What is the Oil Service Report?
The Oil Service Report Norway is a combined top-down and bottom-up review of the offshore market in Norway: Forecast and historic figures are based on field-by-field spend and calibrated with revenue from oil service companies. As part of the Offshore Market we include products and services purchased by operators and offshore suppliers in Norway. It includes all purchases done by fields and licenses in Norway as well as purchases to terminals, export pipelines and oil sector equipment in Norway. The Oil Service Report Norway covers 100% of costs and investments, split into 11 main segments:

• Maintenance Services
• Operational and Professional Services
• Engineering
• Procurement, Construction and Installation
• Topsides and Processing Equipment
• Well Services
• Drilling Tools and Commodities
• Rigs and Drilling Contractors
• Subsea Equipment and Installation
• Transportation and Logistics
• Seismic and G&G Services

These 11 main segments are split into 52 segments at level 2 and 157 segments at level 3. Historical revenue from 1985 for each segment is given, and revenues to 2020 is forecasted. In addition, we give revenue and market shares by segment and sub-segments for more than 1200 companies active in Norway. Field level information describing annual capex and opex, key contractors as well indicating upcoming modification projects are given for all platforms at the NCS.

The Oil Service Report Norway is divided into three main sections:

• Basic section – Chapter 1 and 2: NCS Offshore Market’s history, cost trends, changes from previous reports, topics discussed in the media, insights and forecasted production and offshore market.

• Oil service segments – Chapter 3-13: Segment by segment overview with market forecast and latest available market shares

• NCS Platform review – Chapter 14: Field by field platform information and status with key contractors and upcoming modification projects

Who is this report for?
This report is intended for both suppliers, operators and investors within the offshore market in Norway.
- Suppliers: Understand market size and growth, business opportunities and competitors position.
- Operators: Understand the operating environment at the NCS: Upcoming projects, market shares, possible suppliers and their market shares and more.
- Investors: Understand market size and growth, long listing acquisition candidates across the complete value chain in an instance.

How to use the report:
The document could be used in connection with business plan work, strategy work and in management workshops. Specific segments, fields and companies are easy to find, using standard search functions in pdf-documents.
<table>
<thead>
<tr>
<th>Source</th>
<th>Time span</th>
<th>Description</th>
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</thead>
</table>
| Norwegian Petroleum Directorate (NPD)            | Historic figures           | • Capex and opex per field (RNB*)  
• Monthly production per field  
• Field by field well numbers (exploration, development and production) |
| Statistics Norway (SSB)                          | Historic figures           | • Reported capex (both on- and offshore) aggregated by all active operators at NCS split into different categories (exploration, development projects, producing fields,...) |
|                                                  | Estimates for current and next year |                                                                                                                                            |
| Field information                                | Forward looking statements | • Company reports  
• Field specific news  
• Rystad Energy interview with operators  
• Conferences and other industry research |
| Rystad Energy bottom-up model                    | Historic figures           | • Rystad Energy proprietary bottom up, field by field level forecast with Rystad Energy estimates for start-up and cost levels based on scouted information and taking historical analogs into account to get realistic progress and cost levels. |
|                                                  | Forecast to 2020           |                                                                                                                                 |
| The Brønnøysund Register Centre                  | Historic figures           | • P&L for over 1200 legal entities**  
• Estimates if no Norwegian affiliate (i.e. import) |
| Oil service company information                  | Historic figures           | • Rystad interview with management splitting revenue into oil service segments  
• Company presentations and reports  
• Business intelligence |
|                                                  | Calibration of segmentation |                                                                                                                                 |
| Rystad Energy bottom-up model                    | Historic figures           | • Rystad Energy proprietary data base with market shares for all active oil service companies at the NCS  
• Total revenue enables us to look at purchases between operators in addition to purchases made directly by oil companies  
• Calibration point enabling us to more accurate split E&P purchases (opex and capex) into oil service segments |
|                                                  | Calibration of segmentation |                                                                                                                                 |

* RNB = The Revised National Budget (Revidert Nasjonalbudsjett)  
** We present bottom up figures for groups, e.g. Aker Solutions consists of several legal companies, but is here presented as the group Aker Solutions
Offshore Market in Norway – definition and overview 2014 (1/2)

Opex and non-op in Norway
- Fields/licenses
- Pipelines and onshore terminals tariffs
- General costs
- Costs for license awards
- Taxes and fees
- Salaries

Capex in Norway
- Exploration
- Field development
- Brownfield
- Pipelines and onshore terminals
- Offices in Norway

Reported as “Investments” or “Capex” in license budgets to NPD/RNB and SSB.

