

DELIVERING GLOBAL CONNECTIONS THROUGH SUBSEA NETWORK DEVELOPMENT



CORPORATE OVERVIEW
OIL & GAS



INDUSTRIES WE SERVE



TELECOM

Developing fiber optic networks



OIL & GAS

Connecting onshore & offshore assets



OCEAN OBSERVING

Protecting the ocean environment

> ABOUT OSI

Ocean Specialists, Inc. is a subsea fiber optic network consulting and development company, serving the Energy, Telecommunications and Ocean Observing industries. OSI works with a broad range of clients worldwide, ranging from Africa to Asia and from Europe to the Americas.

OSI brings extensive hands-on experience to all phases of subsea fiber optic network development; our consulting and program development services span market assessment, funding, engineering, contracting, installation and commissioning. With offices and people strategically placed around the world, OSI has delivered more than 200 subsea cable projects for our global client base.

OSI has been a leader in delivering fiber optic connectivity to offshore assets since the capability first existed. We planned the first multi-asset subsea network, and today have designed and commissioned more offshore energy networks than any other in our field. We work with operators through all phases of planning and development to ensure scalable broadband connectivity is delivered seamlessly and securely.



> OUR APPROACH

Each phase of subsea cable project development involves financial and technical risk, which are impacted by a variety of factors including project timeline, supplier selection and proper planning and design. Management and oversight during each phase is critical to addressing and overcoming any barriers throughout a project's development. OSI engages early in the development process and assumes accountability throughout strategic, tactical, engineering and oversight functions of the project.

We can own the entire end-to-end network development process and apply the full lifecycle approach to each project. Our process typically involves these steps:

APPRAISAL (PHASE 0)

We understand the importance of having the right party in the right role to ensure a successful network development and protect our clients' interests.

- Program structure
- Initial cost and schedule estimates
- Client-specific forecasts and business model development, demand analysis and capacity forecasting
- Cost structuring, financial planning and investment analysis
- Partner identification, solicitation and negotiations
- User and JV agreement development
- Industry, technology, and competitive research and analysis and Initial technology selection



SELECTION (PHASE 1) PRE-FEED

OSI's engineering staff specializes in a number of areas including mechanical, electrical and optical transmission, and ocean engineering. This experience helps ensure the total integrity of the network design.

- Request for Information (RFI) / Request for Qualification (RFQ)
- Enhanced desktop study, including permitting requirements and risk assessment
- Technology selection
- Terrestrial connectivity assessment and recommendations
- Validate cost and schedule estimates



DEFINITION (PHASE 2) FEED

The OSI team has experience working both for and with major industry suppliers, allowing us to match our clients' needs with the right supplier and ensure a fair contractual agreement for all parties.

- Project Execution Plan (PEP) & Scope of Work (SoW)
- Request For Proposal (RFP) creation
- Contract development, bid management, supplier selection and contract negotiation
- Project finance support
- Technical studies, analyses and initial surveys
- Refine cost and schedule estimates
- Program assurance support to Final Investment Decision (FID)



EXECUTION (PHASE 3)

Our team is engaged and fully embedded in our clients' organization to ensure all elements of planning and design are carried out to successful, high quality completion.

- System engineering oversight
- Survey and installation management
- Civil construction oversight
- Commissioning and testing
- Operations and maintenance negotiations
- Equipment sparing and maintenance contracts
- Compliance and Quality Assurance



OPERATIONS & MAINTENANCE (PHASE 4)

Following successful commissioning, our team will remain engaged with the project as long as necessary to ensure system hand over was successful, that Operational Readiness plans are functioning and that all maintenance plans are in place.

- Prepare operations and maintenance plans
- Network operation systems monitoring and management
- Oversee start-up of maintenance contracts and activities
- Provide additional training and operations support



> OSI EXPERIENCE

Since 2000, OSI has been a proven leader in the development of subsea fiber optic networks to connect offshore operations.

