

JERA Growth Strategy to Realize the 2035 Vision

Financial Strategy and Financial Target Levels Targeted for by 2035

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Introduction

JERA's mission is to provide cutting-edge solutions to the world's energy problems. Never before has that mission been so critical. Driven by geopolitical events and the climate crisis, the past two years has seen the energy trilemma take hold as governments, businesses and consumers struggle to achieve a balance in delivering and consuming energy that is stable, affordable and sustainable.

JERA aims to solve is world's energy conundrum of simultaneously delivering stable, affordable, and sustainable energy. But we also know there is no current universal solution and multiple forms of energy will be need to keep pace with growing global demand.

JERA's strategy to address these challenges is based on a strategic positioning with a focus on three business areas: LNG, renewables, and hydrogen & ammonia. Since these three businesses have complementary synergies, they can be leveraged to provide solutions tailored to the geographic and economic characteristics of any country or region.

To support organizational capacity and achieve high-quality solutions, JERA divides the organization into three areas; business development, optimization and O&M. An independent group of experts has been formed globally for each of these three areas to create synergies and encourage collaboration across sites and functions.

The three groups of experts will collaborate with the three businesses areas on a global scale to provide cutting-edge solutions tailored to the markets where we currently operate and new markets where we seek to grow. This combination is a key differentiator for JERA that no other energy company in the world has.

Introduction

Today, we are announcing the JERA Growth Strategy. This strategy combines our mission of solving the world's energy problems with our core three business areas, while leveraging our unique set up.

We also present the scale of our business according to the realization of our Growth Strategy, the income and expenditure levels we are targeting by 2035, along with a summary of our financial strategy.

With regard to the Growth Strategy presented today, we hereby promise (CEO's Commitments) that we will achieve concrete results that we can proudly share with our stakeholders within the next year.

In order to realize our Growth Strategy, JERA commits to boldly tackling today's energy and climate crisis head on, while working hand in hand with all stakeholders to grow and develop society. We hope that you will continue to look forward to our growth and ask for your continued support and cooperation



President, Director, CEO and COO Hisahide Okuda

Global CEO and Chair Yukio Kani



Jera Energy for a New Era

1 JERA Growth Strategy to Realize 2035

- 01 | Our Origins and Our Destination
- 02 How to Reach Our Destination: Methods and Numbers
- 03 | Initiatives in Three Strategic Business Areas
- 04 What Holds the Keys to Success



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Clear achievements during 10 years since start pave the way to becoming a global energy leader

- Following 2014 decision to create global energy leader, JERA completed the successful integration of all assets within 5 years.
- Currently, JERA supplies one third of Japan's electricity as one of the world's largest LNG buyers, delivering significant financial upside and exceeding original targets.
- Formulated practical and responsible growth strategy towards 2035 leading decarbonization.



01 Our Origins and Our Destination

The world is facing growing challenges and uncertainties strongly related to energy

- Energy plays a significant role in solving global challenges of climate change, increasing poverty and rising geopolitical risks.
- Al is transforming the society while also generating massive electricity demand.
- Energy demand in Asia will grow significantly as Japan's relative economic size to shrink.



Economy in Asia & Japan

China, India and Indonesia will be in the top five of world GDP by 2050, while Japan will drop out of the top five⁽³⁾





of jobs in advanced economies may be impacted by AI, and roughly half the exposed jobs may benefit from AI integration and enhancing productivity. For the other half, AI applications may execute key tasks currently performed by humans⁽²⁾



high-income countries(4)

Mission/Vision - Leading the energy transition with a unique business model

- The world's energy issue is to solve the energy trilemma, i.e. achieving sustainability, affordability and stability simultaneously
- JERA's business model is addressing the energy trilemma by combining renewables and low greenhouse gas thermal power in a practical and responsible way.
- Expansion of cutting-edge solutions from Japan to Asia and the world.

Mission

To provide cutting edge solutions to the world's energy issues

Energy Trilemma

2035 Vision

Stability

Stable Supply

Sustainability

CO₂ Reduction

Affordability

Affordable Price

Clean energy platform of renewables and low greenhouse gas thermal power



The intermittency of renewables, created due to natural flutuations in wind and sunlight, combined with a lack of electricity storage technology and capacity, means low greenhouse gas thermal power will have a critical role to play in the energy transition



02| How to Reach Our Destination: Methods and Numbers

Providing optimal solutions through JERA's unique combination of its Strategic Positioning (SP) and Operational Capabilities (OC)

- Clear and coordinated investment focus on three business areas: LNG, Renewables and Hydrogen & Ammonia (Strategic Positioning).
- Continued strengthening and refinement of business functions: Business Development, Optimization and O&M (Operational Capabilities).
- Effective combination of Strategic Positioning and Operational Capabilities enables JERA to offer solutions that address different energy needs by customer, region and country.



