

LNG-to-Powership Solution



July 2020

Mitsui O.S.K. Lines, Ltd.

Outline of Mitsui O.S.K. Lines, “MOL”

Corporate Data

- Established in: **1884**
- Head Office: **Tokyo, Japan**
- Group Employees: **8,931**
- Group Companies: **471**
- Public Company with **83,403 Shareholders**

(as of March 2020)

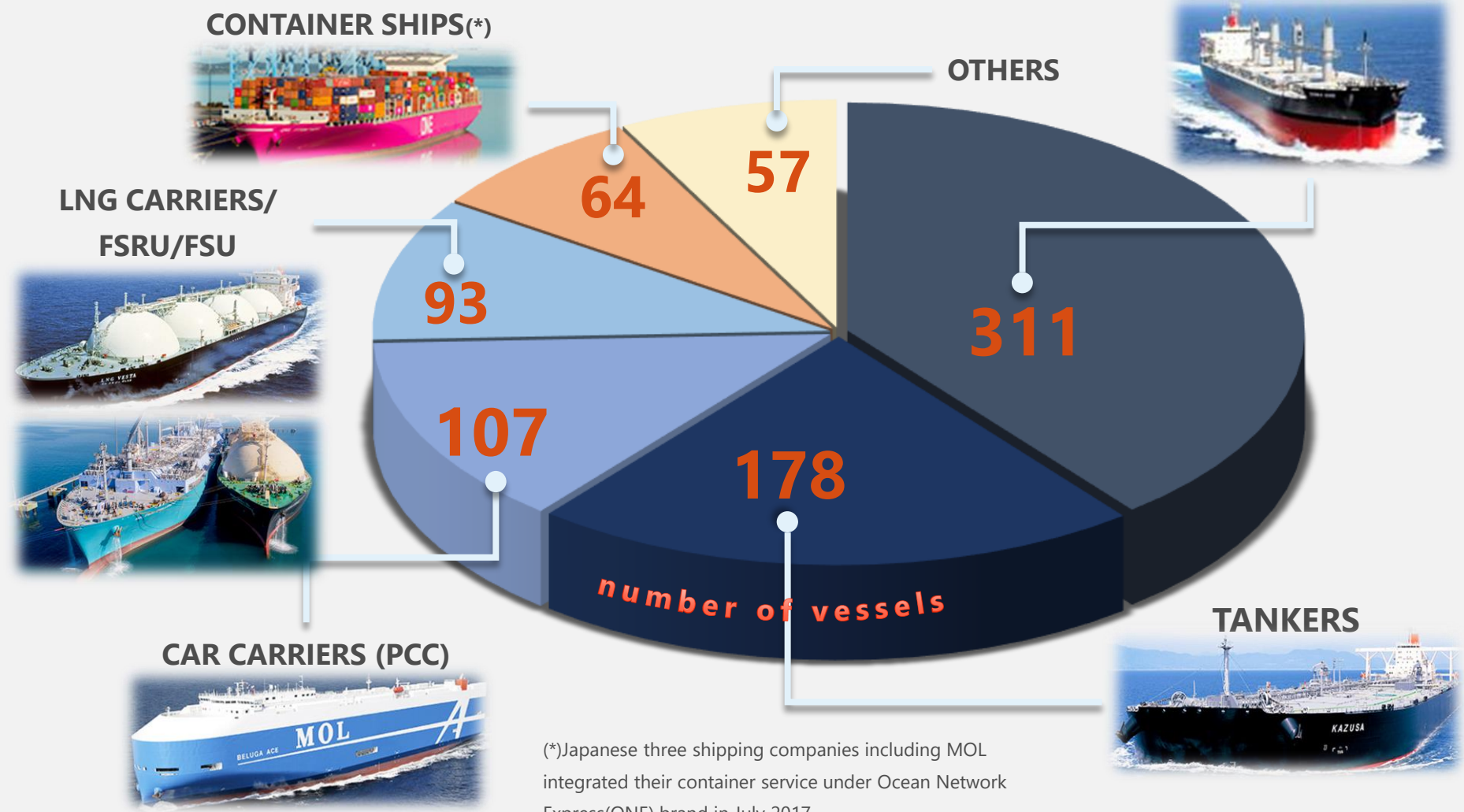
Financial Highlights

- For the Year Ended March 2020
 - ✓ **Revenue : USD 10.7 Bil**
- At the End of March 2020
 - ✓ **Total Assets : USD 19.4 Bil**
 - ✓ **Total Net Assets : USD 5.9 Bil**

Presence of MOL in various shipping fields

Total of **816** vessels

(as of March, 2020)



