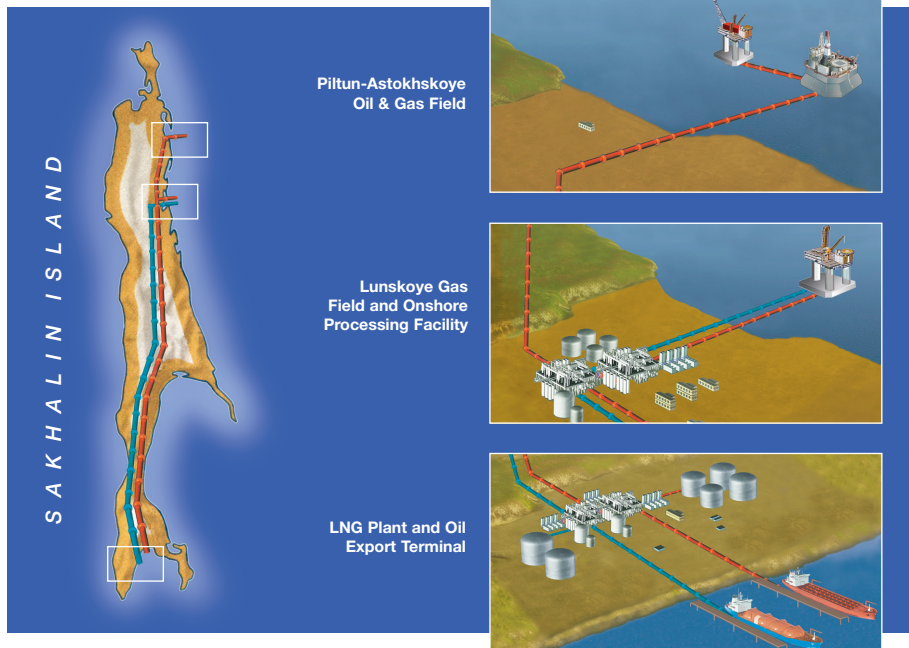




# Project Profile

## Sakhalin II

The remote island of Sakhalin in Far East Russia is home to the world's largest integrated oil and gas project, Sakhalin II. The project involves the development of two large offshore fields; Piltun-Astokhskoye (mostly oil) and Lunskeye (mostly gas). The scope of the project encompasses two new offshore platforms, 300 km of offshore pipeline, more than 800 km of onshore pipeline, an onshore processing facility, an oil export terminal and an LNG plant with export facilities.



## Oil & Gas

Integrated Solutions

### Facts about Sakhalin II

- Operated by Sakhalin Energy Investment Company Ltd. (SEIC), a joint venture between Shell (25%), Mitsui (12%), Mitsubishi (12%) and Gazprom (50%+1%)
- The first offshore oil production field in Russia
- The world's largest and Russia's first LNG plant
- Project completion 2008/9

### World's largest integrated oil and gas project

Sakhalin II is a truly groundbreaking oil and gas project. It is not only the world's largest integrated oil and gas project, but it is located in a remote part of the world with severe weather conditions and complex logistical challenges. Throughout all project phases, a high priority for SEIC and their project supply partners was to develop the Sakhalin infrastructure and facilities with positive effect on the local community and minimal impact on the the local environment.

### A total telecommunications solution

For Sakhalin II, a contract for a total integrated telecommunication solution was awarded to a team consisting of ABB, the Sumitomo Corporation, Kriljon Service and Fujikara. On behalf of the team, ABB was responsible for project management, planning, engineering, QA and HSE as well as supply, installation and commissioning of all telecom equipment. The total telecom delivery for this contract included all communication systems and equipment for:

- Three offshore platforms
- Three onshore processing plants (including BS2)
- 860 km. of pipeline with one booster station, 104 valve stations and two pig trap shelters
- Temporary telecom at 6 construction camps and several office and accommodation buildings
- 5 pipeline maintenance depots

During the engineering phase, ABB ran the project from their offices in Bergen, Norway. For the installation and commissioning phase, the ABB project team moved to Sakhalin Island to oversee the project directly.

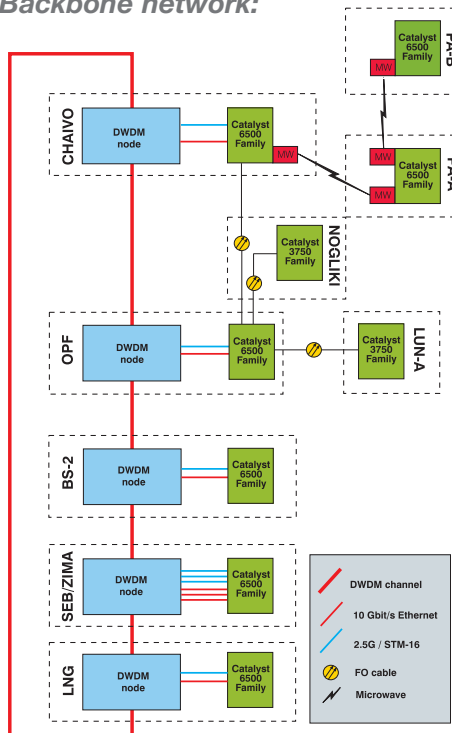
Separate contracts were also issued to ABB for a total telecom solution as well as a complete electrical power distribution system, motors and drives for the Aniva Bay LNG processing plant.





## Combining global and local resources to meet the needs of a large, complex project

### Backbone network:



The Sakhalin Telecom System transmits over an 800 km main fiber optic cable with a total capacity of 40 Gbit/s, expandable to 480 Gbit/s. DWDM optical high capacity nodes support the main network and multiple smaller networks. Offshore installations are tied in using subsea fiber cable or microwave radio links.

The telecommunication and electrification supply contracts for the Sakhalin II project were highly competitive and sought after by several large international contractors. Equipment and services from ABB were selected due to factors such as strong project execution experience and capabilities, competitive pricing, good technical solutions, flexibility and ability to adapt to SEIC requirements, high utilization of Russian content and a solid understanding of Russian laws and regulations.

### The Sakhalin II telecommunication solution

To ensure secure and reliable communications throughout Sakhalin's pipeline, plant and offshore facilities, ABB provided a total of 21 telecom sub-systems and an extensive fiber optic network to enable field-wide integration of all voice and data communications.

ABB collaborated closely with in-house safety, automation and electrical engineers and with their third-party equipment supply partners to create a fit-for-purpose telecom solution designed for effective lifecycle operations. The telecommunication scope of delivery included:

- DWDM Transmission System
- IP Backbone Network
- Public Address and General Alarm System
- Radio link
- Backup routing to VSAT
- UHF radio (Tetra)
- Mandatory and general radio
- Aeronautical radio
- INMARSAT terminals
- IP based audio and video entertainment system
- Meteorological observation
- Hotline telephone
- CCTV System (IP based)
- Security Systems
- Access control
- Drillers intercom
- IP based telephony and PBX systems
- Intruder Detection System
- SCADA communication system
- Structured Cabling System
- Telecom Supervisory and Alarm System

### Electrical equipment for Sakhalin II

For the LNG processing facility, ABB supplied a complete electrical power distribution system including more than 80 transformers, 200 Medium Voltage switchboards, around 300 Low Voltage switchboards and an Electrical Network Monitoring and Control System (ENMC). Under a separate frame agreement, ABB also supplied 800 LV motors with associated variable-speed drives.



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