

Context

Business Initiatives

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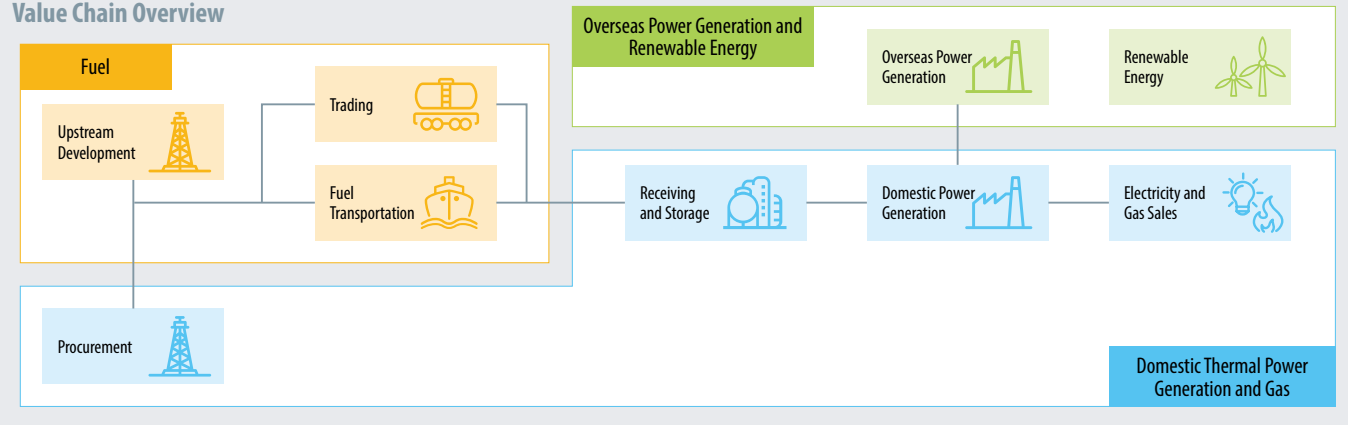
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Business Initiatives

The Business Capital Behind Our Value Chain and Growth

Our reporting segments are comprised of our Fuel Business, Overseas Power Generation and Renewable Energy Business, and Domestic thermal power generation and gas business. Our fuel business uses the market to optimize the production and transport of LNG—a primary fuel for thermal power generation—as well as the assets of the JERA Group (including LNG upstream operations and fuel procurement contracts for our domestic thermal power generation and gas business). Our Overseas Power Generation and Renewable Energy Business comprises our power generation ventures outside Japan as well as renewable energy development projects both domestically and internationally. Our Domestic thermal power generation and gas business manages essential fuel procurement contracts, receives fuel based on those contracts, and performs operation and maintenance (O&M) and engineering functions (development and construction), offering high-quality energy services while fulfilling its primary responsibility of ensuring a stable energy supply for the domestic market.

Value Chain Overview



The Business Capital Behind Our Growth

Manufacturing Capital	Social Capital
Financial Capital	Human Capital
Intellectual Capital	Natural Capital

*1 The number of employees excludes those on loan from the JERA Group to other companies but includes those on loan from other companies to the JERA Group.

*2 The total number of temporary employees is less than 1/10 of the total employee count, so it is not listed.

Fuel Business ▶P.28

Manufacturing Capital	
Upstream Investments 6	LNG Cargo Fleet 18 Vessels (as of September 2023)
Human Capital Number of Employees*1,*2 420	Financial Capital Revenue 585.7 billion yen

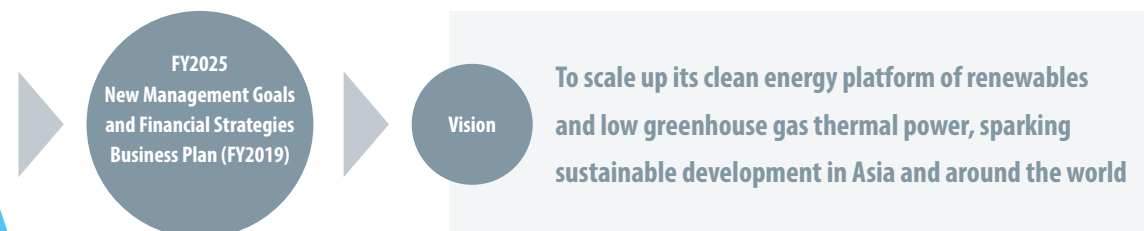
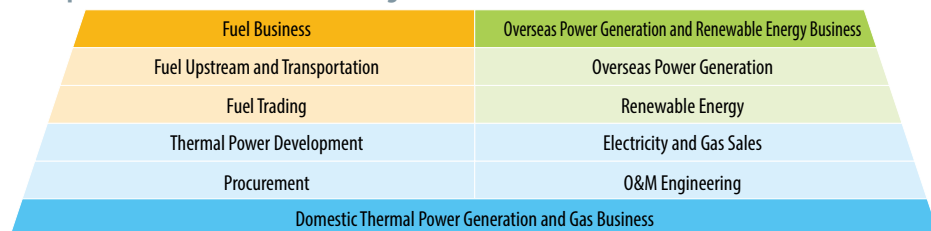
Overseas Power Generation and Renewable Energy Business ▶P.31

Manufacturing Capital	
Overseas Power Generation Capacity (output share) Approx. 12.4 GW	Overseas Business Locations 10+ Countries
Number of Overseas Projects Approx. 30	Development Output in Renewable Energy 2.5 GW
Human Capital Number of Employees*1,*2 398	Financial Capital Revenue 8.6 billion yen

Domestic Thermal Power Generation and Gas Business ▶P.34

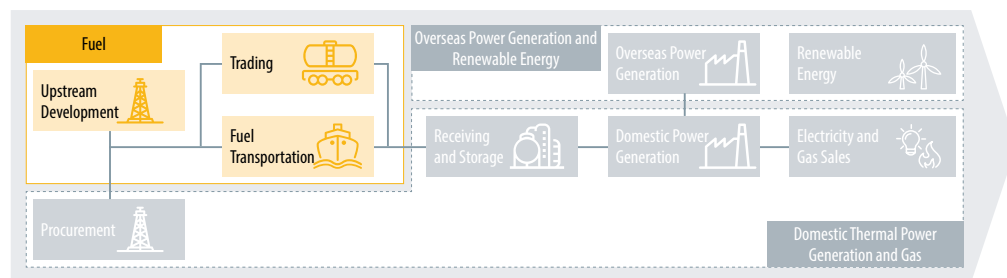
Manufacturing Capital	
Number of LNG terminals 11	Power Generation Capacity in Japan Approx. 61 GW
LNG Storage Tank Capacity 6.65 million kL	Power Plants in Japan 26
Human Capital Number of Employees*1,*2 3,610	Financial Capital Revenue 6,153.4 billion yen

Principal Business Activities of Each Segment



Positioning within the Value Chain

As the recent growth of renewable energy and other uncertain factors lead to increasing fluctuations in electricity demand, we have been minimizing these impacts by optimizing the entire value chain, from fuel procurement to electricity sales. Especially in our fuel business, we engage in upstream fuel projects to ensure a stable supply of competitive LNG and establish and optimally operate fleets for flexible LNG transportation. Moreover, by leveraging our global trading network, we provide supply flexibility to respond to demand fluctuations. Through these measures, we have achieved both enhanced supply stability and improved profitability.



