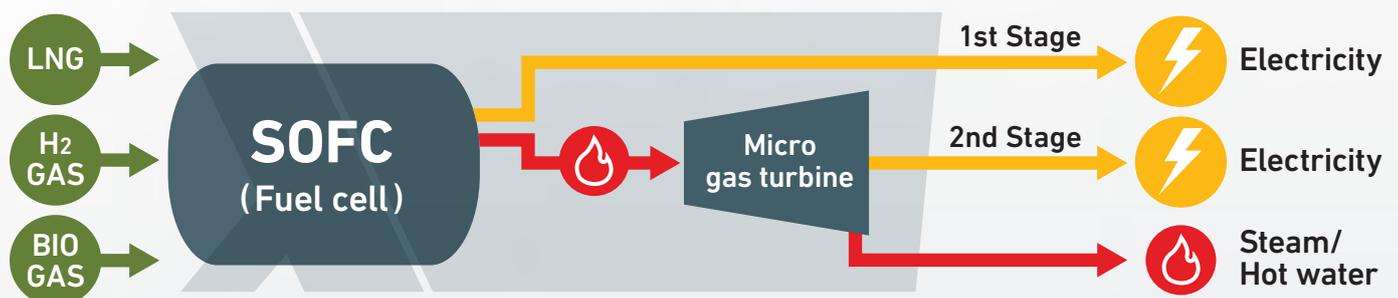
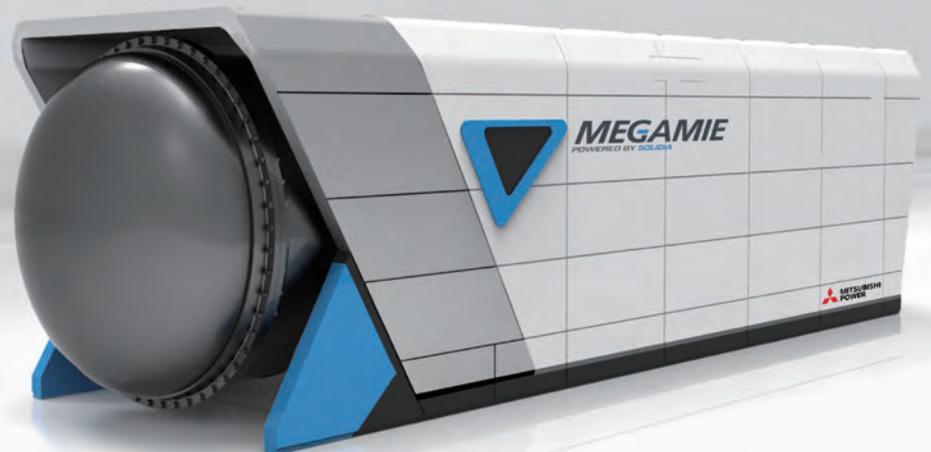


# MEGAMIE

- High-efficiency Solid Oxide Fuel Cells (SOFC)
- Flexible for variety of fuel
- Realization of the decarbonized society



## What's SOFC?

SOFC convert chemical energy in the fuel directly into electricity without burning it, enabling high-efficient electricity and contribute to the CO<sub>2</sub> reduction.

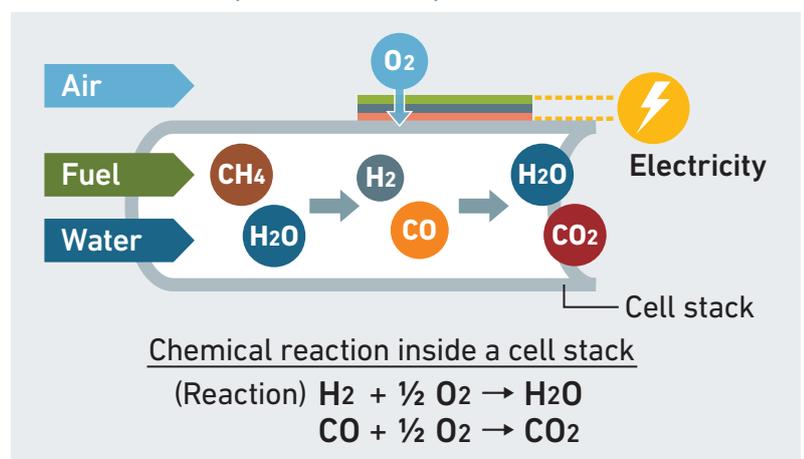
## High-efficiency

Because of high-efficiency, the SOFC can reduce fuel consumption when compared to conventional. Fuel cost can be saved through operation period, and the savings can be achieved even with fuel cost increases.

