PROJECT 2020+

Evolving unique chemical company

First Quarter, 2018 Financial Results

- Consolidated -

SHOWA DENKO K.K.

May 9, 2018

Toshiharu Kato, CFO
Director & Corporate Officer

Performance forecast and other statements pertaining to the future as contained in this presentation are based on the information available as of today and assumptions as of today regarding risk factors that could affect our future performance. Actual results may differ materially from the forecast due to a variety of risk factors, including, but not limited to, the economic conditions, costs of naphtha and other raw materials, demand for our products such as graphite electrodes and other commodities, market conditions, and foreign exchange rates. We undertake no obligation to update the forward-looking statements unless required by law.

Consolidated Companies

- Consolidated subsidiaries: 62
  Newly consolidated or excluded: none
- Equity method applied: 11
  Newly applied or excluded: none

Selected Data

(Average figure)

	Jan.- Mar. 2017	Jan.- Mar. 2018	Increase/ decrease
■Exchange rates:			
¥/US$	113.6	108.3	Yen appreciated by ¥5.3/$
¥/€	121.1	133.2	Yen depreciated by ¥12.1/€
■Domestic naphtha price: ¥/KL	41,900	47,900	6,000
■Aluminum			
LME price: US$/T	1,854	2,163	309
Domestic market*: K¥/T	265	289	24

Exchange rate at December 31, 2017 ¥113.0/US$, at March 31, 2018 ¥106.2/US$
⇒Yen appreciated by ¥6.8/US$

*Domestic market: data from Nikkei

Summary

(Unit: Billions of Yen)

	CQ1, 2017	CQ1, 2018	Increase/ decrease	2018 1H forecast	
				Initial forecast*	Revised forecast*
Net Sales	183.2	214.7	31.5	417.0	452.0
Operating Income	19.7	34.4	14.7	41.0	68.0
Non-operating income and expenses, net	-2.0	-1.6	0.4	-2.0	-2.0
Interest/Dividends income and expenses	-0.3	-0.3	-0		
Equity in earnings of affiliates	1.6	0.6	-1.1		
Foreign exchange gains or losses	-3.0	-2.4	0.7		
Other	-0.3	0.5	0.8		
Ordinary Income	17.7	32.8	15.1	39.0	64.5
Extraordinary Profit	0.2	0	-0.2	-6.0	-6.0
Extraordinary Loss	-1.6	-0.9	0.7		
Income before income taxes	16.3	31.9	15.6		
Income taxes	-1.3	-5.7	-4.4		
Profit	15.0	26.2	11.2		
Profit attributable to non-controlling interests	-0.4	-1.4	-1.0		
Profit attributable to owners of the parent	14.6	24.8	10.2	23.0	43.0

*Initial forecast was announced on February 14, 2018 and revised forecast was announced on May 9, 2018.

Extraordinary Profit/Loss

(Unit: Billions of Yen)

	CQ1, 2017	CQ1, 2018	Increase/ decrease
■Extraordinary Profit	0.2	0	-0.2
●Gain on sales of investment securities	0.2	—	-0.2
■Extraordinary Loss	-1.6	-0.9	0.7
●Loss on sales and retirement of noncurrent assets	-0.6	-0.7	-0.1
●Other	-1.0	-0.2	0.8
■Extraordinary Profit/Loss, Net	-1.4	-0.9	0.6

Consolidated Sales by Segment

(Unit: Billions of Yen)

	CQ1, 2017	CQ1, 2018	Increase/ decrease		2018 1H forecast	
					Initial forecast*	Revised forecast*
Petro-chemicals	64.6	53.8	-10.8	【Olefins】sales decreased (shipment volumes down due to shutdown maintenance) 【Organic chemicals】sales increased (vinyl acetate, ethyl acetate: market prices up) 【SunAllomer Ltd.】sales increased	103.0	111.0
Chemicals	33.3	36.0	2.7	【Basic chemicals】sales increased (AN, chloroprene rubber: market price up) 【Industrial gases】sales slightly increased 【Electronic chemicals】sales increased (shipment volumes of high-purity gases for electronics up) 【Functional chemicals】sales increased (price up due to the rise of raw material prices)	74.0	75.0
Electronics	29.7	27.7	-1.9	【HDs】sales decreased (shipment volumes down) 【Compound semiconductors】【Rare earth】sales increased (shipment volumes up) 【LIB materials】sales increased (shipment volumes up)	54.0	55.0
Inorganics	13.1	51.4	38.3	【Ceramics】sales decreased (shipment volumes of general alumina down) 【Graphite electrodes】sales significantly increased (market prices up, shipment volumes up), the effect of the consolidation of SHOWA DENKO CARBON Holding GmbH (4Q, 2017)	88.0	113.0
Aluminum	23.6	24.8	1.3	【High-purity foil for capacitors】sales increased (shipment volumes up) 【Aluminum specialty components】sales increased (shipment volumes for industrial equipment and automotive parts up) 【Aluminum cans】sales slightly decreased (shipment volumes for domestic down)	53.0	56.0
Others	32.0	34.3	2.3	【SHOKO Co., Ltd.】sales increased	67.0	69.0
Adjustments	-13.1	-13.4	-0.3		-22.0	-27.0
Total	183.2	214.7	31.5		417.0	452.0

*Initial forecast was announced on February 14, 2018 and revised forecast was announced on May 9, 2018.

