

Environmental Performance

Idemitsu works to reduce the environmental impact of its business activities while undertaking progressive initiatives for environmental conservation to contribute to the creation of a society in which the economy and the environment are in harmony.

Basic Policy

We place priority on conserving the environment across all our business domains, operations and actions and seek to promote the following:

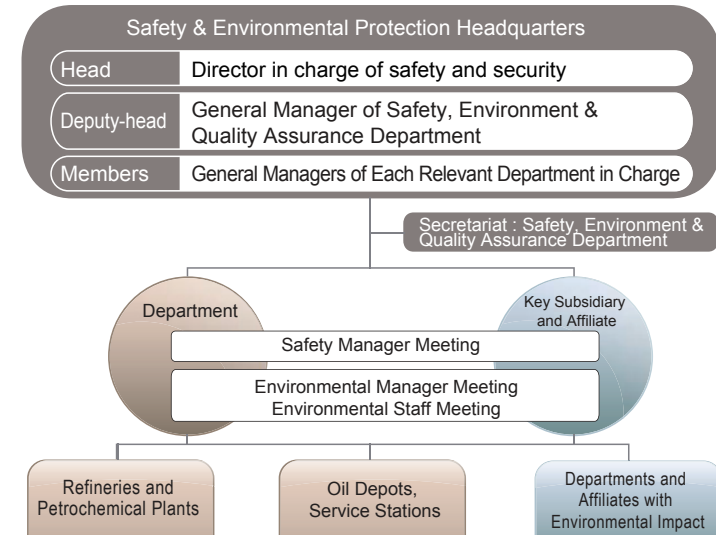
1. Pollution prevention and environmental conservation
2. Compliance with environment-related laws, regulations, agreements, and industrial standards
3. Establishment and achievement of environmental targets
4. Development and widespread use of environmental technologies and products
5. Improvement of energy use efficiency and effective resource utilization
6. Reduction of impact on biodiversity
7. Enhancement of environmental management systems

Environmental Management

Headquarters

The Idemitsu Group has established the Safety & Environmental Protection Headquarters, with the role of secretariat assigned to the Safety, Environment & Quality Assurance Department, aimed at strengthening the environmental conservation activities of the entire Group. As in the case of safety and security management, the head of the Safety & Environmental Protection Headquarters tours worksites to provide safety and environmental instructions and its secretariat implements safety and environment-related audits. Safety and environment-related audits are conducted once a year at petrochemical plants and once every three years at other worksites. Idemitsu also deploys environmental conservation managers and environmental staff in each department to promote autonomous environmental conservation activities.

Safety and Security Assurance Promotion Structure



Environmental Management Systems

The Idemitsu Group stipulates basic policies for environmental conservation in the General Principles of Global Environment. Based on these policies, the Safety & Environmental Protection Headquarters promotes ongoing environmental conservation activities. Also, the Idemitsu Group's domestic and overseas business sites where the environmental risk is significant have obtained ISO 14001** certification and are building and operating environmental management systems that conform to these standards. In Japan, we comply with environment-related laws and regulations, including the Act on the Rational Use of Energy, the Act on Promotion of Global Warming Countermeasures, and the High Pressure Gas Safety Act. Our overseas business offices conduct operations in compliance with each country's laws and regulations using their own management rules and overseas store management manuals. We have mandated that they establish a system for collecting information related to laws and regulations from external sources.

ISO 14001 Certified Worksites

Japan : Domestic Group worksites with certification: 28.0%

Worldwide : Overseas Group worksites with certification: 44.0%

**1 ISO 14001: An environmental management system standard created by the International Organization for Standardization.

Environmental Management at Our Refineries and Petrochemical Plants

Because refineries and petrochemical plants handle large volumes of hazardous materials, the occurrence of an explosion, fire, oil spill or other accident could negatively impact the surrounding environment. Accordingly, our refineries and petrochemical plants have established Safety & Environmental Sections within each worksite, and the Group's internal business units are working together to better ensure safety and security and protect the environment. In addition, they conduct assessments of environmental risks in operations and promote appropriate environmental management.

