

Jera





**Jera**  
Energy for a New Era

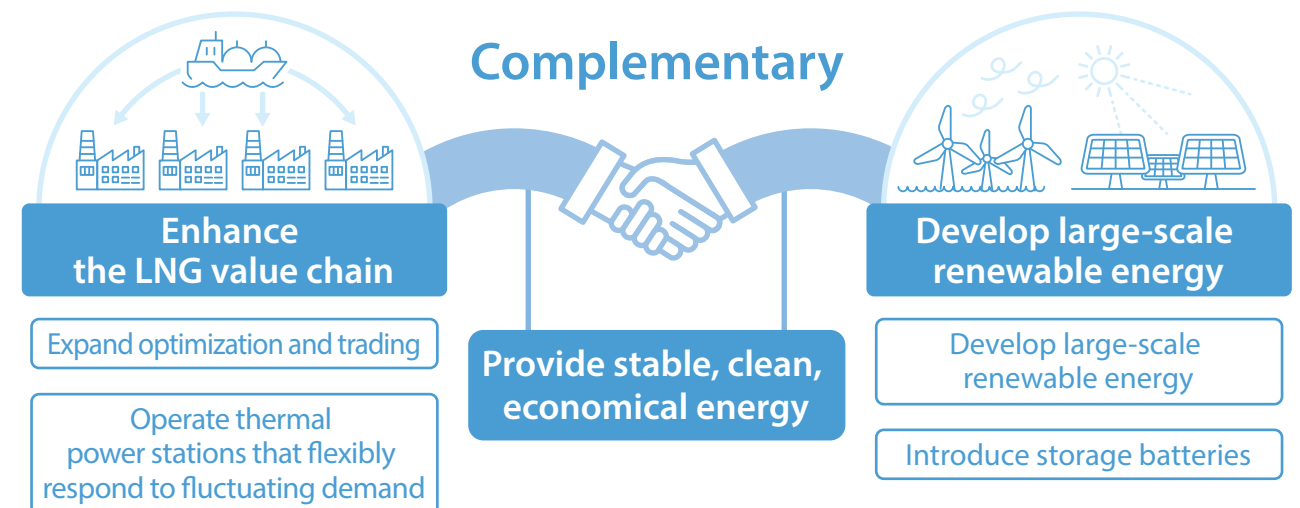
Kawagoe Thermal Power Station (Mie Prefecture)

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

Through our global operations we bring the world's leading energy solutions to Japan, helping to solve the energy issues facing the country. We seek to establish new energy supply models for Japan while also offering energy supply models established in Japan to other countries that face similar energy issues, helping to solve the world's energy issues.

## Vision **Global leader in LNG and renewables, sparking the transition to a clean energy economy**

As we look toward 2025, the energy solutions we offer will focus mainly on two businesses: the LNG value chain business and the large-scale renewable energy business. These businesses are complementary; renewable energy with variable power generation output is complemented by flexible, clean LNG thermal power generation. With demand expected to grow globally, particularly in Asia, we aim to become a leader in these two businesses.





### A Global Company Aiming to Earn the Regard of the Global Energy Market and Be Indispensable to the People of the World

Chairman, Representative Director **Toshihiro Sano**

Our company was established in April 2015 with the aim of creating a globally competitive energy company in Japan based on a comprehensive alliance between Tokyo Electric Power Company and Chubu Electric Power Company. Since then, we have consolidated businesses in stages, and completed the process in April 2019 with the consolidation of existing thermal power generation businesses. At that point, we established a unified, continuous value chain from fuel upstream and procurement business to power generation and electricity and gas sales, earning our status as an energy company with power generation capacity equivalent to half of Japan's thermal power generation output and a fuel transaction volume among the world's highest.

To respond appropriately to changes in both the domestic and global environments in line with business expansion, we established a system with three business departments to enable us to maximize the synergy of each department. We also strengthened the governance function and established a borderless organization not constrained by preconceptions.

We prioritize diversity and inclusivity in the strategy to achieve sustainable growth. Diverse human resources respect each other's background and communicate on equal terms to create new value.

The world faces an enormous task in addressing climate change and other environmental issues, while also contending with the need to provide all people access to reliable and affordable energy. To address this challenge, we need to provide optimal solutions to energy issues. We will pool our efforts as a company to resolve these issues to contribute to the development of a sustainable society, and improve our corporate value in an effort to become a global company that is worthy of the regard of the global energy market and indispensable to the people of the world.

