

PROJECT 2020+



2018 1H Financial Results and Tasks for the 2H

**SHOWA
DENKO**

2018 2Q Financial Results Briefing Material

August 9, 2018

SHOWA DENKO

Kohei Morikawa, President & CEO

1. 2018 first half financial results/
Performance forecast for full-year 2018
2. 3-year total progress with “Project 2020 +”
3. Topics and tasks for each business
4. Basic image of the next medium-term business plan



2018 First Half Financial Results

◆ Recorded highest operating income for the first half of the year for 2 consecutive years, and decided to pay midterm dividend of ¥20 per share

(Unit: Billion yen)	2017 1H results a	2018 1H results b	Increase/ decrease b-a	2018 1H previous forecast*1
Net sales	372.2	455.8	+ 83.7	452.0
Operating income	35.0	78.1	+ 43.1	68.0
Ordinary income	22.2	77.8	+ 55.6	64.5
Net income attributable to owners of the parent	7.8	58.1	+ 50.3	43.0
Midterm dividend	¥0	¥20	+ ¥20	¥20*2

*1 Announced on May 9, 2018

*2 Announced on May 29, 2018

Performance forecast for full-year 2018

◆ **We expect achievement of all-time high full-year operating income for 2 straight years. Annual dividend will be increased to ¥90.**

(Unit: Billion yen)	FY 2017 results a	FY 2018 forecast ^{*1} b	Increase/ decrease b-a	FY 2018 previous forecast ^{*2}
Net sales	780.4	985.0	+ 204.6	935.0
Operating income	77.8	170.0	+ 92.2	137.0
Ordinary income	64.0	167.0	+ 103.0	131.5
Net income attributable to owners of the parent	33.5	115.0	+ 81.5	85.0
Annual dividend	¥50 ^{*3}	¥90 ^{*4}	+ ¥40	¥90 ^{*4}

*1 Announced on August 8, 2018

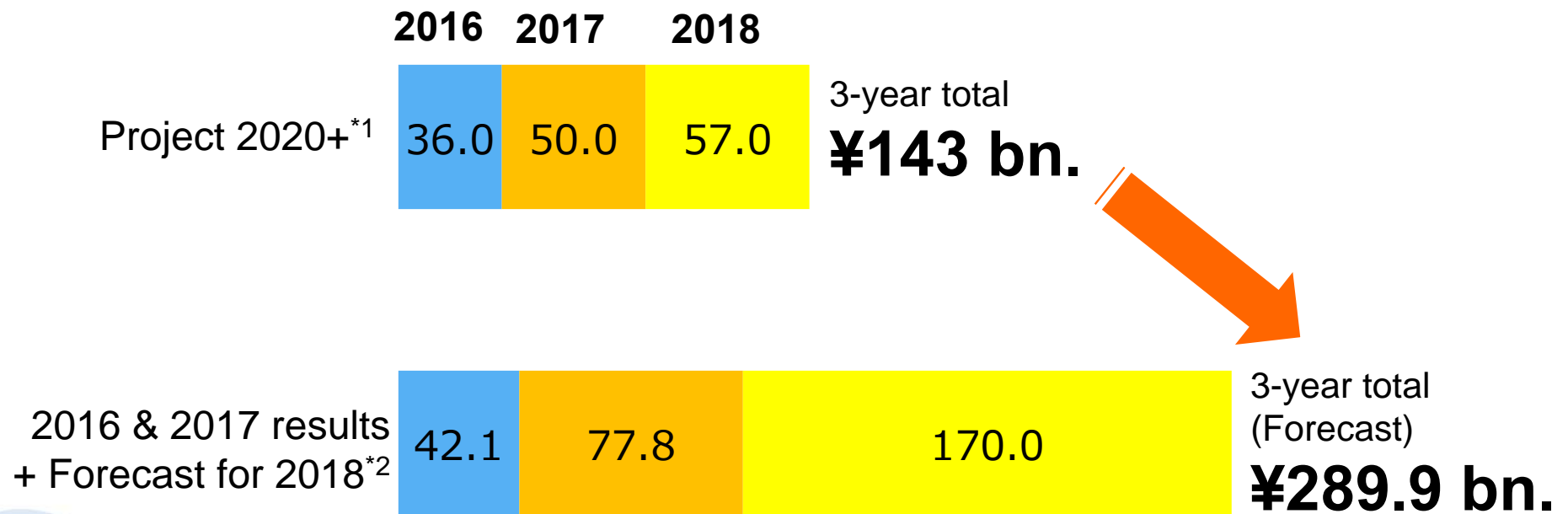
*2 Announced on May 9, 2018

*3 This amount does not include the dividend of ¥30/share paid on the basis of the record date of May 11, 2017

