

Nexans

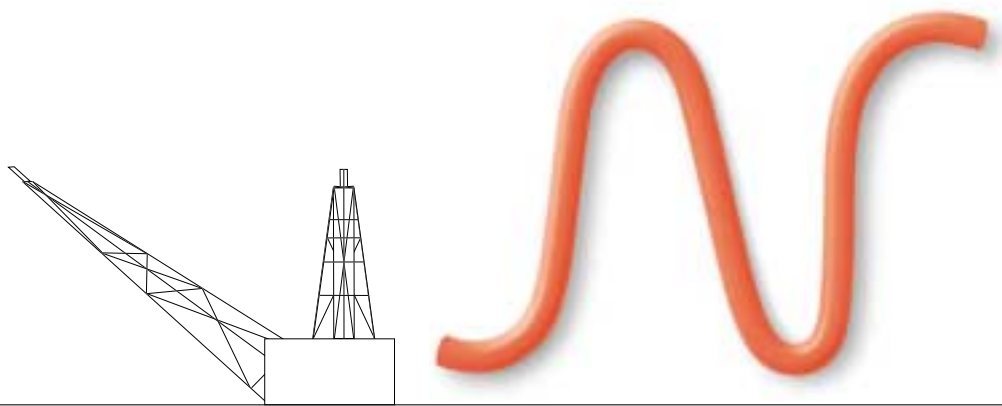


O i l a n d G a s

keeps oil and gas flowing



The oil and gas industry is one of the most dynamic sectors in the world economy on which future prosperity for a growing world population depends. Today, 65% of the world's energy is being met by oil and gas with gas set to out-distance oil as the fuel of choice in the next quarter of the century. With only 40 to 60 years of reserves left, producers are coming under terrific pressure to find new oil and gas fields, and to better exploit existing ones. At the same time, in the wake of oil spills and urged by the Kyoto protocol to lower CO₂ emissions they have to find safer, more reliable, and environmentally-friendly ways of extracting and processing oil and gas products.



Finally, to escape a dinosaur-like demise when supplies run out, producers and refineries must move “beyond oil and gas” to new forms of renewable energy. In short, oil and gas companies are expected to provide the world with the energy it needs for sustainable growth, but without negatively impacting the environment or people. This dilemma is at the very heart of the demands it makes on its own suppliers in terms of pollution, innovation, safety, product reliability, and the way one does business.

Issues and dilemmas facing today's oil and gas industry:

- how to achieve sustainable growth in the industry in the face of diminishing supplies and expanding demand
- how to protect the environment and control climate change
- how to safeguard biodiversity and human health concerns
- how to assure positive globalization and equitable development
- how to prospect for new resources while efficiently exploiting existing ones
- how to increase reliability in both the extraction and refining process
- how to make a seamless transition to new renewable forms of fuels: sun, wind, water, hydrogen, etc.

To meet the special concerns of oil and gas experts...

Nexans provides special solutions, in the field and on land... both upstream and downstream



In the demanding oil and gas environment, Nexans is present at nearly every level of production: both upstream, providing innovative cabling and technologies for prospecting, extraction and distribution, and downstream in shore-based refineries.



The oil and gas industry has genuine concerns which give rise to very specific demands through all phases of oil and gas production: offshore, due to a tough and dangerous operating environment; and onshore, in refineries and storage facilities. Nexans meets these challenges not only through the products themselves, but also through behind-the-scenes services.

Reliability, innovation and safety are the three principles that underlie everything we do. This means finding new ways of trenching and burying cables on the sea bottom, or developing new multipurpose umbilicals which allow producers to move into ever deeper waters. Or it can mean developing new sheathings which resist sea salt, chemicals and “mud” topside.

Concerned with protecting infrastructure and people, we have also developed new fire-performance products for the oil and gas environment, and we have been carefully tracking and improving materials for easy recycling. Our full range of products covers virtually every oil and gas function on land and sea, and even below the surface: data-acquisition cables, umbilicals, submersible equipment, topside cables, energy cables of all types, LANs, optical fiber backbones, accessories, wellhead power and control cables...





