

Business Overview

Initiatives for Revitalization and the Future

May 9, 2023
Chiyoda Corporation

Presenter



Mr. Masakazu Sakakida
Chairman of the Board,
President & CEO

Enriching society through engineering value

CHIYODA CORPORATION

SPERA Hydrogen
Shaping the Future of Energy

Our SDGs Materiality

- 7 再生可能エネルギー (Renewable Energy)
- 9 産業・インフラの革新 (Industry, Innovation and Infrastructure)
- 13 気候変動への対応 (Climate Action)

1. Executive Summary
2. Revitalization Plan Progress
3. 2030 Vision
4. Business Portfolio Transformation
5. The Group Integration Reinforcement
6. Sustainability



This presentation outlines Chiyoda Corporation's (Chiyoda) business overview in the fiscal year ending March 31, 2023, released on May 9, 2023.

1 Executive Summary

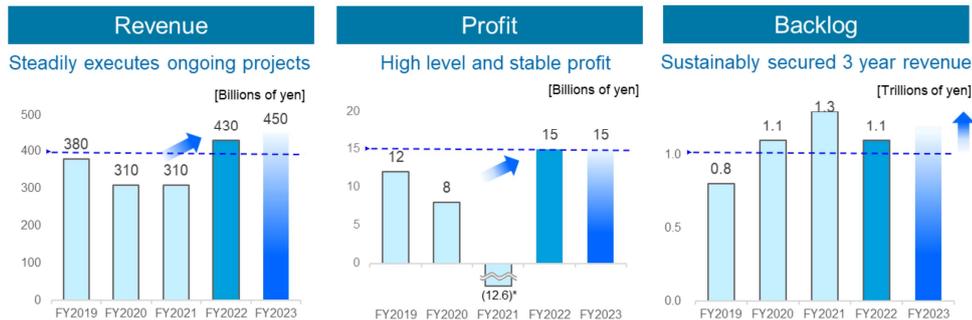
Executive Summary

Progress of 4 Years in the 5 Year Plan

- Stable revenue with improved risk management and EPC execution management
- Order Backlog JPY 1.1 trillion secured
- Steady progress in new business fields, working towards business portfolio transformation

Priorities for FY2023

- Strengthening financial position through profit earnings in steady execution of JPY 1.1 trillion Project Backlog
- Accelerated business portfolio transformation via continuing growth in new business areas
- Hydrogen business commercialization



* The figure includes Extraordinary Losses of JPY 20.4 billion related to the project losses by settlement of lawsuit with a client.



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- Four Year Progress in the Five Year Plan
 1. Revenue remains stable through steady execution of ongoing projects with improved risk and EPC execution management.
 2. The Order Backlog is JPY 1.1 trillion, a steady three-year revenue.
 3. New business creation and development is progressing towards business portfolio transformation.
- Priorities for FY2023, the last year of the Medium Term Management Plan
 1. Chiyoda to strengthen its financial position through profit earnings in the steady execution of the JPY 1.1 trillion project Backlog.
 2. Chiyoda will accelerate its business portfolio transformation via continued growth in new business areas.
 3. Chiyoda to target early commercialization of its hydrogen business.

2 Revitalization Plan Progress

1. Key Measures (Qualitative)

Key Measures	Four Year Progress	Assess	FY2023 Measures
① Improved risk management structure	<ul style="list-style-type: none"> ➢ Well-established centralized risk management structure ➢ Solidly secured earnings on projects awarded following Revitalization Plan 	○*2	➢ Continuously reinforcing risk management
② Improved EPC execution management	<ul style="list-style-type: none"> ➢ Optimizing overall EPC by introducing Chiyoda AWP ➢ Improved construction execution capability 	○	➢ Project execution as planned
③ Expansion and enhancement of human resources (HR) systems	<ul style="list-style-type: none"> ➢ Acquisition of improved HR information and HR career development under a Human Resources Officer (HRO) system 	○	➢ Promoting human capital management
④ Acceleration of digital transformation (DX)	<ul style="list-style-type: none"> ➢ Certified DX business operator by METI*1 ➢ Promoting company-wide DX 	○	➢ Improving business and promoting new business areas through DX
⑤ Business portfolio transformation	<ul style="list-style-type: none"> ➢ Steady progress in new business fields 	○	<ul style="list-style-type: none"> ➢ Continued growth of new businesses ➢ Hydrogen business commercialization

