

October 20 2016

Mitsubishi Corporation  
Mitsubishi Heavy Industries, Ltd.  
Mitsubishi Electric Corporation  
Tokyo Electric Power Company Holdings, Inc.  
Joban Joint Power Co., Ltd.

## **Companies Set Up to Run World's Most Advanced Coal-Fired Thermal Power Plants in Fukushima**

Mitsubishi Corporation Power Ltd., a subsidiary of Mitsubishi Corporation, along with Mitsubishi Heavy Industries, Ltd., Mitsubishi Electric Corporation, Tokyo Electric Power Company Holdings, Inc. and Joban Joint Power Co., Ltd. have established two joint ventures, Nakoso IGCC Power GK<sup>\*1</sup> and Hirono IGCC Power GK<sup>\*2</sup>, for the construction and operation of the world's most advanced coal-fired power plants in Fukushima, Japan. Approvals that were previously granted to Tokyo Electric Power Company Holdings, Inc. and Joban Joint Power Co., Ltd., following the environmental impact assessment they had undertaken on behalf of the project, were today transferred to the newly established companies.

The total cost of the project surpasses 300 billion yen, a portion of which will be financed from contributions made by the five participating companies. The remainder will be sourced from a number of domestic financial institutions, including The Bank of Tokyo-Mitsubishi UFJ, Ltd., Development Bank of Japan Inc., Mizuho Bank Ltd., Sumitomo Mitsui Banking Corporation and Fukushima's The Toho Bank, Ltd. In terms of project financing, this is considered to be one of the largest ever of this scale domestically. All the contributors have signed on to providing financing within the context of their support for recovery in Tohoku following the Great East Japan Earthquake and Tsunami of 2011.

The five companies reached a basic agreement for this project on August 19, 2015, and have since been working out the details for a start-up of operations during the early 2020s. With the construction and operating companies established, financing procured, and the relevant environmental approvals obtained, the project is now ready to get underway.

Going forward, then, Nakoso IGCC Power GK and Hirono IGCC Power GK will each set up and operate a 540 megawatt plant, one next to Joban Joint Power Co., Ltd.'s Nakoso Power Station in Iwaki City and the other at the site of TEPCO Fuel & Power, Inc.'s Hirono Thermal Power Station in the Futaba District, respectively. The new facilities will utilize next generation clean coal technology based on the Integrated coal gasification combined cycle, or IGCC<sup>\*3</sup>, with operations slated to start in September 2020 in the case of the Nakoso plant and in September 2021 in the case of the Hirono plant.

With the support and cooperation of the community and the national government and that of the prefectural and local governments in Fukushima, Nakoso IGCC Power GK and Hirono IGCC Power GK will leverage the experience and know-how that their parent companies have developed in the power generation business to procure the relevant materials and execute construction as well as to undertake follow-up surveillance assessments once operations get underway. The expectation is that this project will go a long way in contributing to economic revitalization<sup>\*4</sup> in Fukushima and help shore up the prefecture's industrial base.

- \*1 Nakoso IGCC Power GK was established with capital from the five partners - Mitsubishi Corporation Power Ltd., Mitsubishi Heavy Industries, Ltd., Mitsubishi Electric Corporation, Tokyo Electric Power Company Holdings, Inc. and Joban Joint Power Co., Ltd., and inherited the environmental approvals which were secured by Tokyo Electric Power Company Holdings, Inc. and Joban Joint Power Co., Ltd. following an assessment undertaken at the Nakoso site.
- \*2 Hirono IGCC Power GK was established with capital from the four of the partners - Mitsubishi Corporation Power Ltd., Mitsubishi Heavy Industries, Ltd., Mitsubishi Electric Corporation, and Tokyo Electric Power Company Holdings, Inc., and inherited the environmental approvals which were secured by Tokyo Electric Power Company Holdings, Inc. following an assessment undertaken at the Hirono site.
- \*3 Integrated coal Gasification Combined Cycle (IGCC)  
IGCC systems generate power using a combined cycle format incorporating coal gasification and both gas and steam turbines. IGCC systems offer enhanced generation efficiency\*\*, as well as reductions in carbon dioxide (CO<sub>2</sub>) emissions of about 15% in comparison with the latest conventional coal fired power plant.  
\*\* Thermal efficiency: approximately 48% (net thermal efficiency based on a lower heating value basis)
- \*4 From the start of relevant environmental assessment through to implementation of operations, the project is expected to generate an economic ripple effect in Fukushima Prefecture estimated at 80 billion yen per plant over the next few decades, with employment opportunities for up to 2,000 persons/day at the peak of construction.