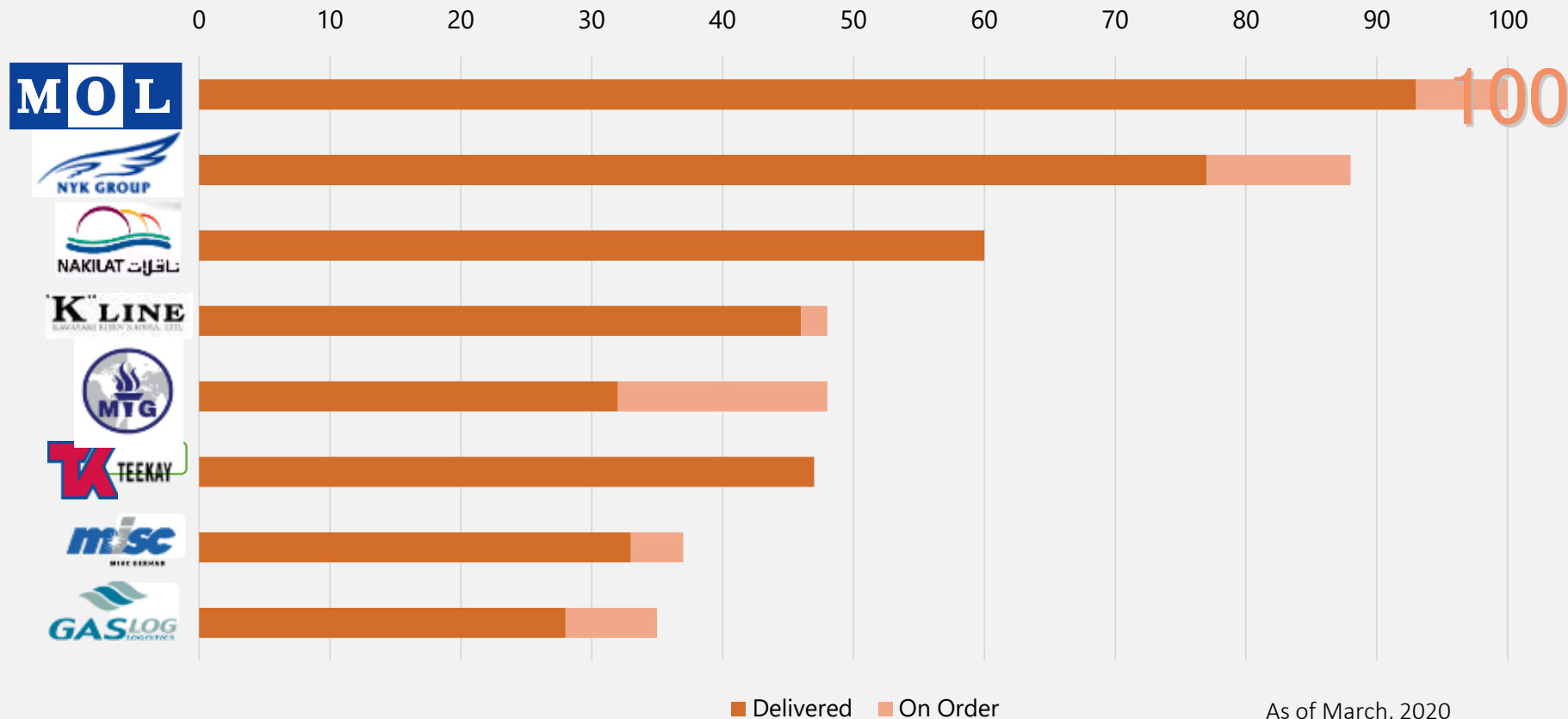
(*)Japanese three shipping companies including MOL integrated their container service under Ocean Network Express(ONE) brand in July 2017.

MOL in LNG Shipping Industry

LNG Shipping

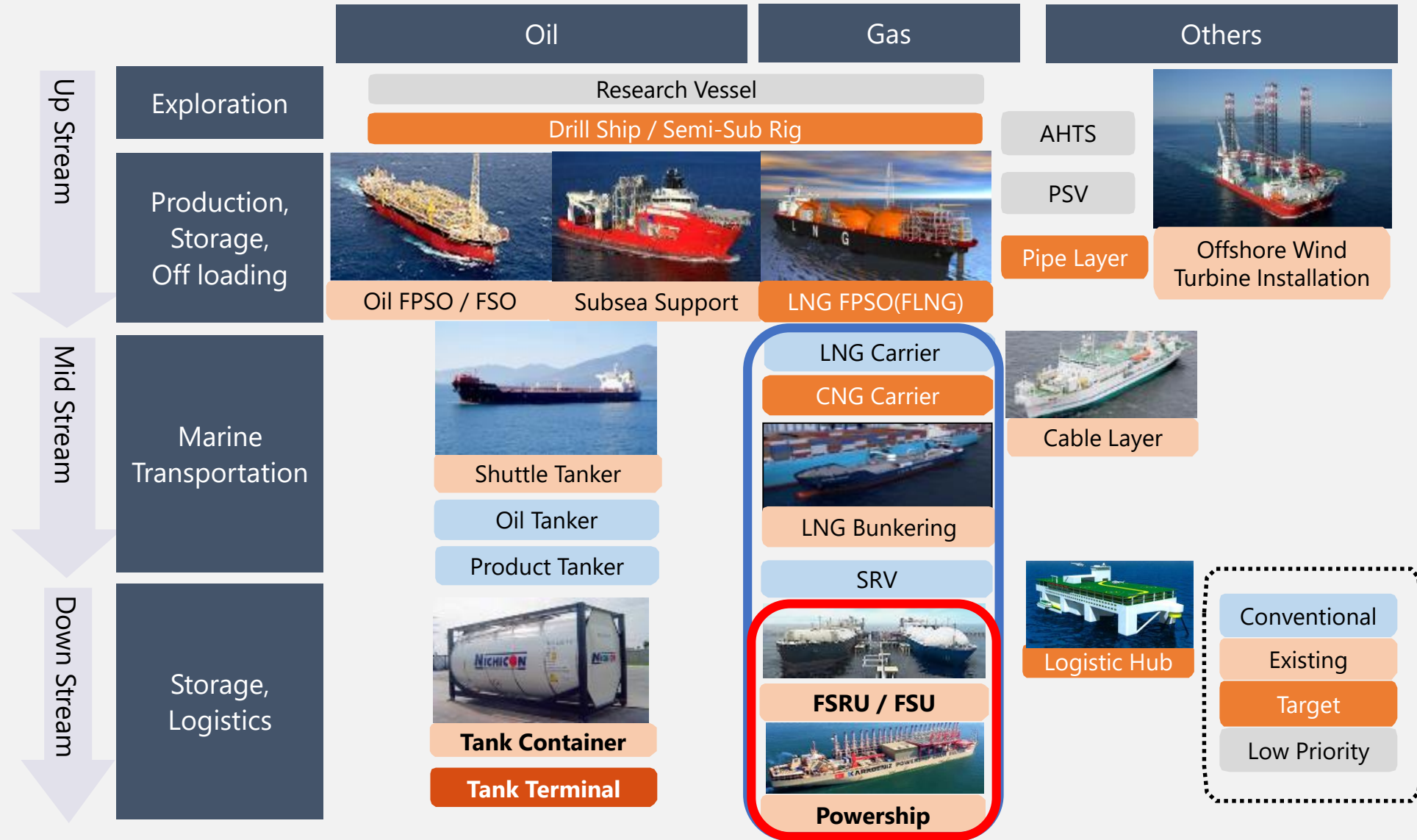


MOL's LNG Fleet sums up to 100 (including FSRU), making MOL a leading player of the LNG shipping sector.



