

Rengo Group

# Environmental Data Book 2023

# Environmental Data Book 2023

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## • Target Period

Japan: FY3/2023 (April 1st 2022 to March 31st 2023)  
 Overseas: 2022 (January 1st 2022 to December 31st 2022)

## • Organizational Scope

Rengo Co., Ltd. aggregates data, given in the Environmental Data Book, from consolidated subsidiaries. However, non-manufacturing companies whose business activities have a small impact on the environment are excluded. For the same reason, non-manufacturing sites (head office, sales office, warehouse and so on) are excluded.

### • Number of targeted organizations (as of the end of March 2023)

Rengo Co., Ltd.	Non-consolidated	1	
Domestic consolidated subsidiaries	Subsidiaries	Companies subject of the Act on the Rational Use of Energy *1	16
		Others	22
	Second-tier subsidiaries*2	9	
Overseas consolidated subsidiaries	Subsidiaries	8	
	Second-tier subsidiaries	94	
Total *1		150	

\*1 Act on Rationalizing Energy Use and Shifting to Non-fossil Energy  
 \*2 Included in "Others" category of domestic consolidated subsidiaries, on the P.07 Trend of Energy Usage and P08 Trend of Scopes 1 and 2 Emissions

## • Independent Practitioner's Assurance (Symbol of Assurance: )

For environmental data subject to the independent practitioner's assurance, the symbol of assurance is indicated as a sign that the information has been assured.

## • Calculation of Environmental Data

- Figures are rounded to the nearest number and may not add up to the total.
- “-” indicates outside the scope of calculations; “0” refers to a figure of less than 0.5.
- In conducting calculations for this fiscal year, some figures from past fiscal years were revised.

• Organizational Scope by Category (2022 Data)

Page	Category	Target organization Item	Non-consolidated Rengo Co., Ltd.	Domestic consolidated subsidiaries			Overseas consolidated subsidiaries		Disclosure ratio (%)	
				Subsidiaries		Second-tier subsidiaries	Subsidiaries	Second-tier subsidiaries		
				Companies subject of the Act on the Rational Use of Energy	Others					
04	Management	ISO14001 Certification	○	○	○	○	○	○		
		ISO27001 Certification	○	-	-	-	-	-		
05	Third-party certifications	FSC Certification	○	○	○	○	○	○		
		ISCC Certification	-	○	-	-	-	-		
07	Energy	Trend of Total Energy Usage	○	○	○	○	○	○	100	
		Trend of Energy Usage by Type	○	○	○	○	○	○	100	
		Trend of Renewable Energy Ratio	○	○	○	○	○	○	100	
08	Greenhouse gas (GHG)	Trend of Scopes 1 and 2 Emissions	○	○	○	○	○	○	100	
		Trend of Scope 1 and 2 (Result of Eco Challenge)	○	○	-	-	-	-	-	69
09		Trend of Scopes 3 Emissions	○	○	○	-	-	-	76	
11	Raw material and waste	Trend of Raw Material Input	○	○	○	-	○	-	79	
		Trend of Raw Material Input by Type	○	○	○	-	○	-	79	
		Trend of Recycled Material Utilization Rate*	○	○						100
		Trend of Waste Generated, Final Disposal Volume and Effective Utilization Rate of Waste	○	○	○	-	○	-	-	79
12		Trend of Waste Generated, Final Disposal Volume and Effective Utilization Rate of Waste by Type	○	○	○	-	○	-	79	
13	Water resource	Trend of Water Intake by Water Source	○	○	○	-	○	-	79	
		Water Risk Assessment	○	○	○	-	○	-	79	
14	Chemical substances management	Trend of Chemical Substances Subjected to The PRTR System Amount Handled, Emitted, and Transferred	○	○	○	-	-	-	79	
15	Environmental impact (emissions)	Trend of Releases into the Atmosphere by Type	○	○	○	-	○	-	79	
		Trend of Water Discharge by Discharge Destination	○	○	○	-	○	-	79	
		Trend of Releases into Water by Type	○	○	○	-	○	-	79	

† "-" indicates no data; "\ " indicates not applicable

† Disclosure ratio=Total Sales of calculation-targeted companies / Total sales of Rengo group

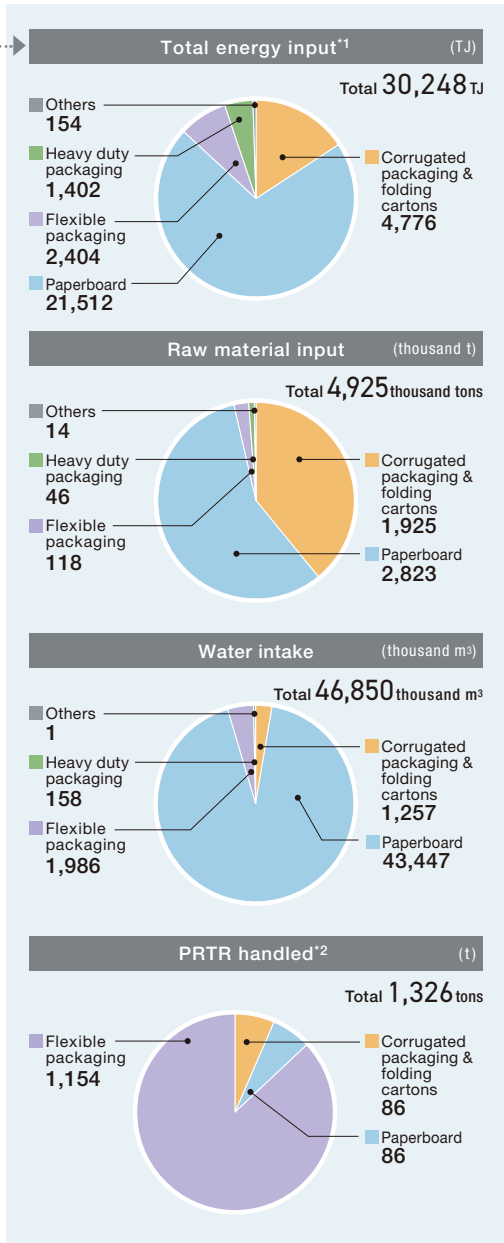
\* Scope: paperboard manufacturing sites

