

FPSO MARKET REPORT:

PROJECT EXECUTION STRATEGIES TO REMAIN COST EFFECTIVE

A Guidebook for FPSO Industry Leaders



Researched & Developed:



INTRODUCTION

The entire oil and gas industry has been withering under the strain that the global COVID-19 pandemic and volatile oil prices have caused since the start of 2020. Virtually every project team in every part of the hydrocarbons business have been pressed with the imperative to cut their operational expenditure as a consequence – and the FPSO sector is no different.

How can the FPSO industry tide through this wave and remain cost effective through this crisis?

The painful experience from the 2010s oil glut has prompted the industry to focus on existing investments, implement cost-control measures, mitigate project supply disruptions, and continue to drive innovations forward to keep the industry going.

Along with industry partners **Royal IHC, Maersk Supply Service** and **HfW**, the **FPSO Network** has put together this market report which includes key lessons that the industry has learnt over the years. It is now more important than ever to drive these innovative business models and cost-savings efforts during this unpredictable time, to boost favourable project economics and improve break-even levels for FPSO projects.

Note: This market report includes speaker interviews over 2016 – 2019.



OVERVIEW



ALIGNING PROJECT
CONCEPTUALISATION &
EXECUTION TO REDUCE COSTS



NEW MARKET EDGE:
OUTSOURCING
FULL SOLUTIONS



BALANCING
CAPEX & OPEX



MAXIMISING
FPSO EFFICIENCY
IN ITS LATER LIFE



ALIGNING PROJECT
CONCEPTUALISATION
& EXECUTION TO
REDUCE COSTS

PROJECT CONCEPTUALISATION & EXECUTION ALIGNMENT

With every project, no matter the size and scale, there is rarely an exact correlation between the initial concept and the finished article delivered in a project. In the oil and gas industry where the scope of projects notoriously creeps away from its original parameters, the gap between idea and reality is even further removed. The FPSO sector is no different from the rest of the upstream environment. How can we shape up to deliver on-time and on-budget?

DEFINE TO REFINE

Before we start the execution phase of a project, it is imperative to allow for proper definition of the technical solutions, including an optimisation phase in the framework. The more time spent on definition before EPC, the more value can be garnered for the project.

OPTIMISE YOUR OPTIMISATION PHASE

Your optimisation phase will be more fruitful if held solely in concert with the selected contractor to really bring all parties together to manage the interfaces and definitions prior to EPC commencement. It would also be beneficial to have this same level of engagement with suppliers, something that is often overlooked in the fog created by the morass of contractual obligations. Leveraging the experience of suppliers at this stage would be an asset to the rest of your project cycle.

DRIVE TO STANDARDISE

Everybody in the oil and gas business will have different experiences of whether attempts to manage standardisation in projects have ended in success or failure. In the FPSO fold, this is no different: equipment can be standardised, some aspects of the FPSO as well, but it may not be so easy to implement in the execution phase when you are also driven by client requirements or different regulatory regimes.

Harmonisation is possible and should be aimed for. Parallels can be taken from the merchant trading industry, where the MODU code has, more or less, standardised the way that each trading unit is designed and built. It would not be impossible to adapt and adopt this way of thinking into the FPSO industry.

ENSURE CONTINUITY

It is all well and good defining and optimising but if the plans that you have meticulously mapped out are then not followed through in the execution phase, a lot of good work will have been for naught. Making sure that there is continuity throughout the execution phase of a project, that there is a good understanding of the risks and of who takes which risks, is a vital facet of successful project management.

GLOBAL PRESENCE, LOCAL SUPPORT.



With many decades of experience in the delivery of turnkey packages for floating production units, Royal IHC is expertly placed to offer reliable equipment for worldwide applications. We design and build complete integrated systems, resulting in a single point of contact for the production of complete bunker stations and hydraulic, riser pull-in and offloading systems.



**THE TECHNOLOGY
INNOVATOR.**

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NEW MARKET EDGE:
OUTSOURCING FULL
SOLUTIONS

NEW MARKET EDGE: OUTSOURCING FULL SOLUTIONS

WHY HAS OUTSOURCING FULL SOLUTIONS BECOME THE NEW MARKET EDGE?

These are challenging times for the offshore industry. However, at Maersk Supply Service, we believe that challenges should fuel ingenuity and propel us towards better practices. We have been providing marine services globally for over 50 years with towing and mooring installation at the core. The recent logistics disruption, due to COVID-19 and drop in oil price, have led to tighter margins on projects. We observe how it is now more crucial than ever for our customers to de-risk their projects. Our approach is to provide full-scope solutions that empower our customers to focus on their core business whilst providing them with a smooth solution for their offshore needs.

DE-RISKING COST AND SCHEDULES FOR OUR CUSTOMERS

Maersk Supply Service is a Towing and Mooring Partner offering turnkey solutions and supporting our customers at each stage of the Floating Production Unit (FPU) lifecycle—from site preparation and towing, through mooring installation and management to decommissioning. By combining our EPCI capabilities with a large in-house fleet, Maersk Supply Service has reduced our customer's overall risk picture by giving certainty of both cost and schedule to every project. In this process, the integration of our own fleet guarantees that projects have the right vessels at the right time at a locked-in price. By offering this integrated partner role, we allow our customers to focus on their core activities and help to enable their competitiveness both economically as well as organisationally.

A specialised Towing and Mooring Partner that provides full-scope solutions means that we also offer single-point interface management. Rather than managing multiple providers, customers can keep their organisations agile whilst ensuring that their mooring needs are met with the highest level of quality and safety standards. We strive to ensure that our teams contribute with the full advantage of their offshore knowledge combined with their local and regional expertise, as well as the use of vessel capabilities at their best. The combination of project management and engineering disciplines with offshore marine experience ensures that the best methodology and practices are implemented and safely executed offshore in the most efficient manner.

