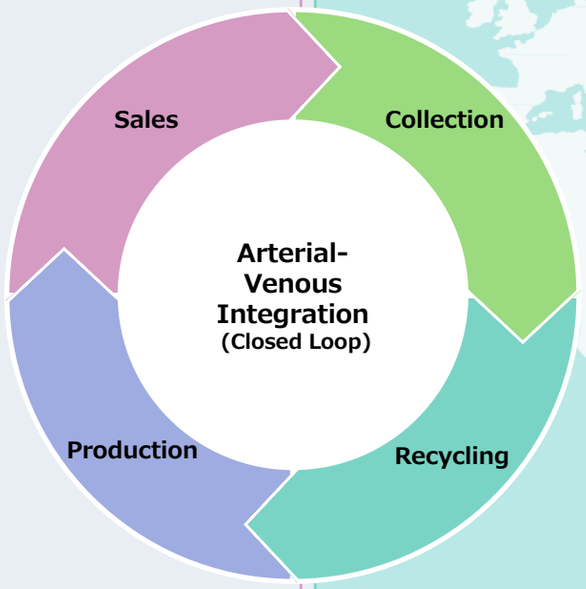
Promote resource recycling in each stage of the automobile lifecycle, starting from automobile manufacturing processes, including recycling of scrap generated from plants and in markets and of ELVs after use as well as detoxification and recycling of industrial waste and automotive batteries

Arterial Supply Chain



Venous Supply Chain

In-Plant Collection

Scrap collection operations for factory-generated waste

Global expansion to 26 sites in 13 countries
(Japan, China, India, North America, Mexico, etc.)

Approx. 6.20 M t

Post-Consumer Collection

Metal scrap collection business using a market collection network of 100 sites across North America

Joint Venture agreement signed with Radius Recycling

Approx. 4.80 M t

ELV Recycling

Recycling of ELVs through recovery, shredding, and sorting

Approx. 100,000 t

Proper Waste Disposal

Proper disposal of a wide variety of industrial waste through volume reduction, detoxification, and thermal recovery

130,000 t

Used Battery Recycling

Resource recovery of rare metals from end-of-life batteries

Approx. 3,000 t

Waste Plastic Recycling

Production of high-quality recycled plastics using advanced sorting technologies

Approx. 12,000 t

Used Catalyst Recycling

Resource recovery of rare metals from used catalysts

Approx. 250 t

Molten recycled aluminum supply

Supply recycled aluminum alloys using recycled and melted aluminum

Deployed globally with 17 sites across 7 countries
(Japan, China, India, North America, etc.)

Approx. 600,000 t

Figures in diagram represent annual handling volumes

Global Expansion of Metal & ELV Recycling Business

(Excluding molten recycled aluminum and waste plastic recycling business)

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	Toyota Tsusho		Radius Recycling
Target area	13 countries globally		3 countries in North America
Metal recycling	26 sites		53 sites
ELV recycling	3 sites (2 dismantling, 1 shredding)	+	50 sites (ELV collection, parts sales)
Waste catalyst recycling	1 site		None
Waste disposal	1 site		None
Volume handled	6.30 M t/year		4.80 M t/year

* Of 10 sites in North America, only main sites are shown
* Not including Radius sites

U.K.: Derby
【Metal recycling】

(Operation started Apr. 2009)

Czech: Kolin
【Metal Recycling】

(Operation started Mar. 2005)

Poland: Wałbrzych
【Metal Recycling】

(Operation started Jul. 2010)

France: Valenciennes
【Metal Recycling】

(Operation started Feb. 2006)

India: Delhi
【ELV dismantling】

(Operation started Oct. 2021)

India: Gujarat
【Metal Recycling】

(Operation started Dec. 2017)

India: Bangalore
【Metal Recycling】

(Operation started Jun. 2016)

South Africa: Durban
【Metal Recycling】

(Operation started Apr. 2005)

