



ESG Data

Environment

- Environmental data covers Idemitsu Kosan Co.,Ltd. and its group companies indicated with ●. However, the scope of reporting of each data point differs. For details, please refer to the notes for each data point.
- Environmental data for FY2018 indicated with ☑ has been assured by the Independent Practitioner.
- Idemitsu's FY2018 is from April 2018 to March 2019 (12 months). However, the reporting period of each data point differs. For details, please refer to the notes for each data point.
- Totals may not be exact due to rounding.
- In addition, some numerical data in the previous fiscal years has been revised.

Idemitsu

Overview of Environmental Impacts		Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Extraction	Energy	PJ	32	32	33	31	30 ☑	Crude oil
	Equivalent in crude oil	thousand kl	830	830	841	800	780 ☑	● Idemitsu Petroleum Norge AS
	Crude oil purchase (including below production)	thousand kl	29,141	28,762	29,421	28,007	26,964	Coal
	Crude oil production (from January to December 2018)	thousand kl	1,684	2,089	2,500	2,145	1,557	● ENSHAM COAL SALES PTY. LTD.
	Gas purchase	thousand t	2,347	2,659	3,201	1,612	1,578	● MUSWELLBROOK COAL COMPANY LTD
	Coal purchase (including below production)	thousand t	14,523	16,212	16,741	16,759	16,357	● BOGGABRI COAL OPERATIONS PTY LTD
	Coal production (from January to December 2018)	thousand t	11,274	12,405	13,100	13,438	12,543	● TARRAWONGA COAL SALES PTY LTD
	CO ₂ -Scope 1	thousand tCO ₂	-	329	334	315	285 ☑	● PT MITRABARA ADIPERDANA Tbk
	CO ₂ -Scope 2	thousand tCO ₂	-	75	84	68	73 ☑	[Calculation method]
	CO ₂ -Scope 3	thousand tCO ₂	-	1,475	1,486	1,424	1,410 ☑	CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	1,872	1,879	1,904	1,807	1,769 ☑	CO ₂ emissions, SO _x , NO _x : Calculated by multiplying volume of crude oil production and coal extraction by the CO ₂ emission intensity
	SO _x emissions	t	21,917	21,742	22,164	21,155	20,450 ☑	CO ₂ emission intensity uses figures from "Energy consumption and environmental impact of the entire life cycle of crude oil and coal" reported by JPEC (Japan Petroleum Energy Center)
NO _x emissions	t	5,894	6,143	6,296	6,137	5,959 ☑	Environmental impact related to gas extraction is not calculated	
Crude oil procurement and import	Energy	PJ	11	13	14	13	13 ☑	[Scope 3 category]
	Equivalent in crude oil	thousand kl	287	347	361	340	336 ☑	Category1: Purchased products and services
	Crude oil import	thousand kl	27,457	26,673	26,921	25,862	25,406	CO ₂ emissions from crude oil and coal extracted from oil fields and mines owned by other companies
	LPG import	thousand t	2,347	2,659	3,201	1,612	1,578	Category3: Fuel and energy-related activities (Ones not included in Scope 1 and Scope 2)
	Coal import	thousand t	7,773	11,789	12,706	12,721	12,771	CO ₂ emissions from coal collected from mines owned by other companies
	CO ₂ -Scope 1	thousand tCO ₂	-	196	241	209	190 ☑	● Idemitsu Tanker Co., Ltd.
	CO ₂ -Scope 2	thousand tCO ₂	-	0	0	0	0 ☑	● Astomos Energy Corporation
	CO ₂ -Scope 3	thousand tCO ₂	-	766	760	733	740 ☑	[Calculation method]
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	795	962	1,002	943	931 ☑	CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols
	SO _x emissions	t	14,784	18,171	18,984	17,919	17,711 ☑	CO ₂ emissions: Calculated by multiplying energy consumption (raw material transportation) by the CO ₂ emission coefficient
	NO _x emissions	t	22,182	26,963	28,098	26,482	26,156 ☑	CO ₂ emission coefficient uses figures from the Act on Promotion of Global Warming Countermeasures



