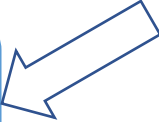




**Floating Structures
Capability Statement**



**FEDDO
GROUP**

Growing Reliable Partnership

Technical Training	Field Development	Subsea Systems	Subsea Pipelines	Floating Structures
Marine Risers	Flow Assurance	Advance Engineering	Renewable Energies	Integrity Management

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1.0 Introduction

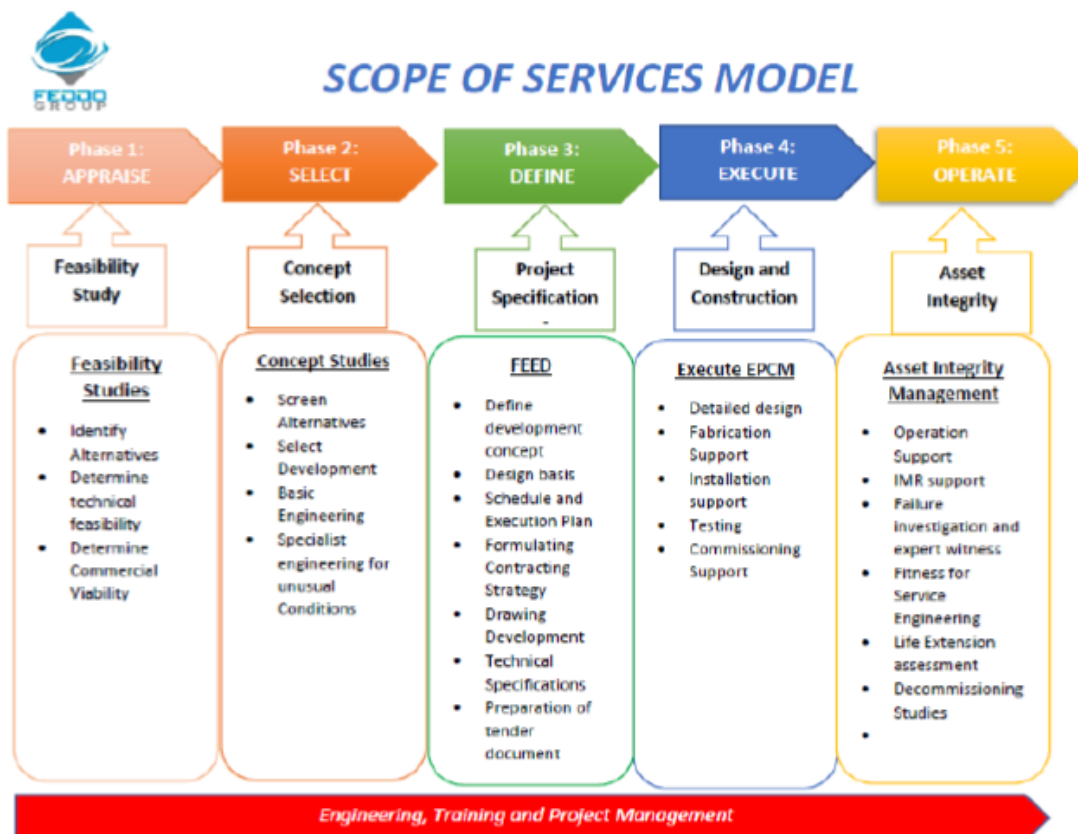
FEDDO Group was established in 2013 as a Global company, registered and headquartered in Australia (Perth)

The main aim is to serve the Energy and Mining sector, providing a range of Consulting Services to the Industry which includes both the Oil & Gas sector, Metal and Minerals and the Renewables sector. FEDDO GROUP specializes in offshore engineering, subsea field developments, subsea and Onshore pipeline systems, integrity management and pigging, life extension, decommissioning, and construction management. We also offer technical training solutions to develop skills and capabilities for the whole life of field covering every aspect of design, operation, integrity management and maintenance.

FEDDO GROUP business model works on a network of regional engineering centres which enable specialised skills, knowledge and expertise to be shared across its global operations.

Our global operational head office is located at Perth, Australia covering Australia and Asia, FEDDO GROUP also has operating offices in Houston, covering the Americas, London, United Kingdom, covering Europe; and Lagos covering Africa, apart from these we have commercial presence (Marketing office) in Kuala Lumpur mainly for South east Asia Region; Abu Dhabi targeting Middle East Region.

It is our practice to work with client to turn complex situations into positive practical results, by bringing professional insight to support critical business decisions. We work in all phases of project development from appraise, select, define to execute and operate.



FEDDO GROUP provide system engineering comprising the following disciplines:

- Technical Training Solution;
- Field Development;
- Subsea Systems;
- Subsea Pipelines;
- **Floating Structures;**
- Marine Risers;
- Flow Assurance;
- Advance Engineering;
- Renewable Energies; and
- Asset Integrity Management.

This document provides details of our capabilities in **Floating Structures** projects such as FPSO, FSO, FSRU & MOPU Projects



2.0 Floating Structures Engineering Services

2.1 General

Our FPSO, FSO, FLNG, SPM & MOPU services are structured under five broad headings.

1. Field Development & Concept Selection involving FPSO, FSO, FLNG & MOPUs.
2. FPSO, FSO, FLNG & MOPU Operator Tender & project supervision support for leased or purchased units.
3. FPSO, FSO, FLNG, MOPU, SPM or DTM New or Conversion Engineering, Design & Analysis.
4. FPSO, FSO, FLNG, MOPU, SPM or DTM fabrication, shipyard, integration, commissioning & offshore installation planning and on-site support.
5. Naval Architecture, Marine & Floating Structure design & analysis.