Thailand:
Pinthong
【Metal Recycling】

(Operation started Aug. 2006)

Gateway
【Metal Recycling】

(Operation started May 2013)

China: Guangzhou
【Metal Recycling】

(Operation started Jan 2006)

China: Tianjin
【Metal Recycling】

(Operation started Jan. 2005)

China: Shenyang
【ELV dismantling】

(Operation started Apr. 2020)

TOYOTA TSUSHO MATERIAL
【Trading company/trading】

(Established 1999)

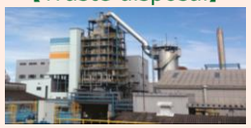
TOYOTSU RECYCLE
【Waste catalyst recycling】

(Established 1985)

TOYOTA METAL
【ELV recycling】

(Established 1970)

TOYOTA CHEMICAL ENGINEERING
【Waste disposal】



(Established 1973)

Canada: Ontario
【Metal Recycling】

(Operation started Sep. 2008)

Mexico: Guanajuato
【Metal Recycling】

(Operation started Feb. 2020)

Brazil: Sorocaba
【Metal Recycling】

(Operation started Sep. 2012)

U.S.:
Kentucky
【Metal Recycling】

(Operation started Apr. 2000)

Indiana
【Metal Recycling】

(Operation started Feb. 2003)

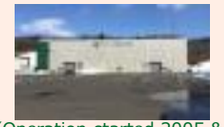
Texas
【Metal Recycling】

(Operation started Jul. 2006)

Japan: Hokkaido
【Metal Recycling】

(Operation started May 2009)

Japan: Fukui, Miyagi
【Metal Recycling】



(Operation started 2005 & 2012)

Examples of CE Issues in the Automotive Industry

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Tightening of Regulations

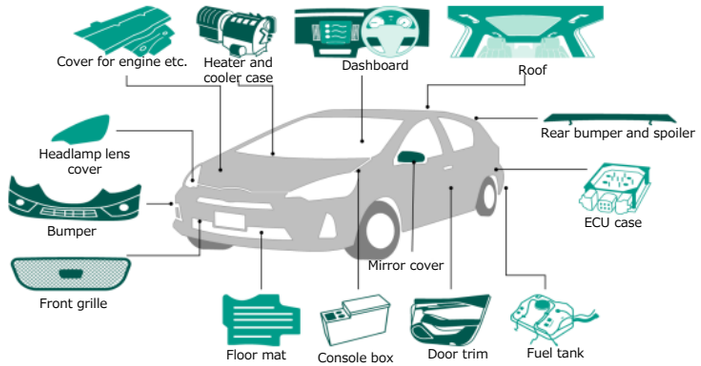
Mandatory use of recycled materials originating in the EU is advancing

- **Recycled plastic use rate (starting in 2032)**

  Targets for recycled plastic use in new vehicle production is expected to become mandatory

	Proposals by EU bodies
Recycled plastic content use target * After regulation takes effect	6 years later: 15%～ 8 years later: 20%～10 years later: 25%
ELV-derived plastic included in the above	15～25%

【Examples of plastic parts used in automobiles】*



*Source: Ministry of the Environment website https://www.env.go.jp/content/000302433.pdf

- **Regulation on minimum recycled content for various batteries (starting in 2031)**

Cobalt	Lithium	Nickel
16%	6%	6%

・The regulation has no language concerning a grace period after it comes into effect
・The regulations specified a 50% lithium recovery rate from waste batteries starting in 2027

Manufacturing based on CE is essential across industries, including industries other than automobiles

Resource Outflows

Overseas Outflows of Domestic ELV Resources

Resources from 9 million units produced in Japan flow overseas in the form of new vehicles, used vehicles, and used parts
Only resources from 1 – 2 million units remain