#### Appendices

- Outline of Operating Companies
- Outline of Generation Facilities

## Outline of Operating Companies

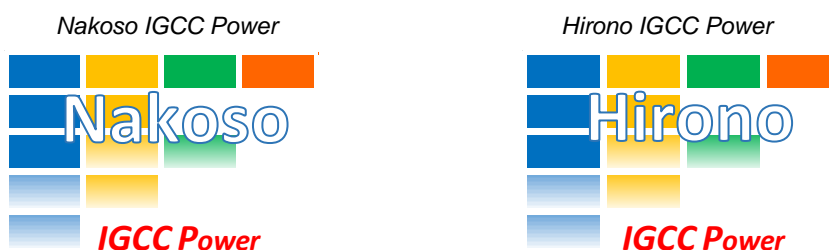
### 1. Nakoso IGCC Power GK

Established: August 2, 2016  
Registered Name: Nakoso IGCC Power GK  
Headquarters: Kawada-102-3, Iwama-machi, Iwaki-shi, Fukushima, Japan  
Shareholder Breakdown: Mitsubishi Corporation Power Ltd., 40%; Mitsubishi Heavy Industries, Ltd., 40%; Mitsubishi Electric Corporation, 10%; Tokyo Electric Power Company Holdings, Inc., 5% and Joban Joint Power Co., Ltd., 5%.  
Representative Partner: Mitsubishi Corporation Power Ltd.  
Capital: 100 million yen  
Main Business: Power generation by way of IGCC (integrated coal gasification combined cycle) systems  
Location: Iwama-machi, Iwaki-Shi, Fukushima, Japan  
Generating Capacity: 540 megawatts  
Expected Start Date: September 2020

### 2. Hirono IGCC Power GK

Established: August 2, 2016  
Registered Name: Hirono IGCC Power GK  
Headquarters: Futatsunuma-58 Shimokitaba, Hirono-machi, Futaba-gun, Fukushima, Japan  
Shareholder Breakdown: Mitsubishi Corporation Power Ltd., 40%; Mitsubishi Heavy Industries, Ltd., 40%; Mitsubishi Electric Corporation, 10%; Tokyo Electric Power Company Holdings, Inc., 10%  
Representative Partner: Mitsubishi Corporation Power Ltd.  
Capital: 100 million yen  
Main Business: Power generation by way of IGCC (integrated coal gasification combined cycle) systems  
Location: Hirono-machi, Futaba-gun, Fukushima, Japan  
Generating Capacity: 540 megawatts  
Expected Start Date: September 2021