Business Overview

Fuel Upstream and Transportation

We handle approximately 35 million tons of LNG annually and actively participate in LNG upstream ventures in Australia and the United States. By securing competitive LNG and gaining access to valuable intelligence from major production projects, we contribute to the stable fuel supply. Additionally, in our LNG transportation business, we achieve flexible and competitive fuel transportation through the optimal configuration and efficient operation of our fleet. By leveraging our expertise in LNG and the world's largest off-take capacity, we aim to build a fuel value chain for hydrogen and ammonia as well, to achieve zero-emission thermal power generation, supply it to other industries, and expand our business globally.



Fuel Trading

Centered around JERA Global Markets (JERAGM), headquartered in Singapore, we operate with a team of about 300 people, trading in the global LNG, coal, and shipping markets. A hallmark of our fuel trading is asset-backed trading. Leveraging one of the world's largest fuel procurement scales, we integrate third-party transactions with fuel flows for our shareholders, optimally managing the volume and destinations of each contract and flexibly responding to market trends. Additionally, we harness financial methods to capitalize on the benefits from these transactions by real contracts, ensuring revenue opportunities at a relatively low risk.



Distinguishing Features

We have constructed a resilient portfolio by diversifying procurement regions and contract durations, as well as participating in upstream ventures, among other initiatives. To ensure a stable energy supply, we also utilize market intelligence centered around JERAGM, building a framework that can flexibly respond to fluctuations in demand. The Board of Directors sets transaction limits for JERAGM and monitors the status of transactions, ensuring proper risk management with respect to market risks and credit risks arising in the fuel business.

Strengths

- The world's largest competitive and flexible LNG procurement portfolio
- Extensive market intelligence
- Flexibility in LNG terminal and power plant operations and fuel receiving

Opportunities

- Increased market volatility leading to optimization opportunities
- Increased transaction opportunities with new customers
- Acquisition of premium upstream development project information through leveraging overseas subsidiaries and the world's largest buyer network

Issues

- Increased interest-bearing liabilities due to the surge in resource prices
- Decarbonization efforts in upstream development projects

Risks

- Negative impact of geopolitical risks on fuel procurement
- Reduced optimization opportunities due to domestic power supply and demand constraints
- Credit Risk
- Income and expenditure fluctuations in upstream development projects due to resource price volatility

Business Initiatives

Fuel Business – 2

Utilizing Business Capital

Leveraging one of the world's largest procurement scales, we've formed a competitive fuel portfolio, which includes our involvement in upstream ventures. We continuously seek optimal operations through the use of our own transportation fleet and asset-backed trading, which is made possible by our talent, diverse professionals with experience across our fuel business units, including our overseas subsidiaries.

Key Business Capital

● Manufacturing Capital

- Upstream Investments: 6



Wheatstone LNG Project, Australia
Source: Chevron Australia

- LNG Cargo Fleet: 18 Vessels (as of September 2023)

● Social Capital

- A global trading network throughout the value chain
- A presence in the market based on one of the world's largest LNG supplies

● Financial Capital

- Revenue: 585.7 billion yen

● Human Capital

- Diverse talent from in and outside of Japan

● Intellectual Capital

- Enriched with profound market insights
- Trading know-how

● Natural Capital

- Total energy consumption: 50.04 million kL (crude oil equivalent)



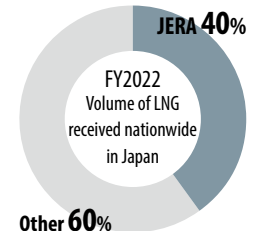
Value Provided

- Stability and flexibility in fuel supply

Business Indicators and Revenue Generation

Our LNG trade volume is approximately 35–40 million tons per year, and we have built a strong and extensive network in the global market. Drawing on our expertise, we efficiently seize profit opportunities in the market and operate smoothly by taking a holistic view of the entire value chain while ensuring proper risk management. Our approach achieves both enhanced fuel supply stability and increased profitability.

LNG Transaction Volume
Total for FY2022
35 million tons



Our Goal for 2025



We will maintain flexibility across the entire value chain in response to changes in the business environment and contribute to the sustainable growth of society by ensuring a continuous and stable energy supply.

Kazunori Kasai
Senior Managing Executive Officer
Chief Optimization Officer (COPTO)

In order for us to properly conduct our business and continue to meet the expectations of our stakeholders, it is essential that we engage in smooth management across the value chain, from upstream fuel development to fuel procurement, transportation, receiving, power generation, and sales. We are working to enhance the specialized skills of our talent within each business area that makes up our value chain. At the same time, by implementing appropriate risk management throughout the entire value chain, we are ensuring that the energy supply aligns with the needs of our customers.

A defining characteristic of our operations is the optimization business that connects the Pacific and Atlantic markets through JERAGM. By leveraging JERAGM's extensive network and expertise in trading, we are able to achieve a balance between stable fuel supply and revenue assurance through transactions with a large number of customers.

The business environment surrounding us is undergoing significant changes, including fuel market volatility resulting from shifting international conditions and increasingly complex power operations due to the introduction of diverse power sources, including renewables. Nevertheless, we will help realize a society that can grow sustainably by solving challenges and continuing to provide a stable energy supply by continuously pursuing optimization across the entire value chain and implementing appropriate risk management.