*1 Ministry of Economy, Trade and Industry

*2 O: Achieved



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Key measures towards revitalization and stabilization:

- ① Improved risk management
- ② Improved EPC execution management
- ③ Expansion and enhancement of human resource systems

Key growth strategies:

- ④ Acceleration of digital transformation
- ⑤ Business portfolio transformation

All measures are steadily progressing.

2. Steady Profit Structure

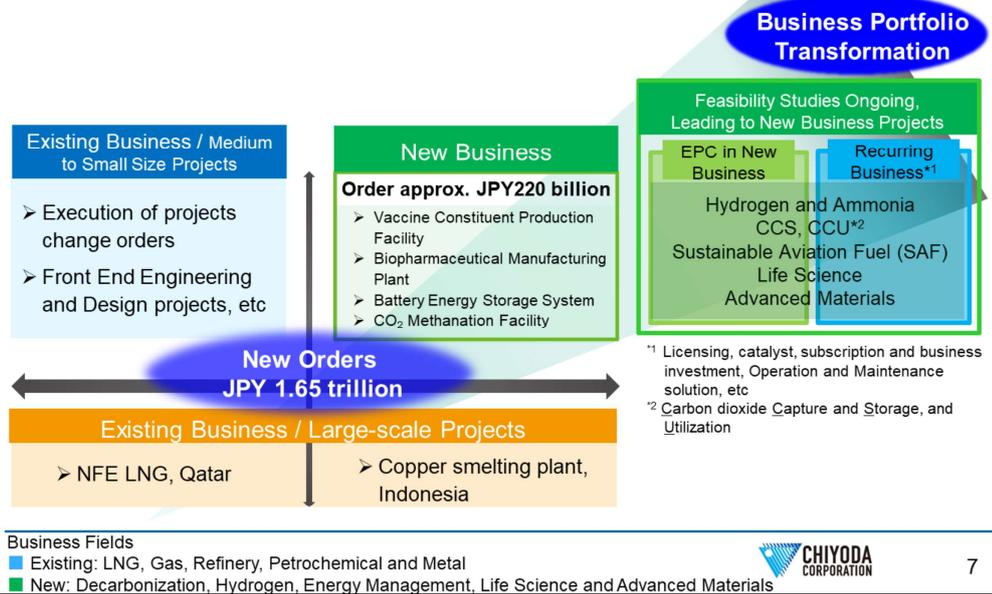
- Enlarging stable earnings structure by steadily executing ongoing projects and accumulating new businesses as well as appropriation of resources and properly managing constant expenses



Chiyoda is expanding its stable earnings structure by steadily executing ongoing projects, accumulating new businesses, effectively allocating resources and managing expenses appropriately.

