

Prime Movers for Energy Solutions

14th November 2018

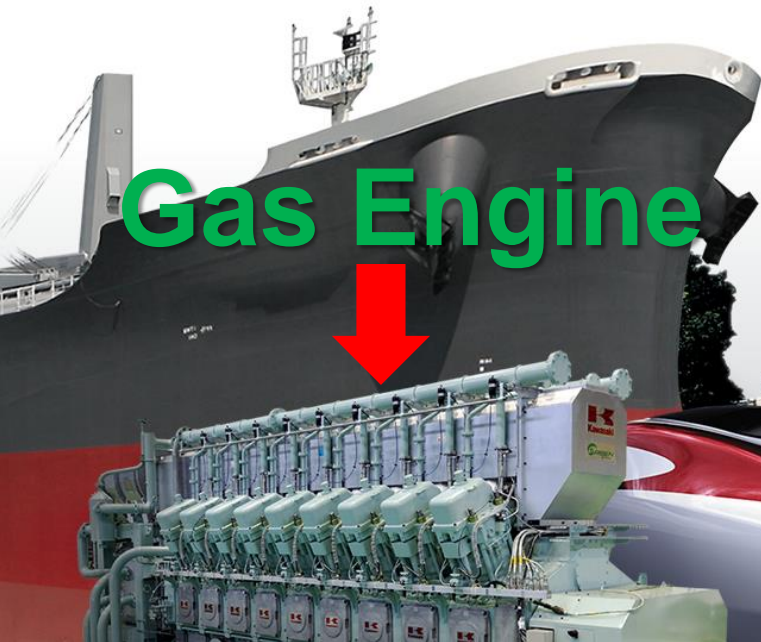
Kawasaki Gas Turbine Asia Sdn Bhd



What's Kawasaki?



 **Kawasaki**
Powering your potential



Gas Engine



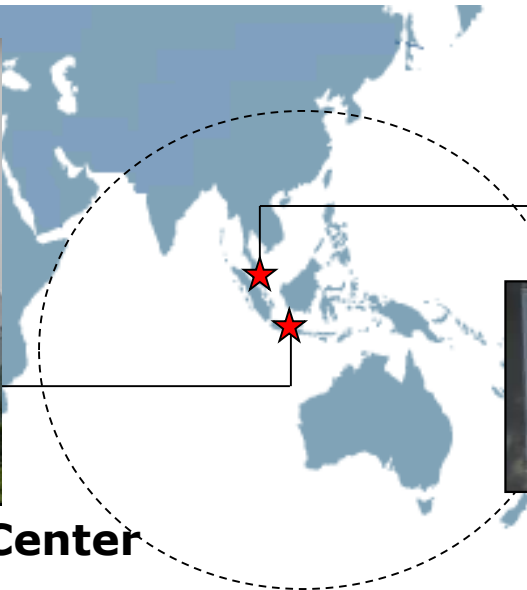
Gas Turbine

Kawasaki Gas Turbine Asia (KGA) is an affiliated company of Kawasaki Heavy Industries Ltd. (KHI) with its head quarter in Malaysia. KGA is focused on the sales and after-sales gas turbine and gas engine business throughout West Asia, SEA and Pacific rim.

In April 2018, KGA has opened the representative office in Jakarta.

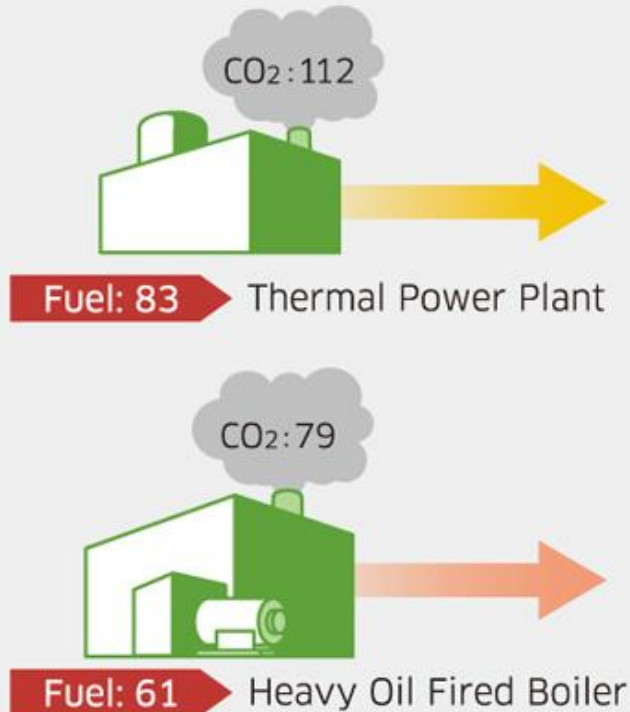


Sahid Sudirman Center
(Central Jakarta)



