



**TRE HOLDINGS**

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# Supplemental materials for the first quarter of the Fiscal Year ending March 31, 2024

**TRE HOLDINGS CORPORATION**

(Code: 9247, Prime Market, Tokyo Stock Exchange)

**Committed to the conservation of the global environment**

August 10, 2023

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# Summary of Consolidated Results: 1Q FY03/24 Results

	FY03/23 Q1 Results	FY03/24					
		Q1 Results	YoY	1H Forecast		Full-year Forecast	
				Progress	Progress	Progress	
<b>Net sales</b>	22,842	<b>22,060</b>	96.6%	46,000	48.0%	95,200	23.2%
<b>Operating profit</b>	1,204	<b>1,274</b>	105.8%	3,300	38.6%	8,300	15.3%
<b>Ordinary profit</b>	1,300	<b>1,344</b>	103.4%	3,300	40.7%	8,300	16.2%
<b>Profit attributable to owners of parent</b>	815	<b>941</b>	115.4%	2,100	44.8%	5,400	17.4%

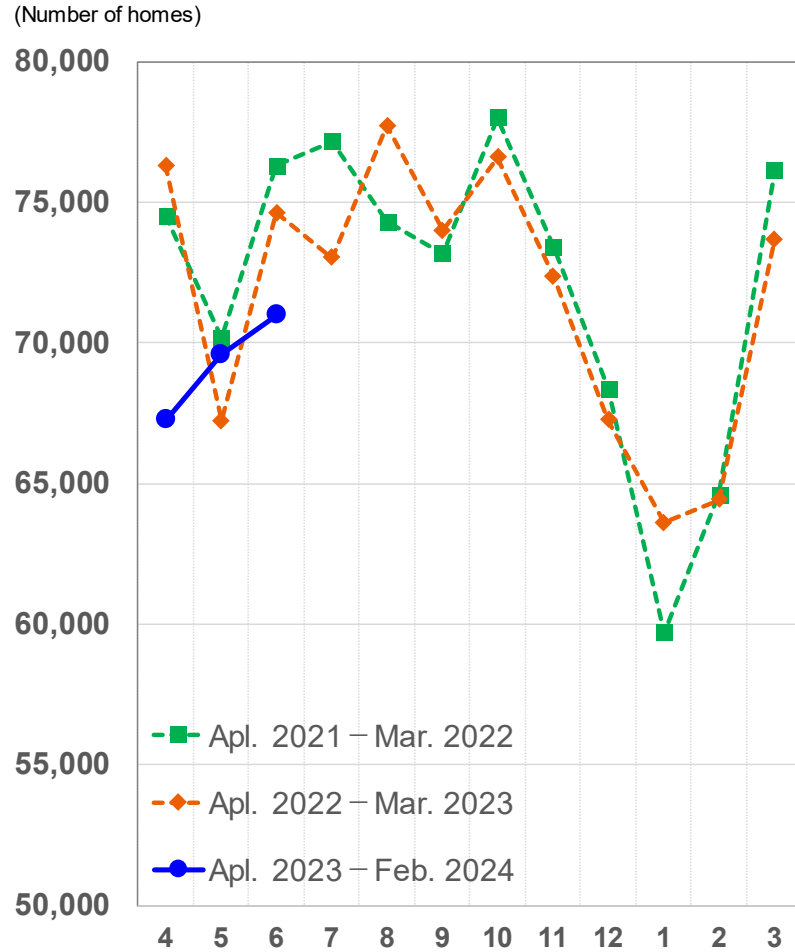
## Lower sales, higher profit YoY

- The decline in sales was mainly due to smaller handling volumes in the Resource Recycling business and a lower range of steel scrap prices.
- The increase in profit was mainly due to the thorough value-adding of delivered materials in the Waste Treatment & Recycling business, more efficient biomass power plant operations in the Renewable Energy business, and enhanced customer proposals in line with the centralization of electricity retailing.

# Q1 FY03/24 Results

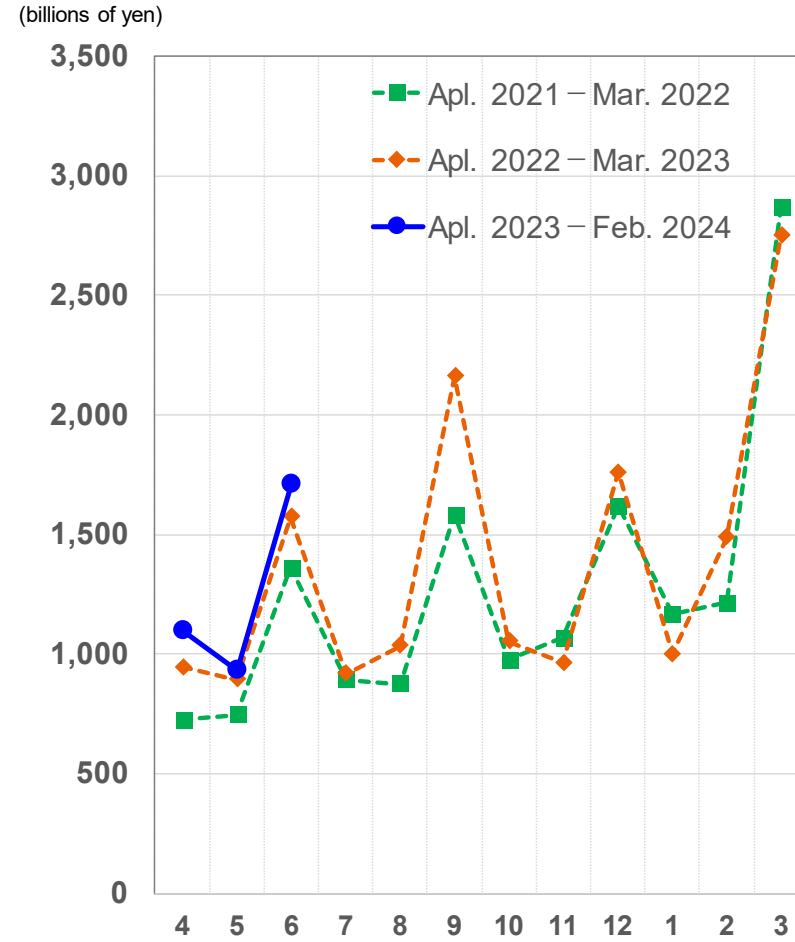


## ■ Number of new housing starts



➤ Housing starts fell sharply in April (-11.9% YoY), and although they increased in May (+3.5% YoY) for the first time in four months, there is still a sense of sluggishness, as rising construction costs driven by soaring material prices have constrained housing starts, especially for owner-occupied houses.

## ■ Construction orders (50 largest companies)



➤ Orders were higher YoY in April and May. Private and public construction projects are on the rise, indicating a recovery trend.

## ■ Long-term trends in construction waste

- ◆ Construction waste accounts for approximately 20% of all industrial waste (approximately 400 million tons), both in terms of volume generated and final disposal.
- ◆ Appropriate sorting and treatment procedures are necessary for building materials containing harmful substances such as asbestos.
- ◆ The social infrastructure developed during Japan's period of rapid economic growth is aging, and maintenance and management costs are expected to increase 1.2-fold in 10 years.
- ◆ In recent years, earthquakes, typhoons, torrential rains, and other disasters have become more frequent and more severe, and a large amount of disaster-related waste is generated, which affects the construction recycling field.

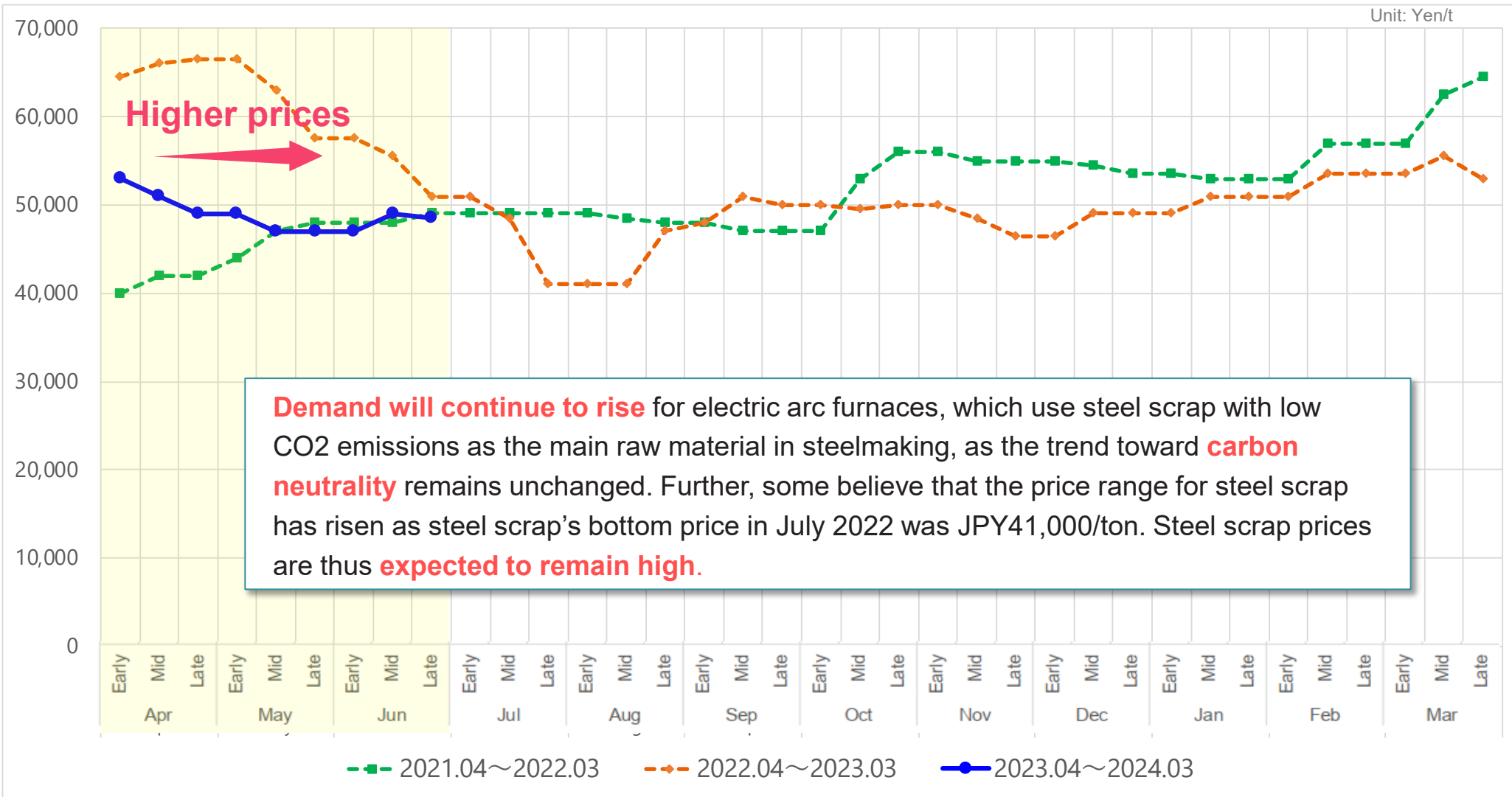
### Waste Treatment & Recycling Business

**We provide reliable and secure processing services and leverage our differentiation through proprietary biomass power plants and recycling plants to achieve**

**stable supplies and secure profits**

## ■ Steel Scrap Market

Tokyo Steel Utsunomiya Plant steel scrap (high grade) price



◆ The steel scrap price, which was JPY53,000/ton at the beginning of the period, fell to JPY47,000/ton in mid-May due to a decline in crude steel production and overseas market conditions.