3. Toward Business Portfolio Transformation

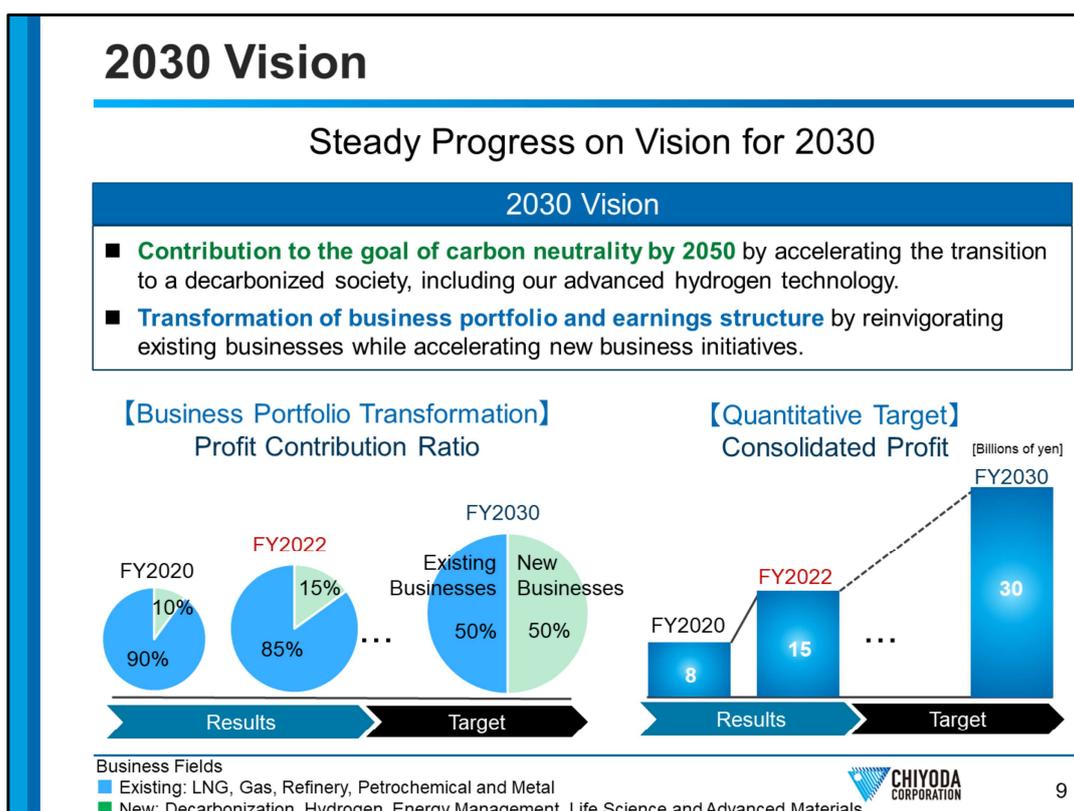
➤ New Orders amounted to JPY 1.65 trillion in the first four years of the Revitalization Plan, with new businesses growing steadily.



New Orders amounted to JPY 1.65 trillion in four years. JPY 220 billion is for new businesses.

Feasibility studies leading to new business projects are ongoing.

3 2030 Vision



- Chiyoda has established the following 2030 vision:
 1. Chiyoda will contribute to the goal of carbon neutrality by 2050 by accelerating the transition towards a decarbonized society using our advanced technology.
 2. Chiyoda will transform its business portfolio and earnings structure by reinvigorating existing businesses while accelerating new business initiatives.
- 2030 vision quantitative progress as of March 2023
 - New business profit contribution ratio was 15% with a 2030 target of 50%.
 - Consolidated profit was JPY 15.2 billion with a 2030 target of JPY 30.0 billion.
- Chiyoda aims to realize its 2030 vision by accelerating new business initiatives.

4 Business Portfolio Transformation

1. Mirai* Engineering

Business portfolio transformation by creating
'New Engineering Value'
in four business domains and DX.

Stable supply of
clean energy,
CO₂ reduction and
utilization

Early realization
of a hydrogen
energy society

Optimizing energy
utilization, promoting
renewable energy and
power storage

High value life
science solution
provider

Low
Carbon and
Carbon
Recycling

Hydrogen
Business
(SPERA
Hydrogen™ and
Ammonia)

Energy
Management
Business

Life
Science
Business

Digital Transformation (DX)

DX Business Promotion & Innovation

* 'Mirai' means 'future' in Japanese.



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Chiyoda aims to realize business portfolio transformation by creating 'New Engineering Value' in the four business domains of Low Carbon and Carbon Recycling, Hydrogen Business, Energy Management Business and Life Science Business, as well as Digital Transformation.