FOCUS

Fuel Trading By JERAGM – Supporting Communities Through Energy Security

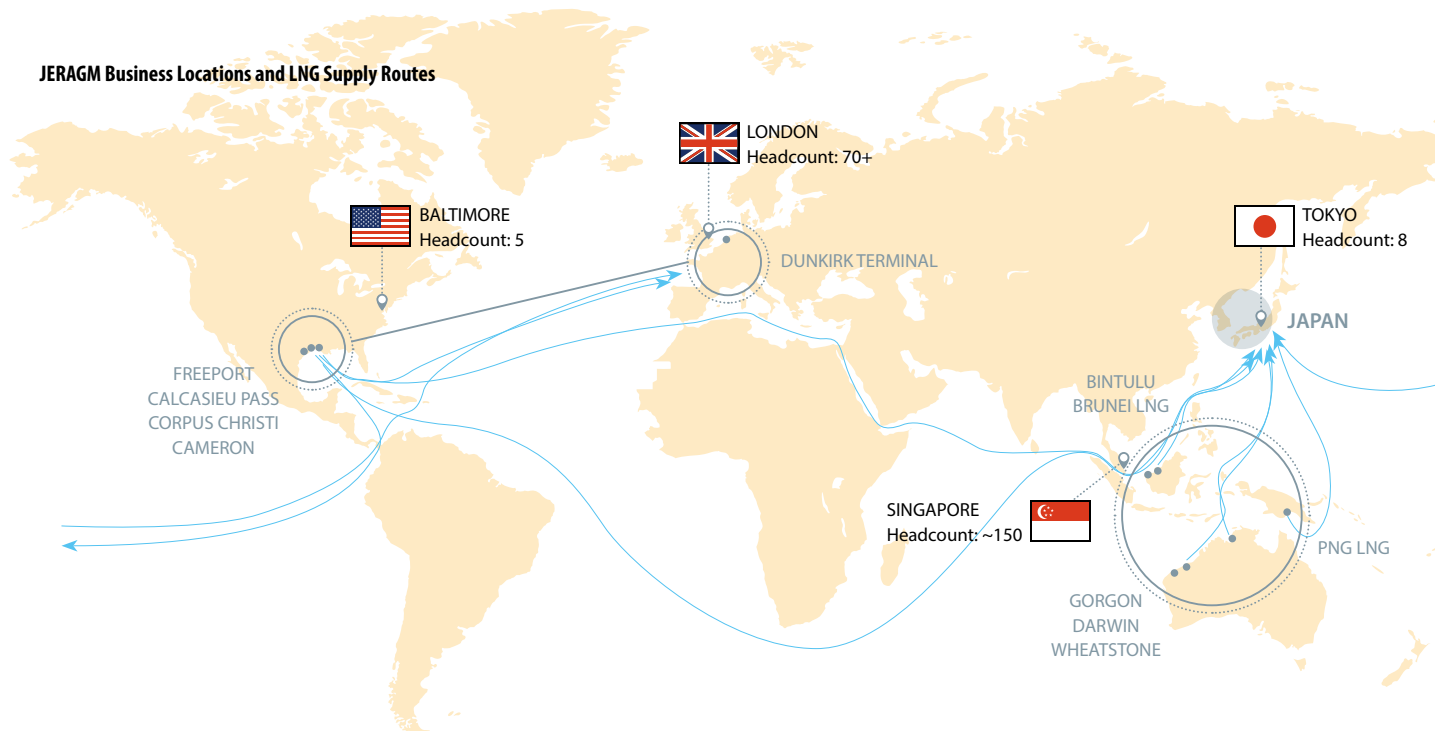
JERAGM operates one of the largest energy portfolios in the world, which gives it an in-depth understanding into the dynamics of local, regional, and international energy markets. These insights enable it to help its customers increase their security of supply, optimize their portfolios, and improve the risk management of their assets. JERAGM manages all coal and short-term LNG procurement for JERA while maximizing value through optimization and trading.

JERAGM is the culmination of two very different but complementary business activities – Japanese fuel procurement and European energy trading – creating a global trading business with seamlessly interconnected operations across four strategic locations, with full coverage of the physical and financial energy markets.

Strengths of JERAGM

- 1 Asset-backed Trading Model**
 - Leveraging the flexibility inherent in fuel contracts
 - Optimizes ~10% of global LNG volumes
- 2 Global Trading Expertise**
 - Global base of operations
 - Experienced team of traders that deploy asset-backed trading strategies
 - Strong fundamental analysis capabilities
- 3 Supported By a Robust Foundation**
 - Middle office to monitor and support transactions
 - Centralized transaction management through an IT infrastructure centered on the ETRM system

JERAGM Business Locations and LNG Supply Routes



Ask an Expert

Pursuing energy security and value for shareholders through its asset-backed trading business model



Justin Rowland
 CEO, JERA Global Markets

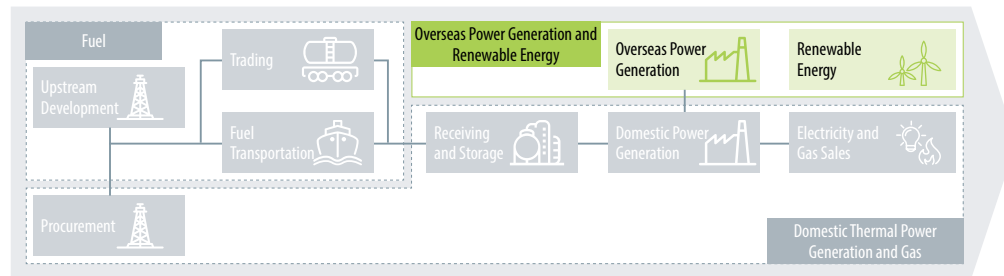
JERAGM continues to play a significant role in JERA's energy procurement strategy, where its activities have continued to display strong performance.

As the global energy landscape continues to evolve, our focus at JERAGM is to continue to capture and maximize value from the markets while staying true to our mission to provide energy security to our shareholders and the communities that we serve.

Overseas Power Generation and Renewable Energy Business – 1

Positioning Within the Value Chain

We are engaged in the development and operation of gas-fired power generation and renewable energy projects in Japan as well as across various regions worldwide, including Asia, the Middle East, Europe, and North America. In our gas-fired power generation development, we are actively involved in LNG supply and procurement of fuel in addition to infrastructure development in our aims to achieve a stable energy supply throughout the entire value chain. Furthermore, as we look toward decarbonizing thermal power, we are exploring the use of new fuels like hydrogen and ammonia, as well as the application of Carbon Dioxide Capture and Storage (CCS). Alongside our aggressive development of renewable energy both domestically and abroad, we are working to provide optimal solutions tailored to each region.



Business Overview

Overseas Power Generation

Globally, we operate close to 30 projects across over 10 countries, and we are continuing to expand our operations by leveraging our expertise in the development and operation of numerous large-scale power plants both domestically and abroad. Particularly in Asia, we are collaborating with platform-based companies that span multiple business domains, advancing not only power infrastructure development but also ensuring stable LNG supply and promoting decarbonization efforts.



Renewable Energy

Moving forward, we plan to consolidate our renewable energy business, both domestically and abroad, around our European base of operations. By partnering with local teams in each region, we aim to establish a glocal (global + local) structure. In offshore wind, where significant growth is anticipated, we are also intensifying our efforts in floating wind technology, a new frontier in the field. In addition to offshore wind power, we will actively pursue our solar power generation business in Japan and expand our solar and onshore wind power generation businesses in North America, India, and other countries. At the same time, we will also work on battery storage solutions in each country, which will contribute to stabilizing the supply-demand balance.



Distinguishing Features

The business landscape surrounding energy is rapidly evolving due to policy shifts, market changes, advancements in renewable energy, and carbon-reduction technologies. Moreover, the needs of each country and region are unique. In light of these diverse landscapes, it's essential to not only move our business forward by leveraging the experience and trust we've built through past projects but also to swiftly propose and implement optimal solutions to meet this changing environment. That is why we are collaborating with partners around the world, including platform-based companies, to deliver business solutions tailored to the needs of each region.