Under each of these headings, we provide a range of services as outlined in the sub-sections below.

Our FPSO, FSO, FLNG, SPM & MOPU services are applicable to any company, region, size of field or water depth. The scope of our services is different for every client and is based on discussion or preliminary studies to identify requirements. FEDDO GROUP adds value to its customers in these projects through its combined commercial and technical expertise.

2.2 Field Development & Concept Selection involving FPSO, FSO, FLNG & MOPUs

These activities could occur anywhere from the pre-exploration, to post discovery, or even at a brownfield development stage and include:

- Pre-exploration notional development concept definition and cost estimating and scenario comparison.
- Post discovery concept identification, concept definition, cost estimating, economic analysis and trade-off including a broad multi-disciplinary, understanding (subsurface-drilling-facilities-operations-marketing-economics) of the problem. In the case of FPSOs, FSOs, MOPUs and FLNG. FEDDO GROUP has great depth in the understanding of strengths and weaknesses and key technical & commercial issues associated with FPSO, FSO, FLNG or MOPU developments as well as for conventional development schemes.
- Full conceptual field development studies including engineering, design, cost estimating and economic valuation. FEDDOGROUP also provides full SURF (Subsea, Umbilical, Riser & Flowline / Flow assurance)) services in addition to floating system engineering and has close association with other engineering parties for the provision of process facilities and fixed platform design & engineering services.
- Full field developments FEED services.
- Project support for entire project cycle for floater and SURF components.
- Conceive select, cost and support execution of floater and SURF brownfield additions.

2.3 FPSO, FSO, FLNG & MOPU Operator Tender & project supervision support for leased or purchased units

These activities are in support of Operators' projects pursuing the purchase or lease of an FPSO, FSO, FLNG or MOPU Unit. For operators, the selection of the contract strategy and the tender preparation and management is actually the most critical activity towards a successful FPSO development. The nature & complexity of FPSO units and operations makes this a very critical activity where the kind know how available within FEDDO GROUP is invaluable if either unfavourable project outcomes or high cost solutions are to be avoided. Activities include:

- FPSO, FSO, MOPU & FLNG Market intelligence, analysis and cost benchmarking.
- FPSO, FSO, MOPU & FLNG procurement and contract strategy or commercial studies and economic valuation. Definition of likely / desirable commercial terms.
- Preparation of FPSO, FSO, MOPU & FLNG contract documents including scope of work, specifications for both project and operations phases, compensation & incentive schemes, and key contractual requirements & terms for purchases or leases.
- Management or participation in tender processes for the lease or purchase of FPSO, FSO, MOPU & FLNG units including managing of tender phase negotiations tender analysis, formal recommendations and support of typical operator internal approval processes.
- Acting as owner's representatives and project engineers supervising FPSO contractors during FPSO design construction, conversion, installation and commissioning phases.
- FPSO, FSO, MOPU & FLNG follow-up, troubleshooting or brownfield additional support as owner representatives.

2.4 FPSO, FSO, FLNG, MOPU, SPM or DTM New/Conversion Engineering, Design & Analysis

These activities are typically in support of FPSO contractors or operator Owner's new, conversion or re-conversion projects. Activities would include:

- Survey of either FPSOs or potential conversion candidate tankers
- Preparation of specifications and scope of work for either new built or conversion FPSOs
- Management of either shipyard affiliated, or low cost detailed naval architecture design unit for the preliminary and/or detailed design of a new FPSO hull. This could either be the supervision of the in-house engineering team associated with one of the major shipyards, or the supervision of a low cost naval architecture design entity.
- Preparation of shipyard repair, life extension or upgrade technical and engineering packages, as part of an FPSO conversion.
- Preparation of repair, addition or trouble shooting technical and engineering packages for additions or repairs on existing FPSOs.

2.5 FPSO, FSO, FLNG, MOPU, SPM or DTM fabrication, shipyard, integration, commissioning & offshore installation planning and on-site support

These activities can either be in an execution mode, typically in support of FPSO contractors or Operator Owner's new, conversion, or re-conversion projects. Alternatively, they can be in an

Operator's Q/A and supervisory role for purchased or leased FPSOs provided by FPSO contractors. Activities include:

- Provision of fabrication yard and shipyard personnel for the fabrication, construction, conversion, life extension, upgrade, integration and pre-commissioning of new or converted FPSOs.
- Provision of offshore personnel for the management of offshore installation and FPSO commissioning personnel.



2.6 Naval Architecture, Marine & Floating Structure design & analysis

These are typical engineering, design & analysis activities which include:

- Naval architecture analysis & design including stability, motions analysis, and structural calculations / design for any type of floaters and hulls.
- Mooring system analysis and design for any kind of conventional, spread or single point mooring system.
- Riser system design and analysis for any kind of riser systems or shapes in any water depth whether flexible risers, steel catenary risers, hybrid risers, riser towers. Etc
- Integrated hull/mooring/riser analyses, which typically is an issue when providers for the FPSO and mooring on the one hand and the risers on the other hand are contracted separately.

3.0 Floating Structures Design Experience

FEDDO GROUP's vision is to perform projects located in remote, hostile and Deepwater environments. To achieve this FEDDO GROUP has developed capabilities and a team of experienced people in a global network who have experience with a broad variety of Floating structures design.

Floating Structures Capability Statement



Experience has been gained working on projects located in extreme environments such as the Artic, Caspian Sea, Timor Sea as well as in ultra-Deepwater of the Gulf of Mexico and West Africa Coast.

FEDDO GROUP personnel have experience with application of the principal industry codes relevant to design

For Further information:

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