Consolidated Operating Income by Segment

(Unit: Billions of Yen)

	CQ1, 2017	CQ1, 2018	Increase/ decrease		2018 1H forecast	
					Initial forecast*	Revised forecast*
Petro-chemicals	10.6	3.3	-7.2	【Olefins】profit decreased (shipment volumes down due to shutdown maintenance) 【Organic chemicals】profit decreased (raw material prices up) 【SunAllomer Ltd. 】profit increased	4.0	5.0
Chemicals	3.1	3.6	0.5	【Basic chemicals】profit increased (AN, chloroprene rubber: market price up) 【Industrial gases】profit slightly decreased (raw materials/fuel prices and distribution costs up) 【Electronic chemicals】profit increased (shipment volumes of high-purity gases for electronics up) 【Functional chemicals】profit decreased (raw material prices up)	7.0	8.0
Electronics	6.0	2.9	-3.2	【HDs】profit decreased (shipment volumes down) 【Compound semiconductors】【Rare earth】profit increased (shipment volumes up) 【LIB materials】profit slightly increased	5.0	6.0
Inorganics	-0.1	24.9	25.0	【Ceramics】profit increased (shipment volumes for electronic materials up) 【Graphite electrodes】profit significantly increased (market prices up, shipment volumes up), the effect of the consolidation of SHOWA DENKO CARBON Holding GmbH (4Q, 2017)	27.0	50.5
Aluminum	1.5	1.3	-0.2	【High-purity foil for capacitors】profit slightly increased (shipment volumes up) 【Aluminum specialty components】profit maintained at the CQ1, 2017 level 【Aluminum cans】profit decreased (shipment volumes for domestic down, metal prices up)	2.5	2.5
Others	0.2	0.8	0.6	【SHOKO Co., Ltd.】profit slightly increased	-0.5	1.0
Adjustments	-1.7	-2.5	-0.8		-4.0	-5.0
Total	19.7	34.4	14.7		41.0	68.0

*Initial forecast was announced on February 14, 2018 and revised forecast was announced on May 9, 2018.

Consolidated Balance Sheet

(Unit: Billions of Yen)

Assets	Dec. 31, 2017	Mar. 31, 2018	Increase/ decrease	Liabilities and Net Assets	Dec. 31, 2017	Mar. 31, 2018	Increase/ decrease
Cash and deposits	77.2	82.7	5.5	Notes and accounts payable	120.8	120.8	0
Notes and accounts receivable	176.0	162.8	-13.2	Interest-bearing debt	346.7	330.0	-16.8
Inventories	114.9	125.8	10.8	Net defined benefit liability	19.0	17.8	-1.2
Other current assets	37.2	36.8	-0.3	Other liabilities	173.3	151.5	-21.7
Total Current Assets	405.3	408.2	2.9	Total Liabilities	659.7	620.0	-39.7
Buildings and structures	85.5	84.3	-1.2	Capital stock	140.6	140.6	0
Machinery and equipment	151.6	147.8	-3.8	Capital surplus	61.7	78.9	17.2
Land	245.1	244.9	-0.2	Retained earnings	96.1	113.8	17.6
Other tangible fixed assets	23.7	23.6	-0.1	Treasury stock	-10.5	-1.7	8.9
Total Tangible Fixed Assets	505.9	500.6	-5.3	Total Shareholders' equity	287.9	331.6	43.7
Intangible Fixed Assets	12.4	13.1	0.7	Valuation difference on available-for-sale securities	16.5	15.0	-1.5
Investments and other assets	101.1	96.0	-5.1	Deferred gains or losses on hedges	3.8	1.4	-2.4
incl. investment securities	89.2	86.7	-2.5	Revaluation reserve for land	29.5	29.5	-0
				Foreign currency translation adjustment	15.5	8.4	-7.0
				Remeasurements of defined benefit plans	-4.7	-4.3	0.4
				Total accumulated other comprehensive income	60.6	50.1	-10.5
				Non-controlling interests	16.5	16.3	-0.3
Total fixed assets	619.4	609.7	-9.7	Total net assets	365.0	397.9	32.9
Total Assets	**1,024.7**	**1,017.9**	**-6.8**	**Total Liabilities and Net Assets**	**1,024.7**	**1,017.9**	**-6.8**

Total Assets
Interest-bearing Debt and D/E ratio

(Unit: Billions of Yen)

	Dec. 31, 2017	Mar. 31, 2018	Increase/ decrease
● **Total assets**	1,024.7	1,017.9	-6.8
● **Interest-bearing debt**	346.7	330.0	-16.8
● **Debt/Equity ratio**	0.95 times	0.83 times	-0.12p
● **Stockholders' Equity ratio**	34.0%	37.5%	3.5p