As of March, 2020
Including vessels on order

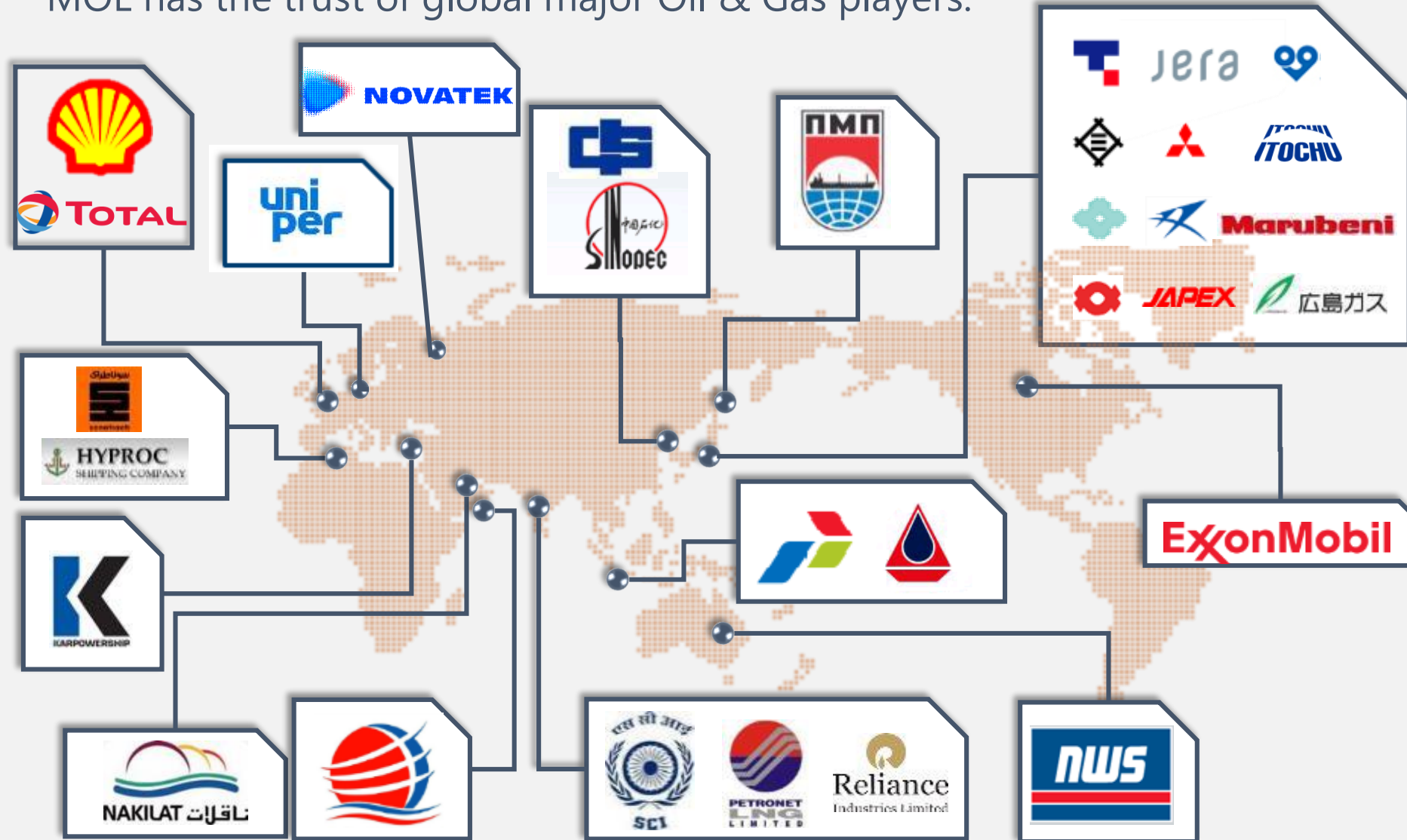
MOL Offshore Business



- Conventional
- Existing
- Target
- Low Priority

LNG related commercial Customer

MOL has the trust of global major Oil & Gas players.

