

# Business Overview

Initiatives for revitalization and the future

May 10, 2022

Chiyoda Corporation

# Agenda

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1. Achievements in FY2021 P2
2. Major Ongoing Projects P3
3. Sustainability P4
4. Committees P5
5. Revitalization and Our Vision for the Future P6
6. Mirai Engineering P7
  - 6-1. Low Carbon and Carbon Recycling P8
  - 6-2. Hydrogen Business (SPERA Hydrogen™ and Ammonia) P9
  - 6-3. Energy Management Business P10
  - 6-4. Life Science Business P11
  - 6-5-1. Digital Transformation (DX Business Promotion) P12
  - 6-5-2. Digital Transformation (DX Business Innovation) P13

# 1. Achievements in FY2021

## 1. Further Development of a Risk Management Structure

- ICHTHYS LNG issues settled, contributing to solid growth. Order backlog was JPY1.3 trillion with large scale projects awarded: NFE LNG in Qatar and a Copper Smelting Plant in Indonesia.
- Projects awarded following release of the Revitalization Plan **contribute to earnings.**
- Company-wide countermeasures to minimize impacts of the geopolitical crisis in Ukraine

## 2. Enhancement of EPC Execution Management

- **Up-to-date earnings prediction** by data management
- Reviewing monthly project earnings to **promptly implement countermeasures**