Strengths

- Leading the way in initiatives and insights into decarbonization technologies
- Development, construction, and operation of offshore wind power generation, which is rare among Japanese companies
- Selection of the latest and most optimal measures through collaboration with overseas development groups

Opportunities

- Expansion of competition in electricity and gas sales
- Market creation and new system introductions
- Fluctuations in resource prices
- Worldwide trends toward decarbonization
- Expansion and maturation of global renewable energy market
- Increased demand for storage batteries as a balancing force

Issues

- Strengthening of renewable energy specialists and organizational capabilities
- Enhancement of the renewable energy supply chain in Japan and Asia
- Expanding the scale of development to gain further bargaining power

Risks

- Shortfalls in adjustment functions due to the expansion of renewable energy
- Adverse impacts arising from the emergence of geopolitical risks
- Uncertainty in development due to external factors such as changes in the bidding system, vulnerabilities in the grid at locations suitable for renewable energy, and more

Overseas Power Generation and Renewable Energy Business – 2

Utilizing Business Capital

Drawing on experience gained from our projects around the world as well as the global expertise of our diverse team of professionals, we come together to pool our knowledge and ideas. By collaborating with like-minded partners, we are committed to addressing global energy challenges.

Key Business Capital

● Manufacturing Capital

- Number of Projects: Approx. 30 projects in over 10 countries

● Social Capital

- Leveraging networks developed through projects
- Collaborating with platform-based companies

● Financial Capital

- Revenue: 8.6 billion yen

● Human Capital

- Achieving a diverse portfolio of talent
- Reinforcing renewable energy talent through new hires and M&A

● Intellectual Capital

- Pioneering insights into decarbonization technologies
- Transferring insights and expertise of overseas renewable energy to the domestic market



Nathalie Oosterlinck, Head of key divisions at Parkwind in Belgium and Managing Executive Officer of the Global Renewable Energy Division (left); Kazuo Sakairi, Corporate Vice President and CFO (fourth from right)



Value Provided

- Contributing to decarbonization initiatives tailored to the needs of each country
- Aiding in decarbonization and ensuring stable electricity supply through the introduction and expansion of renewable energy

Business Indicators and Revenue Generation

To effectively conduct our business and consistently meet the expectations of our stakeholders, it's imperative that we continually commit to renewable energy development. By bolstering our renewable energy capabilities and growing into one of the world's leading renewable energy providers, we will achieve a robust and global expansion of our renewable energy business.

Renewable Energy Development Output
Total for FY2022
2.5 GW

Our Goal for 2025



We provide solutions tailored to the unique characteristics of each country and region, ensuring a solid revenue base and contributing to local growth and decarbonization.

Satoshi Yajima
Senior Managing Executive Officer
Chief Power Generation Development Officer (CPGDO)

In our Overseas Power Generation and Renewable Energy, we are advancing initiatives globally that support each country's growth and transition to decarbonization through the provision of clean energy sources, such as renewable energy and low-carbon power. In our pursuit of achieving zero emissions, it's crucial to adopt the strategies best tailored to the unique characteristics of each country and region. Every country requires a unique roadmap to decarbonization. This is because the availability of domestic resources like gas and coal, the potential for renewable energy sources (such as wind, solar, and geothermal), and existing infrastructure, including transmission lines, varies significantly by country. That is why, beyond merely participating in individual projects, we are strengthening its collaborations with business partners involved in multiple ventures. By pooling the expertise of both JERA and our business partners, we are further promoting development and operations tailored to the needs of each market. Furthermore, by actively pursuing energy solutions such as energy transition investments centered on Asia, we aim to achieve an optimal asset portfolio. Through these efforts, we are dedicated to securing a solid revenue base and contributing to regional growth and decarbonization.

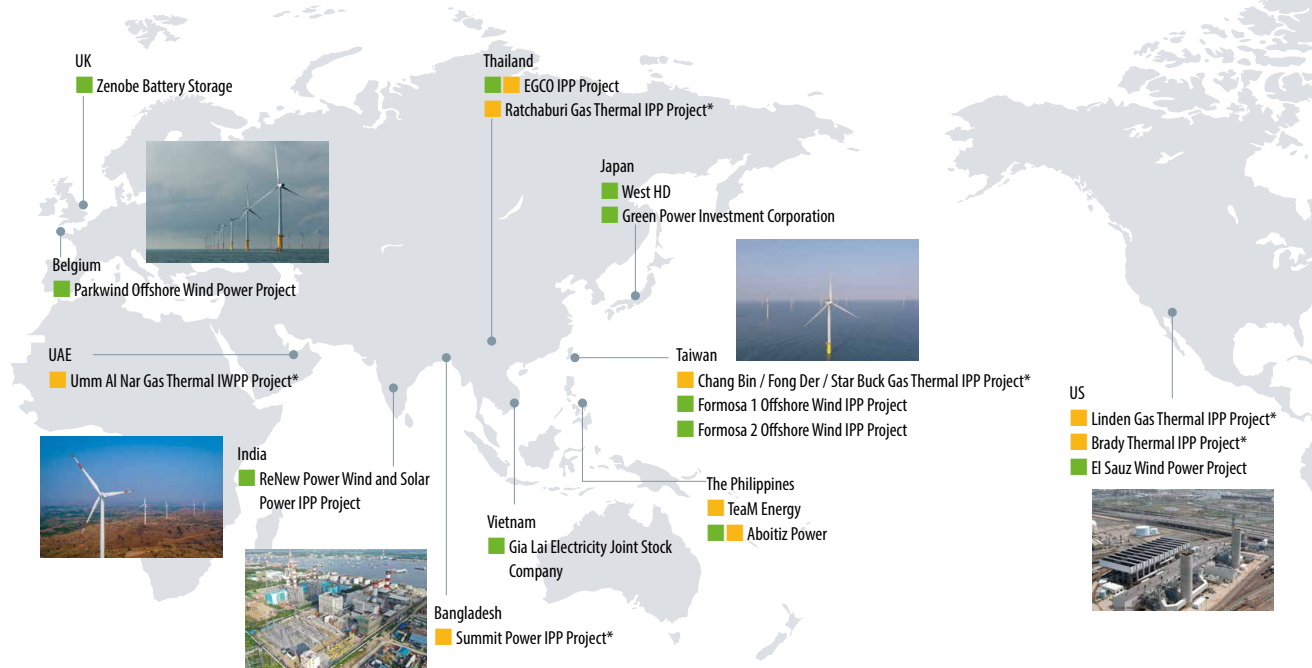
Overseas Power Generation and Renewable Energy Business – 3

FOCUS

Platform-Based Companies & Main IPPs*

We are utilizing the experience we have gained from each of the countries where we operate to engage in business development. Recently, we have been steadily expanding our renewable energy ventures, primarily in offshore wind power generation, through equity acquisitions in projects like the Brady Gas Power IPP business in the United States, our joint venture with Gia Lai Electricity Joint Stock Company in Vietnam, Parkwind in Belgium, and Green Power Investment Corporation in Japan. Moreover, in Asia, we are bolstering our collaborations with platform-based companies that have a strong presence in local markets and offer access to a wealth of business opportunities. In light of evolving business conditions, we endeavor to achieve an optimal asset composition by reorganizing our portfolio through asset divestitures and reinvestments, with a focus on securing funds and increasing earnings.