# Material Balance

## Production Activity Material Balance

[Breakdown by business] ■ Corrugated packaging & folding cartons ■ Paperboard ■ Flexible packaging ■ Heavy duty packaging ■ Others

### INPUT



### Business activities

#### Production

Paperboard  
Corrugated packaging  
Folding cartons

Flexible packaging  
Heavy duty packaging  
Others

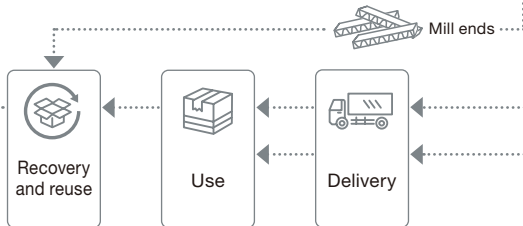
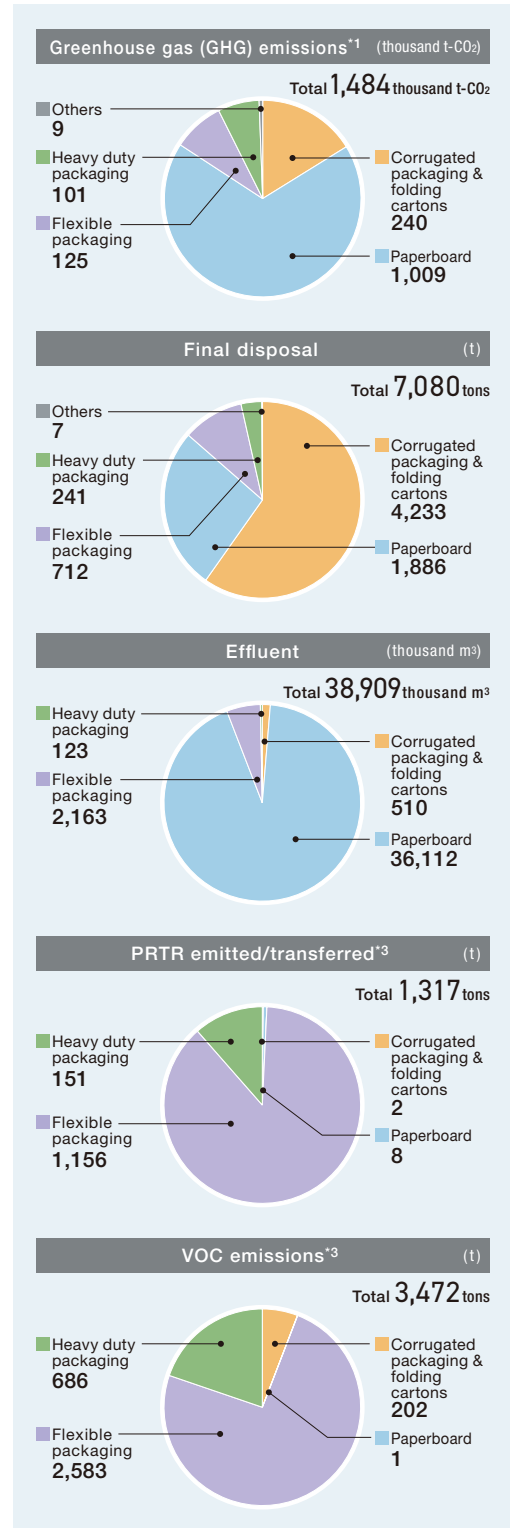
#### Products

Paperboard

Corrugated packaging  
 Folding cartons

Flexible packaging  
 Heavy duty packaging  
 Others

### OUTPUT



\*1 Including purchased electricity, Scope: including second-tier subsidiaries

\*2 Scope: Non-consolidated

\*3 Scope: excluding overseas group companies

## Management

### • ISO14001 Certification (as of March 31, 2023)

unit: Ratio of certified sites...%

Category	Number of sites*1	Number of certified sites	Ratio of certified sites*2
Non-consolidated	34	34	100
Domestic consolidated subsidiaries	121	59	49
Overseas consolidated subsidiaries	136	38	28
Total	291	131	45

\*1 Number of sites: Total number of manufacturing sites in each category

\*2 Ratio of certified locations = (Number of certified sites) / (Number of sites)

### • ISO27001 Certification (as of March 31, 2023)

Category	Company	Certified organization
Non-consolidated	Rengo	Tonegawa Division
		Yashio Mill
		Amagasaki Mill