SIMPLIFYING BUSINESS SETUP

Towing and mooring installation is a small part of the overall FPU project; however, it is a critical element in safeguarding project schedules. When customers outsource non-core business to subject experts like us, we reduce risks by monitoring circumstances and tracking project timeline. By utilising our capabilities, customers can simplify their own organisational and business setup. Similarly, with maintenance and life extension scopes, a full solutions provider like Maersk Supply Service, enables our customers to conduct these scopes safely and efficiently whilst allowing them to maintain focus on their core operations. Therefore, we believe that integrated solutions is key to providing the needed edge in the towing and mooring industry of the future.

Bringing full-scope solutions to FPSO towing & mooring challenges

-  **End-to-end tailored EPCI solutions**
-  **Full FPSO mooring lifecycle (CAPEX, OPEX, Decom)**
-  **PM&E and interface management**
-  **Mooring installation and site preparation**
-  **Installation and hook up operations**



MAERSK
SUPPLY SERVICE



BALANCING
CAPEX & OPEX

BALANCING CAPEX & OPEX

Value engineering can be defined as a systematic and organised approach to provide the necessary functions of a project at the lowest cost. Based on a methodology developed by Lawrence Miles of General Electric during the material shortages of World War II, value engineering is used to solve problems, identify, and eliminate unwanted costs, while improving function and quality.

At the same time in the FPSO sector, cost and schedule overruns hit the majority of projects and value engineering could nip a lot of this wastage in the bud. What do we need to consider when opting for a value engineering approach to a floater project?

In this analysis, we look at some of the easy ways that you can confront CAPEX and OPEX cost reduction in the front-end planning stage of your project.

START VALUE ENGINEERING EARLY

The idea of the value engineering is to have a global and holistic approach to the engineering process, and this needs to begin with early engagement. You cannot apply value engineering during the course of EPC projects, it needs to start at the beginning of the concept phase, underpinned by an integrated project team.

The contractor, the operator and other external partners need to be around the table simultaneously and with equal voice to find the best way to design a whole project. This helps in de-risking the whole venture, by assessing all the risks of project design and execution in one fell swoop to better share the risks among the different partners.

CONSTRUCTABILITY IS KEY

It is very important to assess the capability of the shipyard, and to design to cost depending on availability of their means, and on their standards, and their assets, to better develop a project. Asking too much or not enough at the stage that your FPSO is being constructed or converted could sow the seeds of crisis later on down the chain.

EFFECTIVE PROJECT SCHEDULING

Statistics show that 70 per cent of schedule-driven projects fail. To redress the balance when it comes to FPSO developments, we need to make sure we have enough time in the conceptual, design and value engineering phases of a project to account for OPEX allocation.

ONBOARD APPROPRIATE STAFF EARLY

A project is only as good as the people that work on it, and the human capital involved is as valuable as the fiscal capital pumped into your venture. It is crucial to involve the right kind of operations people with real offshore experience and the hands-on legacy of having solved problems in the field to head up your endeavours. This goes far beyond the formation of a bespoke pre-ops team and should involve an offshore installation manager (OIM) at the top of the tree.

SIMPLIFY THE PROCESS, EQUIPMENT, AND THE COMPLEXITY OF TOPSIDES

In the front-end engineering that you carry out, a simpler process is generally inherently safer, easier to operate and more straightforward to maintain. What doesn't have to operate and what doesn't have to be maintained won't fail. Keep it simple: don't have it unless you absolutely need it.



LEGAL ADVISORS TO UPSTREAM CONTRACTORS

We offer pragmatic solutions and advise on drafting and negotiating contracts for all phases of a FPSO project, from construction and installation to lease, charter, operations and maintenance. We also have an experienced global international arbitration team to handle any disputes which may arise.

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MAXIMISING
FPSO EFFICIENCY
IN ITS LATER LIFE

MAXIMISE FPSO EFFICIENCY IN ITS LATER LIFE

The FPSO sector is placing ever more demands on the mid to late stage of the unit's life cycle. This is because a huge part of OPEX is in maintenance, which is inevitably more cost-intensive in the FPSO's late-life cycle. How can you (from the beginning of the entire project) ensure the vessel's late life can be as efficient as it can be?

MANAGING ASSET INTEGRITY

In some installations, the life cycle of a field will outlast the FPSO and vice versa. Therefore, making sure your FPSO stays afloat, on station, erect and producing should be priority number one for any team. Floating systems integrity, balance systems, moorings and positional information are all critical in this regard. Process safety – making sure that all the hydrocarbons remain in the pipes, managing relief systems, and procedures on the movements of hydrocarbons around the installation is also part and parcel of managing integrity. Maintaining surface and subsea infrastructure such as risers and flow lines is also critical.

DETECT VULNERABILITIES EARLY

A holistic and timely identification of vulnerabilities – those train-wreck events that could take the FPSO out of operation for a long period – is absolutely key. Equally important to understanding these potential threats is your readiness to respond and the immediate implementation of risk mitigation tactics. Knowing your bleed events – issues that will take resource away from the base plan and erode available and allocated resources is also crucial.

PRODUCTION ENHANCEMENT

Every FPSO will have a number of opportunities to be considered as it follows its production profile – things that have to be done, and things that could be done. Identification of these facets and their integration into the portfolio of risk and integrity management is required. As the production profile develops in mid to late life, fluid and gas ratios change and the dependence of certain equipment will change alongside the maturation of installation and field alike.