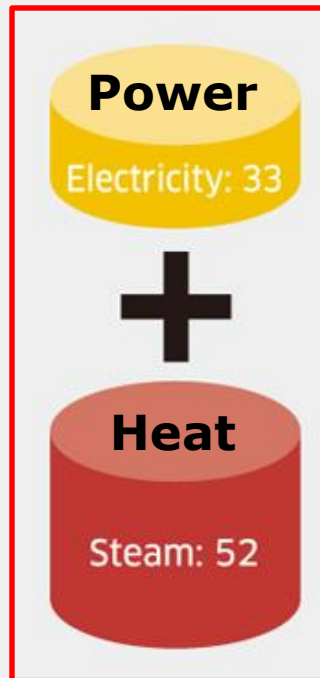
Co-Generation System (Combined Heat & Power)

[Existing System]

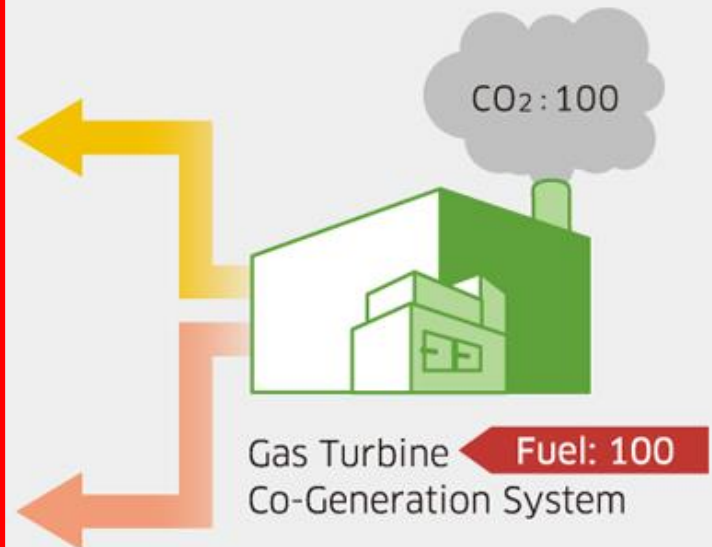


Fuel Input: 144 ▶ Gained Energy: 85
(Energy Efficiency: 59%)

Factory / Building Demand



[Co-Generation System]