## Third-party Certifications

### • FSC Certification (as of March 31, 2022)

unit: Ratio of certified sites...%

Category	Number of sites*1	Number of certified sites	Ratio of certified sites*2
Non-consolidated	34	34	100
Domestic consolidated subsidiaries	121	87	72
Overseas consolidated subsidiaries	136	14	10
Total	291	135	46

\*1 Number of sites: total number of manufacturing sites in each category

\*2 Ratio of certified locations = (Number of certified sites) / (Number of sites)

### • ISCC Certification (as of March 31, 2023)

Category	Company	Certified organization
Domestic consolidated subsidiaries	SunTox	Kanto Plant, Tokuyama Plant
	Howa Sangyo	Narashino Plant, Higata Plant, Kyoto plant, Fukuoka Plant

## Coefficients of Energy and Greenhouse Gas (GHG)

### • Calculation of Energy Usage and Scope 1, 2 and 3

Calculations of energy usage and greenhouse gas emissions use the following coefficients. The reported values are the sum of actual results for the group companies as of the reporting year.

		Japan	Overseas
Heat value coefficient	Fossil energy	<ul style="list-style-type: none"> <li>Factors based on the Act on the Rational Use of Energy</li> </ul>	<ul style="list-style-type: none"> <li>Factors based on the Act on the Rational Use of Energy</li> <li>3.6GJ/thousand kWh is used for converting solar power to energy</li> </ul>
	Waste-derived energy /Renewable energy	<ul style="list-style-type: none"> <li>Factors based on KEIDANREN's Commitment to a Low Carbon Society, or measured values</li> </ul>	
Emissions factor	Fuel	<ul style="list-style-type: none"> <li>Factors based on the Act on Promotion of Global Warming Countermeasures ("Act on Global Warming")</li> </ul>	<ul style="list-style-type: none"> <li>Factors based on the laws and regulations of the countries to which sites belong to, or the Act on Global Warming (2022 results)</li> </ul>
	Electricity	<ul style="list-style-type: none"> <li>Adjusted emission factors based on the Act on Global Warming</li> </ul>	<ul style="list-style-type: none"> <li>Emission factors for each electricity provider, or value of IEA2020 (2022 results)</li> </ul>
Scope 3	Database for calculation	<ul style="list-style-type: none"> <li>Basic Guideline for calculating greenhouse gas emissions throughout the supply chain (Ver2.5)</li> <li>LCI database IDEAv3.3 (AIST Research Institute of Science for Safety and Sustainability IDEA Lab)</li> <li>Emissions unit values for accounting of greenhouse gas emissions etc., by organizations throughout the supply chain (Ver3.3) (Ministry of the Environment/Ministry of Economy, Trade and Industry)</li> </ul>	
	Notices of calculation	<ul style="list-style-type: none"> <li>Ct.9: Downstream transportation and distribution,</li> <li>Ct.14: Franchises,</li> <li>Ct.15: Investments, are out of scope.</li> <li>Ct.13: Downstream leased assets, is included to Ct.11: Use of sold products</li> </ul>	

### • Explanations of Scope 1, 2 and 3

#### Scope 1

Direct GHG emissions occur from use of fuel in boilers and waste incinerators, and from industrial process emissions

#### Scope 2

Indirect emissions occur from use of electricity and heat (steam, hot water, cold water) supplied from other companies

#### Scope 3

Indirect emissions not included in Scope 1 or 2 (Emissions from other companies, associated with the organization's activities)

#### CO<sub>2</sub> from fossil-energy

Emissions occur from use of fossil fuel (petroleum, Gas and so on)

#### CO<sub>2</sub> from non-energy

Emissions occur from use of energy from waste

#### CH<sub>4</sub>, N<sub>2</sub>O

Emissions occur from use of fossil fuel and waste-derived fuel, night-soil treatment in septic tanks, and effluent treatment

## Energy

### • Trend of Total Energy Usage

unit: TJ

	Category	FY3/2021	FY3/2022	FY3/2023	
Total energy usage	Non-consolidated	16,332	17,249	<input checked="" type="checkbox"/> 16,795	
	Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	6,941	11,273	<input checked="" type="checkbox"/> 11,309
		Others	816	739	742
	Overseas consolidated subsidiaries	1,178	1,315	1,402	
	Total	25,267	30,575	30,248	