2018 Forecast

(Unit: Billions of Yen except Cash dividends per Share and Net income per Share)

	Initial forecast (Announced on Feb., 14)	Revised Forecast (Announced on May, 9)	Increase/ decrease	First Half	Second Half*
Net Sales	900.0	935.0	35.0	452.0	483.0
Operating Income	110.0	137.0	27.0	68.0	69.0
Non-operating income and expense	-4.0	-5.5	-1.5	-3.5	-2.0
Ordinary Income	106.0	131.5	25.5	64.5	67.0
Extraordinary Profit	-12.0	-12.0	0	-6.0	-6.0
Extraordinary Loss					
Net income attributable to owners of the parent	65.0	85.0	20.0	43.0	42.0
Net income attributable to owners of the parent per share	¥441.58	¥577.45	¥135.87		
Cash dividends per share	¥70	¥70	—		

* 2018 second half forecast was remained as the initial forecast.

Consolidated Net Sales by Segment, 2018 Forecast

(Unit: Billions of Yen)

	Initial forecast (Announced on Feb., 14)	Revised Forecast (Announced on May, 9)	Increase/ decrease	First Half	Second Half*
Petrochemicals	235.0	243.0	8.0	111.0	132.0
Chemicals	154.0	155.0	1.0	75.0	80.0
Electronics	116.0	117.0	1.0	55.0	62.0
Inorganics	193.0	218.0	25.0	113.0	105.0
Aluminum	110.0	113.0	3.0	56.0	57.0
Others	137.0	139.0	2.0	69.0	70.0
Adjustments	-45.0	-50.0	-5.0	-27.0	-23.0
Total	900.0	935.0	35.0	452.0	483.0

* 2018 second half forecast was remained as the initial forecast.

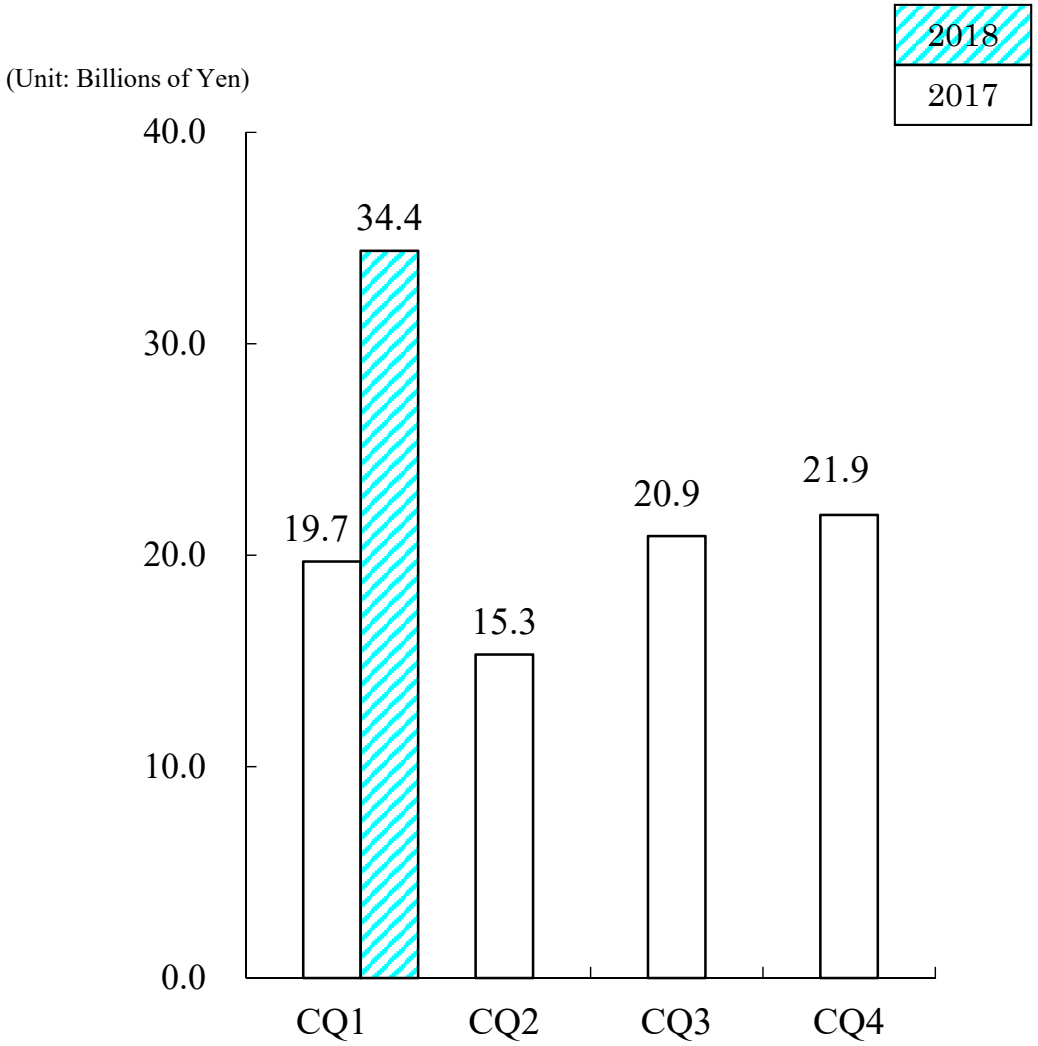
Consolidated Operating Income by Segment, 2018 Forecast