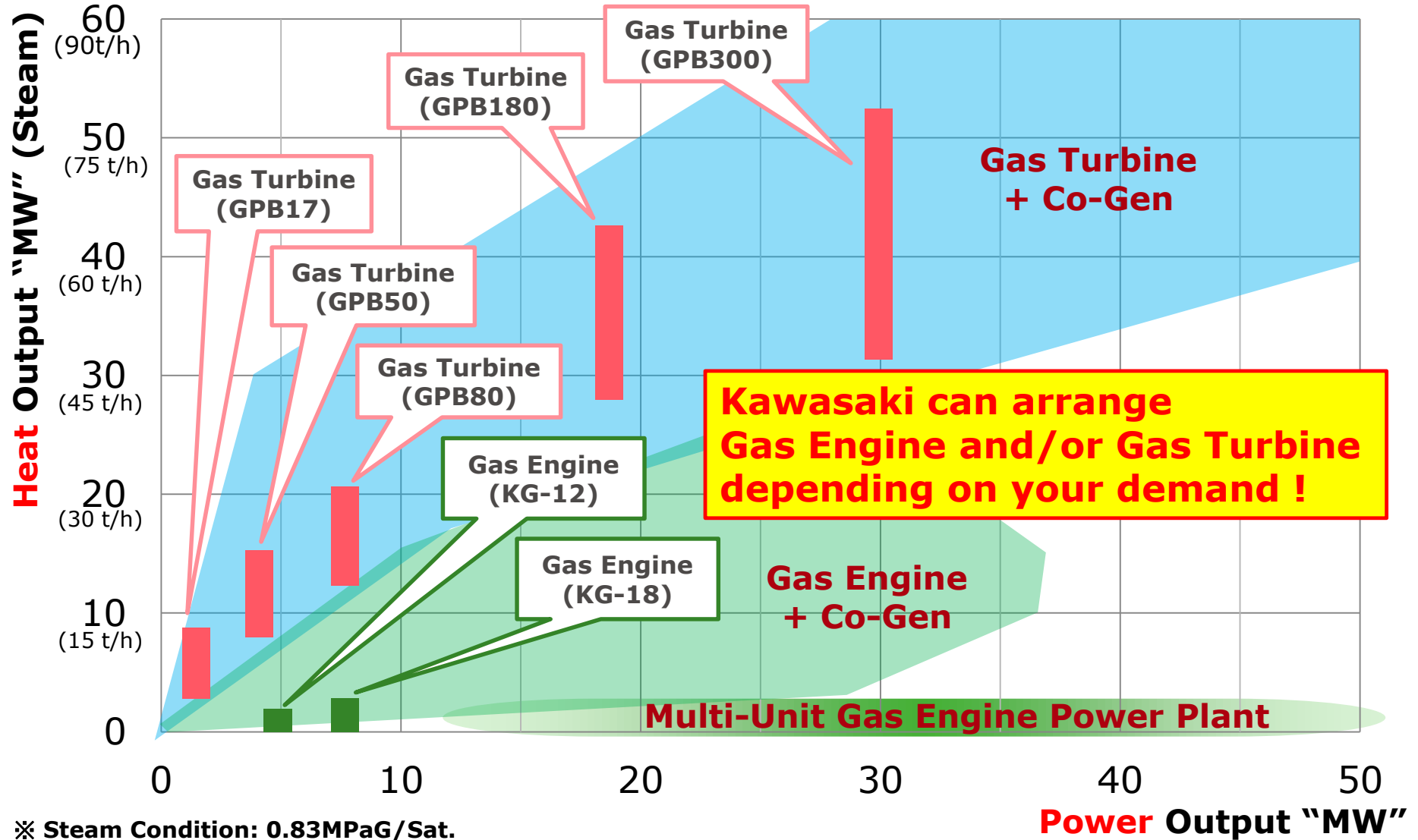


Fuel Input: 100 ▶ Gained Energy: 85
(Energy Efficiency: 85%)