*4 Announced on May 29, 2018

"Project 2020+" 3-year total operating income

◆ Achieved our goal in profitability earlier than we planned

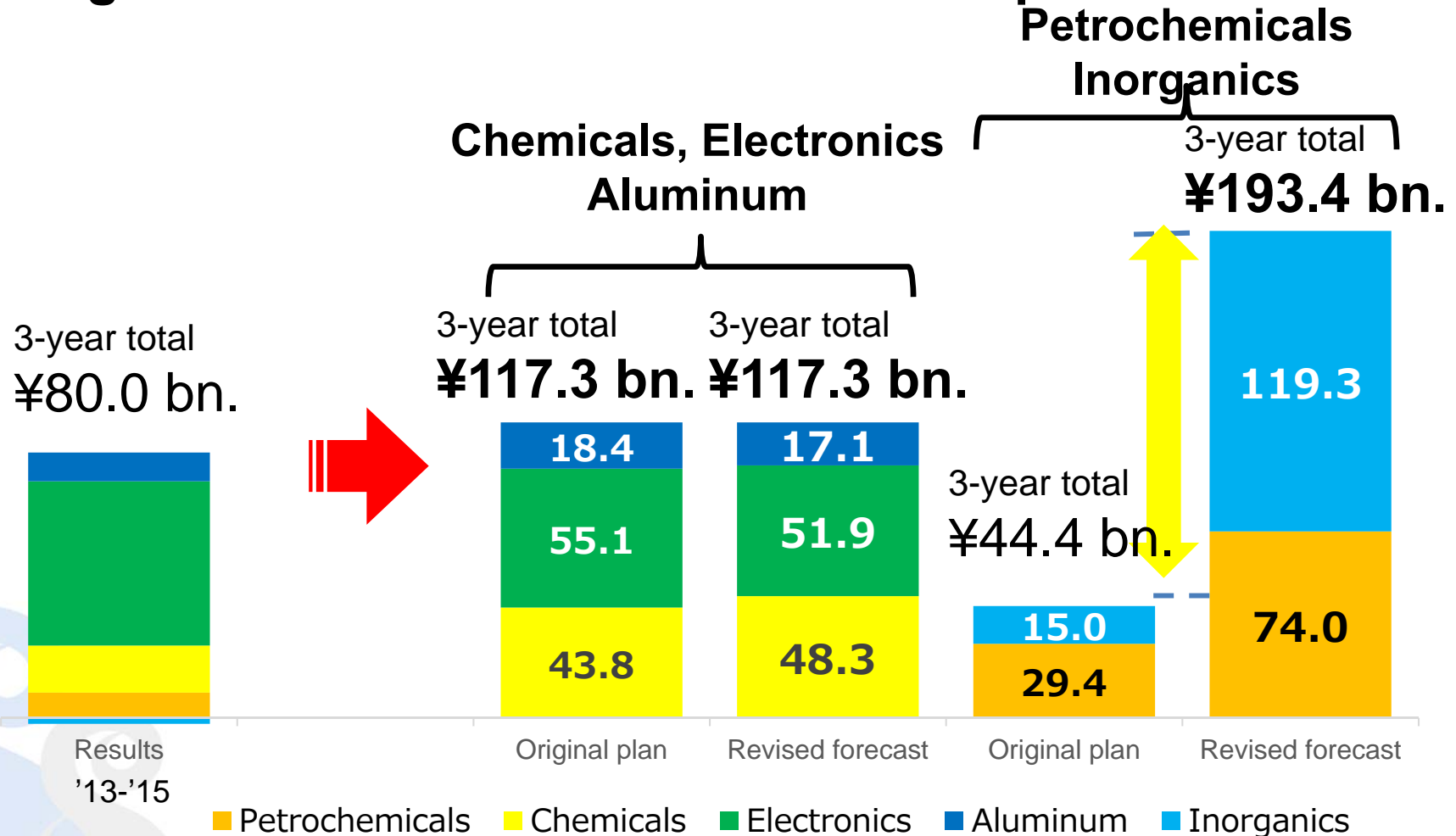


*1 Announced on December 11, 2015

*2 Announced on August 8, 2018

Segmentwise 3-year total operating income

◆ Profitability of segments other than Petrochemicals and Inorganics will also be stabilized and improved.



[Note] "Adjustments" are not included. In 2017, "LIB materials" was transferred from Others to Electronics.

Progress with “Project 2020+” in 2018

◆ Steadily taking strategic measures, aiming to realize sustainable growth

- Growth-accelerating and Advantage-establishing businesses

Business expansion through aggressive investment

- Post-merger integration in the graphite electrode business

Realizing effects of post-merger integration

- Structural reform

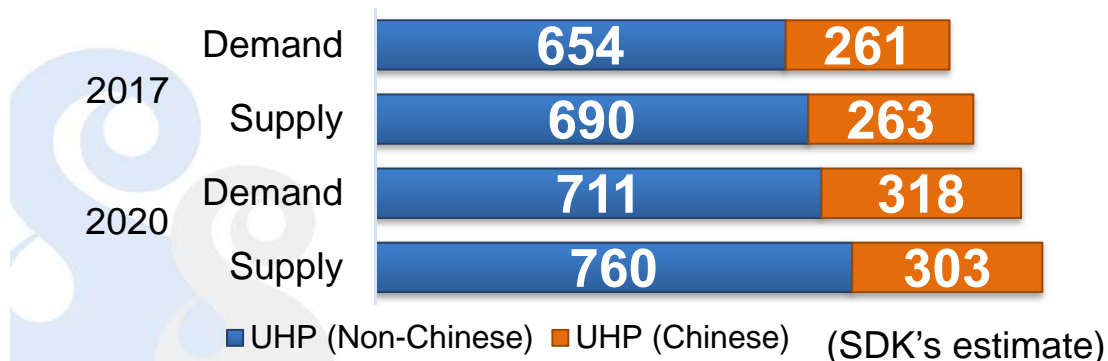
Agreed with ANTAM on transfer of SDK’s share in ICA

