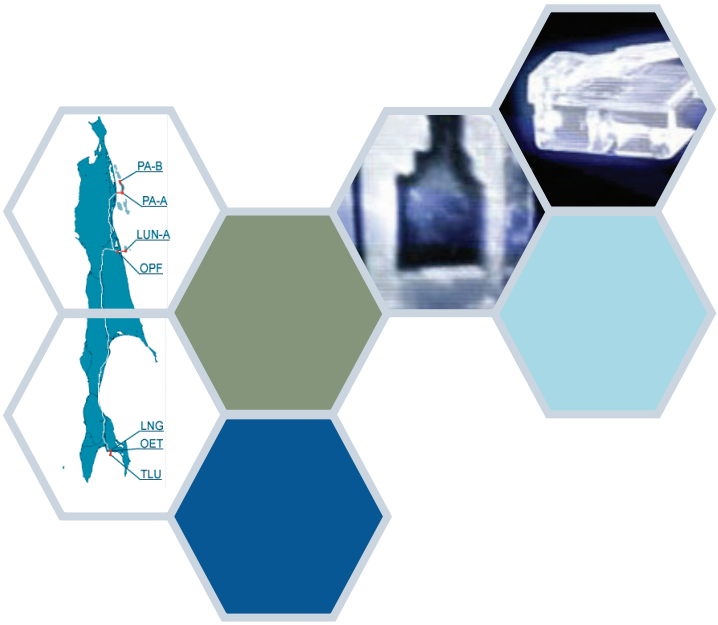

Shell builds a 'smart' future for Sakhalin-2

The Shell Telecommunications Organisation (STO) part of Group IT infrastructure (GITI), has helped the Sakhalin Energy Investment Company (SEIC) deliver a fit-for-purpose communications infrastructure that will continue to support the rigorous operating procedures demanded by leading edge oil and gas production in one of the world's harshest environments.

Shell has a 55% share in the Sakhalin-2 oil and gas project, which is being developed by the SEIC and is the most technologically advanced of those on the Sakhalin Shelf. Total investment in Sakhalin-2 will be approximately $10 billion, making it the largest single foreign investment project in Russia.

A key to its effectiveness has been to ensure that the telecommunications infrastructure is integrated into the exploration and production facility. STO has managed the complex mix of inter-relationships between the project's developer and its contractors and sub-contractors and has established best practice telecommunications standards, that have been followed throughout the life of the project.

STO chose best-in-class technology from Cisco Systems, proven in countless business critical industrial locations around the globe, for the Sakhalin-2 venture. Cisco Systems has also lent its advice and expertise to the other contractors.

Challenge

Telecommunications infrastructure is vitally important to today's major engineering projects, and critical to their long-term operational performance.
Success usually relies on components being designed, installed and managed effectively in the field. For this to be achieved, infrastructure designers and partners must be involved in the decision-making processes as early as possible, so that their engineering expertise can be embedded into the project's lifecycle at concept stage.

This was especially important on Sakhalin because the infrastructure was being created from the ground up. To ensure that the communications infrastructure conformed to best practice, and delivered fit-for-purpose and highly reliable technology on time STO and GITI have been involved with the project since early in the planning and decision-making processes. The process began in 2003, so that infrastructure solutions can be installed and operating by the scheduled date of 2006.

"In such a project every day counts – and they can slip away frighteningly fast. Telecommunications is a very important part of this overall project. It had to be thought through very early because a lot of things rely on the communications technology. Getting the design right, doing all the testing beforehand and installing it correctly is very important because timelines are tight and there is virtually no room for adjustments afterwards," says Ian Johnston, Head of Telecommunications Infrastructure at the Sakhalin Energy Investment Company.

Chris Sandford, a STO Network Design Engineer, recalls: "We were looking at designs and specifications seven to eight years in advance, but which nevertheless had to conform to Shell's high technical standards. We had to ensure that the different partners in the undertaking installed very reliable equipment, which would remain that way throughout the life of the project. Bleeding edge and unreliable were definitely not words that appeared on our shopping list."

Solution

Optical switching and transmission technology from Cisco Systems was selected by STO for the Sakhalin project, not only because Cisco's best-of-breed products have been proved to work in difficult environments right around the globe, but also because Cisco would be able to transfer its expertise in optical network design to other contractors. The company's ability to customise its leading edge technology and share future product development plans were also important considerations.

The final performance of the communications network is the responsibility of ABB and their sub contractor Ementor, a Cisco GOLD certified partner in Norway and Sweden. They are to deliver and install the Cisco optical and data communication networks required to maintain the pipeline and the surrounding operations all year round.

Ian Johnson comments: "At the end of the day, ABB is responsible for the communications network and therefore its performance. The design services provided by STO have been invaluable in understanding our contractual needs. STO has provided a solid bridge between requirements and deliverables – guiding the contractor to produce the end result that we need in the timescales that we want.

"Normally this equipment would be installed by carriers, not by oil companies, and they would configure it in a totally different way, because they don't know anything about the data that they are carrying. But we know everything about the data we are carrying and we organise things slightly differently to make better use of the equipment. This has enabled us to build a tailor-made, high performance solution."

The physical logistics and organisation associated with building 300 racks of communications equipment is substantial. Ementor is currently 'staging' (i.e. assembling, configuring and thoroughly testing) all of the Cisco networking hardware and software at an ABB facility in Bergen, Norway, to ensure full functionality.

By the end of 2004 they will arrive in Sakhalin ready for implementation. Sakhalin-2 is not scheduled to start producing LNG until 2007, and its advanced communications infrastructure will have made a major contribution to the achievement of that target. But a successful deployment depends on managing people effectively. STO worked with SEIC engineers to interface with the Sakhalin project's various end users – the process engineers and the drilling teams - to understand what they were trying to achieve and to reflect this in the design and functionality of the network infrastructure.

Ian Johnson concludes: "This is an important, two-way job. On the one hand you're selling the abilities of the network, but you're also trying to ensure that people understand that there are rules and restrictions on the use of the network. The security of the network is a very important issue for us. The Shell Telecommunications Organisation provided us with great support for the direction we took. I now believe that Sakhalin Energy is leading the way in how future networks should be deployed in Shell E&P."