### Spearheading the Realization of a Low-Carbon Society as a Global Leader Laying the Foundation for the Future of Energy

President, Representative Director **Satoshi Onoda**

JERA's mission is to provide cutting-edge solutions to the world's energy issues. Specifically, while monitoring global trends such as the development of LNG infrastructure, growth of optimization and trading, expansion of renewable energy, and improvements in LNG thermal power generation, we will expand our business. While continuing to deliver a stable supply of safe, economical electricity and gas to support people's lives and the commercial industry, we aim to become a global leader in LNG and renewables, sparking the transition to a clean energy economy. Making the most of the thermal power generation technologies we have developed, we will build highly flexible power generation systems. These systems incorporate LNG thermal power generation that absorbs the fluctuations of renewable energy and the flexible fuel purchasing to support such operation. Moreover, these systems support the further introduction of offshore wind power, storage batteries, and other technologies.

As Japan's largest power company, we realize that we are in a position to proactively lead the way toward achieving a decarbonized society. To help create a sustainable society, we formulated JERA Zero CO<sub>2</sub> Emissions 2050 in October 2020 to work on effectively achieving zero CO<sub>2</sub> emissions from our domestic and international businesses by 2050. As a specific approach to achieve this, we formulated a roadmap for Japan to illustrate the path toward zero CO<sub>2</sub> emissions in the country and established new environmental targets to be achieved by 2030. We plan to develop roadmaps suited to the circumstances in individual countries and regions to guide our efforts in the future.

Realizing a low-carbon society is a challenge shared by all of humanity. As a global company committed to resolving the world's energy issues, we will spearhead the realization of a low-carbon society.



# JERA Zero CO<sub>2</sub> Emissions 2050:

Taking on the challenge of zero CO<sub>2</sub> emissions in JERA's business both in Japan and overseas

As a global company committed to resolving the world's energy issues, JERA considers measures to counteract global warming to be the highest-priority management issue. To clarify our long-term vision for the company as Japan's largest power generation utility, we established "JERA Zero CO<sub>2</sub> Emissions 2050."



## JERA Zero CO<sub>2</sub> Emissions 2050

- JERA's mission is to provide cutting-edge solutions to the world's energy issues.
- In order to help achieve a sustainable society, JERA, in the course of carrying out its mission, is taking on the challenge of achieving zero CO<sub>2</sub> emissions\* from its business both in Japan and overseas.

### The Three Approaches of JERA Zero CO<sub>2</sub> Emissions 2050

#### 1 Complementarity between Renewable Energy and Zero CO<sub>2</sub> Emission Thermal Power Generation

JERA will achieve Zero CO<sub>2</sub> emissions through a combination of renewable energy and zero CO<sub>2</sub> emission thermal power generation. The adoption of renewable energy is supported by thermal power generation capable of generating electricity regardless of natural conditions. JERA will promote the adoption of greener fuels and pursue thermal power that does not emit CO<sub>2</sub> during power generation.

#### 2 Establishment of Roadmaps Suitable for Each Country and Region

Zero CO<sub>2</sub> emissions will be achieved by establishing roadmaps that show optimal solutions for each country and region. Since the energy situation is different for each country and region-such as the presence of regional transmission lines or pipelines and the types of renewable energy that could be adopted-JERA will work with stakeholders on a country and regional basis to establish roadmaps. We have developed a roadmap for our business in Japan and will extend this approach to other countries and regions.