Graphite electrodes (1)

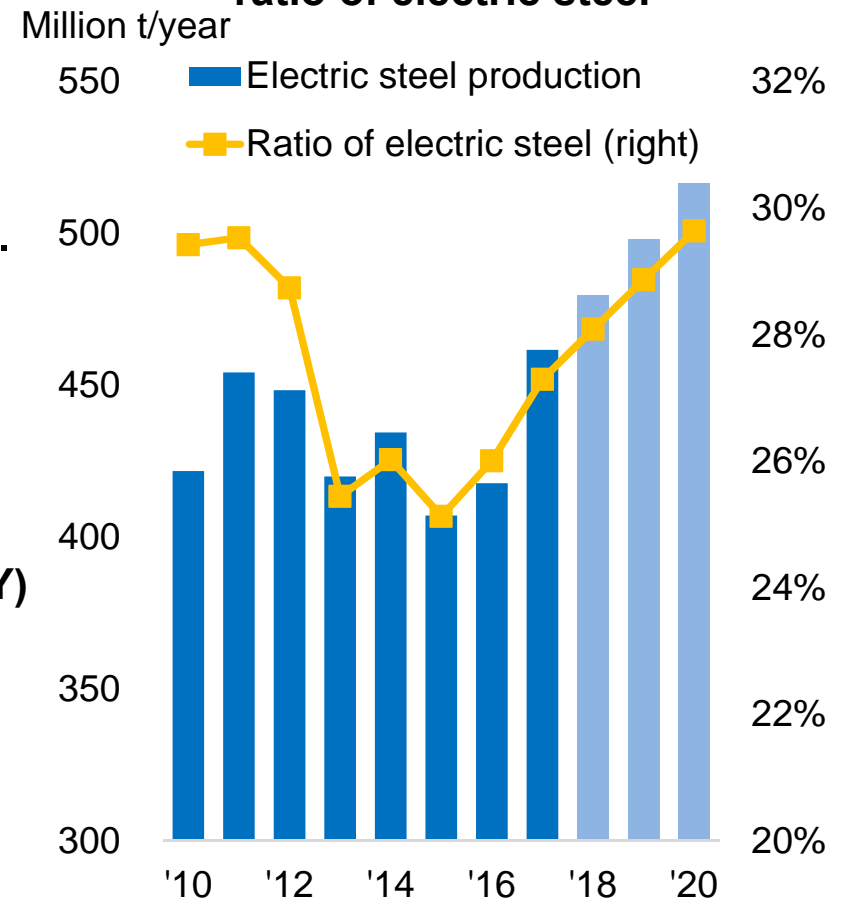
◆ UHP: Tight S/D balance continues

- Electric steel production has been increasing
⇒ Tight S/D balance in GE market continues
- GE prices in the global market
Prices are much higher than 2017 level
- Tightness in supply of raw material NC
⇒ NC market price is high. Securing NC.
- Chinese GE manufacturers plan to increase their production capacities
⇒ Centering on HP. Impact on S/D balance of UHP will be limited.

Forecast for global GE (UHP) S/D balance (1,000t/Y)