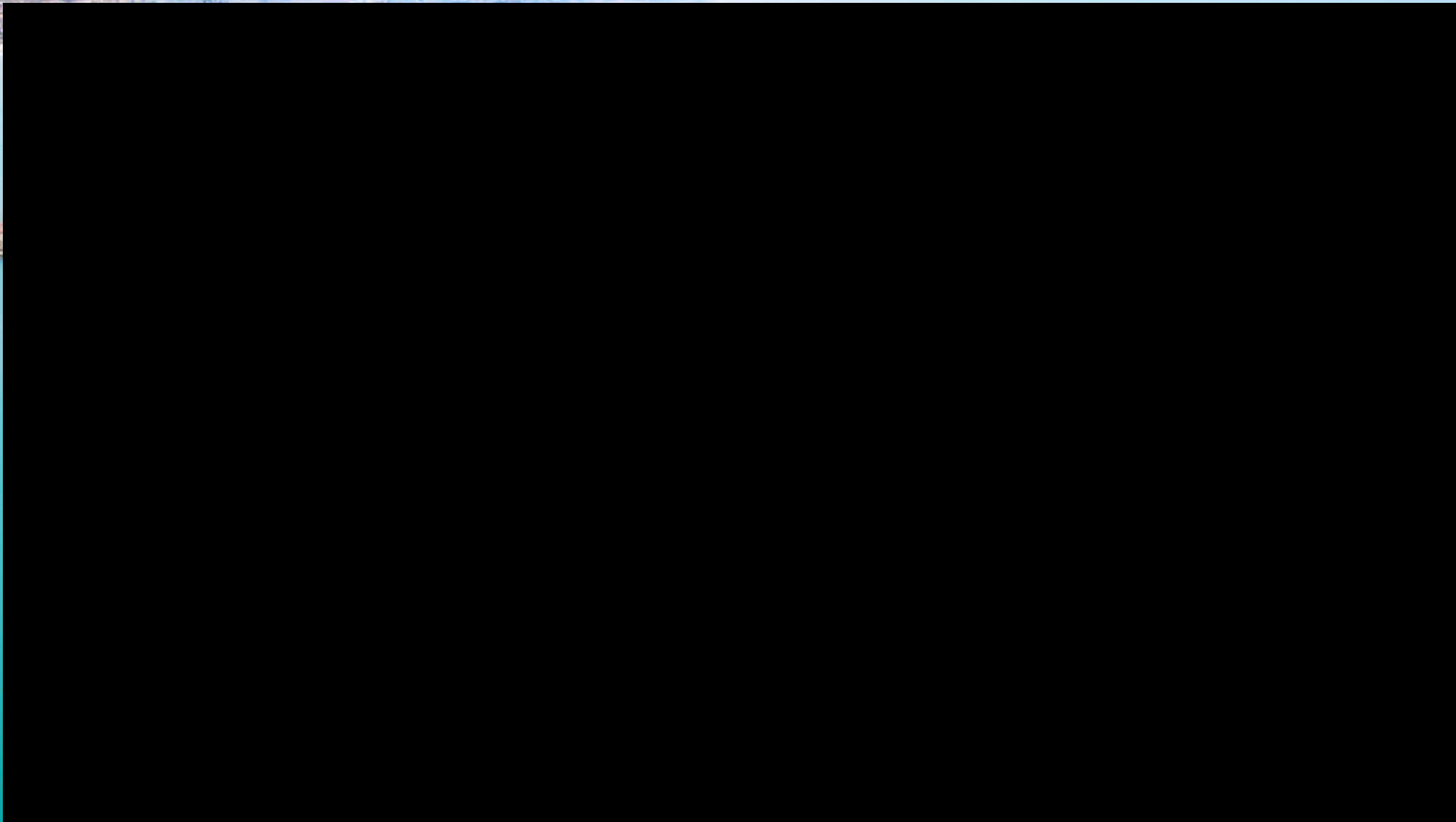


MOL Service in LNG Value Chain

MOL contributes in the midstream of LNG Value Chain, in LNG Shipping, Receiving Terminal (FSRU/FSU)* and Powership.