The price then began to level off due to a sense that prices had bottomed out amid low steel scrap volumes, then after a temporary rise and fall, it reached JPY48,500/ton at end-June.

Although market prices continued to fall, they maintained a high level.

### Resource Recycling Business

Taking advantage of our presence in the Kanto region, which has many sales channels, we are able to **minimize the risk of a market downturn** by reducing our inventory holding period.

# Net Sales, Operating Profit, and Operating Profit Margin by Segment TRE HOLDINGS

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(millions of yen)

	Net sales			Operating profit			Operating profit margin	
	FY2023	FY2024		FY2023	FY2024		FY2023	FY2024
	Q1	Q1	YoY	Q1	Q1	YoY	Q1	Q1
<b>Consolidated</b>	22,842	22,060	96.6%	1,204	1,274	105.8%	5.3%	5.8%
<b>Waste treatment and recycling</b>	5,893	6,689	113.5%	917	1,010	110.1%	15.6%	15.1%
Collection & Transportation / Waste treatment (Note 1)	4,011	4,468	111.4%	553	625	113.0%	13.8%	14.0%
Recycling (Note 1)	1,241	1,621	130.6%	251	334	133.1%	20.2%	20.6%
Landfill (final disposal) (Note 1)	715	650	90.9%	97	41	42.3%	13.6%	6.3%
<b>Resource recycling (Note 2)</b>	13,009	10,721	82.4%	1,163	680	58.5%	8.9%	6.3%
<b>Renewable energy (Note 3)</b>	2,610	3,101	118.8%	-610	-215	-	-23.4%	-7.0%
<b>Other businesses (Note 4)</b>	1,570	1,649	105.0%	-27	2	-	-1.7%	0.1%
<b>Adjustments (Note 5)</b>	-241	-102	-	-238	-202	-	-	-

Note 1: No strict segment adjustments have been made for sub-segments in the Waste Treatment & Recycling business.

Note 2: The Resource Recycling business includes JPY45 million in goodwill related to business integration.

Note 3: The Renewable Energy business includes JPY94 million of amortization of goodwill associated with the acquisition of Green Power Ichihara Co., Ltd.

Note 4: Other businesses consist of the environmental consulting business and the environmental engineering business included in the reportable segments of TAKEEI CORPORATION

Note 5: Adjustments to segment income and loss of -JPY202 million include -JPY209 million in companywide expenses and JPY6 million in intersegment eliminations that are not allocated to any reportable segment. Companywide expenses are general and administrative expenses that do not fall under any reportable segment.

# Volumes by Major Segment

		前期	24年3月期	
		1Q	1Q	前期比
<b>Waste Treatment and Recycling business</b>				
Accepted volume [①] (a+b+c)	( t )	183,441	196,698	107.2%
Collection & Transportation/Waste treatment	[a]	74,785	79,537	106.4%
Recycling	[b]	74,506	89,505	120.1%
Landfill (final disposal)	[c]	34,150	27,656	81.0%
Net sales [②]	(Millions of yen)	5,893	6,689	113.5%
Reference unit price (② ÷ ①)	(Yen/t)	32,125	34,006	105.9%
<b>Resource Recycling business</b>				
Handling quantity [①] (a+b)	( t )	149,403	142,067	95.1%
Spread business (Metal and automobile recycling)	[a]	124,324	117,840	94.8%
Non-spread business (Waste treatment, home electronics recycling)	[b]	25,079	24,226	96.6%
Net sales [②]	(Millions of yen)	13,009	10,721	82.4%
Reference unit price (② ÷ ①)	(Yen/t)	87,073	75,465	86.7%

## Waste Treatment & Recycling

- **Collection and transportation, waste treatment**  
In addition to firm orders for large projects, the reclassification of COVID-19 to Class 5 stimulated activity in various construction projects, leading to an increase in handling volumes.
- **Recycling**  
The volume of waste gypsum board accepted remained solid. The volume handled by TRE GLASS CORPORATION is not included in the Q1 FY03/23 figures as it became a consolidated subsidiary in Q2 FY03/23, while the volume is reflected in the Q1 FY03/24 figures.
- **Landfill**  
Decreased due to the impact of torrential rains and slow waste generation.

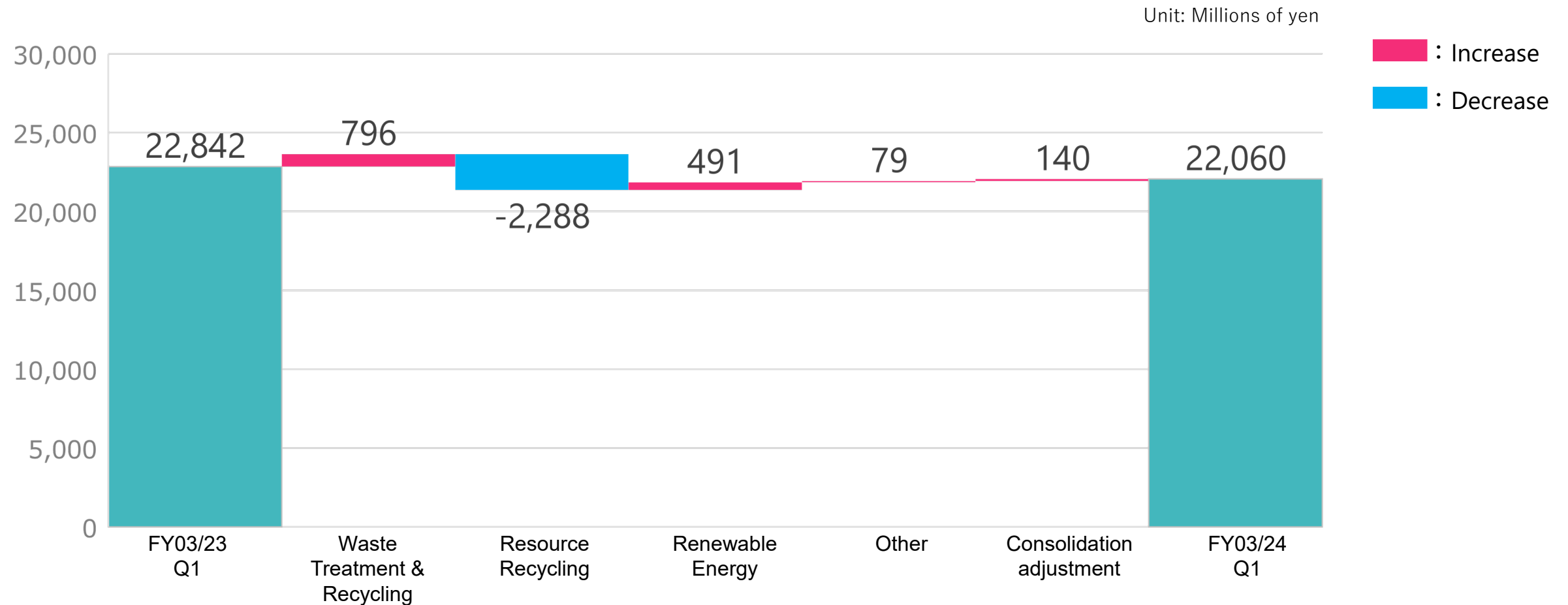
## Resource Recycling

- **Spread business**  
The number of end-of-life vehicles generated continues to decrease. The amount of steel scrap generated in the market has also decreased. However, the number of end-of-life vehicles generated is currently on a recovery trend.
- **Non-spread business**  
Waning pandemic-driven demand and higher prices caused a slowdown in home appliance replacement demand, resulting in fewer waste home appliances.



# Analysis of Change in Net Sales by Segment (vs. Q1 FY03/23)

## Net sales



### Waste Treatment & Recycling business

- Although torrential rains had an impact in some areas, the accepted volume increased as orders for large projects and demolition projects continue to recover.
- TRE GLASS CORPORATION earnings are not included in Q1 FY03/23 (became a consolidated subsidiary in July 2022).

### Resource Recycling business

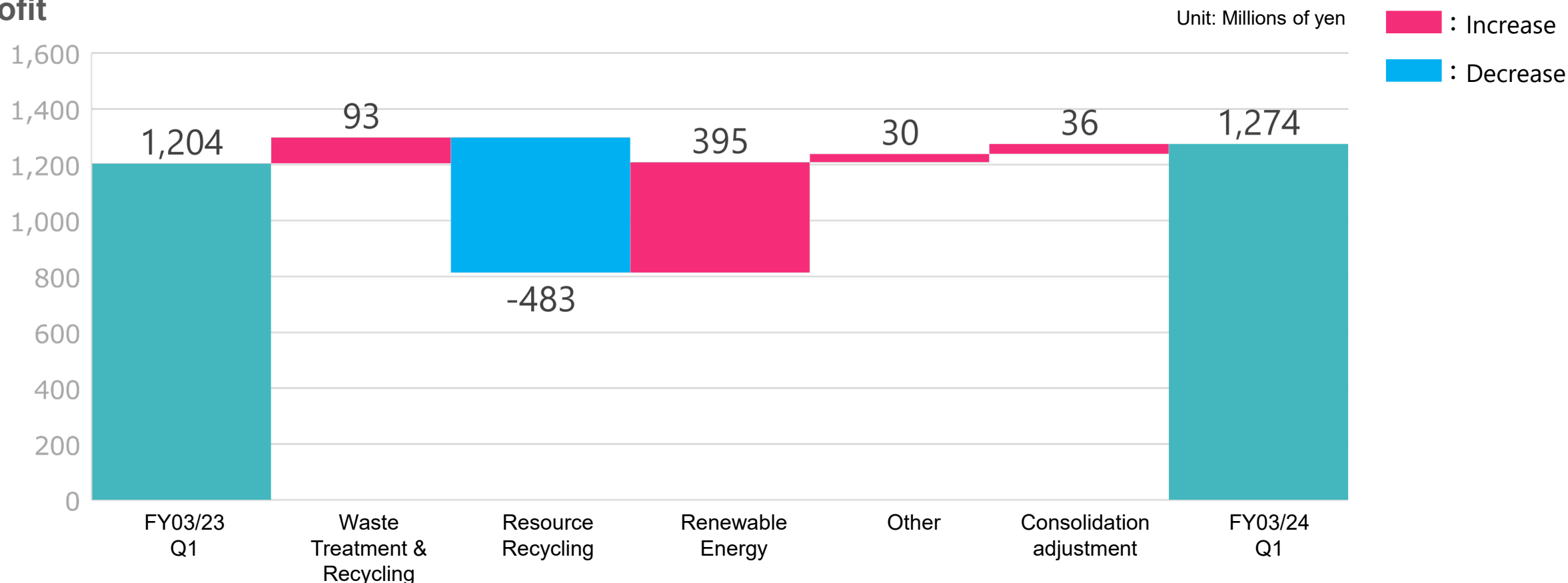
- Sales of steel scrap and sorted ferrous and nonferrous metals decreased due to the low average price of about JPY49,000/ton in Q1 FY03/24 compared with about JPY61,000/ton in Q1 FY03/23, as well as a decline in the volume of scrap handled.
- The handling of waste home appliances also declined.