Electric steel production and ratio of electric steel

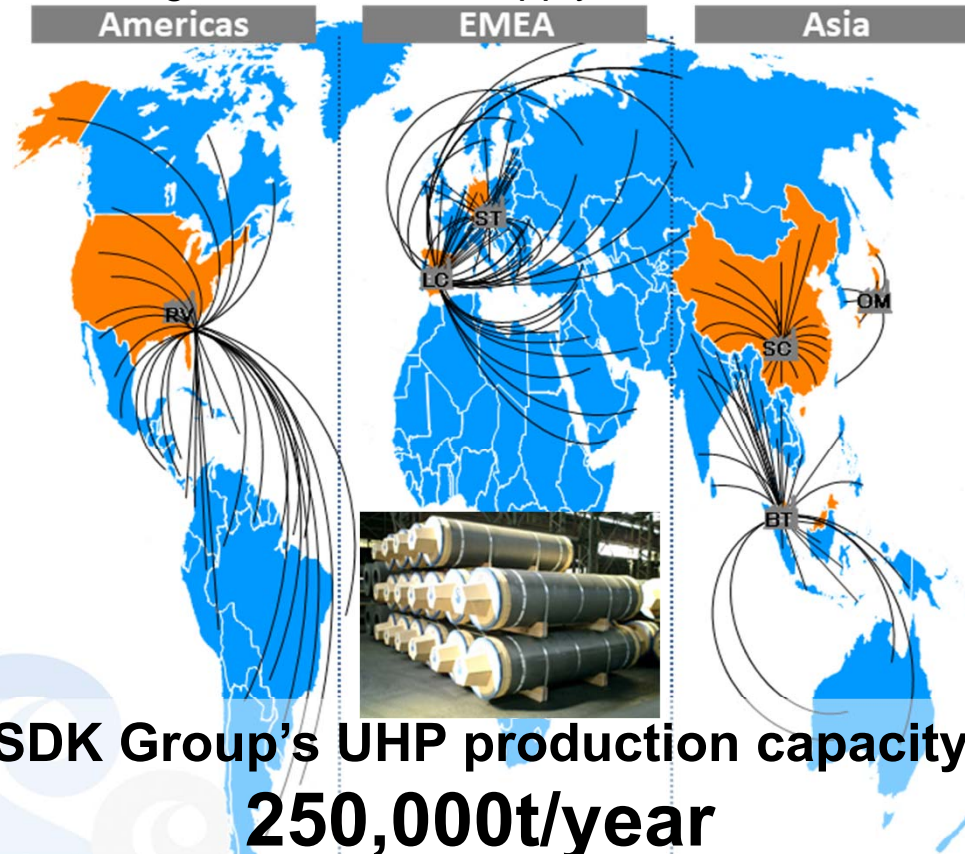


(WSA, SDK's estimate)

Graphite electrodes (2)

◆ Keep decisive lead in cost competitiveness Achieve “Value in use No.1” for customers

An image of SDK's GE supply network after PMI



SDK Group's UHP production capacity
250,000t/year

North America
75,000t/y

Europe
90,000t/y

Asia
85,000t/y

BIS40 (Big Integration Strategy)

- ❑ Clustered supply network
- ❑ Strengthen bargaining power for NC procurement
- ❑ Integrate sales channel
- ❑ Integrate and streamline administrative section

Cost reduction through PMI

Target: ¥4 billion



In 2018, we will achieve **more than 30%** of the target

Petrochemicals

◆ Supply/demand situation

- ❑ Strong demand in East Asia continues
- ❑ Many plants go into periodic maintenance
⇒ Full-capacity operation continues
- ❑ Petrochemicals (plastics) made from shale in US will partially flow into Asia in late 2018
⇒ Impact is limited due to strong demand

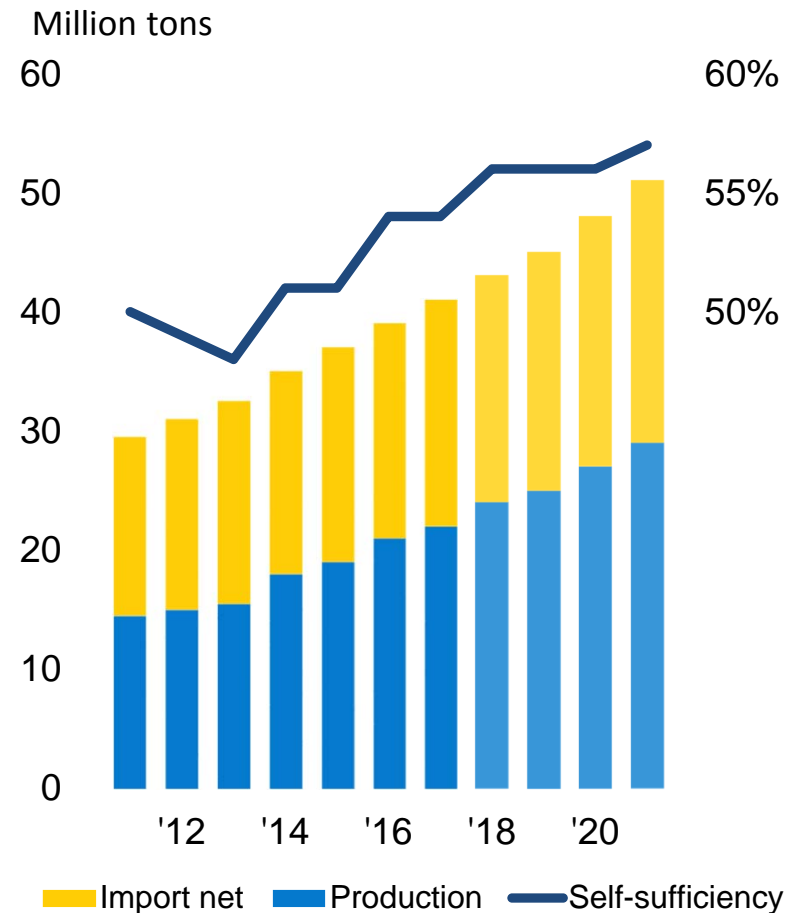
◆ Measures taken in the 1H of 2018

- ❑ **Completed 4-year full-capacity operation**
- ❑ Finished periodic repairs
- ❑ **Increased n-propyl acetate production capacity (18,200t/y)**

◆ Measures to be taken in the 2H of 2018

- ❑ Cooperation with oil refining complex:
To be subsidized through **CROS**
- ❑ Establish system to support full-capacity operation and sale of all products
- ❑ Promote commercialization of derivatives of ethylene under development