Environmental Management in Offshore Oilfield Development

The Idemitsu Group is carrying out petroleum exploration and production operations off the coast of Vietnam as a sole operator. Since 2006, the Company has implemented its own Safety, Health and Environmental Management System (SHEMS), which, based on the Idemitsu Group's accumulated rules, manuals and know-how related to safety, industrial health and the environment, serves as an integrated platform for management. We require that contractors adopt SHEMS as a prerequisite for concluding contracts. We continually strive to improve the system and update it accordingly (last overhaul: 2012). In addition, we are enhancing our measures to ensure safe operations. In June 2016, we conducted a safety and environmental audit of the Ho Chi Minh City Operation Office and exploratory drilling operations, and in March 2017, we conducted a safety assessment of the basic design of the production equipment in development operations.

Resource development, oil and gas, [safety and environmental initiatives](#)

Environmental Management at Coal Mines

Idemitsu Australia Resources (IAR), which is one of the coal business's bases and is based in Brisbane, Australia, is working to contribute to sustainable growth by solve various problems from a long-term perspective through management's commitment to the following policies.

- Environmental Management Policy
- Energy Management Policy
- Cultural Asset Policy
- Stakeholder Engagement Policy

As for specific activities, IAR is working based on an agreement with state governments and in collaboration with the local Aboriginal population to preserve cultural assets before excavation begins at mines. In addition, as part of its restoration efforts after excavation ends, IAR has thus far planted more than 340,000 endemic plants after filling back in excavated sites. In addition to the above efforts, IAR has acquired to date around 11,000 ha of land surrounding mines to protect animals and plants and preserve biodiversity.

Environmental Management in International Waters

Idemitsu Tanker Co., Ltd., which operates oceangoing tankers, has established various regulations for safe navigation and marine pollution prevention in accordance with the ISM Code,*2 ISO 14001 and ISO 9001*3 management systems.

There were zero major accidents, including collisions and fires, in fiscal 2017.

*2 International Safety Management (ISM) Code: An international standard incorporated into the International Convention for the Safety of Life at Sea (SOLAS), designed to augment the safety management of ships.

*3 ISO 9001: A quality management system standard of the International Organization for Standardization.

[Idemitsu Tanker Environment / Safety measures](#)

Environmental Education

Aiming to increase the environmental awareness of all employees, the Idemitsu Group provides environmental education through various means, including training courses for new and newly assigned employees and workshops at workplaces.

Moreover, we invite children from nearby elementary schools to visit our refineries, petrochemical plants and laboratories for environmental education and also offer classes at these schools.



An environmental education class being held at the Chiba Complex (July 5, 2017)



A class being held at an elementary school in Tomakomai, Hokkaido Prefecture (October 25, 2017)

[Tours, Workshops and School Classes](#)

Environment-Related Awards

Idemitsu's environmental activities are praised even by external organizations. In fiscal 2016, we won the Energy Conservation Center Chairman's Award in the energy conservation division. In fiscal 2017, Idemitsu Oita Geothermal Co., Ltd.'s Takigami Binary Cycle Power Station received the Minister of the Economy, Trade and Industry Prize (the top prize) of the Fiscal 2017 New Energy Awards from the New Energy Foundation. It was also honored at ENEX 2018's 42nd Exhibition for Harmony between the Global Environment and Energy.



Award Ceremony for the Fiscal 2017 Minister of the Economy, Trade and Industry Prize



Takigami Binary Cycle Power Station

Environmental Impact (FY2017)

