Floating Offshore Wind
Your partner for floating offshore wind

Technip Energies supports clients with the latest technologies, working at the forefront of marine energy R&D projects aimed at taking the industry to the next level. We are notably experienced in developing solutions to convert power from offshore wind farms into hydrogen as a readily available energy source.

We have long been a trusted partner for major national and international oil companies. We help our clients transition to low-carbon and carbon-free energy by applying our skills to deliver full-scale marine energy projects such as wind farms, carbon capture and sequestration and near-shore gas-to-power projects.

Providing end-to-end project management

Beginning with concept and design, we deliver comprehensive management expertise to optimize a project’s schedule and budget. From start to finish, we apply our extensive offshore engineering and marine operations skills to deliver on time and meet all client specifications.

KEY REFERENCES IN OFFSHORE WIND PROJECTS INCLUDE:
• The world’s first floating turbine (Hywind demo 2.3MW) in Norway
• The world’s first floating wind turbine park (Hywind pilot - 5x6MW) in Scotland.

Design maturity
• Cost-competitive floater design scale-able with an in-house automated sizing tool
• Proprietary floater technology, simple and well suited for mass production
• Design validated through an Ocean basin model test as part of a 4-year JIP program.

Marine operations, logistics and commissioning
• Extensive worldwide track record with logistics, T&I, mooring & hook-up activities, offshore commissioning that will allow reduced installation and commissioning cycles.

Industrialized fabrication
• Worldwide footprint with global procurement
• Strong relationship and experience with Asian fabrication yards
• Proven track record in modular design and fabrication
• Yard partnership for certainty in delivering commercial scale projects
• Digitalized suite of tools from fabrication to installation.

Post-delivery/ Life of field/ Asset management and maintenance
• In-house O&M expertise (e.g. Coral FLNG), including digital twin
• Innovative monitoring and inspection solutions with Cybernetix®.

*Inocean and Cybernetix are Technip Energies fully owned companies.
A comprehensive and competitive offering

We are a leading EPCI contractor providing solutions to meet the challenges of our clients' projects for their energy transition journey. We integrate floater technology, management of offshore projects, yard fabrication experience and a unique global footprint.

Offshore EPCI capabilities

We deliver all phases of offshore field development from early conceptual studies to EPCI. We are experts in floatover operations and one of the few energy contractor to integrate all core activities required to deliver a full offshore project while successfully managing risks and interfaces.

CONCEPT SELECTION

Through early engagement, we ensure technical feasibility studies while bringing certainty and credibility for robust execution plan towards project delivery.

RELIABLE COST ESTIMATES

During the early stages of a project, we carry out conceptual studies that evaluate technological robustness, CAPEX and environmental constraints of the various possible solutions. Leveraging our extensive FEED and EPC experience, we deliver reliable and execution oriented CAPEX estimates.

FLOATER DESIGN, INDUSTRIALIZATION

We have designed, managed and delivered floating facilities, semi-submersibles and ship-shape floaters. We offer densified solutions leveraging our project track record and expertise, project management skills and engineering resources and construction know-how.

Relying on our know-how and our on-the-ground experience, the industrialization process is part of our best practices to simplify designs, to facilitate the fabrication, to improve the installation methods and to frame our overall execution. After delivery, we continue to provide technical support for operational, flexibility enhancements, asset integrity assessments and life extension.

TI & LOGISTICS

Our logistics experience enabled us to ship 142 modules from Asia to Siberia for the Yamal LNG project. And as trends such as modular construction and offshore wind continue to develop, we're staying ahead of the curve. We are helping our clients to save time and money by supporting them through modular builds and project execution planning. We bring together a team of naval engineering, marine operations and logistics experts to overcome the complex challenges of sea transportation and installation.

MARINE OPERATIONS, MAINTENANCE AND DECOMMISSIONING

We have developed a full range of services and tools to ensure smooth operations during the complete lifecycle of assets. The main areas of action are maintenance and integrity management, engineering, warehouse / workshop / procurement management, operations optimization, cybersecurity, training / simulation, staffing, monitoring and life extension. Our logistics experience enabled us to ship 142 modules from Asia to Siberia for the Yamal LNG project. And as trends such as modular construction and offshore wind continue to develop, we're staying ahead of the curve. We are helping our clients to save time and money by supporting them through modular builds and project execution planning. We bring together a team of naval engineering, marine operations and logistics experts to overcome the complex challenges of sea transportation and installation.

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GENESIS ADVISORY SERVICES

Genesis has a strong track record in supporting offshore wind concepts, aided by in-house digital advancements.

From concept selection to owners engineering to special technical support, Genesis has worked with a range of clients from major energy companies to government entities to project development companies to help realise their offshore wind demands. Our services can span various stages of offshore wind projects, including various water depths and challenging areas.

How we add value

Genesis is already a major player in the offshore floating wind market and well positioned to capture this rapidly growing market in Europe, US, and APAC. Some of the services that we can provide to add value to your projects include:

- Smart monitoring for operations and maintenance to minimise the operating cost
- Agnostic technology selection and solutions for all types of offshore wind platforms that include Spar, Semi, TLP, Jackets, Monopiles.

What sets us apart

Genesis pioneered floating offshore wind by utilising its extensive offshore engineering and marine operations skills:

- Experience supporting environmental consent applications
- Strong understanding of local regulations and working relationships in the US and Europe
- Owners engineering, technical support through third party verification, and specialised services through detail engineering to operations.