China: Production, import & self-sufficiency of ethylene



HD media

◆ **HDD will remain major device to store increasing data**
 → **Core business with sustainable profitability**

◆ **Supply/demand situation**

- Demand for HDDs for use in near-line servers for data centers and surveillance cameras shows major increase

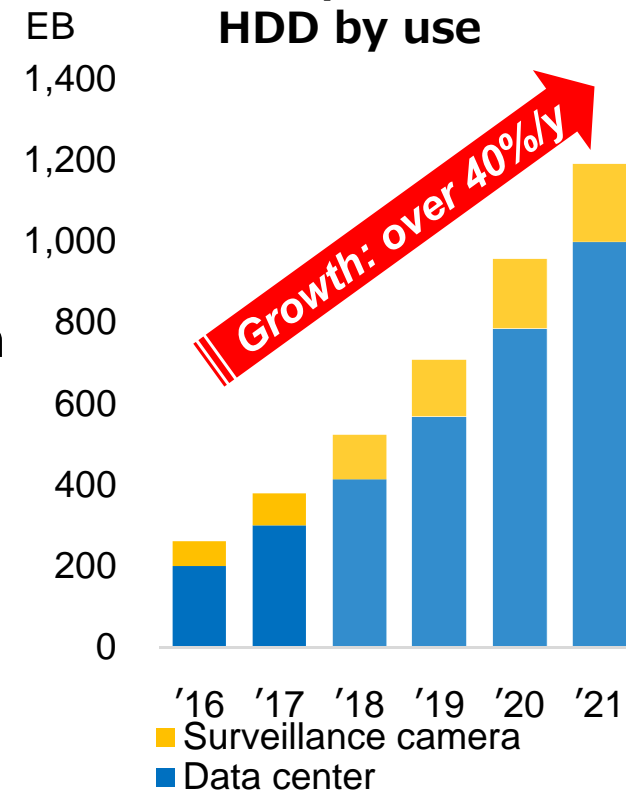
◆ **Measures taken in the 1H of 2018**

- Started full-scale shipment of next-generation HD media with large capacities
- 2.5" 1TB/pl
- 3.5" 1.5TB/pl
 ⇒ Large-capacity media for near-line use
 Started shipment for use in 14TB HDD

◆ **Tasks for the 2H of 2018**

- Develop 3.5" next-generation PMR product (1.8TB/pl)

Total capacities of HDD by use



(SDK's estimate)
 * EB (exabyte): 10¹⁸ byte

High-purity gases for electronics

◆ Supply/demand situation

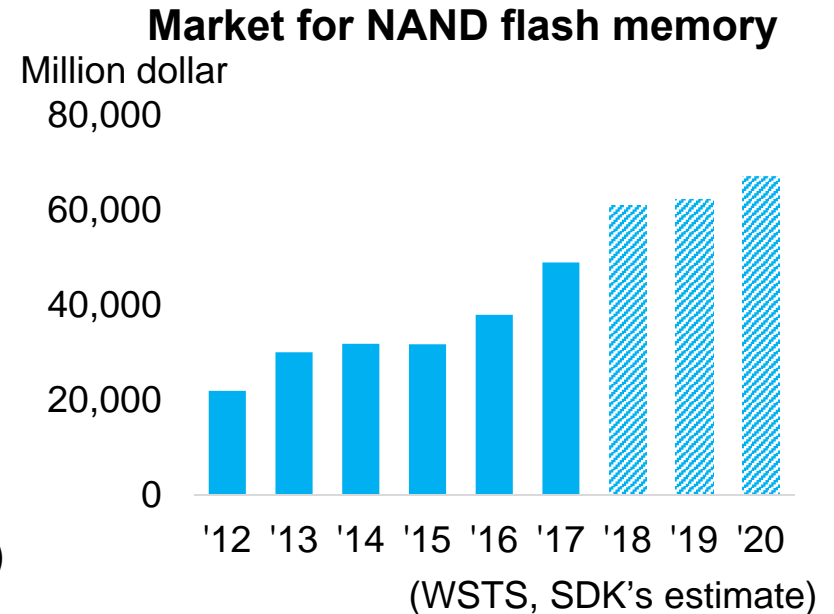
- ❑ Semiconductor (especially memory) and FPD markets remain strong
- ❑ East Asia: Semiconductor manufacturers continuously establish new factories
- ❑ Progress in mass production of 3D-NAND
⇒ Tight supply-demand relation for etching gas continues

◆ Measures taken in the 1H of 2018

- ❑ Expanded capacity to produce HBr (1.5 times)
- ❑ JV with SK Materials to produce CH₃F started operation
- ❑ Established sales & distribution base in Wuhan, China

◆ Tasks for the 2H of 2018

- ❑ Reinforce facilities to cope with the increase in demand
- ❑ Improve global distribution network:
Optimize distribution network management