(Unit: Billions of Yen)

	Initial forecast (Announced on Feb., 14)	Revised Forecast (Announced on May, 9)	Increase/ decrease	First Half	Second Half*
Petrochemicals	19.0	20.0	1.0	5.0	15.0
Chemicals	17.0	18.0	1.0	8.0	10.0
Electronics	16.0	17.0	1.0	6.0	11.0
Inorganics	60.0	83.5	23.5	50.5	33.0
Aluminum	6.0	6.0	0	2.5	3.5
Others	0	1.5	1.5	1.0	0.5
Adjustments	-8.0	-9.0	-1.0	-5.0	-4.0
Total	110.0	137.0	27.0	68.0	69.0

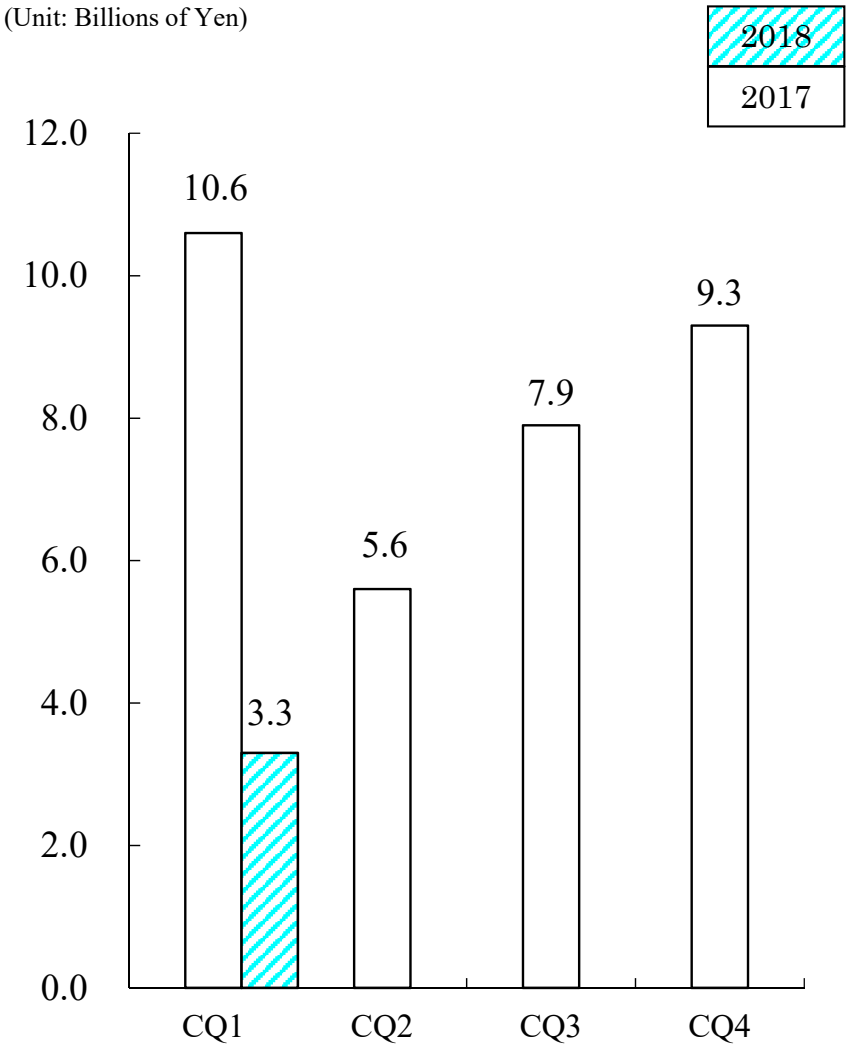
* 2018 second half forecast was remained as the initial forecast.