Provide cutting- edge solutions that meet the geographic and economic characteristics of each customer, region and country



How to Reach Our Destination: 02| Methods and Numbers

Key targets for 2035: investment of 5 trillion yen in 3 strategic business areas and achieving a profit of 350 billion yen

- Cumulative investment target of 5 trillion yen by 2035 reflects the capital-intensive nature of JERA's three business areas.
- Enhancing the selection of strategic • investments to respond rising interest rates and inflation, with leveraging 3 OCs to boost profitability.
- Flexible and agile investment allocation in response to technology development and changes of the business environment.

Profit for the period	FY2019	FY2025 FY2035	Target scale to be achieved by FY 2035		
	In billion 90	200	¥350 billion Consolidated net income	Aiming for steady profit growth despite uncertain business environment	
Investment amount Cumulative investment CF	In trillion N/A	1.4	¥5 trillion Cumulative investment CF (FY 2024 to FY 2035)	Investing in three business areas based on operating capital from existing businesses	
LNG Quantity handled	In million tons 35	35	More than 35 million tons Handling volume	One of the world's largest LNG value chain players	
Renewables Development capacity	In GW 1.5	5	Development capacity 20 GW ⁽¹⁾	Global renewables players involved in green fuel production	
Hydrogen & ammonia Quantity handled	N/A	N/A	Amount of hydrogen/ ammonia handled About 7 million tons ⁽²⁾	A pioneer player in the global hydrogen & ammonia value chain	

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(1) Assuming disciplined investment decisions in high-quality projects while assessing market conditions

We are here

(2) This initiative will be detailed in stages based on policy and other assumptions. If assumptions are substantially changed, they will be reviewed.

LNG – As integrated value chain player, we continue to provide solutions to our customers in Japan and Asia through stable and flexible LNG supply

- One of the largest global LNG players with integrated value chain.
- Leveraging on its LNG transaction scale, JERA (1) strengthens LNG value chain, (2) diversifies LNG supply and market positions, and (3) optimizes LNG flow at a global scale
- Continue to provide solutions to Japan and Asia and maintain its exposures in global LNG market

Strengthen LNG value chain



- Reducing coal/oil-firing mainly in Asia (with LNG & Renewables) for decarbonization •

Renewables – Center of Excellence in UK with Glocal system for scaling up wind and solar

- Towards Asia's top-tier player, having 5GW capacity of FID / acquired business rights and over 10GW in the pipeline, with a team of 300 members
- Clear growth path with offshore/onshore wind and mega solar, plus green fuel development.
- Become a 20 GW global player by 2035 through clearly defined steps that integrate local and global teams and drive collaboration.



Hydrogen & Ammonia – First mover in creating low carbon value chain with multi-purpose decarbonization initiatives

 Leverage JERA's pioneering position to achieve low-carbon thermal power with hydrogen/ammonia plus CCS etc.

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- Towards hydrogen/ammonia value chain, leading the world's first large-scale ammonia power generation in Japan by 2027/2028. In US, hydrogen introduced into gas thermal power (up to 40%).
- From power demand to marine fuel and industrial use, providing multipurpose decarbonization solutions from Japan to Asia, Europe and the US.



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The journey of energy transition: Aiming for the 2035 Vision through longterm perspective and agile portfolio adaptation

- As the times change, effective solutions also evolve. JERA maintains 3 business areas from a long-term perspective, agilely adapting the portfolio in accordance with the business environment
- The agile adaptation is supported by (i) flexible decision-making operations, (ii) common foundation of optimization and O&M, and (iii) synergy between 3 business areas. This enables dynamic investment pacing in decarbonization.
- Strong synergies between blue hydrogen & ammonia and LNG, plus green hydrogen & ammonia with renewables



Flexible decision-making operations x Common foundation of optimization and O&M x Synergy between 3 business areas

JERA's Unique Position



- Blue hydrogen & ammonia: Full utilization of LNG value chain i.e. gas field development (CCS), transportation, thermal power O&M capabilities, and trust relationship with oil majors
- Green hydrogen & ammonia: In addition to LNG value chain, large-scale renewable energy development and O&M capabilities, utilization of trust relationship with renewable players

Collaboration is key to achieving Mission & 2035 Vision

Reliable partners determine the success of long-term projects

- The three strategic business areas of JERA all involve a large-scale projects with lifespan of 30-40 years or more, and commercializing new solutions requires taking on new risks to be managed.
- It will therefore be necessary to form joint ventures (JVs) with reliable partners for many projects. Becoming a partner means working side by side for 30-40 years, from project planning, construction, through to operation and disposal.
- Therefore, being chosen as a business partner by global top players both domestically and internationally greatly influences the success of the project.

