



## EXMAR's Floating Liquefaction Solutions

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# Agenda



1 Exmar at a glance

2 Tango FLNG Terminal

3 Exmar's future FLNGs

4 Conclusions

# 1. EXMAR at a glance

- Provider of marine logistic solutions within the global oil and gas industry, listed on the Euronext Stock Exchange, Brussels
- From Shipbuilder (founded 1829) to Shipowner & Energy Infrastructure Solution Provider
- Pioneer with distinguished track record and a fleet of + 35 assets
- Fully integrated: successful and innovative asset management with EXMAR Shipmanagement





# 1.1 EXMAR is a diversified shipping & infrastructure provider

Leading provider of marine logistic solutions within the global oil and gas industry

	LPG / NH <sub>3</sub>	LNG	Offshore
Assets			
Achievements	<ul style="list-style-type: none"> <li>World Leader in Midsize LPGC's</li> <li>6<sup>th</sup> generation design for LPGC midsize</li> <li>2 VLGCs LPG-fuelled on order</li> <li>Ships from 3,500 up to 86,000 m<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>Pioneer in FSRU (2005)</li> <li>Pioneer in STS Transfer (2006)</li> <li>Pioneer in FLNG (2016)</li> <li>World leader of FSRU operations</li> </ul>	<ul style="list-style-type: none"> <li>FPSO's</li> <li>OPTI™, flexible and cost-effective proven hull design</li> <li>Innovative patented mooring solutions</li> </ul>
EBITDA by segment (2018)			
Customers			



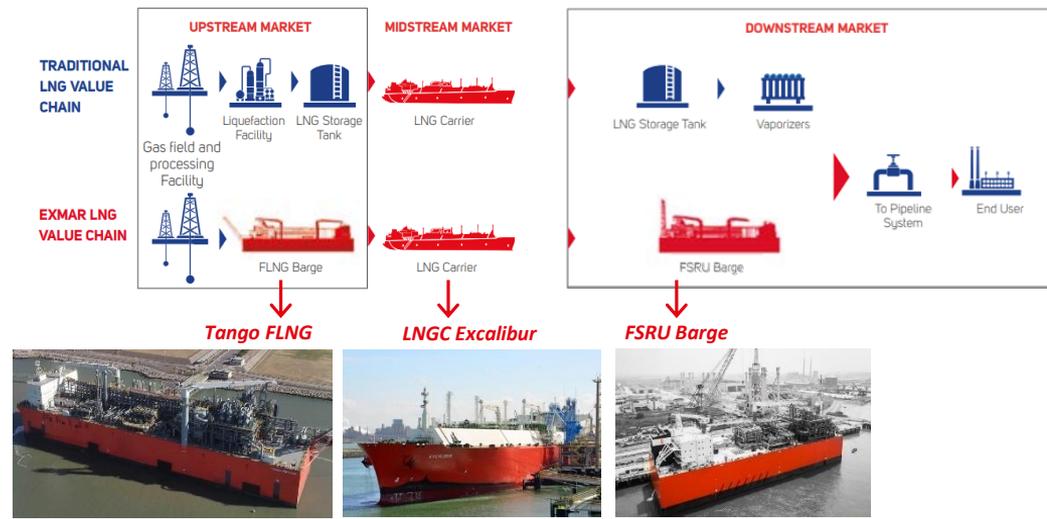
# 1.1 EXMAR is a diversified shipping & infrastructure provider

## LNG Shipping & LNG Infrastructure

### EXMAR LNG value chain and business approach

- Pioneered FSRUs, Ship-to-Ship and FLNG.
- Exmar built, owned and operated 9 FSRUs in the past 15 years. Largest independent operator of FSRUs in the world.
- Only independent FLNG owner providing newbuilding FLNGs.

