

TECHNIP NORWAY

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CORPORATE BROCHURE



Technical Challenges

Subsea construction and engineering company Technip Norway provides essential infrastructure services to customers working in some of the world's most challenging environments



The Technip Group is a French engineering company, headquartered in Paris, employing more than 23,000 people across the world. Its main office in Norway is in Sandvika, a few kilometres west of Oslo, with additional facilities in Orkanger, Haugesund and Stavanger. As the leading subsea engineering contractor on the Norwegian continental shelf, Technip Norway designs, fabricates, installs and services systems for subsea oil and gas fields.

Globally, Technip is involved in most segments of the oil and gas business, apart from down-hole and production, including subsea, large onshore facilities and offshore platforms. Its primary area of work is the Norwegian continental shelf but it also works on subsea projects offshore north-west Russia, in the Barents Sea and on some ad-hoc international projects.

It's a very competitive arena and competition has led to a raft of significant advances in marine energy technology over the past 40 years. It remains a technology-rich environment and if you're not at the forefront of development, you're

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nowhere. Technip believes that its major differentials include its competent people, its technologies, product focus and project execution model.

The company's employees in Norway represent many nationalities from across the world – as far afield as Australia and the Americas, as well as European countries and Russia. Induction training begins with health, safety and environment (HSE), followed by technical initiation. The intention is to embed its core cultures and values within the company from top to bottom, such that Technip can become the reference company in safety performance.

Everyone has to meet Technip's safety and quality (QHSE) standards. The company has an apprenticeship scheme and a graduate recruitment and training programme, which enables it to ensure a mix of younger and more experienced people. The 18 to 24 month initial training process enables Technip to see how quickly its new employees understand the business and become valuable contributors.

Technip Norway operates as a main contractor to oil and gas companies and is currently engaged as an engineering, procurement, installation and construction (EPIC) contractor on several significant field developments in the Norwegian North Sea sector.

It was recently awarded a contract by GDF SUEZ, worth approximately €45 million, for the Gjøa field development in the Norwegian sector of the North Sea, covering engineering and fabrication of two smoothbore gas export risers to connect the Gjøa platform with the gas export pipeline, removal of the existing roughbore risers and installation of the two new smoothbore risers, as well as tie-ins and pre-commissioning activities. Fabrication of the risers will take place in the Group's flexible pipe plant in Le Trait, France. Offshore installation is scheduled to be completed in the second half of 2011.

Technip Norway has also been awarded a contract from Statoil, worth approximately €90 million, for the Gygrid field development in the Norwegian Sea at a water depth of 265-330 metres. This contract covers engineering, procurement, welding and installation of flowlines, including a 19.5 kilometre pipe-in-pipe



production flowline, a plastic-lined water injection flowline and a gas lift flowline of the same length.

Technip has also been working hard on subsea harsh environment projects over the past decade, from Terra Nova and White Rose on the Grand Banks of Newfoundland to Snohvit in Northern Norway, which provide valuable experience that can be applied to the development of projects for oil and gas development in the Arctic region.

The company considers these projects to be stepping stones towards oil and gas development in the Arctic region. "The lessons learned from operations in harsh environments in relatively remote locations can be used to better prepare for any future operations undertaken in the Arctic," said Sam Allen, president of Technip Canada.

It is not necessarily the individual challenges offered by the various environmental elements that make working in such areas so demanding, but the combination of wave, current, wind, fog, ice, soils and short season make the sub-Arctic and Arctic a very unique area of the world to undertake offshore operations.

Environmental data for frontier regions is generally lacking when compared to the mature oil and gas regions. When the industry talks of exploration and production in the Arctic, the impression often given is that the Arctic is one homogenous region. In fact, Technip has divided the Arctic into six regions, each with its own set of challenges.

The Terra Nova project, conducted from 1997 through 2001, was the first-sub-Arctic subsea mega project, the first to use large scale open glory hole construction for iceberg protection and the first to deploy a disconnectable riser system in a harsh environment. Terra Nova was also the first full field subsea development on the Grand Banks and the first floating production,



storage and offloading vessel (FPSO) to be deployed in North America.

As the industry pushes further north, new technical challenges will continue to present themselves, not least the logistical issues around transporting construction to the project location.

Technip encountered the challenge of distances between manufacturing locations and the project worksite on the Snohvit project, where Technip's work scope included the installation of more than 450 kilometres of product using one of Technip's reel-lay vessels, the Apache. The distance between Technip's Norwegian spoolbase in Orkanger and the project worksite made multiple interim trips of the Apache to the spool base impractical. The solution was the development of a pipe transportation system allowing delivery of large volumes of rigid and flexible pipe to remote regions.

With increased water depth, a significant amount of future field developments will be made through the use of subsea completions and longer tiebacks. Due to the environmental sensitivity of the area, there will be zero tolerance for spills and system and execution integrity will be critical.

Construction vessels will require larger decks, bigger cranes and faster transit speeds, and will need to be capable of operating in temperatures below -20 degrees Celsius for extended periods of time.

"There will be new, yet unforeseen, system design and construction challenges and offshore planning will become increasingly sophisticated. Development of the region will not be for the faint hearted and only the very top contractors will be able to respond to the challenges," said Allen. www.technip.com ■



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