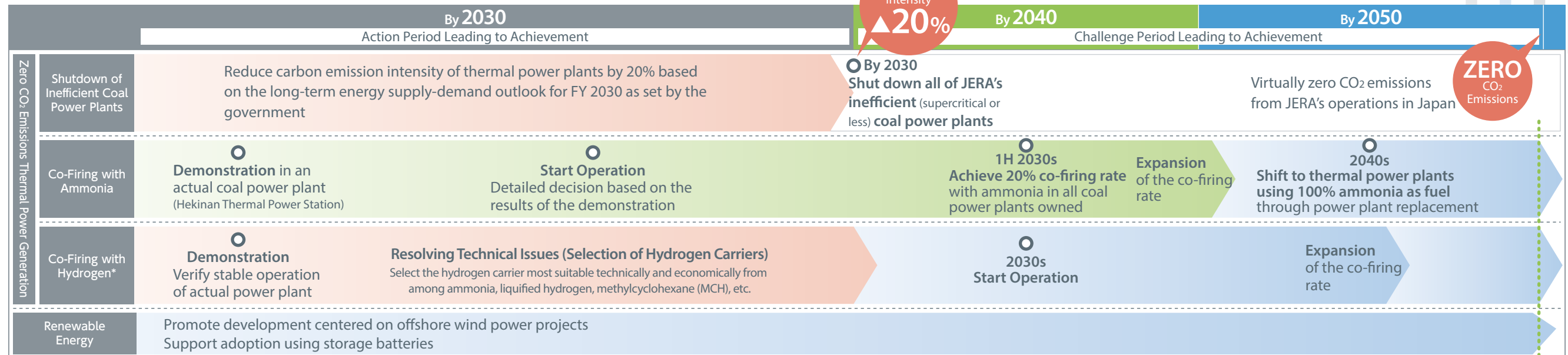
#### 3 Smart Transition

Zero CO<sub>2</sub> emissions will be achieved through a combination of technologies that are available and reliable at the time adoption decisions are made, lowering technical risk and smoothing the transition to a green society.

\* "JERA Zero CO<sub>2</sub> Emissions 2050" is premised on steady advances in decarbonization technology, economic rationality, and consistency with government policy. JERA is developing its own decarbonization technologies and taking the initiative to ensure economic rationality.



# JERA Zero CO<sub>2</sub> Emissions 2050 Roadmap for its Business in Japan



This roadmap will be gradually developed in greater detail based on relevant conditions such as government policies. JERA will revise the roadmap when relevant conditions change significantly.

\*The use of CO<sub>2</sub>-free LNG is also being considered.

By 2050, CO<sub>2</sub> emitted from power plants using fossil fuels is offset using offset technology or by CO<sub>2</sub>-free LNG

## JERA Environmental Target 2030 for its Business in Japan

JERA is actively working to reduce CO<sub>2</sub> emissions. In its domestic operations, JERA will achieve the following by FY2030:

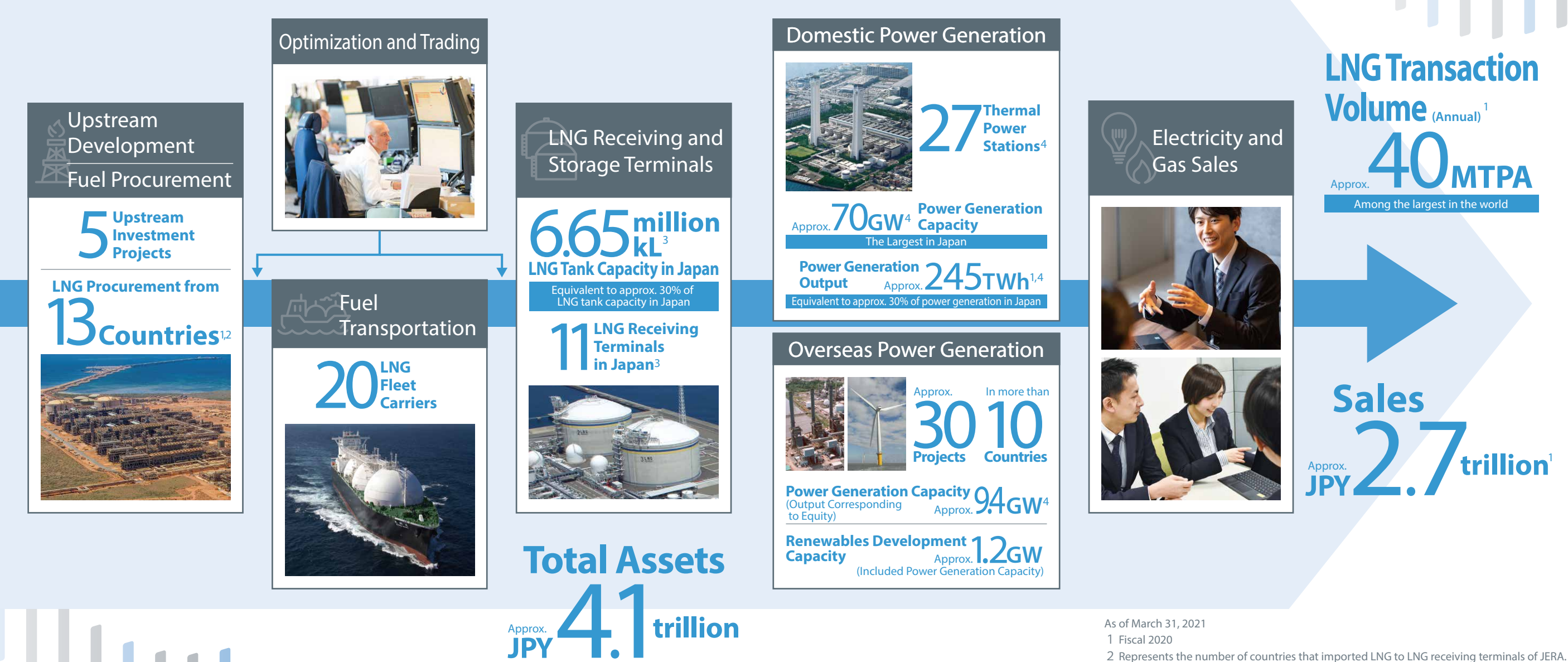
- Shut down all inefficient (supercritical or less) coal power plants and conduct demonstration tests of mixed combustion with ammonia at high-efficiency (ultra-supercritical) coal power plants.
- Promote the development of renewable energy centered on offshore wind power projects and work to further improve the efficiency of LNG thermal power generation.
- Reduce carbon emission intensity of thermal power plants by 20% based on the long-term energy supply-demand outlook for FY 2030 as set by the government.