May fall behind as European OEMs are setting targets for improving recycling

Foreign OEM	Recycled Material Use Rate
VOLVO	25% by 2025
BMW	Plans to greatly increase by 2030 (increase recycling aluminum by 4 – 6 times, etc.)
Mercedes-Benz	Use an average of 40% in passenger cars by 2030
RENAULT	Use 33% in new vehicles globally by 2030

Securing recycled materials on a global scale is essential

Progress of the Resources Recycling Business

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Metal Scrap Recycling Business

- Launch of metal scrap trading business (Japan)

1990

2000 Start of global expansion of Green Metals, Japan business
→ Expansion to 26 sites

2004 Toyota Tsusho Material Corp. established
Domestic & overseas trading business transferred

2010

2020

Automobile Recycling Business

1970 Shredder — Toyota Metal Corp. established

1994 Waste Catalyst — Toyotsu Recycle Corp. established

2001 **Recycling Research Lab**
Within Toyota Metal

2014 Dismantling — Capital participation in China United Network Communications Group Co., Ltd.

Used parts — JARA Corp. established

2019 Dismantling — MSTI established in India

Batteries — Investment in NExT-eS
Additional investment in Metal Do Co., Ltd.

Waste Disposal Business

1973 Toyota Chemical Engineering Co., Ltd. established

2009 Batteries
HV battery recycling plant starts operation

2020 Investment in JEMS

Molten Aluminum Business

1998 MOST established
Supply of molten aluminum to engine plants starts

2004 IST established
Supply of molten aluminum to wheel plants starts

2011 Toyotsu Smelting Technology Corp. (TST) establishes mother plant

2014
2015 Expansion to India, Mexico, and other countries

→ Expansion to 17 sites in 7 countries worldwide

【TOYOTA METAL】ELV Recycling Business

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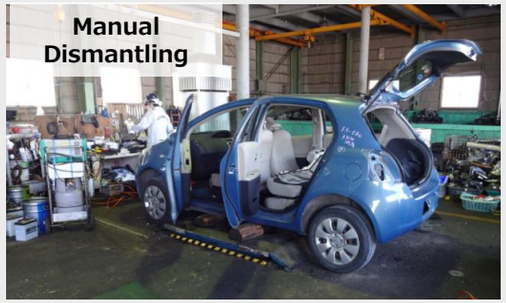
● ELV Recycling Flow

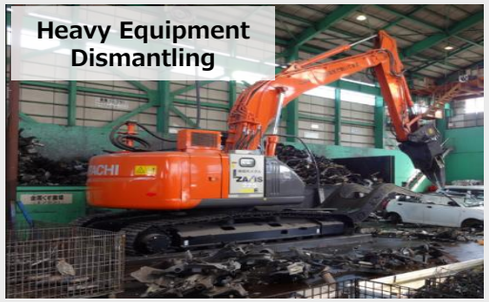
Automobile Recycling Business

*ELV: End of life vehicle

ELV* Generation → Manual Dismantling → Heavy Equipment Dismantling → ELV Scrap → Recovery → Shredding & Sorting → Recycling

Automobile Dismantlers





Toyota Metal Business Domains

TTC-Gr trades with 2,500 dismantlers nationwide

Recycling rates: Automobiles 99.5%; Air conditioning 90.7%

【TOYOTA CHEMICAL ENGINEERING】 Waste Disposal and Battery Recycling Business

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● Proper Waste Disposal

Recovery

Disposal of various types of industrial waste
Ability to handle a wide range of difficult-to-process materials based on 50 years of accumulated incineration expertise

Flexible containers

Reagent bottles, etc.