Idemitsu

Overview of Environmental Impacts		Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Domestic manufacturing	Energy	PJ	136	139	142	140	139	<ul style="list-style-type: none"> • Hokkaido Refinery • Chiba Complex • Aichi Refinery • Tokuyama Complex • Cray Valley Idemitsu Corporation • Prime Polymer Co., Ltd., Anesaki Works • BASF Idemitsu Co., Ltd. • Omaezaki Factory • Keihin Lube Center • Idemitsu Unitech Co., Ltd. • Union Oil Industry Co., Ltd. • Moji Lube Center • SDS Biotech K.K.
	Equivalent in crude oil	thousand kl	3,512	3,596	3,661	3,605	3,584	
	Seawater	thousand t	1,199,226	1,205,868	1,231,103	1,257,447	1,288,375	
	Water	thousand t	60,415	61,032	58,555	58,314	60,130	
	Crude oil throughput	thousand kl	27,066	26,761	27,195	25,604	25,571	
	Lubricants production	thousand kl	673	695	735	726	744	
	Petrochemical product manufacturing (ethylene equivalent)	thousand t	3,402	3,777	3,710	3,825	3,870	
	CO ₂ -Scope 1	thousand tCO ₂	-	6,958	7,004	6,941	6,862	[Calculation method]
	CO ₂ -Scope 2	thousand tCO ₂	-	338	325	324	363	Energy: Calculated based on the Act on the Rational Use of Energy (not including fuel coming under sales of electricity and steam)
	CO ₂ -Scope 3	thousand tCO ₂	-	-	-	-	-	Seawater, Water: All amount of water intake used at production sites (Water include industrial water, tap water and underground water)
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	7,121	7,296	7,329	7,264	7,225	CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols
	SOx emissions	t	7,967	7,105	7,058	5,994	6,066	CO ₂ emissions: Calculated based on the Act on Promotion of Global Warming Countermeasures
	NOx emissions	t	6,392	6,453	6,565	6,457	6,640	However, only CO ₂ emissions are disclosed (excluding CH ₄ , N ₂ O, HFC, PFC, SF ₆ , NF ₃)
	Soot/dust	t	232	245	285	230	231	SOx, NOx, Soot/dust: Calculated by multiplying exhaust gases' actual measured value by actual measured value of exhaust gases' concentration levels (excluding Omaezaki Factory, Union Oil Industry Co., Ltd.)
	Wastewater	thousand t	1,257,684	1,265,015	1,287,635	1,313,998	1,345,984	Wastewater: Total amount of wastewater from sites
	COD	t	86	94	96	104	97	COD, Total nitrogen (TN), Total phosphorus (TP): Figures regularly reported to government offices based on actual measured value
	Total nitrogen (TN)	t	100	82	91	93	104	
	Total phosphorus (TP)	t	1.6	1.1	1.1	1.2	1.5	
	Total waste	t	233,861	243,841	213,550	215,354	209,828	<ul style="list-style-type: none"> • Hokkaido Refinery • Chiba Complex • Aichi Refinery • Tokuyama Complex • Cray Valley Idemitsu Corporation • Prime Polymer Co., Ltd., Anesaki Works
	Final disposal (landfill)	t	76	84	137	945	1,383	[Calculation method] Total waste: Total amount of industrial waste
Unit energy consumption (refinery)	Energy usage (crude oil equivalent) (l) /Atmospheric distillation equipment converted throughput (kl)		8.36	8.37	8.49	8.79	8.87	<ul style="list-style-type: none"> • Hokkaido Refinery • Chiba Complex • Aichi Refinery
Unit energy consumption (petrochemical plant)	kl/t	0.408	0.399	0.404	0.406	0.396	<ul style="list-style-type: none"> • Chiba Complex • Tokuyama Complex • Cray Valley Idemitsu Corporation • Prime Polymer Co., Ltd., Anesaki Works 	
Domestic transportation	Energy	PJ	3.8	3.8	3.9	3.6	3.6	[Calculation method]
	Equivalent in crude oil	thousand kl	98.2	97.6	100.7	93.3	92.5	Energy: Calculated based on the Act on the Rational Use of Energy (Scope: Petroleum+Lubricants+Petrochemical products+Coal+LPG)
	Water	thousand t	12.3	6.5	6.5	8.4	12.6	Water: Amount of water used at coal depot
	Oil product transportation (ship, truck)	thousand t-km	8,966,342	9,097,901	9,201,165	8,910,000	8,728,000	CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols
	Petrochemical product transportation (truck, ship, railway)	thousand t-km	445,043	528,081	612,677	622,642	607,623	CO ₂ emissions: Calculated by multiplying energy consumption (product transportation) by the CO ₂ emission coefficient
	Lubricant transportation (truck, ship, railway)	thousand t-km	548,598	574,685	619,185	609,646	589,499	CO ₂ emission coefficient uses figures from the Act on Promotion of Global Warming Countermeasures
	LPG transportation (truck, etc.)	thousand t	2,017	2,122	1,996	1,009	-	However, only CO ₂ emissions are disclosed (excluding CH ₄ , N ₂ O, HFC, PFC, SF ₆ , NF ₃)
	Coal transportation (truck)	thousand t-km	-	-	-	-	149,673	SOx: Calculated by multiplying fuel consumption by sulphur concentration levels
	CO ₂ -Scope 1	thousand tCO ₂	0	0	0	0	0	NOx: Calculated in consideration of NOx emission coefficient intensity table by vehicle type of the Ministry of Land, Infrastructure, Transport and Tourism, mileage, vehicle weight and transport volume, etc.
	CO ₂ -Scope 2	thousand tCO ₂	0	0	0	0	0	
	CO ₂ -Scope 3	thousand tCO ₂	268	266	275	255	253	Wastewater: Wastewater discharged from coal depots
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	268	266	275	255	253	[Scope 3 category]
	SOx emissions	t	3,062	3,032	2,828	3,155	3,122	Category9: Downstream transportation and distribution (product transportation)
	NOx emissions	t	3,625	3,611	3,394	3,747	3,274	CO ₂ emissions attributable to transportation by contracted transport companies and maritime shipping companies
	Wastewater	thousand t	2.8	2.9	3.0	3.5	6.0	
Of the datas mentioned above, excludes LPG	Equivalent in crude oil	thousand kl	89.7	88.3	91.6	88.9	88.5	[Calculation method]
	Transportation volume	million t-km	10,115	10,353	10,587	10,285	10,087	Unit energy consumption: Calculated based on the Act on the Rational Use of Energy
	Unit energy consumption	kl/million t-km	8.87	8.53	8.65	8.65	8.77	(Scope: Petroleum+Lubricants+Petrochemical products+Coal)



