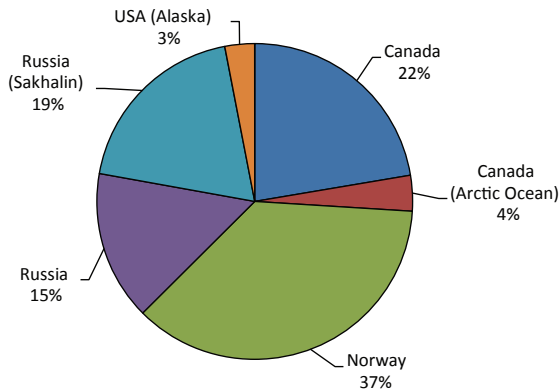


Infield Systems' new Offshore Arctic Oil and Gas Market Report To 2018 provides essential research and analysis on current and future offshore oil and gas developments within the Arctic Circle and in the three major "sub-Arctic" areas: Sakhalin Island offshore Far East Russia, the Jeanne D'Arc Basin offshore Eastern Canada (Newfoundland and Labrador), and the Cook Inlet in Alaska. The report provides a comprehensive analysis of the key market drivers, technological requirements, and environmental challenges facing the region up to 2018. It also includes detailed sector-by-sector forecasts covering all aspects of the offshore Arctic market from fixed platforms to 'Ice-Class' vessels.

Operators are being drawn to the offshore Arctic by the region's potentially vast oil and gas resources. Infield Systems' data suggests that the region holds 136.6 billion barrels of oil equivalent (Bboe) in discovered offshore reserves, with a 2008 United States Geological Survey (USGS) report indicating that there could be another 346Bboe left undiscovered.

Whilst Arctic waters are extremely rich in reserves, those resources are not distributed evenly. Infield Systems' estimates suggest that more than 116Bboe is natural gas, whilst only 17Bboe is oil. Of the region's vast gas reserves, as much as 95Bboe, or 82%, is located in Russia's high-Arctic (excluding Sakhalin Island). The potential of the offshore Arctic is, therefore, substantial. However, bringing the region's resources to production has historically been a real challenge. According to Infield Systems' data, just 33 of the 174 discovered fields have been successfully developed, representing just a tiny fraction of the region's resource potential. Those fields have also taken many years to bring to production. The average field development lag (the number of years between field discovery year and on-stream year) for the Arctic region is in excess of 13 years, the second longest in the world .

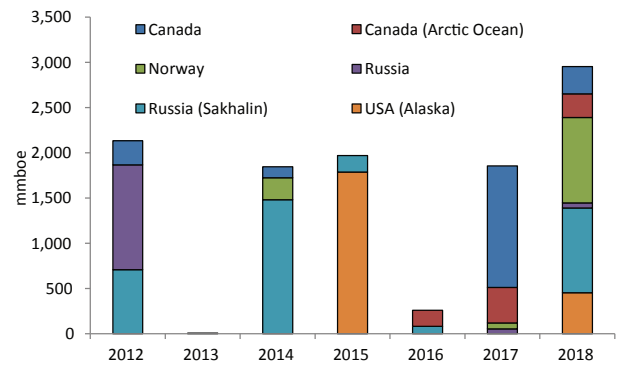


**Arctic Region Capex (%) by Country 2012-2018**

Source: Infield Systems' OFFPEX

Of the region's remaining undeveloped fields, many face a highly uncertain future. Infield Systems has identified 38 fields with production potential between 2012 and 2018, however, just seven are currently under development or have a 'firm plan.' This is not just because of the obvious engineering challenges posed by intense cold, ice, remoteness, and even seismic activity. It is also due to more stringent operational and environmental regulations implemented by many governments in the wake of the Deepwater Horizon disaster. New 'best-practice' obligations, such as, same season relief well capability and enhanced oil spill contingencies have substantially increased costs and logistical hurdles. Finally, and perhaps most importantly, offshore Arctic projects face increasing competition from shale gas and tight

oil plays, which often represent more attractive economics. This is not just affecting North America's Arctic developments; Gazprom's flagship Shtokman Phase One project was kicked into the long grass in August 2012, largely because it could no longer find markets for its LNG in the gas-glutted USA.



**Arctic Region Reserves (mmboe) On-stream 2012-2018**

Source: Infield Systems' OFFPEX

Infield Systems anticipates that offshore Arctic Capex will rise fairly steadily until 2018, although the suspension of Shtokman Phase One now means that spending in the middle of the forecast period is much lower than previously expected. Norway will command around 34% of the total offshore spend. The majority of that will come in the latter half of the forecast period on the back of the Eni-operated Goliat project as well as the development of Statoil's Askeladden, Skrugard, and Havis fields.

Next in terms of Capex, with 22% of the total, is Canada's sub-Arctic (Newfoundland and Labrador). Here Infield Systems anticipates the integration of satellite developments at Hibernia and White Rose, as well as first oil from the Hebron/Ben Nevis development.

