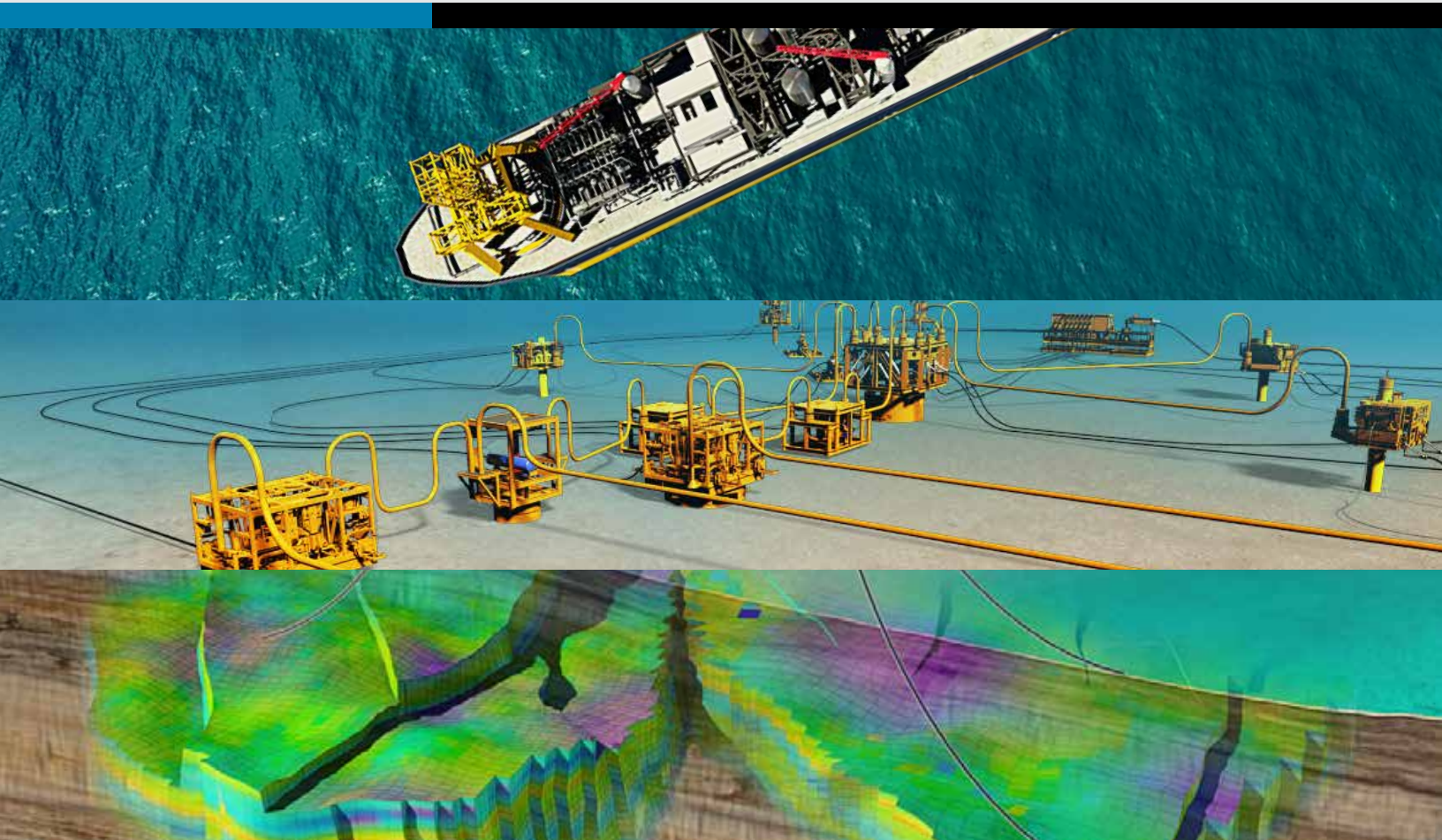


# OneSubsea

One Comprehensive Resource for Integrated Subsea Solutions



**OneSubsea**  
A Cameron & Schlumberger Company

Consummation and implementation of the Joint Venture are subject to regulatory clearances.

OneSubsea™ is one of a kind, created by two subsea leaders: Cameron and Schlumberger.

From reservoir to subsea to surface, we apply more knowledge. More technologies.

