Subsea Market Overview

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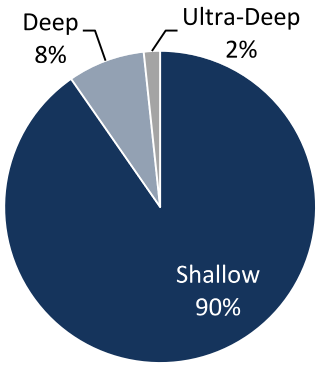
Subsea Market Drivers

Subsea Market Drivers – Going deeper

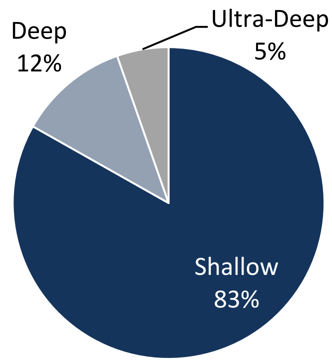
17% of the 2008-2017 fields are located in deep and ultra-deep waters

- Since 2000, important deep and ultra-deep discoveries
  - 17% of the 2008-2017 fields expected to lie in such environments
- Key offshore oil fields were discovered in:
  - pre-salt Brazil
  - the US GoM
  - West Africa
  - Malaysia
- E&A deep and ultra-deep water activity led to the discovery of significant gas finds in:
  - East Africa
  - Australia
  - Israel
  - India
  - Associated gas in Brazil
- Excluding Petrobras, deep and ultra-deep fields are primarily operated by:
  - Internationals
  - Large Independents

Fields by WD Group, 1998-2007 (1,963 fields)



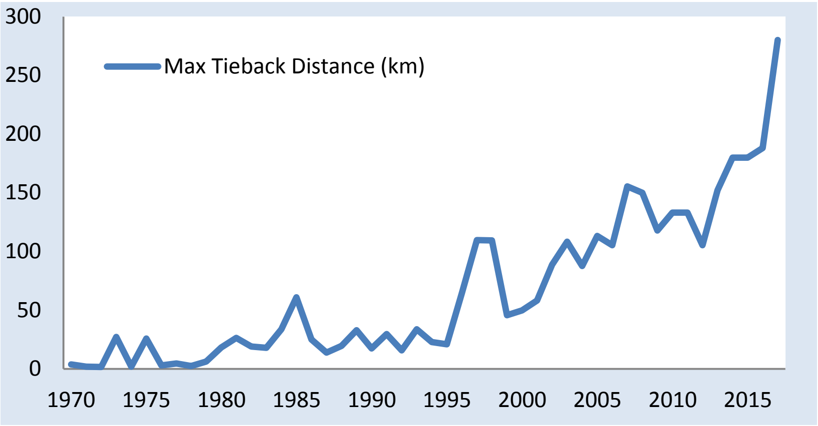
Fields by WD Group, 2008-2017 (2,372 fields)



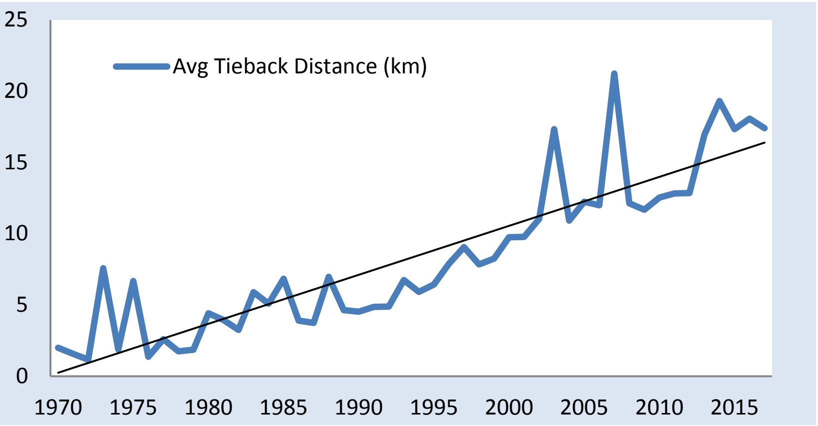
Subsea Market Drivers – Going further

Average tieback distance is increasing. Currently stands at 17 kilometres

Maximum Tieback Distance (km), 1970-2017



Average Tieback Distance (km), 1970-2017



Key Projects:

- 1997: Shell's MC Mensa in US GoM – Ultra-deep subsea tieback to fixed platform – 110km
- 2007: Statoil's Snøhvit/Albatross (Melkoya Island) in Norway – Shallow subsea tieback to shore – 156km
- 2016+: Chevron et al Gorgon area fields in Australia – Deep subsea tiebacks to shore – up to 188km
- 2017: Woodside's Browse Basin CCS in Australia – Subsea CO2 injection from shore – 280km

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Global Market Overview

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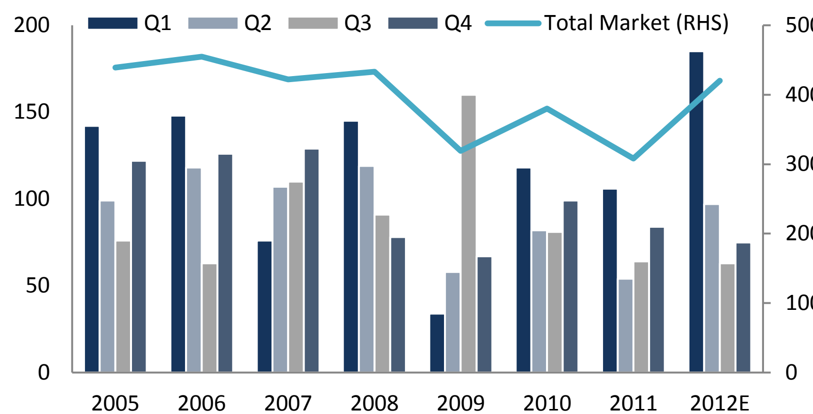
Subsea contracting sentiment is improving

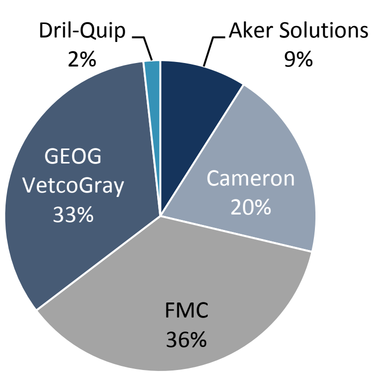
345 confirmed subsea tree orders in the first 3 quarters of 2012. Expect to surpass 400 trees by FYE

- Contracting activity has improved in 2012
  - FYE >400 unit threshold
- Q1 to Q3 2012
  - FMC largest market both in terms of volume and EPC revenues
- FMC key 2012 awards include:
  - Pre-salt Brazil
  - Statoil FA
  - IOCs in ultra-deep water US GoM
- GE - 55% of the shallow water market
  - UK, Nigeria & Australia
  - Deep water: Eni & ExxonMobil - Angola
- Cameron
  - Post and pre-salt assets in Brazil
- Aker Solutions
  - Statoil FA
  - Murphy - Malaysia

Subsea Tree Market, 2005-2012



Subsea Tree Market Share Q1 to Q3 2012 (345 trees)



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Shallow Water Activity, 2013-2017: US$19bn

Europe largest market for SW subsea with 52% of overall Capex. Asia Pacific and Africa also significant

North Sea

- Key Markets:
  - Norway
  - UK
- Key Operators:
  - Statoil
  - Variety of Independents
- Key Manufacturers:
  - FMC & Aker Solutions (FA)
  - GE & Cameron

Africa

- Key Markets:
  - West Africa
- Key Operators:
  - Eni
  - Chevron
  - Sinopec
- Key Manufacturers:
  - GE

Asia Pacific

- Key Markets (80% of APAC):
  - Australia
  - China
  - Indonesia
- Key Operators:
  - Chevron
  - Apache
  - CNOOC
- Key Manufacturers:
  - Cameron (Australia)
  - Diversity in SEA