Medical waste

Drums
(waste oil & liquids)

Proper disposal

Power generation through volume reduction, detoxification, and thermal recovery

Annual processing volume: Approx. 130,000 tons
* No. 1 processing volume in the Chubu region

Incinerator

Concentrator

Oil-water separator

Neutralizer

【Used Battery Recycling】Our Vision

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Conduct smart, cross-border resources recycling to achieve economic rationality and security

Our Roles & Strategies

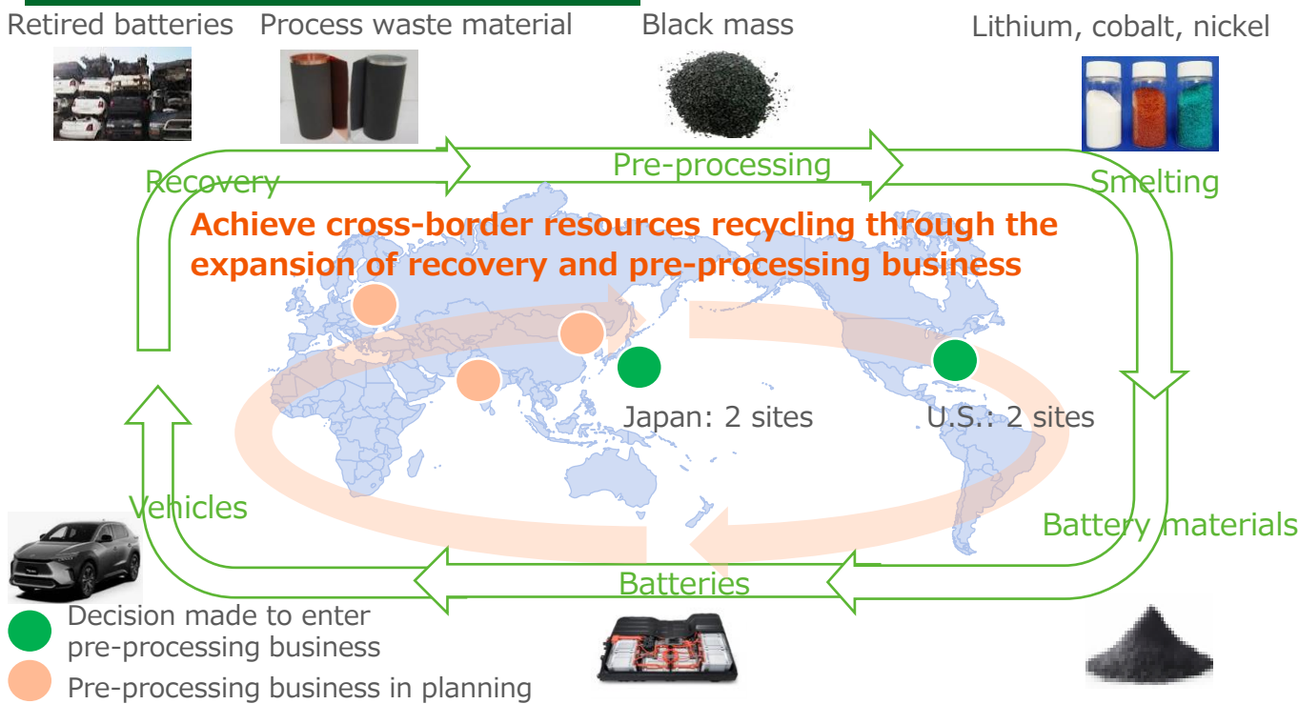
- **Supply recycled materials to supply chains**
- **Efficiently distribute recycled materials to production sites in regions with restrictions**

Strategies

1. **Build a waste material collection network** (**through 2030: process waste materials**; from 2030: post-consumer market waste materials)
2. Environmentally-friendly, **high quality pre-processing** (**black mass manufacturing**)
3. **SC management** linked to battery manufacturing processes