"JERA Zero CO<sub>2</sub> Emissions 2050 Roadmap for its Business in Japan" and "JERA Environmental Target 2030 for its Business in Japan" are premised on steady advances in decarbonization technology, economic rationality, and consistency with government policy. JERA is developing its own decarbonization technologies and taking the initiative to ensure economic rationality.



Hekinan Thermal Power Station (Hekinan City, Aichi Prefecture), where the demonstration project related to ammonia co-firing will be conducted

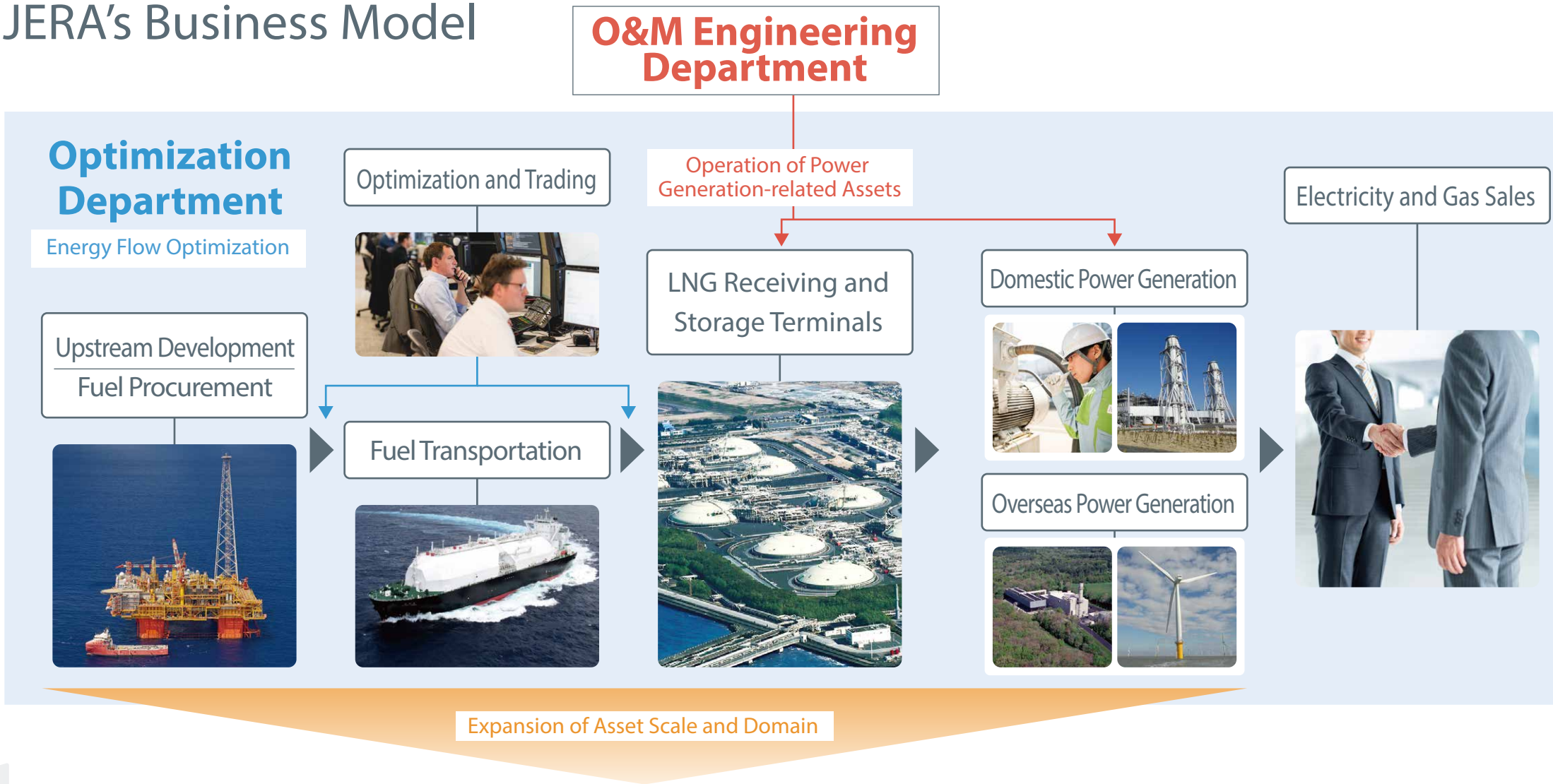
# JERA's Value Chain and Company Overview