Sales & distribution base in Wuhan
12

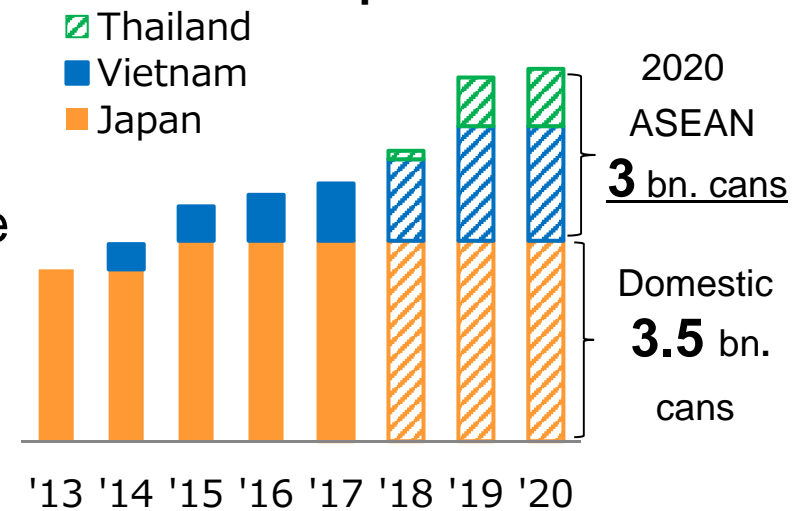
Aluminum cans

- ◆ Supply/demand situation
 - Domestic market is matured
Vietnamese market grows 10%/year
- ◆ Measures taken in the 1H of 2018
 - Second base in Vietnam was finished and started production in June 2018
⇒ Capacity in Vietnam: **2 bn. cans/y**
 - In Japan: Improved production and printing technologies
- ◆ Tasks for the 2H of 2018
 - Da Nang Plant: Realize vertical start up & full capacity operation as early as possible
 - JV with Carabao, Thailand will start operation in October 2018
⇒ Establish can production system with capacity of **3 bn. cans/y** in ASEAN



Hanacans' new factory near Da Nang

SDK Group's aluminum can production



Lithium ion battery (LIB) materials

◆ Supply/demand situation

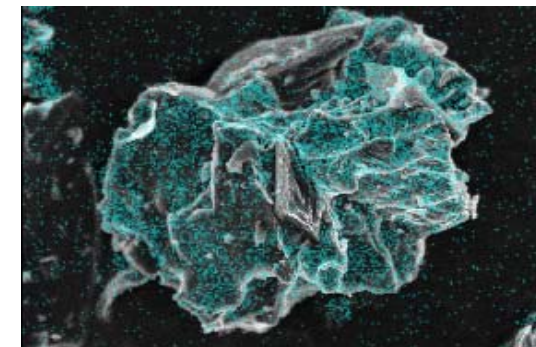
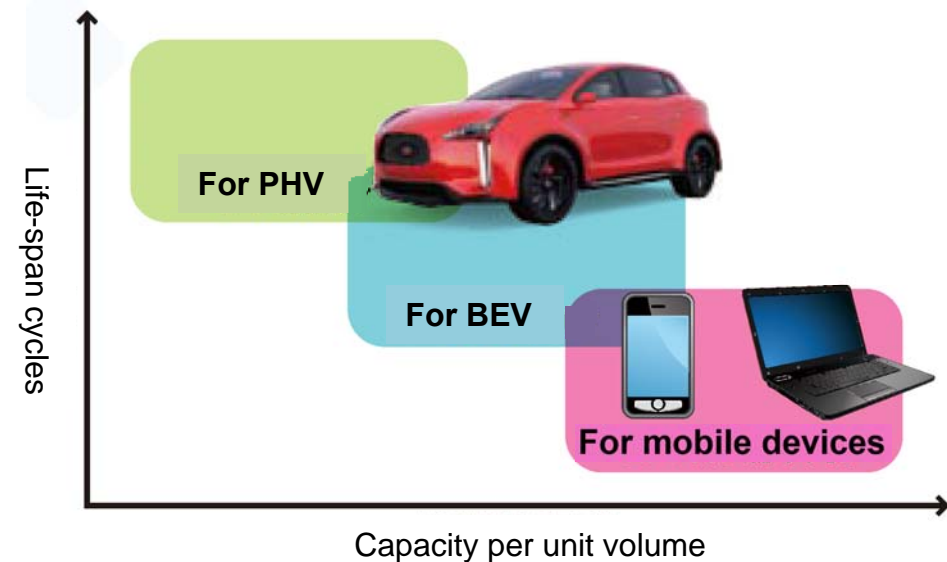
- ❑ China: Sluggish demand bottomed out in 1Q. Planned introduction of new NEV regulation in 2019 revives market growth
- ❑ Europe: Demand increases

◆ Measures taken in 1H 2018

- ❑ **Established sales base in China**
- ❑ Started to operate expanded VGCF™ production facilities

◆ Tasks for the 2H of 2018

- ❑ Conductivity assistant VGCF™: Consider further capacity expansion
- ❑ Anode material: Evaluate samples of Si-composite anode material
- ❑ Aluminum laminate packaging material SPALF™: Expand sales for automotive onboard use
- ❑ Develop materials for all-solid battery



Si-composite anode material

SiC epitaxial wafer for power devices

◆ Supply/demand situation

- Market for SiC-based power devices rapidly expands 1 year earlier than expected
Inverter for railcars, Power conditioner for solar/wind power, Rapid charger for EV
- Demand for high-quality epi-wafer expands
⇒SDK's global market share will **exceed 30%**