Deep Water Activity, 2013- 2017: US$105bn

Africa and Latin and North America represent 86% of overall Capex

North America

- Key Operators:
  - Shell
  - BP
  - Anadarko
  - Chevron
  - ExxonMobil
- Key Manufacturers:
  - FMC - 63%
  - Cameron - 28%
  - Dril-Quip - 4%

Latin America

- Key operators:
  - Petrobras
- Key Manufacturers:
  - FMC
  - Cameron
  - Aker Solutions
  - GE & Dril-Quip mainly for dry solutions

Africa

- Key Markets:
  - West Africa
  - Egypt
- Key Operators:
  - International Oil Companies
- Key Manufacturers:
  - FMC
  - Cameron

- Chinese Sinopec & CNOOC ↑presence in:
  - West Africa
  - USA
  - Brazil
- Secure reserves & earn deep water expertise

Asia Pacific

- Key Markets:
  - Malaysia
  - India
- Key Operators:
  - Murphy & Shell - Malaysia
  - Reliance & ONGC - India
- Key Manufacturers:
  - Aker Solutions (45%)
  - FMC, Cameron &GE

Supply Chain

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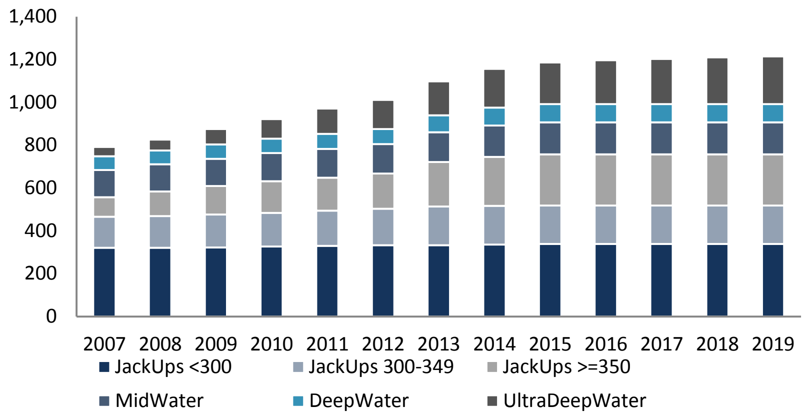
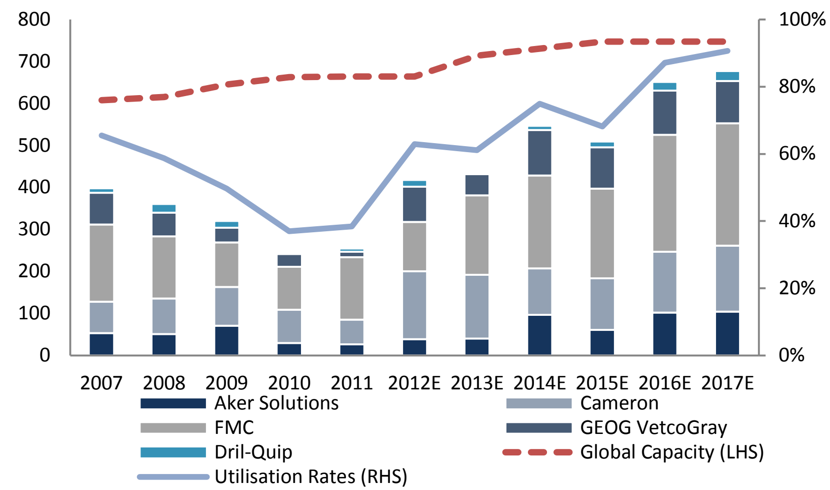
Supply Chain

Global supply is capable of dealing with demand. Regional issues exist

Drilling Rigs by Build Year



Global Subsea Tree Capacity, 2007-2017 Deliveries



- 2012-2019: High spec JackUps and Ultra-Deep water rigs expected to experience most significant CAGR: 5.4% and 7.1% respectively
- Brazil, US GoM, West Africa, Norway and Mexico – areas where Ultra-Deep water fleet will operate
- Tree manufacturers have expanded their manufacturing capacity since 2007 in Malaysia and Brazil
- Despite capacity increases, tree manufacturers expected to see higher utilisation rates going forward
- Regional issues exist primarily in Brazil and Europe