As of March 31, 2021  
1 Fiscal 2020  
2 Represents the number of countries that imported LNG to LNG receiving terminals of JERA.  
3 Includes jointly operated terminals in Chita and Yokkaichi area  
4 Includes capacity under construction. Excludes joint thermal power in Japan.



# JERA's Business Model



## Business Development Department

### Business Development

Build an optimal asset portfolio by expanding the scale and domain of the value chain through the development of new businesses and the restructuring of existing assets

### Optimization

Achieve the most economically-efficient operation by optimizing the entire energy flow from fuel procurement to transport, power generation, and sales of electricity and gas

### O&M Engineering

Operate fuel receiving and storage terminals and thermal power stations safely, flexibly, and at low cost



## Business Development Department

JERA is one of the largest power producers in the world.

We participate in the ownership of 11 LNG receiving terminals and power generation assets with a total capacity of approximately 80GW.

We are also in the fuel business, operating 20 LNG carriers,

taking part in five LNG production projects,

and engaged in long-term LNG procurement from 10 countries

around the world.

We are constantly improving our diverse development capabilities

honed through these large-scale businesses to actively develop

integrated gas-to-power projects that cover fuel procurement

through power generation as well as large-scale renewable energy projects,

expanding our operations to meet the needs of each country and region.

## Fuel Upstream, Long-term LNG Procurement and Transportation Business

We are engaged in the fuel upstream business and LNG vessel business, taking full advantage of the scale of our long-term LNG purchase and sales agreements. We secure resources and operate vessels in-house to contribute to a stable, flexible, and competitive fuel supply.

## Domestic Power Generation Business

While utilizing our existing thermal power plant infrastructure, we will strengthen competitiveness and reduce environmental impact by moving forward in replacing it with high-efficiency generation systems. We provide an energy mix in line with the nation's energy and environmental policies to ensure both the stability and sustainability of energy supply.



Sourced from Chevron Australia

## Overseas Power Generation and Value Chain Business

Our overseas power generation business began in the 1990s. Since then, we have utilized our experience gained through projects around the world to develop and operate power generation assets that meet national or regional needs and circumstances, ranging from the merchant power businesses in deregulated markets in mature economies, to integrated developments that include fuel supply in addition to the construction and operation of power stations in emerging markets.

## Renewable Energy Development Business

We have positioned renewable energy—including storage batteries, now an important power generation option thanks to technological innovation—as one of our core businesses for the future. We are gaining experience through project development and operation in other countries and regions with advanced renewable energy businesses, and applying that expertise in Japan. We are promoting development focused mainly on offshore wind farms that take advantage of our capability in large-scale development.



Marcus Hook Energy Center (the "Compass Portfolio")



## Optimization Department

JERA handles approximately 40 million tons of LNG annually, among the largest transaction volumes in the world, and has more than 10 years of experience in optimization and trading. We ensure comprehensive optimization of the huge energy flow from fuel procurement to transport, receiving, storage, power generation, and sales while utilizing trading to achieve the most cost-efficient, flexible operation. In Japan, we sell electricity and gas through long- and short-term over-the-counter trading and in trading markets. We offer energy solutions that meet the needs of customers and contribute to the development of the energy market.

JERA Global Markets UK Ltd.