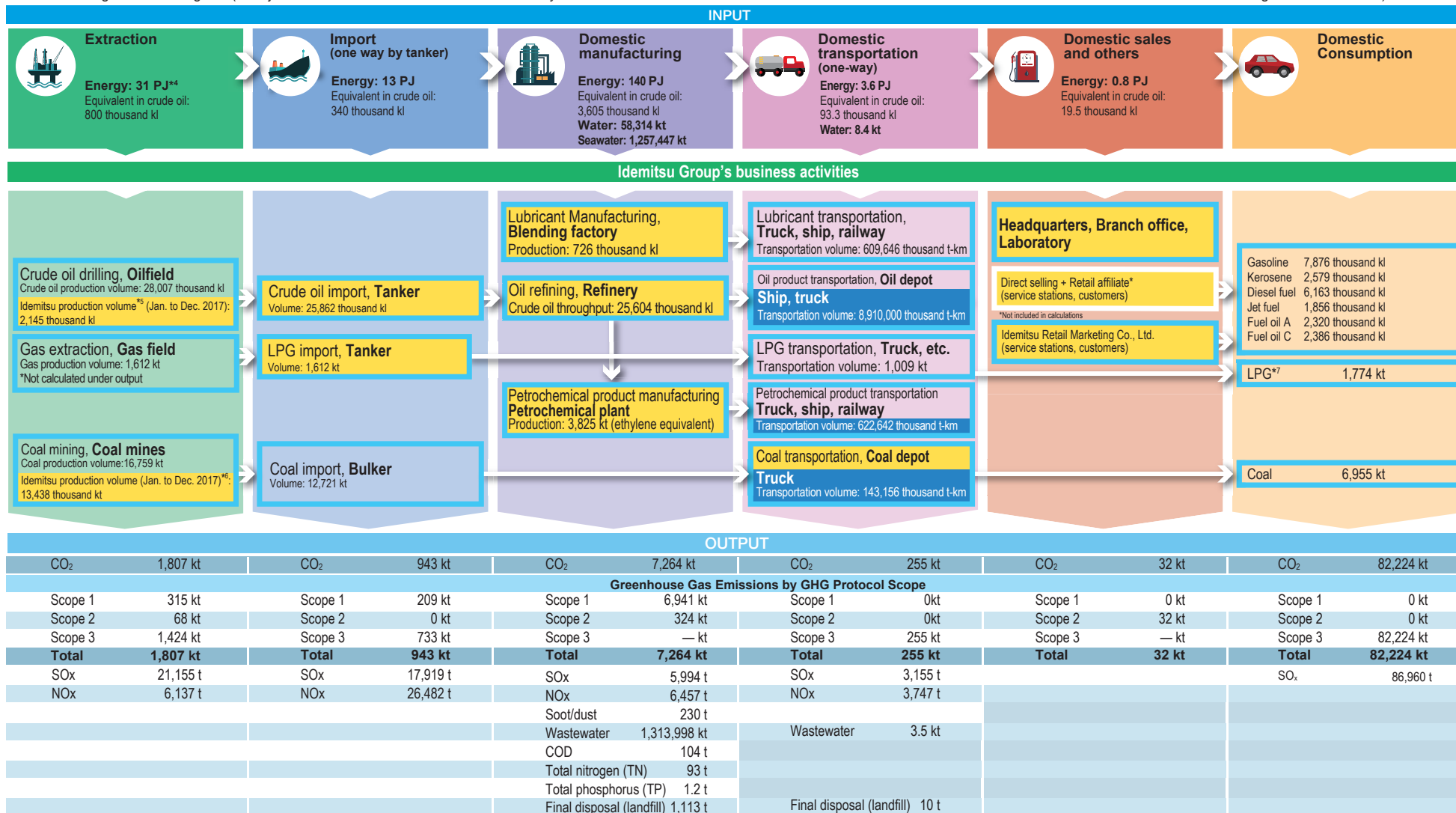
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Independent Practitioner's Assurance

Next

◆ PJ is an abbreviation for peta joule (10¹⁵ joule)

◆ Actual emission amount given for CO₂ figures (Unadjusted emission amount that does not reflect Kyoto mechanism credits or domestic certified emission reduction credits under the Act on Promotion of Global Warming Countermeasures)



*4 Energy used for extraction operations: Calculated using energy consumption and environmental emissions (weighted average) data for crude oil production provided in Table 2.1-7 of a report entitled the "Preparation of Life Cycle Inventory (LCI) of Petrochemical Products Including the Transportation Stage" published by the Japan Petroleum Energy Center, a general incorporated foundation.

*5 Idemitsu oil production volume: Total volume of crude oil produced at the North Sea and other oilfields in which Idemitsu holds working interests. Not exported to Japan.

*6 Idemitsu coal production volume: Total volume of coal produced at mines in Australia in which Idemitsu holds working interests. Only a portion is exported to Japan.

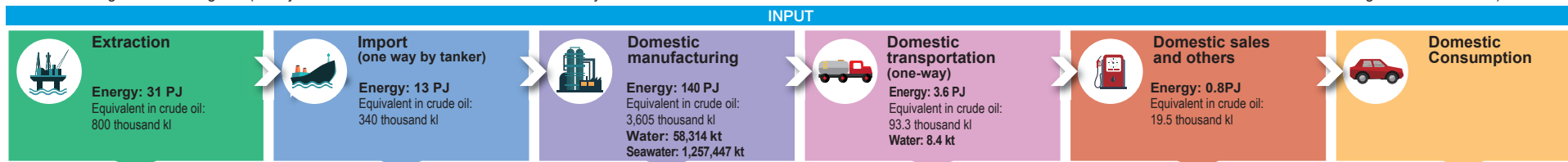
*7 When calculating CO₂ emissions using the GHG Protocol, we multiply the amount of LPG by our stake (51%) in Astomos Energy Corporation.