Building relationship with government officials to pave the way for decarbonization

- Furthermore, openly exchanging opinions with government officials of various countries is extremely important to foster a common understanding of the path towards decarbonization.
- We are already in discussions with the governments of Bangladesh, the Philippines, Indonesia, Thailand, and Vietnam, in collaboration with partner companies in these countries, to develop decarbonization roadmaps. Such efforts can reduce long-term business environmental uncertainty for countries considering introducing LNG, or players wanting to take on new solutions.

Sharing destination and culture is essential for collaboration

- To make such collaborations successful, we place importance on two things based on our long experience: One is whether they can empathize with our Mission and Vision, and more importantly, whether we can share our culture and values.
- At JERA, we cherish a flat culture where diverse talents gather and openly express their opinions.
- Chosen by our partners, we aim to achieve the 2035 Vision together with them and other stakeholders



2 Financial Strategy and 2035 Financial Targets

01 | FY2035 financial targets

02 | Capital allocation





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01 FY2035 financial targets

Achieve a financial structure valued by capital markets

• Set financial targets (KPIs) based on global peer standards

• Aim to achieve consolidated net income of 350 billion yen by FY2035, or sooner.

			\rightarrow
	Management Indicators	FY 2025 Target Values (Reference)	Target Levels by FY 2035
	Net Income *	200 billion yen	350 billion yen
Profitability	EBITDA*	500 billion yen	700 billion yen
Capital Efficiency	ROIC – WACC Spread*	ROIC 4.5% WACC 3.5%	150bps or more
Growth potential	Investment CF	FY2022-FY2025 1.4 trillion yen (cumulative)	FY2024-FY2035 5 trillion yen (cumulative)
Financial Soundness	Net DER	1.0 times or less	0.5 times or less
	Net Debt/EBITDA*	4.5 years or less	2 years or less
Reference	ROE*	Approx. 9.0%	Approx. 9.0%

01 FY2035 financial targets

Establish financial KPIs that deliver capital efficiency and financial soundness to maintain a strong credit rating

- Strong emphasis on capital market valuation to achieve a PBR of 1x or higher
- **ROIC-WACC** spread⁽¹⁾

ROIC-WACC spread must exceed 150bps to obtain a capital market valuation (PBR > 1)



• Target levels in line with or exceeding global peers

Net DER and Net Debt/EBITDA⁽²⁾

Aim for financial soundness comparable to that of non-regulated utilities in Europe



Jera Energy for a New Era 01 FY2035 financial targets

Track record of exceeding profit targets set in the past and maintained outlook for FY2025

Net income excluding time lag (*)





*The target for profit for the period is the business plan announced in April 2019 for fiscal 2019 to 21, the new management target announced in October 2022 for fiscal 2022, and the new management target announced in May 2022 for fiscal 2023 to 25.

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02 Capital allocation

Aim to achieve sustainable growth through flexible investment allocation

- Flexible allocation of operating cash flow into the three strategic business areas (SP) of the growth strategy, while considering market environment, technological innovation and political trends
- Enabling sustainable growth shielded from environmental and political challenges



Jera Energy for a New Era

(1) Accumulated estimates for fiscal years 2024 through 2035
(2) Assumes disciplined investment decisions for high-quality projects while assessing market conditions
(3) Details of this initiative will be elaborated in stages based on policy and other assumptions. If assumptions are substantially changed, they will be reviewed.

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3 Towards the realization of JERA CO₂ Zero Emissions 2050

- 01 | Steady progress towards zero emissions in Japan
- 02 Working towards zero emissions in all countries
- 03 Reducing NOx/SOx alongside CO₂
- 04 | Preparing for increases in electricity demand



Jerse Energy for a New Era

JERA is one of the first domestic operators to announce its commitment to the environment

JERA Zero CO₂ Emissions 2050 (announced on October 13, 2020)



JERA is actively working to reduce CO_2 emissions. In its domestic operations, JERA will aim to achieve the following by FY2030:

- Close all inefficient (supercritical or less) coal power plants and conduct demonstration tests of substitution of ammonia at high-efficiency
- (ultra-supercritical) coal power plants.
- Promote the development of renewable energy centered on offshore wind power projects and work to further improve the efficiency of LNG thermal power generation.