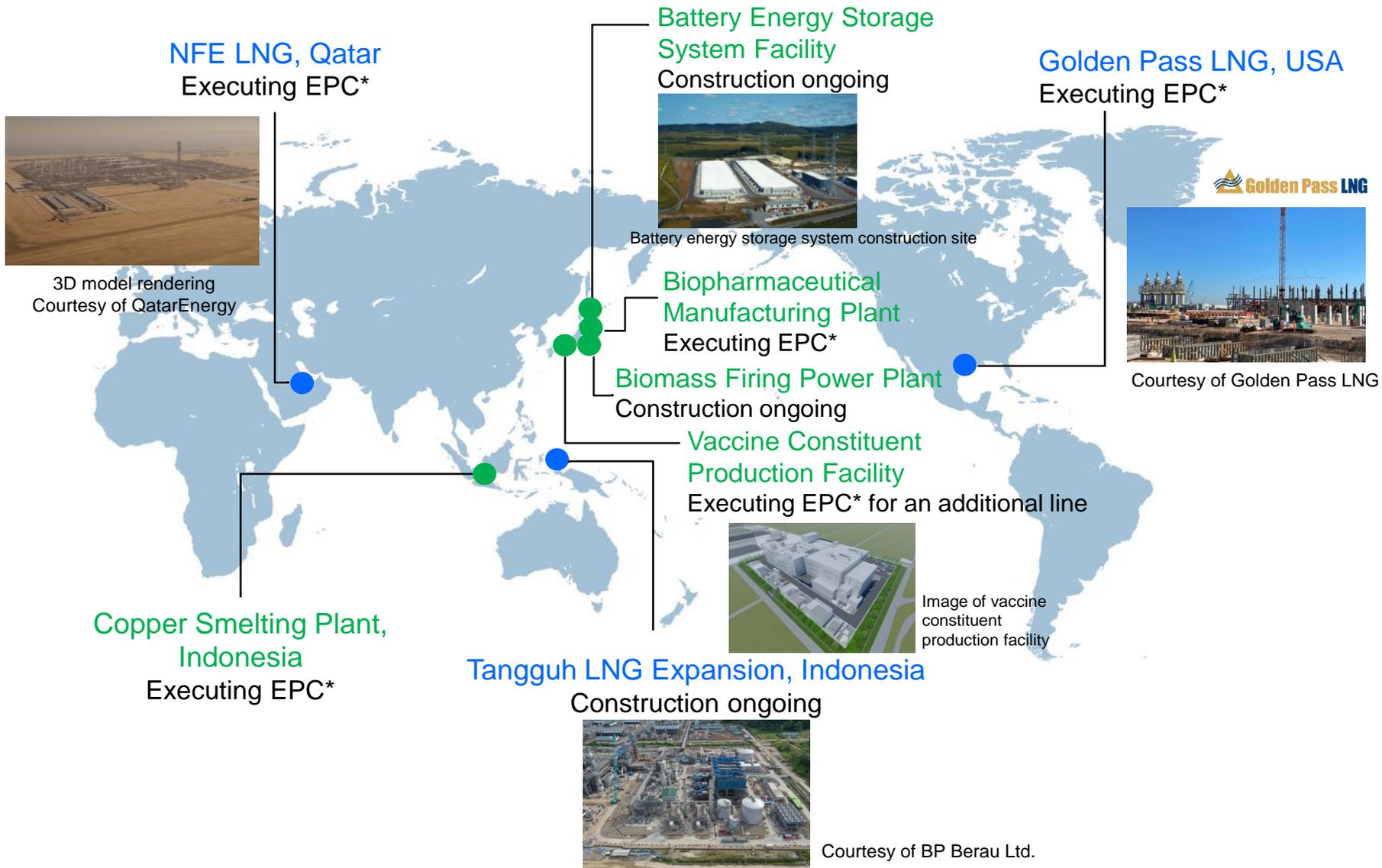
## 3. Reinforcement of Human Resources

- **New HR systems** with Human Resources Officers (HRO) and **HR data enrichment**

## 4. Acceleration of Company-wide Digital Transformation (DX)

- **Chief Digital Officer (CDO) Office** accelerates new business/solution development.
- **Cultivating digital human resources** and **fostering DX mindset culture**

# 2. Major Ongoing Projects



Blue: Energy  
Green: Environment

\* Engineering, procurement and construction

# 3. Sustainability

## 1. Sustainability Committee

- Sustainability Committee led by CEO who concurrently serves as Chief Sustainability Officer (CSO) aims for sustainable growth.
- Accelerating sustainability initiatives: environment, resources, society, and economy

## 2. Carbon Neutrality Declaration

- Carbon neutrality declaration on April 1, 2022 aiming net-zero by 2050

**~Energy and Environment in Harmony~**  
Carbon neutrality by 2050, with engineering capabilities and innovative digital technology

	Scopes 1 and 2	Scope 3
FY2030 Mid-term Target	50% reduction in GHG* emissions (FY2020 baseline)	Contribute to carbon recycling and the realization of a decarbonized society through 'recirculation' and 'reduction'
FY2050 Long-term Target	Net zero GHG emissions	

- Our FY2030 mid-term target for Scope 1 and 2 will be achieved through internal endeavors in our offices in Japan and by collaborating with clients, partners and suppliers on our domestic and internal construction sites.
- We will cooperate with all stakeholders to reduce GHG emissions in Scope 3, contributing to carbon-recycling and the realization of a decarbonized society by optimizing the social implementation of innovative technology.
- GHG emission reduction plans will be regularly reviewed according to technological developments, etc.

\* Greenhouse Gas

# 4. Committees

**Five committees subordinated by Executive Advisory Committee** to accelerate initiatives for revitalization and our vision for the future

<ul style="list-style-type: none"> <li>● Business planning</li> </ul>	<ul style="list-style-type: none"> <li>▣ <b>Integrated Strategy Committee</b> Formulate and regularly review company-wide optimized business plans and resource management plans</li> </ul>
<ul style="list-style-type: none"> <li>● Development of a risk management structure</li> </ul>	<ul style="list-style-type: none"> <li>▣ <b>Consolidated Management Promotion Committee</b> Expand consolidated management of the Group to improve the risk management structure and corporate value</li> </ul>
<ul style="list-style-type: none"> <li>● Enhancement of EPC execution management</li> </ul>	<ul style="list-style-type: none"> <li>▣ <b>Project Competitiveness Committee</b> Innovate EPC business processes and reinforce competitiveness through digital application</li> </ul>
<ul style="list-style-type: none"> <li>● Reinforcement of human resources</li> </ul>	<ul style="list-style-type: none"> <li>▣ <b>Human Resources Management Committee</b> Promote human resources development and implement appropriate and flexible human resources allocation</li> </ul>
<ul style="list-style-type: none"> <li>● Vision for the future</li> </ul>	<ul style="list-style-type: none"> <li>▣ <b>Carbon-free Business Promotion Committee</b> Plan strategies and take action for carbon-free business development, enlargement and monetization</li> </ul>