◆ Measures taken in the 1H of 2018

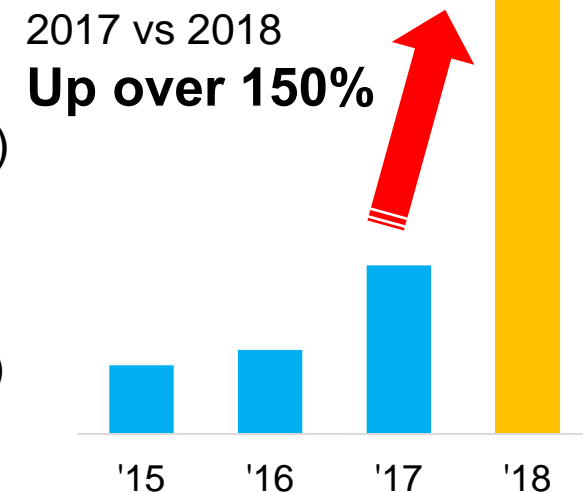
- Inherited Nippon Steel & Sumitomo Metal Group's intellectual properties and assets concerning SiC wafer
- Finished 1st expansion: 5,000 wafers/M (April 2018~)

◆ Tasks for the 2H of 2018

- Finish 2nd expansion: 7,000 wafers/M (Sep. 2018~)
- Decides 3rd expansion: 9,000 wafers/M (Feb. 2019~)

⇒Sales in 2018 will **exceed 2.5 times of 2017 level**

SDK's sales of epitaxial wafer



The Next Mid-term Business Plan

◆ Basic concept

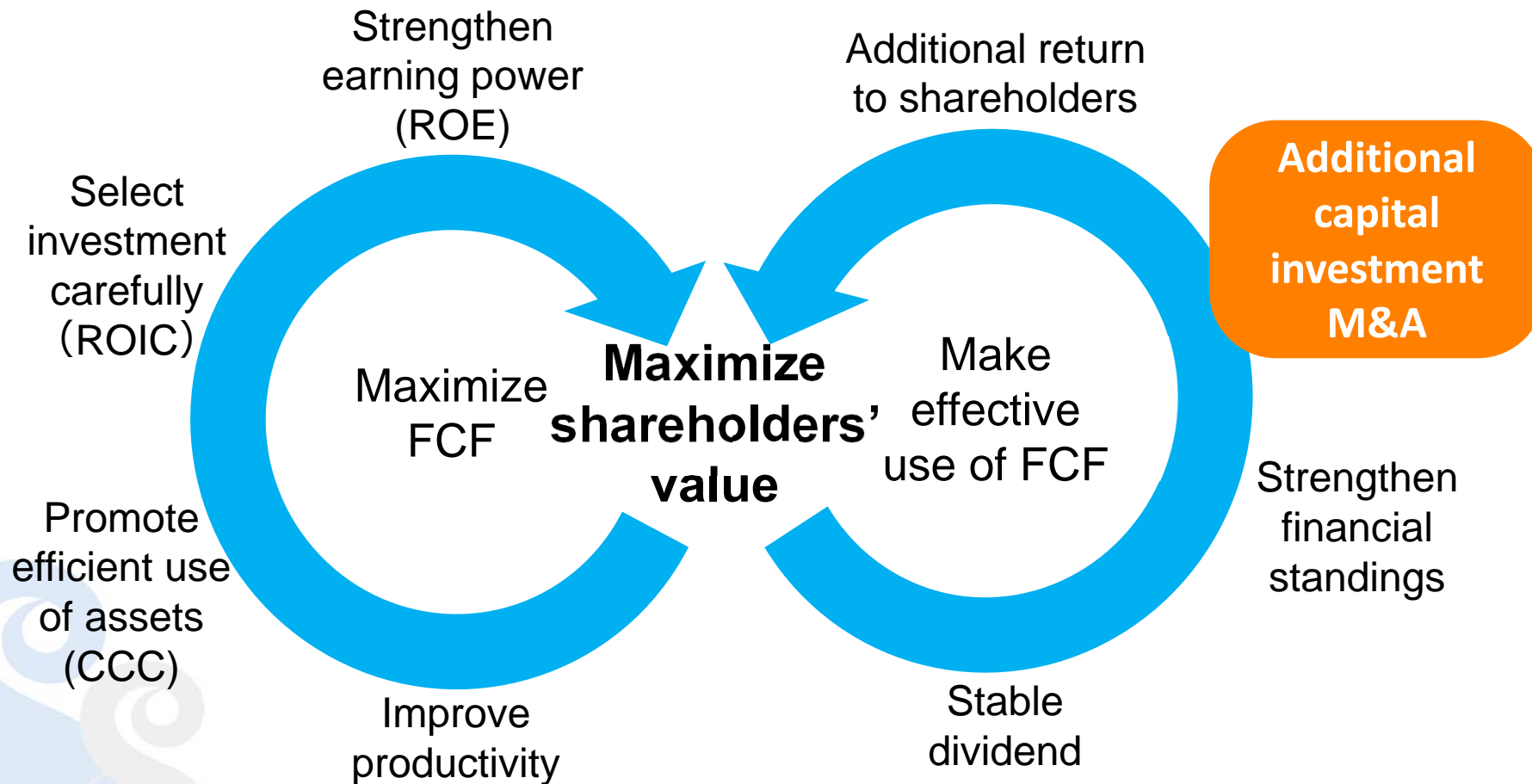
SDK Group on solid foundation at present, and with promising future