**Diversified & committed  
LNG asset portfolio**



### Contract coverage

Vessels	Built	Share	Charterer	2019	2020	2021	>>	2029
Tango FLNG	2017	100%	YPF	>>				
FSRU Barge	2017	100%	GUNVOR	>>				
LNGC Excalibur	2002	50%	excelerate energy	>>				



# 1.2 Evolution of EXMAR: Milestones

From Shipbuilder to Shipowner to LNG Infrastructure Solution Provider

**1829**

Boel Shipyard close to Antwerp



**2002**

Delivery of 138,000 m<sup>3</sup> LNGC "Excalibur"



**2005**

Delivery of first FSRU "Excelsior"



**2011**

Delivery of FPO "OPTI-EX" LLOG USA



**2019**

Tango FLNG deployed in Argentina for a 10-year agreement to produce and export LNG



*History demonstrates EXMAR's ability to deliver innovations to the energy supply chain*

**1978**

Construction of 130,000 m<sup>3</sup> LNGC "Methania"



**2003**

Delivery of FPSO "Farwah" Total Libya



**2006**

First offshore LNG STS transfer solution



**2016**

Commissioning of world's first FLNG terminal at shipyard



**2017**

Delivery of world's first barge based FSRU under a 10-year Time Charter agreement



# 1.3

## EXMAR fleet and involvement around the world





## 2. Tango FLNG terminal

Unlocking Argentina's strategic gas resources

## 2. Tango FLNG terminal

Converting a LNG import nation into a LNG exporter

### Project info and status

- **10 year tolling agreement** with YPF SA from Argentina
- Tango FLNG valorizes the resources extracted from Vaca Muerta, world's 2<sup>nd</sup> largest shale gas deposit\*
- Yearly production of about **500,000 tons** LNG or about 6 – 8 cargoes of a conventional LNG carrier
- **Commissioning** currently ongoing
- Brings Argentina in the exclusive club of **LNG exporters**