### Renewable Energy business

- Although operations at Green Power Ichihara Co., Ltd. had been suspended for approximately two months, it achieved high load operations after reopening. The amount of wood deliveries for fuel are increasing at Takeei Green Recycling Co., Ltd.
- Management centralization in the electricity retailing business has successfully enhanced proposal capabilities to customers.

# Analysis of Change in Operating Profit by Segment (vs. Q1 FY03/23)

## Operating profit



### Waste Treatment & Recycling business

- Despite the impact of soaring electricity and fuel costs, we continued efforts for adding value to waste (converting waste into product materials and energy sources) at each recycling plant to boost profits.
- Q1 FY03/23 does not include TRE GLASS CORPORATION earnings before it became a consolidated subsidiary.

### Resource Recycling business

- Gains on sale of sorted ferrous and nonferrous metals declined on low steel scrap prices.
- Lower handling volumes resulted in lower gains on sale of steel scrap and sorted ferrous and nonferrous metals.
- Depreciation expenses and electricity costs increased.

### Renewable Energy business

- Despite the extended suspension of operations at Green Power Ichihara Co., Ltd. due to repairs, operational efficiency and stability were thoroughly improved at each plant.
- In the electricity retailing business, we are strengthening electricity and other sales with non-fossil certificates and promoting cost reductions through centralized management to eliminate outsourcing cost through in-house production.

(millions of yen)

	FY2023	FY2024	
	Q1	Q1	Full-year Forecast
Capital expenditures (Note 1)	1,583	1,824	14,300
Depreciation	1,386	1,372	6,349
Amortization of goodwill (Consolidated)	141	142	572

Note 1: Capital expenditures include property, plant and equipment, intangible assets, and construction in progress.

Note 2: The investment amount of JPY25.0 billion for the three-year period stated in the Medium-term Business Plan, excluding prepaid expenses of JPY8.0 billion, includes expenses for replacement of equipment and vehicles.

## Progress of Medium-term Business Plan for Capital Expenditure

Continued construction of a new final waste disposal facility at Monzen Clean Park Co., Ltd., building reconstruction work at REVER CORPORATION's Fujisawa Plant, and construction of a planned advanced sorting center in Mibu, Tochigi Prefecture.

From FY03/25, as part of the next Medium-term Business Plan currently being formulated, we plan to make extensive capital expenditure in large-scale intermediate treatment plants, waste power generation plants, waste plastic recycling plants, and advanced sorting plants for metal resources to realize the "TRE Integrated Environmental Business (provisional name)" planned in Ichihara, Chiba Prefecture.

## ■ Main capital expenditure for FY03/24 (actual and planned)

		Q1 Actual	Full-year forecast
Monzen Clean Park Co., Ltd.	Disposal site development work, etc.	JPY110 million	JPY6.35 billion
REVER CORPORATION	Northern Kanto New Plant (Mibu)	JPY0 million	JPY1.09 billion
REVER CORPORATION	Fujisawa Plant rebuilding	JPY80 million	JPY660 million
Fuji Car Manufacturing Co., Ltd.	Renewal of equipment and software	JPY70 million	JPY640 million
Shinshu Takeei Co., Ltd.	Renewal of equipment and vehicles	JPY0 million	JPY500 million
Hokuriku Environmental Services Co., Ltd.	Relocation of head office, expansion of disposal site, etc.	JPY0 million	JPY500 million
Green Power Ichihara Co., Ltd.	Replacement of equipment and machinery, etc.	JPY410 million	JPY460 million

- Proceeding on track toward a November start of operations of the controlled final waste disposal facility at Monzen Clean Park Co., Ltd.
- Moved into the implementation phase of plans for the REVER CORPORATION's Mibu Plant (provisional name) planned as the Northern Kanto New Plant. We expect to increase earnings by collecting dust (residue) from shredder process at our plants located in the northern Kanto region for thorough recycling.
- Ordered two overhead cranes to be installed in a new building associated with the reconstruction of the REVER HOLDINGS CORPORATION Fujisawa Plant.

# Medium-Term Business Plan



# Progress of Medium-term Business Plan

(millions of yen)

	First year of Medium-term plan (FY03/22)			Second year of Medium-term plan (FY03/23)			Third year of Medium-term plan (FY03/24)		
	Full-year Results (Note 1) (Note 2)	Full-year Plan	Progress	Full-year Results (Note 2)	Full-year Plan	Progress	Q1 Results	Full-year Plan (Note 2)	Progress
<b>Net sales</b>	<b>90,584</b>	<b>84,000</b>	107.8%	<b>90,712</b>	<b>94,200</b>	96.3%	<b>22,060</b>	<b>95,200</b>	23.2%
<b>Operating profit</b>	<b>10,326</b>	<b>7,700</b>	134.1%	<b>7,509</b>	<b>9,300</b>	80.7%	<b>1,274</b>	<b>8,300</b>	15.3%
<b>Operating profit margin</b>	<b>11.4%</b>	<b>9.2%</b>	124.4%	<b>8.3%</b>	<b>9.9%</b>	83.9%	<b>5.8%</b>	<b>8.7%</b>	-
<b>Profit attributable to owners of parent</b>	<b>7,248</b>	<b>5,050</b>	143.5%	<b>5,197</b>	<b>5,900</b>	88.1%	<b>941</b>	<b>5,400</b>	17.4%
<b>Earnings per share</b>	<sup>(Note 3)</sup> JPY141.1	<sup>(Note 3)</sup> JPY98.3	143.5%	JPY101.2	JPY114.8	88.2%	-	JPY105.1	-

Note 1. Results for TAKEEI CORPORATION and REVER CORPORATION (formerly REVER HOLDINGS CORPORATION), for the period from April to March of the following year, have been combined to make YoY comparisons.

Note 2: Operating profit figures include the effect of goodwill related to business integration (amounting to JPY90 million for FY03/22, JPY178 million for FY03/23, and JPY45 million for Q1 FY03/24).

Note 3: For the first year of the Medium-term Business Plan, earnings per share (EPS) is calculated based on 51,362,030 shares, which is the number of issued shares at the end of FY03/22 minus the number of treasury shares at the end of the same year.

- 1st year: The mainstay Waste Treatment & Recycling and Resource Recycling businesses benefited significantly from a favorable business environment (large-scale projects, favorable unit prices and volumes).
- 2nd year: Unable to fully absorb the effects of a rapidly worsening business environment (fewer end-of-life vehicles, rising electricity and fuel costs, and adverse weather conditions).
- **3rd year (Q1):** In the Resource Recycling business, end-of-life vehicle numbers are recovering, although a decline in the volume of vehicles handled is putting significant pressure on earnings. A recovery is expected in Q2 and beyond in line with the use of new post-shear dust and resin sorting lines installed in FY03/23. We are working to accumulate operating profit both in the Waste Treatment & Recycling business and the Resource Recycling business, by continuing value-adding of delivered materials from each recycling plant in the former, and by improving operational efficiency at each biomass power generation plant and strengthening the sale of electricity with non-fossil certificates in the latter.

# Performance Trends and Plan

(millions of yen)

		First year of Medium-term plan				Second year of Medium-term plan				Third year of Medium-term plan				
		FY03/22				FY03/23				FY03/24				
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1		Plan		
		Apr. 2021 - Jun. 2021	Jul. 2021 - Sep. 2021	Oct. 2021 - Dec. 2021	Jan. 2022 - Mar. 2022	Apr. 2022 - Jun. 2022	Jul. 2022 - Sep. 2022	Oct. 2022 - Dec. 2022	Jan. 2023 - Mar. 2023	Apr. 2023 - Jun. 2023	YoY	Apr. 2023 - Mar. 2024	Progress	
<b>Consolidated</b>	Net sales	21,522	21,904	23,961	23,194	22,842	21,367	23,471	23,030	22,060	-3.4%	95,200	23.2%	
	Operating profit	2,227	2,615	2,968	2,515	1,204	1,890	2,437	1,978	1,274	+5.8%	8,300	15.3%	
	Operating profit margin	10.3%	11.9%	12.4%	10.8%	5.3%	8.8%	10.4%	8.6%	5.8%	+9.6%	8.7%	-	
<b>Waste treatment and recycling</b>	Net sales	6,012	6,211	6,644	6,277	5,893	6,245	7,020	6,503	6,689	+13.5%	27,757	24.1%	
	Operating profit	1,020	1,214	1,596	1,282	917	967	1,379	945	1,010	+10.1%	4,346	23.2%	
	Operating profit margin	17.0%	19.5%	24.0%	20.4%	15.6%	15.5%	19.7%	14.5%	15.1%	-2.9%	15.7%	-	
	<b>Collection &amp; Transportation / Waste treatment</b> (Note 2)	Net sales	4,179	4,191	4,588	4,440	4,011	4,146	4,697	4,380	4,468	+11.4%	17,792	25.1%
		Operating profit	590	550	1,011	927	553	674	978	698	625	+13.0%	2,716	23.0%
		Operating profit margin	14.1%	13.1%	22.1%	20.9%	13.8%	16.3%	20.8%	15.9%	14.0%	+1.5%	15.3%	-
	<b>Recycling</b> (Note 2)	Net sales	1,096	1,301	1,254	1,376	1,241	1,454	1,568	1,430	1,621	+30.6%	6,348	25.5%
		Operating profit	274	440	332	231	251	200	236	176	334	+33.1%	1,014	32.9%
		Operating profit margin	25.0%	33.9%	26.5%	16.8%	20.2%	13.8%	15.1%	12.4%	20.6%	+2.0%	16.0%	-
	<b>Landfill (final disposal)</b> (Note 2)	Net sales	819	716	876	715	715	696	808	684	650	-9.1%	3,616	18.0%
		Operating profit	171	194	238	107	97	76	151	52	41	-57.7%	615	6.7%
		Operating profit margin	20.9%	27.1%	27.2%	15.1%	13.6%	11.0%	18.7%	7.7%	6.3%	-53.5%	17.0%	-
<b>Resource recycling</b> (Note 3)	Net sales	11,293	11,057	12,277	11,789	13,009	9,862	10,839	11,154	10,721	-17.6%	45,550	23.5%	
	Operating profit	1,293	1,373	1,452	1,334	1,163	471	750	754	680	-41.5%	3,796	17.9%	
	Operating profit margin	11.5%	12.4%	11.8%	11.3%	8.9%	4.8%	6.9%	6.8%	6.3%	-29.1%	8.3%	-	
<b>Renewable energy</b> (Note 4)	Net sales	3,089	2,976	3,395	3,155	2,610	3,845	3,654	3,683	3,101	+18.8%	13,891	22.3%	
	Operating profit	-83	-61	-8	-152	-610	599	332	366	-215	-	771	-27.9%	
	Operating profit margin	-2.7%	-2.1%	-0.2%	-4.8%	-23.4%	15.6%	9.1%	9.9%	-7.0%	-	5.6%	-	
<b>Other</b>	Net sales	1,365	1,808	1,814	2,113	1,570	1,633	2,204	1,965	1,649	+5.0%	8,710	18.9%	
	Operating profit	-10	93	126	232	-27	48	174	128	2	-	483	0.4%	
	Operating profit margin	-0.8%	5.1%	7.0%	11.0%	-1.7%	3.0%	7.9%	6.5%	0.1%	-	5.5%	-	
<b>Adjustments</b>	Net sales	-238	-149	-170	-142	-241	-219	-246	-277	-102	-	-708	-	
	Operating profit	7	-3	-199	-181	-238	-196	-200	-216	-202	-	-1,096	-	

Note 1: Results for TAKEEI CORPORATION and REVER CORPORATION (formerly REVER HOLDINGS CORPORATION), for the period from April to March of the following year, have been combined to make YoY comparisons.