Subsea Technologies

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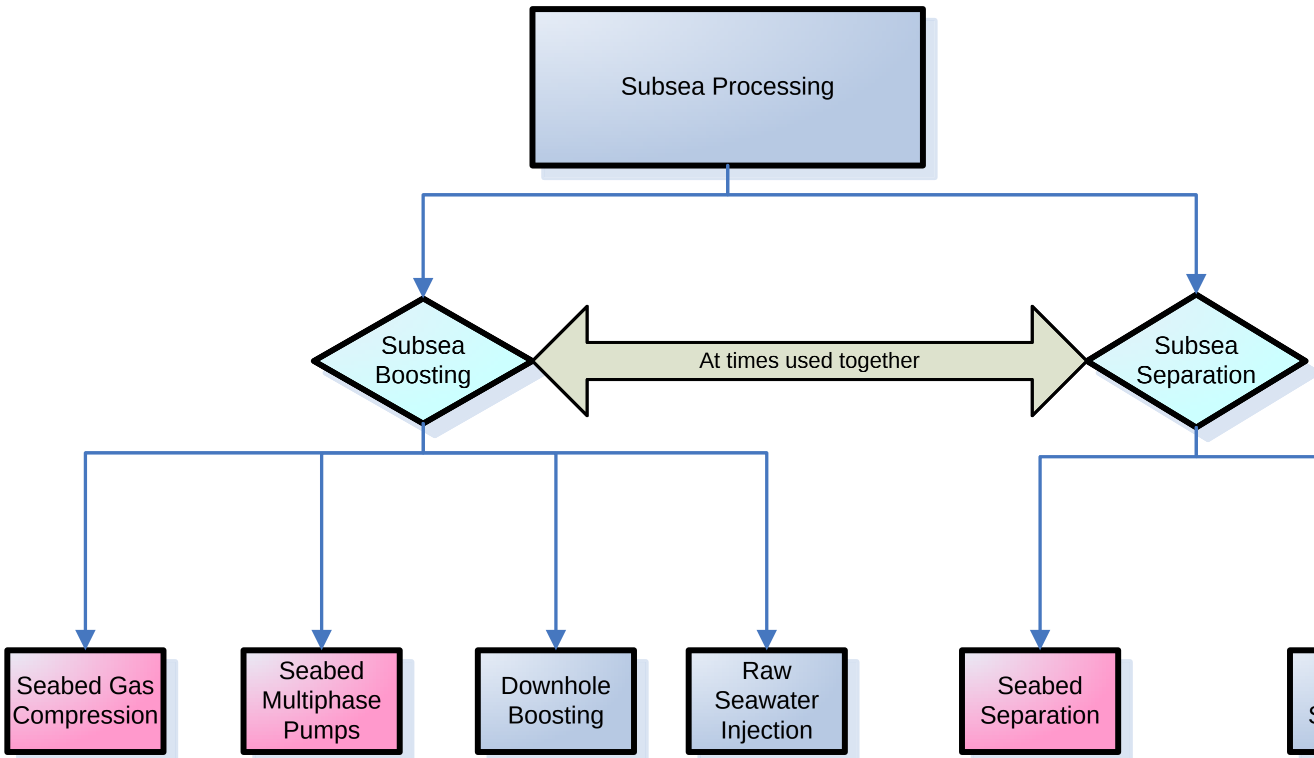
Subsea Processing – Fields of the Future

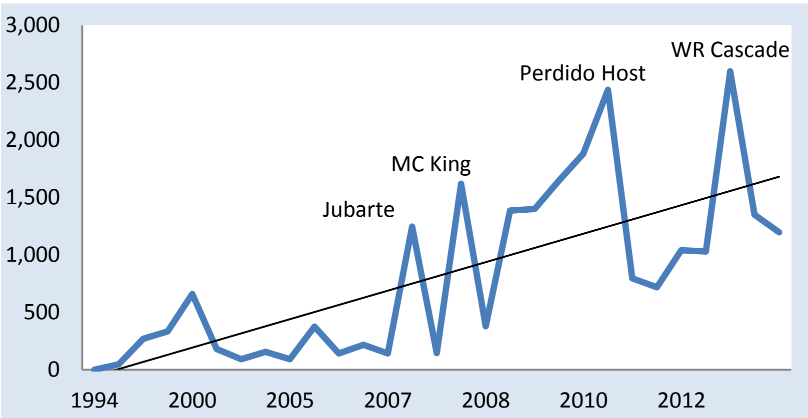
Subsea processing technologies include seabed gas compression, seabed oil boosting and seabed separation