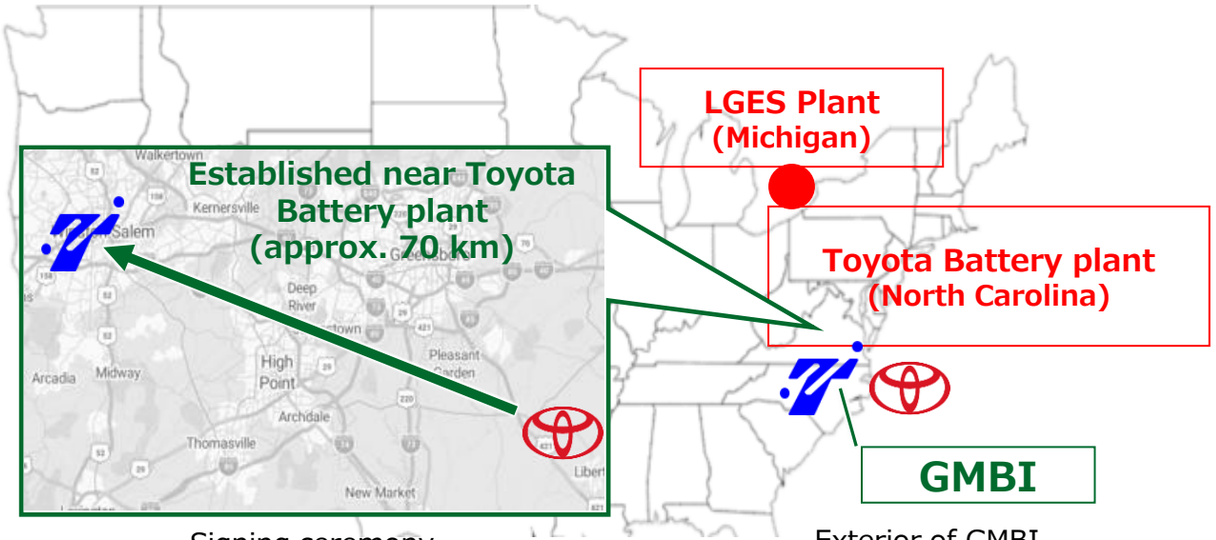
* Black mass: Battery raw materials including rare metals such as nickel

Our Vision @2035



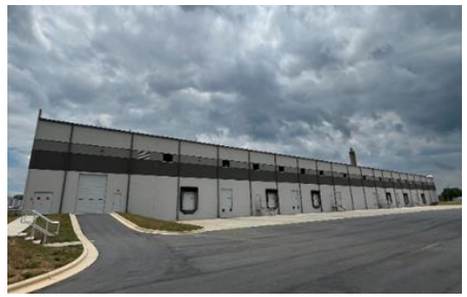
Example of Pre-Processing Business

Company name	Green Metals Battery Innovations (GMBI)
Investment ratios	Toyota Tsusho: 51%, LGES: 49%
Business activities	Pre-processing of retired batteries and process waste material



Signing ceremony

Exterior of GMBI



Radius Recycling, Inc.

