What happened in 2016?

Current Status

Idle Assets / Redeployment

Industry Sentiment

2017-2021 Forecast
FPS Awards 1997-2016: Turning the Corner in 2016

- FPSO Orders at historic low
  - (3 units awarded vs 4 last year)
- 10 LNG-related units ordered
  - (7 FSRUs + 3 LNG FSOs)
- 1 Semi ordered
- No TLP or SPAR Orders in 3 years

[Graph showing FPS Systems Awarded from 1997-2016, excluding MOPEs, FSUs, and FSO (LNG); Production Barges included in FPSO count]

- No orders in Q4 2015 and Q1 2016
- Orders resume in Q2 with Spec FSRUs
- 7 FPS Awards in Q4 2016:
  - 3 FPSOs (Liza, Ophir, Dussafu Ruche)
  - 3 FSRUs (Speculative)
  - 1 Production Semi (Mad Dog 2)

Cost Indexes > Oil Price Index from Q2 ‘15 – Q3 ‘16
- No FPSO orders in this period

Costs and Oil prices starting to rebalance:
- Rising oil prices
- Reduced development costs
  - Some structural (increased efficiency)
  - Some cyclical (low rates, especially drilling)
Current Status: 278 FPS & 102 FSO In Operation + 51 Available

- 166 FPSOs (60%)
- 36 Semis (13%)
- 26 TLPs (9%)
- 20 FSRUs (7%)
- 20 SPARs (7%)
- 9 Barges (3%)
- 1 FLNG (1%)
- 102 FSOs
- 51 Available Units

Notes:
1. GOM’s 9 FPSOs include 2 oil spill response and 4 well test units
2. Units out of service/under repair not shown:
   - Brazil - Cidade de Sao Mateus FPSO
   - GOM - Big Foot TLP, Ta’Kuntah FSO
   - North Sea - Njord A SEMI, Njord Bravo FSO
   - Southeast Asia - Cilacap 104 FSO
Current Status: **51 Units Available**

### 51 Units Laid-Up
- 25 FPSOs
- 10 Semis
- 8 FSOs
- 6 MOPUs
- 1 FLNG
- 1 Spar

- At least half will be scrapped
- 11 units are most likely for redeployment
  - Built to high specs
  - Remaining design life

### Time Idle:
- 1 Year: 27 Units
- 2 Years: 6 Units
- 3 Years: 4 Units
- 4+ Years: 14 Units

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Unlike Rigs and OSVs, production units are bespoke assets, designed for a specific location

Only ~15% of FPS units have been used in more than one location

Technical

- Design Life
- Environmental Conditions – Mooring System
- Processing Quantity & Quality (Oil, Gas, Water)
- Reservoir requirements (Water and/or Gas Injection)

Regulatory

- Age Restrictions
- Single Hull / Double Hull
- Local Content

Commercial

- FPS Owner as Field Partner (or rate adjusted by oil price and/or bbls produced)
Top FPSO Owners (Idle Assets....or Liabilities?)

- Top 21 FPSO Owners
  - 10 Oil Companies
  - 11 Leasing Companies

- Leasing Companies (change from 2016)
  - 65 units in operation (+2)
  - 7 units on order (-8)
  - 15 units available (+5)
  - 1 unit under repair (+1)

- Oil Companies (change from 2016)
  - 61 units in operation (-3)
  - 15 units on order (-1)
  - 12 on order for Petrobras (same)
  - 2 units available (same)
Industry Sentiment Survey – Increased Optimism

Dramatic change in confidence:

- 43% somewhat confident vs 21% last year
- 3% highly pessimistic vs 15% last year
Brazil and Africa continue to be most attractive offshore project regions
  - Brazil regains the top spot, with expectations of multiple FPSOs for Libra and other pre-salt developments
  - Mexico and East Africa remain in 4th and 5th position
Industry Sentiment Survey – FPS Types with the Largest Growth Potential

- FPSO regains top spot
- FLNG drops from 1st to 3rd as no new projects are sanctioned and outlook for mega-projects is dim
- Outlook for FSOs and Semis slightly increased, driven by demand for low cost solutions
- No major changes for the other categories
- No respondents believe Spars will see large growth: no Spars have been ordered in the last three years
2016 Forecast Scorecard

- Few awards in 2016 and only coming in Q3 or Q4
- Backlogs continuing to shrink as orders are delivered

😊 E&P Companies are pulling back, who will fill the void?
  - Contractors
    - More Risk, More Reward?
  - Chinese Leasing Companies – mainly LNG related
  - Private Equity (refinancing, but not new developments...yet)
  - Infrastructure Funds (AIIB, IFC, ABD) – slow...gas-to-power

✔ Survival of the fittest
  - Competition for project viability (FID)
    not Individual contract awards (Mad Dog 2, Liza, Dussafu)

*The industry will need to continue innovating in order to economically produce offshore hydrocarbons*
2017-21 Forecast – 83 – 168 Orders over next 5 years

With the early beginnings of a recovery, slight adjustments from last year’s forecast:

- Reduced number of FLNGs, particularly the Prelude-size, mega projects
- Increased number of FPSOs, FSRUs, Semis (+10% in mid-case)
- Increased redeployments (FPSOs, FSOs, FSRUs)
  - Driven by record number of available units as well as drive for low capex, cost effective, quick developments.

- FPSOs remain the largest segment
  - 40% of Orders
  - 65-70% of Capex

Brazil regains the top spot
- $25 billion to be spent mostly on FPSOs
- Africa 2nd, driven by FPSOs and FLNGs
- Australia drops due to fewer FLNGs
  - Prelude-size unlikely in the next five years

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2017-21 Forecast – FPSO Forecast by Hull type

- Majority to be leased units (~65%)
  - Continued drive to reduce Capex
- An increasing number of newbuilt FPSOs - (standardization & repeatability)
  - Close to 40%
- About 1/3rd will be converted FPSOs
  - Trend to use increasingly young hulls
- More redeployments
  - 20-25% of awards vs historical average of 15%
  - 25 FPSOs currently available, with more coming off contracts as fields are depleted
$7-20 billion for FLNG Capex
- Mostly mid-size (2.5-3.5 mtpa)
- Prelude-size only in high case
- Few new awards for smaller units until the existing speculative orders find contracts

More FSRUs expected, including conversions
- First conversion order placed in Q4 2016 (GasLog)
- Shipowners entering market
- Many available LNG carriers
- Faster delivery, except for speculative newbuilding
Questions?

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Next Report Release: Apr 2017