Fuel ; 30%OFF

CO₂ ; 48%OFF

Suitable Utilization of Kawasaki Energy Products



Kawasaki Gas Engine Features



Power Output **5.2 / 7.8MW** @50Hz

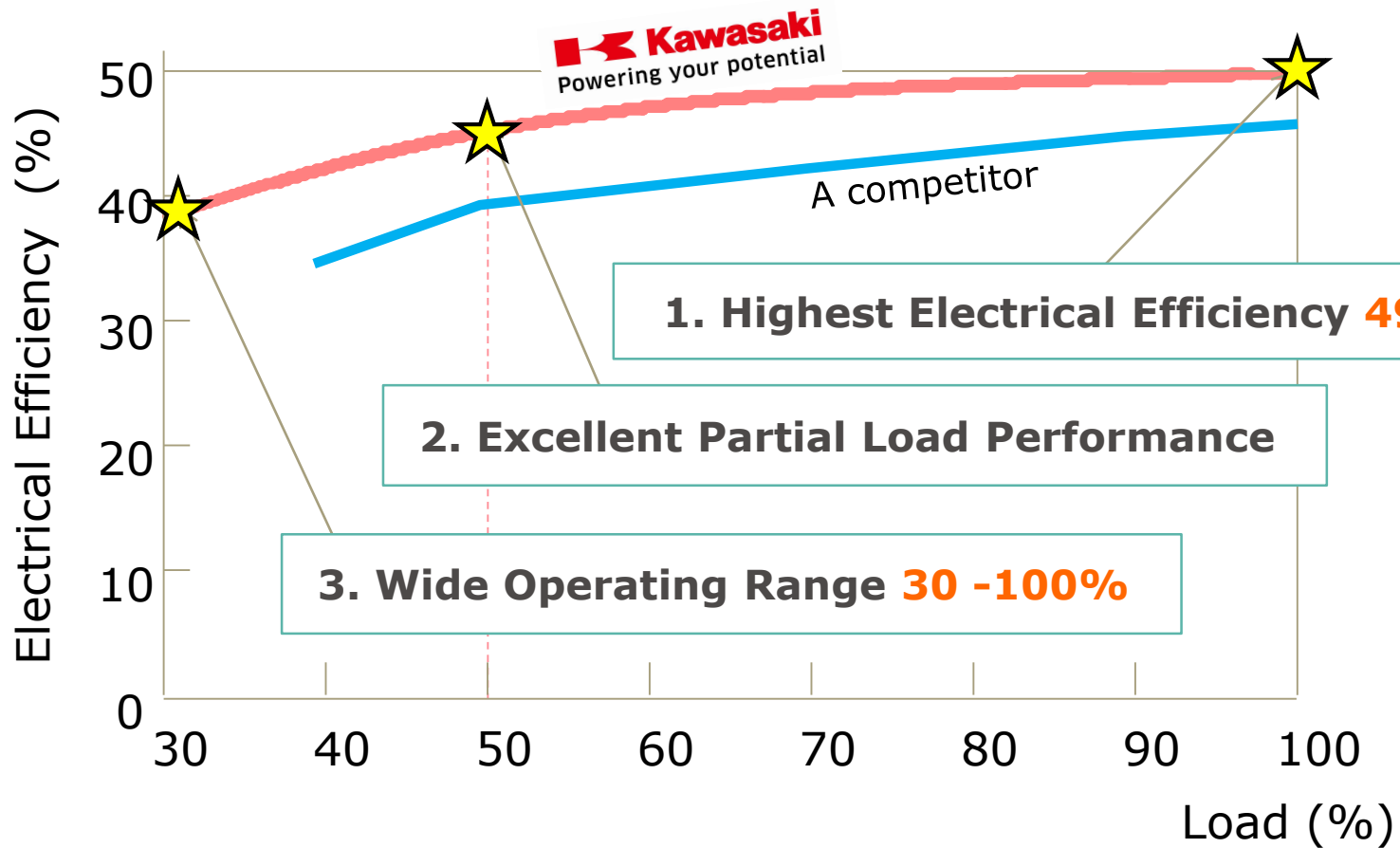
Highest Electrical Efficiency **49.5%**

Excellent Partial Load Performance

Wide Operating Range **30 -100%**

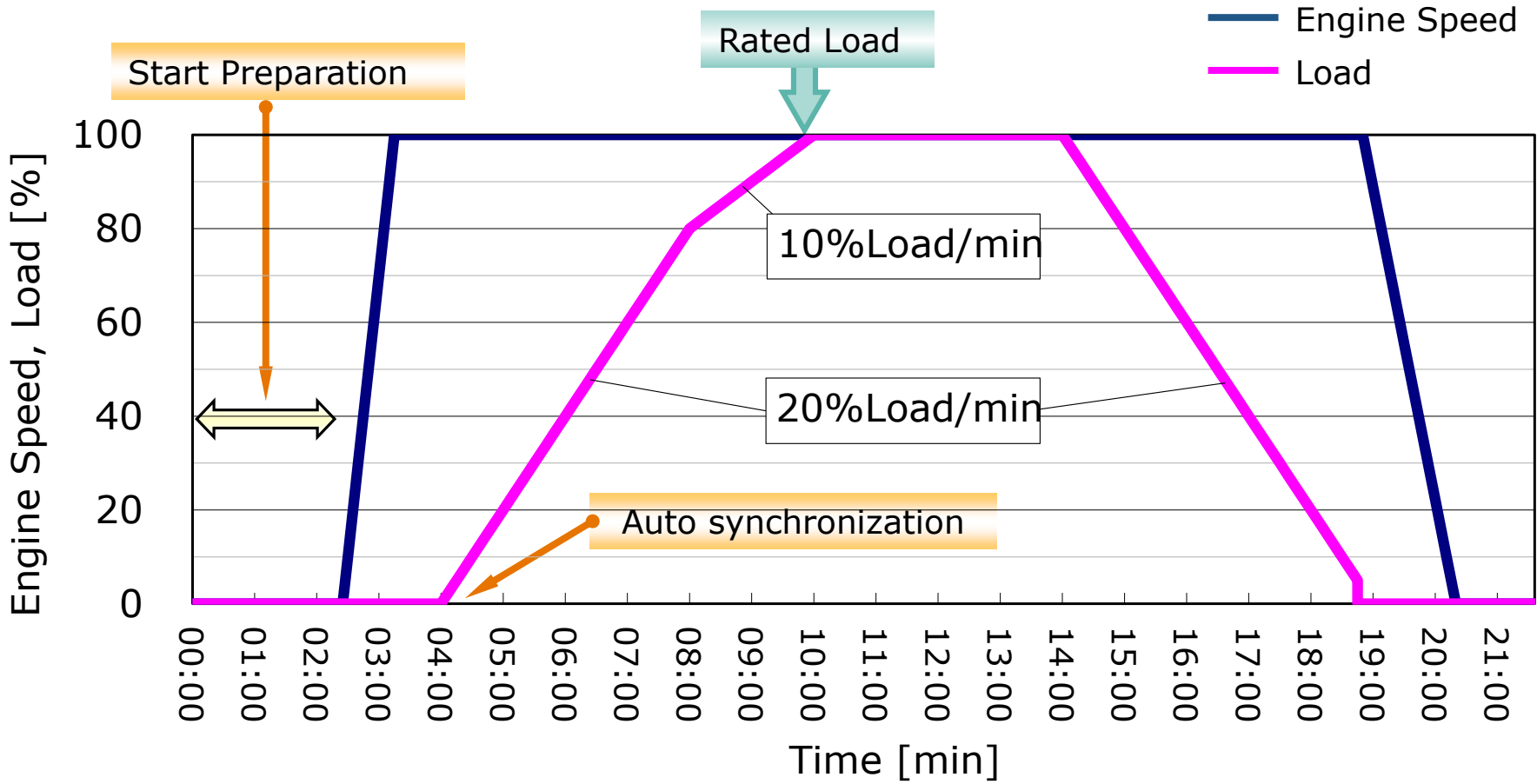
Quick Start-Up (In **10minutes** to 100% Load)

