



Security Code

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August 10, 2023

Initiatives Aimed at Enhancing Corporate Value

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P3

Excerpt from Third Medium-Term Management Plan

P6

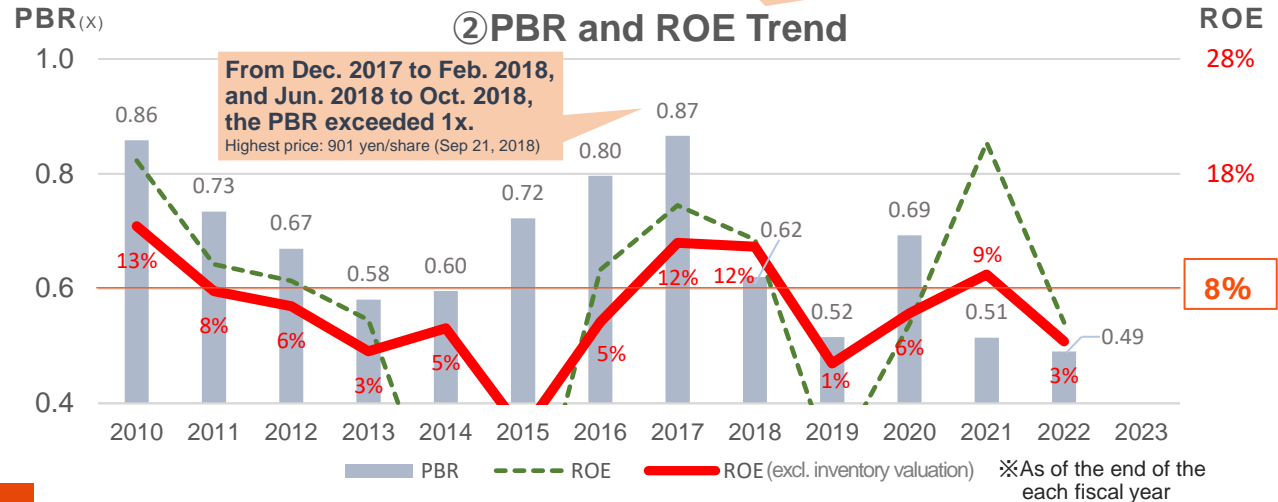
Initiatives Aimed at Enhancing Corporate Value

Current Status Analysis (Capital Cost · Profitability)

$$PBR(x) = 1 + \frac{\text{Equity Spread (ROE - Shareholders Capital Cost)}}{\text{Shareholders Capital Cost - Expected Growth Rate}}$$

① Our Perceived Cost of Capital

WACC	4% (Disclosed in Third Medium-Term Management Plan)
Shareholders Capital Cost	We recognize at around 8% based on CAPM.
Expected Growth Rate	Assumed that expected growth rate from the market is negative.



Analysis: Factors in PBR falling below 1.0x

- Historical **equity spread performance has been negative.**
- Due to the expected decline in domestic demand for petroleum, which is one of our main businesses, and the uncertainty about what businesses could cover this decline, **market expectations for growth are low.**

Including a long-term time horizon.

Analyzed similar company cases, including overseas companies.
Confirmed improvement measures to exceed PBR of 1.0x:

- Enhancing ROE, including through the withdrawal from low-profit businesses.
- Disclose progress of growth businesses such as biofuels, etc.

- ① Improve ROE and achieve a positive equity spread
 - ② Accelerate efforts towards achieving energy transition
- } Continue to achieve results in ① ②

Profits increased due to improvement in refinery trouble, actual margins, etc.
Operating Income excl. inventory valuation (¥bn)

22/1Q	→	23/1Q
117.2	+7.7	124.9
Energy 39.3	+10.8	Energy 50.1

Targets and initiatives during Third Medium-Term Management Plan

Elements for improving PBR are included in each measure of Third Medium-Term Management Plan.

ROE10%

Net D/E ratio
0.8 or low

Free CF
500.0 ¥bn

Strengthening earning power in existing businesses

Improved refinery efficiency Mainly from FY2023~ Business process reengineering ... etc.

Strengthening earning power through investment for growth

Improve electricity profit through Goi Project Expand profit growth in Elastomers Increase capacity of Tangguh New factories for advanced materials ... etc. p.7-9

Growth through the realization of energy transitions

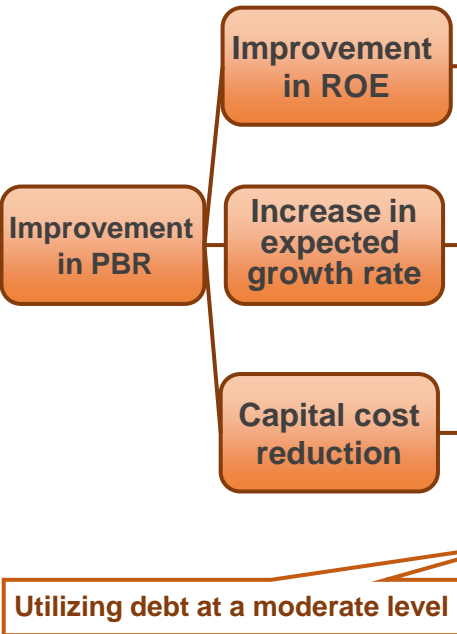
Renewable energy SAF CCS Hydrogen ... etc. p.10-12

Strengthening the management foundation

Rigorous portfolio management based on ROIC ... etc.
Businesses below WACC ⇒ Initiate radical management improvement within 3 years p.13-15

Shareholder returns that consider optimal capital structure and capital cost p.16

Enhancing dialogue through proactive disclosure to the market and feedback to management.