### • Trend of Energy Usage by Type

unit: TJ

	Category	FY3/2021	FY3/2022	FY3/2023		
Energy usage	Fossil fuels	Non-consolidated	10,622	11,196	<input checked="" type="checkbox"/> 9,712	
		Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	3,785	4,861	<input checked="" type="checkbox"/> 4,863
			Others	423	267	266
		Overseas consolidated subsidiaries	756	836	693	
		Total	15,585	17,160	15,534	
	Purchased electricity (excluding electricity derived from renewable energy)	Non-consolidated	3,246	3,518	<input checked="" type="checkbox"/> 3,442	
		Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	2,828	3,328	<input checked="" type="checkbox"/> 3,301
			Others	394	402	408
		Overseas consolidated subsidiaries	330	363	587	
		Total	6,798	7,611	7,738	
	Purchased steam	Non-consolidated	0	0	<input checked="" type="checkbox"/> 0	
		Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	90	96	<input checked="" type="checkbox"/> 104
			Others	0	70	67
		Overseas consolidated subsidiaries	67	69	63	
		Total	157	235	234	
	Waste-derived fuel (RPF, waste tires, waste plastics, reclaimed oil)	Non-consolidated	156	112	<input checked="" type="checkbox"/> 822	
		Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	105	638	<input checked="" type="checkbox"/> 744
			Others	0	0	0
		Overseas consolidated subsidiaries	0	0	0	
		Total	261	750	1,566	
Biomass fuel	Non-consolidated	2,302	2,417	<input checked="" type="checkbox"/> 2,813		
	Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	129	2,346	<input checked="" type="checkbox"/> 2,257	
		Others	0	0	0	
	Overseas consolidated subsidiaries	11	12	9		
	Total	2,442	4,776	5,079		
Electricity derived from renewable energy*	Non-consolidated	7	6	<input checked="" type="checkbox"/> 6		
	Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	3	3	<input checked="" type="checkbox"/> 41	
		Others	0	0	0	
	Overseas consolidated subsidiaries	14	34	49		
	Total	24	44	96		
Grand total		25,267	30,575	30,248		

\*Electricity derived from solar power generation(self-generation), and purchased electricity derived from renewable energy

### • Trend of Renewable Energy Ratio

	Category	FY3/2021	FY3/2022	FY3/2023	
Renewable energy ratio	Non-consolidated	14.1%	14.1%	16.8%	
	Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	1.9%	20.8%	20.3%
		Others	0.0%	0.0%	0.0%
	Overseas consolidated subsidiaries	2.1%	3.5%	4.2%	
	Total	9.8%	15.8%	17.1%	



## Greenhouse Gas (GHG)

### • Trend of Scopes 1 and 2 Emissions

unit: thousand t-CO<sub>2</sub>

		Category	FY3/2021	FY3/2022	FY3/2023	
Scope 1 emissions	CO <sub>2</sub> from fossil energy	Non-consolidated	637	671	☑ 578	
		Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	236	311	☑ 310
			Others	14	18	16
		Overseas consolidated subsidiaries	46	52	43	
		Total	934	1,053	948	
	CO <sub>2</sub> from non-energy CH <sub>4</sub> , N <sub>2</sub> O	Non-consolidated	24	21	☑ 64	
		Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	12	56	☑ 57
			Others	0	0	0
		Overseas consolidated subsidiaries	0	0	0	
		Total	36	78	121	
Total		970	1,131	1,069		
Scope 2 emissions	Non-consolidated		151	162	☑ 161	
	Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	141	154	☑ 155	
		Others	22	26	21	
	Overseas consolidated subsidiaries	51	70	77		
Total		365	413	415		
Scope 1 and 2 emissions	Non-consolidated		812	855	☑ 804	
	Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	390	521	☑ 523	
		Others	36	45	37	
	Overseas consolidated subsidiaries	98	122	121		
Total		1,336	1,543	1,484		

### • Trend of Scope 1 and 2\* (Result of Eco Challenge)

unit: thousand t-CO<sub>2</sub>

		Category	FY3/2021	FY3/2022	FY3/2023
Scope 1 emissions	Non-consolidated		637	671	☑ 578
	Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	236	311	☑ 310
Scope 2 emissions	Non-consolidated		151	162	☑ 161
	Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	141	154	☑ 155
Scope 1 and 2 emissions	Non-consolidated		788	834	☑ 740
	Domestic consolidated subsidiaries	Companies subject of the Act on the Rational Use of Energy	378	465	☑ 465
Total			1,166	1,299	☑ 1,205

† In the above table, "Domestic consolidated subsidiaries" don't include consolidated subsidiaries (others) and second-tier subsidiaries.  
\*CO<sub>2</sub> from fossil energy

Medium-term environmental targets "Eco Challenge 2030" <https://www.rengo.co.jp/english/sustainability/policy/ecochallenge/index.html>

## • Trend of Scopes 3 Emissions

unit: thousand t-CO<sub>2</sub>

	Category number	Category	FY3/2021*	FY3/2022	FY3/2023	
Scopes 3 emissions	Category 1	Purchased goods and services	Non-consolidated	660	654	671
			Domestic consolidated subsidiaries	-	1,088	1,011
			Total	-	1,742	1,682
	Category 2	Capital goods	Non-consolidated	45	56	67
			Domestic consolidated subsidiaries	-	12	38
			Total	-	68	105
	Category 3	Fuel- and energy related activities (not included in scope 1 or scope 2)	Non-consolidated	139	155	<input checked="" type="checkbox"/> 134
			Domestic consolidated subsidiaries	-	91	84
			Total	-	246	217
	Category 4	Upstream transportation and distribution	Non-consolidated	88	112	117
			Domestic consolidated subsidiaries	-	274	179
			Total	-	386	295
Category 5	Waste generated in operations	Non-consolidated	4	4	4	
		Domestic consolidated subsidiaries	-	41	43	
		Total	-	44	47	
Category 6	Business travel	Non-consolidated	1	1	1	
		Domestic consolidated subsidiaries	-	1	1	
		Total	-	1	1	
Category 7	Employee commuting	Non-consolidated	7	5	5	
		Domestic consolidated subsidiaries	-	12	15	
		Total	-	16	20	
Category 8	Upstream leased assets	Non-consolidated	1	1	1	
		Domestic consolidated subsidiaries	-	0	0	
		Total	-	1	1	
Category 10	Processing of sold products	Non-consolidated	80	77	94	
		Domestic consolidated subsidiaries	-	44	38	
		Total	-	121	132	
Category 11	Use of sold products	Non-consolidated	10	10	7	
		Domestic consolidated subsidiaries	-	1	0	
		Total	-	11	7	
Category 12	End-of-life treatment of sold products	Non-consolidated	18	26	27	
		Domestic consolidated subsidiaries	-	38	21	
		Total	-	64	48	
Grand total			-	2,701	2,556	