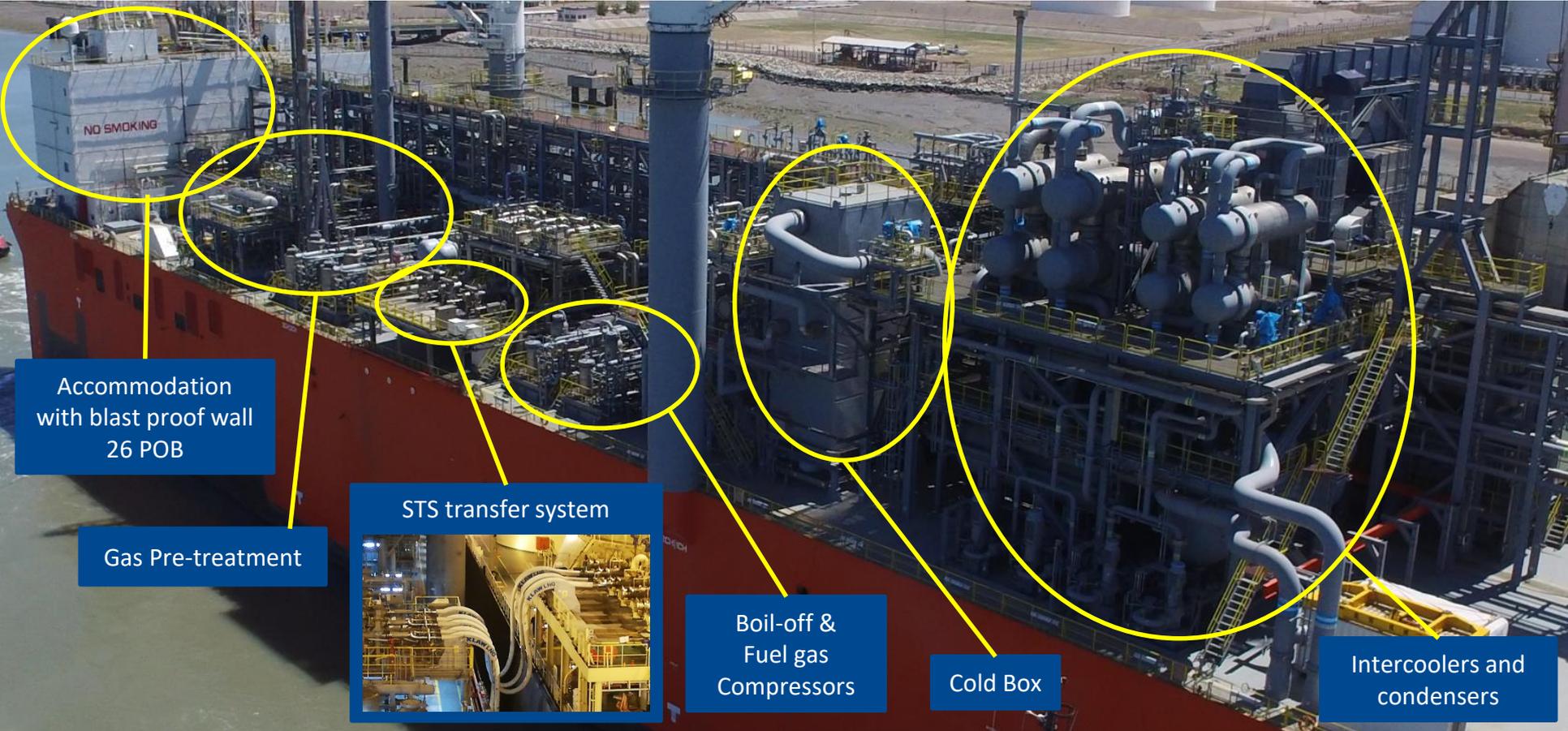
\*source EIA

## 2. Tango FLNG – A world record from LNG Import to Export

Project Implementation in 6 months, less than 10 months after project initial discussions