*IPP: Independent Power Producer
IWPP: Independent Water and Power Producer

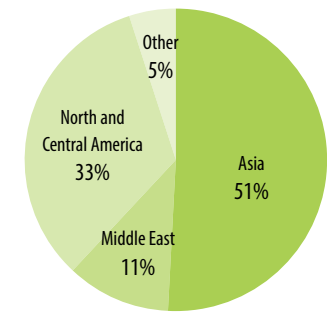


Main Platform-Based Companies Business Investments*

Country	Company
The Philippines	TeaM Energy
The Philippines	Aboitiz Power
Thailand	EGCO
Bangladesh	Summit Power International
Vietnam	Gia Lai Electricity Joint Stock Company
India	ReNew Power
Belgium	Parkwind
Japan	Green Power Investment Corporation

*Platform-based companies business investments: Businesses involved in multiple power generation projects, etc.

Business Portfolio by Region



Ask an Expert



Strategic considerations for Asia's growing energy demand

Steven Winn
Senior Managing Executive Officer
Chief Global Strategist (CGS)

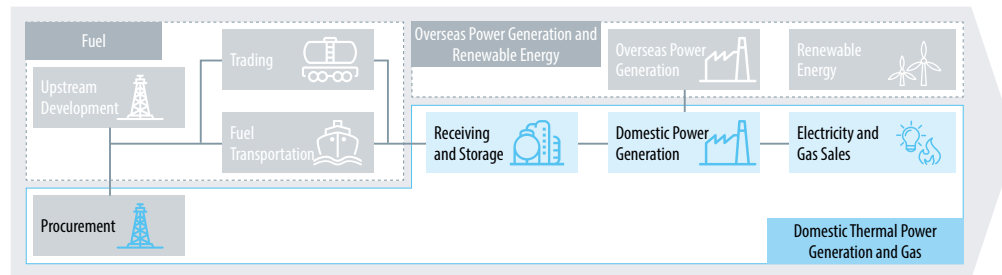
Asia, in particular, is witnessing a surge in energy demand, but there's also a heightened push toward zero emissions. It's imperative to navigate the dual path of ensuring a stable supply to meet the growing demand while actively pursuing zero-emission initiatives. We are contributing to the development of roadmaps for achieving zero emissions in each country and are working together to make them a reality. Achieving national carbon neutrality requires a range of options, such as hydrogen, ammonia, and renewable energy. Consequently, it's difficult to achieve this through participation in individual projects, underscoring the importance of collaboration with platform-based companies in regions with multiple business opportunities. More specifically, we are advancing efforts with these platform-based companies in different nations throughout Asia, including the formalization of a memorandum of understanding with Summit Power International, a company with expertise in Bangladesh, to jointly develop a decarbonization roadmap.

Domestic Thermal Power Generation and Gas Business – 1

Positioning Within the Value Chain

We are the largest power company in Japan, supplying approximately 30% of all domestic power generation output. Ensuring a stable supply of energy is the utmost priority in the Domestic thermal power generation and gas business. We achieve an economical and reliable supply by combining fuel procurement with the optimal operation of our power generation portfolio and our expertise in operating and maintaining power generation facilities.

In recent years, we have leveraged the electricity market and continued to make contributions to its growth and maturation. Looking ahead, we will continue to offer solutions to meet the evolving customer demands, including the establishment of a clean energy supply infrastructure needed to realize a decarbonized society.



Domestic Thermal Power Generation Development

We are in the process of replacing existing thermal power plants with facilities that have higher thermal efficiency and lower CO₂ emissions, making the most of their existing locations. Moreover, we are working on the construction of receiving facilities for decarbonized fuels like ammonia and hydrogen, alongside their power generation facilities, to accelerate the transition to carbon-neutral fuels that result in zero CO₂ emissions during combustion.



Electricity and Gas Sales

We are able to sell electricity and gas to meet the diverse needs of our customers based on our supply capabilities backed by our excellent track record of thermal power generation and experience with large-scale fuel contracts. In addition to traditional retail sales to both shareholder companies, we are expanding our sales channels to include third-party wholesalers and market trading, with a focus on unbiased risk management for both domestic and international markets. We have also established a subsidiary for electricity trading, allowing us to effectively manage and utilize our power sources and contract capacity.

Moving forward, we will continue to expand our market presence while ensuring a balance between a stable energy supply and increased profitability as a trusted power generation company by customers and business partners alike.



Distinguishing Features

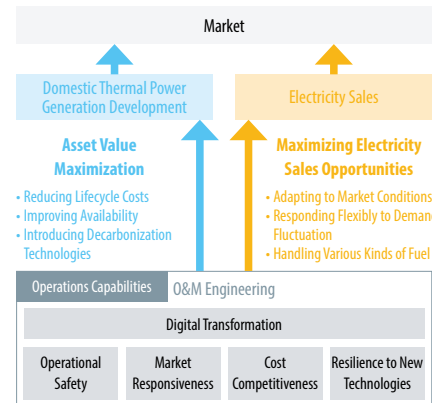
Our business faces numerous challenges, such as risks associated with fluctuating resource prices and the complexity of plant operations amidst significant volatility in domestic thermal power demand. Nonetheless, we adapt flexibly and respond swiftly by utilizing diverse fuel procurement sources and trading strategies in the face of resource price fluctuations. Additionally, we leverage diverse sales channels, including market transactions, and draw upon our years of experience in thermal power generation management to provide the best possible response to fluctuations in domestic thermal power demand.

Business Overview

O&M Engineering to Maximize Market Value

O&M Engineering is maximizing the market value of energy produced by JERA through its contribution to domestic thermal power development by maximizing asset value as well as to electricity sales by maximizing sales opportunities.

We are enhancing our safety operational capabilities, making safety an integral part of our corporate culture. We are also strengthening our market responsiveness to respond flexibly to volatility, improving our cost competitiveness to reduce facility lifecycle costs, and improving our capacity to acquire new technologies such as decarbonization and battery storage. Additionally, we are leveraging digital technologies to further elevate these capabilities.