Kawasaki Gas Engine Features



Keep High Efficiency Operation in the wide range

Kawasaki Gas Engine Features



Quick Start/Stop



In 10 minutes to rated load (100%)
In 5 minutes to unload (0%)

Kawasaki Gas Turbine Features

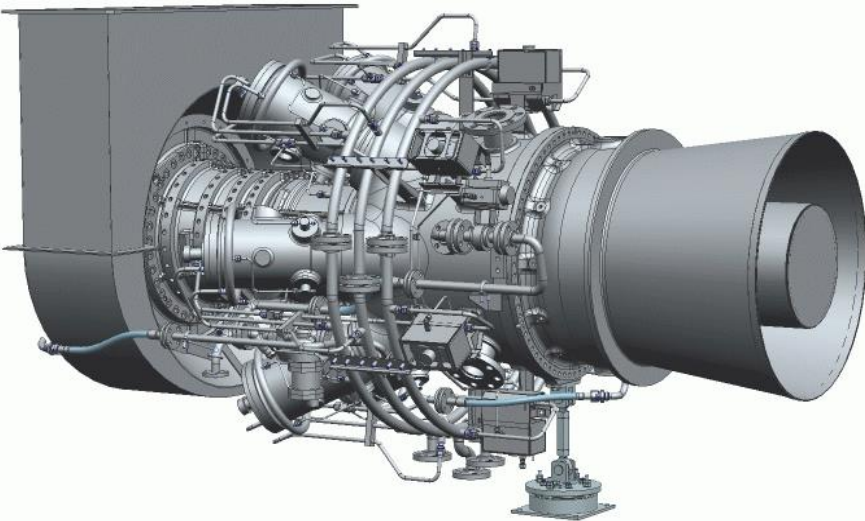
Power Output **1.7~30MW** @ISO

Highest Total Efficiency **>80%**

Application to several systems

High Fuel Flexibility

Capability for island operation



Kawasaki Gas Turbine Line-Up



Gas Turbine Model	Electrical Output	Electrical Efficiency	Total Thermal Efficiency
GPB17D	1,630kW	25.9%	80.1%
GPB50D	4,440kW	31.9%	84.5%
GPB80D	7,670kW	33.2%	83.2%
GPB180D	17,970kW	33.6%	84.0%
GPB300D	32,160kW	39.1%	85.1%