Idemitsu

Overview of Environmental Impacts		Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Domestic sales	Energy	PJ	0.8	0.8	0.7	0.8	0.7	<ul style="list-style-type: none"> Oil depots (Kushiro, Hakodate, Hachinohe, Akita, Shiogama, Hitachi, Tokyo, Hachijojima, Oigawa, Niigata, Fushiki, Kishiwada, Hiroshima, Takamatsu, Kochi, Fukuoka, Nagasaki, Kagoshima) Advanced Technology Research Laboratories Lubricants Research Laboratory Coal & Environment Research Laboratory Offices (Head Office, Branches, Idemitsu Retail Marketing Co., Ltd., Idemitsu Unitech Co., Ltd., SDS Biotech K.K., etc.) [Calculation method] Energy: Calculated based on the Act on the Rational Use of Energy CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols CO ₂ emissions: Calculated based on the Act on Promotion of Global Warming Countermeasures However, only CO ₂ emissions are disclosed (excluding CH ₄ , N ₂ O, HFC, PFC, SF ₆ , NF ₃)
	Equivalent in crude oil	thousand kl	19.7	19.7	19.2	19.5	18.7	
	CO ₂ -Scope 1	thousand tCO ₂	0	0	0	0	10	
	CO ₂ -Scope 2	thousand tCO ₂	44	43	39	32	24	
	CO ₂ -Scope 3	thousand tCO ₂	-	-	-	-	0	
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	44	43	39	32	34	
Consumption	Gasoline sales	thousand kl	8,199	8,478	8,109	7,876	7,691	[Calculation method] CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols Calculated by multiplying domestic product sales (fuel, coal) by the CO ₂ emission coefficient CO ₂ emission coefficient uses figures from the Act on Promotion of Global Warming Countermeasures However, only CO ₂ emissions are disclosed (excluding CH ₄ , N ₂ O, HFC, PFC, SF ₆ , NF ₃) * The sales volumes of LPG (propane) and LPG (butane) are those of Astomos Energy Corporation. CO ₂ emissions are calculated by multiplying the investment ratio in Astomos Energy Corporation (51%). [Scope 3 category] Category11: Product use by customers Domestic sales volumes * Lubricants and petrochemical products that are not used as fuel are not included in the calculation.
	Jet fuel sales	thousand kl	1,655	1,604	1,678	1,856	1,973	
	Kerosene sales	thousand kl	2,950	2,606	2,570	2,579	2,280	
	Diesel oil sales	thousand kl	6,153	6,041	6,107	6,163	6,041	
	Heavy fuel oil A sales	thousand kl	2,863	2,553	2,421	2,320	2,099	
	Heavy fuel oil C sales	thousand kl	2,720	2,585	2,433	2,386	2,143	
	LPG (propane) sales	thousand t	2,710	2,808	2,688	2,778	2,577	
	LPG (butane) sales	thousand t	827	845	719	701	641	
	Coal	thousand t	5,666	7,850	7,116	6,955	6,868	
	Lubricants	thousand kl	557	563	570	595	601	
	Basic chemicals	thousand t	3,096	3,273	3,316	3,403	3,493	
	Performance chemicals	thousand t	47	46	47	47	50	
	CO ₂ -Scope 1	thousand tCO ₂	-	0	0	0	0	
	CO ₂ -Scope 2	thousand tCO ₂	-	0	0	0	0	
	CO ₂ -Scope 3	thousand tCO ₂	-	91,626	87,715	82,224	79,318	
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	87,820	91,626	87,715	82,224	79,318	
	SOx emissions	t	87,588	86,688	85,402	86,960	91,223	