Strengths

- Flexible and agile response based on expertise in thermal power generation and operation cultivated over years of experience
- A team of highly-skilled professionals in each area of technical expertise
- Robust on-site capabilities with excellent safety and disaster-prevention performance
- A competitive and flexible fuel procurement portfolio
- Know-how in market transactions

Opportunities

- Applying digital technologies
- Attaining zero emissions
- Improving liquidity in the domestic electricity market
- Evolving customer needs in electricity and gas sales

Issues

- Optimization of plant operations and fuel/power utilization in highly volatile conditions
- Decarbonization of thermal power generation
- New approaches to work enabled by digital technology

Risks

- Fluctuations in resource prices
- Negative impact of geopolitical risks on fuel procurement
- Risk of natural disasters such as major earthquakes
- Disruption of operations caused by equipment problems or accidents

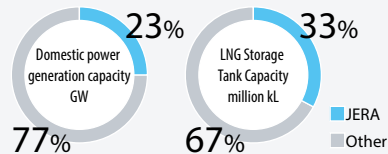
Utilizing Business Capital

We benefit from a versatile workforce of professionals in technical fields such as plant operation, facility engineering, and data analysis, allowing us to leverage our operational expertise across an array of thermal power generation facilities. This positions us to provide a distinctly superior level of service compared to our competitors, both at home and abroad.

Key Business Capital

Manufacturing Capital

- Power Plants in Japan: 26*¹
(Domestic power generation capacity: 61 GW)
- Number of LNG terminals in Japan: 11*²
(LNG Storage Tank Capacity: 6.65 million kL)



Social Capital

- Promoting community engagement around our power plants

Financial Capital

- Revenue: 6,153.4 billion yen

Human Capital

- Approx. 3,000 professionals in specialized technical fields

Intellectual Capital

- Know-how cultivated over years of experience in thermal power generation and operation
- Electricity market expertise
- Know-how in fuel procurement and power operations

Natural Capital

- Total energy consumption: 50.04 million kL (crude oil equivalent)
- LNG/LGP consumption: 23.67 million tons
- Coal consumption: 21.46 million tons
- Water usage: 20.18 million m³

*1 Includes power plants under construction

*2 Includes jointly operated LNG terminals

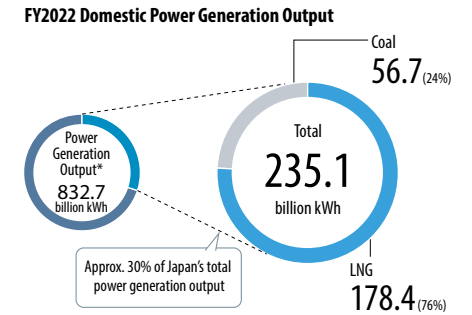
Value Provided

- Stable energy supply
- Decarbonization of thermal power generation
- Stable fuel procurement

Business Indicators and Revenue Generation

We rank among the world's largest power producers and play a pivotal role in ensuring a dependable electricity supply in Japan through its substantial power generation output. These electricity generation figures include not only the power generated by state-of-the-art replacement thermal power sources but also the electricity generated through the reactivation of idle thermal power sources, which were awarded contracts through public bidding during the peak-demand summer and winter periods.

Source: Agency for Natural Resources and Energy website (https://www.enecho.meti.go.jp/statistics/electric_power/ep002/) (Japanese)



Our Goal for 2025

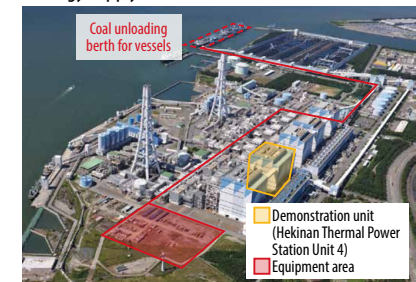


We equip professionals with the skills needed to make significant contributions to ensuring a stable energy supply and achieving a decarbonized society.

Tetsuya Watabe
Corporate Vice President, Managing Executive Officer
Chief O&M Engineering Officer (COMEO)

The domestic thermal power and gas business is both essential for the lives of the Japanese people and essential to our business. Over the years, we have relentlessly refined our operational capabilities in power plant management out of our longstanding commitment to ensuring a reliable power supply. In the face of shifts in the power market and changing demographics, which include a declining birthrate and an aging population, we aim to enhance our market responsiveness and cost competitiveness by nurturing a global pool of professionals, primarily across Asia, to ensure a stable energy supply.

As part of our commitment to JERA Zero CO₂ Emissions 2050, we will commence demonstration tests in FY2023 to replace conventional fuels with ammonia and hydrogen, starting with Hekinan Thermal Power Station Unit 4. Achieving this requires not only the development of combustion and receiving facilities but also a robust on-site workforce with a strong emphasis on safety and disaster preparedness. As a frontrunner in decarbonization, we're committed to further enhancing our on-site capabilities and contributing to the realization of a decarbonized society.



Hekinan Thermal Power Station Unit 4 (Under Construction)

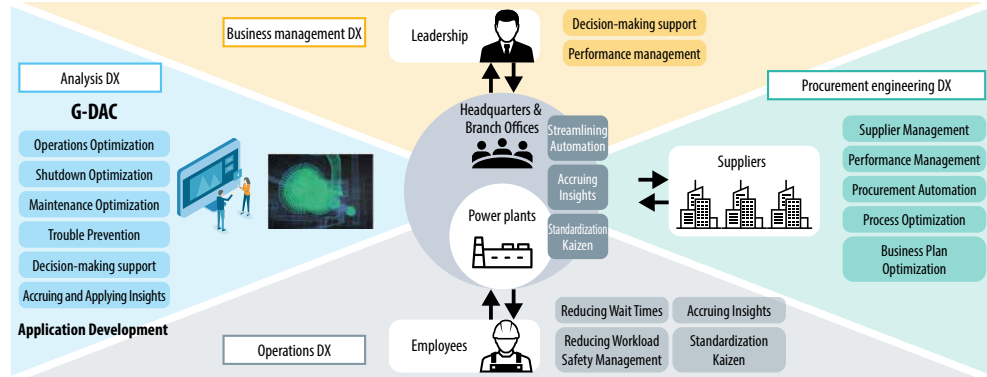
Domestic Thermal Power Generation and Gas Business – 3

FOCUS

Digital Power Plant (DPP) Project

We harness digital technology to create cutting-edge O&M solutions. Cutting-edge solutions are not confined to just a few power plants. We're driving integrated operations, encompassing our headquarters, power plants, and partners. This is the essence of our Digital Power Plant (DPP) Project.

Within the framework of the DPP project, we are promoting digital transformation (DX) across four critical aspects: operations, analysis, business management, and procurement, with a central focus on power plants. Our endeavors encompass advanced data analysis for predictive monitoring, the development of DPP applications, the integration of operations through the metaverse, and the implementation of JERA knowledge management with AI-generated capabilities.