Fully commit to achieving Third Medium-Term Management Plan

- Moreover . . .
- The post-IPO portfolio plan will be disclosed at the time of JX Metals IPO. Allocation capital raised through IPO: Optimal balance between growth investments and shareholder returns¹ with the consideration of an appropriate D/E ratio.

¹These shareholder returns will not be based on the return policy in Third Medium-Term Management Plan.
 - Strive to enhance disclosure of milestones and progress of growth businesses in order to gain market understanding.
 - Towards achieving PBR over 1.0x, we will continue to analyze and discuss regularly at the management level, engaging in dialogues with the market

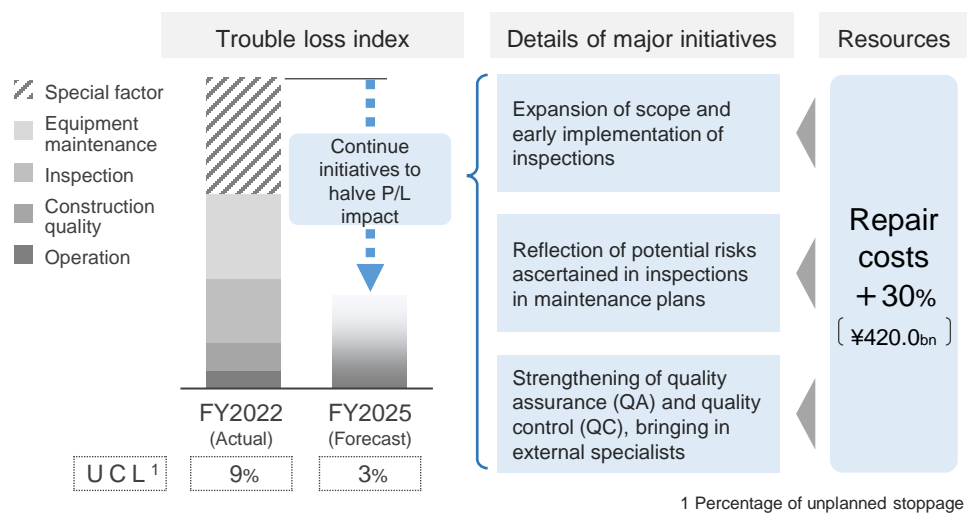
Excerpt from Third Medium-Term Management Plan

(1) Establishment of Solid Earnings Base (Energy business)

- ✓ Speedily implement measures to reduce refinery trouble and measures for fundamental earnings improvement, cost reduction, and enhancement of asset efficiency through business process re-engineering

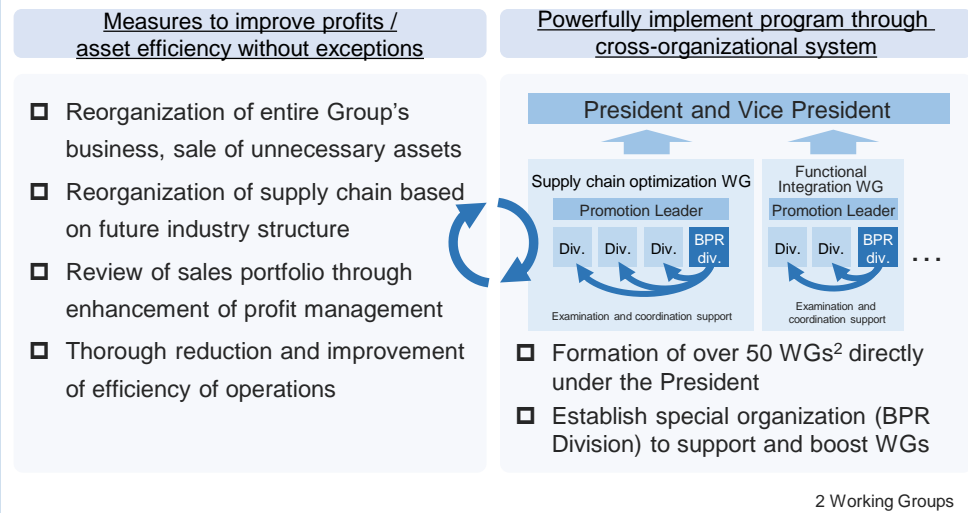
Measures to reduce refinery trouble

- ✓ Seek to reduce risk by bringing inspections forward, and achieve more stable operation by injecting resources into enhancement of precision of maintenance plans and improvement of construction quality
- ✓ To implement measures, repair costs in the 3rd Mid-Term Mgmt. Plan are planned to increase 30% (+¥420.0bn) from the 2nd Mid-Term Mgmt. Plan