Note 2: No strict segment adjustments have been made for sub-segments in the Waste Treatment & Recycling business.

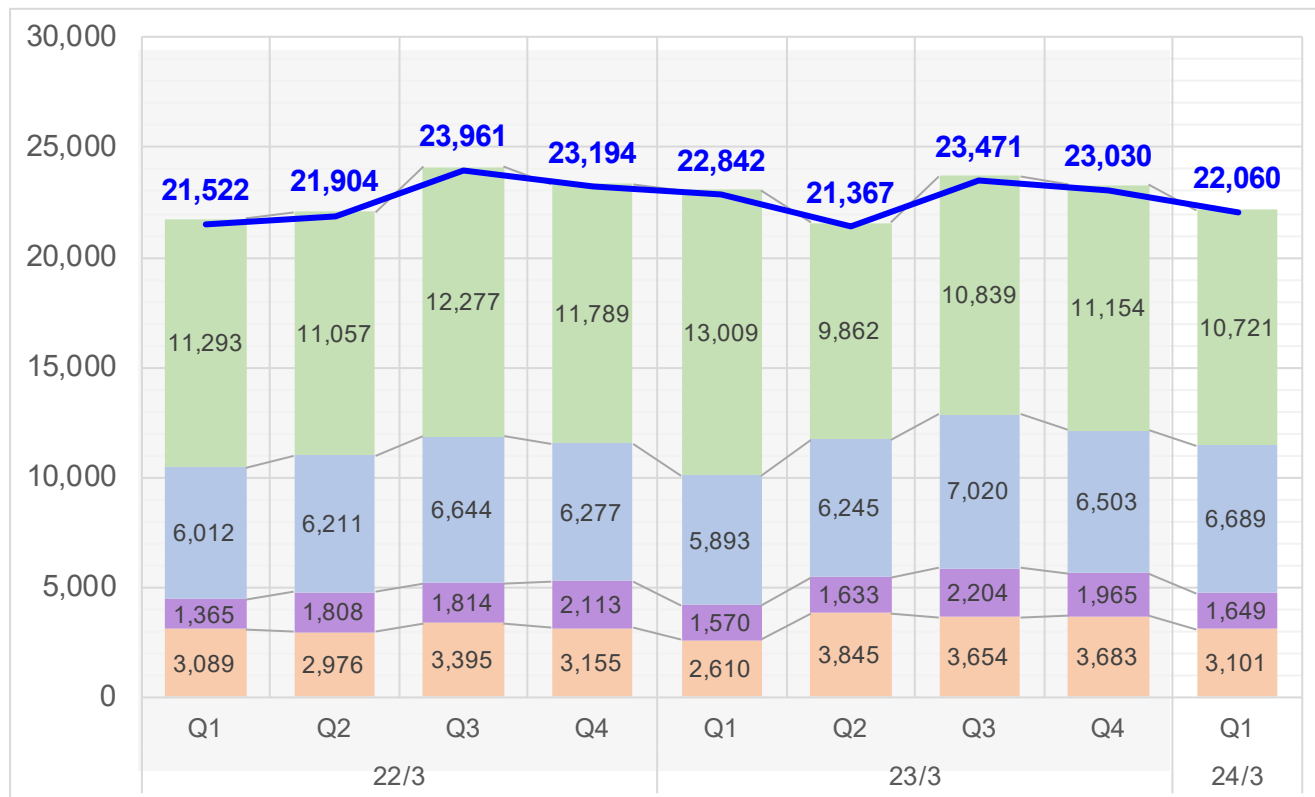
Note 3: Operating profit figures include the effect of goodwill related to business integration (amounting to JPY90 million for FY03/22, JPY178 million for FY03/23, and JPY45 million for Q1 FY03/24).

Note 4: Renewable Energy business operating profit include the effect of goodwill related to Green Power Ichihara Co., Ltd. (amounting to JPY294 million for FY03/21, JPY376 million for FY03/22, and JPY378 million for FY03/23 onward).

# Net Sales and Operating Profit Trends

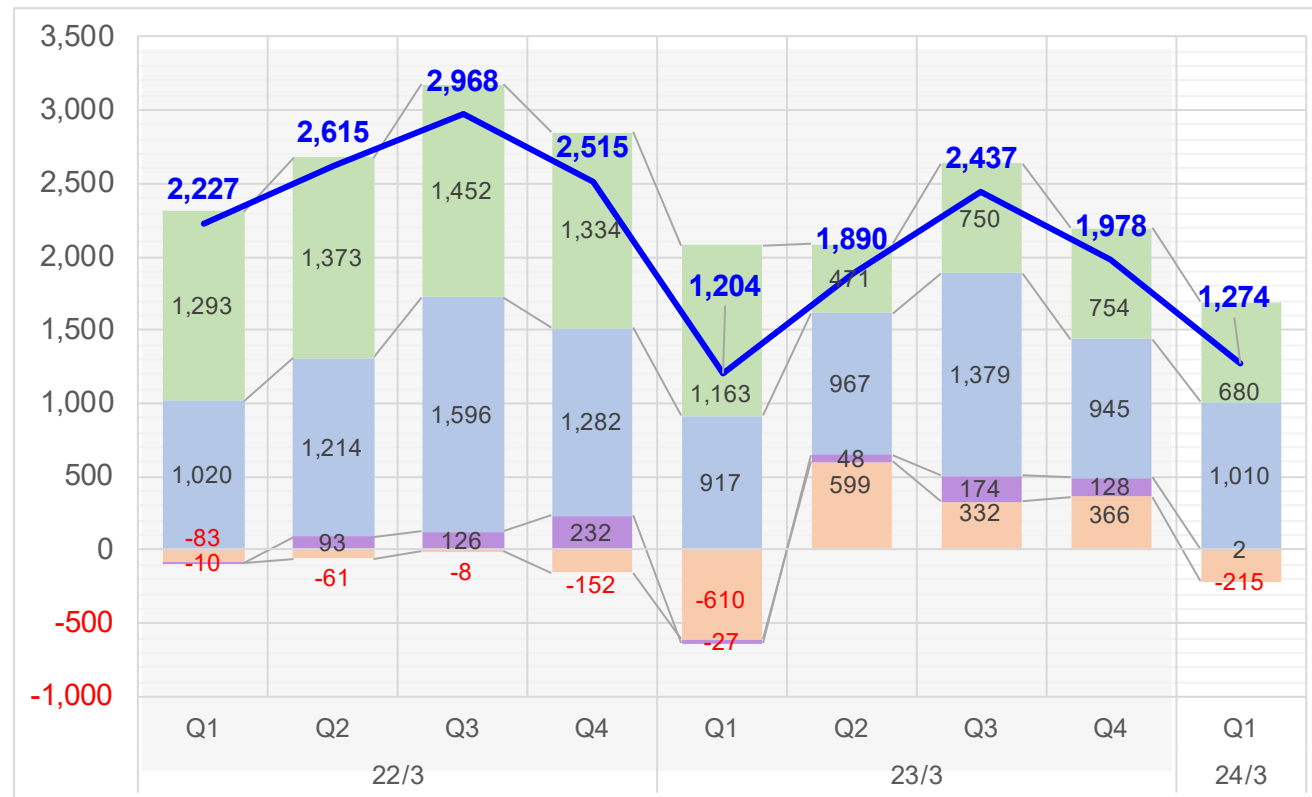
## Net sales

(millions of yen)



## Operating Profit

(millions of yen)



### Waste Treatment & Recycling business

- Sales are improving on orders for large projects and other activities that had been postponed but are now on a recovery track as the pandemic subsides.
- Despite the impact of soaring electricity and other costs, we will maintain the value-adding of delivered materials and secure profits.

### Resource Recycling business

- In FY03/22, we focused efforts on the utilization of shredder equipment, and earnings expanded amid a favorable business environment.
- From FY03/23 onward, earnings have stagnated due to falling resource prices impacted by the conflict between Russia and Ukraine, as well as fewer end-of-life vehicles.

### Renewable Energy business

- As in Q1 FY03/23, despite an extended suspension of operations due to repair work at Green Power Ichihara Co., Ltd. in Q1 FY03/24, stable operations at each biomass power generation plant and profit contributions from electricity retailing helped to significantly reduce losses.

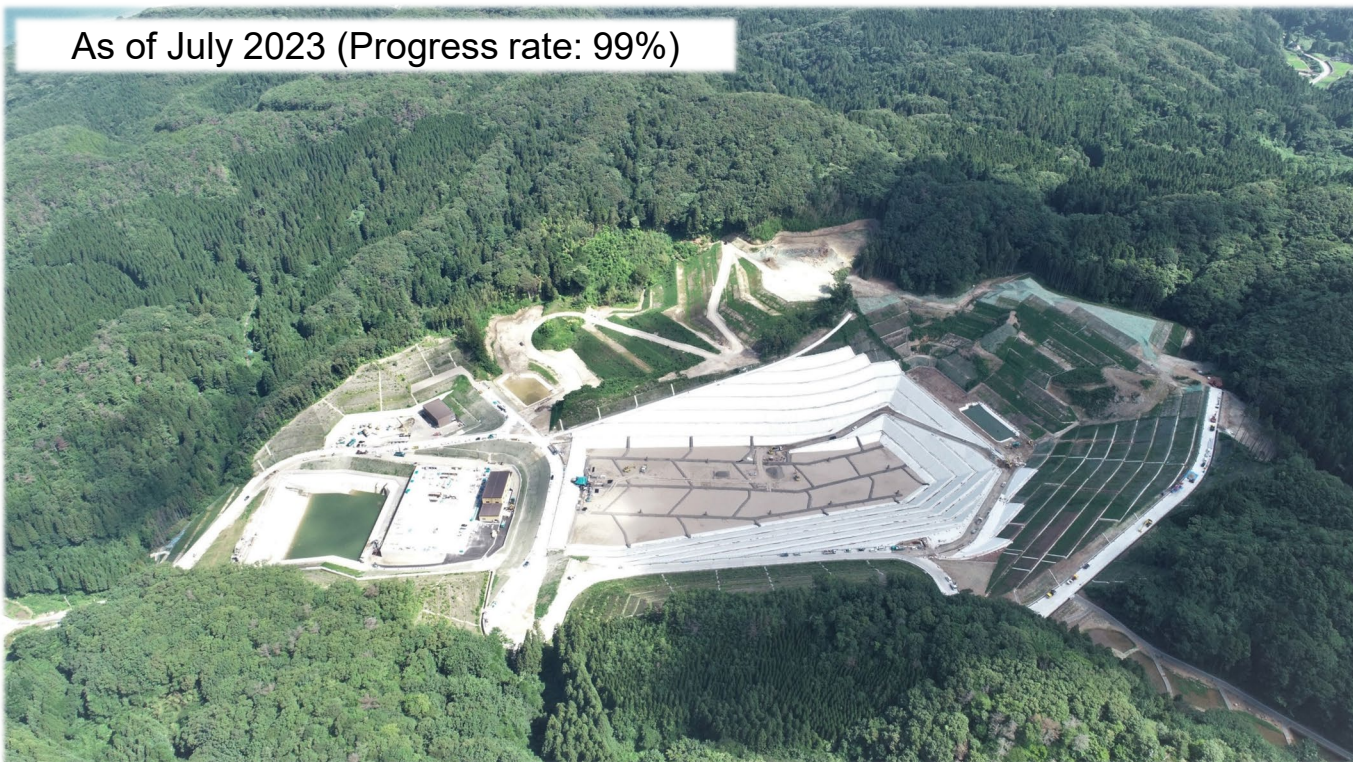
# TOPICS

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As of July 2023 (Progress rate: 99%)



Planned landfill site



Completed control building

Total landfill capacity is equivalent to approx. 2.8x that of Tokyo Dome  
(capacity of Tokyo Dome = 1.24mn m<sup>3</sup>)

	Phase 1	Phase 2	Phase 3	Total
Landfill area	5.16ha	8.46ha	5.75ha	<b>17.26ha</b>
Landfill capacity	836,000 m <sup>3</sup>	1,731,000 m <sup>3</sup>	864,000 m <sup>3</sup>	<b>3,431,000 m<sup>3</sup></b>
Landfill period	11 years, 7 months	24 years, 6 months	11 years, 9 months	<b>47 years, 10 months</b>

(Note) The sum of the landfill areas for phase 1 through phase 3 do not match as some areas overlap.