CO ₂ Emissions by Scope	Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Scope 1	thousand tCO ₂	-	7,483	7,579	7,465	7,347	Extraction+Crude oil procurement and import+Domestic manufacturing+Domestic transportation+Domestic sales+Consumption
Scope 2	thousand tCO ₂	-	456	448	424	460	
Scope 3	thousand tCO ₂	-	94,133	90,236	84,637	81,723	Extraction+Crude oil procurement and import+Domestic transportation+Domestic sales+Consumption+Business travel and Employee commuting * Excluding business travel and employee commuting until FY2017 [Calculation method] CO ₂ emissions related to business travel: Calculated by multiplying the number of employees by emission intensity CO ₂ emissions related to employee commuting: Calculated by multiplying employee commuting costs by emission intensity CO ₂ emission intensity uses figures from the Emissions Unit Values Database on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain
(CO ₂ emissions related to business travel and employee commuting) * This data is included in Scope 3.	thousand tCO ₂	-	-	-	-	1.4	
Totals (Scope 1~3)	thousand tCO ₂	97,920	102,072	98,263	92,526	89,530	[Scope 3 category] Category6: Business travel (Scope: Idemitsu Kosan Co.,Ltd.) Category7: Employee commuting (Scope: Idemitsu Kosan Co.,Ltd.)



Idemitsu

Waste	Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Total waste	t	233,861	243,841	213,550	215,354	209,828 <input checked="" type="checkbox"/>	<ul style="list-style-type: none"> •Hokkaido Refinery •Chiba Complex •Aichi Refinery •Tokuyama Complex •Cray Valley Idemitsu Corporation •Prime Polymer Co., Ltd., Anesaki Works
Reduced by intermediate treatment	t	95,023	98,319	86,998	91,227	107,605 <input checked="" type="checkbox"/>	
Recycled	t	138,762	145,438	126,415	123,182	100,840 <input checked="" type="checkbox"/>	
Final disposal (landfill)	t	76	84	137	945	1,383 <input checked="" type="checkbox"/>	
Final disposal rate	%	0.032	0.034	0.064	0.439	0.659 <input checked="" type="checkbox"/>	
Amount of Water Resources Used, Water Recycling Rate	Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Seawater	thousand t	1,199,226	1,205,868	1,231,103	1,257,447	1,288,375 <input checked="" type="checkbox"/>	•Domestic manufacturing+Domestic transportation
Water	thousand t	60,427	61,039	58,562	58,322	60,143 <input checked="" type="checkbox"/>	
Wastewater	thousand t	1,257,687	1,265,018	1,287,638	1,314,002	1,345,990 <input checked="" type="checkbox"/>	
Water recycling rate	%	-	-	-	-	90.2 <input checked="" type="checkbox"/>	<ul style="list-style-type: none"> •Hokkaido Refinery •Aichi Refinery •Cray Valley Idemitsu Corporation •Chiba Complex •Tokuyama Complex •Prime Polymer Co., Ltd., Anesaki Works <p>* Water recycling rate = Volume of recycled / (Volume of recycled + Volume of water intake for industrial water)</p>
Air Pollutant Emissions	Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
VOC emissions	t	3,778	3,892	3,751	3,707	3,658 <input checked="" type="checkbox"/>	<ul style="list-style-type: none"> •Hokkaido Refinery •Aichi Refinery •Oil depots (Kushiro, Hakodate, Hachinohe, Akita, Shiogama, Hitachi, Tokyo, Hachijojima, Oigawa, Niigata, Fushiki, Kishiwada, Hiroshima, Takamatsu, Kochi, Fukuoka, Nagasaki, Kagoshima) •Okinawa Idemitsu Co., Ltd. •Chiba Complex •Tokuyama Complex
High-Concentration PCB Waste Processing Results	Unit	Storage Volume or Volume Reduced				Scope of Reporting and Calculation Method	
Storage volume of previous fiscal year (as of the end of March 2018)	t			41 <input checked="" type="checkbox"/>			<ul style="list-style-type: none"> •Chiba Complex •Aichi Refinery •Cray Valley Idemitsu Corporation
Volume reduced through treating and sorting in FY2018	t			8 <input checked="" type="checkbox"/>			<ul style="list-style-type: none"> •Prime Polymer Co., Ltd., Anesaki Works •Lubricants Research Laboratory •Keihin Lube Center •Advanced Technology Research Laboratories
Storage volume as of the end of March 2019	t			33 <input checked="" type="checkbox"/>			<ul style="list-style-type: none"> •Oil depots (Kushiro, Hakodate, Hachinohe, Akita, Shiogama, Hitachi, Tokyo, Hachijojima, Oigawa, Niigata, Fushiki, Kishiwada, Hiroshima, Takamatsu, Kochi, Fukuoka, Nagasaki, Kagoshima) •Okinawa Idemitsu Co., Ltd. •Astomos Energy Corporation •Idemitsu Unitech Co., Ltd., R&D Center for Plastic Products •Kanazawa Gas Terminal
Amount of CFCs and HCFCs Used by Large-Scale Processing Equipment	Unit	March 2018	March 2019	March 2026 (Planned)	Scope of Reporting and Calculation Method		
CFC	t	0.0	0.0 <input checked="" type="checkbox"/>	0.0	•Hokkaido Refinery	•Chiba Complex	•Aichi Refinery
HCFC	t	42.9	42.9 <input checked="" type="checkbox"/>	0.0	•Tokuyama Complex	•Cray Valley Idemitsu Corporation	•Prime Polymer Co., Ltd., Anesaki Works
					•BASF Idemitsu Co., Ltd.		
Chlorofluorocarbons Leakage Results	Unit	FY2018			Scope of Reporting and Calculation Method		
Large-scale equipments	t-CO ₂			383.7 <input checked="" type="checkbox"/>	•Hokkaido Refinery	•Chiba Complex	•Aichi Refinery
Air conditioners	t-CO ₂			1471.2 <input checked="" type="checkbox"/>	•Tokuyama Complex	•Cray Valley Idemitsu Corporation	•Prime Polymer Co., Ltd., Anesaki Works
Others	t-CO ₂			2.5 <input checked="" type="checkbox"/>	•BASF Idemitsu Co., Ltd.	•Advanced Technology Research Laboratories	
Totals	t-CO ₂			1857.4 <input checked="" type="checkbox"/>	•Performance Materials Laboratories	•Idemitsu Unitech Co., Ltd.	
Number of Environmental Accidents FY2018		0 case					
Acquisition Status of ISO 14001 (Environmental Management Systems) * As of July 1, 2019							
Domestic business sites		19 sites					
Overseas business sites		8 sites					