Ask an Expert



Norihisa Tegawa
Head of the G-DAC Group, O&M Engineering Strategy Division

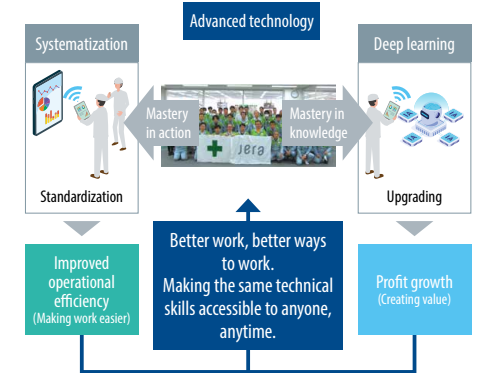
The DPP project is a company-wide project to transform the way we work at our power plants. Power plant engineers are rapidly developing applications and integrating them into their operations to achieve our vision of creating new forms of work and value through the synergy of people, technology, and data. Our journey involves embracing a fresh approach where power plants and the remote integration division work cohesively, alongside our dedication to continuous improvement in pursuit of a stable energy supply and a shift towards sustainable power plant operations.

Development of applications related to power plant operations

We aggregate power plant facilities and personnel data in the cloud, enabling real-time visualization and sharing of plant data and information. Additionally, we digitize the expertise of our O&M professionals, developing in-house applications for efficient and optimized performance management and maintenance of power plants.

The use of these applications will help us revolutionize the entire spectrum of power plant operations, ultimately driving profit growth.

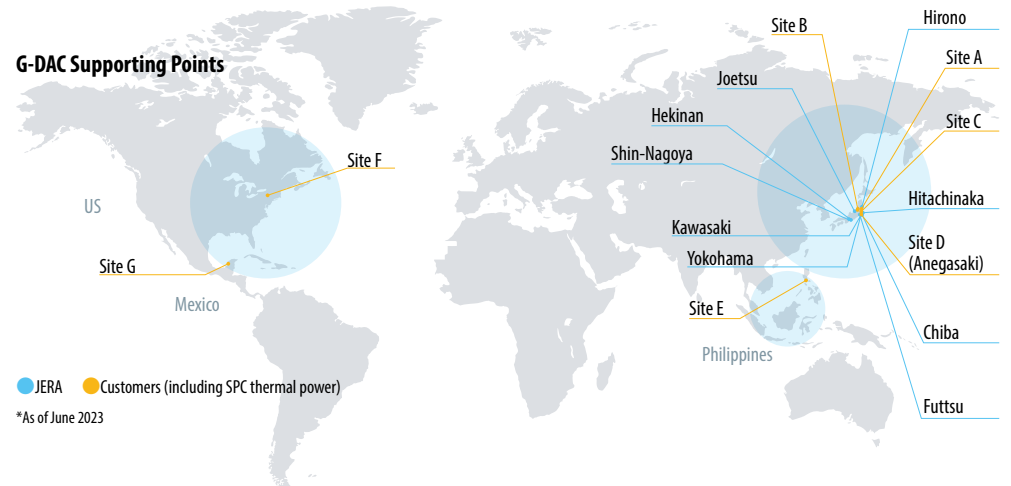
- Anegasaki Thermal Power Station → P.37
- Digital Transformation (DX) → P.38



G-DAC: Real-time support for domestic and international power generation facilities

In July 2023, we established the Global Data Analyzing Center (G-DAC) as a remote integration division to provide real-time information and data analysis for domestic and international power generation facilities alongside cutting-edge O&M solutions. With the launch of G-DAC, we are now equipped to provide round-the-clock support not only for our domestic power generation facilities but also for those of our customers, both domestic and overseas.

G-DAC Supporting Points



● JERA ● Customers (including SPC thermal power)

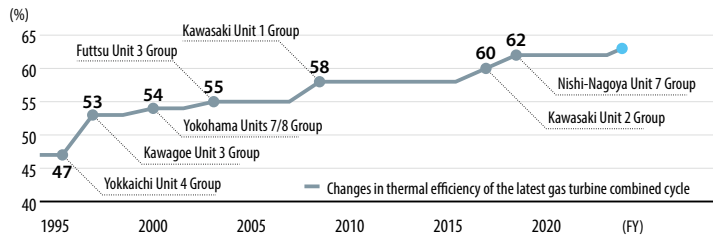
*As of June 2023

Initiatives at Thermal Power Plants in Japan

Anegasaki Thermal Power Station

Replacing Existing Facilities with Highly Efficient and Agile Power Plants

After 60 years of operation, the Anegasaki Thermal Power Station has undergone a remarkable transformation. Units 1 to 4 have been decommissioned, making way for the construction of a cutting-edge LNG thermal power plant with replacement units that boast world-leading power generation efficiency of around 63%. Apart from achieving a nearly 30% reduction in CO₂ emissions compared to the decommissioned facilities, it also offers exceptional flexibility.



Featured

Restarting Idle Thermal Power Plants Due to Supply-Demand Pressures

In response to government requests and to address supply-demand pressures since the winter of 2021, we have resumed operations multiple times at Units 5 and 6 of Anegasaki Thermal Power Station, which were under a long-term planned shutdown. Despite the need for substantial restoration work and inspections, the power plant staff's collective efforts played a vital role in securing a stable electricity supply.



Data-Driven Power Plant Operations and Innovative Ways of Working

Anegasaki Thermal Power Station is a model facility that has incorporated cutting-edge technology from the DPP project. It leverages innovative work methods driven by our applications developed in-house, and it operates seamlessly with the remote integration division.

A Real-Time & Borderless Approach to Work

(Sharing On-Site Data and Facility Management Information)

Rapid, borderless sharing of operational and on-site data enables us to take appropriate action informed by historical analyses



(Applying our Know-How and Expertise to Enhancing Maintenance)

Optimizing maintenance plans based on quantified lifecycle costs, risks, and lifespan



(Sharing and Evaluating Market Insights for Operational Decisions)

We aim to optimize power plant operations by consolidating market insights and sales information and responding to this data in real time



Integrated Operation with the Remote Integration Division

(Predictive Management)

We employ an internally developed system that merges our extensive plant knowledge from operations at home and abroad with AI technology, enabling us to preemptively detect anomalies, conduct thorough analysis, and propose solutions early on.



Ask an Expert

Naoyuki Sotoda

O&M Engineering Strategy Division
Anegasaki Thermal Power Station
Operation 1st Unit



During preparations to restart Unit 5, we realized that there would be a substantial loss of technical knowledge as experienced employees retire. The introduction of the DPP Project will allow data to be stored and utilized throughout JERA and facilitate the transfer of technical knowledge and more efficient workflows. Moving forward, our efforts will focus on improving the app's user-friendliness as we aim for a seamless, intuitive user experience. Our overarching goal is to further streamline and enhance the efficiency of our O&M operations through these initiatives.