* FSRU/FSU = Floating Storage (Regasification) Unit

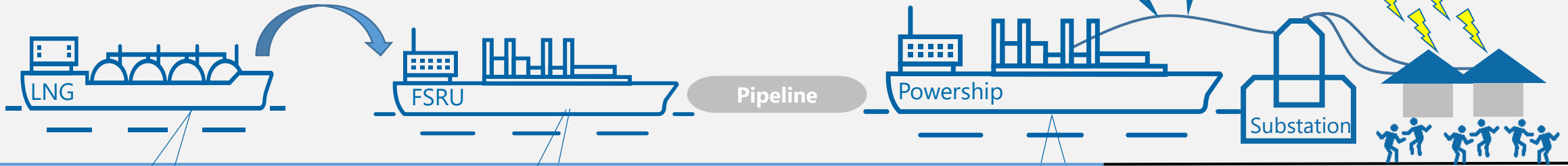


LNG to Powership Solution Video

LNG to Powership Solution



LNG Ship-to-Ship Operation



Deliver LNG to FSRU

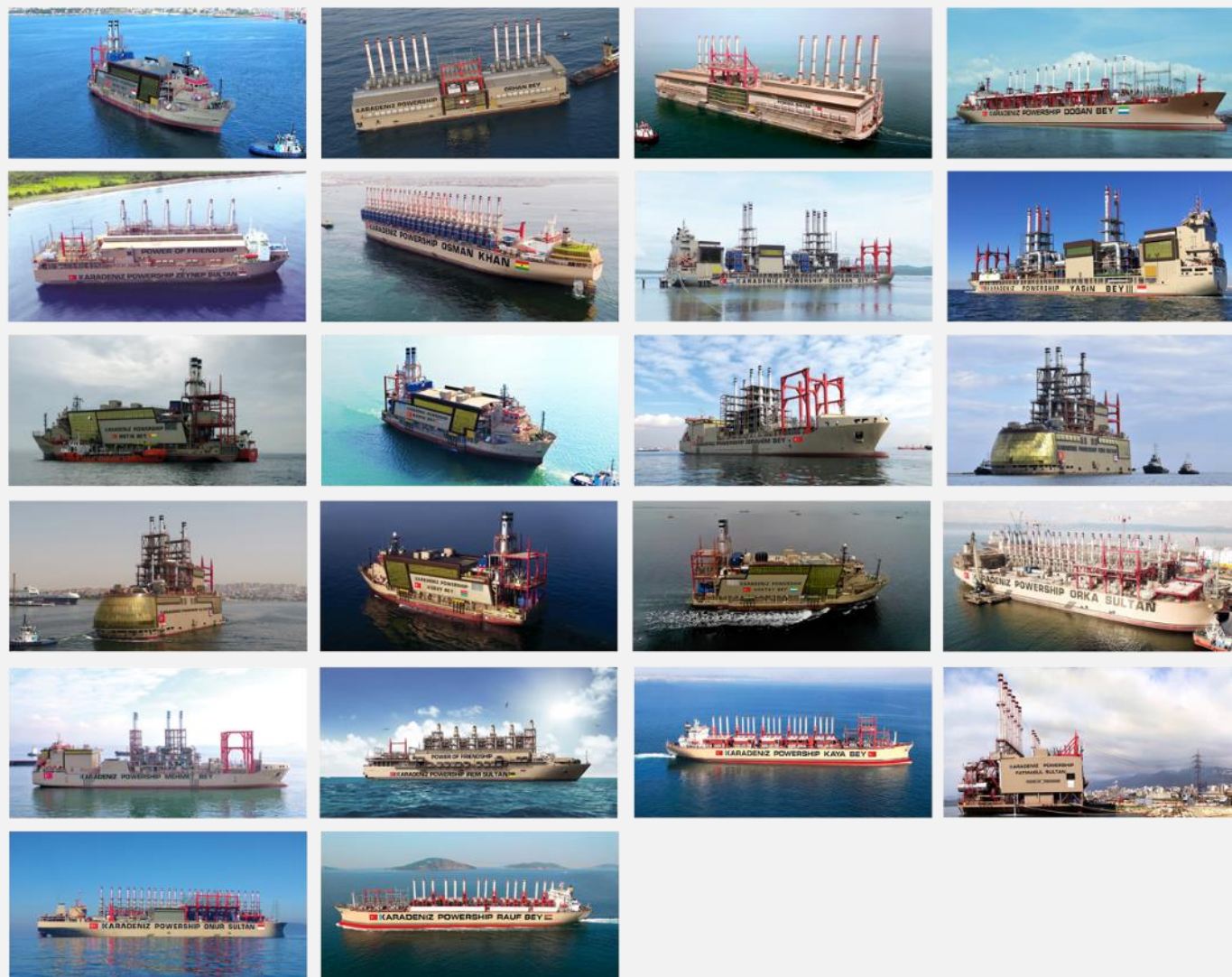
Regasify LNG on FSRU

Generate electricity on Powership

Off-taker
Provide electricity to households

What is Powership?

- A Powership is a **floating power plant**, either self propelled or barge mounted
- **Karpowership owns and operates the world's only floating power plant fleet**
- Powerships can operate on both **Natural Gas/LNG and Heavy Fuel Oil**
- Powerships deliver the **most competitive** all-in cost of electricity
- Powerships can be **delivered in 3 – 6 months** ready to generate electricity
- **20 completed Powerships** with an **installed capacity exceeding 3,100 MW**, operating across Middle East, Asia, Africa, the Caribbean and the Mediterranean



LNG to Powership solution provider

LNG Transporter / FSRU Provider



MOL FSRU Challenger(World biggest FSRU) STS operation

Powership Owner/ Builder/ Operator

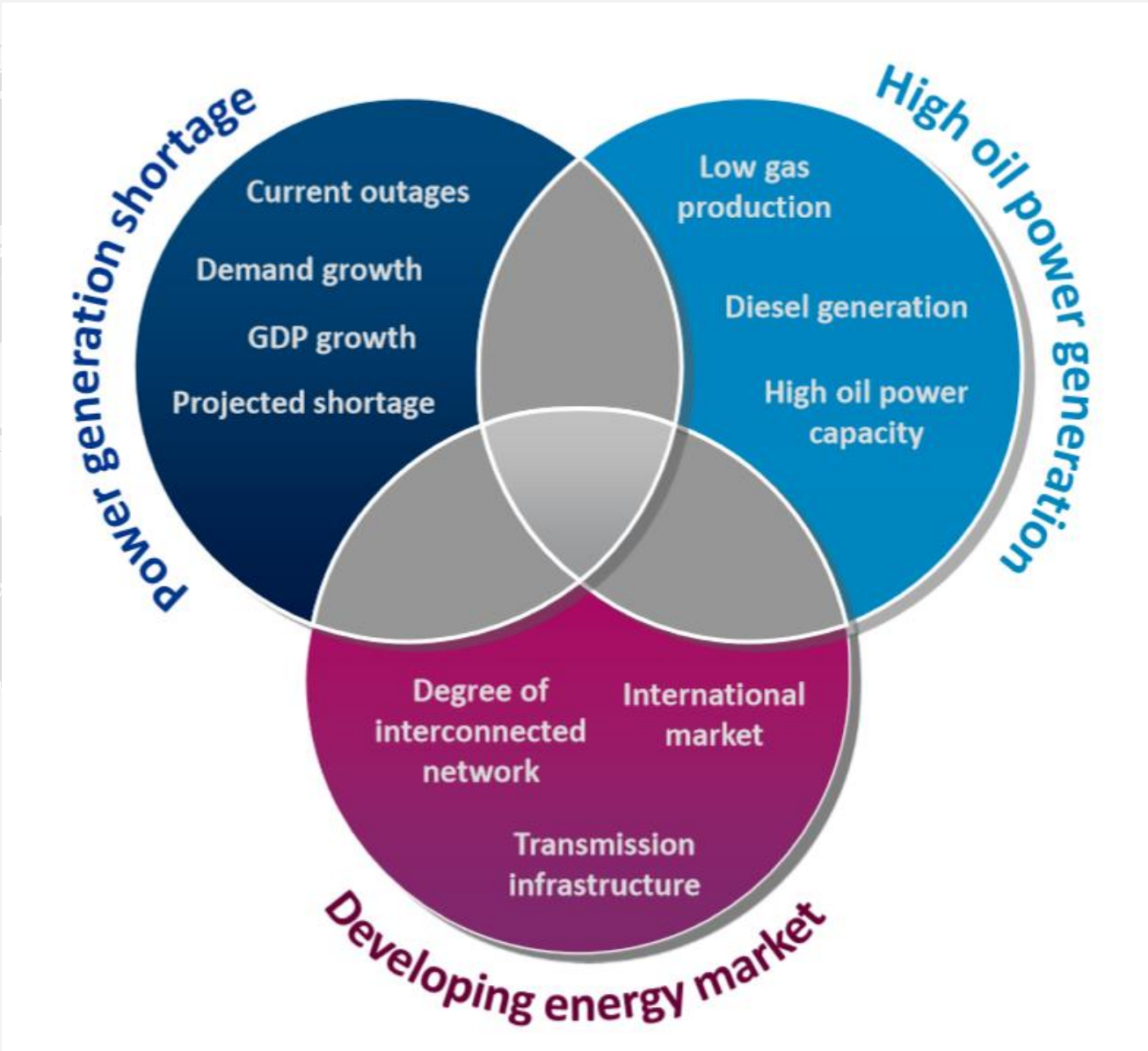


Karpowership's Onur Sultan operating in Indonesia

MOL and Karadeniz set up joint venture named "Karmol" and cooperate with LNG to Powership Business activity