2. Low Carbon and Carbon Recycling



Vision

- Focusing on decarbonization supplying LNG as transition energy
- Commitment to a carbon recycling society by applying carbon recycling engineering

Cleaner LNG



Courtesy of QatarEnergy

- **NFE LNG, Qatar**
CO₂ emissions reduction of more than 25% compared to existing LNG plants

CCS*1

- Technology development to realize cost reduction of CCS from low concentration CO₂
- CCS collaboration with UK Pace CCS, Pertamina in Indonesia and Electricity Generation Authority of Thailand

Metallic Resources in Decarbonized Society



Courtesy of P.T. Freeport Indonesia

- **Copper Smelting Plant, Indonesia**
Copper plays a key role in a decarbonized society

CCU*2

- Major ongoing technical development
 - P-Xylene production from CO₂ and hydrogen
 - CO₂ in concrete materials
 - Manufacturing ethylene from CO₂ and water



First purified p-Xylene produced from CO₂

Sustainable Fuel

- Constructing e-fuel / Sustainable Aviation Fuel (SAF) projects

*1 Carbon dioxide Capture and Storage

*2 Carbon dioxide Capture and Utilization

- Chiyoda promotes cleaner LNG by incorporating Carbon dioxide Capture and Storage (CCS) technology in LNG plants, reducing CO₂ emissions by over 25% on NFE LNG in Qatar compared to existing LNG plants.
- The metal resource field will also contribute to a carbon free society and Chiyoda is constructing a copper smelting plant in Indonesia.
- Chiyoda will continue promoting CO₂ emission reductions through the utilization of CCS, Carbon dioxide Capture and Utilization (CCU) and sustainable fuel, such as e-fuel, and Sustainable Aviation Fuel.

3. Hydrogen Business ~SPERA Hydrogen™~



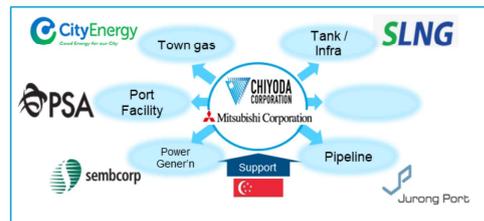
Vision

Contributing to the early realization of a hydrogen energy society based on MCH-LOHC*¹ supply chain construction, centered on our unique SPERA Hydrogen technology

Constructing a **commercial scale** hydrogen supply chain in Singapore



- Singapore, as well as Japan, relies on energy import, with limited domestic energy source including renewable energy
- **Hydrogen introduction in Singapore serves as a role model for Japan**



*¹ Methylcyclohexane as a Liquid Organic Hydrogen Carrier
 *² Front End Engineering and Design



Chiyoda will continue promoting international hydrogen supply chain construction initiatives centered on our unique SPERA Hydrogen™ technology.

In Singapore, Chiyoda is constructing a commercial scale hydrogen supply chain, targeting commercial operation in 2026.

It is expected to be the largest clean hydrogen supply business in Asia with 60,000 tons production per annum.

Introducing hydrogen into Singapore serves as a role model for Japan because both countries rely on overseas imports for energy.

3. Hydrogen Business ~SPERA Hydrogen™~



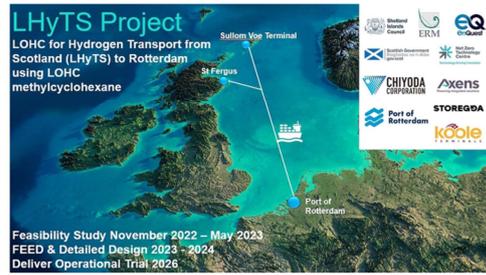
Vision

Contributing to the early realization of a hydrogen energy society based on MCH-LOHC*¹ supply chain construction, centered on our unique SPERA Hydrogen

Progressing a hydrogen import hub and a hydrogen highway project in Europe*²

Commercial scale hydrogen import to Rotterdam, The Netherlands

Scotland to Rotterdam hydrogen highway project



*¹ Methylcyclohexane as a Liquid Organic Hydrogen Carrier

*² Source: <https://www.portofrotterdam.com/sites/default/files/2021-06/hydrogen-economy-in-rotterdam-handout.pdf>



In Europe, a hydrogen advanced region, Chiyoda is participating in and promoting two large-scale projects: a commercial scale 'Hydrogen Import Hub Scheme' in the port of Rotterdam, The Netherlands and a Scotland to the port of Rotterdam 'Hydrogen Highway Scheme'.