Business process re-engineering (BPR)

- ✓ Generation of funding for energy transition through thorough reform of existing businesses
- ✓ Improvement of asset efficiency through redefinition of significance of holding assets
- ✓ Improvement of profits by around ¥100.0bn over the three years of the 3rd Mid-Term Management Plan
- ✓ In the future, realize profit improvement of ¥100.0bn per year



(1) Establishment of Solid Earnings Base (Oil & Natural Gas E&P business)

- ✓ Pursue safe, stable and efficient business operation and seek maximization of value of conventional Oil & Natural Gas E&P business as a base business for securing and expanding management resources

Maximization of value of Oil & Natural Gas E&P business

Indonesia Tangguh Train 3 Expansion Project

- ✓ Project for train expansion enabling early production of undeveloped gas fields that have already been discovered.
- ✓ Large and long-term contribution to future cash flow

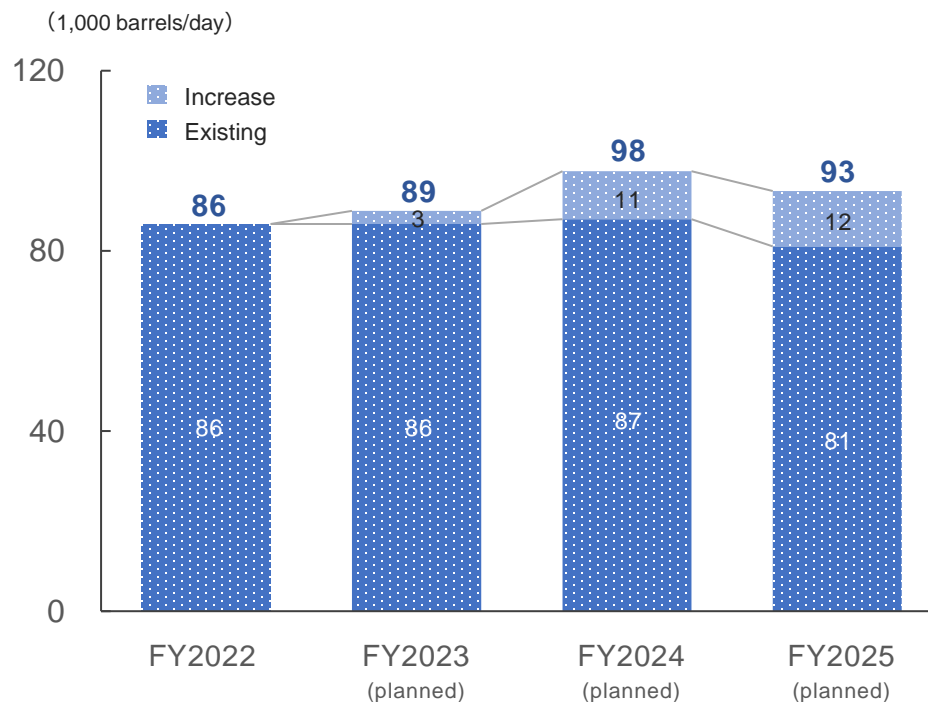
Interest held	12.2%
Start of production	FY2023 Q3 (scheduled)
Contribution to sales volume	8,000 boed (FY2024 forecast)

Malaysia Block SK10 Helang Gas Field Additional Development Project

- ✓ Additional development project in the block using existing production facilities
- ✓ Contribute to generation of cash flow in the 3rd Mid-Term Management Plan

Interest held	75% (ENEOS is operator)
Start of production	FY2024 Q3 (scheduled)
Contribution to sales volume	3,000 boed (FY2025 forecast)

Sales volume plan



(1) Establishment of Solid Earnings Base (Metals business)

- ✓ Steadily execute growth investment, and steadily capture growing demand for semiconductor materials and ICT materials

Pursuit of growth of semiconductor materials and ICT materials

Enhancement of capacity through launch of new plant in Hitachinaka

- ✓ As demand for advanced materials is expected to expand in the future, a new plant will be built in Ibaraki Prefecture, which is a strategic site for metals with consideration of room for expansion for the launch of new business due to limitations on space in existing plants.

