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WILLIAMS

# COMMERCIAL CONTRACTS FOR THE OVERALL VALUE CHAIN

## DESIGN, CONSTRUCTION, INSTALLATION AND COMMISSIONING ISSUES

### FLNG GLOBAL CONFERENCE

AMSTERDAM, 8 MAY 2017



Image courtesy of Royal Dutch Shell

# LNG VALUE CHAIN

## ONSHORE FACILITIES



## OFFSHORE FACILITIES



# CURRENT FLNG PROJECTS

Project	Location	Operator	Contractor	(Sub) Contractor
PFLNG Satu	Kanowit Field, Sarawak, Malaysia	Petronas	Technip/DSME	—
Prelude	Timor Sea, Australia	Shell	Technip/Samsung	—
PFLNG2	Rotan Field, Sabah, Malaysia	Petronas	JGC/Samsung	—
Coral FLNG	Rovuma Basin, Mozambique	Eni	TBA	—
Congo FLNG	Congo-Brazzaville	New Age/Eni	[SBM/JGC]	—
Caribbean FLNG	TBA	TBA	Exmar	Wison/B&V
Kribi	Cameroon	Perenco/SNH	Golar	Keppel/B&V
Fortuna	Equatorial Guinea	Ophir Energy	One LNG	Keppel/B&V

# DESIGN and FUNCTIONALITY

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## FLNG



## FSRU



# FRONT END ENGINEERING DESIGN (FEED)

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- Fundamental Design Elements:

- Floating
- Production
- Storage
- Offloading

- FEED also integrates:

- Gas and liquid specification
- Reservoir characteristics
- Mooring location factor
- Metocean condition

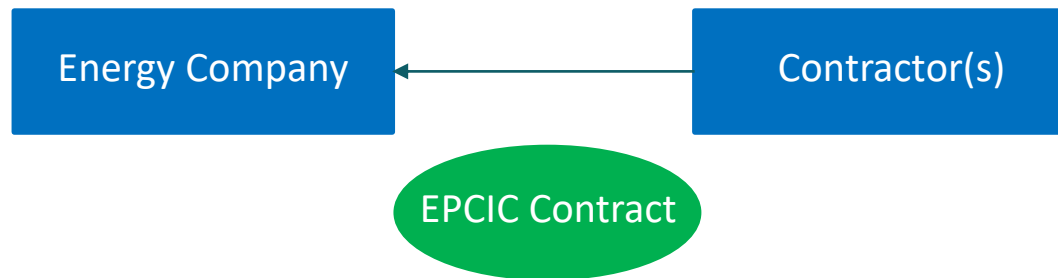
## Purpose of FEED:

To establish whether technologically gas can be delivered, processed, liquefied, stored and offloaded within prescribed design parameters which are economically acceptable in terms of the unit's construction and subsequent operation.

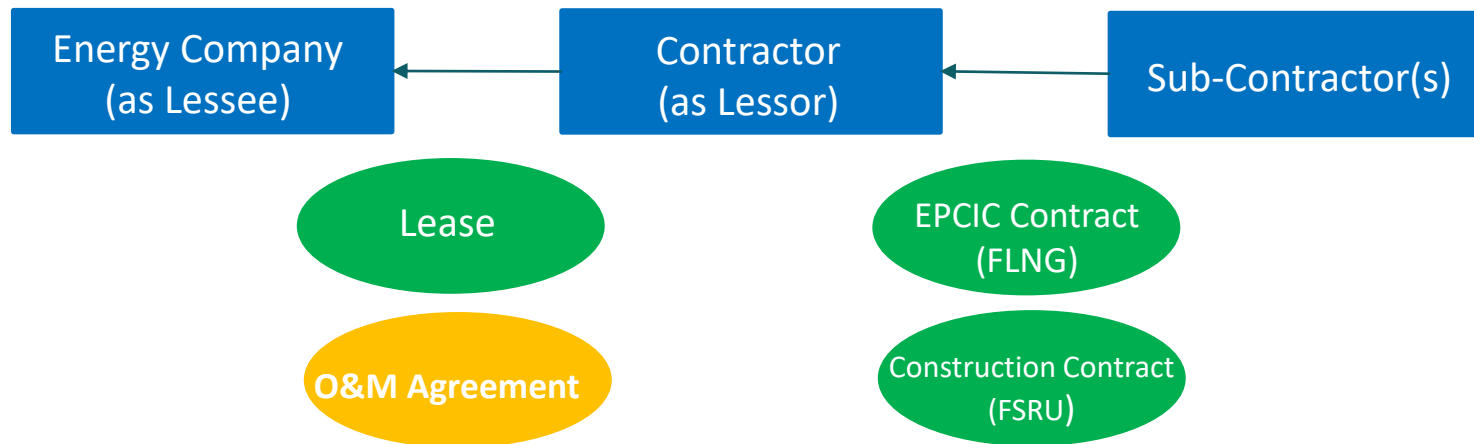
# EPCIC CONTRACT / LEASE

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EPCIC:



LEASE:



# EPCIC CONTRACTS

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## FSRU:

- Generally based on a standard shipbuilding contract with additional provisions for testing of regasification performance

## FLNG:

- Bespoke, with Contractor designing, engineering and constructing the unit against a “functional” scope of work
- “Wrapped” approach where hull construction and topsides contractors are jointly and severally liable

# CONSTRUCTION PHASE

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- Sub-contacting
- Variation Orders
- Supervision Rights
- Transfer of Title/Risk
- Step-in Rights
- Testing and Inspection
- Liability and Indemnity Regime





# INSTALLATION / COMMISSIONING (FSRU)

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- Delivery of FSRU (transfer of title) takes place at shipyard
- Regasification performance may not have been tested prior to delivery.
- Acceptance under Charter/Lease:
  - FSRU to have been physically delivered at Site
  - FSRU to have successfully completed performance testing, capable of regasifying LNG and sending out designated quantity of regasified LNG



# DELAYED / DEFICIENT PERFORMANCE (FSRU)

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- Owner's rights against shipyard for delay and/or deficient performance
  - Liquidated damages for:
    - Delay in completion of work
    - Failure to meet performance/requirement
- Rectification by shipyard of deficient (regas) performance
- Termination of Contract and redelivery of FSRU?

# INSTALLATION / COMMISSIONING (FLNG)

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## Ready for Sailaway:

All aspects of work have been performed to the extent they can be completed at yard and all systems successfully tested

## Ready for Start-up/Production:

Unit is permanently installed, ready to receive hydrocarbons and all systems have been tested, inspected and (where possible) commissioned

## Commencement of Production / Final Completion:

Unit has been commissioned, tested and able to perform in accordance with Contract terms

# DELAYED / DEFICIENT PERFORMANCE (FLNG)

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- Buyer's rights against Contractor for delay and/or deficient performance:
  - Liquidated damages
- Termination of Lease
  - No title has been transferred to Lessee
  - Lessee's claim for damages against Lessor
- Termination of EPCIC Contract
  - Title remains with Buyer
  - Buyer's claim for damages against Contractor
  - Right to transfer back title against repayment of contract payments?



# CONTRACTOR INTERFACE

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- Inter-relationship between Contractors critical for project success:
  - Hull/Topsides Contractor(s)
  - Subsea Contractor(s)
  - Infrastructure
- Deemed Acceptance:
  - Contractor fulfilled all of its obligations to achieve Commencement of Production / Final Completion, but conditions required have not been met for reasons outside of Contractor's control.

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