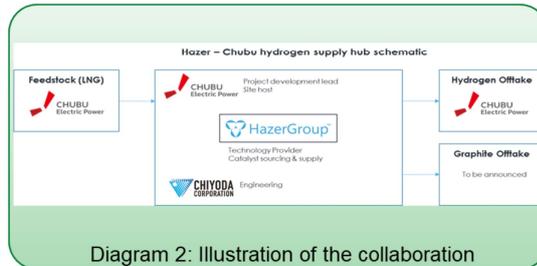
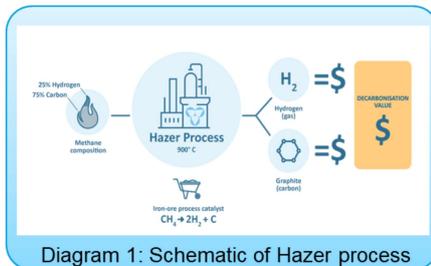
3. Hydrogen Business ~SPERA Hydrogen™~



Vision

Contributing to promote regional hydrogen utilization and realize hydrogen local production and consumption model by introducing new technology

Carbon free hydrogen production development plan in the Chubu region, Japan ~With Chubu Electric and Hazer, Australia~



- The Hazer Process is a technology to produce hydrogen and high quality graphite from methane / biogas. It promotes methane thermal decomposition in reactors using iron ore as a process catalyst.
- Planned production capacity is between 2,500 and 10,000 tonnes per annum, targeting ultimate production capacity of between 50,000 and 100,000 tonnes per annum.
- Project Development Plan by 2024, aimed at commencing the initial start-up of the facility by the late 2020s.

In Japan, Chiyoda is planning carbon free hydrogen production development in the Chubu region with Chubu Electric Power Company Inc. and an Australian company, Hazer Group Ltd.

The three companies aim to establish a development plan by 2024 and commence initial start-up of the facility by the late 2020s.

4. Energy Management Business



Vision

- EPC / O&M in renewable energy, energy storage, and energy management fields
- Creating businesses with EPC facilities expertise and data application

World's largest battery storage system completed

Way Forward

Client	North Hokkaido Wind Energy Transmission Corporation
Significance	<ul style="list-style-type: none"> • Completion of an energy supply combination project • Gains experience and expertise in 20 year maintenance work



Battery Energy Storage System

- Promotes the next battery energy storage system project
- Deploys battery energy storage and renewable energy complex projects
- Deploys to local utility businesses



In March 2023, Chiyoda completed the world's largest battery energy storage system, accumulating a track record in proposing ideal energy supply combinations.

Chiyoda will use the experience to expand its Energy Management Business and a further order for the Engineering, Procurement and Construction (EPC) of another battery energy storage system project has been received.

5. Life Science Business



Vision High value-added biotechnology and life science solution provider

Vaccine constituent production facility completed

Way Forward

Significance

- Domestic vaccine supply facility
- Subsidized by METI*1 and MHLW*2



SHIONOGI & CO., Ltd. Vaccine Constituent Production Facility

- Development to next generation pharmaceutical products (cell therapy and regenerative medicine)
- Development to bio-industry

Applying expertise from the oil and petrochemical industry

Expertise deployment

- Participation in contract development and manufacturing business for active pharmaceutical ingredients and intermediates, led by Shionogi Pharma Co., Ltd.
- Applying oil and petrochemical continuous manufacturing (CM) technology expertise in the pharmaceutical industry

- Successfully applied CM technology in the pharmaceutical environment

*1 Ministry of Economy, Trade and Industry

*2 Ministry of Health, Labour and Welfare



Chiyoda will expand its Life Science Business, maximizing its successful EPC completion track record and expertise from the oil and petrochemical industry.