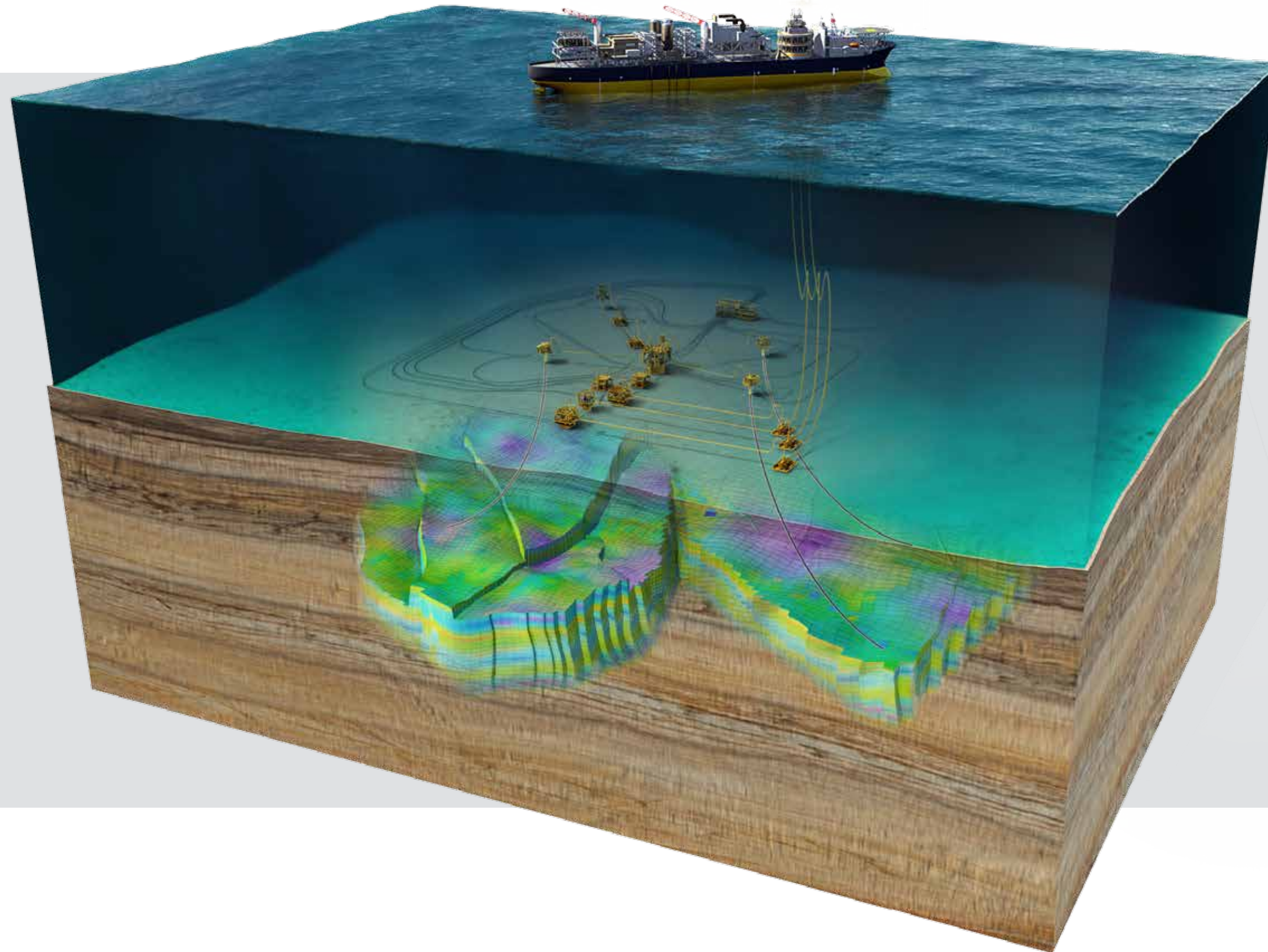
More services. We deliver premier processing, boosting and lifting. Unrivalled flow

assurance. And world-class subsea

production systems. Everything to optimize the life of your field.



# A Unique Combination of Powerful, Reliable Technologies and Services.



## INTEGRATED SOLUTIONS

- Petrotechnical Services
- Early Engineering Engagement (EEE)
- Flow Assurance Consulting

## PRODUCTION SYSTEMS

- Trees
- Manifolds
- Connection Systems
- Wellheads

## PROCESSING SYSTEMS

- Multiphase Pumps
- Single-phase Pumps
- Multiphase Compressors
- Multiphase Meters and Wet Gas Meters
- Sampling
- Separation

## CONTROL SYSTEMS

- Tree and Manifold Controls
- Multiphase Flow Controls
- Multiphase Pump Controls
- Topside and FPSO Controls
- Wet-Mateable Diamould Connectors

## SWIVEL AND MARINE SYSTEMS

- Swivel Stacks
- Turrets
- Submerged Loading Systems
- Offshore Cryogenic Transfer

