

Enhancing planetary health

**Financial Results for Fiscal 2022** 

# **Business Overview**

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Tadashi Ishizuka

Representative Director, President and COO

**JGC Holdings Corporation** 

## **CONTENTS**

#### [Business Overview]

- Total Engineering Market Environment Outlook for FY2023
- ➤ Total Engineering Orders Target for FY2023
- Progress in Major Projects
- Functional Materials Manufacturing
   Results for FY2022 and Target for FY2023

#### [BSP 2025 Progress and Outlook]

- For Medium-Term Financial Targets
- For Three Key Strategies
- For Growth Strategy Investment

#### (APPENDIX)

Status of Key Strategies in the mediumterm business plan

### **Total Engineering Market Environment Outlook for FY2023**

### **Overseas**

- Ongoing implementation of capital investment plans by clients, focused on natural gas and LNG (with lower environmental impact) and with a regard for stable energy supply over the medium to long term
- Progress in LNG projects, including E-drive ones, in North America, Africa, the Middle East, Oceania, and elsewhere
- Rapid increase in North America, Middle East, and Oceania decarbonization projects, especially related to hydrogen/fuel ammonia and SAF

### Jaf Domestic

- Life sciences: Increased capital investment for applications such as biopharmaceuticals and vaccine production
- Decarbonization applications also active; some capital investment expected rapidly, especially for hydrogen/ammonia and SAF

## **Total Engineering Orders Target for FY2023**

### **Value of FY2023 Consolidated Orders Target:**

800 Billion Yen

		– Overseas –	Domestic —
Orders target for fiscal 2022		620 Billion Yen	180 Billion Yen
Expected Projects	<ul> <li>Middle East</li> <li>Middle East</li> <li>Africa</li> <li>North America</li> <li>Asia</li> <li>North America</li> <li>Asia</li> <li>North America</li> <li>Asia</li> <li>Oceania</li> <li>North America</li> <li>Asia</li> </ul>	LNG Gas Processing LNG LNG LNG LNG Terminal Geothermal power generation Industrial infrastructure Chemicals Green hydrogen plant Circular economy (FEED) Hydrogen (FEED), etc.	<ul> <li>Pharmaceutical mfg. plants</li> <li>Hospital</li> <li>Chemicals</li> <li>Onshore aquaculture</li> <li>Decarbonization related (FEED)</li> <li>Nuclear related</li> <li>Maintenance services, etc.</li> </ul>

### **Progress in Major Projects: LNG Canada**

The shipment of modules to the sites are in the final stages. On-site construction and installation activities are at their peak.



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# API Facility Construction Project for Small and Mid-Size Molecule Drugs for Chugai Pharma Manufacturing

# Solidify our position as a leading EPC contractor for pharmaceutical manufacturing plants



Won ISPE (International Society for Pharmaceutical Engineering) 2023 Category
Winner for Innovation

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## **Progress in Major Projects: Basrah Refinery Upgrading**

Detailed design is mostly complete and the fabrication of equipment is in the final stages. The peak of civil work continues, and mechanical work has started at site.



### **Progress in Major Projects: Biomass Power Plant in Ishinomaki**

Construction and utility commissioning are complete. Boiler and turbine generator commissioning are underway.



# **Functional Materials Manufacturing Results for FY2022 and Target for FY2023**

Results for FY2022/ Target for FY2023

**Net sales** 

Fiscal 2022 Results

Approx.

**48** Billion Yen

Fiscal 2023 Target

50 Billion Yen

10

Market Environment/ Policy for FY2023

#### Catalysts / Fine Chemicals

#### <Market environment>

- Fuel demand has recovered, with demand especially strong for FCC catalysts. Demand for general-purpose chemical catalysts has been sluggish.
- Worse market conditions for electronics and semiconductors led to lower demand for some fine chemical products.

#### <Policy for 2023>

- Catalysts: Expand overseas sales, promote development of products for decarbonization applications.
- Fine chemicals: Accelerate diversification of revenue streams through expanded applications for existing products, etc.

#### **Fine Ceramics**

#### <Market environment>

- Demand in the semiconductor manufacturing equipment market has leveled off.
- Demand remains robust for high thermal conductivity silicon nitride substrates for power semiconductors.