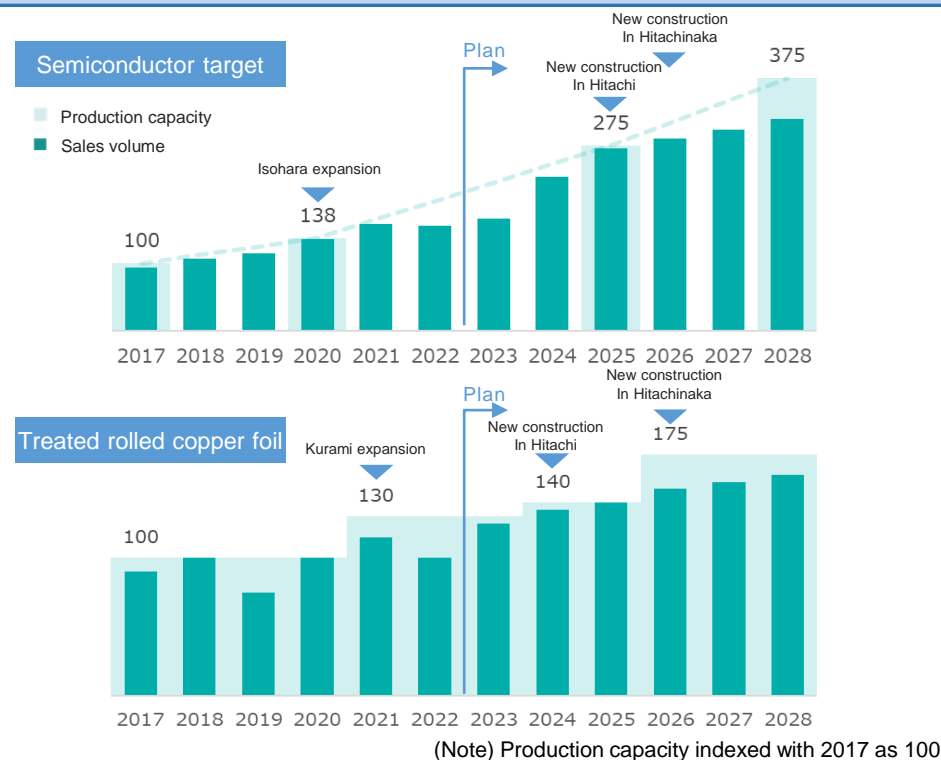
FY2025	Start operation of each process (Scheduled)
FY2026	Start of operations (Scheduled)

Increase of production through launch of new plant in North America

- ✓ A new plant will be built in Arizona, USA, to build a stable supply system and maintain a high share in the semiconductor materials market in response to growing demand for semiconductor targets, the importance of BCP in that product area and customers' requirements, in addition to operating new businesses including products in other businesses.

FY2024	Start operation for sputtering target process (Scheduled)
FY2026	Start operations for other strategic products process (Scheduled)

Production capacity



(2) Acceleration of Initiatives for the Realization of Energy Transition (Energy business)

- ✓ Pursue initiatives to start supply of renewable energy, hydrogen, biofuels and synthetic fuels, which are main energy candidates for a carbon-neutral society, to society while utilizing support system and strategic partnership

Renewable energy and VPP

- Fully utilize the human resources of JRE to develop 2GW centered on solar and onshore wind power
- Promote offshore wind power business
- Build a VPP business system monitoring and controlling resources such as distributed renewable energy, energy storage and EVs comprehensively

Year	Solar	Wind power	Biomass	Hydro
End of FY2019	~0.1	~0.1	~0.1	~0.1
End of FY2020	~0.2	~0.2	~0.2	~0.2
End of FY2021	~0.4	~0.4	~0.4	~0.4
End of FY2022 (In operation)	~0.6	~0.6	~0.6	~0.6
End of FY2023 (In operation)	~0.8	~0.8	~0.8	~0.8
End of FY2024 (Construction)	~1.0	~1.0	~1.0	~1.0
End of FY2025	~1.2	~1.2	~1.2	~1.2

SAF

- **Creation of in-house manufacturing system**
(Targeting 50% share in Japan)
First plant: 400 thousand KL/year, planning to start operation in 2026
Considering second plant (Start operation around 2030)
- Early creation of import system

~2025	~2030	2030~
Creation of SAF import system	Creation of in-house manufacturing system	Expansion and evolution of supply system (Also with a view to making raw materials inedible and supplying synthetic fuels)

Hydrogen

- Utilize support programs such as GI funds to start construction of facilities in FY2025
- Build a hydrogen supply chain by 2030

Hydrogen demand in Industry complex¹

- ✓ Hydrogen power generation (5-10 million tons/year)
- ✓ FC trucks (6 million tons/year)
- ✓ Thermal demand, chemicals industry

¹ Forecast from "Green Growth Strategy" of Japanese Government

Low-carbon high-octane gasoline

- Renew current high-octane gasoline to low-carbon high-octane gasoline (blending biofuels and synthetic fuels)
- Start supply to some regions from around 2027 and then expand
- Aim to establish manufacturing system for synthetic fuels through in-house technology utilizing GI funds, etc. in parallel

Low-carbon high-octane gasoline

gasoline + Biofuel + Synthetic fuel (H₂ + CO₂)

Blend and supply

ENEOS

(2) Acceleration of Initiatives for the Realization of Energy Transition (Oil & Natural Gas E&P business)

- ✓ Implement initiatives aimed at acquisition of elemental technology required for strengthening and creation of CCS value chain and early implementation of CCS