## SERVICES

- Installation and Commissioning
- Life of Field
- Asset Management

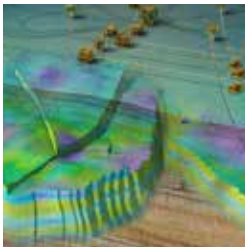
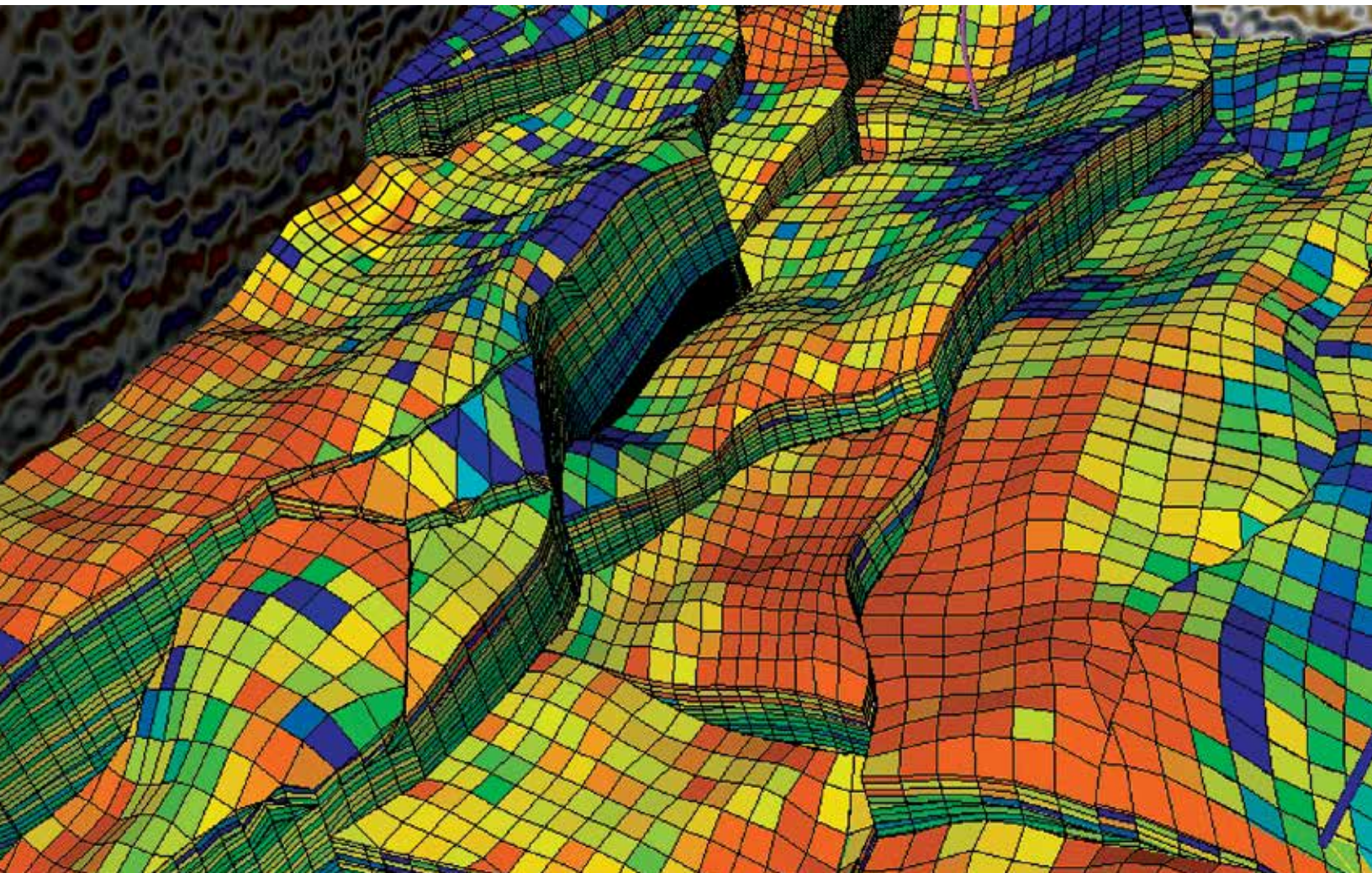


# Integrated Solutions

OneSubsea’s integrated solutions enable a seamless delivery of expertise and technologies to optimize the entire production system. Our capabilities extend from the reservoir pore space to the surface, including the well completion and subsea production system.

This unique combination of skills helps to ensure the most adaptable solution to improve performance throughout the changing reservoir and production conditions over the full life of the field, increasing production and enhancing recovery. Current offerings include: Petrotechnical Services that combine our reservoir and wellbore technology knowledge with industry-leading subsea technologies to

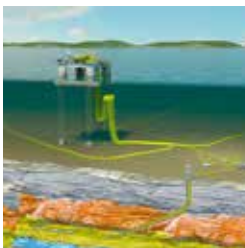
deliver enhanced productivity, reliability and integrity of our clients’ subsea developments; collaboration with our customers through the Early Engineering Engagement (EEE) group to design high-efficiency production systems to reduce risk and ensure timely project execution; and Flow Assurance Consulting to manage the inherent changes of the reservoir and production system conditions over the life of the field.



**PETROTECHNICAL SERVICES** Producing oil and gas reservoirs effectively requires strong competencies in and coordination of all related geosciences and engineering disciplines. OneSubsea’s Petrotechnical Services offer a multidisciplinary, collaborative and integrated approach for reservoir characterization and production solutions over the life of the field. Our well-connected team of leading technical experts has a deep understanding of the reservoir and the competencies to predict well and field production over time. The offerings include productivity analysis, history matching and reservoir simulations, geomechanics studies, and field development planning. Our unique reservoir and production systems approach includes both the well and the complete subsea processing plant. Through close collaboration with our customers, we can achieve significant improvements in the performance of subsea development assets.