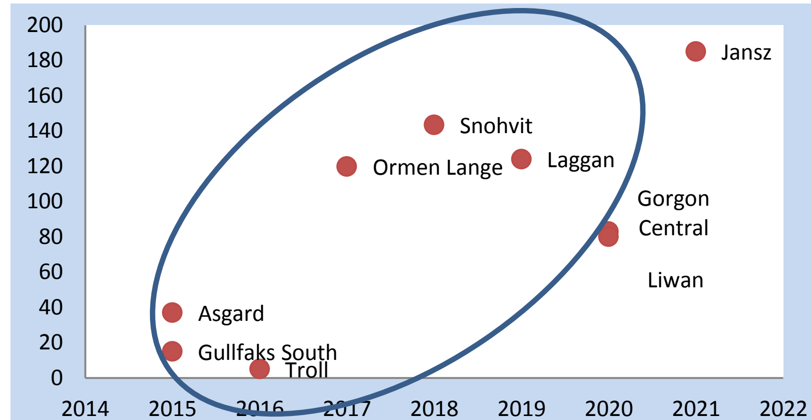
Subsea Boosting

Subsea boosting is deployed to ensure the flow of fluids after natural reservoir pressure declines

Seabed Boosting Projects by Water Depth (m)



Seabed Gas Compression by Tieback Distance (km)



Seabed Oil Boosting – Drivers

- Heavy oil
- ↑ tieback distance
- ↑ water depth
- ↓reservoir pressure & temperature

Seabed Oil Boosting – Key Players

- Framo & Centrilift
- Shell, Statoil & Petrobras

Seabed Gas Compression – Drivers

- Distant offshore gas fields
- ↑tieback distance
- ↑ water depth
- ↓ reservoir pressure & temperature
- Harsh environmental conditions

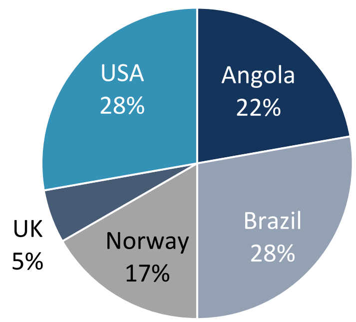
Seabed Gas Compression – Key Players

- Aker Solutions & Framo
- Statoil, Total & Chevron

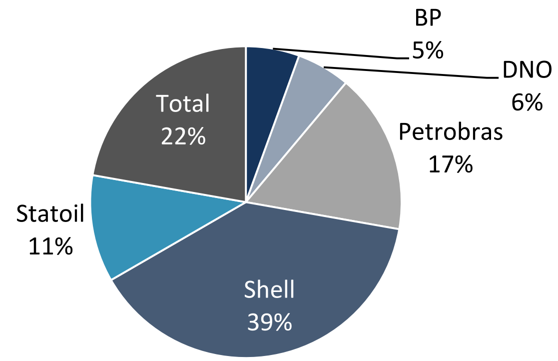
Subsea Separation

Subsea separation units separate oil, gas and water directly at the seabed level vs. the topside facility

Subsea Separation by Country



Subsea Separation by Operator



Seabed Separation @ Mature Fields– Drivers

- Heavy oil
- ↑ water production
- ↑ tieback distance
- ↑ water depth
- ↑ number of subsea tiebacks

Seabed Separation @ Green Fields– Drivers

- ↑gas volume fraction
- ↑ tieback distance
- ↑ water depth
- ↓ reservoir pressure and temperature

Seabed Separation – Key Players

- FMC

Key Contacts

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