

# Efforts to achieve SDGs through enhanced utilization of LNG in marine industries.

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# Efforts to achieve SDGs through enhanced utilization of LNG



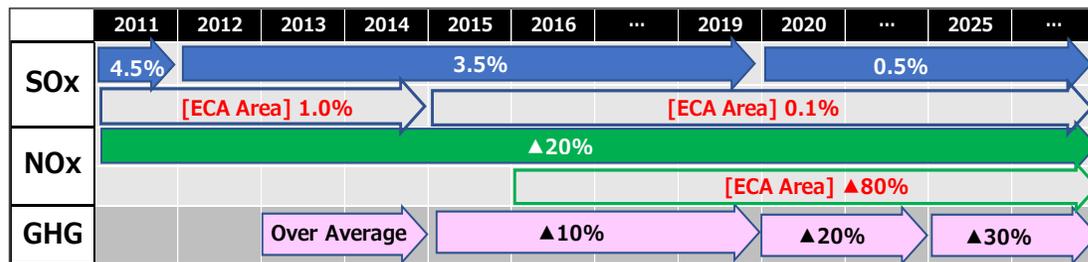
The marine industries aims to contribute the achievement of the SDGs with the cooperation of the energy industry

## ① Promotion of LNG fuel use



Atmospheric environment improvement

IMO regulatory requirement



## ② Efforts to improve energy access



Meet the power demand in developing countries

Speedy X On Demand X Cost Efficient

Reduce greenhouse gas emissions



Synergies created by international partnerships



# ① Promotion of LNG fuel use

## From "Oil" to "LNG" as marine fuel (expectation for fuel diversion)



1800s~



1900s~



From now on~



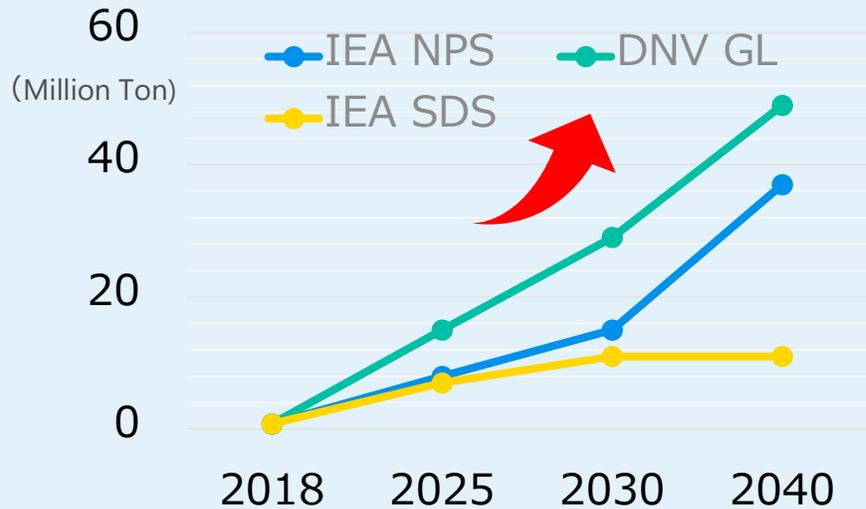
Tug boat "ISHIN"

World wide  
**354 ships**

(Delivered/On order)

(Source: DNV GL, as of Sep 2019)

LNG fuel demand forecasts



(Source: IEA / DNV) NPS : New Policies Scenario  
SDS : Sustainable Development Scenario

Over  
**20%**  
Ratio of  
LNG in the  
marine fuel  
**6%**

- In the latest IEA NPS outlook, it's expected to grow 15 million tons by 2030 and 37 million tons by 2050.
- It will certainly **increase**, although there is variation in estimates of how much.