- Construction work on the planned landfill site has been delayed due to repeated torrential rains and other factors, but is expected to be completed soon.
- Future plans include administrative inspections of completed facilities, additional preparations to commence operations, and construction of a public road that will serve as a delivery route to the disposal site.
- In a [press release issued on May 15, 2023](#), we announced that the commencement of operations scheduled for October **has been changed to November** due to torrential rains and other factors.

We will continue preparing for the commencement of operations with due consideration for the environment, and appreciate your continued understanding and cooperation.

Construction progress can also be viewed on the Monzen Clean Park website (Japanese only):

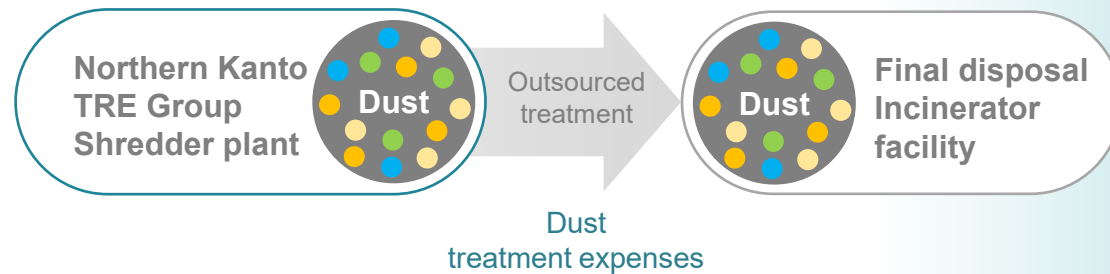
[.https://www.takeei.co.jp/mzcp/index.html](https://www.takeei.co.jp/mzcp/index.html)

## Advanced Sorting Center: REVER CORPORATION Mibu Plant (provisional name) ~ Operational in August 2025

A new plant was built to sort valuable materials (metals and plastics) from dust (residue) after shredding by large shredders.

### Dust treatment issues

- Unsorted in **landfills and incinerators**
- Outsourcing involves **high treatment costs**

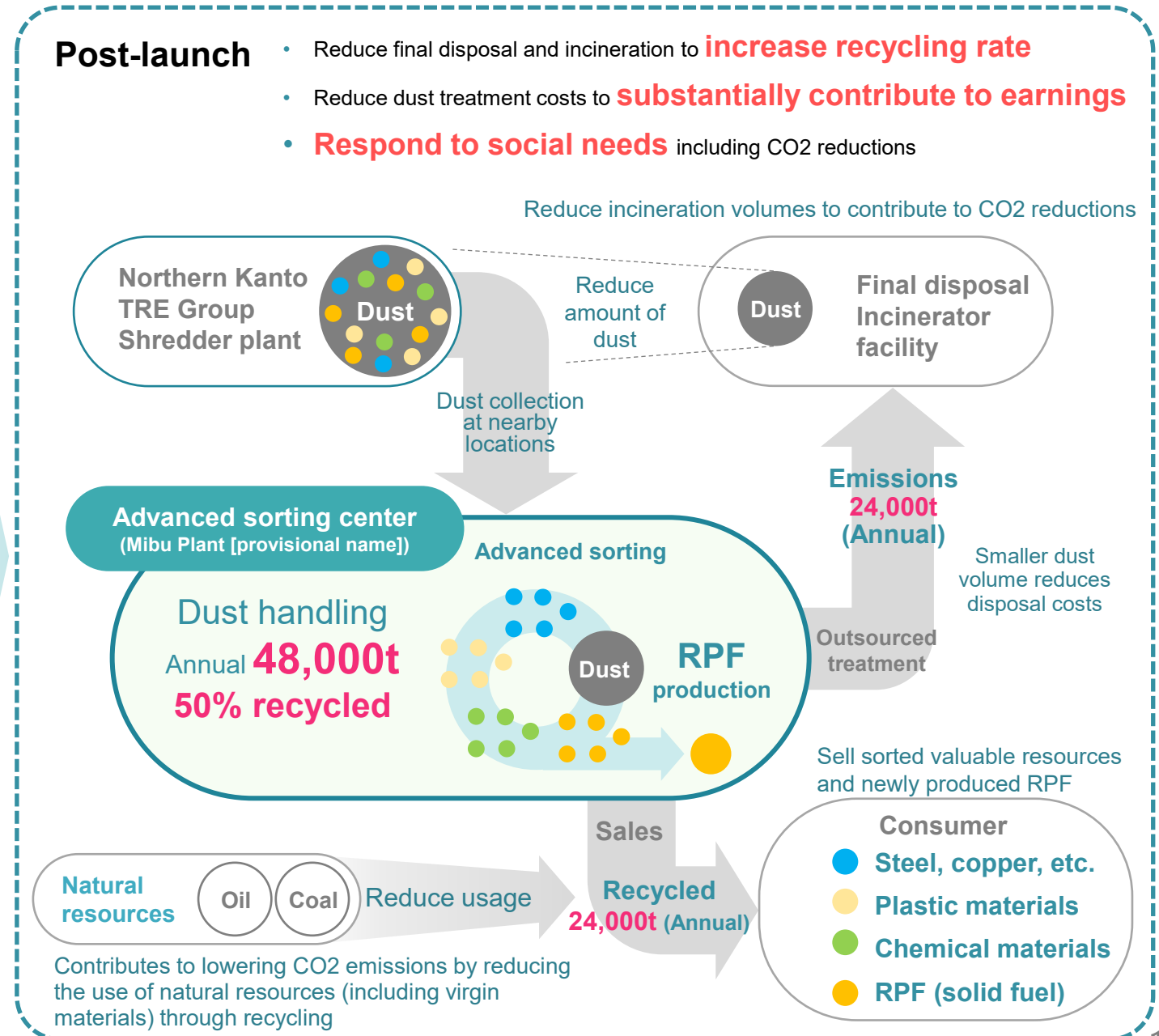


### Societal needs

- Realization of carbon neutrality via **CO2 reductions**
- Accelerated efforts to **utilize recycled materials** in plastic products to realize circular economy
- **Increased demand for RPF (solid fuel)** as an alternative to fossil fuels with a low environmental impact

### Post-launch

- Reduce final disposal and incineration to **increase recycling rate**
- Reduce dust treatment costs to **substantially contribute to earnings**
- **Respond to social needs** including CO2 reductions



## Business Alliance with Sumitomo Chemical Co., Ltd. (April 2023)

- In the EU, there is a growing movement to make the **inclusion of recycled materials a mandatory requirement** for major plastic products.
- The trend toward the **commercialization of products using recycled materials** is also gaining momentum in Japan, with the **potential for systematic implementation**.
- There is a sense of crisis among **domestic automakers and related parts suppliers** with global operations.

Projected demand for recycled plastics used in automobile production

**390,000 tons annually**

(Source: TRE HOLDINGS)

Automotive material manufacturing technologies



**SUMITOMO CHEMICAL**



End-of-life vehicle disassembling and sorting know-how



**REVER**

Aiming to establish a “Car to Car” scheme for recycling waste plastic recovered from end-of-life vehicles into automobile parts.

## Business Alliance with Hitachi Zosen Corporation (May 2023)

- Many regions are required to **revise their waste treatment systems, including facility upgrades** (wide-area expansion, consolidation, etc.).
- Urgently need to curb emissions of plastic product waste, promote recycling, and reduce CO2 emissions from incineration.**
- Recovery and recycling opportunities exist because the **recovery of valuable resources from incinerated ash** has yet to advance.

Incineration facilities in East Japan  
Demand for equipment renewal  
(within 15 years)

Appx. **150 facilities**

(Source: TRE HOLDINGS)

Works with local governments to design, construct, and operate waste power generation facilities



**Hitachi Zosen Corporation**



**TRE HOLDINGS**

Recycling technologies facilitating thorough resource recovery Integrated treatment systems for collection and transportation to final disposal

Municipal waste sorting opportunities

**2.96 million tons annually**

(Source: Plastic Waste Management Institute)

Aiming to promote public-private partnership projects, effectively deploy high-efficiency waste power generation and recycling facilities across regions, and jointly commercialize waste plastic and incinerator ash recycling.

## TAKEEI Forestry Co., Ltd.

- Collaborating with Hanamaki Biomass Power Generation Co., Ltd., and Hanamaki Biomass Chip Co., Ltd., on the creation of a scheme for the collection of underused forest resources from company-owned forests for conversion into chips that will be supplied as fuel for power generation.
- Forests are being acquired in the suburbs of Hanamaki, with plans to steadily expand company-owned forests (immediate goal: 1,000 hectares).
- The volume of timber handled has also increased, and business performance is favorable.
- TAKEEI Forestry Co., Ltd. handles fuelwood procurement, afforestation, and reforestation, and supplies fuel chips to TRE Holdings Group power generation plants, with the renewable energy generated handled by retail electricity operator Takeei Denki Co., Ltd., embodying the “upstream to downstream” business scheme.



Forest illuminated by sunlight after thinning by Takeei Green Recycling Co., Ltd.

## Regular Maintenance Plan for Each Power Plant

	Years in operation	Main maintenance & inspection contents	Q1	Q2	Q3	Q4
Tsugaru Biomass Power Generation Co., Ltd.	8	Boilers, turbines	○		◎	
Hanamaki Biomass Power Generation Co., Ltd.	7	Boilers, fuel supply equipment, etc.	○		○	
Daisen Biomass Power Generation Co. Ltd.	5	Boilers, turbines, etc.	○	*2	○	
Takeei Green Recycling Co., Ltd.	4	Boilers, turbines, etc.	*1	◎		○
Green Power Ichihara Co., Ltd.	17	Boilers, turbines, etc.	○		○	
Tamura Biomass Power Generation Co., Ltd.	3	Boilers, fuel supply equipment	○	○		

◎Statutory inspections (once every two years for boilers, once every four years for turbines) ○Regular maintenance

Note 1: In Q1, Green Power Ichihara Co., Ltd. replaced equipment deemed necessary during inspections in FY03/23, and conducted regular maintenance. Although the planned 40-day suspension period at the beginning of FY03/24 was extended by about 10 days, the Company continued high-load operations after restart.