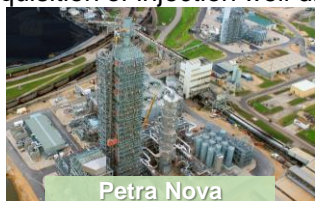
Strengthening and creation of CCS value chain

Petra Nova Parish Holdings (wholly-owned US subsidiary)

- Acquisition of separation and capture technology and operating expertise through stable operation as an operator of a CO₂ separation and capture business
- Acquire technology for CO₂ pipeline transportation, injection, storage and monitoring through CO₂ injection and monitoring at West Ranch Oil Field

Acquisition and management integration of Japan Drilling Co., Ltd. (April 2023)

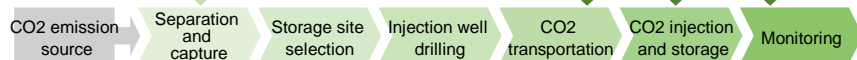
- Acquisition of injection well drilling technology and operating capability



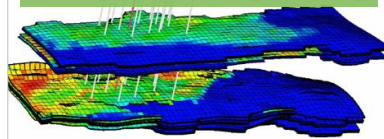
Petra Nova



West Ranch



Oil & Natural Gas E&P (underground technology)



Japan Drilling Co., Ltd.



Marine transportation to be complemented by partnering

Initiatives for early implementation of CCS

Domestic CCS business

- Evaluate and review of CO₂ hub (aggregation site) and storage site for realization of start of injection in 2030 through West Japan Carbon dioxide Storage Survey Co., Ltd., a joint venture between ENEOS and J-POWER.

Overseas CCS business

- Consider participation in joint studies and overseas CCS projects through channels with state-run oil companies, etc.
 - Implementation of joint study aimed at formation of CCS hub & cluster with PETRONAS and JGC
 - Consideration of development technology proposal and acquisition of interest including CCS in undeveloped gas fields containing high concentrated CO₂ found offshore of the Malay Peninsula with PETRONAS Carigali
 - Consideration of CCUS business for reducing CO₂ emissions in the Tangguh LNG Project

Creation of new environmental business centered on CCS

- Consideration and development of future technology utilizing Nakajo Open-innovation Lab (NOiL)
- Consideration and promotion of negative emission business (BECCS¹, DACCS²)

1 BECCS : Bio energy with carbon dioxide capture and storage

2 DACCS : Direct air capture with carbon dioxide capture and storage

(2) Acceleration of Initiatives for the Realization of Energy Transition (Metals business)

- ✓ Create a system for energy-saving, carbon-saving copper resource circulation with a high recycling rate through realization of the Sustainable Copper Vision

Measures for realization of Sustainable Copper Vision

Reduction of CFP¹

- Electrolytic copper CFP calculation by a third party
- CO₂ reduction in refineries and ore transportation

1 Carbon footprint: CO₂ emissions related to the value chain

Improvement of recycling percentage

- Evolution of green hybrid smelting
- Establishment of cooperative system with recyclers

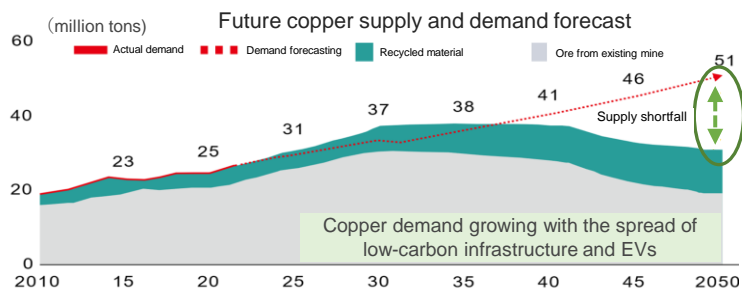
2 Framework showing copper industry's responsible production and contribution to the SDGs, established by International Copper Association

Promotion of responsible procurement, etc.

- Acquisition of the Copper Mark² (acquired in December 2022, first for Japanese copper smelting)

Formation of green enabling partnership

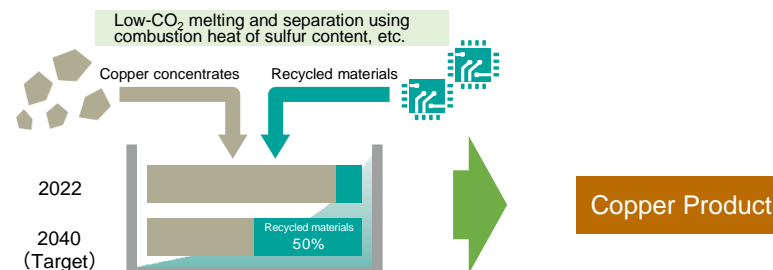
- Economical and transparent copper resource recycling and increased scrap collection



Source : IHS Global Insights MineSpans

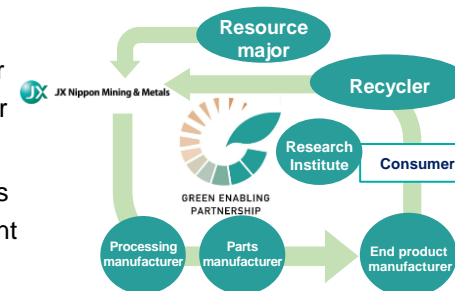
Production and supply of sustainable copper through evolution of green hybrid smelting