Nexans supports production upstream and downstream

- copper and optical data-acquisition cables for seismic exploration
- towed lead-in and gun cables for 3D and 4D marine surveys
- oceanography cables for ship surveillance
- Remote Operated Vehicles (ROVs) for trenching, burying and installation
- “dynamic” cables for ROVs, platforms and production ships
- halogen-free mud-resistant, fire-performance cables for topside
- submarine high-voltage cables for the transmission of energy onshore to offshore
- long “umbilicals” for deep water
- long-distance fiber backbones along pipelines
- copper and/or fiber LAN solutions for platforms and refineries
- unique modeling software for dynamically hanging cables
- submarine pipe-heating cables to prevent flow line blockages
- instrumentation, compensation, power and control cables
- low, medium and high-voltage environmentally-friendly energy cables for refineries
- Halogen-Free, Fire-Resistant (HFFR) and Low-Smoke, Zero-Halogen (LSOH) technologies to protect infrastructure and people
- fully recyclable materials and environmentally-friendly solutions

Never out of your depth with



High-voltage energy cables

Nexans manufactures submarine paper-insulated and XLPE-insulated cables of up to 2,500 mm² for voltages to 525 kV AC. Our composite solutions contain fiber optic units for secure offshore telecommunications.

- Feeding clean energy to a platform eliminates onboard generators and dangerous CO₂ emissions. A record-breaking 67 km long 52 kV cable is already linking land facilities with the Troll platform in the North Sea.

Umbilicals

Multifunction umbilical cables, carrying energy, telecommunications, fluids and chemicals are essential for controlling the oil flow. Nexans has developed a new generation of umbilicals using stainless steel tubes.

- We have achieved several world records for offshore umbilicals, including the deepest, 2,300 meter depth for the Nakika project in the Gulf of Mexico, and the longest, a 125 km single length in Shell's Mensa project.

Topside fire-performance mud-resistant cables

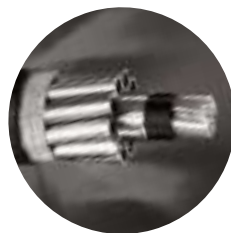
Low and medium voltage energy cables are used for control and instrumentation on platforms. A special sheathing resists "mud" used in oil extraction; they are halogen-free to protect infrastructure and personnel.

- Nexans recently developed a mud-resistant, halogen-free cable which met the rigorous NEK 606 standard and approved by DNV (Det Norske Veritas). It offers maintenance-free, high reliability and can continue operating up to 1,000°C.

Seismic and oceanography cables

Lead-in cables, gun cables and bottom laid cables for 4-D seismic acquisition offer high mechanical strength and operational flexibility. Deep water cables are also used for oceanographic monitoring and surveillance.

- Nexans data acquisition cables are designed for a long survival in a corrosive environment. Our FOWM cable can monitor reservoir temperature and pressure up to 200°C and 1,000 bars pressure







Maritime Local Area Networks

Copper and/or fiber LANs supporting 1 Gigabit and beyond move more functions onshore by providing remote monitoring, control, maintenance, real-time drilling data, videoconferencing and even entertainment.

- The kind of data speeds previously available onshore are now available on platforms and production ships, which means that operators can now plan 5 to 6 years ahead, and avoid expensive retrofitting.

Capjet ROV and dynamic cables

The family of CAPJET Remote Operated Vehicles protects cables and pipelines from ship anchors and trawling equipment by using water-jetting for propulsion, trenching and back-filling of buried cables.

- Safer than more costly heavy equipment, CAPJET has buried more than 3,000 kilometers of cables and pipelines without damage to the buried elements at depths down to 1,000 meters.

Heating cables

A new heating cable which is strapped to a pipeline during manufacturing, produces an induced current which prevents "plugs" and shutdowns by maintaining a steady-state production temperature of 27°C.

- Nexans completed the first offshore electrical pipeline heating system for Statoil in the Åsgård field, heating 6 flow lines for a total of 45 km; a similar design is operating in the Huldra field.

Accessories and custom software

A wide range of cable accessories cover all energy and telecom needs: joints and terminations, pressure systems, pumping plants, pull-in heads, terminations, buoyancy elements, branching units, amplifiers, etc.