**EARLY ENGINEERING ENGAGEMENT** OneSubsea’s EEE group comprises highly skilled industry experts who work in partnership with our customers from the beginning stages of the project life cycle. The purpose of EEE is to attain an alignment between both the customer’s strategic targets and the project execution plans. We support our customers by using front-end engineering and design (FEED) studies, state-of-the-art 3D modeling, systems engineering and life-of-field support. From pre-FEED through the full life of the field, the EEE team offers a suite of services to assist customers in the evaluation of optimum field development solutions prior to project execution. By addressing these issues early, customers can achieve results instrumental in reducing CAPEX, OPEX and cycle time, de-risking the project, avoiding costly redesign efforts and, most importantly, ensuring timely system delivery for first oil production.



**FLOW ASSURANCE CONSULTING** Flow assurance (FA) is the science and engineering of predicting and managing production behavior as fluids move from the reservoir to the market through the changing environment of the reservoir and production systems. Changes in production are rarely avoidable as oil and gas fields mature and decline. Solids may form in wells and flowlines, gas or water cut may increase, and reservoir pressure may fall. OneSubsea’s Flow Assurance Consulting team focuses on the entire fluid journey from the reservoir pore space to the topside facilities, and from exploration to abandonment. Optimum FA design and operations require a detailed understanding of the fluid, reservoir, well, pipeline gathering system, surface facilities and surrounding environmental conditions. Based on our in-depth knowledge of multiphase fluid flow dynamics and all related technical disciplines, our FA offerings comprise fluid chemistry and processing, production engineering, surveillance, and operations. Our unique and fully integrated approach focuses on the design and operational changes of the entire subsea production system, which helps to ensure optimum production and enhanced ultimate recovery.



# Production Systems

OneSubsea trees, manifolds, connection systems and wellheads offer fully integrated subsea production systems solutions, incorporating an amalgamation of both Cameron and Schlumberger’s advanced field-proven technologies and products.

These industry-trusted and proven products, combined with decades of experience and engineering innovation, have helped to ensure that the OneSubsea product range is designed to provide technically and functionally superior field development solutions. From deep water and ultra-deep water to greenfield and brownfield applications, from wellheads and trees, to manifolds and flowline connectors, to production controls and workover systems, OneSubsea is here as your one source to provide the best solution for any challenge.



**TREES** OneSubsea vertical and horizontal trees are built and installed with proven technology based on extensive subsea experience and years of testing under some of the most demanding conditions. Our trees provide reliable operations in all environments, including shallow water, deep water and ultra-deep water. OneSubsea trees have the flexibility and durability to meet specific job requirements with minimal customization. The monitoring and feedback capabilities of OneSubsea trees reduce operator risk and provide data and communication for operations management.



**MANIFOLDS** OneSubsea delivers the magnitude of more than four decades of applied subsea experience in the design and development of manifolds. With a wide selection of manifold types installed in virtually every water depth, operating in pressures up to 15,000 psi, OneSubsea manifolds are available in all material classes. OneSubsea manifold styles include production, water injection and water-alternating-gas, and they can be configured into both pipeline end manifolds and pipeline end terminations. Fabricated and manufactured using local facilities, OneSubsea manifolds can have a pile or mud mat foundation, and can tie in up to eight wells.



**MARS** The OneSubsea MARS™ Multiple Application Reinjection System serves as a universal interface for all trees (topside and subsea), enabling processing equipment to be installed between the existing isolation barriers, thus eliminating the need for high-risk and costly intervention. MARS provides flexibility and choice for production optimization in new and existing fields, enabling low-cost, low-risk intervention and wellhead processing.



**CONNECTION SYSTEMS** OneSubsea’s connection systems reflect more than 50 combined years of experience, engineering, R&D and technological innovation. We offer both collet and clamp style connections to ensure that there is a connection solution that suits your particular application. In addition, OneSubsea connection systems are designed so that hubs and connectors are interchangeable within specific size and pressure ranges. OneSubsea offers several types of connection systems, including the CVC™ Connection System and the CHC™ Connection System.



**WELLHEADS** OneSubsea’s wellheads are flexible in design, reliable and field proven. Our unique parallel-bore metal-to-metal seal is standard in all 15,000-psi systems and has consistently delivered superior performance in more than 20 years of installation history. From standard bore to large bore, in ultra-deep water and harsh, severe environments, OneSubsea has the right wellhead for your particular application. Our subsea wellhead systems are available in an array of designs from standard configurations to the most complex designs.



# Processing Systems

OneSubsea offers unique and field-proven pumps, meters and state-of-the-art subsea processing systems for development and technology projects worldwide, covering all aspects of subsea separation and processing. As a market leader in subsea multiphase boosting, subsea wet gas compression and multiphase metering, we provide a wide range of technical solutions to help increase efficiency in subsea oil and gas developments. Our pump, meter and multiphase compressor systems can be applied as standalone solutions or as part of the OneSubsea total field offering.



