



progetti

# How floaters are still enabling project developments

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# Introduction



Goliat (Norway)



Jangkrik (Indonesia)

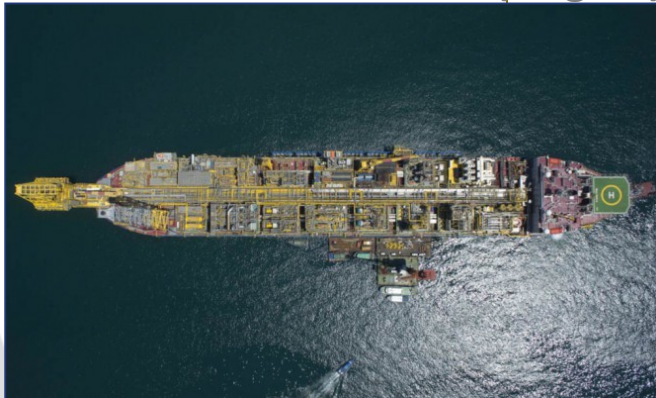
2014

2015

2016

2017

Block 15/06 – West Hub (Angola)



Block 15/06 – East Hub (Angola)



OCTP (Ghana)



# Angola – Block 15/06 – West Hub



Name	N'Goma
Year Built - Size	1974 - VLCC
Year Conversion	2015
L [m]	366
B [m]	52
D [m]	26
Storage (bbls)	1,500,000
Oil Treatment Capacity (bopd)	110,000
Gas Production (MMSCFD)	115
Mooring Type	External Turret
Water Depth [m]	1250
Number of Mooring Lines	9
Line Configuration	Bottom Chain – Wire - Top Chain
Anchor System	Suction Piles
Anchor Dimensions	L = 18.4 m ; D = 4 m



# Norway – PL229/229B Goliat FPSO



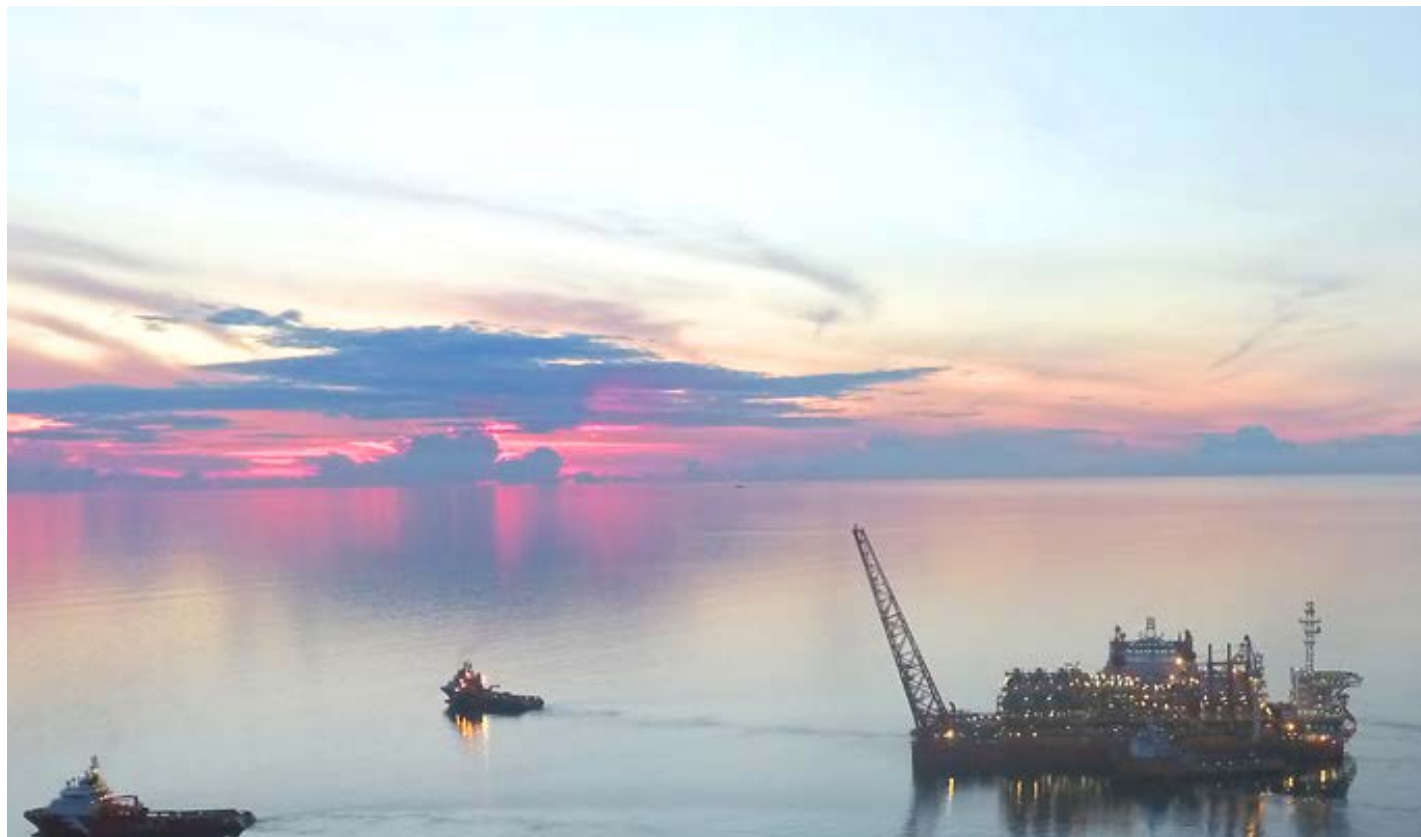
Name	Goliat
Year Built - Size	2015
Year Conversion	New Built
L [m]	107
B [m]	107
D [m]	44
Storage (bbls)	1,000,000
Oil Treatment Capacity (bopd)	100.000
Gas Production [MMSCFD]	138
Mooring Type	Spread Mooring
Water Depth [m]	350
Number of Mooring Lines	14
Line Configuration	Bottom Chain – Polyester Rope – Top Chain
Anchor System	Suction Pile
Anchor Dimensions	L = 15.5 m ; D = 7 m