## Short-term Fuel Procurement, the most cost efficient and flexible operation

While we pursue improvement of the terms and conditions of existing procurement contracts, we also develop a procurement strategy for additional short-term fuel requirements (4 years or less for LNG). In addition, we implement the most cost efficient and flexible operation of a portfolio of LNG and coal power plants. Through JERA Global Markets, we achieve price-competitive short-term procurement which is capable of coping with volume and price fluctuation risk. We contribute to Japan's supply of reliable and economical electricity and gas by utilizing the portfolio to expand our fuel optimization footprints.

## Optimization and Trading

Our coal optimization and trading business started in 2008 and have already expanded to LNG. Staffed by about 300 employees, the business is undertaken by JERA Global Markets, which is based in Singapore and London. JERA Global Markets contributes to optimizing the overall supply chain through asset-backed trading by leveraging our world-leading fuel procurement volume.



## Electricity and Gas Sales

We have built an excellent electricity and gas sales portfolio through long-term, large-scale over-the-counter trading based on market prices and conditions, as well as by utilizing short-term over-the-counter trading and the electricity and gas markets in Japan. We are also developing the electricity and gas trading in Japan based on our experience in fuel trading and the electricity business in North America.



## O&M Engineering Department

JERA inherits a 70-year track record in providing stable power in the Kanto and Chubu areas. We have expertise in operation and maintenance(O&M) and engineering, as we currently own and operate power stations with a total capacity of approximately 80GW in and outside Japan.

We assume long-term responsibility for our business, from construction to maintenance and operation of power stations, and ensure harmony with local communities. We offer world-class O&M Engineering services by combining the expertise gained through business operations with the world's leading technologies to ensure safe, competitive, flexibly adjustable operation of power stations and receiving terminals for customers in and outside Japan.

Kawasaki Thermal Power Station (Kanagawa Prefecture)

## O&M Engineering

Based on expertise gained operating power stations in and outside Japan, we strengthen cost competitiveness by reducing the time required for periodic inspections while still ensuring safe operation, and achieve flexible power station operation by increasing the fuel types handled. We also introduce remote monitoring using digital technologies, predictive management using big data, and new technologies such as batteries to offer world-class O&M Engineering services the “JERA O&M Way”.



## Rending O&M Engineering Services to Third Parties

We deploy the “JERA O&M Way” globally to meet the needs of customers in each country. We also actively identify needs in various fields, expanding our O&M Engineering services by utilizing expertise gained through thermal power generation.



# Major Overseas Business

Major LNG Supplying Countries\*  
(■ In blue)

## Netherlands

- Rietlanden Coal Terminal

## UK

- Gunfleet Sands Offshore Wind Power
- Zenobe Battery Energy Storage
- JERA Global Markets (Optimization and Trading)



JERA Global Markets UK Ltd.

## Qatar

- Ras Laffan B Gas Thermal IWPP
- Ras Laffan C Gas Thermal IWPP
- Mesaieed Gas Thermal IPP
- Umm Al Houl Gas Thermal IWPP

## UAE

- Umm Al Nar Gas Thermal IWPP

## India

- ReNew Power Wind and Solar Power IPP



## Bangladesh

- Summit Power IPP Project
- Meghnaghat Gas Thermal IPP

## Taiwan

- Chang Bin/Fong Der/Star Buck Gas Thermal IPP
- Formosa 1 Offshore Wind Power IPP
- Formosa 2 Offshore Wind Power IPP

Formosa 1 Offshore Wind Power IPP



## Japan

## Philippines

- TeaM Energy

## Indonesia

- Paiton Coal Thermal IPP
- Cirebon Coal Thermal IPP

## Oman

- Sur Gas Thermal IPP



EGCO IPP

## Thailand

- EGCO IPP
- Ratchaburi Gas Thermal IPP
- Cogeneration Project in industrial Estate
- Wind Power IPP
- Solar Power IPP
- Rice Husk Biomass Thermal IPP

## Vietnam

- Phu My Gas Thermal IPP

## Singapore

- JERA Global Markets (Optimization and Trading)

## Australia

- Darwin LNG
- Wheatstone LNG
- Gorgon LNG
- Ichthys LNG



Darwin LNG

## US

- Tenaska Gas Thermal IPP
- Carroll County Gas Thermal IPP
- Cricket Valley Gas Thermal IPP
- Linden Gas Thermal IPP
- Compass Gas Thermal IPP
- Freeport LNG
- JERA Global Markets (Optimization and Trading)



Linden Gas Thermal IPP

## Mexico

- Valladolid Gas Thermal IPP
- Falcon Gas Thermal IPP

As of March 31, 2021

IPP(Independent Power Producer)

IWPP(Independent Water and Power Producer)

\*Represents the countries that imported LNG to LNG receiving terminals of JERA. (Fiscal 2020)