Digital Transformation (DX)

Through cutting-edge technology and data utilization, we aim to become a Japan-based global energy company



Positioning of JERA's DX Strategy

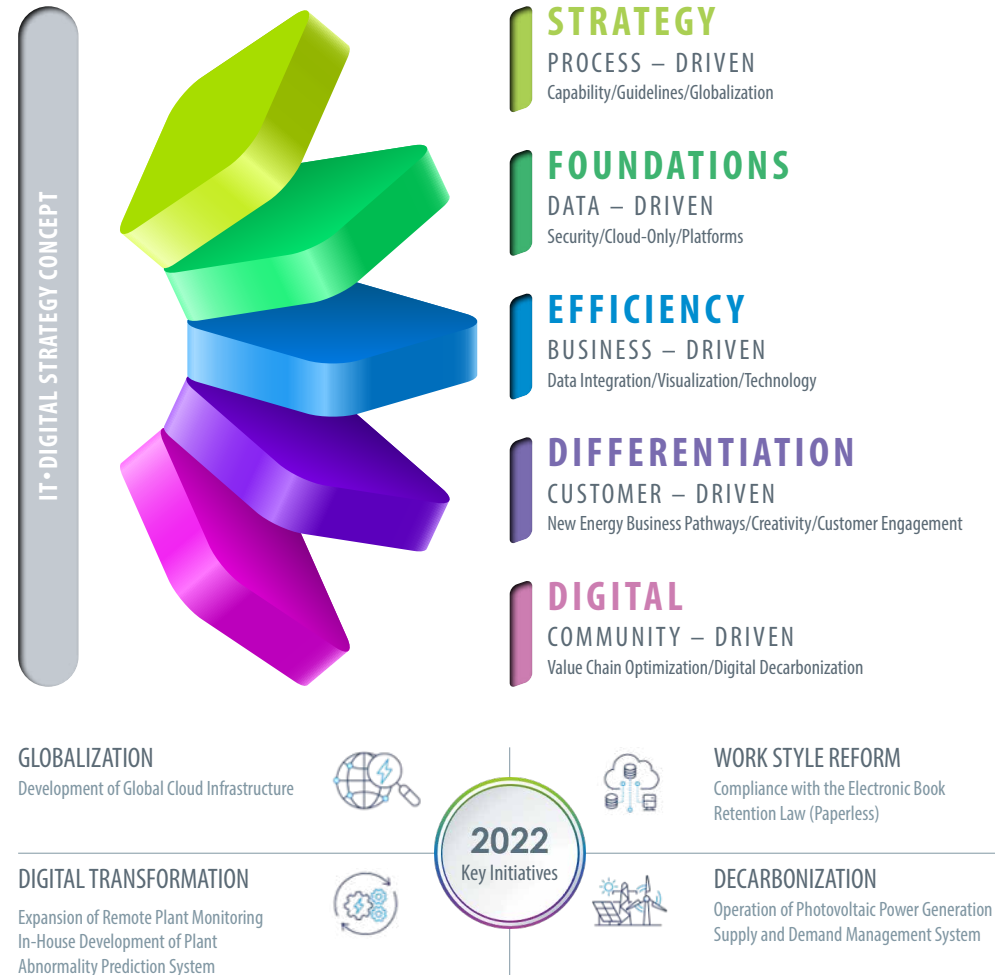
JERA aims to become a global energy leader rooted in Japan and committed to realizing a decarbonized society. We will achieve this by enhancing operational efficiency and creating new business value through the utilization of cutting-edge technology and data.

Digital Transformation (DX) Strategy Policy

Our DX strategy revolves around three key pillars: innovation/disruption, customer-centricity, and intelligence-driven decision-making. Through these pillars, we strive to make substantial contributions to decarbonization and sustainability initiatives, all while fostering business growth and driving transformative changes across our organization.

Strengthening Talents towards DX

To achieve a decarbonized society, we must leverage digital technology within our businesses. Every employee should strive for greater efficiency and enhanced decision-making in their work. Our company has launched the JERA Digital Academy (JEDI), a DX talent development program for all of our 5,000+ employees, including those overseas. This program offers education to a range of individuals, from on-site employees to management and DX specialists engaged across our business. Additionally, we are rolling out change management initiatives to enhance IT literacy and ensure that all employees share a common awareness of digital transformation.



Digital Transformation (DX)

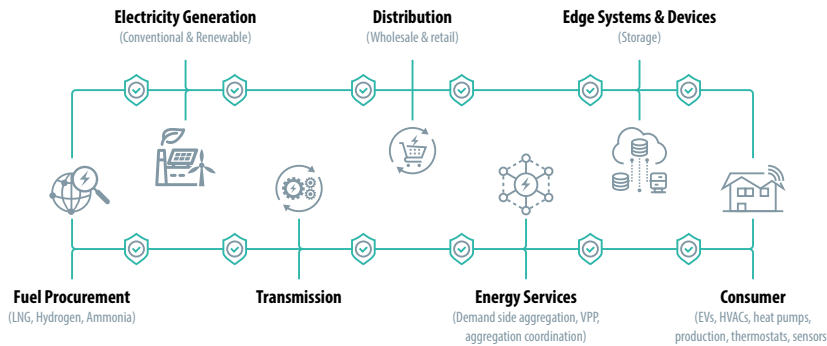
DX Initiative 1

Establishment of Trusted Energy Interoperability Alliance (TEIA)

JERA, in cooperation with Intertrust Technologies Corporation, an investment partner, has established a new company aiming to standardize communication methods in the energy sector. This venture is a collaboration with energy companies based in Europe and Australia.

We are committed to achieving decarbonization by leveraging digital technologies and aspire to build a clean energy supply infrastructure that combines low-carbon thermal power generation with renewable energy sources. To accomplish this, standardizing communication methods between equipment and operators to ensure security is essential. Additionally, the development of an energy platform capable of advanced data analysis is crucial. In the future, we will continue to work on standardization with energy-related companies both domestically and internationally, advancing the establishment of an environment for data utilization.

Integrated security across the value chain



Talal Shamoan
Intertrust Technologies CEO

We Asked the TEIA Co-Founder

Q. What is the aim of the TEIA collaboration?

Energy is an ecosystem-driven industry. By standardizing two-way communication systems between thermal and renewable power plant equipment and data platforms, energy companies can flexibly select safe and stable equipment and realize lower-cost operations.

DX Initiative 2

Development of in-house Anomaly Detection System

Utilizing the know-how accumulated by our company's engineers to date, as well as the operational data from power plants, JERA has developed an internal system called 'JERA AI Microservices for Energy (J-AIME),' which enables efficient power plant operation, led by our own data scientists.

By combining AI and IoT, including visualizing the analysis and detecting abnormal conditions in facilities and identifying root causes by extracting patterns from past failure data, we provide highly efficient and operational power plant management through the early detection of abnormal signs.

To ensure sustainable system operation, the introduction of a machine-learning infrastructure is in progress. We are working to support complex operations by efficiently managing a large number of models created with various solutions, standardizing the processes involved in model construction and operation, and reducing labor hours.

We have launched external services and will continue to provide solutions that lead to further improvements in value.