～ Building a Resource Recycling Platform in the U.S～

Building a Resource Recycling Platform in the U.S.【Radius Businesses】

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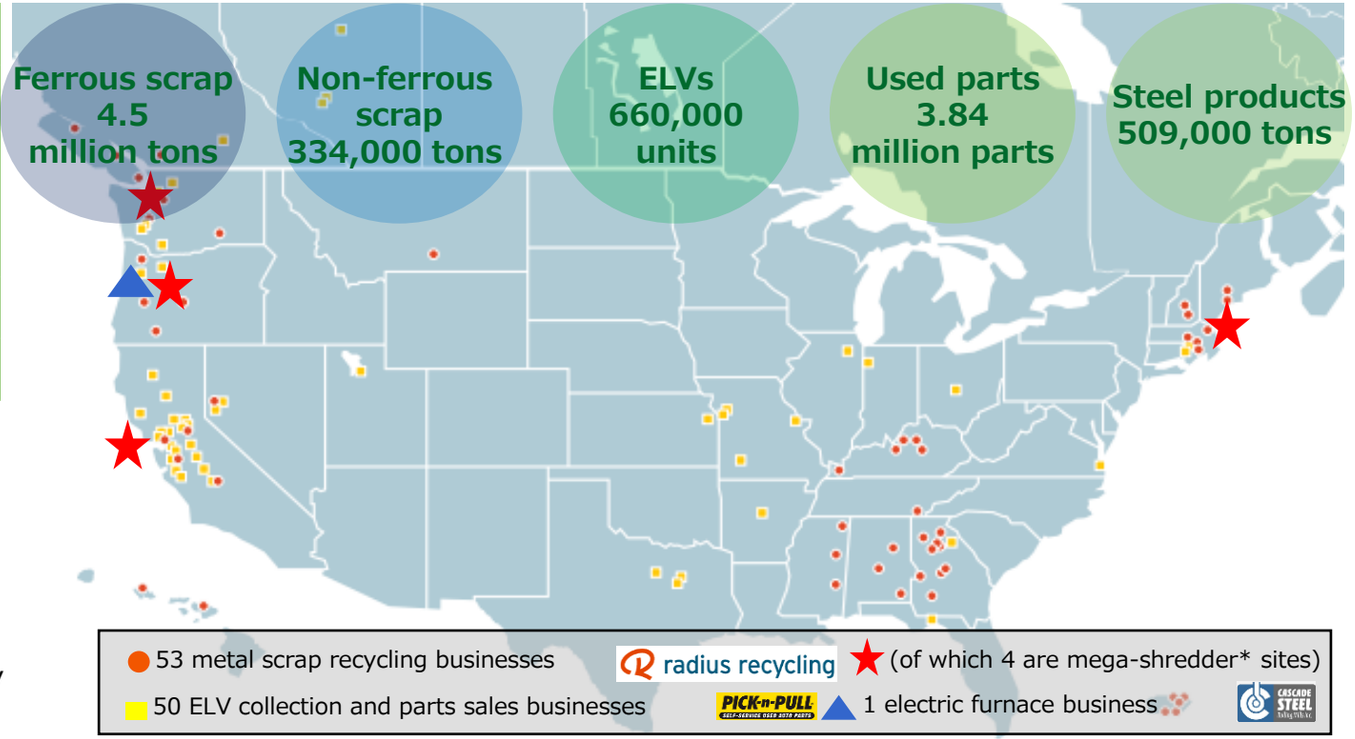
In addition to the existing collection of scrap generated in plants, use Radius's collection infrastructure functions to gain access to scrap in the market

Company overview

Company name	Radius Recycling, Inc.
Founded	1906
Business	・Metal scrap recycling ・ELV collection and parts sales ・Electric furnace
CEO	Marc Hathhorn
Employees	3,011 (as of August 31, 2024)

Strength: Has more than 100 collection sites in North America



* A mega shredder has approx. 10,000 HP, compared to 2,000 HP for typical shredders in Japan, and are capable of directly shredding ELVs as well as other large base materials. Radius Recycling has mega shredders at four sites: (1) Tacoma, Washington, (2) Portland, Oregon, (3) Oakland, California, (4) Everett, Massachusetts

History

1906 Founded as Schnitzer Steel in Portland, Oregon
1984 Acquired Cascade Steel, an electric furnace manufacturer
2003 Acquired Pick-n-Pull, an automobile parts recycling company
2023 Changed name to Radius Recycling, Inc.

Ideal image	**Handle recycled resources in North America, where scrap generation is abundant, and become a global supply base, broadly contributing to CE/CN**
Objective of Acquisition	**Enhance corporate value by maximizing synergy between our automotive-developed functions and Radius's "collection infrastructure and recycling base materials"**

Building a Resource Recycling Platform in the U.S.【Radius Business】

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Target Synergy Areas

radius recycling

- Base material collection network
- Abundant handling volume
- Processing/export sites

TOYOTA TSUSHO

- Establishment of a closed loop (arterial-venous coordination)
- Recycling function valuation
- Recycling technology