Note 2: In July 2023, Takeei Green Recycling Co., Ltd. plans to conduct statutory inspections and implement permanent countermeasure work for stable operations.

## 1. Basic Approach

The TRE Group aims to further strengthen its functions and expand its scale as a comprehensive environmental company playing a central role in the creation of an efficient recycling and a carbon-neutral society. In other words, the industry will be transformed from one that accepts, treats, and disposes of waste, to an **industry that generates resources from waste**.

## 2. Basic Strategy

**Pursuing growth for recycling businesses**

**Expand TRE Group functions and facility capabilities and promote the realization of cross-industrial collaborations.**

Example: Respond to substantial future needs for the recycling of glass contained in solar panels and automobile windshields, mainly through strategic subsidiary TRE GLASS CORPORATION.

**Promoting eco-friendly energy businesses**

- ① **Promote biomass power generation business and thermal recovery of waste.**
- ② **Promote acquisition of forests and utilization of forest resources through TAKEEI Forestry Co., Ltd.**
- ③ **Expand sales of renewable energy, including electricity with non-fossil certificates.**

**Development of new technologies**

**Budget 1% of sales for R&D investments, etc. (including industry-academia-government collaborations for social implementation as an environmental project).**

Example: In anticipation of the societal shift to EVs, we are promoting the development of advanced technologies for the disassembling and sorting of batteries removed from collected automobiles and the recycling of rare metals.

**Sustainability management**

**Set KPIs quantified as non-financial targets for the five priority material issues.**

Example: Within non-financial KPIs, we plan to raise funds through sustainability-linked bonds connected to predefined achievement targets for TRE Group recycling efficiency and CO2 emissions reduction.

## 3. Management Indicators

**Revised ROE target**

**Current Medium-term Business Plan target is 8% or more, which will be raised to 10% or more in the future.**

**Shareholder returns**

**Current Medium-term Business Plan targets a dividend payout ratio of 30% or more, and in the future, a total return ratio of 35–40% (share buybacks may be considered, depending on share price levels).**

# APPENDIX

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Challenges in the macro environment



Social needs



Our response

**Two companies sharing the same passion for the global environment decided to come together to jointly invest capital and boost efficiency.**

On October 1, 2021, TAKEEI CORPORATION and REVER HOLDINGS CORPORATION established a joint holding company with the aim of leveraging all economic resources to create synergies.



## TREホールディングス株式会社

*Try*

*Technology  
Recycling  
Renewable Energy*

*Earth Ecology*

*Try*

*Developing new technologies  
Enhancing the Recycling business  
Promoting the Renewable Energy business  
Preserving the Global Environment*

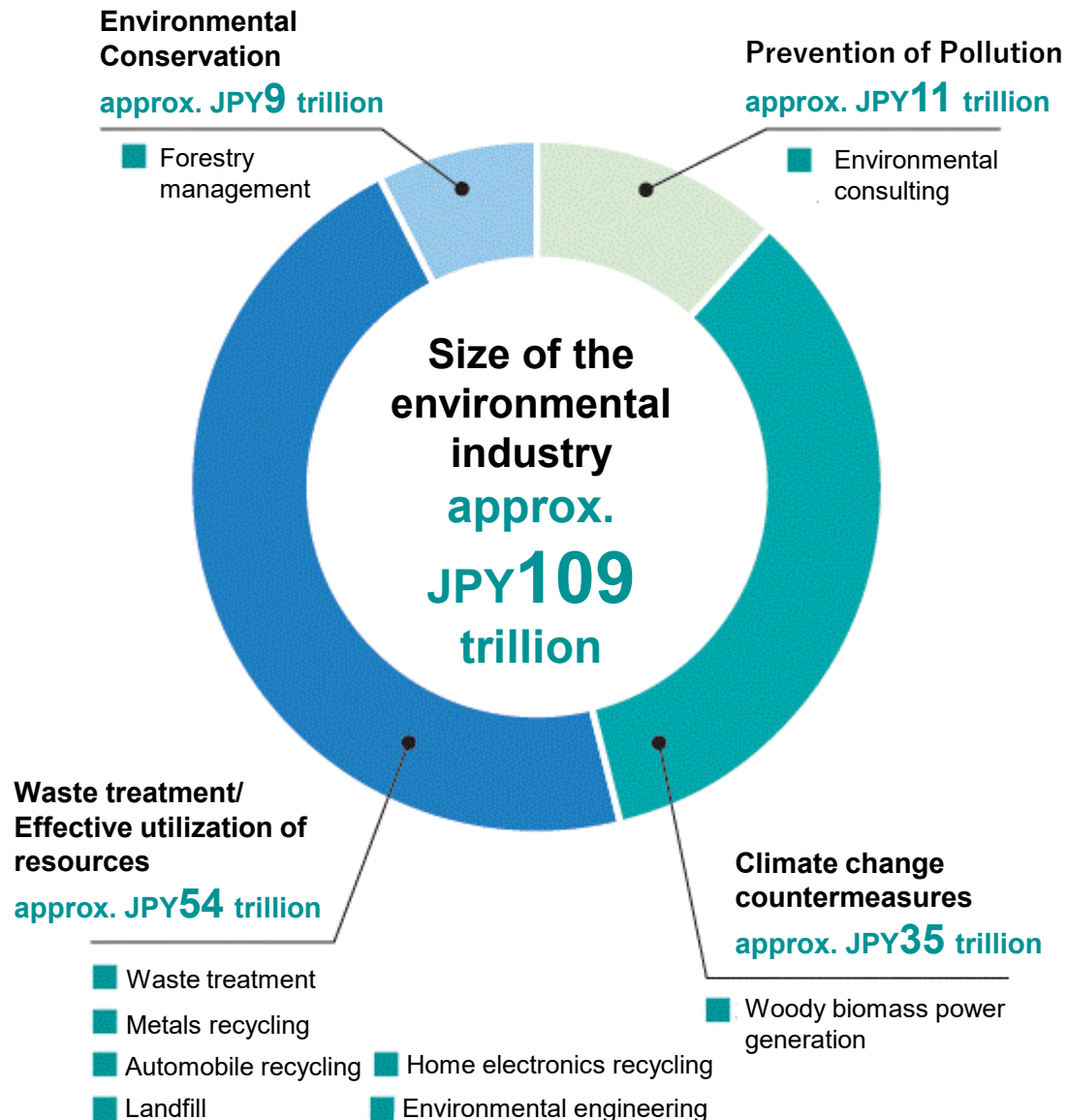
<b>Corporate Philosophy</b>	We are committed to the conservation of the global environment.
<b>Establishment</b>	October 1, 2021
<b>Headquarters</b>	Chiyoda-ku, Tokyo
<b>Representative Directors</b>	Naoto Matsuoka, Chairman and CEO  Mitsuo Abe, President and COO
<b>Capital stock</b>	JPY10.0 billion
<b>Number of employees</b>	2,199 employees (on a consolidated basis)
<b>Group Businesses</b>	Waste treatment and recycling, resource recycling, renewable energy, environmental engineering, environmental consulting
<b>Subsidiaries, etc.</b>	32 subsidiaries, 6 equity-method affiliates
<b>Number of locations</b>	64 locations in Tokyo metropolitan area as well as Tohoku, Hokuriku, Koshin and Kansai regions, 1 overseas location in Thailand
<b>Key customers</b>	Major construction companies, home builders, major steel companies, trading companies, etc.

As of End-June 2023



## Market size of Japan's environmental industry

approx. **JPY109 trillion**



Source: "Report on the Size of the Environmental Industry Market and Employment" by the Environmental Industry Market Size Study Group, released June 2023 (2021 edition)

## Macro trends in Japan's environmental industry

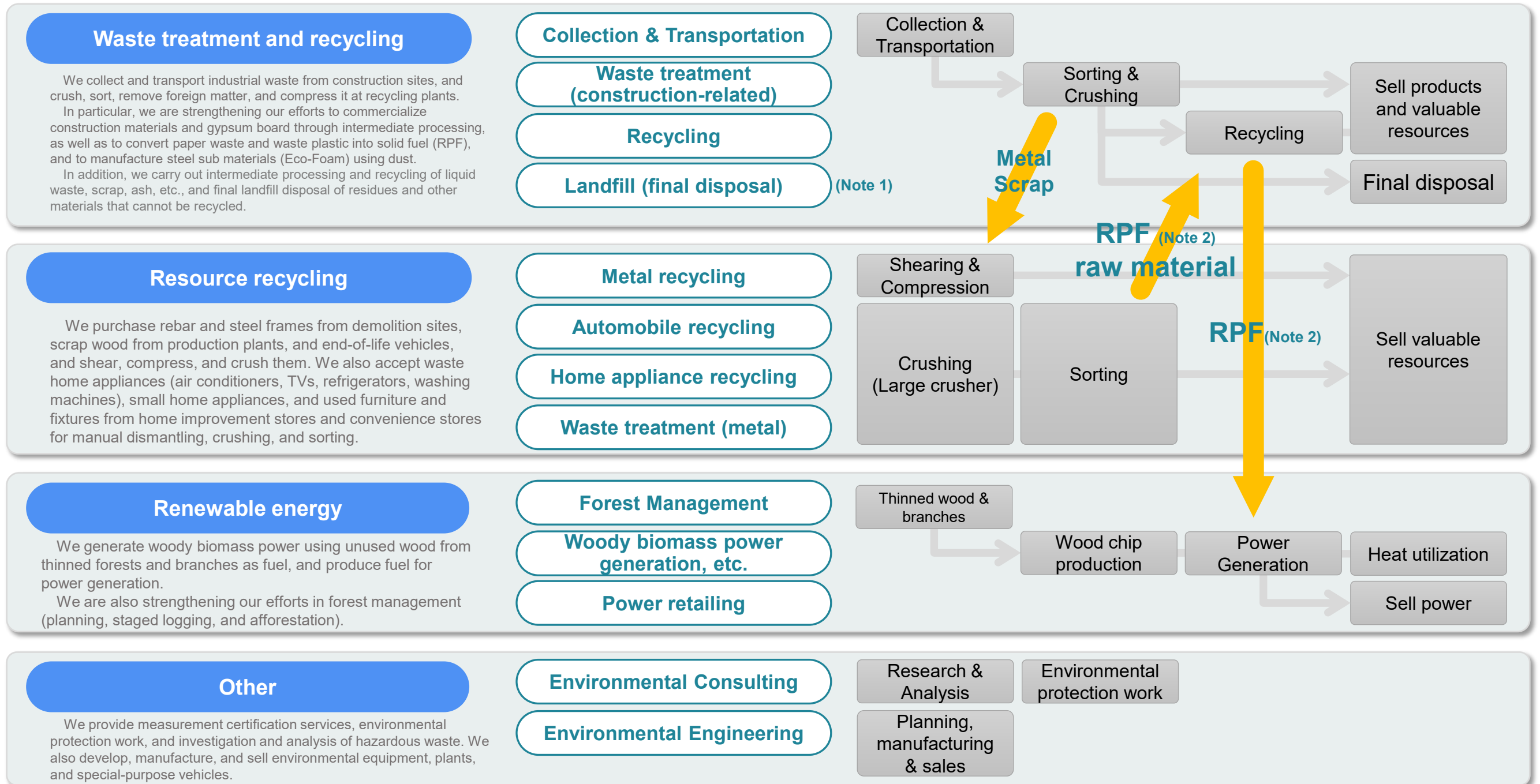
(June 2023 Ministry of the Environment statistics)

- The market shows high growth potential in the long term, despite the negative impact of the COVID-19 pandemic on each indicator YoY.
- The market size of Japan's environmental industry is estimated at JPY109 trillion, about 1.7 times that of 2000.
- The estimated scale of employment in Japan's environmental industry is about 2.8 million, about 1.4 times that of 2000.
- The value of exports from the environmental industry is estimated at JPY17 trillion, about 9.7 times that of 2000.
- The value of imports of the environmental industry is estimated at JPY5 trillion, about 9.1 times that of 2000.
- Added value in the environmental industry is estimated at JPY46 trillion, about 1.5 times that of 2000.
- The economic ripple effect of the environmental industry is estimated at JPY205 trillion, about 1.8 times that of 2000.