# Angola – Block 15/06 – East Hub



Name	Armada Olombendo FPSO
Year Built - Size	1999 – VLCC
Year Conversion	2016
L [m]	382
B [m]	58
D [m]	32
Storage (bbls)	1,700,000
Oil Treatment Capacity (bopd)	80,000
Gas Production (MMSCFD)	120
Mooring Type	External Turret
Water Depth [m]	450
Number of Mooring Lines	9
Line Configuration	Bottom Chain – Wire Rope – Top Chain
Anchor System	Suction Piles
Anchor Dimensions	L = 11.5 m ; D = 6.5 m

# Indonesia - Muara Bakau Block - Jangkrik



Name	Jangkrik FPU
Year Built - Size	2015
Year Conversion	Newbuilt
L [m]	200
B [m]	46
D [m]	15.3
Condensate Storage [m <sup>3</sup> ]	7,000
Condensate Treatment Capacity [SBPD]	4,100
Gas Production [MMSCFD]	650
Mooring Type	Spread Mooring
Water Depth [m]	100
Number of Mooring Lines	12
Line Configuration	Chain
Anchor System	Driven Anchor Piles
Anchor Dimensions	L = 43 m ; D = 2.1 m



# Ghana – OCTP Block



Name	John Agyekum Kufuor FPSO
Year Built - Size	1989 - VLCC
Year Conversion	2017
L [m]	333 m
B [m]	58 m
D [m]	31 m
Storage (bbls)	1,750,00
Oil Treatment Capacity (bopd)	58,000
Gas Production (MMSCFD)	210
Mooring Type	Spread Mooring
Water Depth [m]	1000
Number of Mooring Lines	12
Line Configuration	Bottom Chain – Polyester Rope – Top Chain
Anchor System	Suction Pile
Anchor Dimensions	L = 20 m ; D = 6 m