Total cost for oil and gas companies in Norway, 2014: NOK 305 billion

Offshore market in Norway from Oil companies’ point of view, i.e. market for direct suppliers: NOK 327 billion

This includes purchases done by suppliers in Norway. We include all purchases within offshore market segments, except office (property, IT, telecom…) and commodities (fuel, power) and purchases/investments done outside Norway (e.g. hull from Korea to rigs).
Offshore Market in Norway – definition and overview 2014 (2/2)

* Field development includes new export pipelines
** Field operation includes operations of export pipelines, onshore terminals and office construction
*** Opex includes here Non-op (purchases of seismic and G&G in connection with regional and lease round work, outside license cost)

Source: Rystad Energy UCube; Rystad Energy DCube; Statistics Norway; Rystad Energy research and analysis
Oil Service Segment definitions – Level 1 and 2

Why have we chosen this particular segment definition?
In defining the segments we have made a balancing act between several aims:
- Easy to remember and give overview
- Sufficient detail to be specific and allow data gathering
- Sufficient generality to allow company benchmarking and global comparison
- Industry jargon if possible
- Relevant both for suppliers’ market research and oil companies’ procurement analysis

For inspiration, we have looked at segment definitions from Achilles (800 product oriented segments), SSBs (40 categories), INTSOK (16 segments) and others. However, our segment definition is genuine and made for the purpose of this report.

Segment level 1 and 2

Segment level 2 and 3

Source: Rystad Energy
## Oil Service Segment definitions – Level 1, 2 and 3

### Maintenance Services
- **Automotive and Electrical Maintenance**
  - Control Room, Tele and IO Maintenance
  - Electro and Power System Maintenance
  - Instruments and Measurement Maintenance
- **Inspection**
  - MMO frame agreements
  - Offshore maintenance
  - Onshore maintenance
- **Metal and pipe welding and cutting**
  - Shipt and Rig Repair
- **Governmental organizations**
  - Governmental organizations
  - Media and Events
  - Non-governmental organizations
- **Access and Scaffolding**
- **Insulation/Passive Fire Protection**
- **Other Fabric Maintenance Services**
  - Surface Treatment and Painting

### Operational Services
- **Field Operation Services**
- **Fiscal metering Services**
- **FPSO Rental**
- **Power Supply Services**
  - Storage vessel Rental
- **TeleCommunication and IO Services**
- **Certification and Integrity Services**
  - Financial and Insurance Services
  - Legal Services
  - Management Consulting
  - Meteorological Services
  - Product Design and Analysis
  - Safety, Health and Environment Services
  - Technical work force/operational support
- **Catering, Cleaning, Security Services**
- **Computers and Business Software**
- **Offshore Accomodation Services**
  - Onshore Accomodation Services
- **Real Estate Services**
- **Detailed Engineering Hull/Deck**
- **Detailed Engineering Topside/Modules**
  - Engineering workforce and services
  - Other Engineering and Project Management Services
  - Subsea Engineering

### Engineering
- **FEED and Studies**
- **Other Planning and Engineering Services**
- **Enigneering and Technical Support Services**
- **Subsea Engineering**

### Procurement, Construction and Installation
- **Hull/Structure Construction**
- **Offshore Loading Equipment/Turrets**
- **Decommissioning and Abandonment Services**
  - Heavy Lift
  - Hook-up, systems testing
  - Mooring and floater installations
- **Offshore Hook-up and System Testing**
  - Offshore Office Construction
  - Offshore Infrastructure Construction
- **Living Quarter Module Construction**
  - Module Construction Brownfield
  - Module Construction Greenfield
  - Module Support Frames and Deck Construction
  - Offshore Aluminium and Helidecks
- **Electrical Submersible Pumps**
- **Gas Lift Systems**
- **Casing, Tubing and Liner running Services**
- **Cement Services**
- **Directional Drilling Services**
  - Mud Services
  - MWD and LWD systems
  - Other Drilling Services
  - Well Production Testing
- **Cased Hole Wireline**
- **Coring and other well G&G Services**
- **Subsurface Safety systems and Flow Control**
- **Casing and Tubing Steel (OCTG)**
- **Cement**
  - Fuel
  - Mud
  - Waste Management and water disposal
  - Blowout Preventers
  - Downhole Drilling Tools
  - Drill Bits
  - Drill Pipe, jars and collars
  - Completion Fluids and Additives
  - Corrosion, hydrate and paraffin inhibitors

Source: Rystad Energy
Oil Service Segment definitions – Level 1, 2 and 3

Source: Rystad Energy
Chapter 1: NCS offshore market history

Introduction with observations and comments on the NCS historical development

Detailed overview of historical E&P spending; Yearly and quarterly statistics broken down in several multiple ways:

i) Category (opex, capex,...)

ii) Asset type (exploration, development,...)

iii) Oil service segment

Well-by-well overview of exploration results since 2000

i) Life cycle – indicates likely field developments

ii) Provinces – exploration hot spots

Operator and field level spend overview – key customers for EPC contractors
Example: Offshore market in Norway 1990 – 2013, split by 11 main oil service segments