† In the table above, second-tier subsidiaries are excluded from "Domestic consolidated companies"

† Waste woods, previously calculated in Category 3, was calculated in Categories 1 and 4 from FY3/2023, with retroactive revisions for FY3/2022.

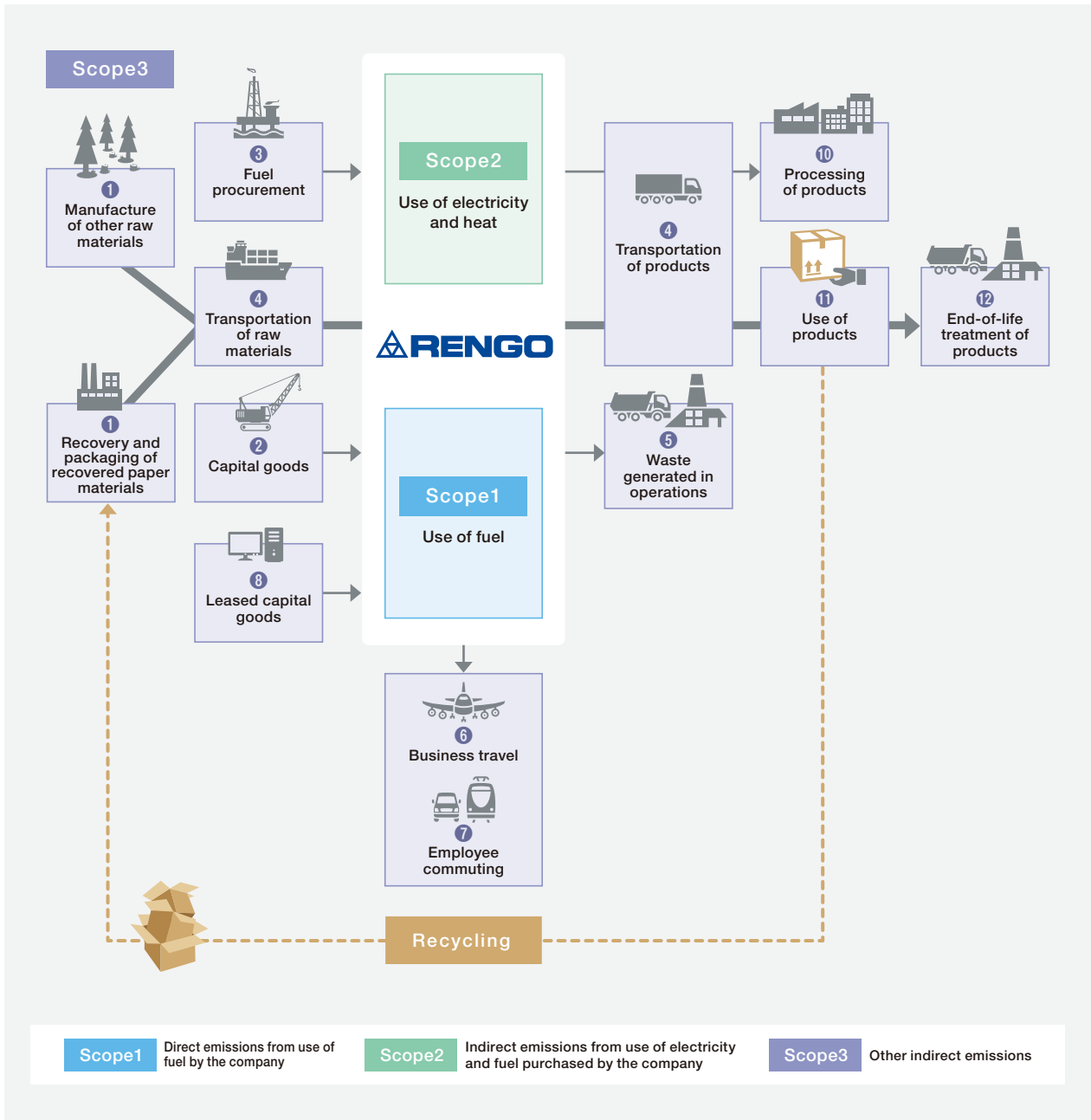
Calculation method: Ct.9: Downstream transportation and distribution, Ct.14: Franchises,

Ct.15: Investments, are out of scope because no business are relevant

Ct.13: Downstream leased assets, is included to Ct.11: Use of sold products

\*There is no data for domestic consolidated subsidiaries for FY3/2021, because before starting data aggregation.