(Reference) Quarterly Operating Income

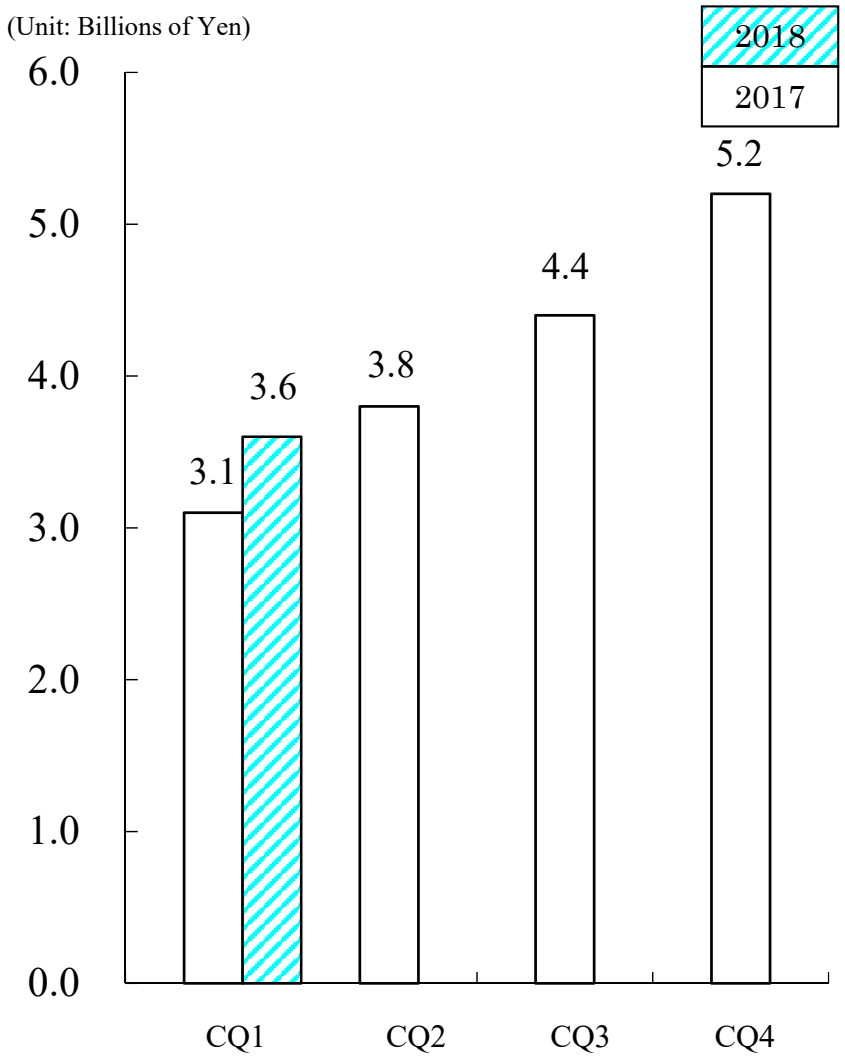


(Reference) Quarterly Operating Income by Segment

《Petrochemicals》

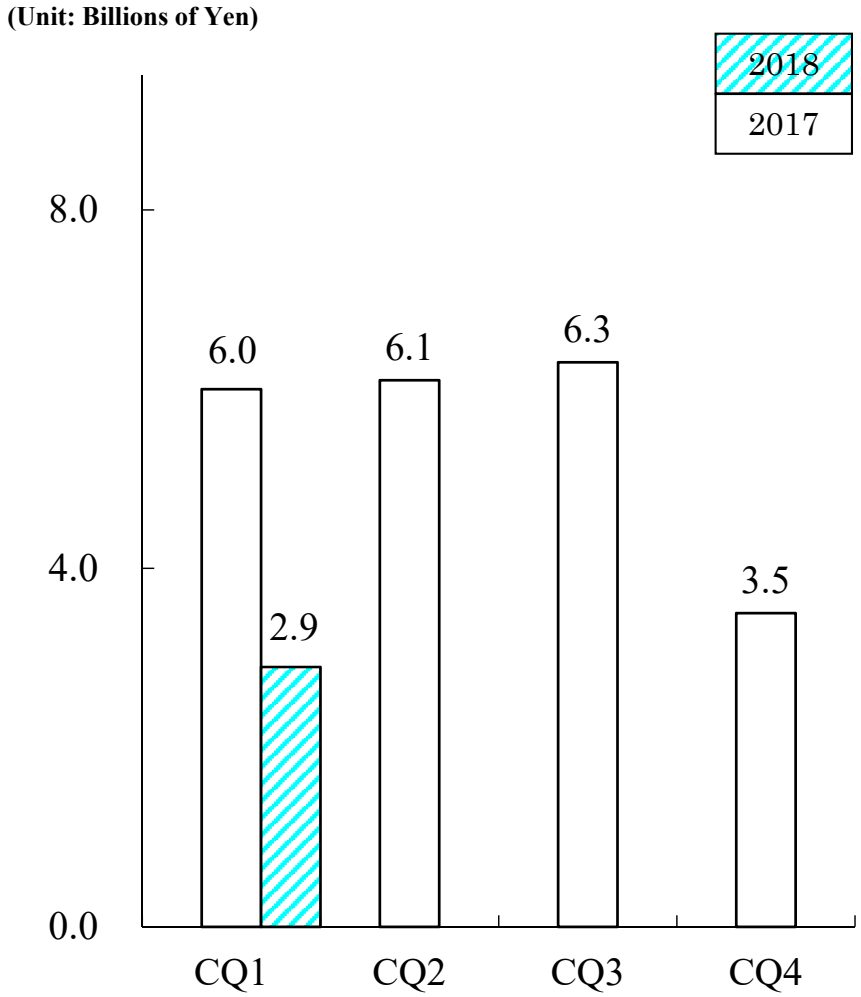


《Chemicals》

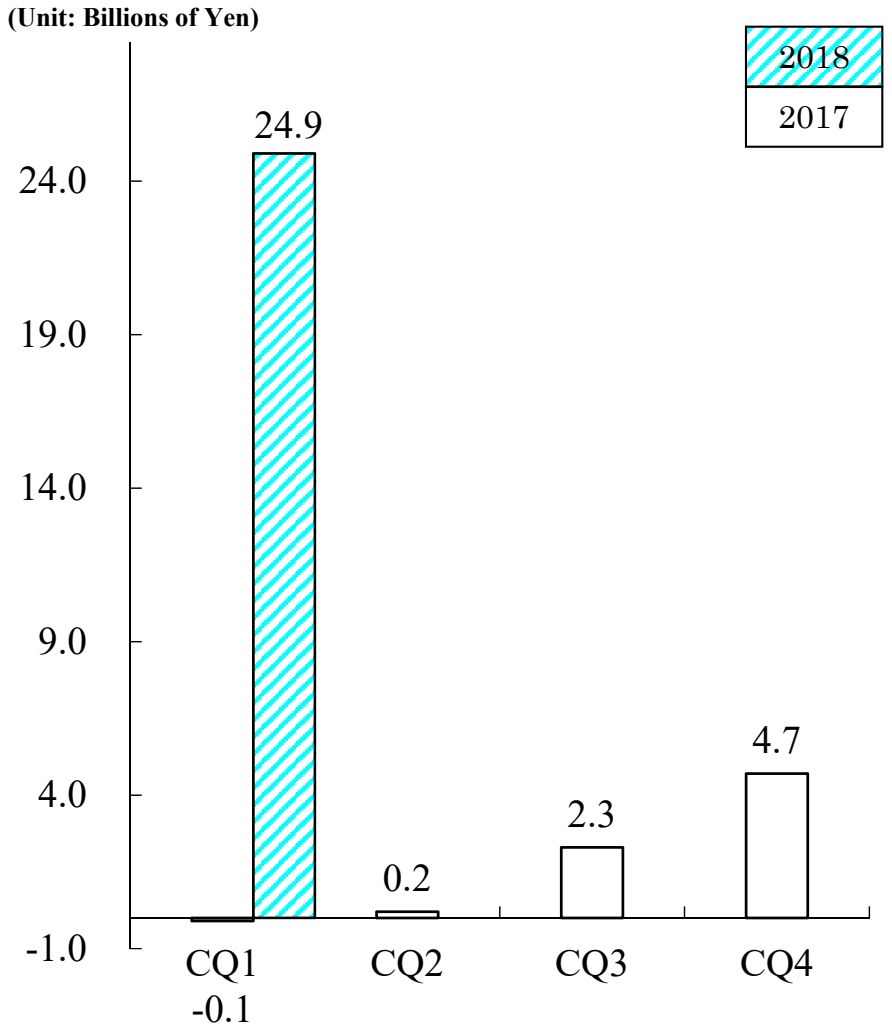


(Reference) Quarterly Operating Income by Segment

《Electronics》

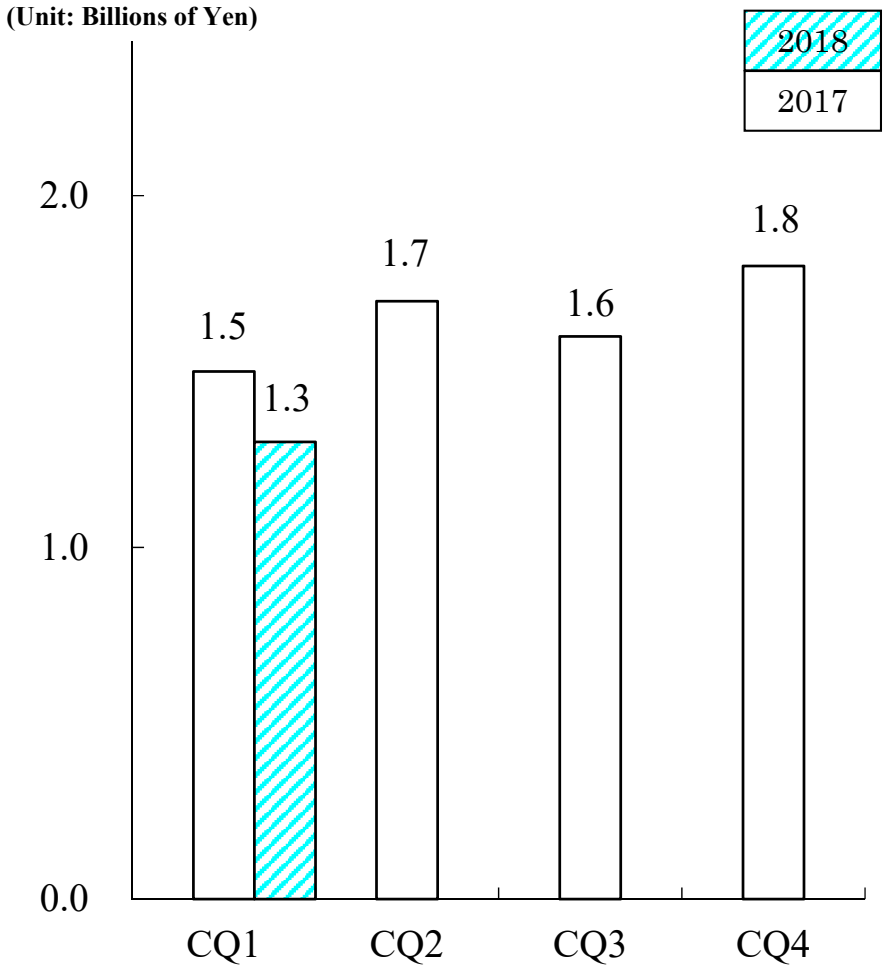


《Inorganics》

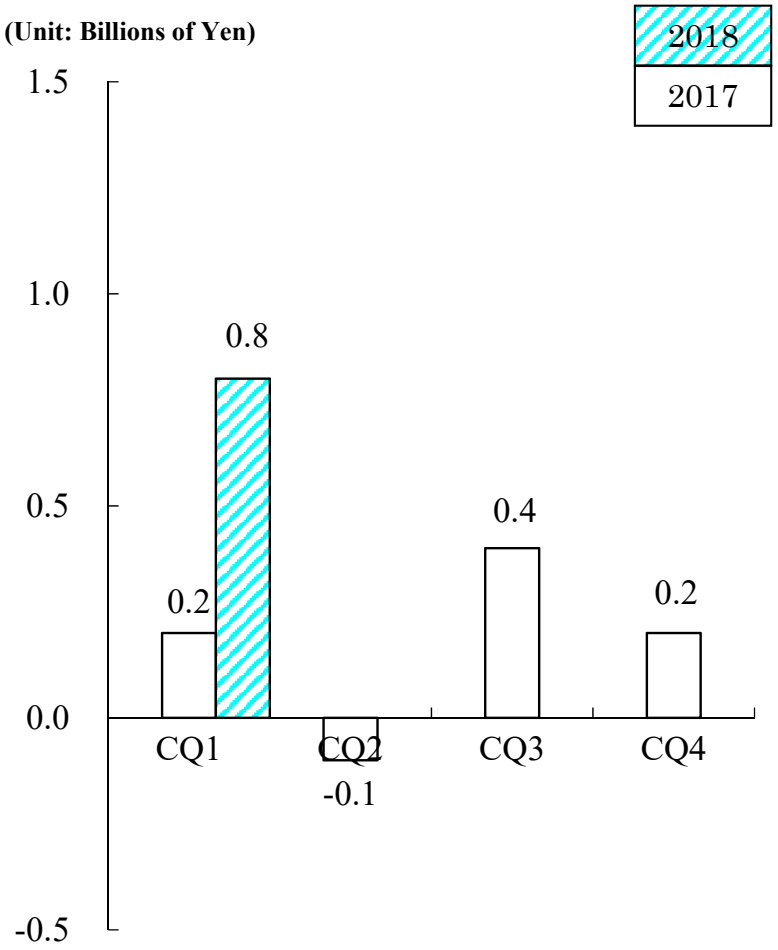


(Reference) Quarterly Operating Income by Segment

《Aluminum》



《Others》



Topics

[General]

● Offered treasury stock through International Offering

On March 6, 2018, SDK's Board of Directors resolved that the Company would offer 6 million shares of its treasury stock through an international offering, and the offer price of those shares was determined at ¥4,544 per share on the same day. SDK completed delivery of those shares to investors on March 23, 2018. SDK received about ¥26 billion through this transaction, and the purposes for which SDK will spend this amount are as follows:

1) SDK will spend about ¥16 billion by the end of this year for repayment of a bank loan which the Company borrowed in order to acquire SGL GE Holding GmbH in October 2017, and for investment to realize synergistic effects of the business integration between the two companies.
2) SDK will spend about ¥5 billion by the end of 2019 for investment at home and abroad to expand production capacities of its plants to produce high-purity gases for electronics
3) SDK will spend about ¥2 billon by the end of this year for investment in Vietnam and Thailand to expand/establish facilities to produce aluminum cans.
4) SDK will spend about ¥3 billion by the end of 2019 for investment to strengthen foundation of the LIB material business and to expand the capacity to produce SiC epitaxial wafer.

Through the fund-raising of this time, SDK will promote strategy for each business, aiming to establish and strengthen "individualized businesses," improve the business portfolio, and increase the ratio of overseas sales, and will strengthen the Company's financial standing.