- Acceleration of technology development for green hybrid smelting combining copper concentrates and scrap



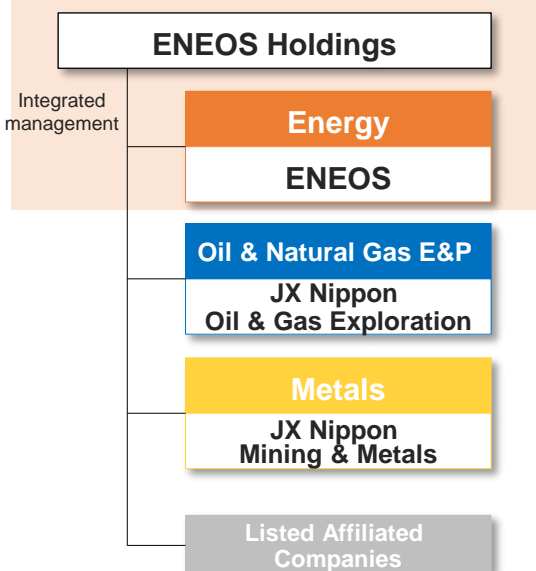
Promoting the spread of sustainable copper through the formation of green enabling partnerships

- Formation of partnerships with companies, etc. collaborating for the spread of sustainable copper
- Promotion of product and scrap collection, reuse of raw materials and joint technology development with partners

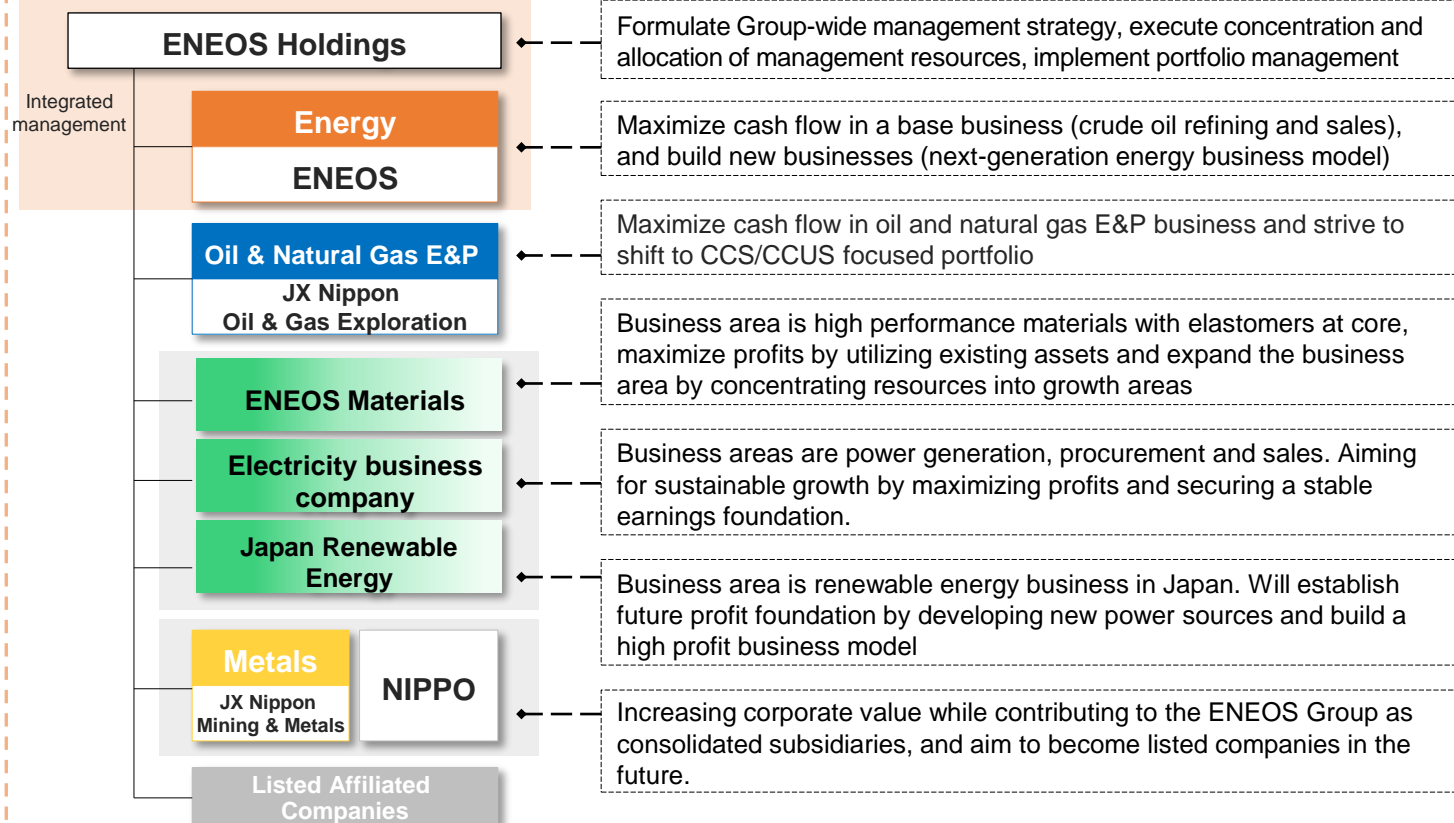


(3) Enhancing the Management Base (Change in Group Management Structure)