Main Oil Service Segments:
- Maintenance Services
- Operational and Professional Services
- Engineering
- Procurement, Construction and Installation
- Topside and Processing Equipment
- Rigs and Drilling Contractors
- Well Service
- Drilling Tools and Commodities
- Subsea Equipment and Installation
- Transportation and Logistics
- Seismic and G&G

Source: Rystad Energy based on SSB and industry research
Chapter 2: NCS offshore market forecast

Introduction with observations and changes in the market forecast

Key topics discussed in media:
A section discussing the hot topics in the media with implications for the market

Quarterly insights:
A section discussing topics related to recent research by Rystad Energy

Production profiles 2000-2025 in different breakdowns

Market forecasts presented in different breakdowns

i) Rigs being put on hold,
ii) Lay-offs in oil service, …

i) Top 50 oil field service companies
ii) International revenue, …
Example Q3 2014 (released October):
Key topics discussed in media Q3 2014 (1/3) – Statoil with overcapacity in NCS rig portfolio

<table>
<thead>
<tr>
<th>Topic</th>
<th>Summary and impact</th>
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| **Headline(s)** | Statoil ends Ocean Vanguard contract (In the news: June 2014)  
Statoil suspends Scarabeo 5 contract (In the news: July 2014)  
COSL Pioneer temporarily suspended (In the news: September 2014) |
| **Summary of news articles** | Over the last quarter, Statoil has suspended or cancelled a total of three rigs active on the NCS:

**Ocean Vanguard, originally contracted until February 2015 with Statoil at 454 000 USD/day terminated from August 2014**
The 32 year old rig owned by Diamond Offshore was planned to drill for Statoil in UK in June 2014, before coming back to the NCS for the last period of the contract. Due to confidentiality terms in the contract with Diamond offshore, Statoil has not given any statement to why it terminated the contract. According to offshore.no, industry sources has claimed the contract was terminated due to i) excessive downtime, and ii) the rig does not have automated fire vents as required by the Petroleum Safety Authority (PSA). However, Diamond Offshore has an exemption to operate without automated fire vents on ocean Vanguard.

**Scarabeo 5, contracted until 2017 with Statoil at 399 000 USD/day temporarily suspended (July 2014)**
Due to overcapacity in the rig portfolio, Statoil suspended the contract for Scarabeo 5 (14 years old) for the remainder of 2014 in July. It was drilling at Visund at the time. “We are planning for the rig to be in operation again after the turn of the year. (…)”, said Statoil’s Tore Aarreberg, rig procurement responsible.

**COSL Pioneer, contracted until 2016 with Statoil at 320 000 USD/day* temporarily suspended (September 2014)**
Statoil stated in a press release September 17th: “Due to overcapacity in our rig portfolio, Statoil will lay up the COSL Pioneer rig in the fourth quarter of 2014.” “After a careful review of our drilling plan, we find it necessary to suspend COSL Pioneer for the time being,” says rig procurement responsible Tore Aarreberg. |
| **Key segments affected** | Rig and drilling contractors, Well services and Drilling tools and commodities |
| **Rystad Energy take away and expected market impact** | Statoil reports that the change “(…) will have no impact on Statoil’s production targets or planned exploration activity on the NCS

We see a reduced rig demand in 2015 compared to 2014, primarily driven by lower willingness to explore, but also certain field-developments and infill drilling campaigns being pushed to the right. Current outlooks call for activity to pick up again into 2016 and beyond. However, the massive influx of rigs that the NCS have seen past years, and will see coming years (confirmed Songa and Maersk rigs with possible additions of speculative newbuilds such as North Sea Rigs, Stena, etc.) creates an oversupplied situation that will last for several years. 2014-levels in the Rig and drilling contractors segment is down by 4% compared to Q2, and 2020 levels are down by 14%. Well services and Drilling tools and commodities are both adjusted down with 1% in 2014, and 13% in 2020. |

* Day rate for original contract ending Aug 2014
Source: Rystad Energy, offshore.no, offshoreenergytoday.com, statoil.com
Chapter 3-13: Segment by segment overview

Introduction to segment with key drivers and recent contract awards and company transactions

Historic development and forecast by level 2

Deep dive on most recent years by level 3

Player overview: Graphical and tabled of 2010 revenue for all active players in segment. Ideal for company screening (acquisition), competitor analysis, analyzing market shares, etc.