## 2. Outline - 0.5 MTPA with SMR Liquefaction technology



Accommodation with blast proof wall  
26 POB

Gas Pre-treatment

STS transfer system

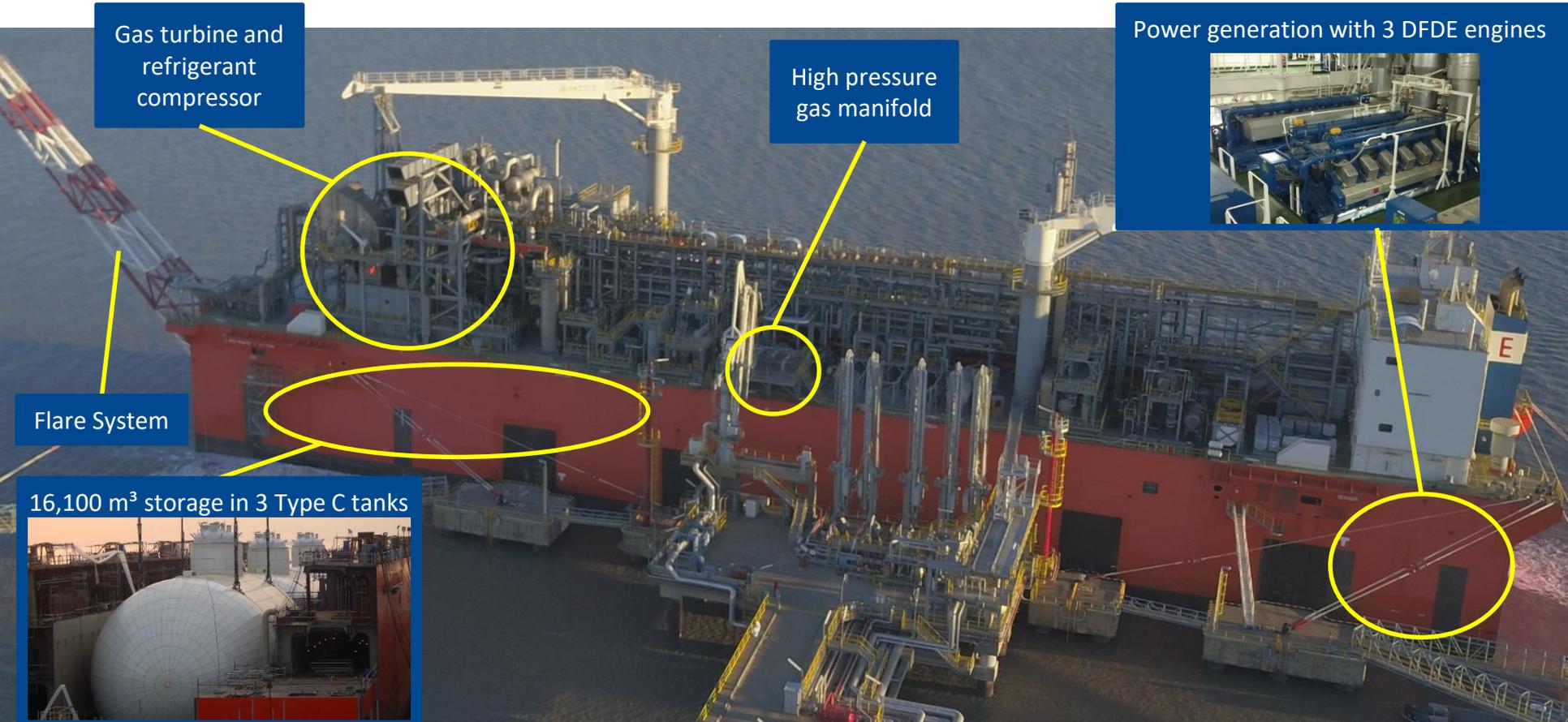


Boil-off & Fuel gas Compressors

Cold Box

Intercoolers and condensers

## 2. Outline - 0.5 MTPA with SMR Liquefaction technology



Gas turbine and refrigerant compressor

High pressure gas manifold

Power generation with 3 DFDE engines



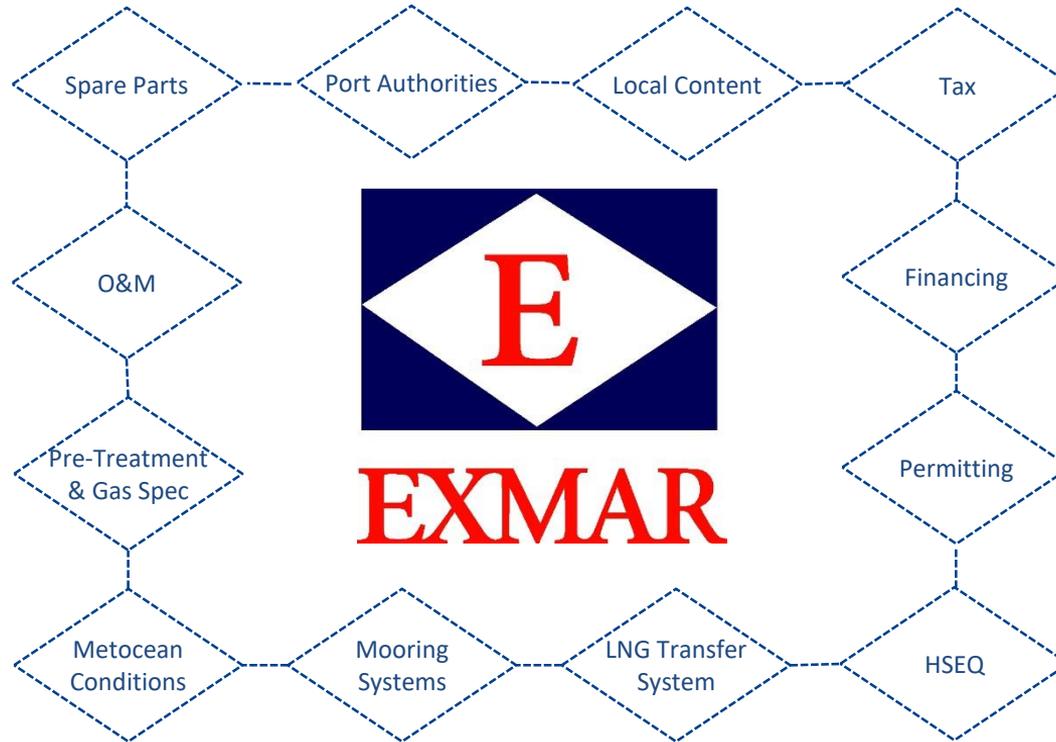
Flare System

16,100 m<sup>3</sup> storage in 3 Type C tanks



## 2. Tango FLNG terminal: One Stop Shop Solution

EXMAR & YPF, connecting the dots for the LNG export project





### 3. EXMAR's future FLNGs

Standardization of FLNG solution

### 3. EXMAR FLNG Developments

EXMAR's unique position on the FLNG market

#### FLNG Market Outlook

- The **need for natural gas, and especially LNG** keeps on growing with the growing energy demand
- The vast amount of remote, stranded gas reserves nearshore and offshore continues to drive the **momentum for small to medium scale FLNG**,
- The market requirement for a **quick gas to market solution, in about 3 years**
- **Easier funding** for small to medium FLNG projects

#### FLNG project costs in USD/ton LNG\*

- EXMAR is uniquely position as it is the only independent infrastructure provider with **FLNG newbuilding experience**
- EXMAR can leverage its **FLNG track record**:
  - Having commissioned its FLNG at yard and currently on site in 2019
  - Analysing several FLNG projects during the past years
- Several **FLNG leads under development**