OSI led the development of the first independently operated oil and gas subsea network, and has continued this industry leadership role, actively developing more oil and gas telecommunications networks than any other project development or engineering organization. Our completed projects include planning or installing subsea fiber optic O&G networks in the Gulf of Mexico, Thailand, Australia, Angola, Ghana and Cyprus, with more currently in development.

> LIFE OF FIELD

OSI is frequently asked to develop life of field strategies for fiber optic subsea networks. Oil & Gas operators benefit from fiber optics in all phases of field development, yet often don't incorporate one critical phase into the next when data acquisition and communications needs are planned and implemented.

OSI has worked with operators to design a multi-phased approach, leveraging the combined needs of regulatory, permitting, drilling, operations and safety:

MONITORING PHASE

Metocean and science data is required by HSSE, Permitting, and Operations often many years before exploratory drilling commences in an offshore field.

Monitoring equipment and the processes for gathering data are highly sophisticated, but the value is limited due to lack of bandwidth necessary to aggregate and transmit large files.



It is not unusual for large data sets to be manually downloaded to an external hard drive and physically transported to a distant location for analysis.

OSI has designed and implemented fiber optic connections extending from shore to subsea science nodes on which a variety of sensors are deployed, enabling real-time access to the data and providing the ability to remotely monitor and operate the sensors. The fiber connections significantly reduce the need for frequent marine maintenance operations and their associated costs.

DRILLING PHASE

OSI has developed the technology and capability to connect temporary, mobile drilling vessels to an existing fiber optic subsea network. OSI's patented Portable Dynamic Riser is used to connect a fiber optic cable from a subsea connection point to drill rigs, providing broadband communications for the rig and potentially nearby supply and operations vessels as well.

OPERATIONS PHASE

OSI engineers subsea fiber optic networks with network architectures that enable multiple field assets, including production assets and subsea equipment, to be connected to the fiber optic network. OSI designs the network for redundancy, security, and upgrade potential for life of field use. OSI also works with telecom operators to provide international network connectivity from the network shore landings to the operator's home or remote offices, and can monitor and operate the end to end network 24x7 if required.

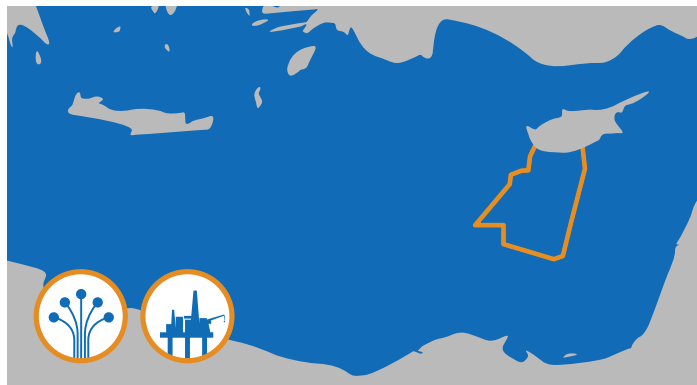


**PROJECTS COMPLETED**

- 26** Turnkey Network Development
- 33** Permitting, Survey & Post Implementation Assessments
- 30** Financing Support & Guidance
- 53** Technical & Commercial Recommendations
- 94** Market Feasibility Studies
- 15** Landing Station, Co-location & Back Haul Planning

> RECENT PROJECTS**CYPRUS**

A rapidly developing energy industry in Cyprus presented the opportunity to provide broadband services from the earliest field development stage. Operators wanted the benefits of broadband during exploration and also a managed and upgradeable service offering for production.

Services Summary

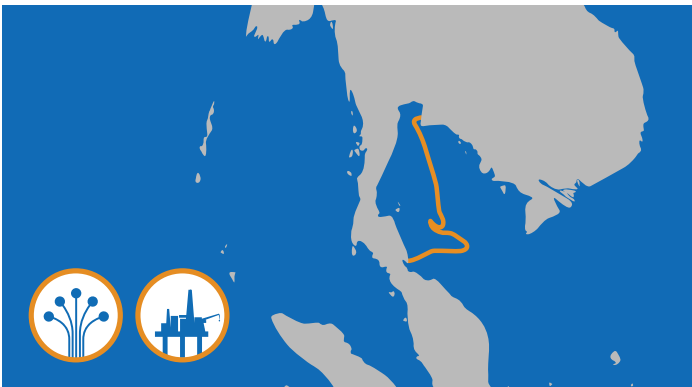
Existing subsea infrastructure offered a unique market opportunity to extend and re-engineer an operational offshore ocean observing network in order to provide network services to the local oil and gas operators.