- Term: 2019 ~ 2021 (3-year plan)
- To be announced: Mid December, 2018 (planned)



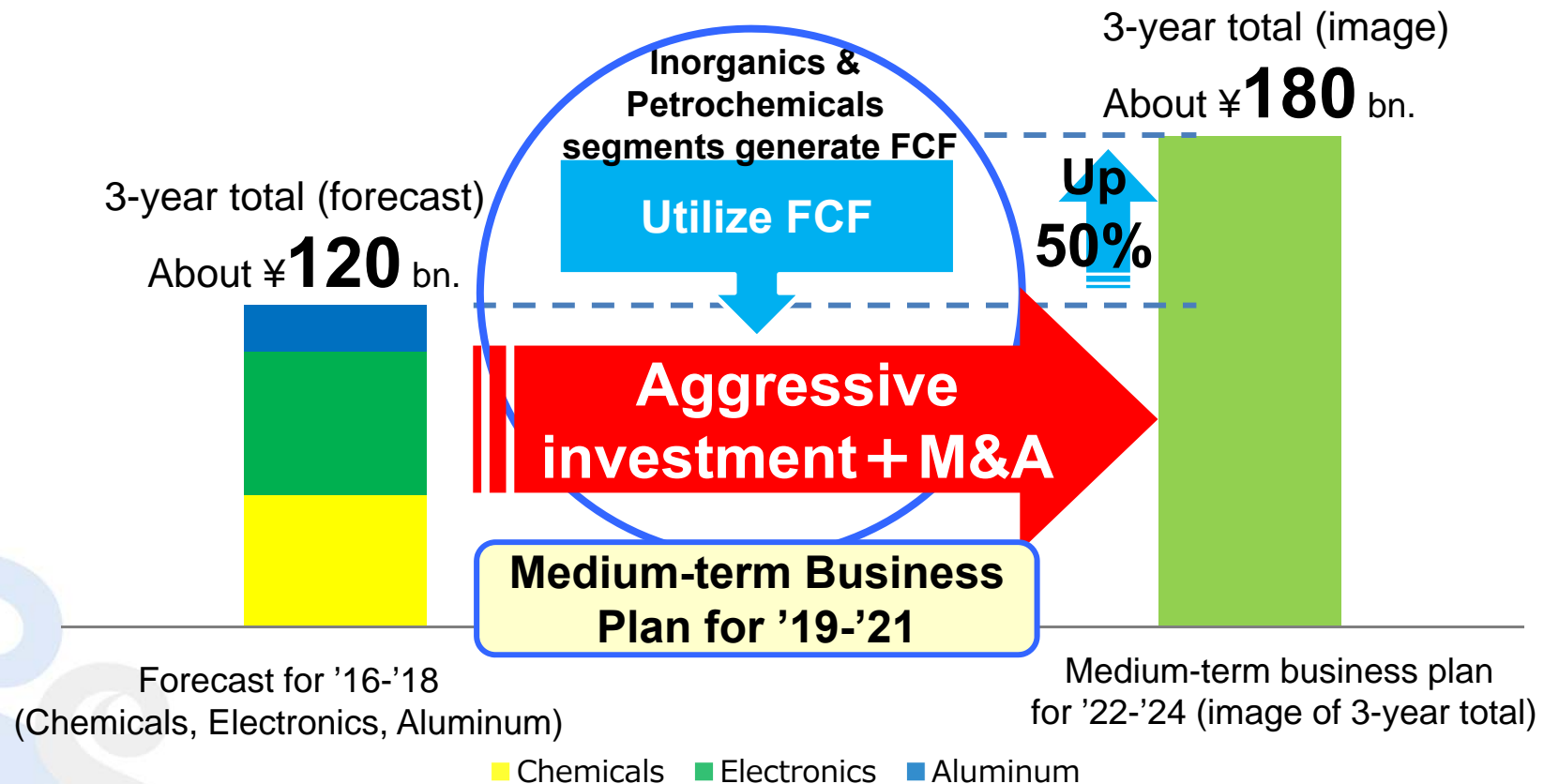
Financial strategy

◆ Maximize free cash flow and use it for additional capital investment ⇒ Maximize shareholders' value



Expand “individualized businesses”

◆ Investment in growing businesses + Additional Measures
⇒ Improve profitability of segments other than Inorganics & Petrochemicals. Expand “individualized businesses.”



Notes

Performance forecast and other statements pertaining to the future as contained in this presentation are based on the information available as of August 8, 2018 and assumptions as of August 8, 2018 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 and market conditions for our products including graphite electrodes, and foreign exchange rates. We undertake no obligation to update the forward-looking statements unless required by law.