Current Structure



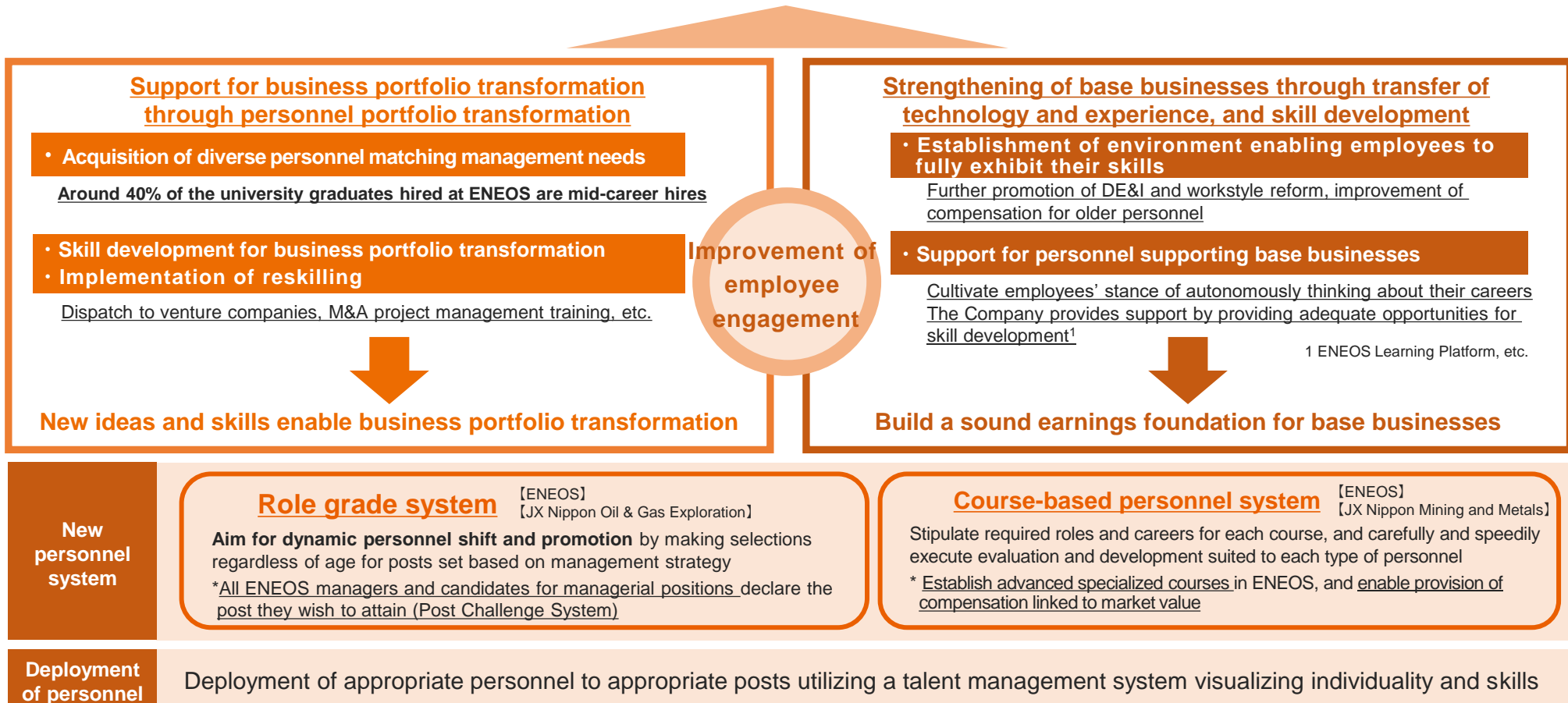
New Structure (Scheduled for April 2024)



Under the holding company structure, emphasizing capital efficiency, execute portfolio management using ROIC as an indicator and initiate fundamental management improvement measures for inefficient businesses within 3 years

(3) Enhancing the Management Base (Group Human Resource Strategy)

Supporting “today’s normal,” taking the lead for “tomorrow’s normal”



(3) Enhancing the Management Base (Digital Strategy)

Further accelerating DX for establishment of a solid earnings base and realization of energy transition. Perform utilization of data centered on training of digital personnel, strengthening of IT governance and expansion of co-creation opportunities as driving forces required for this.