## The Ministry of the Environment's circular economy process chart

(From the Ministry of the Environment's Central Environmental Council, August 25, 2022)

- **The goal is to increase the market size of businesses related to the circular economy from the current JPY50 trillion to more than JPY80 trillion by 2030.**



Note 1: Use former disposal site as a golf course or for solar power generation

Note 2: RPF is a solid fuel made mainly from recycled paper and waste plastics. It is high in calories and emits less CO2 than fossil fuels.

# Resource Circulation Business Scheme

Waste treatment and recycling business

Resource recycling business

Renewable Energy business

We operate mainly in the Kanto area, which has a large amount of waste and strong demand for recycled products and renewable energy.

With one of the largest processing capacities, numerous locations, and a large fleet of vehicles, we are able to meet the social needs of a circular economy.

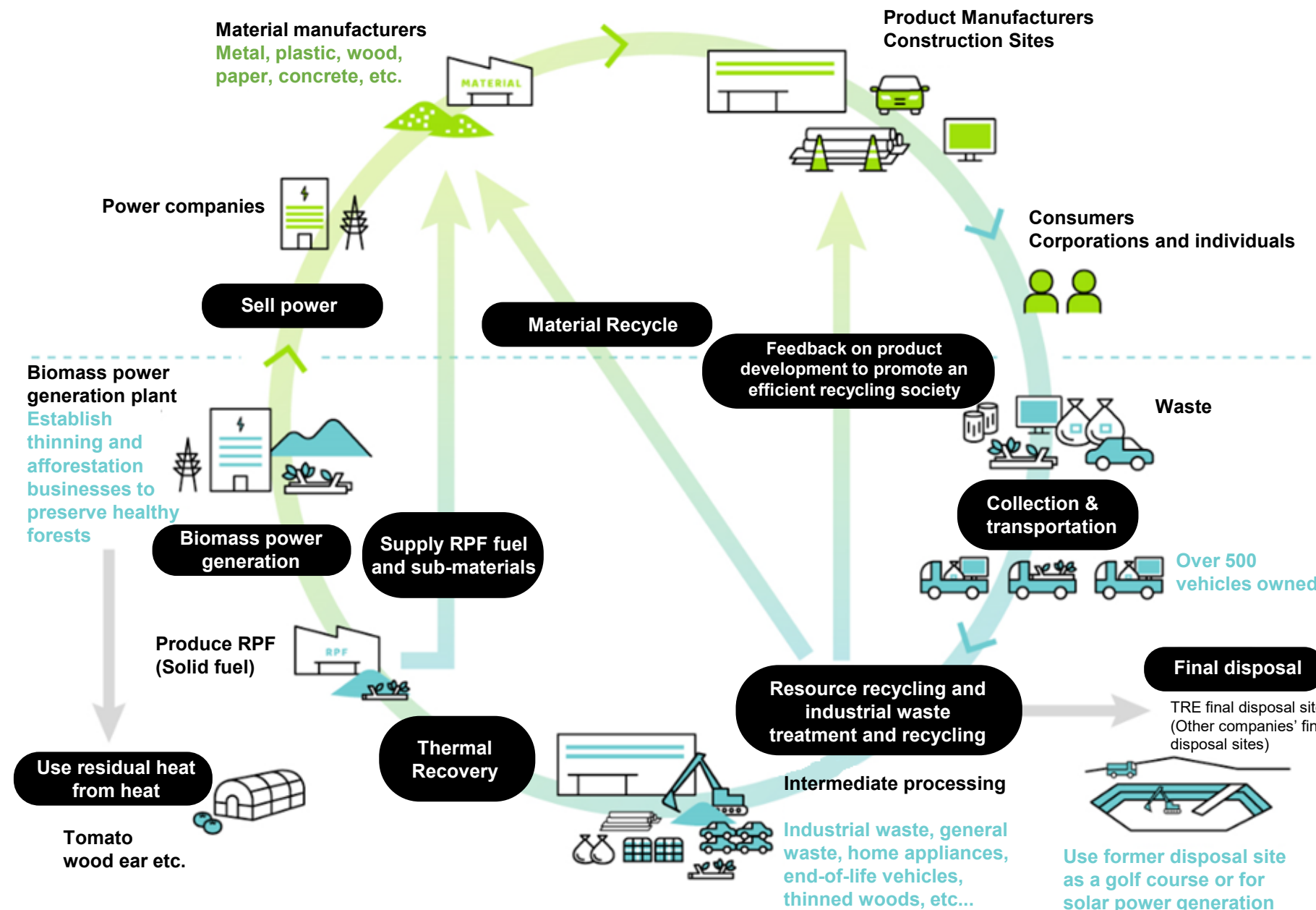
Group volume Appx. **2 million tons** per year

Intermediate processing and recycling facilities, etc. Appx. **60** locations

vehicles owned Appx. **500** vehicles

Number of large crushers **6** crushers in Kanto region

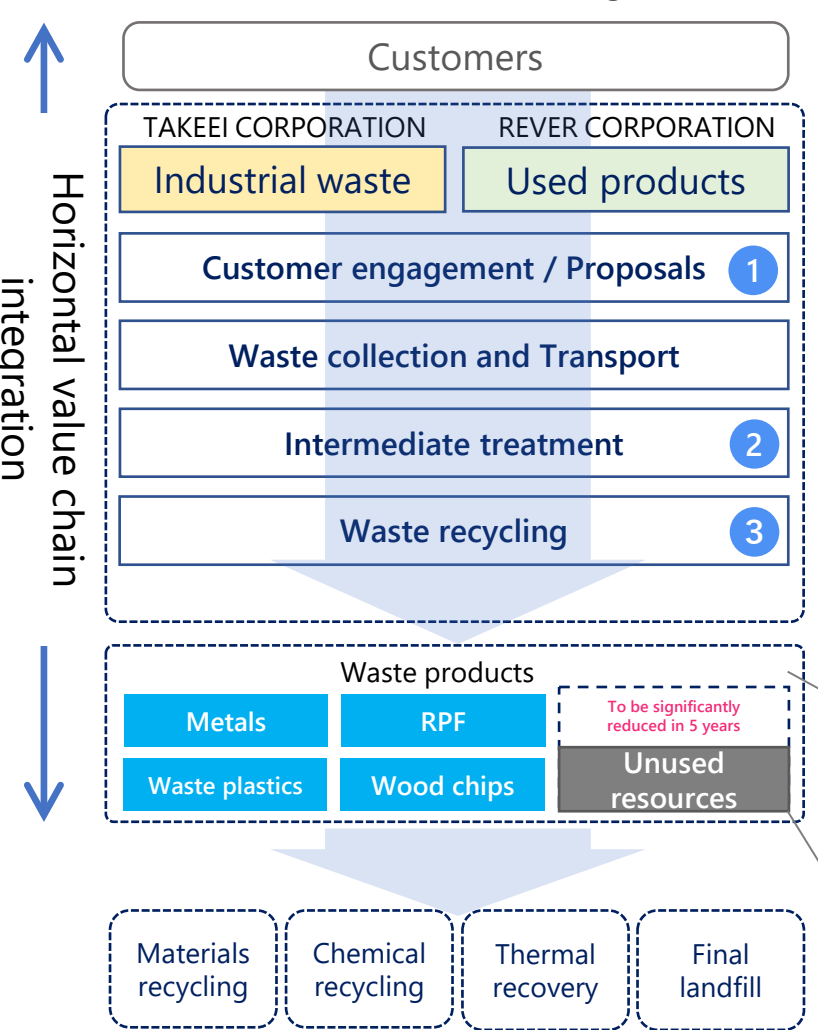
Note: Large crushers refer to crushers with a main body horsepower of at least 1,000 horsepower.



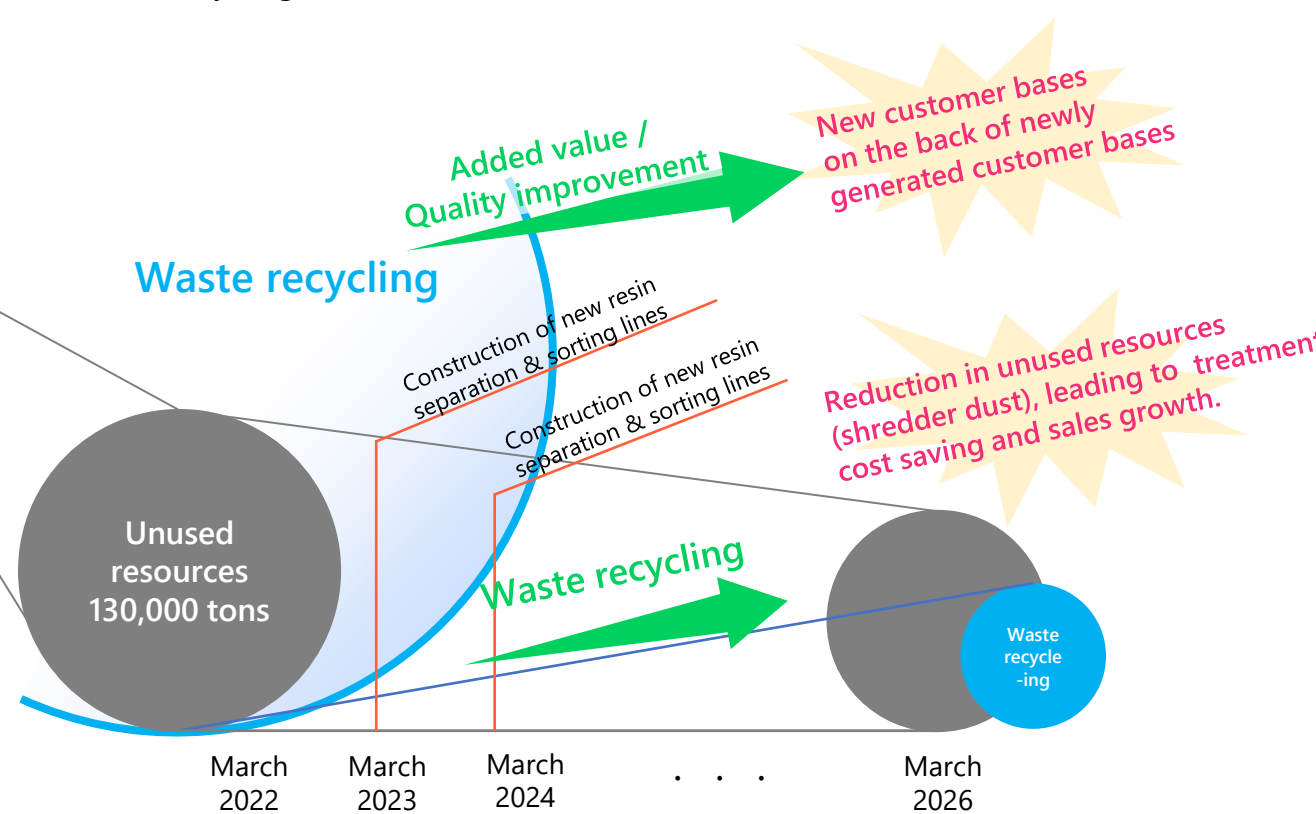
Generation of synergies by integrating and restructuring value chains

Extension of the recycling business

Horizontal value chain integration



- Through mutual sharing of the two companies' years of accumulated expertise and insights, we are set to offer an integrated service, ranging from 'collection of discarded valuable resources and waste products' to 'recycling proposals' whilst 'improving the quality of service'. 1
- We are determined to press on with capital investment and technological development in an effort to 'add value to' waste products, and 'recycle unused resources (i.e. shredder dust)' on which the TRE Group has not fully capitalized.
  - We aim to step up a separation & sorting function in the intermediate treatment operation to increase the production of RPF (a high valued-added solid fuel for power generation, mainly made from waste plastics) and 'Eco-form' (a subsidiary material applied in the iron making process). 2
  - We are ready to adopt advanced research findings and technologies to drive plastic recycling and other resource recycling initiatives. 3



What is RPF?  
 RPF (recycled plastic fuel) is a solid fuel mainly made from used paper and waste plastics. It is high in calories but releases fewer fossil.