In January 2023, Chiyoda completed a vaccine constituent production facility for SHIONOGI & Co., Ltd and we will use this experience in the next generation of pharmaceutical products and bio-industry.

Chiyoda participates in the contract development and manufacturing business for active pharmaceutical ingredients and intermediates, led by Shionogi Pharma Co., Ltd and we will apply our oil and petrochemical continuous manufacturing (CM) technology expertise in the pharmaceutical industry.

6. Digital Transformation (DX)



Vision

Digital Transformation realization - aiming to be a new leading engineering company

Company-wide DX acceleration: Four basic strategies

Project Execution DX	Corporate Management DX	DX Business
<ul style="list-style-type: none"> ➢ Optimizing EPC execution management with Chiyoda AWP ➢ Introducing PlantStream™, an innovative space design system, streamlining engineering work 	<ul style="list-style-type: none"> ➢ Optimizing HR planning and management ➢ Introducing RPA*1 for work efficiency ➢ Promoting working from home environment 	<ul style="list-style-type: none"> ➢ Deploying clients plant O&M-X*2 solution business ➢ Joint provision of a cost-effective 3D digital twin platform with USA company Visionaize, Inc.

Human Resources DX



Actual plant (left) and 3D digital twin (right). Commenced plant O&M-X*2 solution service.

*1 Robotic Process Automation

*2 Operation and Maintenance Transformation



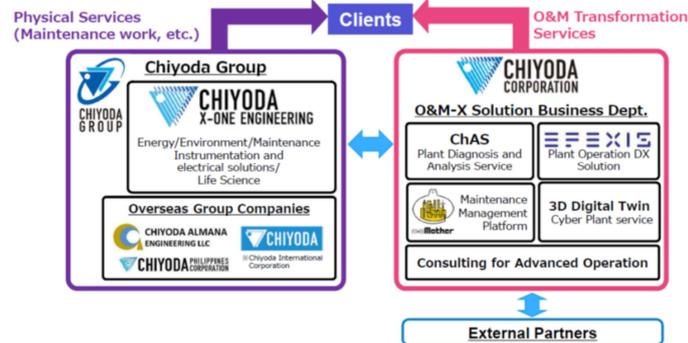
Chiyoda pursues three basic strategies in cultivating digital expertise as a foundation for digital transformation (DX) in the development of a digital culture towards company-wide DX acceleration: Project Execution DX, Corporate Management DX and DX Business.

5 The Group Integration Reinforcement

The Group Empowerment

CHIYODA X-ONE Engineering Corporation Commenced Operation

- An integrated engineering company 'CHIYODA X-ONE Engineering Corporation' was established in April 2023 from the merger of three group companies.
- The Group deploys 'domestic EPC*¹ reinforcement' and 'clients' plant O&M-X*² digitalized solution business'.



*¹ Engineering, Procurement and Construction
 *² Operation and Maintenance Transformation

An integrated engineering company, 'CHIYODA X-ONE Engineering Corporation' was established in April 2023 from the merger of three group companies.

The Chiyoda Group will deploy 'domestic EPC reinforcement' and a 'client plant Operation and Maintenance Transformation digitalized solution business', harnessing the engineering expertise of each of the three companies.

6 Sustainability

1. Reducing Supply Chain CO₂ Emissions

Carbon Neutral Declaration

Chiyoda is contributing to the realization of carbon neutrality by 2050 via our integrated engineering with digital transformation under the corporate philosophy 'Energy and Environment in Harmony'.