JERA will aim to reduce CO₂ emissions from its domestic operations by at least 60% (compared FY 2013) by FY 2035 through the following:

- JERA will strive to develop and adopt renewables in Japan given the expanded adoption of renewables based on the national government's 2050 carbon neutral policy.
- JERA will work to reduce carbon emission intensity from thermal power generation by promoting hydrogen and ammonia substitution.

JERA is committed to achieve zero CO_2 emissions from its domestic and overseas operations by 2050.

Leading the decarbonization of Japan's power sector with renewables and zero-emission thermal power

 Promote zero-emission thermal power generation by switching to hydrogen-based fuels while promoting the removal of coalfired power generation by shutting down and decommissioning of power plants and converting to ammonia

- Consider CCS and CCUS technology developments as a zero-emission enabler
- Promote the development of renewable energy, especially offshore wind energy





These initiatives will gradually be specified in more detail as government prerequisites become clearer, and reviewed if there are major changes in such conditions. (1) Consider use of CO₂-free LNG (2) Using green or blue hydrogen/ammonia

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Steady progress towards zero-emissions thermal power using ammonia of the Hekinan Thermal Power Plant

 Continue operation of the Hekinan Thermal Power Plant to ensure stable power supply; complete modification work on a 20% ammonia conversion burner during the three-month periodic turnaround of Unit 4.

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Energy for a New Era

- On April 1, the world's first large-scale commercial coal-fired power plant was fired for the first time, and a 20% ammonia conversion demonstration test ⁽¹⁾ began. The 20% conversion was achieved on April 10.
- NOx emissions were confirmed to be equal or lower. SOx emissions were reduced by approx.
 20% compared to those before ammonia conversion in the coal mono-combustion process.
 No N2O was found to be above the detection limit⁽²⁾.

Demonstration Testing Facility Construction and Testing Schedule



(1) A NEDO "Development of Technologies for Carbon Recycling and Next-Generation Thermal Power Generation / Research, Development, and Demonstration of Technologies for Ammonia Co-Firing Thermal Power Generation" project (Project entities: JERA/IHI)
 (2) Final evaluation will be conducted separately

02 Working towards zero emissions in all countries

In Asia, expanding the use of LNG is key to promoting a low-carbon society

- First, develop LNG-fired power instead of new coal-fired power, thereby limiting the increase in CO₂ emissions associated with growth in electricity demand.
- While introducing distributed renewables in parallel and promote ammonia conversion of coal for the future.



Initiatives in Asia (Illustrative)



02 Working towards zero emissions in all countries

JERA optimally combines a variety of options to achieve decarbonization based on country and region-specific circumstances

- Multiple options are needed to ensure a stable supply of clean energy at an affordable price in all countries around the world
- Zero-emission thermal power is one of the options
- The optimal combination of options will vary from country to country/region, depending on geography, country size, level of economic development, etc.

Site area required for equipment with an output of 1 GW





Need a combination of power sources and storage batteries that can respond to short- and long-term fluctuations in supply and demand

• Countries and regions with large seasonal changes in electricity demand require a combination of power sources that can respond to these fluctuations

Reference: Electricity supply to meet demand fluctuations in Japan

Daily supply and demand image

(example of May 4, 2023)

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Energy for a New Era

Thermal power generation and storage batteries are needed to deliver a stable constant energy supply during times of minimum solar power output.

Annual supply and demand image (FY 2023 example)

Demand fluctuations between seasons are large (tens of GW× several months). Large scale battery storage technology is in its infancy meaning thermal power generation is needed to allow for adjustable power output.



Source: Compiled by JERA on the basis of supply and demand data of each power transmission and distribution company in Japan. Note:A moving average is used for visibility. © 2024 JERA Co., Inc. All Rights Reserved

Reference: Differences in value generated by different power sources

	kWh value	kW value	Environmental value	Short-term flexibility	Long-term flexibility
	Generated electricity	Capability to generate electricity	CO ₂ emissions	Ability to respond to fluctuations in demand due to day/night and daily weather changes	Ability to respond to fluctuations in demand due to different seasons and extreme weather conditions
Coal	0	0	×	\bigtriangleup	0
LNG	0	0	\bigtriangleup	0	0
Nuclear power	0	0	0	×	\bigtriangleup
Solar power	0	\bigtriangleup	0	×	×
Wind power	0	\bigtriangleup	0	×	×
Battery	×	\bigtriangleup	×	0	×
Zero emission thermal power	0	0	0	△~ ○	0