## High electric heat rate

One feature of the SOFC is the higher electric heat rate when compared to other cogeneration systems which makes the SOFC as an ideal application for buildings and factories which require significant electricity. In addition, the electric heating ratio can be adjusted depending upon the operation requirement.

## Schematic view (in case of LNG)



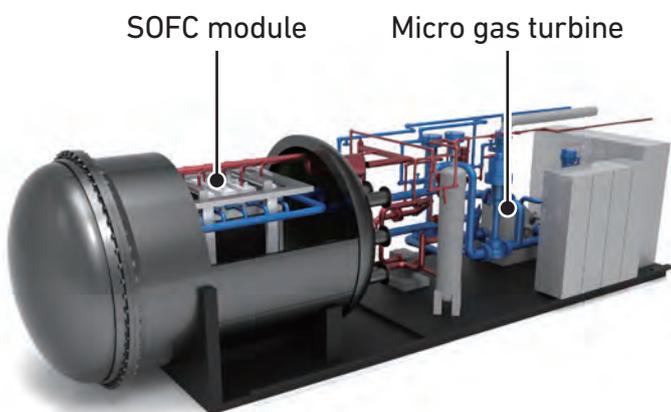
## Specifications (for reference) : LNG use

Model		MEGAMIE
Type		Solid Oxide Fuel Cell [Solidia®]
Fuel		LNG Max. 50 Nm <sup>3</sup> /h (about 36 Nm <sup>3</sup> /h at rated power output)
Electrical output <sup>*1</sup>	Rated output	210 kW
	Frequency, Phase	50/60 Hz, 3 phases
	Voltage	200 V/220 V
Thermal output <sup>*1</sup>	Thermal output	86 kW (hot-water recovery) 54 kW (steam recovery)
	Hot-water/ steam flow rate	15 t/h (hot water from 83°C to 88°C) 80 kg/h (0.78 MPa steam <sup>*2</sup> /water-supply temperature 60°C)
Efficiency <sup>*1</sup>	Electrical efficiency	53% LHV
	Total efficiency (Electrical + Thermal)	73% LHV (hot-water recovery) 65% LHV (steam recovery)
Unit size		W 3.2 m × L 11.4 m × H 3.3 m
Weight		33 t
Startup time		Cold 24 hr / Hot 2 hr
Environmental performance	Exhaust gas	1,400 Nm <sup>3</sup> /h
	NOx	15 ppm or less (16% O <sub>2</sub> at rated power output)
	SOx	Less than 0.1 ppm
	Noise	70 dBA or less (at 1m from the machine)
	Vibration	45 dBA or less
Installation locations		Indoors/outdoors
Options		Capability of Island mode

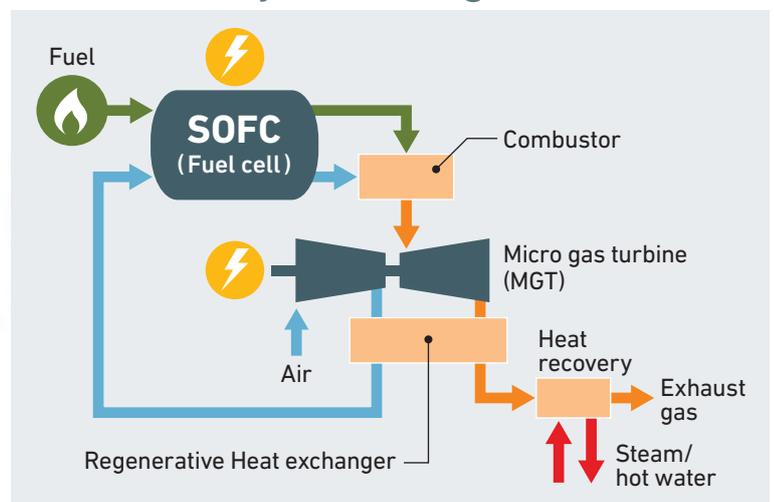
\*1 At ambient temperature of 15°C. Output and efficiency vary according to operating conditions.

\*2 At saturated steam temperature of 175°C

### SOFC



### System Diagram



MEGAMIE: The name "MEGAMIE" is a combination of "MEGA", evoking an image of the high-output fuel cells with stable operating performance, and "MEGAMI", a Japanese word meaning Goddess of the earth and beauty, which represents strength, elegance, and warmth. The final "E" represents the three "E" of Environment (environmental conservation), Energy security (stable supply), and Economy (economic efficiency), thereby expressing the value that Mitsubishi Power provides to customers, and the role the company plays in society.