Environment

- Environmental data covers Showa Shell Sekiyu K.K. and its group companies indicated with ●. However, the scope of reporting of each data point differs. For details, please refer to the notes for each data point.
- Environmental data for FY2018 indicated with ☑ has been assured by the Independent Practitioner.
- Showa Shell's FY2018 is from January 2018 to March 2019 (15 months). However, the reporting period of each data point differs. For details, please refer to the notes for each data point.
- Totals may not be exact due to rounding.
- In addition, some numerical data in the previous fiscal years has been revised.

Showa Shell

Overview of Environmental Impacts		Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Crude oil procurement and import	Energy	PJ	7.1	7.6	9.0	9.5	12 ☑	[Calculation method] Energy: Calculated by multiplying fuel consumption during crude oil transportation by unit of heat release
	Equivalent in crude oil	thousand kl	183	195	233	246	315 ☑	In regard to a part of transportation data whose direct fuel consumption cannot be measured, estimates are based on average fuel consumption
	CO ₂ -Scope 1	thousand tCO ₂	-	-	-	-	0 ☑	Unit of heat release uses figures from the Act on the Rational Use of Energy
	CO ₂ -Scope 2	thousand tCO ₂	-	-	-	-	0 ☑	CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols
	CO ₂ -Scope 3	thousand tCO ₂	-	-	-	-	873 ☑	CO ₂ emissions: Calculated by multiplying energy consumption by CO ₂ emission coefficient CO ₂ emission coefficient uses figures from the Act on Promotion of Global Warming Countermeasures
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	506	540	647	681	873 ☑	[Scope 3 category] Category4: Upstream transportation and distribution (raw material) CO ₂ emissions attributable to transportation using ships chartered from other companies
Domestic manufacturing Oil refining	Energy	PJ	69	72	67	67	88 ☑	● Showa Yokkaichi Sekiyu Co., Ltd. ● TOA Oil Co., Ltd. ● Seibu Oil Co., Ltd.
	Equivalent in crude oil	thousand kl	1,784	1,857	1,732	1,727	2,282 ☑	
	Seawater	thousand t	135,472	138,733	137,039	133,554	170,600 ☑	
	Industrial water	thousand t	32,718	32,866	31,433	30,627	40,316 ☑	[Calculation method]
	Tap water	thousand t	184	173	196	170	194 ☑	Energy: Calculated based on the Act on the Rational Use of Energy
	Crude oil throughput	thousand kl	22,182	23,639	22,051	22,622	30,294 ☑	Water consumption: All amount of water intake used at production sites
	CO ₂ -Scope 1	thousand tCO ₂	-	-	-	-	6,982 ☑	CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols
	CO ₂ -Scope 2	thousand tCO ₂	-	-	-	-	434 ☑	CO ₂ emissions: Calculated based on the Act on Promotion of Global Warming Countermeasures
	CO ₂ -Scope 3	thousand tCO ₂	-	-	-	-	- ☑	However, only CO ₂ emissions are disclosed (excluding CH ₄ , N ₂ O, HFC, PFC, SF ₆ , NF ₃)
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	4,820	5,068	4,750	4,852	7,416 ☑	SOx: Calculated by multiplying fuel consumption by sulphur concentration levels
	SOx emissions	t	2,902	3,018	2,694	2,250	2,972 ☑	NOx, Soot/dust: Calculated by multiplying exhaust gases' actual measured value by actual measured value of exhaust gases' concentration levels
	NOx emissions	t	2,125	2,262	2,189	1,942	2,769 ☑	Wastewater: Total amount of wastewater from sites
	Soot/dust	t	80	135	91	72	95 ☑	Total waste: Total amount of industrial waste discharged excluding special controlled industrial waste
	Wastewater	thousand t	168,374	171,772	151,698	147,257	196,122 ☑	Unit energy consumption: Calculated based on the Act on the Rational Use of Energy
	COD	t	-	-	-	-	255 ☑	
	Total waste	t	46,009	42,607	42,886	37,994	51,296 ☑	
Final disposal (landfill)	t	24	32	16	3	0 ☑		
Unit energy consumption	Energy usage(crude oil equivalent)(l) /Atmospheric distillation equipment converted throughput(kl)		7.63	7.45	7.55	7.47	7.28 ☑	