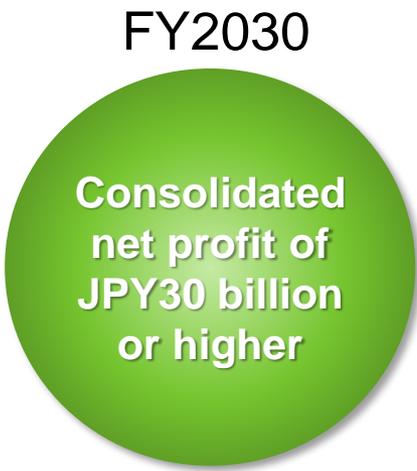
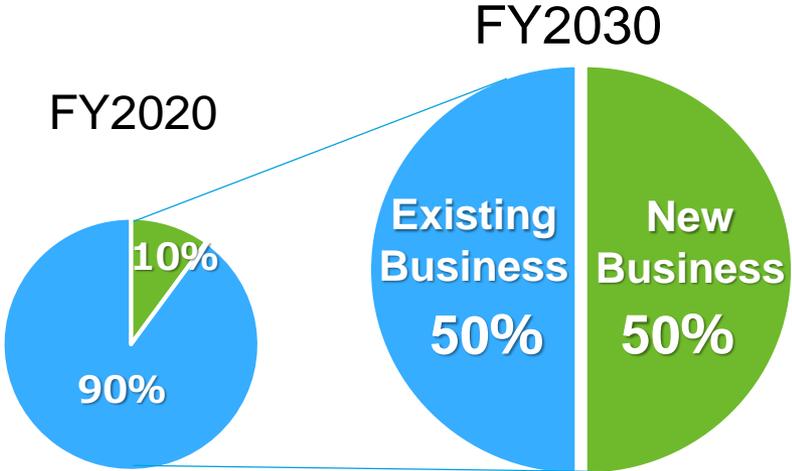
# 5. Revitalization and Our Vision for the Future

## Vision for 2030

- With our advanced technological advantage, we will accelerate the transition to a carbon-free society, including hydrogen energy, and contribute to the achievement of carbon neutrality by 2050.
- We will transform our business portfolio and earnings structure by reinvigorating existing businesses while accelerating new business initiatives.

**Business Portfolio Transformation**  
Profit Ratio

**Quantitative Target**



# 6. Mirai\* Engineering

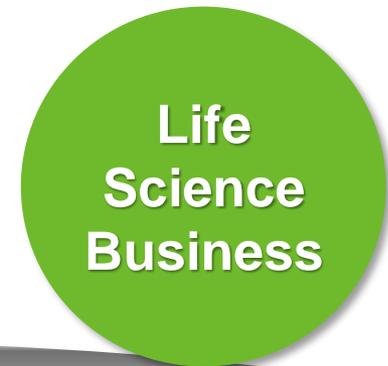
## Generating 'New Engineering Values' and Fulfilling Business Portfolio Transformation