• Diagram of Greenhouse Gas Emissions from Rengo's Entire Supply Chain



## Raw Material and Waste

### • Trend of Raw Material Input

unit: thousand t

	Category	FY3/2021	FY3/2022	FY3/2023
Raw material input	Non-consolidated	3,253	3,408	3,379
	Domestic consolidated subsidiaries	1,277	1,456	1,397
	Overseas consolidated subsidiaries	186	200	150
	Total	4,716	5,063	4,925

† In the above table, "Domestic consolidated subsidiaries" and "Overseas consolidated subsidiaries" don't include second-tier subsidiaries.

### • Trend of Raw Material Input by Type

unit: thousand t

	Category	FY3/2021	FY3/2022	FY3/2023
Raw material input	Recovered paper	2,498	2,658	2,608
	Pulp	36	56	50
	Paperboard	1,985	1,980	1,925
	Wood chips	–	158	165
	Resin, film, synthetic fiber	198	211	178
	Total	4,716	5,063	4,925

† In the above table, "Domestic consolidated subsidiaries" and "Overseas consolidated subsidiaries" don't include second-tier subsidiaries.

### • Trend of Recycled Material Utilization Rate

unit: %

		FY3/2021	FY3/2022	FY3/2023
Recovered paper utilization rate for paperboard*	Total	98.6	98.6	98.7

† In the above table, "Domestic consolidated subsidiaries" and "Overseas consolidated subsidiaries" don't include second-tier subsidiaries.

\*(Amount of recovered paper used) / (Amount of recovered paper + pulp used)

### • Trend of Waste Generated, Final Disposal Volume and Effective Utilization Rate of Waste

unit: t

	Category	FY3/2021	FY3/2022	FY3/2023
Waste generated* <sup>1</sup>	Non-consolidated	194,764	198,796	203,555
	Domestic consolidated subsidiaries	175,535	195,200	190,567
	Overseas consolidated subsidiaries	24,527	25,701	21,020
	Total	394,826	419,697	415,143
Final disposal volume of waste* <sup>2</sup>	Non-consolidated	2,719	2,503	1,742
	Domestic consolidated subsidiaries	3,132	4,419	4,406
	Overseas consolidated subsidiaries	590	482	932
	Total	6,441	7,404	7,080
Effective utilization rate of waste (%) <sup>3</sup>	Non-consolidated	98.6	98.7	99.1
	Domestic consolidated subsidiaries	98.2	97.7	97.7
	Overseas consolidated subsidiaries	97.6	98.1	95.6
	Total	98.4	98.2	98.3

† In the above table, "Domestic consolidated subsidiaries" and "Overseas consolidated subsidiaries" don't include second-tier subsidiaries.

\*1 Including valuable waste

\*2 Waste generated-Waste effectively used

\*3 (Waste generated-Final disposal volume of waste) / Waste generated

• Trend of Waste Generated, Final Disposal Volume and Effective Utilization Rate of Waste by Type

unit: t

	Category	FY3/2021	FY3/2022	FY3/2023
Waste generated* <sup>1</sup>	Paper scraps	315,249	328,644	317,531
	Sludge	9,795	11,276	11,755
	Waste plastics	22,218	24,881	25,701
	Others	47,528	54,866	60,123
	Specially controlled industrial waste	37	31	33
	Total	394,826	419,697	415,143
Final disposal volume of waste* <sup>2</sup>	Paper scraps	407	358	1,144
	Sludge	1,855	2,699	2,785
	Waste plastics	1,513	1,783	1,217
	Others	2,664	2,561	1,933
	Specially controlled industrial waste	3	3	2
	Total	6,441	7,404	7,080
Effective utilization rate of waste (%)* <sup>3</sup>	Paper scraps	99.9	99.9	99.6
	Sludge	81.1	76.1	76.3
	Waste plastics	93.2	92.8	95.3
	Others	94.4	95.3	96.8
	Specially controlled industrial waste	93.1	91.4	94.6
	Total	98.4	98.2	98.3

† In the above table, "Domestic consolidated subsidiaries" and "Overseas consolidated subsidiaries" don't include second-tier subsidiaries.

\*1 Including valuable waste

\*2 Waste generated - Waste effectively used

\*3 (Waste generated - Final disposal volume of waste) / Waste generated

## Water Resource

### • Trend of Water Intake by Water Source

unit: thousand m<sup>3</sup>

		Category	FY3/2021	FY3/2022	FY3/2023	
Water Intake	Portable water	Non-consolidated	334	333	337	
		Domestic consolidated subsidiaries	439	439	440	
		Overseas consolidated subsidiaries	167	225	174	
		Total	939	998	951	
	Industrial water	Non-consolidated	18,097	17,897	15,864	
		Domestic consolidated subsidiaries	5,079	9,614	9,662	
		Overseas consolidated subsidiaries	0	0	0	
		Total	23,176	27,511	25,526	
	Ground water	Non-consolidated	6,851	6,910	6,543	
		Domestic consolidated subsidiaries	260	11,696	11,152	
		Overseas consolidated subsidiaries	0	0	0	
		Total	7,112	18,606	17,695	
	Surface water	Non-consolidated	2,697	2,753	2,679	
		Domestic consolidated subsidiaries	0	0	0	
		Overseas consolidated subsidiaries	0	0	0	
		Total	2,697	2,753	2,679	
	Grand total			33,924	49,867	46,850

† In the above table, "Domestic consolidated subsidiaries" and "Overseas consolidated subsidiaries" don't include second-tier subsidiaries.