Fields surrounding Russia's Sakhalin Island are expected to draw around 20% of total Capex. This will initially be focused on Kirinskoye (Sakhalin Three) and Arkutun Dagi (Sakhalin One), both of which are currently under development. North Chayvo (Sakhalin One) and Kirinskoye South (Sakhalin Three) should follow in 2015 and 2018 respectively. Meanwhile, approximately 18% of total Capex will be directed towards Russia's high-Arctic where the flagship Prirazlomnoye oil development and the Obskoye gas field will be brought to production.

Infield Systems anticipates that more than half of total Arctic Capex between 2012 and 2018 will be directed towards pipelines, reflecting the physical isolation of many projects in the region and the number of developments in the relatively deep waters of the Norwegian Barents Sea. Platforms will account for a further 31% of spend, with approximately 75% of this going towards fixed units.

# Report Contents

- **Executive Summary** provides an overview of the offshore Arctic market, identifying the key trends and forecast highlights.
- **Macro Overview** outlines global macro-economic trends as well as oil demand, supply and price dynamics.
- **Regional Market Overview** describes the resource potential of the offshore Arctic with a comprehensive field and reserves analysis. The region's unique environmental challenges are also discussed in detail in addition to chapters on regional geopolitics and international law.
- **Offshore Arctic Oil and Gas Profile** sets out a country-by-country overview of offshore activity, licensing and development policy. The latest field developments and exploration activity is covered in this section along with important regulatory changes in the wake of the Deepwater Horizon oil spill.
- **Sector Analysis and Forecasts** provides comprehensive analysis and forecasting

on fixed and floating platforms, offshore pipeline and control lines and subsea infrastructure.

- **Arctic Vessels Market** provides a supply and demand analysis of 'Ice-Class' vessels as well as an appraisal of the world's current icebreaking fleet.
- **Arctic Drilling Rigs Market** discusses the unique challenges drilling rigs encounter in the Arctic environment. The section also provides an overview of the existing fleet of Arctic capable rigs and its ability to meet future demand for new exploration and development wells.
- **Requirements for Arctic Offshore Infrastructure** delivers a detailed outline of the unique requirements associated with Arctic pipelines, production systems, and subsea infrastructure.
- **Appendices** include a glossary and selection of regional maps.



## Why You Should Buy This Report

- The report contains data developed by Infield Systems' market modelling process, OFFPEX, which is based on a unique "bottom up approach" to forecasting. OFFPEX's component by component and project by project forecasting process is robust and has a proven track record.
- The reader is given a comprehensive presentation of the offshore Arctic market from top-level analysis of key developments to individual sector forecasts covering everything from fixed platforms to Ice-Class vessels.
- The range and depth of research within the report provides a revealing insight into potential opportunities for operators, contractors and investors alike.

## Online Database

Purchasers of the Offshore Arctic Oil & Gas Market Report will receive 12 months' free access to an online database of fields being planned or considered for development in the current year and six years forward for projects within the Arctic circle.

Details about each project include:

- Field Operator
- Project Name
- Development Type
- Dates On Stream / Discovery / Depletion
- Reserves
- Field Production Rates
- Location
- Development Type
- Water Depths
- Project Status
- Numbers of Subsea & Surface Wells
- High Temperature / High Pressure

InfieldLive provides access to the previous day's updates. Subscriptions can be upgraded to include other regions, time frames and other data sets from the Infield Offshore Energy Database or to include access to the Arctic Frontiers Online Mapping & Data Gateway.

## Arctic Frontiers Mapping & Data Gateway

The Arctic Frontiers Oil & Gas Online Data & Mapping Gateway is designed to give visual and full data access to the challenging Arctic region of the offshore oil and gas industry. Full details about each field, platform and pipeline shown on the map is listed behind each symbol and can be searched, downloaded or exported from the EnergyGateway or through Infield Systems' data portal, InfieldLive.

### Regions covered

- Alaska
- Northern Canada
- Greenland
- Iceland
- Northern Norway & Spitsbergen
- Northern Russia
- The Baltic & Barents Seas

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## Global & Regional Perspectives Market Reports

Infield Systems publishes a range of market reports covering various aspects and regions of the oil, gas, renewable energy and associated marine industries. Utilising comprehensive in-house project databases, industry models and research capacity, these reports are widely used by industry analysts and professionals:

- Deep & Ultra-deepwater
- Subsea
- Pipelines & Control Lines
- Fixed Platforms
- Floating Production Systems
- Specialist Vessels
- FPSO
- Accommodation
- Subsea Well Intervention
- Remotely Operated Vehicles
- Offshore LNG
- Africa
- Arctic
- Asia
- Australasia
- Europe
- Latin America
- Middle East & Caspian
- North America

## About This Report

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|--------------------|-----|
| Number of Pages:   | 193 |
| Number of Figures: | 123 |
| Number of Tables:  | 52  |

# About Infield Systems

Infield Systems is an independent energy research and analysis company that is dedicated to the provision of accurate and up-to-date data, market reports, mapping, analysis and forecasts for the offshore oil and gas and associated marine industries. Infield Systems also prepares market due diligence on mergers, acquisitions and transactions for clients in the energy industry. Infield Systems services clients in over 40 countries, including: E&P companies, contractors, manufacturers, government agencies and financial institutions, and is widely acknowledged as the definitive independent source for information, research and analysis on the offshore energy sector.

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