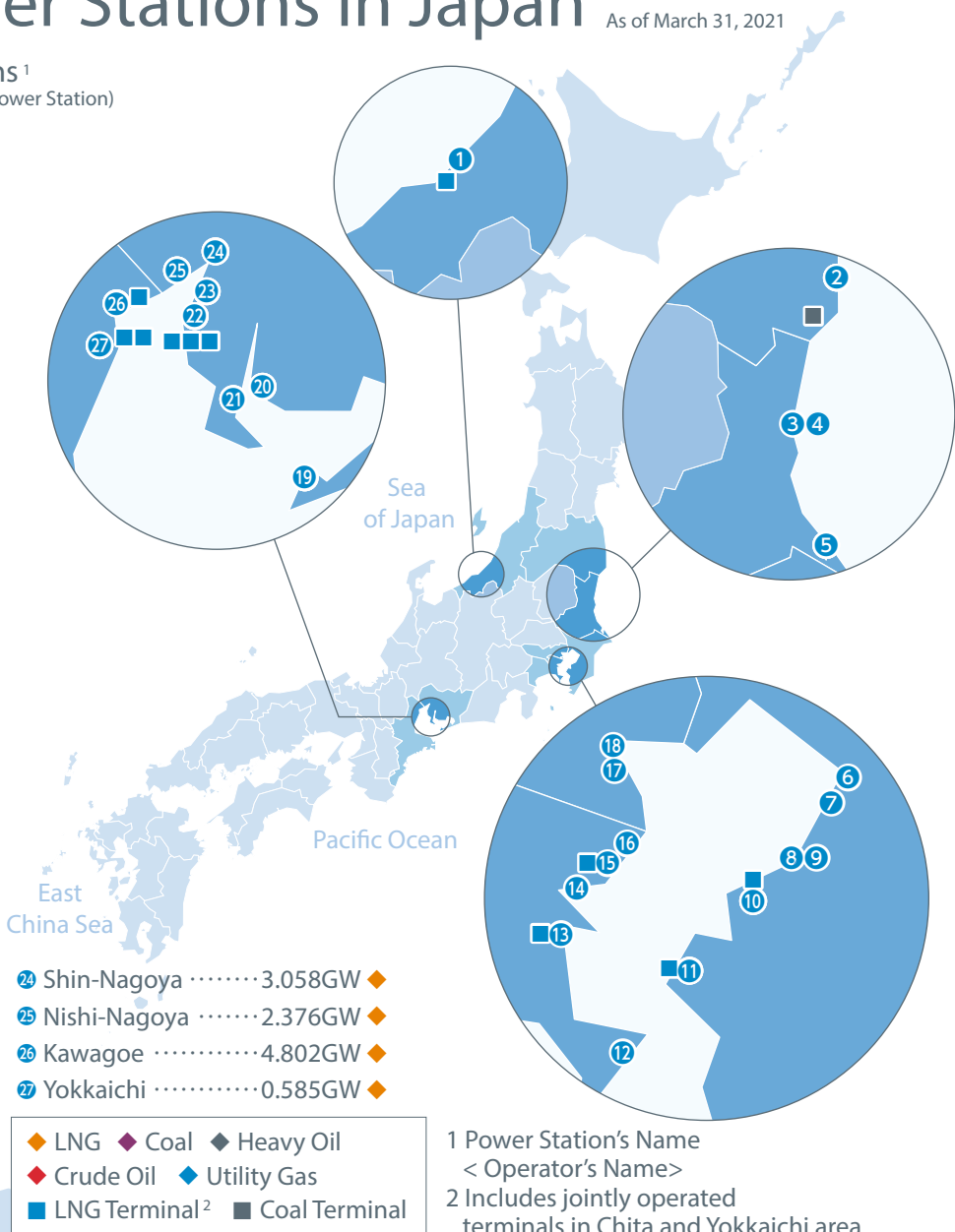
# Thermal Power Stations in Japan

As of March 31, 2021

## • List of Thermal Power Stations<sup>1</sup>

(Total Output, Fuel Type for Each Thermal Power Station)