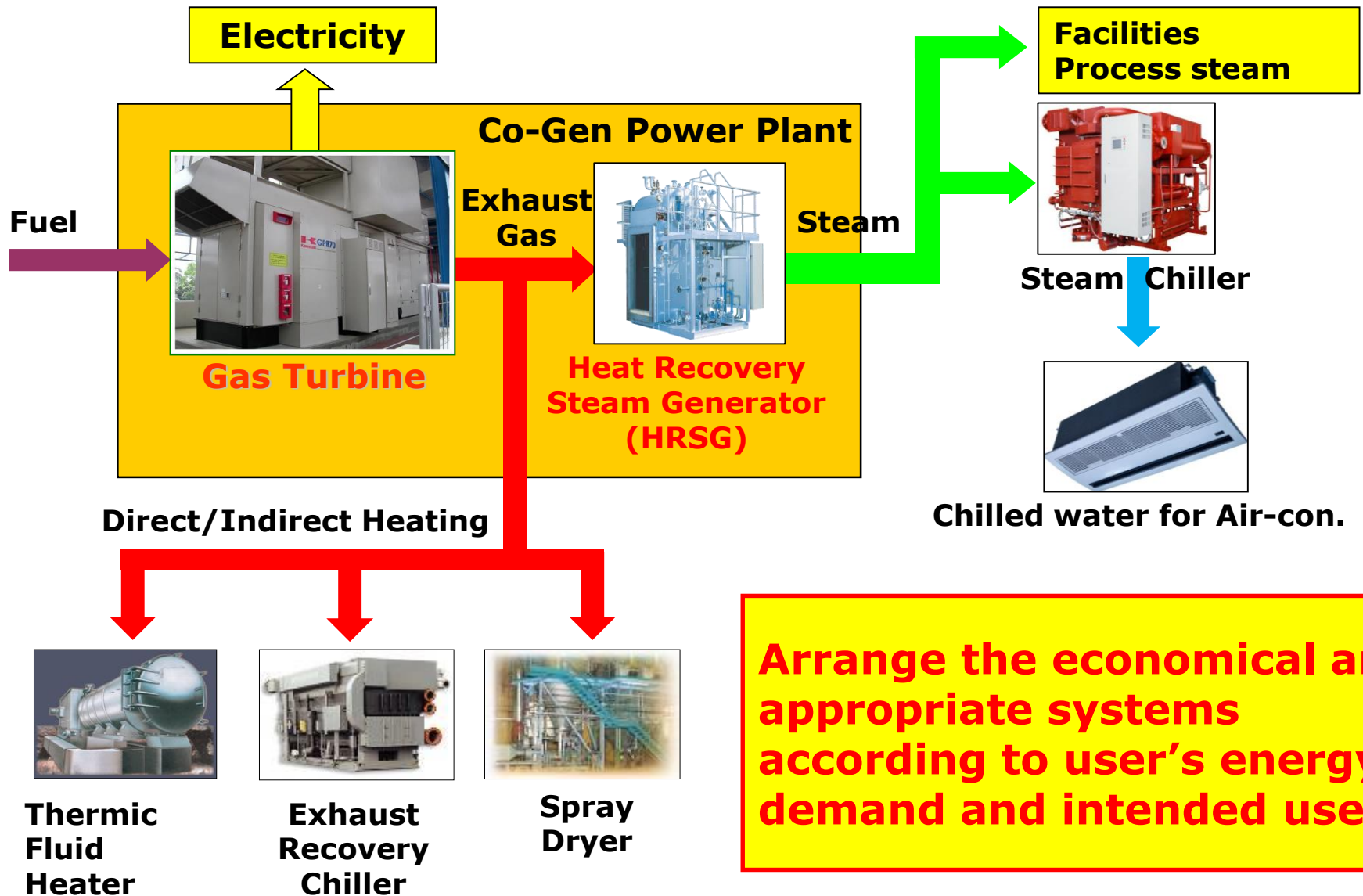
Nominal Performance:

Inlet Air Temperature : 15 degree C Inlet Pressure Loss : 0.98 kPa

Exhaust Pressure Loss : 2.45 kPa / 3.43 kPa(GPB70D, GPB180D, GPB300D)