Stable supply of clean energy

Realization of a hydrogen-based society

Optimizing energy utilization  
Promoting renewable energy and power storage

High value life science solution provider

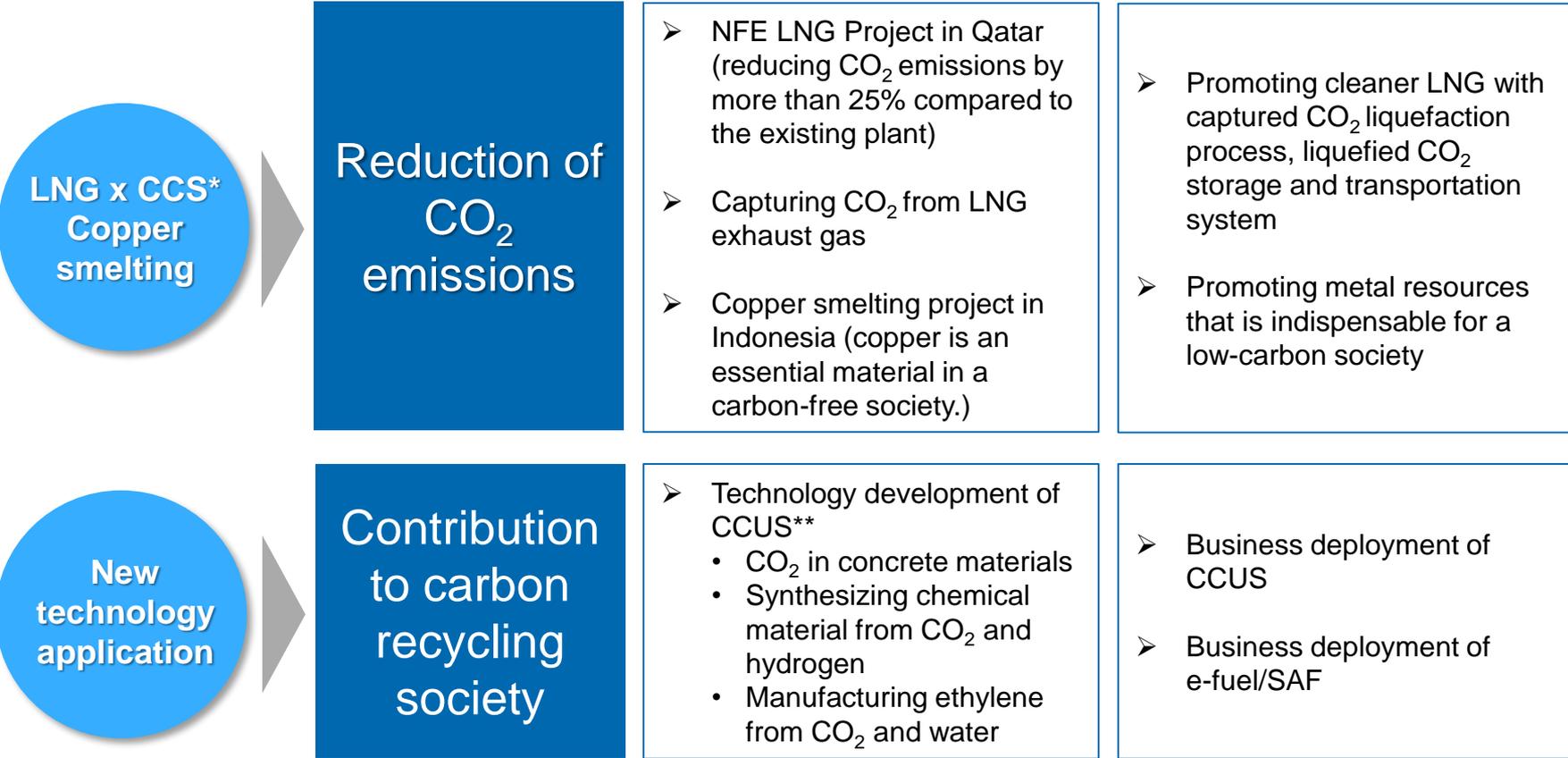


DX Business Promotion & Innovation

\* 'Mirai' means 'future' in Japanese.

# 6-1. Low Carbon and Carbon Recycling

<b>Vision</b>	<ul style="list-style-type: none"> <li>• Dedication to LNG through the energy transition and decarbonized energy supply</li> <li>• Engineering application to carbon recycling</li> </ul>
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\* Carbon dioxide capture and storage

\*\* Carbon dioxide capture, utilization and storage

# 6-2. Hydrogen Business (SPERA Hydrogen™ and Ammonia)

**Vision** Realizing a hydrogen-based society through Chiyoda's multiple hydrogen carriers, centered on our unique SPERA Hydrogen™ technology



Chiyoda's  
SPERA  
Hydrogen™



Hydrogen  
supply chain  
solution  
business

- Promoting hydrogen supply chain in Singapore
- Promoting hydrogen hub in Rotterdam, Europe

- Semi-commercialization of hydrogen supply business in the early 2020s, Commercialization in the late 2020s
- Hydrogen cost reduction through further technical development of SPERA™ Hydrogen