Showa Shell

Overview of Environmental Impacts		Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Domestic manufacturing Other manufacturing (lubricants, asphalt, solar modules, etc.)	Energy	PJ	3.2	3.0	3.2	2.8	2.9 <input checked="" type="checkbox"/>	<ul style="list-style-type: none"> • Showa Shell Sekiyu K.K. • Shell Lubricants Japan K.K. • Keihin Biomass Power Co., Ltd. • Solar Frontier K.K. • Nippon Grease Co., Ltd. • Shoseki Kako Co., Ltd. (excluding Sunamachi Plant) • Rekisei Kagaku K.K. [Calculation method] Energy: Calculated based on the Act on the Rational Use of Energy Water consumption: All amount of water intake used at production sites CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols CO ₂ emissions by Scope: Calculated based on the Act on Promotion of Global Warming Countermeasures However, only CO ₂ emissions are disclosed (excluding CH ₄ , N ₂ O, HFC, PFC, SF ₆ , NF ₃) Wastewater: Total amount of wastewater from sites Total waste: Total amount of industrial waste discharged excluding special controlled industrial waste
	Equivalent in crude oil	thousand kl	83	77	81	72	75 <input checked="" type="checkbox"/>	
	Seawater	thousand t	2,248	-	-	-	-	
	Industrial water	thousand t	2,053	1,800	1,790	1,170	1,479 <input checked="" type="checkbox"/>	
	Tap water	thousand t	197	116	110	79	110 <input checked="" type="checkbox"/>	
	Underground water	thousand t	0	1,990	1,734	2,009	2,102 <input checked="" type="checkbox"/>	
	CO ₂ -Scope 1	thousand tCO ₂	-	-	-	-	32 <input checked="" type="checkbox"/>	
	CO ₂ -Scope 2	thousand tCO ₂	-	-	-	-	108 <input checked="" type="checkbox"/>	
	CO ₂ -Scope 3	thousand tCO ₂	-	-	-	-	- <input checked="" type="checkbox"/>	
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	201	178	176	139	139 <input checked="" type="checkbox"/>	
	Wastewater	thousand t	4,497	3,906	3,634	3,258	3,691 <input checked="" type="checkbox"/>	
	Total waste	t	10,716	11,164	18,102	19,664	23,009 <input checked="" type="checkbox"/>	
Domestic transportation and storage	Energy	PJ	2.5	2.5	2.2	2.4	2.9 <input checked="" type="checkbox"/>	Storage <ul style="list-style-type: none"> • Showa Shell Sekiyu K.K. • Wakamatsu Gas K.K. • Japan Oil Network Co., Ltd. [Calculation method] Energy during product transportation: Calculated for shippers based on the Act on the Rational Use of Energy Energy at storage locations: Calculated based on the Act on the Rational Use of Energy CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols CO ₂ emissions: Calculated by multiplying energy consumption by the CO ₂ emission coefficient CO ₂ emission coefficient uses figures from the Act on Promotion of Global Warming Countermeasures
	Equivalent in crude oil	thousand kl	65	63	56	61	75 <input checked="" type="checkbox"/>	
	CO ₂ -Scope 1	thousand tCO ₂	-	-	-	-	1.0 <input checked="" type="checkbox"/>	
	CO ₂ -Scope 2	thousand tCO ₂	-	-	-	-	4.3 <input checked="" type="checkbox"/>	
	CO ₂ -Scope 3	thousand tCO ₂	-	-	-	-	193 <input checked="" type="checkbox"/>	
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	175	170	149	162	198 <input checked="" type="checkbox"/>	
Of the datas mentioned above, excludes storage	Equivalent in crude oil	thousand kl	-	-	-	-	72 <input checked="" type="checkbox"/>	[Calculation method] Unit energy consumption: Calculated based on the Act on the Rational Use of Energy
	Transportation volume	million t-km	-	-	-	-	7,172 <input checked="" type="checkbox"/>	
	Unit energy consumption	kl/million t-km	-	-	-	-	10.1 <input checked="" type="checkbox"/>	