Planned reinforced separation & sorting lines

Recycling unused resources

Extension of the recycling business

◆ RPF



We filter mixed waste for paper, textile and plastics. These are compressed and molded into a solid fuel material - 'RPF'. We plan to increase RPF production by applying this method to shredder dust among others.



Effective use of solid fuel for power generation (RPF)

RPF is a recycled material used to fuel biomass power generators and thermal recycling facilities. Among TRE Group companies, Green Power Ichihara Co., Ltd. and TAKEEI Green Recycling Co., Ltd.'s Yokosuka Plant use RPF to fuel their power generators (they are positioned as the final intergroup users).

The RPF production is expected to serve as a stable waste receiver for the new Group as well as a facilitator to recycle unused resources.

◆ Eco-form®



Dust residue contained in waste is collected with a dust collection system. The collected dust is then compressed and molded into a solid material by a compressor.

We are leveraging the production of 'Eco-form®' (a subsidiary material applied in the iron making process) to speed up process in 'resource recycling'.



An additive agent (forming suppressant) in the iron making 'converter'.

Eco-form is an additive agent used in the 'converter' that smelts iron ore. The agent prevents the slag from forming, helping produce high-quality iron. (TAKEEI Tokyo Plant already expanded its Eco-form production line in September 2020).

As each iron mill employs different quality standards, we are working on production of various added-value models to enhance the appeal of demand for recycled materials.

◆ Eco-flake



Waste carpet tiles are technically difficult to recycle, therefore many of them are discarded in landfill. In light of this, we have built a mill exclusively designed to recycle waste carpet tiles where the top textile layer is ripped off the bottom PVC layer, facilitating the recycling of this waste resource.



Recycling the PVC (polyvinyl chloride) layer to produce a reclaimed material. Eco-flake:



Waste carpet tiles are recycled into reclaimed materials, capable of meeting the high quality requirements of carpet manufacturers.

We pursue further technological development and higher quality to drive forward resources recycling i.e. recycled plastics.

RPF: A solid fuel made mainly from waste paper and plastics. It is high in calories and emits less CO2 than fossil fuels.

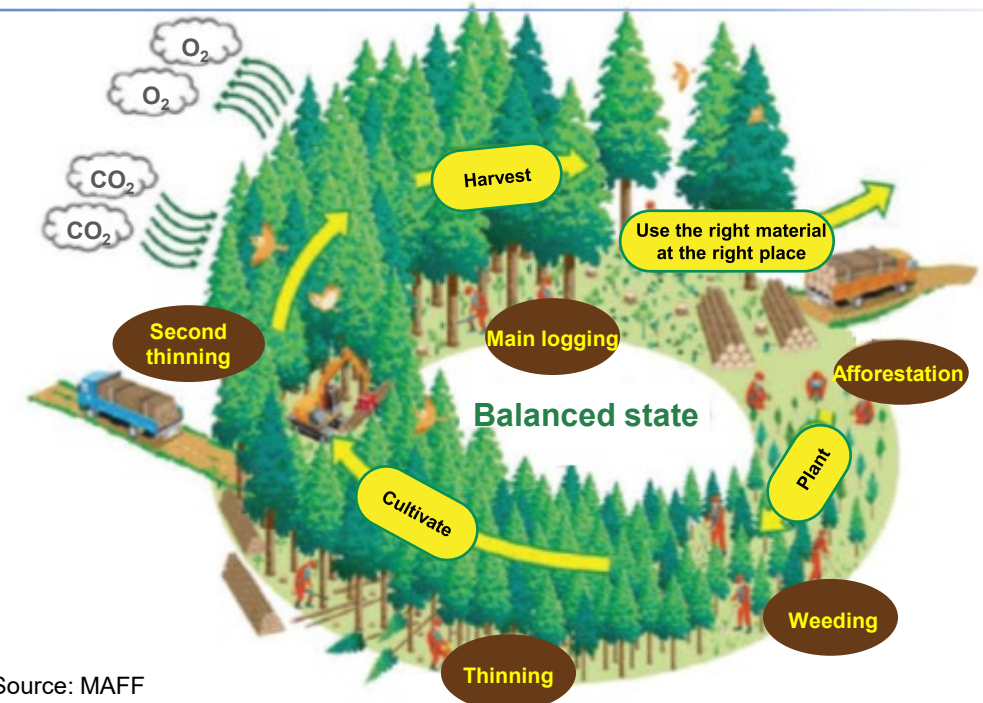
### Renewable Energy business

We operate **four** woody biomass power plants centered on eastern Japan, mainly in the Tohoku region using unused forest resources such as thinned wood and logged wood as fuel, and **two** plants in the Kanto region using scrap wood and some RPF as fuel.

In addition, we are strengthening our efforts in forest management (planning, staged logging, and afforestation) and promoting the expansion of our renewable energy business where resource circulation is viable.

Annual woody biomass volume: **600,000 tons** RPF: **50,000 tons**

Annual power generated: Appx. **569,859 MWh**



Source: MAFF

Tsugaru Biomass Power Generation Co., Ltd.  
Tsugaru Eneveg

Hirakawa City, Aomori Prefecture

Target area of forest management

TAKEEI Forestry Co., Ltd.

Hanamaki Biomass Power Generation Co., Ltd.  
Hanamaki Biomass Chip Co., Ltd.

Hanamaki City, Iwate Prefecture

Daisen Biomass Power Generation Co., Ltd.

Daisen City, Akita Prefecture

Tamura Biomass Power Generation Co., Ltd.

Tamura City, Fukushima Prefecture

Takeei Green Recycling Co., Ltd.

Fujiyoshida City, Yamanashi Prefecture

Large woody biomass power generation project in the Tokyo metropolitan area

Green Power Ichihara Co., Ltd.

Ichihara City, Chiba Prefecture

TAKEEI Forestry Co., Ltd.

Takeei Denki Co., Ltd.

Minato-ku, Tokyo

Takeei Green Recycling Co., Ltd. Yokosuka Biomass Power Generation facility

Yokosuka City, Kanagawa Prefecture

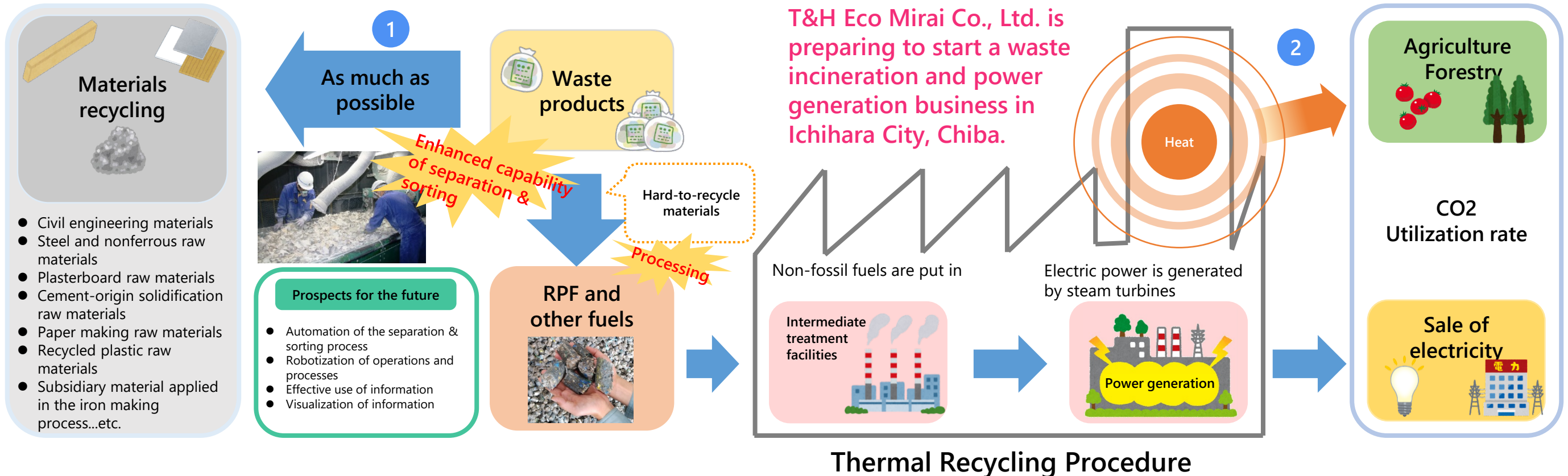
### Environmental Engineering & Environmental Consulting businesses

As for other business segments, we operate an environmental engineering business that plans, manufactures, and sells environmental equipment, and an environmental consulting business that conducts measurement certification operations, environmental protection work and investigates, and analyzes hazardous waste.

### Energy recovery business using the thermal recycling system

Promotion of the energy business

- We continue to prioritize material recycling operations to support resource recycling. Meanwhile, for items difficult to recycle, we plan to commence possession of incineration facilities with a high-efficiency power generation function (able to generate thermal energy qualified for a non-fossil value certificate), with due consideration of local conditions.
  - To conduct a rigorous material recycling operation, we will ramp up the separation & sorting function which is carried out prior to material deliveries. 1
- Amidst increasingly serious global warming, the effective use of hard-to-recycle waste materials should help control fossil fuel consumption (the source of CO2 emissions).
  - The heat arising from power generation can be of secondary use in agriculture or forestry. 2
- In the long-term, we are positively discussing the potential commercialization of effective use of CO2 emitted by waste incineration and other opportunities. To accomplish this purpose, we may seek cross-industrial collaboration.



- The information contained in this document, with the exception of those relating to past and present facts, are based on judgments made by the Company based on certain assumptions and currently available information. These judgments and assumptions contain uncertainties and may be affected by future changes in the economic environment and other factors. As a result, future results of the Company and the Group may differ from projections.
- The forward-looking statements in this document are made as of the date of this document (or as otherwise specified therein), and the Company has no obligation or policy to update such information.
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***TRE HOLDINGS***

未来へ、捨てない創造力を。