Environmental Impact (FY2017)

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Independent Practitioner's Assurance

- ◆ PJ is an abbreviation for peta joule (10¹⁵ joule)
- ◆ Actual emission amount given for CO₂ figures (Unadjusted emission amount that does not reflect Kyoto mechanism credits or domestic certified emission reduction credits under the Act on Promotion of Global Warming Countermeasures)



Idemitsu Group's business activities

OUTPUT											
CO ₂	1,807 kt	CO ₂	943 kt	CO ₂	7,264 kt	CO ₂	255 kt	CO ₂	32 kt	CO ₂	82,224 kt
Greenhouse Gas Emissions by GHG Protocol Scope											
Scope 1	315 kt	Scope 1	209 kt	Scope 1	6,941 kt	Scope 1	0 kt	Scope 1	0 kt	Scope 1	0 kt
Scope 2	68 kt	Scope 2	0 kt	Scope 2	324 kt	Scope 2	0 kt	Scope 2	32 kt	Scope 2	0 kt
Scope 3	1,424 kt	Scope 3	733 kt	Scope 3	— kt	Scope 3	255 kt	Scope 3	— kt	Scope 3	82,224 kt
Total	1,807 kt	Total	943 kt	Total	7,264 kt	Total	255 kt	Total	32 kt	Total	82,224 kt
SO _x	21,155 t	SO _x	17,919 t	SO _x	5,994 t	SO _x	3,155 t			SO _x	86,960 t
NO _x	6,137 t	NO _x	26,482 t	NO _x	6,457 t	NO _x	3,747 t				
				Soot/dust	230 t						
				Wastewater	1,313,998 kt	Wastewater	3.5 kt				
				COD	104 t						
				Total nitrogen (TN)	93 t						
				Total phosphorus (TP)	1.2 t						
				Final disposal (landfill)	1,113 t	Final disposal (landfill)	10 t				

Basis for Output Calculations

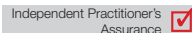
The environmental impact of resource extraction (exclusive of crude oil and coal operations) at Idemitsu-owned mines is calculated based on a report entitled "Preparation of Life Cycle Inventory (LCI) of Petrochemical Products Including the Transportation Stage" ("the LCI report") published by the Japan Petroleum Energy Center. Figures for Idemitsu-owned coal mines based on fuel consumption volumes. Because there is no report to use as reference for LP gas, it is omitted from these figures.	Figures for crude oil and LP gas are calculated based on LCI data for VLCCs and VLGCs aggregated by Idemitsu Tanker Co., Ltd. Figures for coal are based on the LCI report.	Figures for gases other than CO ₂ are those reported to government authorities and are based on measurements taken at refineries, petrochemical plants, lubricant blend factories and petrochemical subsidiaries.	Figures are calculated based on data included in regular reports on consignment operations.	Figures are those reported to government authorities by workplaces in charge of operations related to domestic sales (logistics, management and research divisions) and Idemitsu Retail Marketing Co., Ltd.	Figures are for emissions based on calculations that assume the combustion of petroleum sold by Idemitsu for use as fuel.
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Categorization under the GHG Protocol

Scope 1	Because the LCI report does not give specific coefficients for each scope, all emissions from Idemitsu-owned oil fields are calculated as Scope 1.	Figures are for emissions attributable to transportation on vessels owned and operated or regularly chartered by Idemitsu Tanker Co., Ltd.	Figures are for emissions arising from combustion and other raw materials processing at Group production sites.		
Scope 2	Figures are for emissions attributable to the production of energy supplied to the Group for the purpose of coal production at Idemitsu-owned coal mines.	No electricity or steam is supplied by external sources to vessels owned and operated or regularly chartered by Idemitsu Tanker Co., Ltd.	Figures include only those pertaining to the production of electricity and steam supplied from external sources. Other amounts are included in Scope 1 calculations.	Figures are based on electricity usage at workplaces in charge of operations related to domestic sales (logistics, management and research divisions) and Idemitsu Retail Marketing Co., Ltd.	
Scope 3	Emissions are estimates pertaining to products produced in oil fields and mines owned by other companies and subsequently imported by Idemitsu.	Emissions attributable to transportation using vessels chartered from other companies.	Figures do not include amounts resulting from the production of electricity or steam at refineries and petrochemical plants that is sold to neighboring non-Group facilities.	All domestic transportation is contracted to transport and shipping companies.	Service stations managed by retail outlets are not included. Figures are for emissions resulting from the combustion as fuel of products sold. Lubricants and petrochemicals not used as fuel are not included.