- 1 Joetsu ..... 2.38GW ◆
- 2 Hirono ..... 4.4GW ◆◆◆
- 3 Hitachinaka ..... 2GW ◆
- 4 Hitachinaka Kyodo  
<HITACHINAKA GENERATION>  
..... 0.65GW ◆
- 5 Kashima ..... 5.66GW ◆◆◆
- 6 Chiba ..... 4.38GW ◆
- 7 Goi<GOI UNITED GENERATION>  
Replacement is being planned.
- 8 Anegasaki ..... 3.6GW ◆
- 9 Anegasaki<JERA Power ANEGASAKI>\*  
..... 1.941GW ◆  
(\*Scheduled to start operation in fiscal 2023.)
- 10 Sodegaura ..... 3.6GW ◆
- 11 Futtsu ..... 5.16GW ◆
- 12 Yokosuka<JERA Power YOKOSUKA>\*  
..... 1.3GW ◆  
(\*Scheduled to start operation in fiscal 2023.)
- 13 Minami-Yokohama ... 1.15GW ◆
- 14 Yokohama ..... 3.541GW ◆
- 15 Higashi-Ohgishima ..... 2GW ◆
- 16 Kawasaki ..... 3.42GW ◆
- 17 Oi ..... 1.05GW ◆
- 18 Shinagawa ..... 1.14GW ◆
- 19 Atsumi ..... 1.4GW ◆◆
- 20 Hekinan ..... 4.1GW ◆
- 21 Taketoyo<JERA Power TAKETOYO>\*  
..... 1.07GW ◆  
(\*Scheduled to start operation in fiscal 2022.)
- 22 Chita ..... 3.966GW ◆
- 23 Chita Daini ..... 1.708GW ◆



# Directors & Officers

As of July 1, 2021

## Directors & Corporate Auditors

Chairman  
**Toshihiro Sano**

President  
**Satoshi Onoda**

Director  
**Yukio Kani**   **Hisahide Okuda**   **Kazuo Sakairi**  
**David Crane**   **Joseph M. Naylor**   **Miyuki Suzuki**  
**Satoru Katsuno**   **Seiji Moriya**

Corporate Auditors  
**Shigeyoshi Araki**   **Hideo Oishi**   **Minako Fujiie**

## Business Execution System

Chairman  
**Toshihiro Sano**

President  
**Satoshi Onoda**

Corporate Vice President  
**Yukio Kani** Chief Operating Officer, Business Development Department  
**Hisahide Okuda** Chief Operating Officer, Corporate Strategy Department

Senior Managing Executive Officer  
**Sami BEN JAMAA** Global Chief Information and Digital Officer  
**Kazuo Sakairi** Chief Financial Officer, Finance and Accounting Department  
**Masahiro Takizawa** Chief Operating Officer, Business Support & Solutions Department  
**James H. Vigil** Senior Operating Officer, Business Development Department  
**Sunao Nakamura** Chief Operating Officer, Optimization Department  
**Tetsuya Watabe** Chief Operating Officer, O&M Engineering Department  
**Toshiro Kudama** CEO, JERA Asia Pte. Ltd.  
**Steven Winn** CEO, JERA Americas Inc.

Managing Executive Officer  
**Satoshi Yajima** Senior Operating Officer, Business Development Department  
**Toshio Kumazawa** Head of the East Japan Branch  
**Hiromi Sakakibara** Head of the West Japan Branch  
**Kazunori Kasai** CEO, JERA Global Markets Pte. Ltd.

# Company Organization

As of July 1, 2021





# JERA Co., Inc.

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## Company Overview

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- Company Name JERA Co., Inc.
- Office Locations
  - Head Office  
Nihonbashi Takashimaya Mitsui Building 25th Floor  
2-5-1 Nihonbashi, Chuo-ku, Tokyo 103-6125 JAPAN  
Tel: +81-3-3272-4631 (main number) Fax: +81-3-3272-4635
  - East Japan Branch  
Hibiya Kokusai Building 9th Floor, 2-2-3  
Uchisaiwaicho, Chiyoda-ku, Tokyo 100-0011 JAPAN  
Tel: +81-3-3272-4631 Fax: +81-3-6363-5781
  - West Japan Branch  
JP TOWER NAGOYA 18th Floor, 1-1-1 Meieki, Nakamura-ku,  
Nagoya-shi, Aichi 450-6318 JAPAN  
Tel: +81-52-740-6842 Fax: +81-52-740-6841
- Established 30 April, 2015
- Paid-in Capital JPY 5 billion
- Shareholding Ratio TEPCO Fuel & Power, Inc. 50% Chubu Electric Power Co., Inc. 50%
- Business Description Thermal Power Generation Business, Renewable Energy Business,  
Gas & LNG Business, Engineering & Consulting for Each Business, etc.



For details about JERA, please visit our website at  
[www.jera.co.jp/english/](http://www.jera.co.jp/english/)