



Offshore Power Capabilities

Offshore Power LLC (OP), was founded in June, 2018 to spearhead the North American subsea power cable and offshore renewable industry by providing expert qualified local content while leveraging the experience and expertise from Europe and elsewhere abroad. Offshore Power has created a strategic consortium of diverse companies which together provides a wide range of vital capabilities for the emerging US offshore wind markets; within the consortium are:

Offshore Power Group (OPG), was founded in 2012. The company is situated in Karlskrona, Sweden and Oslo Norway. Two of the main hubs for the high voltage cable market today. OPG services are provided to customers worldwide, but mainly in northern Europe. OPG's core business is to provide reliable and highly qualified services to the power cable and offshore construction industry. OPG merged with **Installit AS** in October, 2018 in order to strengthen their position, be more cost effective, and broaden the expertise.

EPI Group is a well-established international geosciences and environmental firm with a wide range of capabilities for early-stage project development. EPI specializes in supporting energy developments including exploration surveys, site investigations, construction and geothermal developments. Our core areas of expertise and service provision include geophysical consulting and data processing, UXO risk management, and environmental impact assessment and underwater noise monitoring and mitigation services.

Lautec was founded in 2015 in Denmark and has since expanded with offices in both US, Australia and Taiwan. Lautec is a project management consultancy and software provider for the renewable energy and wind sector. Coming with expertise through years of experience, Lautec has provided consulting and software for most of the large offshore wind developers, as well as for onshore transmission and solar energy projects.

HVdc One was founded in 2018 and provides expert services to the HVdc and FACTS industry. Located in Alberta, Canada HVdc One brings together decades of experience in development, project execution, and operation & maintenance of HVdc and FACTS systems with a focus on the converter stations and their integration into the interconnected grid.



Offshore Power Capabilities

Applications:

Offshore Power provides skilled solutions and personnel with world-leading experience from the industry, either by own employees, recruitment or by sub-consultants from Offshore Power's extensive network and partners.

Vessel Spreads and Marine Operations

Offshore Power provides Jones Act compliant and USCG inspected vessels including: Crew Transfer Vessels (CTVs), Scout Vessels, Geophysical and Geotechnical survey vessels, accommodation vessels, and Platform Supply Vessels (PSVs) to the US East Coast market. These vessels support survey and construction operations as well as O&M.

Local vessel Captains, Crew, and Marine Logistical Support. Fleet monitoring, Fisheries Liaison Officers

Extensive modification to existing, special purpose mobilisations:

- DP cable lay vessels or barges
- Geophysical and Geotechnical Survey vessels
- Trenching support vessels
- Offshore construction vessels
- Landfall and pull in supporting and construction equipment

Typical services, support and deliverables:

- Calculations, equipment specifications for procurement of deck equipment and yard works
- Deck layouts
- Mobilisation plans
- Survey and inspections audits:
 - On hire
 - Mobilisation
 - Quantity survey
 - Damage survey
- Warranty surveyor coordination
- Vessel procedures and manuals
- Safety analyses



Offshore Power Capabilities

Subsea Power Cable Experts

- Project managers
- Client representatives
- Commercial managers
- Installation managers
- Offshore managers
- HSEQ managers/engineers
- Marine engineers, various disciplines
- Marine surveyors
- Site managers/supervisors land and landfall installations
- HV cable design/production engineers
- HV cable jointers/erectors

High Quality Subsea Cable Services and Applications

Subsea power cable competence is covering HVAC and HVDC XLPE cables up to 420 kV, paper insulated MI and fluid filled cables up to 525 kV in applications such as:

- Interconnectors
- Export / array cables for offshore wind
- Power supply for Oil & Gas production units, surface or subsea, including onshore cables and landfalls.

Services:

- Feasibility Studies
- Project Management
- Project Engineering, tenders and FEED studies
- Method statements
- Cost Estimation and Budgeting
- Product development
- Structural design and analysis , dynamic / installation analysis, weather analysis
- Stability calculations



Offshore Power Capabilities

Risk evaluation & HAZID/HAZOP

Loadout, transportation, mobilisation and demobilisation engineering & documentation

Construction & installation engineering & documentation

As built documentation , third party verification

Operational engineering support

IT Services

Daily Progress Reporting (DPR) systems for vessel activity tracking and analysis.

GIS online web interface for showing and sharing geographical information.

Weather downtime modelling.

Project Management Office (PMO) Services

Scheduling services

Risk Management

Interface and scope management

GIS supporting consultants

HVDC and HVAC System Services onshore and offshore

Flexible AC Transmission Systems (FACTS)

HVDC System Studies including integration and in-feed studies

Project Feasibility and Development

Cost Estimation and Budgeting

HVDC control & Protection (C&P) development

Power system expansion/interconnection studies and simulation

PSCAD model development and studies

Reactive power compensation

Specification development

System Design review

High Voltage Equipment Testing, HVDC control & protection testing

HVDC System Integration

Converter Station Support offshore and onshore



Offshore Power Capabilities

Operational Readiness
Commissioning
Project Management

Environmental Services

Environmental permitting & Environmental & Social Impact Assessments (ESIA)
Baseline environmental surveys; Environmental Constraints Mapping; Environmental Feasibility Studies
Environmental Management Plans (EMP) including Marine Mammal Mitigation Plans (MMMP)
Mitigation and monitoring (Protected Species/Marine Mammal Observers and Passive Acoustic Monitoring)
Sound source modelling and verification
Project management and advisory services
Desktop studies and literature reviews
Public consultations

Geosciences and Geospatial Services

Marine Geophysical and Geotechnical Survey Specifications, Design, Planning and Management
Geophysical and Geotechnical Company Representatives and QC
Specification Development for Surveys
Ground modelling and Geosciences Services
Foundation Siting and Analysis
Unexploded Ordnance Expertise (ALARP Certification) and Mitigation
Geospatial Services
Ultra-high resolution seismic survey design, QC, and processing

Processing and installation management

Our senior management personnel can manage a complete or part of a subsea cable installation project. Offshore Power can also provide single key personnel on an as-needed basis



Offshore Power Capabilities

Offshore Installation

Offshore representatives, engineering and operating personnel

Route surveys, Pre-lay Surveys, As-built surveys, Route Preparation

Cable Laying and protection/trenching

Offshore construction

Dredging

Rock placement

Cable repairs

Engineering

Full range of Owner's Engineering activities

Complete or partial pre- and feasibility studies. Front end engineering and design (FEED)

Project budget estimations and cost analysis

Cable route analyses and route engineering

Support consent and permit processes with method descriptions and special reports

Cable protection, burial and trenching assessments

Cable installation and lay analyses

Pipeline and cable crossing designs

Installation plans, procedure and work

Interface engineering and management

Procurement support with functional specification and scope of works

HVDC converter station specifications

High voltage equipment test witnessing

HVDC control and protection system factory acceptance testing

System integration

Operational readiness

Commissioning

Offshore Power Capabilities

Typical Clients

- Developers and EPC contractors in the oil, gas and renewable market
- Utility owners and joint ventures/investors for interconnectors and offshore wind
- Large design and engineering companies
- Installation contractors
- General EPCI contractors

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