- Performed route design and engineering for fully diverse, multi-landing cable
- Architected install and upgrade paths for O&G operators for life-of-field requirements
- Conducted supplier and equipment vendor assessments; negotiated and formed contracts with each
- Fully managed installation and commissioning of the subsea network, cable landings, cable stations, and back haul connectivity
- Established Network Operations capabilities, providing 24x7 monitoring and management



THAILAND

Oil and gas operators and Telecom providers recognized the shared benefit of a subsea network in the Gulf of Thailand, an area hugely affected by weather issues, marine activity, and lack of terrestrial broadband connectivity.



Services Summary

OSI led the creation of the business case and technical solution that met both parties' needs, i.e., a hybrid use subsea network that connects 13 offshore platforms, and provides submarine network back haul for a local telecom provider.

- Produced technical and commercial feasibility studies to reconcile disparate ownership and operational needs
- Managed supplier selection and procurement processes
- Provided full project management and quality assurance from planning through commissioning on behalf of the oil companies

AUSTRALIA

Oil and gas operators are developing high-value assets in one of the most cyclone prone areas of the world and within a world class nature reserve.

Services Summary

OSI provided technical expertise to deliver a robust subsea fiber network that meets the need for safety, environmental permitting and operational control of the operators and telecom provider.

- Conducted initial feasibility study; determine route and marine installation alternatives, identify risks and mitigation measures, develop cost model
- Provided technical expertise on cable and marine installation matters within the O&G concession
- Provided quality assurance throughout the project execution



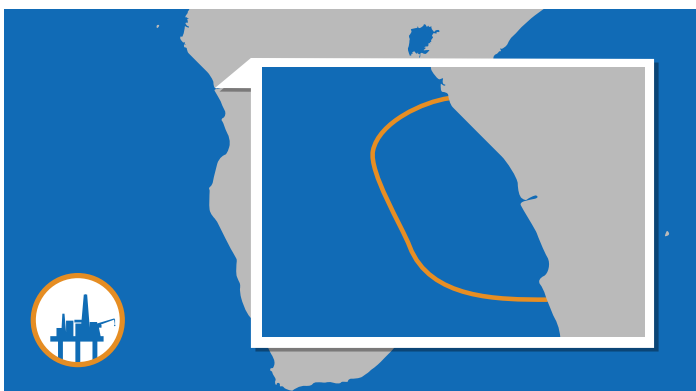


ANGOLA

Angola's maturing offshore oil and gas industry is a source of national pride, with aggressive exploration and development underway by many of the world's largest oil and gas operators.

Services Summary

OSI provided engineering and technical expertise throughout the planning phases of this project. At project completion, critical activities such as asset and safety management, exploration, site monitoring, and production optimization will benefit from the reliable and high bandwidth of the fiber optic network.



- Bridged all technical requirements of joint concessionaire and multi-operator consortium group
- Managed route planning, platform access, technology assessment and vendor negotiation and selection
- Developed comprehensive risk-mitigation strategy for initial program phase
- Provided technical and program management expertise to consortium and individual operator.

GHANA

With a developing national telecom infrastructure and growing offshore deep water platform needs, local operating companies have a critical need for secure, diverse network capacity.



Services Summary

OSI was tasked with addressing security, operations, and lifestyle requirements being driven by offshore oil and gas operations. The resulting design was a highly secure, reliable submarine network capable of connecting deep water assets to national telco infrastructure.

- Developed field network architecture that provides a bridge between network technologies available today and a fiber optic network designed to connect multiple offshore assets.
- Lead commercial and technical aspects of the project - from commercial business case development through vendor negotiations and selection.