	Scope 1 and 2	Scope 3
FY2030 Mid-term Target	50% reduction in GHG* ¹ emissions compared to FY2020	We contribute to carbon-recycling and decarbonized society realization through 'reduction' and 'recirculation'.
FY2050 Long-term Target	Net zero GHG emissions by 2050	



Promoting proposals to clients reducing supply chain CO₂ emission (Scope 3)

Agreed Proposal, Ongoing	Proposal Under Client Consideration
<ul style="list-style-type: none"> ➢ Energy re-use of redundant steam power generation reducing operation cost ➢ CCS for LNG AGR*² facility CO₂ emissions ➢ CO₂ reduction by gas turbine drive exhaust heat steam power generation 	<ul style="list-style-type: none"> ➢ Reduces CO₂ emitted from gas turbines, transferring to CCS*³ facilities ➢ Reduces CO₂ from exhaust gas co-firing with hydrogen in LNG gas turbine and boiler

*¹ Greenhouse gas *² Acid Gas Removal *³ Carbon dioxide Capture and Storage



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Chiyoda declared its carbon neutrality goals in April 2022. The greatest challenge is CO₂ emission reduction in Scope 3 of the supply chain. As an initial step, Chiyoda continues to propose solutions to clients.

Chiyoda will continue contributing to carbon-recycling and realize a decarbonized society through both recirculation and reduction, cooperating with stakeholders such as clients, suppliers and partners.

2. Promoting Human Capital Management

Vision

- Human resources are the most important asset of an engineering company
- Improvement and enlargement of human resources are the driving force leading to business growth

Objective	Improvement and Enlargement of HR	Fostering Digital HR	Wellness Management / Diversified Organization
Responsible Officer	CHRO*1	CDO*3 & CHRO	Wellness: CWO*4 (CEO) Diversity: Head of Office
Major Policies	<ul style="list-style-type: none"> ➢ HRO*2 structure to develop HR by 4 job categories ➢ Job assignments to realize mid to long-term business strategies ➢ Aggressive junior staff assignments 	<ul style="list-style-type: none"> ➢ Accelerates business transformation by HR Transformation x Digital Transformation ➢ Fosters digital mindset ➢ Skill set acquirement support 	<ul style="list-style-type: none"> ➢ Promotes wellness management ➢ Promotes diversity <ul style="list-style-type: none"> • Women's empowerment quantitative targets • Recognizes diversity & inclusion status and agenda
Major Achievement	<ul style="list-style-type: none"> ➢ HROs interview 1,319 employees ➢ Managers in their 30's / Group company presidents in their 40's ➢ Achieved HR Award in 2022 	<ul style="list-style-type: none"> ➢ Certified as DX business operator ➢ 19 employees qualified in digital certification ➢ Digital training for all employees 	<ul style="list-style-type: none"> ➢ Certified 3 consecutive years as Health and Productivity Management Organization ➢ Female executive ratio doubled (FY2020 3.7%, FY2022 8.3%) ➢ Male child care leave ratio 75.0% (Up 30.1pt from FY2021 44.9%)



*1 Chief Human Resources Officer *2 Human Resources Officer
*3 Chief Digital Officer *4 Chief Wellness Officer



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‘Human resources (HR) are the most important asset of any engineering company. Improvement and enlargement of human resources are the driving force leading to business growth.’

Based on our HR philosophy, Chiyoda has implemented multilateral measures with three objectives: ‘Improvement and Enlargement of HR’, ‘Fostering Digital HR’ and ‘Wellness Management / Diversified Organization’. The measures are proving successful.

Chiyoda will continue promoting human capital management to realize sustainable growth.

Energy and Environment in Harmony



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

Forward-Looking Statements: Any projections included in these materials are based solely on information available at the time this presentation was prepared. It is possible that actual results may vary significantly from the projections due to a number of risk factors such as economic conditions. The results projected here should not be construed in any way as being guaranteed by the Company. Investor are recommended not to depend solely on these projections for making investment decisions.

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FY 2023 is the last fiscal year in the five-year medium term management plan.

Looking back at the last four years, Chiyoda is steadily progressing in both qualitative and quantitative aspects.

FY 2023 will be the final year of the current plan in contributing to stable project profit towards further growth. We will commence a new management plan in FY 2024.