Showa Shell

Overview of Environmental Impacts		Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Domestic sales	Energy	PJ	1.7	1.6	2.0	1.9	2.3 <input checked="" type="checkbox"/>	Showa Shell Contract Service Stations (approx. 3,000 locations)
	Equivalent in crude oil	thousand kl	43	41	51	50	61 <input checked="" type="checkbox"/>	[Calculation method] Energy: Calculated by multiplying actual energy consumption per marketing service station by the number of sales sites
	CO ₂ -Scope 1	thousand tCO ₂	-	-	-	-	0 <input checked="" type="checkbox"/>	CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols
	CO ₂ -Scope 2	thousand tCO ₂	-	-	-	-	9.9 <input checked="" type="checkbox"/>	CO ₂ emissions: Calculated by multiplying energy consumption by the CO ₂ emission coefficient CO ₂ emission coefficient uses figures from the Act on Promotion of Global Warming Countermeasures
	CO ₂ -Scope 3	thousand tCO ₂	-	-	-	-	102 <input checked="" type="checkbox"/>	[Scope 3 category] Category14: Service stations sales Service Stations not included in Scope 1 and 2
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	55	53	95	93	112 <input checked="" type="checkbox"/>	[Calculation method] Calculated by multiplying energy consumption of service stations not included in Scope 1 and 2 by CO ₂ emission coefficient
Consumption	Gasoline sales	thousand kl	8,694	8,699	8,678	8,663	9,555 <input checked="" type="checkbox"/>	[Calculation method]
	Jet fuel sales	thousand kl	1,791	1,794	1,919	2,179	2,501 <input checked="" type="checkbox"/>	Oil product sales: Domestic sales of oil products are aggregated by the oil product category. Export sales and product supply to other companies with volume business alliances are included in others of FY2018.
	Kerosene sales	thousand kl	2,681	2,625	2,670	2,790	3,248 <input checked="" type="checkbox"/>	CO ₂ emissions by Scope: Calculated in accordance with the GHG Protocols
	Diesel oil sales	thousand kl	5,395	5,366	5,337	5,655	6,622 <input checked="" type="checkbox"/>	CO ₂ emissions (during burning of domestic oil products): Calculated by multiplying domestic product sales by the CO ₂ emission coefficient
	Heavy fuel oil A sales	thousand kl					2,255 <input checked="" type="checkbox"/>	CO ₂ emission coefficient uses figures from the Act on Promotion of Global Warming Countermeasures
	Heavy fuel oil C sales	thousand kl	3,009	3,081	3,176	3,206	1,070 <input checked="" type="checkbox"/>	
	LPG (propane) sales	thousand kl				253	80 <input checked="" type="checkbox"/>	
	LPG (butane) sales	thousand kl					160 <input checked="" type="checkbox"/>	[Scope 3 category]
	Lubricants	thousand kl	*Included in others	*Included in others	*Included in others		344 <input checked="" type="checkbox"/>	Category11: Product use by customers
	Bacsic chemicals	thousand kl				*Included in others	1,448 <input checked="" type="checkbox"/>	Domestic sales volumes
	Others	thousand kl	6,085	6,588	4,760	4,509	8,980 <input checked="" type="checkbox"/>	* Lubricants and petrochemical products that are not used as fuel are not included in the calculation.
	CO ₂ -Scope 1	thousand tCO ₂	-	-	-	-	0 <input checked="" type="checkbox"/>	
	CO ₂ -Scope 2	thousand tCO ₂	-	-	-	-	0 <input checked="" type="checkbox"/>	
	CO ₂ -Scope 3	thousand tCO ₂	-	-	-	-	63,331 <input checked="" type="checkbox"/>	
	Total CO ₂ (Scope 1~3)	thousand tCO ₂	69,390	70,446	66,278	56,526	63,331 <input checked="" type="checkbox"/>	