Company deep dives on segment level 3 revenue for selected chapters
Chapter 14 – platform by platform overview – Example: Southern North Sea, Valhall

Valhall Field Information

- **Operator**: BP
- **Support org.**: Stavanger
- **MMO FA**: Aker Solutions
- **ISO FA**: Bilfinger Industri
- **Other FA**: Safety and automation systems: ABB
- **Drilling op.**: Archer

**Wells since 2005**:
- 2008: 42
- 2009: 7781
- 2010: 7083
- 2011: 4866
- 2012: 6170

**Recent modification projects**
- **All Platforms**
  - New subsea pipeline systems 2008
  - Late life redevelopment – new production and accom. platform 2010-ongoing, Aker Solutions (NOK 450 mill)
  - Water Handling, PorPure and NLJ, 2010
  - HVAC, Apply Oil & Gas, 2011
  - Life of Field Seismic system – LoFS, Technip (NOK 50 mill)
  - Office modules, HB Rentals, 2010/11 (NOK 5 mill)
  - Gas lift modules at Valhall Flanke Nord and Valhall Flanke Sør
  - Modifications related to decommissioning and shutdown of old platforms
  - Candidate for drilling facility upgrade
  - Candidate for gas treatment upgrade
  - Pumps, Eureka Pumps (Align), frame agreement with BP for three years

**Upcoming modification projects**
- **All Platforms**
  - Gas lift modules at Valhall Flanke Nord and Valhall Flanke Sør
  - Longer term, need wave protection/prolonge legs due to subsidence
  - Modifications related to decommissioning and shutdown of old platforms
  - Candidate for drilling facility upgrade
  - Candidate for gas treatment upgrade
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**Recent redevelopment projects**
- **Valhall PH (production and hotel) platform started production January 2013. Part of Valhall redevelopment program with total development cost of BNOK 49.6 (+98,2% compared to original PDO estimate)

**Upcoming redevelopment projects**
- **All Platforms**
  - PCP, QP and DP platforms decommissioned by 2020
  - "The Greater Valhall Programme" - possibly two new platforms, drilling of 20 to 30 wells. 43 BNOK investments, includes investments at Ula
    - New Wellhead Platform at Valhall: cancelled 2014
    - New platform at Hod: Cancelled 2014
    - Upgrades at Ula
    - Maersk Reacher drilling contract renewed for drilling until Q3 2016. In addition, new Jack-up ordered by Maersk for Valhall from Daewoo Shipbuilding and Marine Engineering. Delivery 2016, value 3.8 BNOK.

**Platform Facts**
- **Valhall PH (started production Jan 2013)**
  - Steel platform, Process and hotel (180); Installed 2012; Start-up: Jan 2013
  - Capacity: 120 kbbl/d; Topside weight: 11.85 kt; Base: Kværner; Deck: Heerema; Installation: Saipem; W. depth: 69 m

- **Valhall PCP**
  - Steel platform, Process; Installed Dec 1981; Start-up: Oct 1982
  - Capacity: 168 kbbl/d; Topside weight: 13 kt; Base: McDermott; Deck: Aker Stord/Kvaerner Brug/Vigor; Installation: Heerema; W. depth: 69 m

- **Valhall WP**
  - Wellhead Platform; Process; Installed May 1996; Start-up: May 1996
  - Capacity: 40 kbbl/d; Topside weight: 2 kt; Base: Heerema; Deck: Heerema; Installation: Heerema; W. depth: 69 m

- **Valhall IP**
  - Steel platform, Drilling; Installed Aug 2003; Start-up: Jan 2004
  - Topside weight: 10 kt; Base: Aker Verdal; Deck: Aker Stord; Installation: Saipem; W. depth: 69 m

- **Valhall DP**
  - Steel platform, Drilling; Installed Jan 1981; Start-up: Oct 1982
  - Capacity: 168 kbbl/d; Topside weight: 13 kt; Base: McDermott; Deck: Aker Stord/Kvaerner Brug/Vigor; Installation: Heerema; W. depth: 69 m

- **Valhall QP**
  - Steel platform, Hotel(209); Installed Apr 1980; Start-up: Oct 1982
  - Topside weight: 2.5 kt; Base: Aker Verdal; Deck: U/B/Storkoden/Vigor; Installation: McDermott; W. depth: 69 m

- **Valhall Flanke Nord**
  - Wellhead Platform; Installed Jul 2003; Start-up: Jan 2004
  - Topside weight: 2 kt; Base: Heerema; Deck: Heerema; Installation: Heerema; W. depth: 69 m

- **Valhall Flanke Sør**
  - Wellhead Platform; Installed May 2003; Start-up: Fall 2003
  - Topside weight: 2.12; Base: Heerema; Deck: Heerema; Installation: Heerema; W. depth: 69 m

**Recent modification projects**
- **All Platforms**
  - Gas lift modules at Valhall Flanke Nord and Valhall Flanke Sør
  - Office modules, HB Rentals, 2010/11 (NOK 5 mill)
  - Gas lift modules at Valhall Flanke Nord and Valhall Flanke Sør
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