**MULTIPHASE PUMPS** With an accumulated operation experience of more than one million hours, the OneSubsea multiphase pumps are unmatched in the industry. Our multiphase pumps are specifically developed to handle hydrocarbon flow with any gas content, from 0% to 100%, and can generate differential pressures of up to 2901 psi (200 bar), depending on the actual gas volume fraction (GVF) at suction conditions. These pumps generate a substantial production increase and benefit our customers worldwide.



**SINGLE-PHASE PUMPS** A centrifugal design is used for single-phase applications or where the GVF is low. Single-phase pumps also utilize the dynamic pumping principle. The single-phase and multiphase pumps are designed and built with the same high-quality components. Both technologies have identical mechanical and electrical interfaces to accommodate changing requirements through the life of the field.



**MULTIPHASE COMPRESSORS** OneSubsea's multiphase compressors are designed for pressure boosting of an unprocessed well stream in the high gas/liquid ratio (GLR) area between 95% and 100% gas at suction conditions. The multiphase compressor unit is integrated and fully encapsulated, based on a well-proven design from the range of single-phase and multiphase subsea pumps. Multiphase compressors are designed from first principles for subsea applications with a compact design. Its inherent design removes the need for auxiliary anti-surge control systems, intercoolers, inlet scrubbers or any other sophisticated fluid treatment or control system.



**MULTIPHASE METERS AND WET GAS METERS** The OneSubsea PhaseWatcher subsea multiphase and wet gas flow meter with Vx Technology is ideal for subsea applications as a production management tool applied in well testing, well management and production allocation. The flow meters are robust, independent measurement tools based on physical metering principles. They are a substitute for conventional separator systems and offer a more flexible, cost-effective solution with several value-added benefits, such as continuously monitoring well parameters and allowing key actions for optimized production in a safe and efficient manner.



**SAMPLING** For long-term production optimization, flow assurance, fluid control and reservoir understanding, representative sampling from individual wells is required. OneSubsea offers the hardware, tooling and analysis capability to perform this sampling for subsea wells. This service is based on the technology developed by Schlumberger, a parent company of OneSubsea, over several decades, which is now available for use in subsea environments.



**SEPARATION** OneSubsea's separation technologies, including Cameron's NATCO® and PETRECO® heritage designs, help to ensure unparalleled performance and reliability for two- and three-phase separation, along with solids removal. Compact separation and the electric DC System enables a smaller footprint for deepwater developments. Advanced technologies, such as the Compact Electrostatic Separator (CES®), provide an efficient method to separate water from heavy oil with the benefits of easy installation, simple operation and redundant design.





# Control Systems

Ever since subsea production became an integral part of the energy industry, OneSubsea has been supplying production and seabed boosting control systems designed to meet rigorous demands and reliability requirements.

With hundreds of subsea control modules installed and working throughout the world, OneSubsea appreciates the fact that control systems require a meticulous degree of precision and expertise. Through investments in research, testing, development and highly skilled personnel, we have ensured that the facilities and people that design and manufacture our control systems are among the best in the world. Subsea control systems and their related ancillary

equipment play an important role in supporting the evolution of existing and new technologies that can be placed on the seafloor. Not only does it provide the needed control, but, more importantly, it enables feedback of important process information. With OneSubsea's state-of-the-art copper or fiber-optic systems utilizing common TCP/IP technology, we will be able to connect all current and future devices to a fully integrated control system.



**TREE AND MANIFOLD CONTROLS** The OneSubsea tree and manifold controls are designed for a wide variety of field functionalities. Its modular setup allows the use of field-proven subcomponents, providing high flexibility in combination with high reliability. Our subsea control modules (SCMs) are qualified in accordance to API 17F/ISO 13628-6, IWIS and SIIS, and are designed to handle a variety of subsea instruments. With the ability to handle AC as well as DC power, and utilizing copper or fiber-optic communication, OneSubsea's tree and manifold controls are capable of connecting distances in excess of 124 miles (200 km), while still using low-voltage range connectors.



**MULTIPHASE PUMP CONTROLS** A seabed boosting system is a dynamic system that requires active control of the multiphase pump to ensure optimum performance. The basis for the control system is an electro-hydraulic multiplexed (EH MUX) control module, seamlessly integrated with a programmable logic controller (PLC)-based pump system located topside. A high-speed fiber-optic topside-to-subsea Ethernet communication system enables closed-loop control and fast-acting safeguarding of the seabed booster pumps. The SCM is designed and qualified according to API 17F/ISO 13628-6. It can be configured with up to 28 hydraulic functions and offers SIIS Level 1/2/3-compliant interfaces for process sensors and other subsea devices.



**MULTIPHASE FLOW CONTROLS** OneSubsea's multiphase flow monitoring system is based on a retrievable subsea module that acts as a hub for up to six PhaseWatcher multiphase flow meters with Vx Technology. This unique module distributes switchable power to the individual flow meters and provides an Ethernet IP backbone communication path to the topside. The data from the individual flow meters are stored in a data server that is located topside. The system seamlessly calculates the combined flow rates and fractions, and also provides a single interface for the transfer of data to the external systems. Not only does the interface include interactive mirrored screens with well testing functionality, but it also provides complex trending capabilities and automated reporting functions.