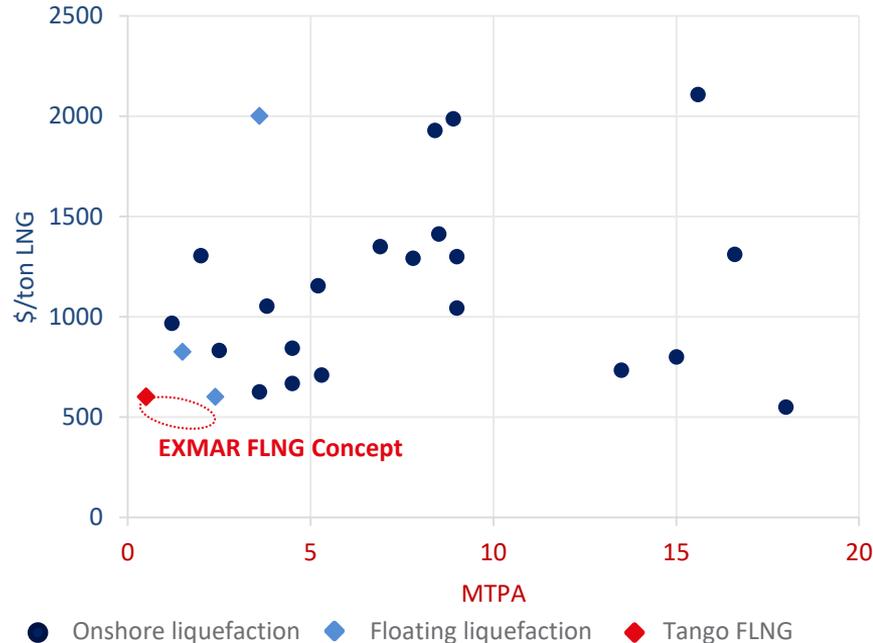


**EXMAR has developed various cost efficient and fast track FLNG solutions**

### 3. Advantages of EXMAR FLNG Concept

#### Floating LNG, a Cost Competitive and Proven Solution

FLNG project costs in USD/ton LNG\*



Advantages EXMAR's FLNG concept

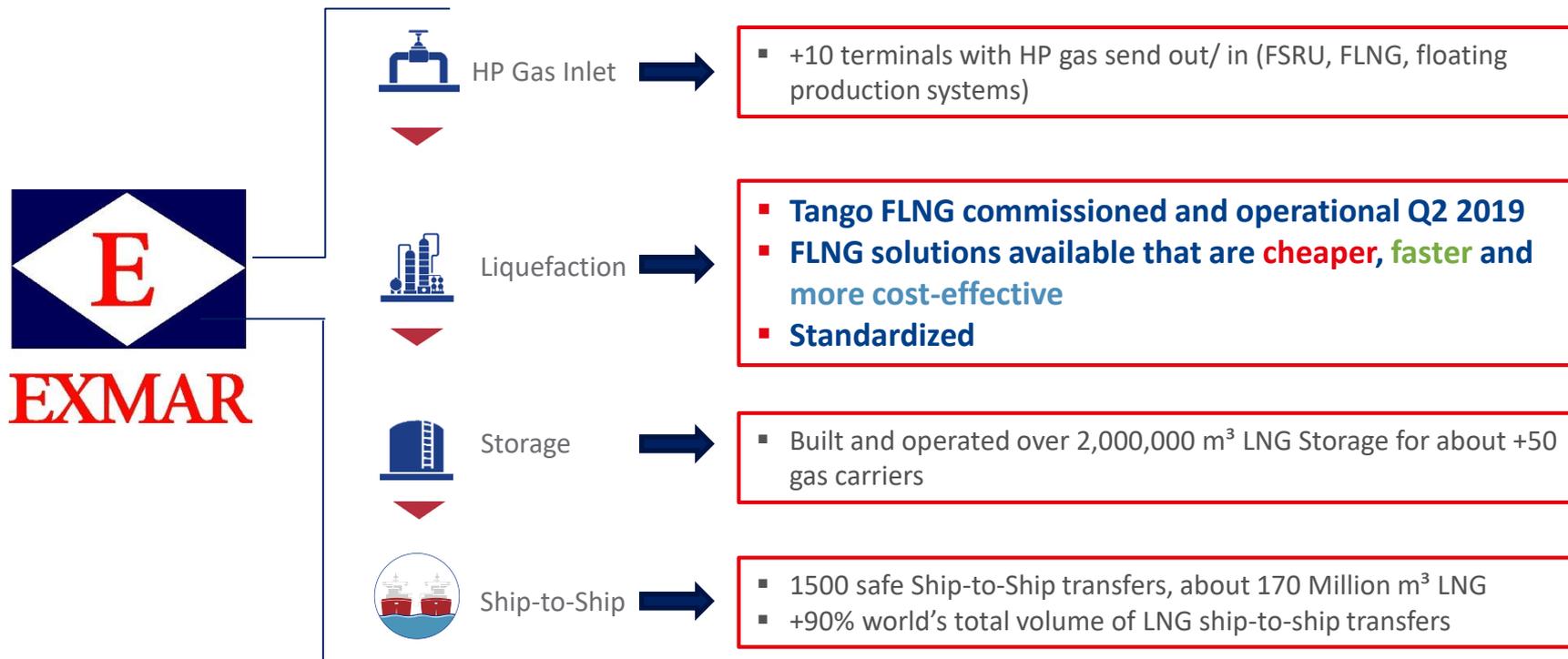
- Low USD/ton cost, FLNG nearshore is competitive
- Risk based approach resulting in a **lean and mean** solution
- Standardization of codes and regulations in order to obtain a **design adaptable** for small to medium scale FLNG
- Re-deployable and Low execution risk
- Broad in-house expertise ranging from Design engineering to O&M
- Proven solution/Guaranteed performance

\*source Oxford University for energy studies

## 4.

## Conclusions

Perfectly geared for future FLNG developments





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