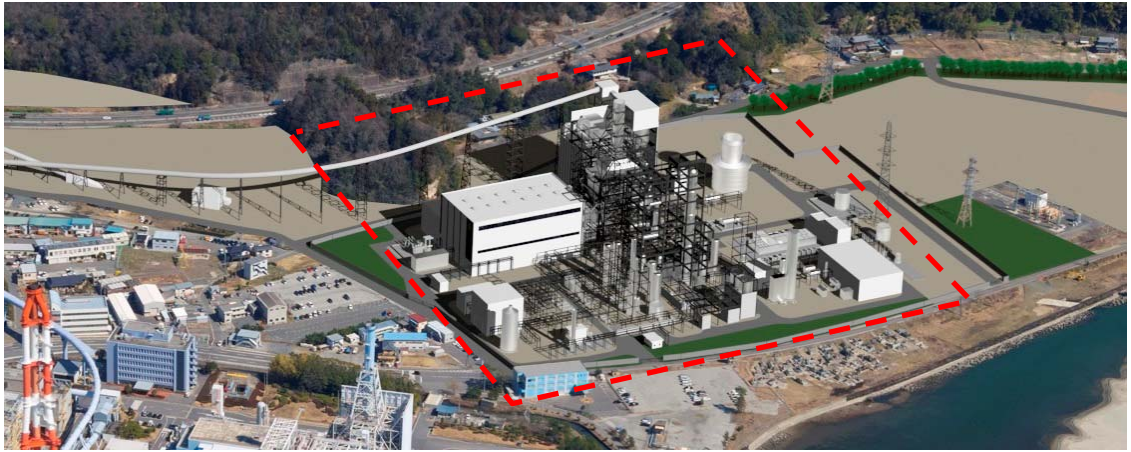
### 3. Corporate Logo



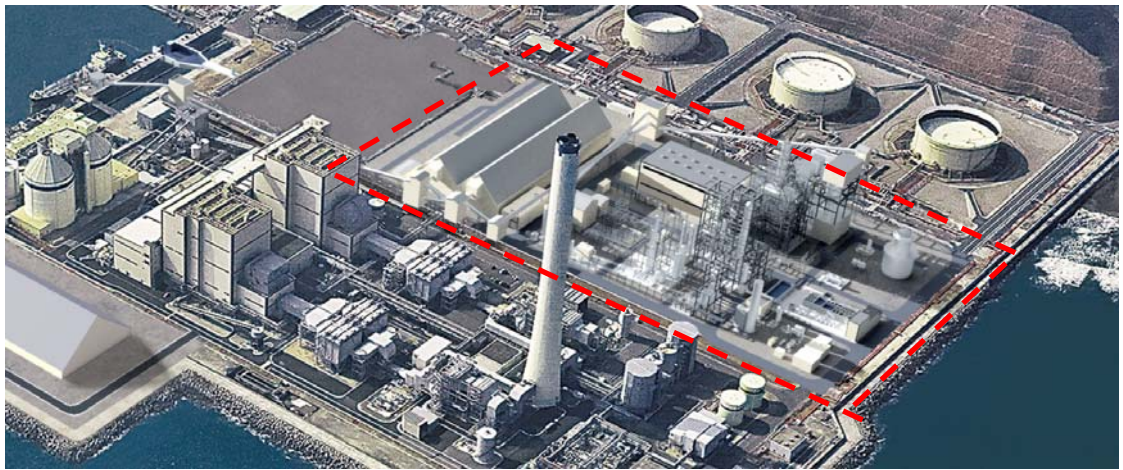
- The F-shaped design is meant to capture the concepts of Fukushima, *Fukkou* (which is the Japanese word for Recovery) and Future
- The Colors: *Blue* indicates ongoing technology development, *Yellow* represents focus on human resource development, while *Green* captures our focus on the environment and the tinge of orange, the same color as the Fukushima flag, captures the fact that IGCC technology is being nurtured in Fukushima

#### 4. Illustrations of the Completed Plants

The Nakoso Site



The Hirono Site

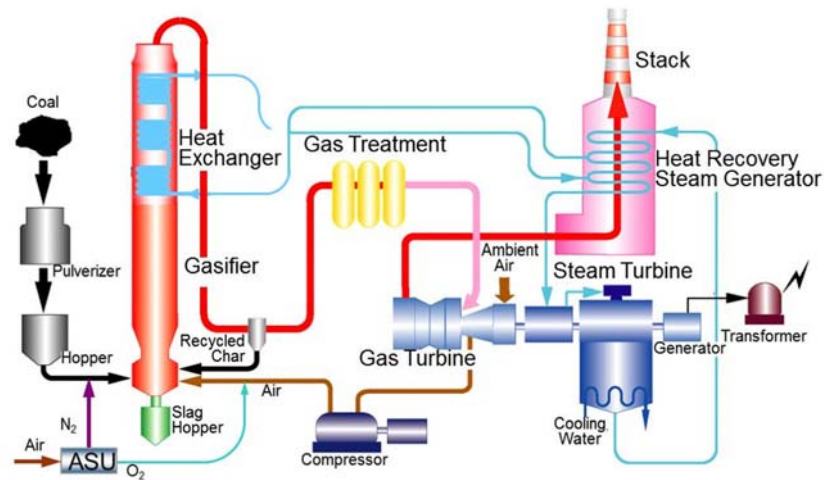


# Outline of Generation Facilities

## 1. Outline of Generation Facilities

Item		Overview
Plant Type		Air-blown Integrated Coal Gasification Combined Cycle
Plant Output		540MW (gross)
Plant Efficiency (LHV)		Approx. 48% (net)
Main Components	Gasifier System	Dry feed, Air Blown, Two-Staged Entrained Bed
	Gas Clean-up System	Wet Clean-up System (MDEA)
	Gas Turbine	Open Cycle Single Shaft Type