**TOPSIDE AND FPSO CONTROLS** The OneSubsea topside/floating production, storage and offloading (FPSO) vessel controls are reliable and robust and use commercially available components. They can be easily interfaced with the supervisory control system of the host facilities. Backward compatibility and provisions for obsolescence ensure integrity of the system during its field life. OneSubsea uses a Linux-based operating system as a standard for its production control systems, which has set industry benchmarks with respect to functionality, scalability and software robustness. In addition, the control system offers a remote monitoring feature and a 24/7 call center for master control station software support.



**WET-MATEABLE DIAMOULD CONNECTORS** OneSubsea Diamould compact power and instrumentation connectors provide a reliable connection throughout the subsea production system, whether delivering power to an electric submersible pump or allowing communication from a downhole intelligent completion. These connectors use pressure-compensating, oil-enclosed chambers around the contact pins, improving system reliability and eliminating the corrosion and contamination generally associated with exposed-pin connectors. Unique electrical stress control management in every connector enhances the overall electrical performance. Dual-contact instrumentation connectors enable advanced downhole telemetry systems for intelligent completions.





# Swivel and Marine Systems

When a floating production, storage and offloading (FPSO) unit is operating in rough weather or rising and falling seas, it needs to be moored with a turret system, allowing the FPSO to rotate or weathervane around its fixed mooring. Generally, a fluid swivel system on top of the turret handles both the large volumes and high pressures of the production and injection fluids that flow through it.

OneSubsea offers a swivel system for any type of FPSO application. Currently, more than 35 FPSOs throughout the world have the OneSubsea swivel stacks installed. The swivel stacks are critical elements onboard an FPSO/FSO

facility. The swivels ensure that all fluids, controls and power are transferred safely from the wells, flowlines, manifolds and risers to the rotating vessel and its process plants, under virtually any environmental conditions.



**SWIVEL STACKS** OneSubsea swivel technology is a fully integrated and compact fluid transfer system for oil and gas production, fitting any turret and any FPSO, FSO or FLNG vessel. Very compact and lightweight, the system requires minimum space and structural support. Our swivels are used to transfer liquid, multiphase fluids or pure gas using the same swivel and fluid sealing technology. It offers high-capacity and high-pressure capabilities up to 7500 psig (517 barg) design pressure, and design temperatures to more than 212° F (100° C). Sealing between process fluids and the environment is provided by remotely pressurized barrier fluid-activated dynamic seals. The design features primary and secondary seals, which ensures continuous monitoring and the protection of the natural environment.



**TURRETS** OneSubsea internal turret technology was developed more than 20 years ago for the challenging North Sea environments to ensure vessels stay connected at a 100-year condition of maximum 98-ft (30-m) wave height and 135-ft/sec (41-m/sec) wind. The turret technology has been in operation on more than 10 fields in very harsh environments. The system offers multi-riser capabilities with effective adjustments and replacement of mooring lines *in situ*. The same applies for the pull-in and replacement of risers and umbilicals. The turret design includes a robust bearing arrangement for horizontal and vertical loads using low-friction wheel-type upper axial and radial designs, and a segmented pad-type lower bearing arrangement.



**SUBMERGED LOADING SYSTEMS** OneSubsea loading systems are fully submersible and enable the transfer of processed crude from the production and processing facilities to a dynamic positioning (DP)-based shuttle tanker. The system consists of a riser base, rigid riser, buoyancy tank with swivels, loading hose and pick-up system. The riser base contains connectors for two flexible flowlines, valves and a control system to communicate with the processing facilities. The riser has a flexible joint at the lower end and is held in tension by the buoyancy tank. A swivel is placed at the top to allow the loading hose and shuttle tanker to weathervane freely. The loading system offers a large operating envelope and is based on the use of standard field-proven components with a service life of 25 years and a low degree of maintenance. The system is located subsurface and is subject to low environmental loads and motions.



**OFFSHORE CRYOGENIC TRANSFER** The OneSubsea offshore cryogenic transfer (OCT) technology is based on a tandem ship-to-ship configuration that has been used successfully in offshore oil transfer for more than 30 years with more than 20,000 loading operations carried out worldwide. As the OCT system can accommodate a separation distance to 328 ft (100 m), large relative movements are allowed by both the producer (FLNG vessel) and the LNG carrier. The system consists of an A-frame crane, extending from the stern of the FLNG vessel toward the bow of the LNG carrier. Three corrugated stainless steel vacuum-insulated flexible pipes hang from the tip of the crane to the bow of the LNG carrier. Two of the flexible pipes are used for LNG and one is used for a vapor return loading facility in the bow. Maximum wave heights during connect and disconnect are 15 ft (4.5 m) (Hs) and 18 ft (5.5 m) (Hs), respectively.



# Services

Throughout the entire life cycle of a subsea field, from discovery to abandonment, OneSubsea offers the services necessary to fully optimize the overall performance of your valuable assets. With a worldwide footprint; experienced industry experts; rental equipment designed to meet installation, commissioning and workover requirements; and real-time operational and technical support, OneSubsea is dedicated to enhancing the total performance of subsea fields anywhere in the world to make them productive, safe and cost-effective.