LNG to Powership Opportunity



LNG to Powership - Strengths

FAST TRACK

- To be delivered in 3 – 6 months ready to generate electricity
- Faster to get Authority permissions than onshore facility
- Supplying LNG based power to locations not served by permanent LNG infrastructure

ON DEMAND

- Maximized Flexibility on electricity supply
- depending on demand (time, location, duration, output)
- Phased approach HFO to LNG
- Turn-key solution

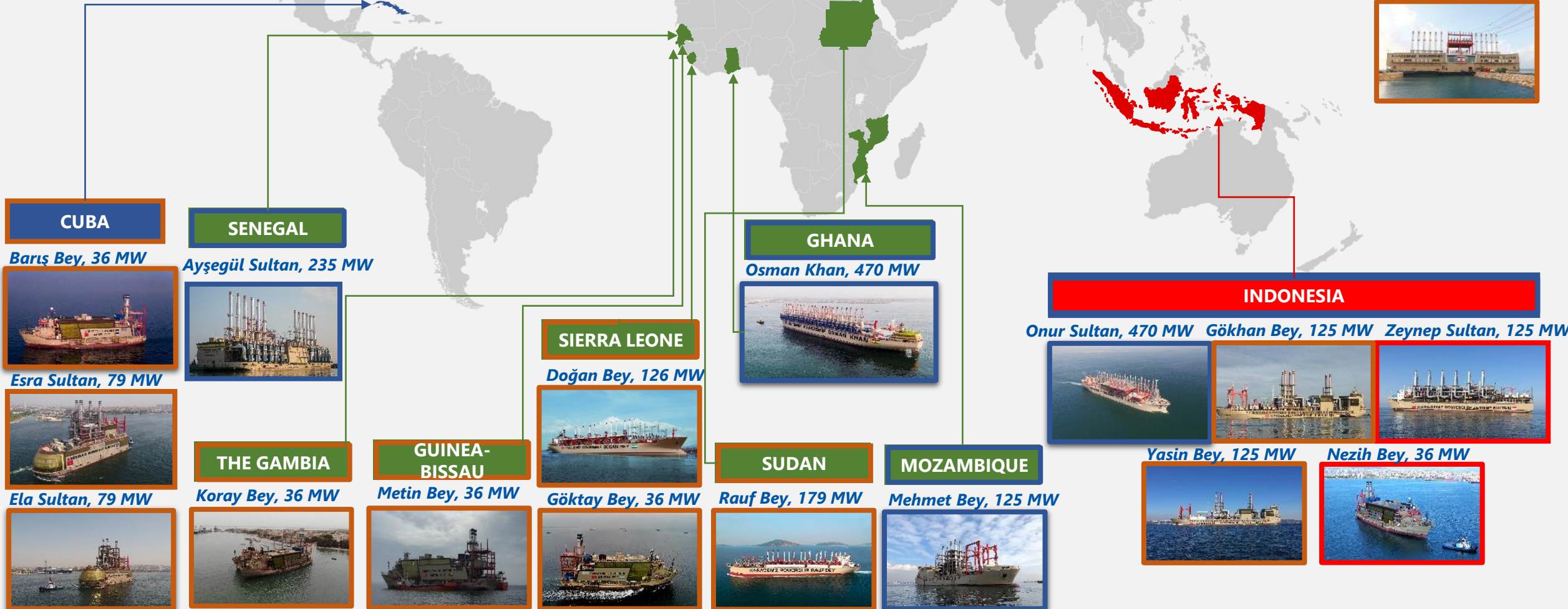
COST EFFICIENT

- Improvement of carbon foot print
- Leaner & Greener
- No Capital Investment
- Bridge solution
- To identify the effect
- Until land based power plant establishment