- To position cables dynamically from platforms and ships, Nexans' unique software determines ideal positioning according to currents, waves and platform movement, avoiding the need for expensive mechanical testing.



: your landmark for reliability

Data acquisition cables

Copper and optical data acquisition cables must be sensitive, sturdy, reliable and light for rapid deployment. Nexans' precision cable for sensors and geophones are waterproof and tough, with low cross-talk for higher accuracy.

- For the oil research data acquisition equipment manufacturer, Sercel, Nexans developed customized lighter data acquisition cables in record time, providing more mobility in the field and far less weight. These cables can also be used for shallow-water application.



Instrumentation, compensation, control and power cables

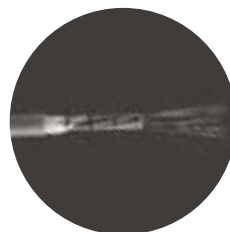
Various, often hybrid, cables make it possible to monitor sensors and activate control, safety and bleed valves to regulate oil, water and gas flow; accurately measure and control temperature; and deliver up to 36 kV for pumps, motors and relays.

- These energy and information cables can be proposed with special shielding for the abrasive and corrosive drill rig/wellhead environment. Reliable cables like these are ideal for emerging "smart well" applications.

Optical fiber backbones

Land-based pipelines between distant points provide a convenient and protected infrastructure (right-of-way) for long-distance fiber optic backbones which can either be incorporated during pipeline construction, or added later if the terrain permits.

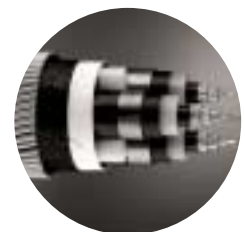
- Optical fiber cables along pipelines provide leakage monitoring, the remote control of pumping stations, and network management, in addition to generating added income by the leasing of "dark" fiber.



Medium and high-voltage cables

Nexans provides a full range of power cables for transmission and distribution. If required, special solutions for refineries can be supplied with lead sheathing to resist aggression from dangerous chemicals.

- Lead is still the safest way to protect cables in refineries, but requires a complex manufacturing process, and special precautions must be taken for personnel. That is why Nexans is currently working on thermoplastic substitutes to eliminate the lead component.





Local Area Networks

To assure high levels of refinery security, Nexans has both advanced fiber and copper LANs solutions. In fact, we are the only group to have developed a Cat 7 solution which is backward compatible to Cat 5 and 6.

- To protect people and buildings, we provide the latest Halogen-Free, Fire-Resistant (HFFR) and Low-Smoke, Zero-Halogen (LSOH) cables to assure the continuous flow of data and energy before and during an emergency.



goes beyond cable

To help the oil and gas industry move into a new energy era, Nexans is taking on new responsibilities, adding value to products, conducting innovative research and providing a host of behind-the-scenes services:

Reliability

In an industry where delay or system failure means a costly shutdown or even worse, we are dedicated to producing cables and accessories of the highest quality, made from the best materials, which can function for years with virtually no maintenance, even under the harshest marine and industrial conditions, including depth, heat and stress

Innovation

To match our customers' concern with managing existing fields and finding new ones, we are constantly improving our cables, so that they can go deeper and function more efficiently on land and sea. At the same time, advanced research is being done to serve advanced broadband needs and new energy sources for sustainable development.