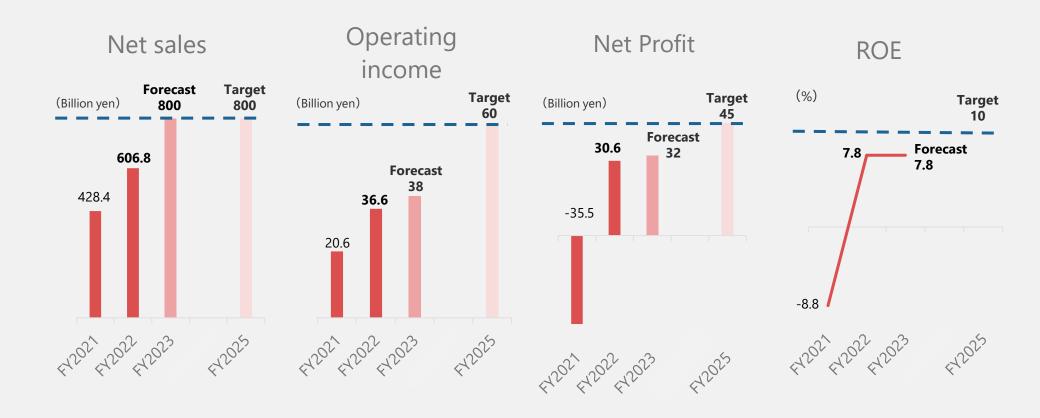
#### <Policy for 2023>

- We expect a decline in orders, mainly for semiconductor-related products, and will review our production plan and structure in anticipation of a recovery in the business environment in FY2024 and beyond.
- Silicon nitride substrates remain in high demand, and our expansion of production capacity is proceeding as planned.



### **Progress and Outlook for Medium-Term Financial Targets**

Consistent progress toward targets, from favorable market environments and steady implementation of the three key strategies



### **Transformation of EPC operations**

	Current understanding, outlook	Policies
Increasing competitiveness and profitability in megasized EPC projects	<ul> <li>Have largely met FY2022 order targets; high standards likely to be maintained for FY2023 order targets</li> </ul>	<ul> <li>With more large EPC projects expected, focus on securing orders for projects likely to proceed, expanding capacity, and implementing EPC DX</li> <li>Maintain high sales levels</li> </ul>
Taking on EPC growth markets and segments	JGC Asia Pacific now fully operational; foundation for regional management in place	<ul> <li>Strengthen overseas performance in industrial infrastructure business</li> <li>Maintain a focus on the active domestic life sciences segment</li> </ul>

#### New operations center established in India – expansion of execution capacity

# Topic

- A measure to expand capacity in anticipation of growth in the overseas plant market
- High population of talented engineers proficient in English
- Opening ceremony held in April this year; on the level of 1,000 employees in the future



13

### **Expansion of manufacturing business for high-performance functional materials**

Current understanding, outlook	Policies	
<ul> <li>Temporary leveling off of demand in the market for semiconductor and semiconductor manufacturing equipment. However, it is expected to recover from FY2024 onward.</li> <li>EV-related market expanding faster than expected</li> </ul>	<ul> <li>Diversify sources of revenue by developing new clients, expanding applications, etc.</li> <li>Implement capital investment to meet future demand as planned, as a groundwork laid for achieving the BSP2025 plan.</li> </ul>	

## Facility investment to increase production of semiconductor ceramics – expanded earnings from existing business, expanded sales of strategic products

- < Silicon nitride substrates for power semiconductors for EVs >
- Implemented capital investment to increase production (scheduled to start operation in FY2023)
- Purchase of new land to accommodate market expansion (total investment of 10 billion yen)
- < Ceramics for semiconductor manufacturing equipment >
- Implemented capital investment for higher precision in manufacturing (scheduled to start operation in FY2023)
- Started capital investment plan to expand production capacity



Tomiya Plant, which manufactures semiconductor manufacturing components and silicon nitride substrates

14

**Topics** 

### Establishment of future engines of growth

#### **Segments of focus through FY2025**

Offshore wind power / Hydrogen, fuel ammonia / SAF / Chemical recycling of plastic and fiber waste

Current understanding, outlook	Policies	
<ul> <li>Markets for hydrogen/ammonia, SAF, and plastic waste segments are moving forward toward realization.</li> <li>EPC projects already received in Japan, FS and FEED to be conducted overseas</li> <li>EPC orders likely to increase, anticipating sales recorded through FY2025</li> </ul>	<ul> <li>Continue to pursue steady results in hydrogen/ammonia, SAF, and plastic wastes segments</li> <li>Offshore wind sector is off to a slower start than expected</li> </ul>	

## Multiple orders for domestic sustainability-oriented EPC projects received – groundwork laid for sales of 50 billion yen by 2025

- Blue hydrogen/ammonia pilot plant order received for INPEX
- Domestic SAF plant order received (Sakai Refinery of Cosmo Oil)
- More than 30 billion yen of orders in segments representing growth engines in FY2022, including above projects



Construction site for domestic SAF plant

15

### **Establishment of future engines of growth**

#### **Topics**

#### Alliance formed with TOYO for SAF plants - cultivating business from a long-term view

- Alliance agreement on FEED and EPC services for domestic SAF plants was signed with Toyo Engineering Corporation
- Responds to growing demand and increased projects to meet a government target for introducing approx. 1.71 million kiloliters of SAF by 2030



## Progress in demonstrating technology for green ammonia production - cultivating business from a long-term view

- Promoting development / demonstration of an integrated control system for optimized green chemical (ammonia) plant operation
- Signing ceremony held for site agreement with a town in Fukushima; operation to start in FY2024



## **Progress and Outlook for Growth Strategy Investment**

### **Growth strategy investment**

Approx. 32 billion yen invested (mainly in R&D and facilities) out of 200 billion yen allocated. Expecting approx. 100 billion yen of investment, Including projects to be invested in FY2023 and beyond (internal investment decisions have already been made).