Hydrogen/  
ammonia  
technology  
application



Hydrogen/  
ammonia  
engineering  
business

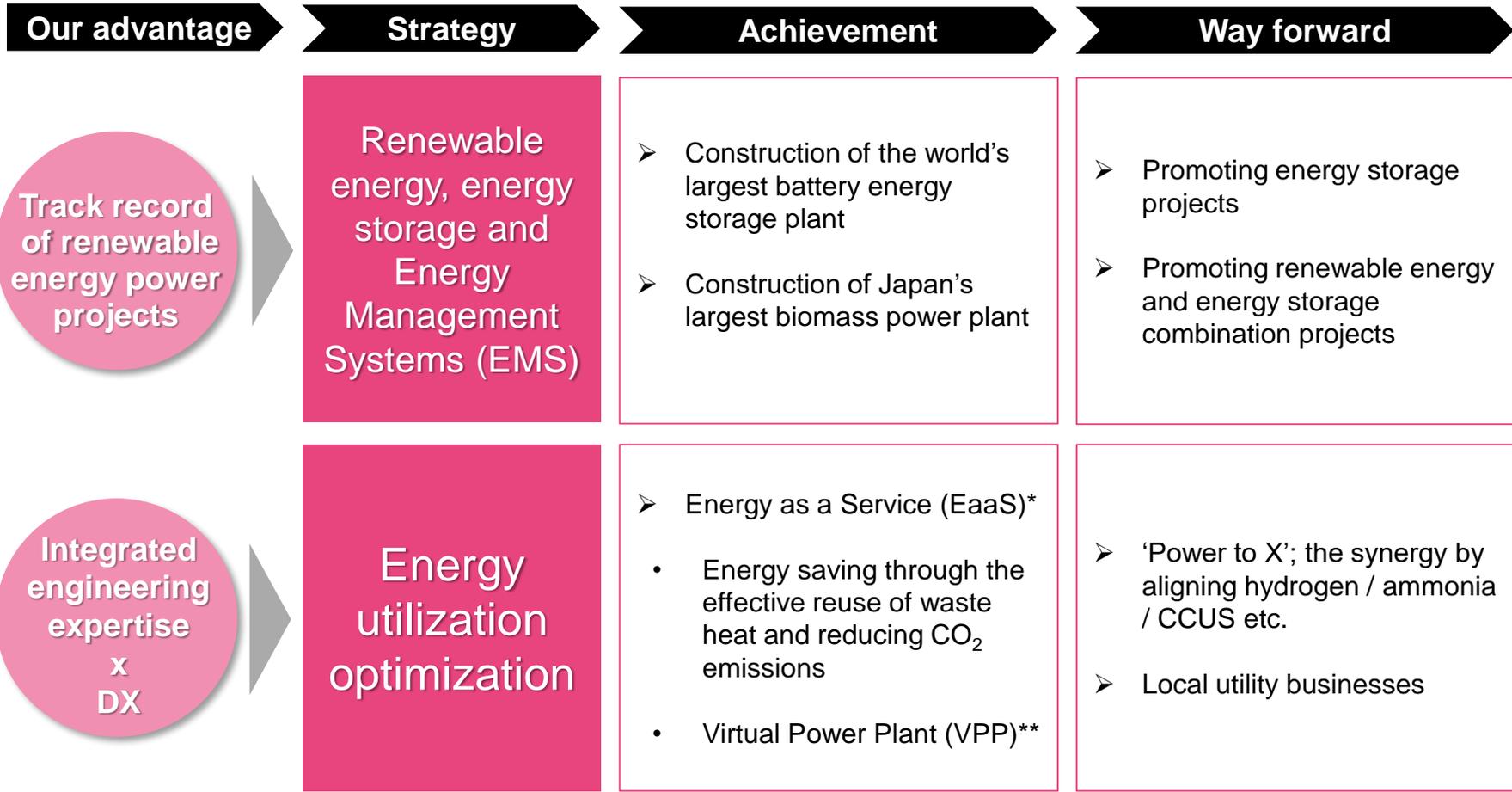
- Feasibility studies of hydrogen supply chain and ammonia receiving facilities
- Development of ammonia producing technology with lower temperature and pressure funded by GI Fund\*

- CO<sub>2</sub> reduction by mixed combustion of ammonia and coal and CO<sub>2</sub>-free gas power plant with hydrogen supply
- Production/receiving facilities of hydrogen / ammonia

\* Green Innovation Fund by New Energy and Industrial Technology Development Organization (NEDO)