# Legacy of Recent Project...



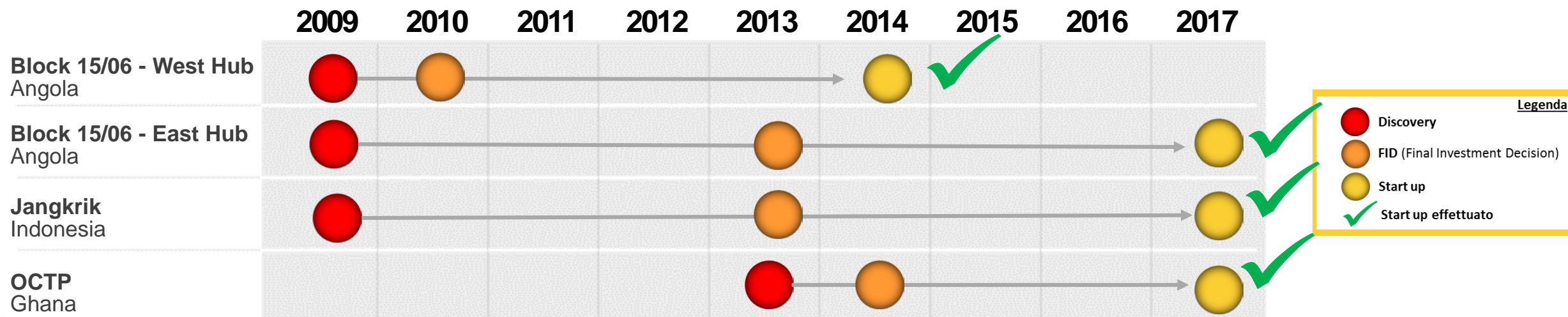
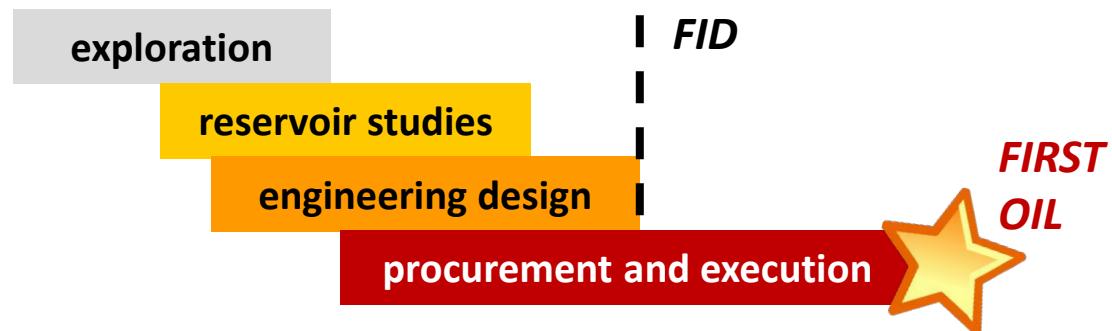
Name	West Hub	Goliat	East Hub	Jangkrik	OCTP
Type	Relocation	New-built	New conversion	New-built	New conversion
Ownership and operation	SBM Offshore	ENI	Bumi Armada Berhad	ENI	Yinson Holdings Berhad
Time to Market			✓	✓	✓ ✓
Local Content	✓		✓	✓ ✓	
Development Approach	Phased approach		Phased approach		Phased approach
Topside Modules Type	Independent Modules	Integrated in Sevan hull concept type	Independent Modules	Biggest Integrated Module (14300 t)	Independent Modules
Mooring	Turret	Spread	Turret	Spread	Spread
Gas Export System	N/A	Sealine to shore	N/A	Sealine to shore	Sealine to shore
Environment	Benign	Harsh	Benign	Benign	Benign
Water Depth [m]	1250	350	450	100	950