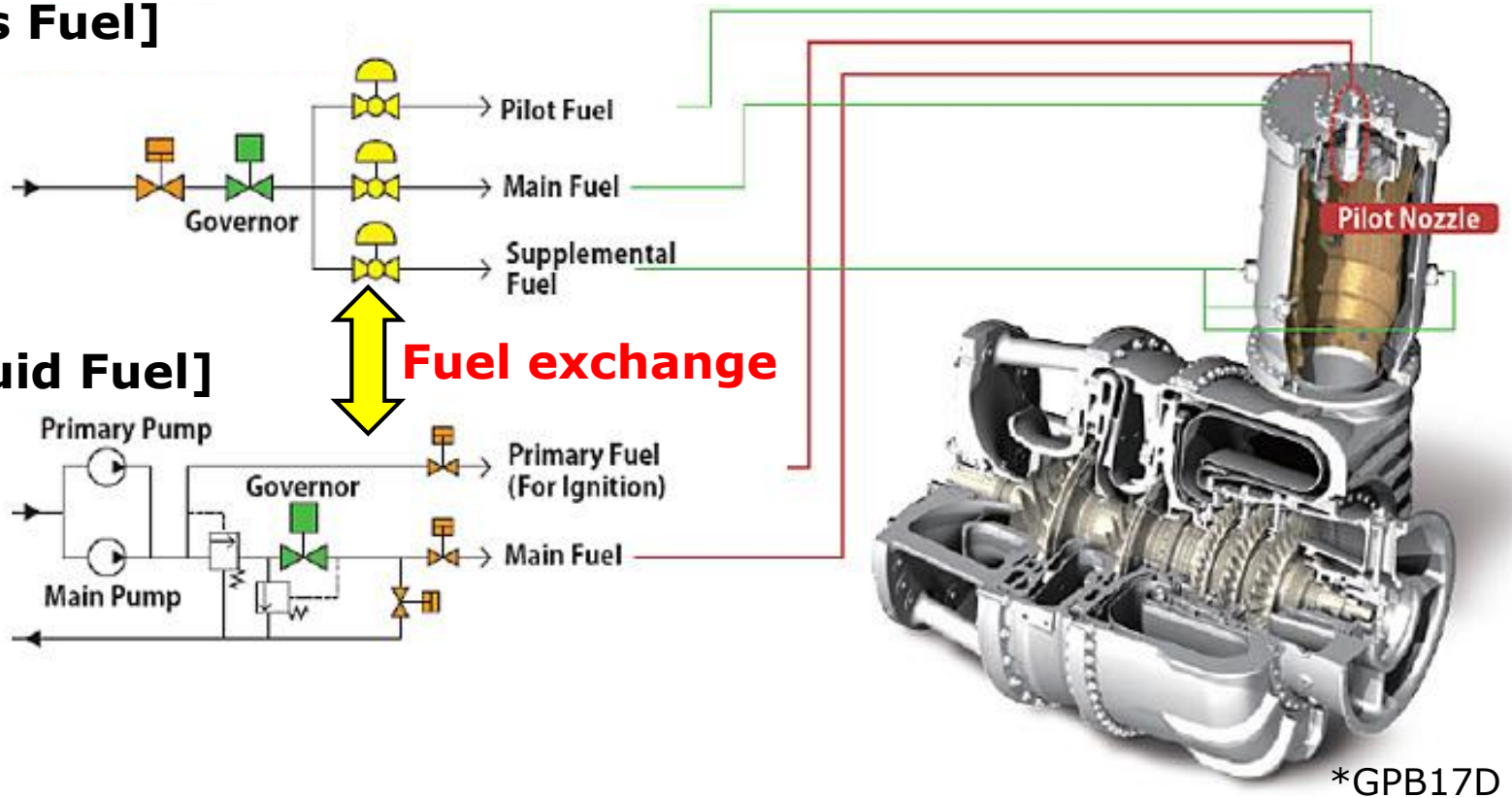
All models can reach to over 80% for total efficiency

Application example to several systems

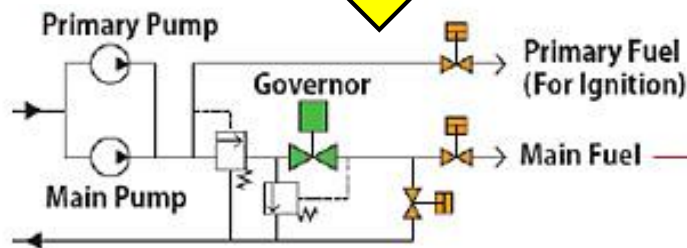


Fuel Flexibility

[Gas Fuel]



[Liquid Fuel]