Synergy Areas	radius recycling	TOYOTA TSUSHO	What We Will Achieve
Iron scrap *Non-ferrous scrap*	■ **Wide-area collection & recovery platform** • More than 100 collection sites across the U.S. • Recovery partner network covering 49 states ■ **Scrap processing by mega shredders** ■ **Has large-scale export ports** (east & west coasts and south)	■ **Steel material supply chain for automotive OEMs** ■ **Supply of recycled materials according to quality needs** ■ **In-plant waste management services**	➢ **Development of green steel logistics, contributing to CN** ➢ **Provision of iron scrap to steel mills in Japan and the U.S.** ➢ **Provision of high-quality recycled aluminum materials for aluminum die casting in response to the shift to EVs**
Batteries		■ **Technology for recovering recycled materials from waste and used batteries** ■ **Commercial rights to battery waste materials generated at Toyota battery plants**	➢ **Provision of used batteries generated from the market to affiliated battery recycling companies in North America** ➢ **Achieve battery resource circulation within the Toyota G**
Waste Catalyst		■ **Appropriate assessment of rare metals in waste catalysts** ■ **Creation of a waste catalyst recycling loop for automotive OEMs**	➢ **Increase supplies of recycled precious metals to automotive OEMs**
ELVs/Used parts		■ **Toyota G automobile sales network** **(insurance companies, automobile dealers, used car dealers)**	➢ **ELVs: Build a route for collection of total loss vehicles from auto insurers** ➢ **Used parts: Sales to dealers and repair shops**

Building a Resource Recycling Platform in the U.S.【Radius Business】

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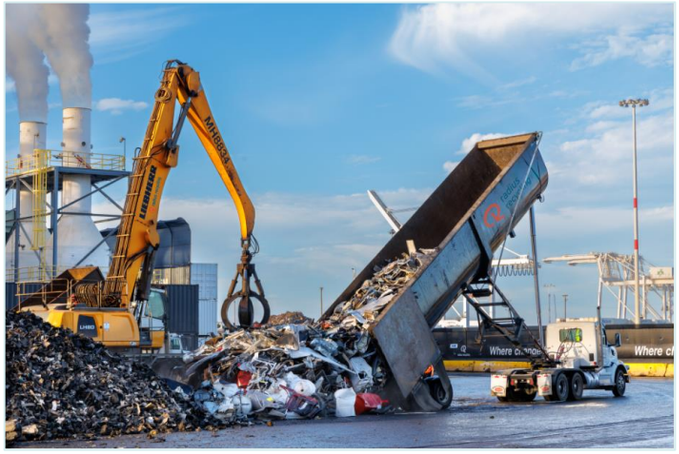
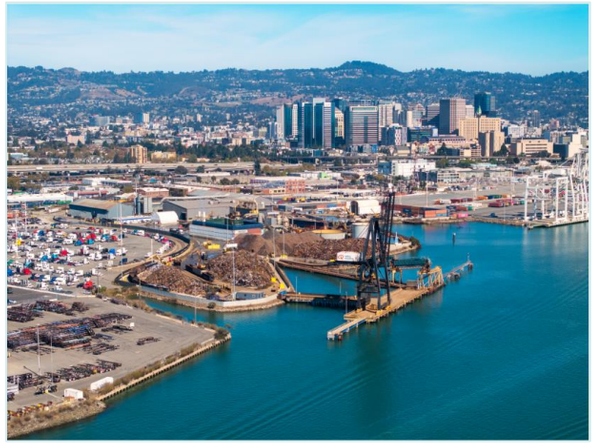
Shredder Business

・Metal scrap recycling, Radius's core business (4.8 M tons annually; 4.5 M tons iron + 300,000 tons non-ferrous metals)





Pick-n-Pull Business (Automobile Dismantling Business)

・ELV parts removal yard business. Currently, there are 50 sites across the U.S. **260,000** units are handled annually (**2**% of the total U.S. share).

・After removal of parts, ELVs are brought to the shredders referenced above to become metal scrap material.