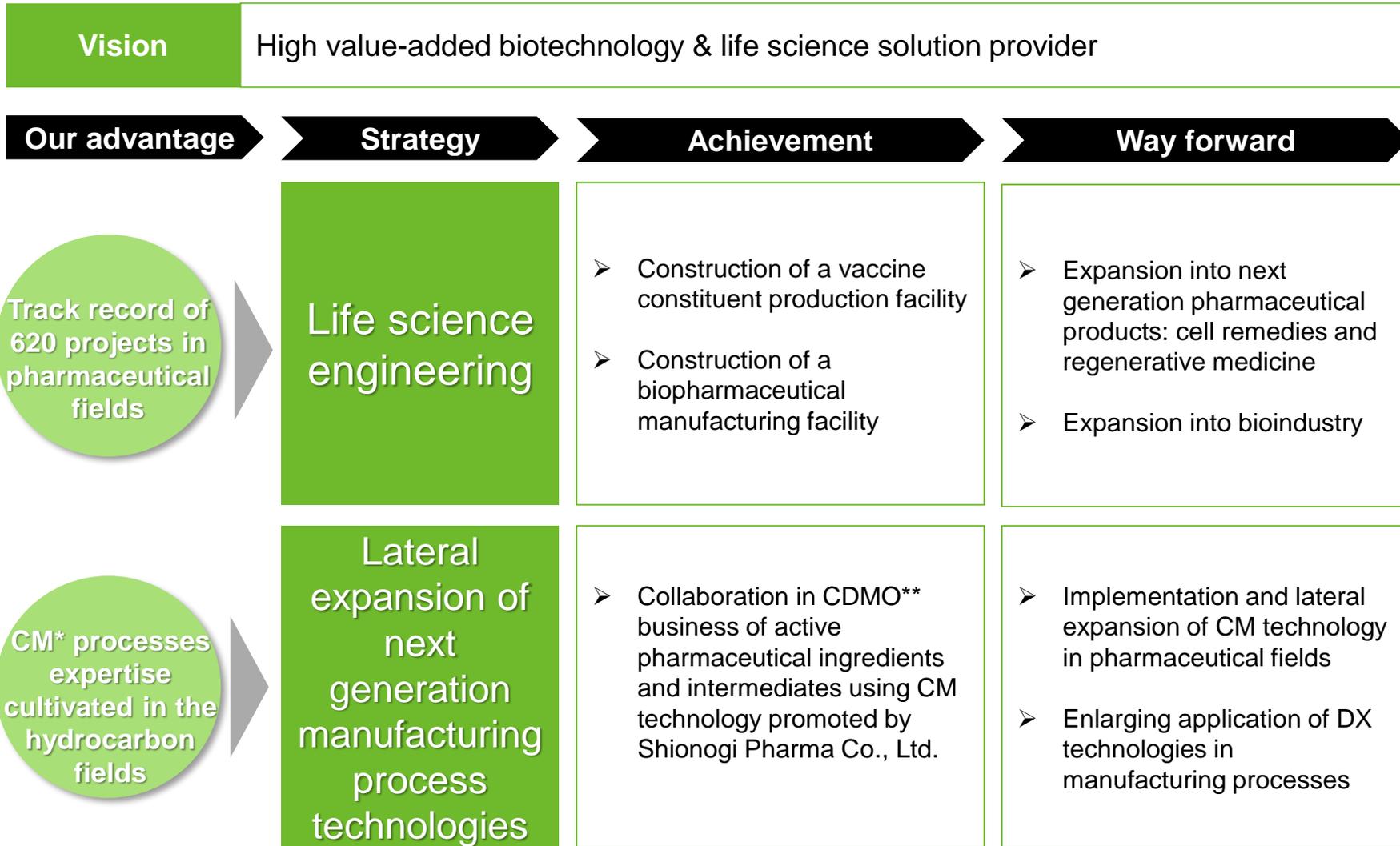
# 6-3. Energy Management Business

<b>Vision</b>	<ul style="list-style-type: none"> <li>• EPC / O&amp;M in renewable energy, energy storage and energy management fields</li> <li>• Creating businesses with EPC facilities expertise and data application</li> </ul>
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\* A 'one-stop' business offering utility-related services to reduce costs, increase asset values and lower CO<sub>2</sub> emissions  
 \*\* VPP controls power supply at industrial facilities, contributes to renewable energy prevalence and stable power supply. 10