Topics

[Chemicals segment]

- **Expanded high-purity hydrogen bromide plant**

  SDK expanded its annual capacity to produce high-purity hydrogen bromide (HBr) from 600 tons to 900 tons, 1.5 times as much as the previous level. The expanded plant started to produce HBr in this March. HBr is a specialty gas mainly used for fine-etching of polysilicon in the manufacturing process of semiconductors including DRAMs and NAND flash memories. The demand for HBr has been increasing due to ongoing expansion of the market for semiconductors caused by acceleration in the spread of IoT, big dada analysis, and automatic driving. SDK will continue responding quickly to the expansion of the electronic parts and materials industry's demand for HBr and scaling up its high-purity specialty gas business.

- **Opened Wuhan Branch of Shanghai Showa Chemicals Co., Ltd. aiming to strengthen sales of high-purity gases for electronics in China**

  In March 2018, SDK established a branch of Shanghai Showa Chemicals Ltd. (SSC) in Wuhan, Hubei Province, China, aiming to strengthen its business to sell high-purity gases for electronics in China. Semiconductor and flat panel display industries are growing rapidly in China due to the Chinese government's policy for the development of these industries and the increase in the global demand for electronic devices. In the past, SDK shipped all of its high-purity gases for electronics to be used by customers in China from SSC located in Shanghai. This time, however, SDK decided to establish a branch of SSC and its warehouse in Wuhan because there has been construction of large factories in Middle China to manufacture semiconductor chips and flat panel displays. The Showa Denko Group will continue enriching its network of bases to sell and distribute high-purity gases for electronics in China, aiming to expand the business in each region of the country and respond properly to the expansion of our customers' businesses.

Topics

[Electronics segment]

- LIB material "*VGCF*™" received a Grand Prize in "Low CO_2 Kawasaki Brand '17"

In February 2018, SDK's *VGCF*™, carbon-nanofiber additive to cathodes and anodes of lithium ion batteries (LIBs) to improve electrical conductivity, received a Grand Prize in the Product and Technology Category of "Low CO_2 Kawasaki Brand '17." SDK manufactures *VGCF*™ in its Kawasaki Plant. "Low CO_2 Kawasaki Brand" is awarded to products and technologies born in Kawasaki that emit less CO_2 than conventional ones throughout their life cycles from procurement of raw materials to disposal and recycling. *VGCF*™, which is an additive to cathodes and anodes of LIBs, forms electrical conducting paths between electrode materials, taking advantage of its particles' long and narrow shape. Through formation of these electrical conducting paths, *VGVF*™ gives LIBs longer life and larger current-carrying capacity per one cycle of charge and discharge. Thus *VGCF*™ reduces frequency of battery replacement, and reduces CO_2 emission throughout the life cycle of an LIB by about 45% from that of an LIB without *VGCF*™. The Showa Denko Group will continue developing products that reduce environmental burden, and contributing to society through its business activities.

[Aluminum segment]

- Strengthened R&D function for aluminum alloy materials

In February 2018, SDK established a laboratory named "Aluminum Product Evaluation Center" in its Kitakata Plant located in Fukushima Prefecture. Kitakata Plant is SDK's base to develop and manufacture cast and forged aluminum products. These days, manufacturers of automotive parts are required to realize considerable weight reduction of parts. SDK's aluminum products including *SHOTIC*™ are acclaimed by car manufacturers for their high strength, high abrasion resistance, and low thermal expansivity. In order to contribute to further weight reduction of cars, we should furthermore improve our aluminum alloy production technology, aiming to realize higher strength. In the new laboratory, we will develop alloys with higher performance. In addition, the Group aims to propose new multi-material products through composition of organic, inorganic, and metal materials by strengthening the Group's analysis technology, which will be realized by close cooperation among Aluminum Product Evaluation Center, Analysis & Physical Properties Center, and Computational Science and Technology Information Center. Thus the Group will continue striving to give birth to sprouts of new businesses which will contribute to further growth of the Group in the future.

Topics

[Others segment]

- **Expanded capacity for producing high-grade SiC epitaxial wafers for power devices**

  In April 2018, SDK expanded its capacity for producing high-quality-grade silicon carbide (SiC) epitaxial wafers for power devices, which had already been marketed under the trade name of “High-Grade Epi” (HGE), from former 3,000 wafers* per month to 5,000 wafers per month, and started production with expanded facilities. Moreover, in order to respond to a further increase in demand for HGE, SDK has decided to re-expand that capacity. After the re-expansion work which is to be finished in September 2018, that capacity will be increased to 7,000 wafers per month. In addition to the traditional use as power sources, SiC-based power devices are now replacing conventional silicon-based power devices for on-board use such as inverter modules for railcars, on-board battery chargers and rapid charging stations for EVs, in parallel with rapid expansion of the EV market. SDK will continue meeting the need of the market for high-quality SiC epitaxial wafers, aiming to contribute to the improvement in energy efficiency of power devices.

  *This number is based on a conversion into SiC epitaxial wafers for power devices having withstanding voltage of 1,200 V.

PROJECT 2020+