Karpowership Business



Gas migration completed
Gas migration in progress
Gas migration planning



FSRU Construction



General View



General View



General View From Port-Regas Unit



General View from Port side



DF Module general view Port side



DF Module General View-Stbd

FSRU Construction



From Jetty Port Side View



SB Aft Side View



General View of Double Bunking



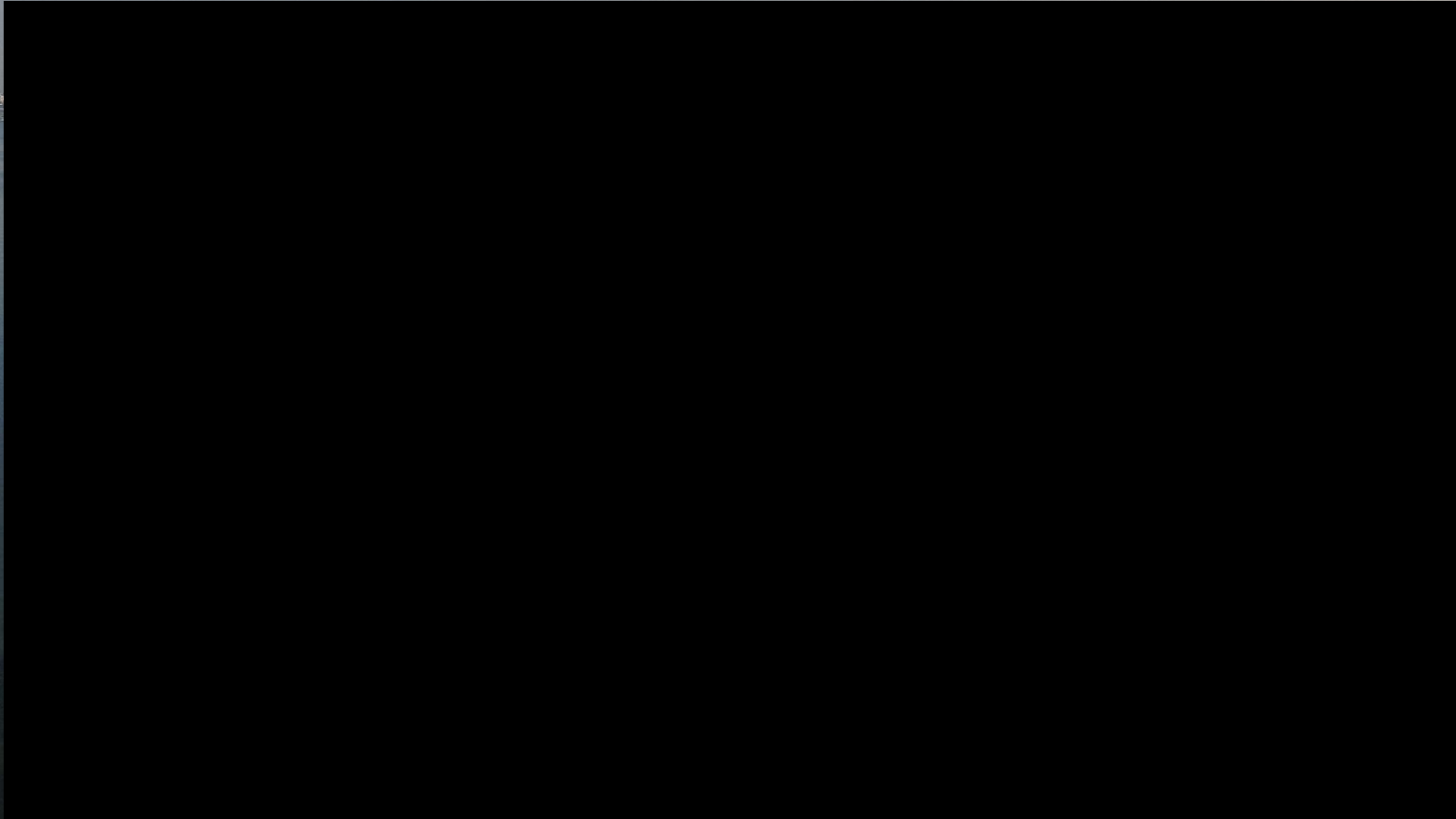
Team Photo



Monthly Safety Meeting



Monthly Safety Meeting

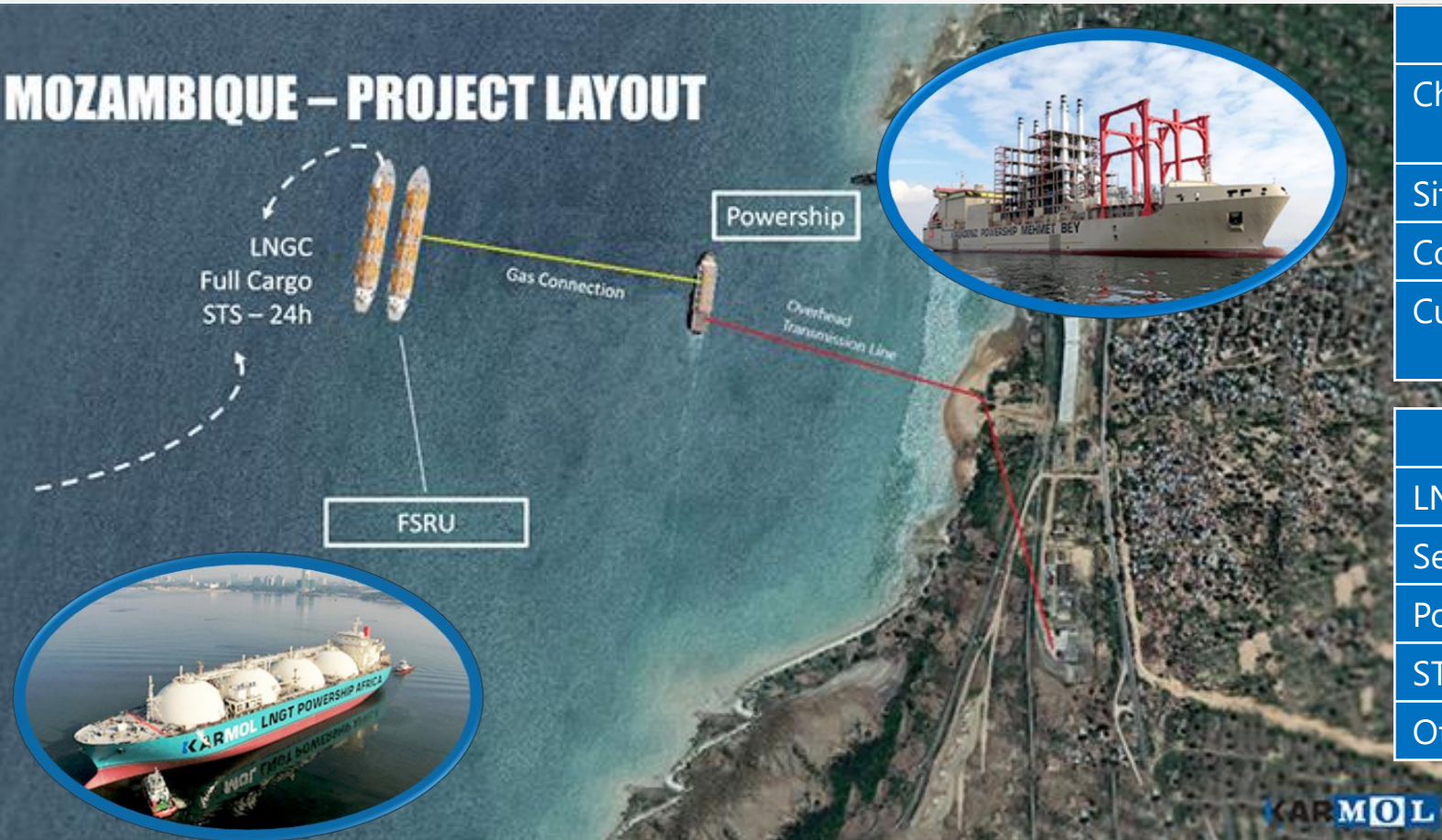


FSRU under Conversion

Project Sample -Mozambique Project-

The first LNG-to-Powership® solution and FSRU project in Eastern and Southern Africa will be based in Nacala, Mozambique. The project contributes to the national strategy of Mozambique to generate electricity for industrial development and energy access. **MOL and Karpower with jointly own and operate the FSRU and Powership®.**