	Investment results for FY2022	Future investment plans from FY2023 onward
Transformation of EPC operations	<ul><li>Investment in EPC DX, project execution technology</li><li>Establishment and operation of operation center in India</li></ul>	
Expansion of manufacturing business for high-performance functional materials	<ul> <li>Investment in high thermal conductivity silicon nitride substrate facilities</li> <li>Investment to expand production facilities</li> <li>Investment to develop new product technologies, etc.</li> </ul>	
Establishment of future	<ul><li>DDR Commercialization</li><li>Integnance VR</li></ul>	<ul><li>Biomanufacturing</li><li>SAF, etc.</li></ul>
engines of growth	<ul> <li>Ammonia related</li> <li>Food tech related (Onshore aquaculture, cultured-meat)</li> <li>Investment in healthcare related field, etc.</li> </ul>	

Maintain effective cash management, including in M&As, and continue growth strategy investment





# **Key Strategy** 1 Transformation of EPC operations/ **Expansion of manufacturing for high-performance functional materials**

Transformation of EPC
Business

Large Projects

**Expansion of execution capacity** 

 JGC India EPC Private Limited established as a new base of executing EPC projects overseas, enabling responsiveness to an overseas plant market that is expected to grow over the medium to long term

Large Projects

**Accelerate digital transformation of EPC** 

• Construction Management System fully operational in ongoing projects (Zuluf, LNG Canada, USGC2, etc.)

Growth Market/ segments

**Expand operations for the Asian market** 

 JGC Asia Pacific now fully operational, increased workforce for expansion into the Asian market, and increased orders mainly in the Indonesian market

 Securing orders in growth areas: life sciences, LNG receiving terminals, renewable energy

Accelerate expansion of functional materials manufacturing

 Appointment of Chief Manufacturing Officer, aiming to develop growth strategies beyond FY26 and to further strengthen the manufacturing industry.

Expand earnings of existing businesses

**Expand structural ceramic production capacity** 

 Ceramics business acquired from Showa Denko Materials Seeking further gains in JFC Group production capacity, expanded business performance

Expand earnings of existing businesses/ Expand sales of strategic products

Expand production facilities: ceramics for semiconductor manufacturing equipment, silicon nitride substrates

- Purchase of new site for establishing new plants for increased semiconductor ceramic production
- Planning further facility investment for additional increased production of semiconductor ceramics products to meet future growth in demand

Expansion of High- performance Functional Material Business

## **Key Strategy 3** Establishment of future engines of growth

### **Groundwork Laid for Sales of 50 Billion Yen by 2025**

#### **Energy Transition Field**

- Alliance agreement signed with Toyo Engineering on services for domestic SAF plants
- Receiving EPC orders for ground facilities at blue hydrogen/ammonia pilot plants

#### **Circular Economy Field**

 Alliance agreement signed with Toyo Engineering on services for domestic SAF plants

#### **Life Science Field**

• Received a plant expansion order for Hoyu – smart factory project

### **Cultivating Business from a Long-term View**

#### **Energy Transition Field**

- Start of technical development of carbon capture applying unused LNG cold energy as a NEDO Green Innovation Fund project
- Participation in joint study on CCS in Malaysia
- In wind power, invested in Japan Grid to venture into peripheral areas in this field
- Established smart O&M service company Brownreverse, launched paid version of Integnance VR

## **Key Strategy 3 Establishment of future engines of growth**

### **Cultivating Business from a Long-term View**

#### **Energy Transition Field**

 "Development of Polymer Synthesis Technology by Microorganisms using CO<sub>2</sub> as Direct Raw Material" selected as a NEDO Green Innovation Fund Project; biomanufacturing now underway

#### **Circular Economy Field**

- Established Saffaire Sky Energy for Japan's first large-scale production of SAF
- Established RePEaT to license polyester chemical recycling technology
- Basic agreement signed on hydrogen production business collaboration using waste plastic gasification facilities

#### **Life Science Field**

- Organoid Farm established for commercialization of cultured meat
- Kamome Mirai Fisheries established for commercialization of onshore aquaculture

## Investment through CVC Funds

• Investment in six new companies, mainly in healthcare/life sciences (Enecoat Technologies, LIFESCAPES, Fairy Devices, AmicaTerra, Alpha Fusion, Biome)

### Others (Digital)

- Established IT services company JGC Digital to accelerate creation of new, highly value-added business applying IT
- Provision of Construction Site Safety Culture Improvement Support Application "Azas", and Plant Maintenance Risk Visualization Software "CoreSafety"

### **Note on Future Outlook**

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For questions concerning this material, please contact:

Corporate Communication Group
Strategic Planning Unit
Strategy Planning Office
JGC Holdings Corporation

Tel: 81-45-682-8026 Fax: 81-45-682-1112

Email: ir@jgc.com