### • Water Risk Assessment

unit: water intake...thousand m<sup>3</sup>, Ratio of waterintake...%

	Number of target sites	water intake	Ratio of water Intake
Not defined*	7	26	0.1
Low	14	150	0.3
Low - medium	67	14,015	29.9
Medium - high	60	32,601	69.6
High	1	30	0.1
Very high	1	29	0.1
Total	150	46,850	100

† Evaluation was performed using Aqueduct, water risk evaluation tool developed by WRI. Risks were evaluated by five grades using Water Risk Atlas Baseline Water Stress

† In the above table, "Domestic consolidated subsidiaries" and "Overseas consolidated subsidiaries" don't include second-tier subsidiaries.

\*Sites which affiliated groupe companies recently.

## Chemical Substances Management

### • Trend of Chemical Substances Subjected to The PRTR System Amount Handled, Emitted, and Transferred

unit: Class 1 Designated Chemical Substances: tons; Dioxins: mg-TEQ

	Category		FY3/2021	FY3/2022	FY3/2023	
Amount handled*	Non-consolidated	Class 1 chemical substances	1,168	1,225	1,326	
		Total class 1 chemical substances	1,168	1,225	1,326	
Amount emitted	Non-consolidated	Class 1 chemical substances	669	709	749	
		Dioxins	70	38	17	
	Domestic consolidated subsidiaries	Class 1 chemical substances	517	537	495	
		Dioxins	3	4	2	
			Total class 1 chemical substances	1,186	1,246	1,244
			Total dioxins	73	42	19
Amount transferred	Non-consolidated	Class 1 chemical substances	2	2	2	
		Dioxins	1,004	1,148	710	
	Domestic consolidated subsidiaries	Class 1 chemical substances	62	68	71	
		Dioxins	0	211	46	
			Total class 1 chemical substances	64	70	73
			Total dioxins	1,004	1,359	757
Total amount emitted and transferred	Non-consolidated	Class 1 chemical substances	671	711	751	
		Dioxins	1,074	1,186	728	
	Domestic consolidated subsidiaries	Class 1 chemical substances	579	605	566	
		Dioxins	3	215	48	
			Total class 1 chemical substances	1,250	1,316	1,317
			Total dioxins	1,077	1,401	776

\*Scope: excluding domestic consolidated subsidiaries

† In the above table, "Domestic consolidated subsidiaries" and "Overseas consolidated subsidiaries" don't include second-tier subsidiaries.

## Environmental Impact (Emissions)

### • Trend of Releases into the Atmosphere by Type

unit: t

		Category	FY3/2021	FY3/2022	FY3/2023
Releases into the atmosphere by type	SOx	Non-consolidated	78	94	101
		Domestic consolidated subsidiaries	335	366	409
		Overseas consolidated subsidiaries	1	1	1
		Total	414	461	511
	NOx	Non-consolidated	1,054	1,027	995
		Domestic consolidated subsidiaries	274	413	433
		Overseas consolidated subsidiaries	8	8	5
		Total	1,336	1,448	1,432
	Dust	Non-consolidated	20	19	17
		Domestic consolidated subsidiaries	6	29	22
		Overseas consolidated subsidiaries	1	1	1
		Total	27	49	39
	VOC*	Non-consolidated	221	216	242
		Domestic consolidated subsidiaries	2,459	3,077	3,231
		Total	2,680	3,293	3,472

† Scope of the volatile organic compounds (VOCs) is the top five substances discharged by members of the Japan Paper Association (toluene, methyl ethyl ketone (MEK), ethylacetate, isopropyl alcohol, and methanol)

† In the above table, "Domestic consolidated subsidiaries" and "Overseas consolidated subsidiaries" don't include second-tier subsidiaries.

\*Scope: excluding overseas consolidated subsidiaries

### • Trend of Water Discharge by Discharge Destination

unit: Thousand m<sup>3</sup>

		Category	FY3/2021	FY3/2022	FY3/2023	
Water discharge	Sewage	Non-consolidated	6,871	7,688	7,486	
		Domestic consolidated subsidiaries	4,313	17,897	18,576	
		Overseas consolidated subsidiaries	74	93	70	
		Total	11,258	25,679	26,132	
	Rivers	Non-consolidated	17,411	14,932	12,359	
		Domestic consolidated subsidiaries	420	424	417	
		Overseas consolidated subsidiaries	3	3	1	
		Total	17,834	15,359	12,777	
	Others	Non-consolidated	0	0	0	
		Domestic consolidated subsidiaries	0	0	0	
		Overseas consolidated subsidiaries	0	0	0	
		Total	0	0	0	
	Grand total			29,092	41,037	38,909

† In the above table, "Domestic consolidated subsidiaries" and "Overseas consolidated subsidiaries" don't include second-tier subsidiaries.