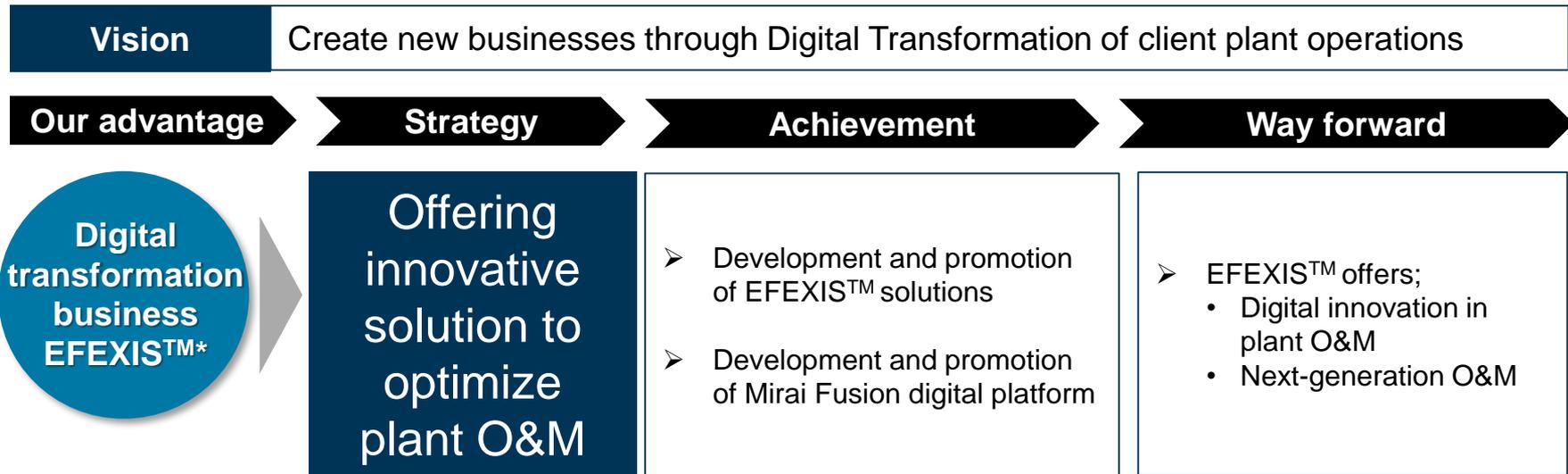
# 6-4. Life Science Business



\* Continuous Manufacturing

\*\* Contract Development Manufacturing Organization

# 6-5-1. Digital Transformation (DX Business Promotion)



## 【 Introduction of EFEXIS™】

### Prediction of abnormal operation

Foaming Prediction AI System

- Introduced to overseas LNG operators
- Mitigating turndowns and unplanned shutdowns by predicting abnormal operation of plant equipment

### Remote furnace monitor and diagnosis

F-Dr.s  
Furnace Diagnosis  
Real-time Support System

- Introduced to oil companies in Japan
- Remote monitoring of furnace, minimizing risks and increasing inspection plan efficiency

### Optimized operation

FCC AI Optimizer

- Introduced to oil companies in Japan
- Visualizing and predicting reactions in FCC\*\*, contributing to optimized plant operation

### Plant operation DX service

Mirai Fusion

- Introduced to oil / chemical companies in Japan and overseas LNG operators
- Providing practical DX services

\* Brand name for innovative solution to optimize plant O&M

\*\* Fluid Catalytic Cracking: A process to obtain primarily gasoline products from the catalytic breakdown of heavy oil raw materials

# 6-5-2. Digital Transformation (DX Business Innovation)

## The Group DX Vision

To be an innovative, leading engineering company through digital transformation

### Our advantage

### Strategy

### Achievement

### Way forward

Project digital transformation

Full digitalization of project execution

- Strengthening project execution capability
- Enhancing risk management

- Full-scale application of Chiyoda AWP\* on overseas projects
- Innovating design works by PlantStream™\*\* (introducing to domestic and overseas plant engineering companies)

- Further enhancement of Chiyoda AWP
- Expansion of PlantStream™ to water environment/chemical plant engineering

Corporate digital transformation

Digitally innovate corporate management

- Flexible resource allocation
- Improve business performance
- Diverse workstyle

- Resource planning based on business scheme
- Efficient management through Robotic Process Automation (RPA)
- Teleworking environment arrangement

- Resource planning data base for practical resource allocation
- Promoting DX tools in-house

\* Digital integrated management to optimize EPC process throughout the entire project life cycle

\*\* Reduce space design processes in basic engineering by approximately 80% and accelerate 3D model creation by up to five times

# *Energy and Environment in Harmony*



Chiyoda Corporation Corporate Services Department IR, PR & Sustainability Advanced Section, <https://www.chiyodacorp.com/en/>

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