03 Reducing NOx/SOx alongside CO₂

NOx/SOx reduction is important not only for CO₂ emissions but also for ecosystem conservation

• JERA takes a broad view in supply of sustainable energy, not purely limited to GHG only

6) Energy for a New Era

- Jera has succeeded in reducing NOx and SOx emissions to the lowest level globally
- JERA aims to deliver further reductions through adoption of new technologies such as low-NOx burners and high performance denitrogenation / desulfurization equipment

※ Positive evaluation results of 20% lower SOx levels and unchanged NOx levels. (P.24)



Source: NOx emissions = OECD Statistics; Generated energy = IEA, World Energy Balances

Consider revising power sources development plans to prepare for potential increases in electricity demand

- JERA has maintained a stable supply base by replacing aging thermal power plants
- Going forward, JERA will drive the decarbonization of the energy sector, with a dual focus on renewables and zero-emission thermal power generation
- It is also necessary to prepare for the expected increase in DX related power demand such as data centers, AI, etc., and the return of the semiconductor industry to the domestic market.

JERA's power sources development plans in Japan



Appendix





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Amid global efforts to decarbonize, factors such as the invasion of Ukraine have driven resource prices sharply higher and created a crisis for stable energy supply

Trends in Gas Prices (NBP)

\$/MMBTU



A diverse power mix is essential on the road to carbon neutrality with the optimal combination varying greatly by country and region

"Achieve the most economical decarbonization while maintaining stable supply"

Analysis of the optimal power supply configuration

Results of Analysis of Optimum Power Supply Configurations in Each Country Not enough for one power type

Main Factors for Determining an Optimal Roadmap

The optimal power supply configurations differ greatly depending on the individuality of countries and regions





Source: Global Wind Atlas IEA, World Energy Outlook 2023, Stated Policy Scenario

Source: JERA analysis designed to minimize integration costs, including the costs not only of electricity generation but also transmission and distribution facilities and storage batteries.

2025

2025

Major progress with many initiatives providing three-pillar solutions

• JERA already started to take on the challenge of providing unique solutions

 Clear focus on working with countries in Asia at present

Main Initiatives for Providing Three-Pillar Solutions



Business development function with focus on global/local partnerships



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O & M functions: Digital Power Plant

- Successful completion of PMI allowing integration of best practices from TEPCO, Chubu Electric, or the best global standard
- Digital excellence in accumulated knowledge

Engineering knowledge built over many years with one of the world's largest power generation facilities



State-of-the-art digital technology data science

JERA-DPP (R) (Digital Power Plant)



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Optimization function – Global asset-backed trading

- JERAGM*1 has become one of the world's largest and most capable fuel trading companies, optimizing roughly 10% of the world's LNG transaction volume
- Further strengthening our global electricity optimization capabilities by applying knowledge from the success of our domestic electricity trading company Jera PT*2





^AIn 2023, JERA Global Markets completed the sale of the Rietlanden Terminals to the Rhenus Group. The divestment is consistent to the sustainability strategy of the Port of Amsterdam and will take place over two tranches across 2023 and 2027.

Active financial strategy balance sheet management

• Hold capital larger than the integrated risk amount and maintain a A credit rating



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* JERA defines its risks into three categories: market risk, credit risk, and operational risk. The amount of integrated risk is quantifiles from market risk and credit risk. The difference between the amount of integrated risk and risk capital is defined as a "risk buffer." JERA has a policy of maintaining a certain level of risk buffer in consideration of the existence of operational risk.

Towards reducing GHG emissions across the entire lifecycle

 Reduction of GHG emissions not only by switching 100% from coal to ammonia but also across entire lifecycle including mining and production

JERA Efforts

Future Lifecycle GHG Reduction Effect

Lifecycle GHG Reduction Effect of Converting Coal to 100% Ammonia (IEA Estimate)

Convert coal-fired thermal to 100% ammonia-fired thermal

- For the ammonia used, convert to 100% blue or green ammonia, which emits less GHG during production.
- Develop our own renewables and expand production of green ammonia. In addition, build a value chain that further reduces GHG emissions across the lifecycle for blue ammonia.



Source: IEA, The Role of Low-Carbon Fuels in the Clean Energy Transitions of the Power Sector



Start of renewables development activities including offshore wind in Japan

 Promoting the offshore wind power project in Oga City, Katagami City, and Akita City in Akita Prefecuture after public selection

Oga, Katagami, and Akita



 JERA jointly operates Ishikawa Bay New Port with Green Power Investment, a leading offshore wind power company in Japan

Ishikari Bay New Port, Hokkaido