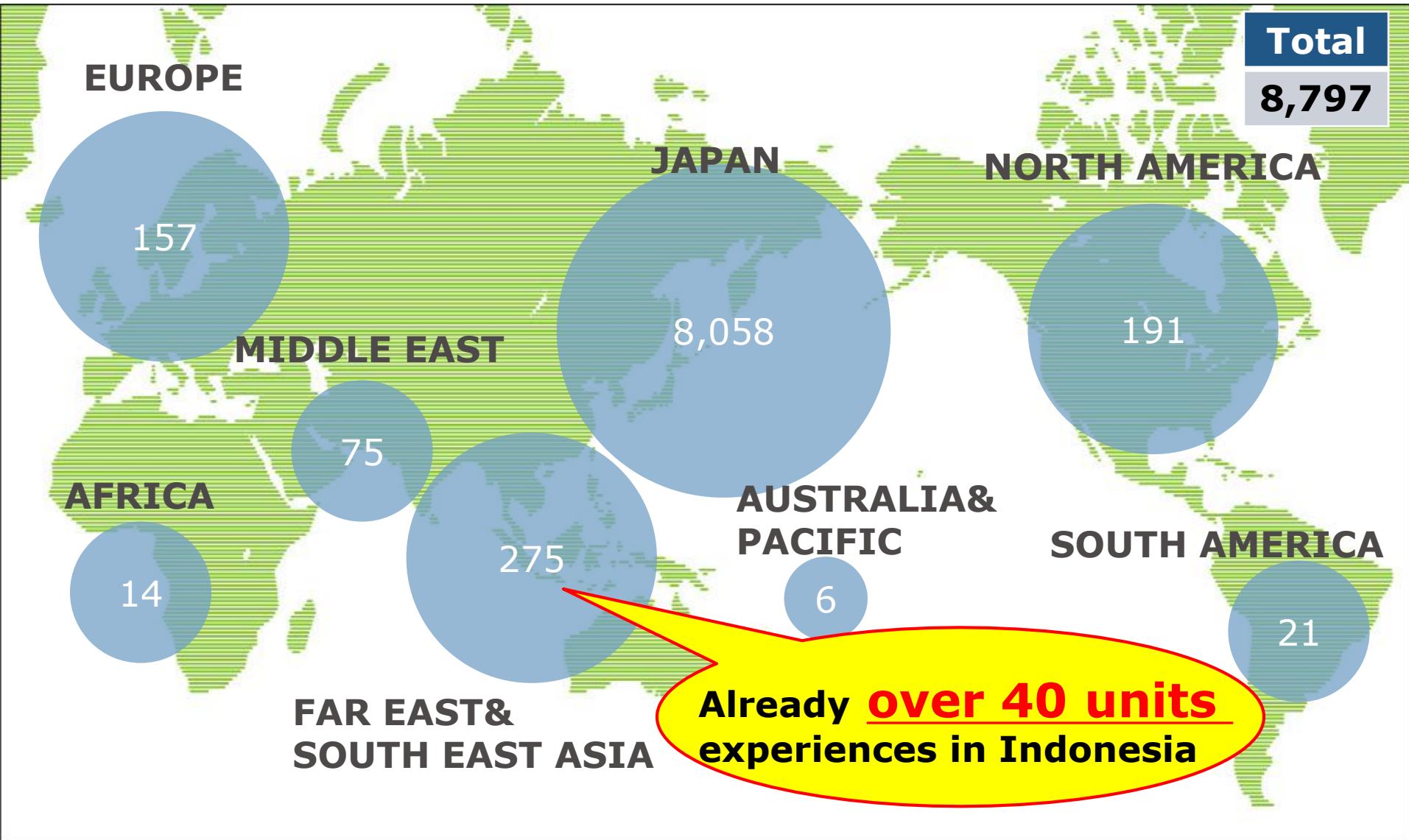


*GPB17D

- Capability for Natural Gas, LPG, Diesel, Kerosene, etc (Dual Fuel Capability)
- Fuel Exchange at all load range

Worldwide Gas Turbine/Gas Engine Experiences

Including standby GT as of September 2017



Conclusions

■ Kawasaki can supply both Gas Turbine and Gas Engine depending on user's energy demand and requirement

■ Kawasaki Gas Engine

Electrical efficiency is world class 49.5%

■ Kawasaki Gas Turbine

Total Efficiency can reach to over 80% in all models

Kawasaki can contribute to energy solutions with Prime Movers (Gas Engine / Gas Turbine)



Powering your potential

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