**INSTALLATION AND COMMISSIONING** With decades of experience throughout the world in virtually any conditions, our wide-ranging installation and commissioning services provide a field-proven approach to the delivery of outstanding customer support. While keeping the primary focus on health, safety, security and environmental impact, we strive to maintain maximum operational quality and cost-efficiency. OneSubsea's extensive and continually expanding supply of rental tools is designed to handle the installation of all of our product lines. Our skilled offshore personnel, combined with our proven onshore support structure, help to ensure seamless coordination of logistics and mobilization during the installation process. Our target is to make sure you attain first production as quickly and efficiently as possible by utilizing the arsenal of services offered by OneSubsea.



**LIFE OF FIELD** OneSubsea is a committed partner to our customers, covering the full life of their subsea field, with the objective of ensuring they engage the full potential of their assets. We offer distinct capabilities to remotely monitor subsea fields continually from the reservoir to the production facility in order to maximize both production and asset uptime, optimize recovery and reduce operational and financial risks. Some of our life-of-field services include around-the-clock engineering support, asset integrity management, flow assurance consulting, subsea sampling, fiber-optic remote monitoring and subsea intervention. Our unique services will ensure you are able to increase production over the full life of the field.



**ASSET MANAGEMENT** From equipment upgrades and refurbishment to inventory management, OneSubsea is dedicated to getting the most out of our customers' assets through the implementation of a comprehensive asset management program. Our asset maintenance and protection goals are simple: to ensure the lifetime fitness of equipment and systems, while enabling and supporting safe operations, environmental compliance and other critical requirements. Some of OneSubsea's additional asset management solutions include planned preventive maintenance, preservation and storage, management of spare parts, and workover programs. In addition, OneSubsea has facilities in all major locations, customized for the asset management requirements in that region.



# Parent Support Services

OneSubsea’s distinctive value proposition was created by two of the foremost subsea providers, Cameron and Schlumberger, each with a legendary heritage. In addition to all of the consolidated services and offerings shown in this brochure, each of the parent companies offers support services complementary to all the rest.

## CAMERON

**CHOKES** Cameron’s subsea chokes are designed for use in production, water injection, gas injection, gas lift and reverse flow applications, with chokes ranging from 2” through 8” nominal sizes and C<sub>v</sub> up to 1000. We offer both non-retrievable and insert-retrievable chokes. Our non-retrievable chokes remain permanently attached to subsea structures, while our insert-retrievable chokes are designed so the trim, actuator and retention mechanism can be retrieved and brought to the surface.

**ACTUATORS** Cameron has long provided a variety of subsea choke actuators, including hydraulic actuators, in operating pressures of both 3000 and 5000 psi. These actuators are compatible with water or mineral oil-based control fluids, as well as optional standalone DC electric actuators.

**CHEMICAL INJECTION VALVES** Cameron’s subsea chemical injection metering valve (CIMV) is the result of applying decades of subsea expertise to achieve higher performance in one package. It has been streamlined for greater accuracy, reliability and long life. The CIMV product line includes 15,000-psi-rated single- and dual-core low-flow units, high-flow units, an ROV/manual unit and more. Cameron’s CIMV uses real-time feedback from the positive-displacement flow meter to position the throttling valve and make automatic adjustments to pressure, flow rates and more.

**SUBSEA VALVE TECHNOLOGY** The modern demand for deepwater oil exploration gave rise to Cameron’s wide range of ball, gate and check valves to provide reliable solutions to the challenging environments of subsea, including RING-O®, TOM WHEATLEY®, TK®, CAMERON® and GROVE®. Cameron has engineered purpose-designed valves that go beyond subsea production applications, ranging in sizes up to 42”, suitable for pipeline utilization.

**PROCESSING TECHNOLOGIES** Cameron identifies the most economical, environmentally safe and technically viable solution for each separation and processing challenge, utilizing the consultancy expertise of our Custom Process Systems (CPS) division. CPS subsea processing solutions increase hydrocarbon recovery and profitability by reducing CAPEX on process topsides and allowing production from locations that would not be suitable for conventional production systems, such as deepwater and sub-ice areas, or fields with a low wellhead pressure. For existing fields, CPS can determine process debottlenecking where fluid characteristics or production profiles have changed, utilize computational fluid dynamics (CFD) evaluations to improve fluid dynamics, create conceptual process designs and process flow diagram (PFD) development, and perform topside equipment design to reduce footprint and weight requirements.

## SCHLUMBERGER

**SUBSEA LANDING STRINGS** Schlumberger designed its subsea landing string systems based on more than 35 years of experience. These subsea systems have a proven track record of overcoming the complexities imposed by deep waters, high pressures and extreme temperatures. Their monitoring and feedback capabilities help customers reduce technical risk. Their field-proven technologies achieve efficiency in virtually all critical areas. The extensive testing programs performed on the subsea landing strings assure reliability in operation.