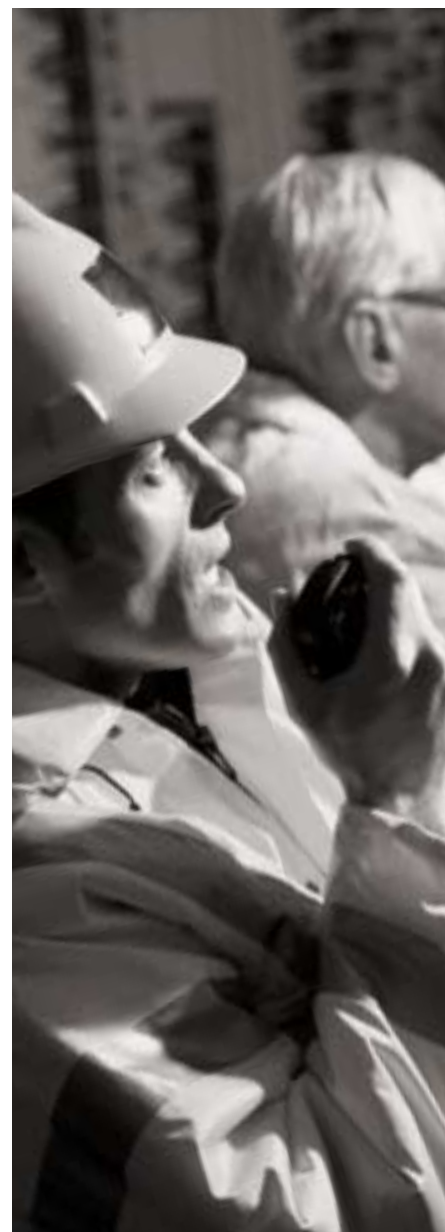
Safety

Because producers are anxious to protect people, the climate, and the environment, Nexans cables are designed to reduce the risk of fire in cramped or dangerous operating conditions, to reduce CO₂ emissions by moving energy production onshore, to safely bury cables undersea, to reduce the risk of spills, and to assure easy recycling.

Wind: a power for change

In keeping with oil company concerns for alternative energy sources, Nexans has been involved in major windmill projects. It recently won a contract in Denmark on the Horns Rev project to deliver and install 21 km of subsea power cable to the world's largest sea-based windmill park. Nexans was chosen over stiff competition because of its wide-ranging offshore experience.

This 150 kV three-conductor AC cable is also the world's most powerful, and will link the hubs which gather energy from the windmill park to the land-based power station, which feed it into the local power grid.





Installation

In shifting ocean conditions, we have found new ways of hanging umbilicals dynamically from surface platforms and vessels, and burying cables on the ocean floor; while on land we have developed new right-of-way solutions for oil and gas.

Testing

To ensure needs far ahead, we rigorously test our own and even customers' products in special facilities. In particular, our gigantic high-voltage laboratory uses the latest appliances for electrical testing HV components according to international standards.

Customizing

Because every site and every need is unique to local conditions, we do more than just supply off-the-shelf goods. We are constantly consulting, planning, dialoguing and customizing solutions to satisfy an industry that is at the forefront of change.

Service

Customers worldwide recognize Nexans' wide experience in the challenging oil and gas market. We apply this know-how to deliver complete systems: from planning and project management, through to installation, commissioning, training and maintenance.





helps you harness the future

Faced with tremendous technical challenges and awesome human and environmental concerns, the oil and gas industry will continue to evolve, while seeking to reduce costs, improve operational efficiency, and to position itself in the energy landscape of the future.



In the extraction process, moving into deeper waters so as to exploit previously bypassed pockets in reservoirs is a part of that process. Also, "smart wells" are already on the horizon. Soon, many wells may be completely autonomous, requiring very little human intervention. Using real-time information and conventional hydraulic and electrical intelligent control systems, they will be able to gather information downhole, analyze it, and constantly adjust valves and flows to optimize oil production.

Moving many offshore functions onshore, including energy production, supports this trend. In refineries, similar efforts are under way to add value to the production process, while assuring maximum protection to people, plant and the environment. Eventually, renewable, cleaner fuels will replace hydrocarbons as supplies dwindle and disappear.





At every phase of this Odyssey, cables are going to play a key role in the oil and gas business, even as sources of energy change, and new telecommunications needs arise. That is why Nexans is working at the heart of your business to provide:

- reliability and performance at all levels
- optimum safety for people and infrastructure
- new installation technologies undersea and on land
- optimizing reserve recovery
- adding value to oil and gas assets
- improving cost benefits through technological innovation
- providing advanced telecommunications capability
- rigorous testing according to world standards
- finding ways to protect the human habitat

Since the future depends on how well the oil and gas industry meets the challenge of sustainable energy development, Nexans is dedicated to keeping your cables operating wherever they are needed, and for a long time to come.



The future runs through Nexans.

Nexans, 16 rue de Monceau - 75008 Paris - France
Tel: +33 (0)1 56 69 84 00 - Fax: +33 (0)1 56 69 84 84 - www.nexans.com