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A tailored execution to answer all project needs

Strong partnerships

POTENTIAL PARTNERS
• T&I specialist
• IAC specialist (optional scope)
• Fabrication: modules or single piece
• Transportation to local yard

LOCAL YARD FOR INTEGRATION
• Integration yard management (including storage of wind turbines material)
• Wind turbine and tower integration on floater

TECHNIP ENERGIES AS A SOLUTION INTEGRATOR MANAGING RISK AND INTERFACES
• Floater and mooring design
• Overall design management: Interaction between floater, mooring, IAC, T&I, fabrication
• Mooring procurement
• Overall T&I execution: Floater + mooring + hookup

A global procurement network

Global procurement is a centralized organization regrouping the three fields of procurement: Purchasing, quality control and surveillance. We offer a worldwide procurement network of more than 2,000 professionals.

Top-ranking procurement tools
• EPC-Business E-Procurement tool for managing Inquiry Phase via the Web
• Smart Materials (SMat) Life-Cycle Material Management Application covering the entire supply chain
• IFS Jeevan managing the entire project accounting cycle from registration of PO until invoice payment approvals for material and services
• Easy Plant managing site purchasing of additional materials during construction.
We are a partner of choice offering to our clients tailored and cost-effective solutions for the entire project life cycle of floating wind development, to achieve their energy transition journey.

Our expertise ranges from conceptual design, engineering, procurement, construction to turnkey project delivery.

- Leading engineering and Technology company for the energy transition
- 10 years’ experience in floating wind market
- Dedicated Business Unit encompassing engineering, industrialization and operations capabilities
- Extensive offshore engineering and marine operations skills
- Early engagement to ensure projects predictability and affordability
- Digital design solutions
- Proprietary cost competitive and scalable floater solutions:
  - Simple (no active ballast) enabling both CAPEX and OPEX savings
  - Structure configuration well suited for mass production
  - Limited draft promoting quay-side wind turbine generator integration

- Leading-edge technologies such as mooring technology
- Global Procurement worldwide footprint
- Strong relationship & experience with fabrication yards: certainty in delivering commercial scale projects
- Marine operations and logistics expertise securing the supply chain
- Innovative monitoring & inspection solutions for O&M

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Addressing our clients’ needs

Technip Energies has an extensive global track record of proven yards partnerships at some of the most complex and challenging projects.

Partnership toward project delivery

- Integrated team
- Skilled supervision
- Experienced pool of resources
- Mix of nationalities
- Leveraged local personnel skills
- Engineering expertise
- Logistics scheme to optimize project resources

Selecting the right yard for the right project

- FMECA audits
- Memorandum of agreement before subcontract award
- Construction driven engineering
- Procurement effort
- Subcontract wisely chosen

Yard partnerships

We are proud of our accomplishments in the offshore floating facilities’ market. And we continue to innovate for tomorrow’s projects by offering our clients a wide technology portfolio that delivers real value.

OFFSHORE R&D CAPABILITIES ACHIEVING COST SAVINGS

LOOKING FORWARD

We provide proprietary technologies and know-how in HSE design, upstream processes and HPHT. Through automation and robotics, we improve operational efficiency and reduce manual maintenance and inspection. Through advanced simulation and analysis, we reduce uncertainties and enhance confidence. And we are recognized in mastering interfaces between the floater and subsea components, i.e., top tension risers, steel catenary risers, mooring systems, etc.

PROCESS AND DIGITALIZATION

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Project references

Technip Energies has successfully designed and delivered various offshore wind projects.

**HYWIND DEMO**
- **Client:** Statoil Hydro (now Equinor)
- **Scope of work:** Detail engineering, design and fabrication of foundation, installation of tower, nacelle and rotor.

Prototype offshore windfarm erected outside Tahkoluto Port in Pori, Finland. 2.3MW Siemens turbine, 400t foundation. Erected in August 2010. First offshore turbine in Finland. First in area with moving ice.

**HYWIND PILOT PARK**
- **Client:** Technip Energies formed part of the client team with Vattenfall and AREG (Aberdeen Renewable Energy Group)
- **Scope of work:** FEED Study to determine technical options. Preparing chapters of the environmental impact assessment. Involved in the development of functional specification of the wind farm turbines, towers, foundations, cabling and connection to the grid. Detailed design of the elements of wind farm and a high-level cost-benefit analysis for the proposed ocean laboratory. Permitting, definition of cable routes, procurement assistance.

Proposed data and concept study for the R to S to 7 MW turbines in up to 30m water depth.

**MISTRAL**
- **Client:** Association between Technip Energies, EDF Energies Nouvelles and Nénuphar
- **Scope of work:** Design of the floater, mooring system, dynamic electrical connection cable, turbine integration, on-site installation.

Mistral is a R&D program funded by ADEME for Vertiwind and by the European Commission for inflow both with Technip Energies as leader. The program was performed up to the detail engineering phase of a prototype of vertical-axis offshore floating wind turbine. Mistral was the R&D phase upstream of the Provence Grand Large commercial project by EDF Energies Nouvelles.

**SAINT-BRIEUC WINDFARM**
- **Client:** Ailes Marines (Iberdrola and EOLE-RES)
- **Scope of work:** Engineering support during concept selection and definition. Technip Energies was leading the installation concept. Potential future scope: Overall project management, procurement, construction and installation of subsea cables, foundations and turbines.

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