### • Trend of Releases into Water by Type

unit: t

		Category	FY3/2021	FY3/2022	FY3/2023
Releases into water by type	BOD	Non-consolidated	855	922	470
		Domestic consolidated subsidiaries	161	174	181
		Overseas consolidated subsidiaries	1.3	3.2	2.2
		Total	1,017	1,100	653
	COD	Non-consolidated	1,271	1,197	873
		Domestic consolidated subsidiaries	217	780	886
		Overseas consolidated subsidiaries	5.2	7.2	8.6
		Total	1,494	1,985	1,767
	SS	Non-consolidated	681	643	562
		Domestic consolidated subsidiaries	25	112	121
		Overseas consolidated subsidiaries	2.1	2.2	1.6
		Total	709	757	685
	Oil (n-Hex)*	Non-consolidated	25	30	29
		Domestic consolidated subsidiaries	3	3	2
		Total	27	33	32

† In the above table, "Domestic consolidated subsidiaries" and "Overseas consolidated subsidiaries" don't include second-tier subsidiaries.

\*Scope: excluding overseas consolidated subsidiaries



## Independent Practitioner's Assurance

Rengo Co., Ltd. has received independent practitioner's assurance from Deloitte Tohmatsu Sustainability Co., Ltd. for environmental data (fossil energy inputs, waste-derived energy inputs, renewable energy inputs, Scopes 1 and 2 CO<sub>2</sub> emissions, and Scope 3 (Category 3) greenhouse gas emissions) given in the Japanese version of Rengo Group Environmental Data Book 2023.

### • Scope of Assurance

Manufacturing sites of Rengo Co., Ltd. (including some affiliates located within the premises of business sites within the scope) and of Companies subject of the Act on the Rational Use of Energy.

### • Target of Assurance

- FY3/2023 fossil energy, energy from waste, and renewable energy inputs (excluding portion for sold electric power)
- FY3/2023 Scopes 1 and 2 CO<sub>2</sub> emissions originated from energy (excluding portion for sold electric power), CO<sub>2</sub> emissions originated from non-energy, CH<sub>4</sub> emissions, N<sub>2</sub>O emissions.
- FY3/2023 Scope 3 (Category 3) greenhouse gas emissions

### • Calculation Guideline

- "Basic Guidelines on Accounting for Greenhouse Gas Emissions throughout the Supply Chain (Ver. 2.5)" and Fossil energy inputs are taken from unit heat values based on the Act on the Rational Use of Energy. ("the Energy Conservation Act")
- Waste-derived energy inputs and renewable energy inputs are taken from unit heat values from KEIDANREN (Japan Business Federation)'s Commitment to a Low Carbon Society.
- CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O emissions are taken from emission factors based on the Act on Promotion of Global Warming Countermeasures ("Act on Global Warming"). Emission factors for electricity are taken from emission factors for each electric power provider (adjusted emission factors).
- Scopes 1 and 2 greenhouse gas emissions are calculated using unit heat values and emission factors based on the Act on Global Warming. Adjusted emission factors are used as emission factors for electricity.
- Scope 3, Category 3 greenhouse gas emissions are calculated using emission factors from the Emissions Unit Value Database for Accounting of Greenhouse Gas Emissions, etc., by Organizations Throughout the Supply Chain (Ver. 3.3) (electricity, heat [steam, hot water, cold water] ) and IDEA Ver. 3.3 (fossil fuels).

**Deloitte.**

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(TRANSLATION)

Independent Practitioner's Assurance Report

October 18, 2023

Mr. Yosuke Kawamoto,  
Representative Director, President & COO,  
Rengo Co., Ltd.

Tomoharu Hase  
Representative Director  
Deloitte Tohmatsu Sustainability Co., Ltd.  
3-2-3, Marunouchi, Chiyoda-ku, Tokyo

We have undertaken a limited assurance engagement of the environmental data indicated with [ ] for the year ended March 31, 2023 (the "Environmental Data") included in the "Rengo Group Environmental Data Book 2023" (the "Report") of Rengo Co., Ltd. (the "Company").

#### The Company's Responsibility

The Company is responsible for the preparation of the Environmental Data in accordance with the calculation and reporting standard adopted by the Company (the Report P.01, P.06 and P.16). Greenhouse gas quantification is subject to inherent uncertainty for reasons such as incomplete scientific knowledge used to determine emissions factors and numerical data needed to combine emissions of different gases.

#### Our Independence and Quality Control

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior. We apply International Standard on Quality Control 1, *Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements*, and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

#### Our Responsibility

Our responsibility is to express a limited assurance conclusion on the Environmental Data based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements ("ISAE") 3000, *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, issued by the International Auditing and Assurance Standards Board ("IAASB"), ISAE 3410, *Assurance Engagements on Greenhouse Gas Statements*, issued by the IAASB and the *Practical Guideline for the Assurance of Sustainability Information*, issued by the Japanese Association of Assurance Organizations for Sustainability Information.

- The procedures we performed were based on our professional judgment and included inquiries, observation of processes performed, inspection of documents, analytical procedures, evaluating the appropriateness of quantification methods and reporting policies, and agreeing or reconciling with underlying records. These procedures also included the following:
- Evaluating whether the Company's methods for estimates are appropriate and had been consistently applied. However, our procedures did not include testing the data on which the estimates are based or reperforming the estimates.
  - Performing interviews of responsible persons and inspecting documentary evidence to assess the completeness of the data, data collection methods, source data and relevant assumptions applicable to the sites.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement.

#### Limited Assurance Conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that the Environmental Data is not prepared, in all material respects, in accordance with the calculation and reporting standard adopted by the Company.

The above represents a translation, for convenience only, of the original Independent Practitioner's Assurance report issued in the Japanese language.

Member of  
Deloitte Touche Tohmatsu Limited