Group Businesses' Greenhouse Gas Emissions Volume Categorized by GHG Protocol Scope (thousand tons)



	Upstream	The Idemitsu Group					Downstream	Total
	Extraction	Imports (one-way transportation by tanker)	Domestic manufacturing	Domestic transportation (one-way)	Domestic sales, and others	Subtotal	Domestic consumption	
Scope 1	315	209	6,941	0	0	7,150	0	7,465
Scope 2	68	0	324	0	32	356	0	424
Scope 3	1,424	733	—	255	—	988	82,224	84,637
Total	1,807	943	7,264	255	32	8,494	82,224	92,526

Note: Figures are rounded off and therefore may not exactly match the totals shown.

< Basis for Output Calculations >

Extraction

The environmental impact of resource extraction (exclusive of crude oil and coal operations) at Idemitsu-owned mines is calculated based on a report entitled "Preparation of Life Cycle Inventory (LCI) of Petrochemical Products Including the Transportation Stage" ("the LCI report") published by the Japan Petroleum Energy Center. Figures for Idemitsu-owned coal mines based on fuel consumption volumes. Because there is no report to use as reference for LP gas, it is omitted from these figures.

Imports (one-way by tanker)

Figures for crude oil and LP gas are calculated based on life cycle inventory (LCI) data for very large crude oil carriers (VLCCs) and very large gas carriers (VLGCs) aggregated by Idemitsu Tanker Co., Ltd. Figures for coal are based on the LCI report.

Domestic manufacturing

Figures for gases other than CO₂ are those reported to government authorities and are based on measurements taken at refineries, petrochemical plants, lubricant blend factories and petrochemical subsidiaries.

Domestic transportation (one-way)

Figures are calculated based on data included in regular reports on consignment operations.

Domestic sales and others

Figures are those reported to government authorities by workplaces in charge of operations related to domestic sales (logistics, management and research divisions) and Idemitsu Retail Marketing Co., Ltd.

Domestic consumption

Figures are for emissions based on calculations that assume the combustion of petroleum sold by Idemitsu for use as fuel.

< Categorization under the GHG Protocol >

Scope 1 (Direct emissions of CO₂ generated by emission sources owned or controlled by the Group)

Extraction

Because the LCI report does not give specific coefficients for each scope, all emissions from Idemitsu-owned oil fields are calculated as Scope 1.

Imports (one way by tanker)

Figures are for emissions attributable to transportation on vessels owned and operated or regularly chartered by Idemitsu Tanker Co., Ltd.

Domestic manufacturing

Figures are for emissions arising from combustion and other raw materials processing at Group production sites.

Scope 2 (Indirect emissions of CO₂ generated during the use of heat, steam, or electricity supplied by a separate operator)

Extraction

Figures are for emissions attributable to the production of energy supplied to the Group for the purpose of coal production at Idemitsu-owned coal mines.

Imports (one-way by tanker)

No electricity or steam is supplied by external sources to vessels owned and operated or regularly chartered by Idemitsu Tanker Co., Ltd.

Domestic manufacturing

Figures include only those pertaining to the production of electricity and steam supplied from external sources. Other amounts are included in Scope 1 calculations.

Domestic sales and others

Figures are based on electricity usage at workplaces in charge of operations related to domestic sales (logistics, management and research divisions) and Idemitsu Retail Marketing Co., Ltd.

Scope 3 (Indirect CO₂ emissions other than those from Scope 2)

Extraction

Emissions are estimates pertaining to products produced in oil fields and mines owned by other companies and subsequently imported by Idemitsu.

Imports (one-way by tanker)

Emissions attributable to transportation using vessels chartered from other companies

Domestic manufacturing

Figures do not include amounts resulting from the production of electricity or steam at refineries and petrochemical plants that is sold to neighboring non-Group facilities.

Domestic transportation (one-way)

All domestic transportation is contracted to transport and shipping companies.

Domestic sales and others

Service stations managed by retail outlets are not included.

Domestic consumption

Figures are for emissions resulting from the combustion as fuel of products sold. Lubricants and petrochemicals not used as fuel are not included.