**OIL AND GAS SOFTWARE** In the continued effort to find new reserves, Schlumberger looks to increasingly complex reservoirs, both conventional and unconventional. A detailed understanding of the subsurface is critical to enable successful appraisal and development endeavors in these complex reservoirs. Schlumberger’s E&P software systems provide the ability not only to integrate vast amounts of data from multiple sources to constrain and substantiate interpretations, but also to run numerous iterations, which help us to understand the limits of uncertainty for key static and dynamic reservoir properties. Schlumberger’s proprietary platform provides a powerful environment throughout the life of the reservoir.

**WELL INTERVENTION** Well intervention services include those that extend the life of producing wells by improving performance or providing access to stranded or additional hydrocarbon reserves. Schlumberger provides the broadest offering of well intervention technologies, including coiled tubing, wireline and slickline, and has more than 30 years of subsea well intervention experience.

**ARTIFICIAL LIFT** Of the approximately one million oil and gas wells producing in the world, roughly 5% flow naturally – leaving nearly all of the world’s oil and gas production reliant on efficient artificial lift operations. Schlumberger offers an integrated lift platform that includes decades of field-proven REDA and Camco product lines. Their exclusive optimization services integrate real-time monitoring with expert input. Together, their products and services deliver comprehensive artificial lift solutions that optimize production within any environment.



# Project Management

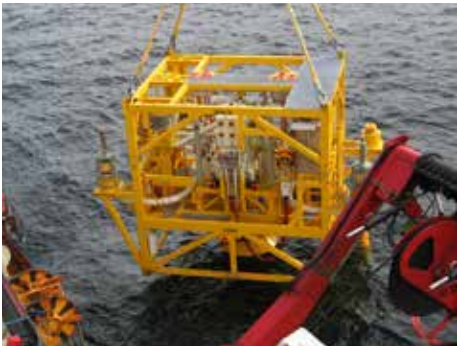
At OneSubsea, our goal is to be recognized by the industry as the “best in class” in subsea project planning and execution. Industry-leading project management tools and systems allow for effective teamwork by applying the necessary levels of resources and information in a timely manner.

- RISK MANAGEMENT FRAMEWORK FOR ALL PROJECTS
- LINKS ACTIVITIES AND DELIVERABLES TO KEY DECISIONS
- CLARIFIES ROLES AND RESPONSIBILITIES
- COMMON METHODOLOGY

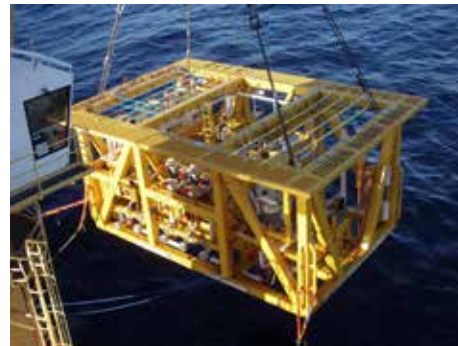


# Project Highlights

OneSubsea’s state-of-the-art subsea production systems have been installed worldwide in virtually all types of environments. From deep water to ultra-deep water, from greenfield to brownfield, you can depend on OneSubsea to be there providing successful solutions for any type of challenge.



**CEIBA**  
**AWARD YEAR:** 2000  
**WATER DEPTH:** 2395 ft (730 m)  
**LOCATION:** Offshore Equatorial Guinea  
**SCOPE OF SUPPLY:** 41-well system; pumping and related control systems  
The Ceiba field set a world deepwater record from discovery to first oil in only 14 months. OneSubsea supplied the early production system equipment to support the operator’s fast-track goals and took a flexible systems approach to provide an expandable subsea system; the later addition of seabed boosting helped to optimize production from this field. In total, three double and two single multiphase pump modules were installed, making this the largest field installation of its kind.



**BRENDA**  
**AWARD YEAR:** 2006  
**WATER DEPTH:** 656 ft (200 m)  
**LOCATION:** UK North Sea  
**SCOPE OF SUPPLY:** Pumping and related control systems  
The OneSubsea Multimanifold provided a fully integrated solution that combined a multiport selector module, the multiphase booster pump, the PhaseWatcher subsea multiphase flow meter and a control system. This unique system design enabled efficient production and field management of up to six wells and two remote fields, including the gas lift required to optimize production.



**PVSM**  
**AWARD YEAR:** 2008  
**WATER DEPTH:** 5919 ft (1804 m)  
**LOCATION:** Offshore Angola  
**SCOPE OF SUPPLY:** 40-well system  
This first completely Angolan-built subsea wellhead system was manufactured and tested at our plant in Luanda, showing an example of OneSubsea’s first-class local content capability. In addition to the wellhead system, 26 subsea trees, eight production manifolds and all of the multibore spools also were manufactured in Luanda.



# OneSubsea Locations



With facilities located in every major offshore hydrocarbon-producing region of the world, OneSubsea provides state-of-the-art, cost-effective solutions for all of our customers' subsea requirements. Whether it is a manufacturing, service, engineering or administrative office, each OneSubsea location is staffed with highly trained, skilled personnel. And because these offices serve specific regions, our personnel are familiar with challenges particular to your area. This provides the benefit of local support operating as part of a global network.





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