MOZAMBIQUE – PROJECT LAYOUT



Project Summary

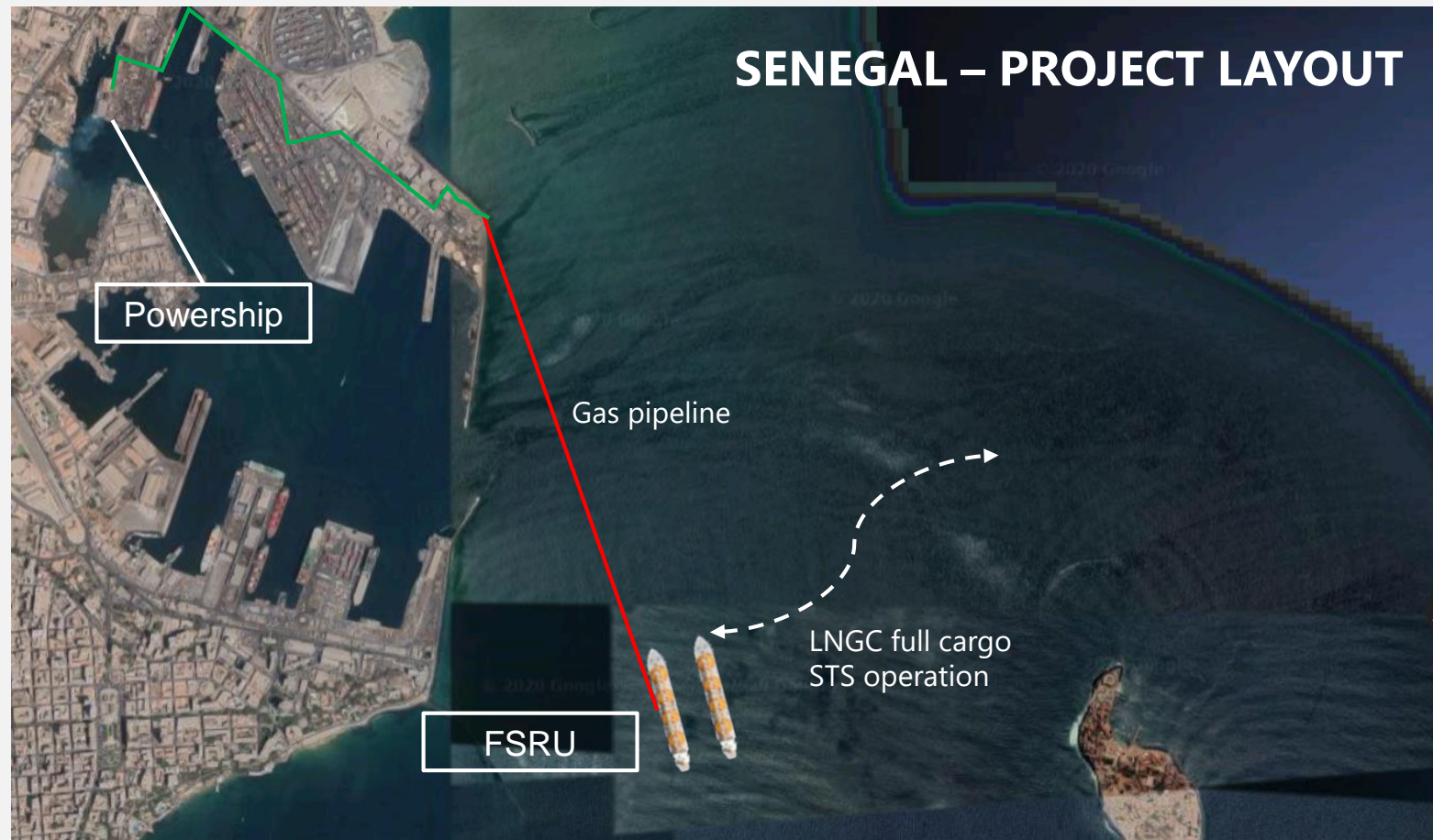
Charterer	Electricidade de Moçambique ("EDM")
Site	Nacala, Mozambique
Contract Period	Long Term
Current Status	- Powership in service by HFO - FSRU under conversion

FSRU / Powership / Operation information

LNG Storage	125,000 m3 (Moss Type)
Send out rate	Max 84 (21*4) mmscfd
Power Capacity	Max 125MW
STS operation	3-4 times per year
Others	Around 700m subsea pipeline

Project Sample -Senegal Project-

Senegal is our second project location as KARMOL LNG-to-Powership solution. The project contributes to the national strategy of Mozambique to generate electricity for industrial development and energy access.



Project Summary	
Charterer	Senelec
Site	Dakar, Senegal
Contract Period	Mid term (with option)
Current Status	- Powership in service by HFO - FSRU under conversion

FSRU / Powership / Operation information	
LNG Storage	125,000 m3 (Moss Type)
Send out rate	Max 84 (21*4) mmscfd
Power Capacity	Max 225MW
STS operation	5-8 times per year



Thank You

Contact :

York Ishibe : York.ishibe@Molgroup.net

Azusa Nakajima : azusa.Nakajima@Molgroup.net

Hyung Jo Kim : hyungjo.kim@Molgroup.net