# Legacy of Recent Project...



## Eni phased / fast track project schedule



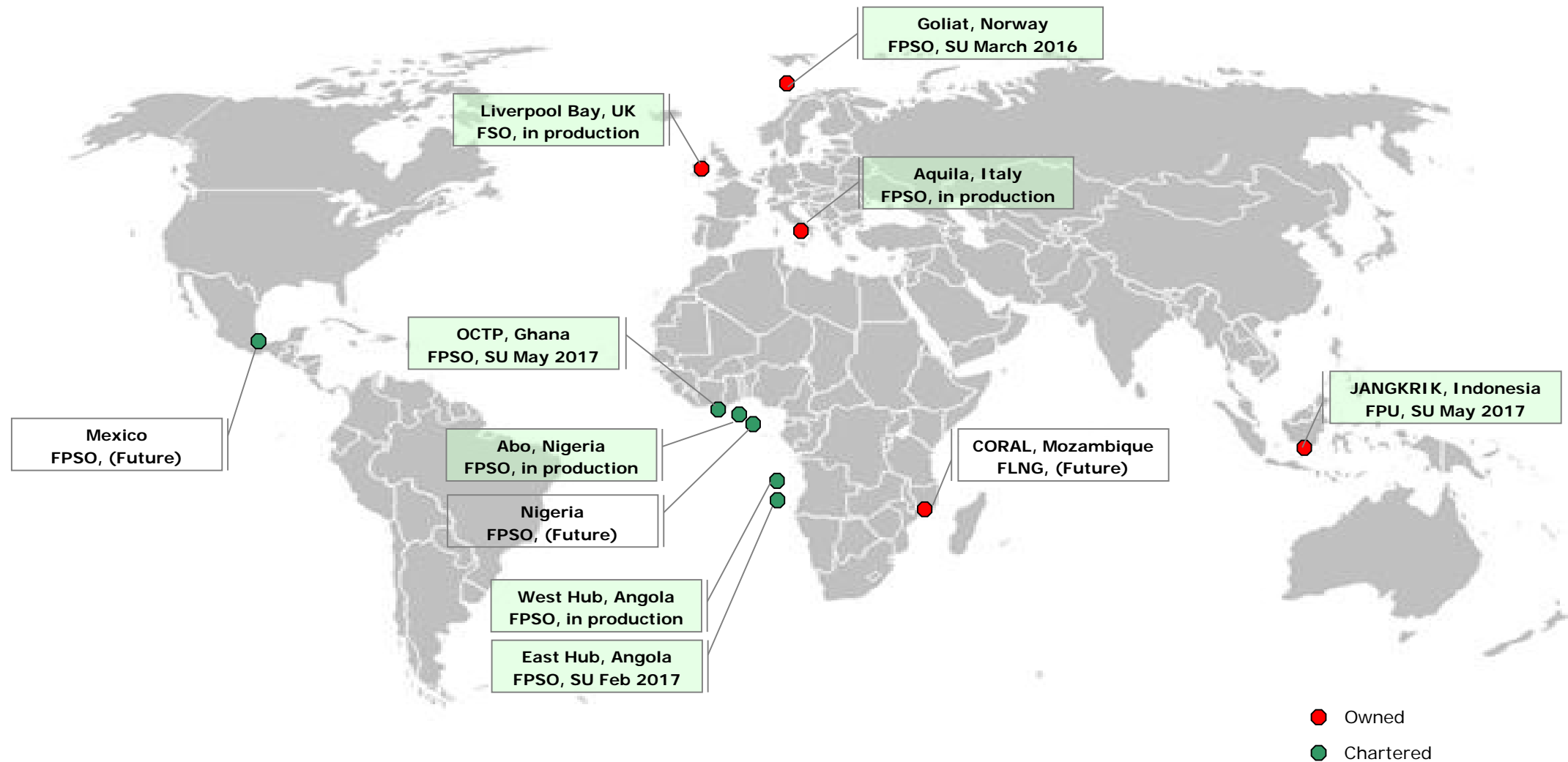
- *There is not a unique floating solution for project development*
  
- *Floater offer great flexibility to exploit opportunities:*
  - *Applicable in a wide range of water depths (even where fixed platform are still feasible)*
  - *Relocation / Marginal fields*
  - *Various contractual strategies (leased/owned)*
  - *Storage and Offloading Capabilities*
  - *Huge topside payload capacity*
  - *Decommissioning costs*
  - *Reduction of Onshore infrastructures*
  - *Topside facilities flexible configuration*

## ...to Enable Future Opportunities

- *Floating LNG*
- *Expanding the envelope:*
  - *FPSO in very shallow water (< 40 m)*
  - *Disconnectable for adverse weather conditions*
  - *FPSO in ultra deep water (> 2000 m)*
  - *Higher oil processing capabilities (150000 bopd)*
- *Other Floater solutions (R&D Phase) for gas valorization*



# Eni Fleet (Owned & Chartered Floaters) – In Production and Future







**MCEDD**  
DEEPWATER DEVELOPMENT

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# Thank You