DX of base businesses (DX Core)



- Enhancement of facility maintenance using drones and AI image diagnosis
- Reduction of operation and construction trouble utilizing machine learning
- Supply chain optimization through demand forecasting
- Improvement of efficiency of on-site operation through various types of digitalization

DX of growth businesses (DX Next)



- Expansion of mobility business through expansion and coordination of new services
- Deepening of customer communication utilizing applications
- Acceleration of material development and creation of innovation
- Next-generation energy management utilizing VPP system



DX for carbon neutrality

- Visualization and analysis of CO₂ emissions
- Pursuit of application of digital technology in CCS projects



Strengthening of driving force for promotion of DX



Development of digital personnel

Visualize skill levels, enhance the autonomous capabilities of employees and promote the assignment of appropriate personnel to appropriate posts



Expansion of training programs

- Acquisition of digital literacy by all employees and development of advanced digital personnel¹ such as data scientists

- Priority assignment to key themes

- Utilizing for operational improvements in each division

Target: 2,000 personnel (20%)



Data utilization

Utilize diverse data inside and outside the company to transform into a data-driven organization

- Aggregation of data through optimization of ERP and data analysis infrastructure
- Sustained profit improvement through the utilization of data analysis tools
- Thorough utilization of customer data
- Formation of communities through sharing of insights and collaboration



IT governance

Create an environment for steady promotion of DX in strategy, system, and security aspects

- Company-wide DX discussion led by management
- Strengthening of IT management capability through IT cost visualization, etc.
- Ongoing strengthening of security incorporating the zero trust concept



Co-creation opportunities

Enhance technology and experience through funding of startups, collaboration with other companies, and expansion of collaborations between universities and industry

- Funding of startups
- Leading collaboration with other industries for expansion of community services
- Strengthening of technology development through joint research with educational and research institutions

¹ Personnel with practical experience and knowledge for promotion of DX, and can demonstrate value as a core of DX projects in their area of responsibility

Shareholder Returns Policy

Basic Policy

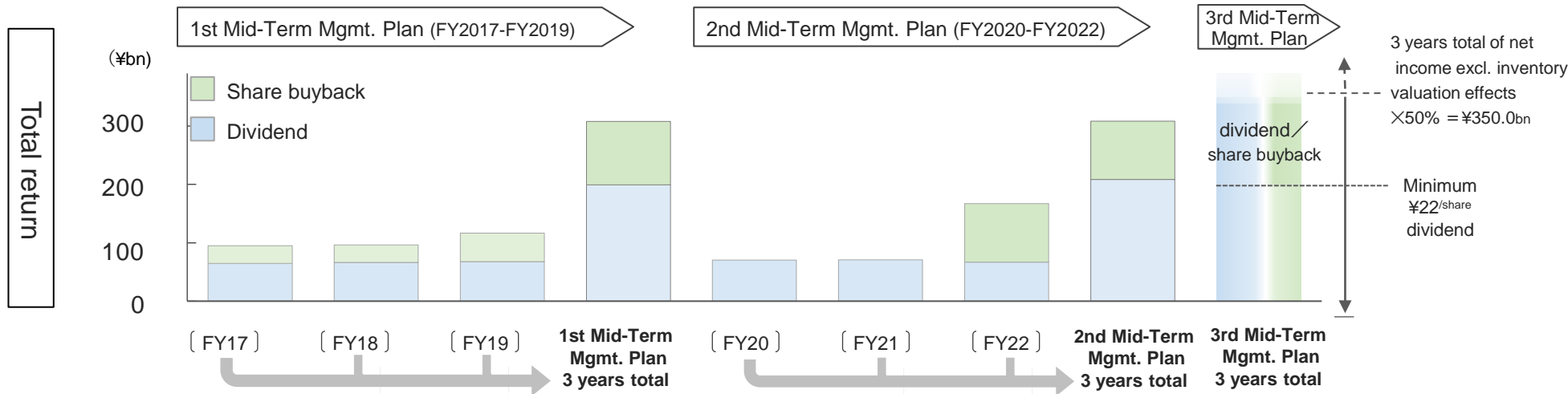
- Secure sufficient financial soundness and liquidity to withstand resource price volatility and other business risks and enable procurement of capital for sustained investment in growth.
- Based on the above, utilize constant financing to maintain an optimal capital structure and capital costs.

Return Policy

- Returning profits to shareholders continues to be an important management issue.
- With the basic policy of implementing returns reflecting medium-term consolidated performance and forecasts, strive to continue to provide stable dividends.

Indication of shareholder return in Medium-Term Management Plan

- On average over the three-year period, 50% or more of net income, excluding the impact of inventory valuation effects, will be returned through dividends and share buybacks.
- In consideration of the continuation of stable dividends, we will set a minimum dividend of 22 yen per share.



This notice contains certain forward-looking statements, however, actual results may differ materially from those reflected in any forward-looking statement, due to various factors, including but not limited to, the following:

- (1) macroeconomic conditions and changes in the competitive environment in the energy, resources and materials industries;
- (2) changes in laws and regulations; and
- (3) risks related to litigation and other legal proceedings.