# ② Efforts to improve energy access

## — Gas to Power Business



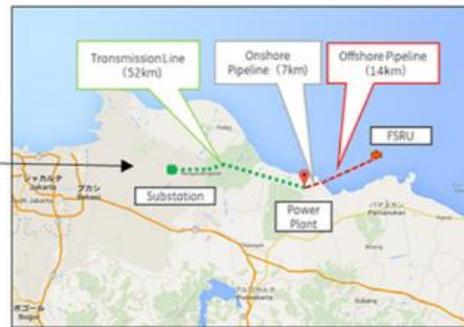
The **Gas-to-Power business**, which develops electric generation facilities and gas-related facilities in an integrated manner, is a solution that promotes access to LNG. Promoting this business will positively contribute to SDGs.

FSRU/FSU + **Onshore** gas power plant

### Coastal LNG Shuttle Transport in Bali



### Jawa-1 Gas-to-Power



FSRU + **Offshore** gas power plant

### KARMOL

LNG transportation / FSRU Provider



MOL FSRU Challenger (World biggest) STS operation

PowerShip Provider

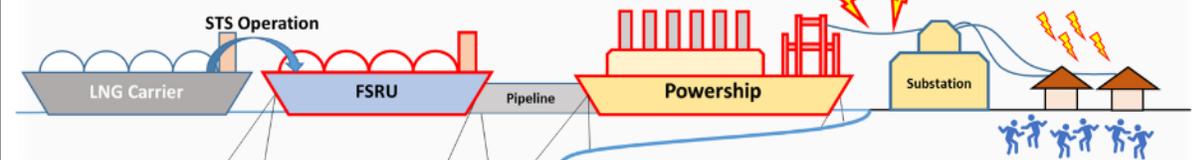


Karpowership's Onur Sultan operated in Indonesia

LNG to PowerShip Solution Provider



LNG Receiving + Regasification + Generate and Provide electricity



Deliver LNG to FSRU

Regasification of LNG on FSRU

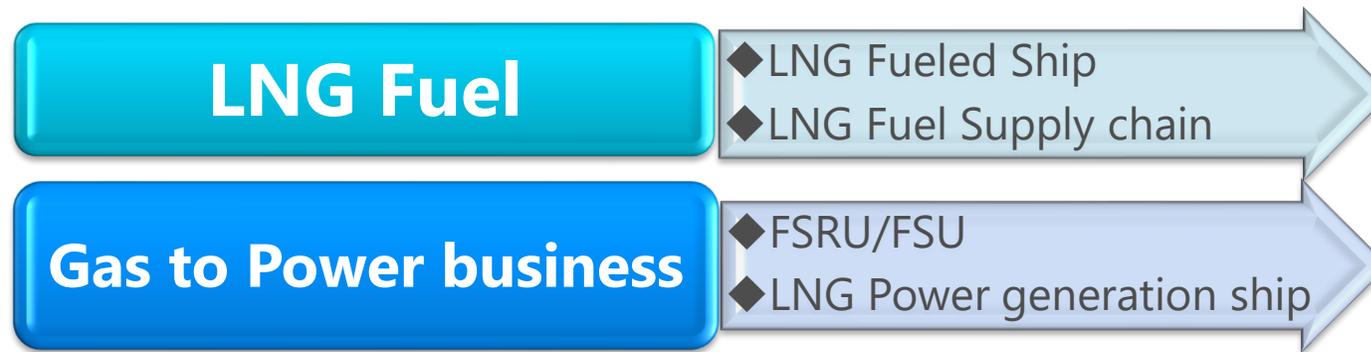
Generate electricity on PowerShip

Provide electricity to households

Off-taker



# Conclusion



☞ We will participate in, lead and contribute to all businesses related to SDGs that the marine industries are involved in. ☞

## From Uncertainty, Opportunity.

MOL boasts a reliable worldwide network and marine technical skills built up over 130 years. We will build upon those with innovations in Environment and ICT to set the stage for a next generation of our services. We will open up new possibilities using all we have, and turn today's swelling uncertainty into a force that propels us forward into the future.