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CO ₂ Emissions by Scope	Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Scope1	thousand tCO ₂	-	-	-	5,137	7,015 <input checked="" type="checkbox"/>	Domestic manufacturing (oil refining, other manufacturing)+Domestic transportation and storage
Scope2	thousand tCO ₂	-	-	-	530	556 <input checked="" type="checkbox"/>	Domestic manufacturing (oil refining, other manufacturing)+Domestic transportation and storage+ Domestic sales
Scope3	thousand tCO ₂	-	-	-	57,448	64,500 <input checked="" type="checkbox"/>	Crude oil procurement and import+Domestic transportation and storage+Domestic sales+ Consumption+Business travel and Employee commuting
(CO ₂ emissions related to business travel and employee commuting) * This data is included in Scope 3.	thousand tCO ₂	-	-	-	0.4	0.6 <input checked="" type="checkbox"/>	[Calculation method] CO ₂ emissions related to business travel: Calculated by multiplying the number of employees by emission intensity CO ₂ emissions related to employee commuting: Calculated by multiplying employee commuting costs by emission intensity CO ₂ emission intensity uses figures from the Emissions Unit Values Database on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain
Totals (Scope 1~3)	thousand tCO ₂	75,148	76,454	72,095	63,115	72,070 <input checked="" type="checkbox"/>	[Scope 3 category] Category6: Business travel (Scope: Showa Shell Sekiyu K.K.) Category7: Employee commuting (Scope: Showa Shell Sekiyu K.K.)

Waste	Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Total waste	t	46,009	42,607	42,886	37,994	40,188 <input checked="" type="checkbox"/>	• Showa Yokkaichi Sekiyu Co., Ltd. • TOA Oil Co., Ltd.
Reduced by intermediate treatment	t	-	-	-	-	26,087 <input checked="" type="checkbox"/>	• Seibu Oil Co., Ltd.
Recycled	t	-	-	-	-	14,102 <input checked="" type="checkbox"/>	FY2014~2017: Calculated from January to December of each year FY2018: Calculated from April 2018 to March 2019
Final disposal (landfill)	t	24	32	16	3	0 <input checked="" type="checkbox"/>	
Final disposal rate	%	0.052	0.075	0.036	0.008	0.000 <input checked="" type="checkbox"/>	



Showa Shell

Amount of Water Resources Used, Water Recycling Rate	Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
Seawater	thousand t	137,719	138,733	137,039	133,554	170,600 <input checked="" type="checkbox"/>	<ul style="list-style-type: none"> • Showa Yokkaichi Sekiyu Co., Ltd. • TOA Oil Co., Ltd.
Industrial water	thousand t	34,770	34,666	33,223	31,797	41,795 <input checked="" type="checkbox"/>	<ul style="list-style-type: none"> • Seibu Oil Co., Ltd. • Showa Shell Sekiyu K.K.
Tap water	thousand t	381	289	306	248	304 <input checked="" type="checkbox"/>	<ul style="list-style-type: none"> • Shell Lubricants Japan K.K. • Keihin Biomass Power Co., Ltd.
Underground water	thousand t	0	1,990	1,734	2,009	2,102 <input checked="" type="checkbox"/>	<ul style="list-style-type: none"> • Solar Frontier K.K. • Nippon Grease Co., Ltd.
Wastewater	thousand t	172,871	175,678	155,332	150,515	199,812 <input checked="" type="checkbox"/>	<ul style="list-style-type: none"> • Shoseki Kako Co., Ltd.(excluding Sunamachi Plant) • Rekisei Kagaku K.K.
Water recycling rate	%	-	-	-	96.8	96.6 <input checked="" type="checkbox"/>	<ul style="list-style-type: none"> • Showa Yokkaichi Sekiyu Co., Ltd. • TOA Oil Co., Ltd. • Seibu Oil Co., Ltd. <p>* Water recycling rate = Volume of recycled / (Volume of recycled + Volume of water intake for industrial water)</p> <p>* Some data for Showa Yokkaichi Sekiyu Co., Ltd. uses estimates</p>

Air Pollutant Emissions	Unit	FY2014	FY2015	FY2016	FY2017	FY2018	Scope of Reporting and Calculation Method
VOC emissions	t	-	-	-	4,873	4,639	<ul style="list-style-type: none"> • Showa Shell Sekiyu K.K. • Showa Yokkaichi Sekiyu Co., Ltd. • TOA Oil Co., Ltd. • Seibu Oil Co., Ltd. • Shell Lubricants Japan K.K. • Japan Oil Network Co., Ltd.

Chlorofluorocarbons Leakage Results	Unit	FY2018	Scope of Reporting and Calculation Method
Large-scale equipments			<ul style="list-style-type: none"> • Showa Shell Sekiyu K.K.
Air conditioners	t-CO ₂	165.5 <input checked="" type="checkbox"/>	Reporting period: From April 2018 to March 2019
Others			
Totals	t-CO ₂	165.5 <input checked="" type="checkbox"/>	

Number of Environmental Accidents FY2018	0 case
	* As of July 1, 2019

Acquisition Status of ISO 14001 (Environmental Management Systems)	
Domestic business sites	11 sites