## 2. Mechanism of Integrated coal Gasification Combined Cycle (IGCC)



## 3. Construction Schedule

The Nakoso Site

Construction Schedule	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
	▼Start of Construction			▼Start of Operation		
Site Preparation						
Gasifier System						
Gas Clean-up System						
Combined Cycle System						
Sea Water Intake and Discharge System						
Coal Handling System						
Commissioning						

The Hirono Site

Construction Schedule	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
	▼Start of Construction			▼Start of Operation		
Modification of Existing Facilities						
Gasifier System						
Gas Clean-up System						
Combined Cycle System						
Sea Water Intake and Discharge System						
Coal Unloading and Handling System						
Commissioning						

## Company Outlines

### **1. Mitsubishi Corporation**

Headquarters: 3-1, Marunouchi 2-Chome, Chiyoda-Ku, Tokyo Japan

Established: July 1, 1954

Capital: 204.4 billion yen

Business Activities: MC is a global integrated business enterprise that develops and operates businesses across virtually every industry including industrial finance, energy, metals, machinery, chemicals, foods, and environmental business. MC's current activities are expanding far beyond its traditional trading operations as its diverse business ranges from natural resources development to investment in retail business, infrastructure, financial products and manufacturing of industrial goods.

No. of Employees: 68,247 (consolidated, as of March 31, 2016)

Representative: Takehiko Kakiuchi, President and CEO

### **2. Mitsubishi Corporation Power, Ltd**

Headquarters: 6-1, Marunouchi 2-Chome, Chiyoda-Ku, Tokyo Japan

Established: October 1, 2015

Capital: 50 million yen (as of March 31, 2016)

Business Activities: Investment and development of domestic energy businesses.

No. of Employees: 69 (as of March 31, 2016)

Representative: Go Ishikawa, President

### **3. Mitsubishi Heavy Industries, Ltd.**

Head Office: 16-5 Konan 2-chome, Minato-ku, Tokyo, Japan

Established: January 11, 1950

Capital: 265.6 billion yen (as of March 31, 2016)

Major Business: Energy & Environment; Commercial Aviation & Transportation Systems; Machinery, Equipment & Infrastructure; Integrated Defense & Space Systems

No. of Employees: 83,932 (consolidated, as of March 31, 2016)

Representative: Shunichi Miyanaga, President and CEO

### **4. Mitsubishi Electric Corporation**

Head Office: 2-7-3, Marunouchi, Chiyoda-ku, Tokyo, Japan

Established: January 15, 1921

Capital: 175.8 billion yen (as of March 31, 2016)

Major Business: Development, manufacture, sales and service of energy and electric systems, industrial automation systems, information and communication systems, electronic devices, home appliances, etc

No. of Employees: 135,160 (consolidated, as of March 31, 2016)

Representative: Masaki Sakuyama, President and CEO

### **5. Tokyo Electric Power Company Holdings, Inc.**

Head Office: 1-1-3 Uchisaiwai-cho, Chiyoda-ku, Tokyo, Japan

Established: May 1, 1951

Capital: 1,400.9 billion yen (as of March 31, 2016)

Major Business: Electric power supplier and its related businesses, and gas fueling business, etc.

No. of Employees: 32,440 (Non-consolidated, as of March 31, 2016)

Representative: Naomi Hirose, President

**6. Joban Joint Power Co., Ltd.**

Head Office: Kanda-sudacho 1-1, Chiyoda-ku, Tokyo, Japan  
Established: December 23, 1955  
Capital: 56 billion yen (as of March 31, 2016)  
Major Business: Wholesale power supply activities, etc by thermal power generation  
No. of Employees: 229 (as of March 31, 2016)  
Representative: Toshiaki Koizumi, President