Why early offshore analysis pays for itself several times over

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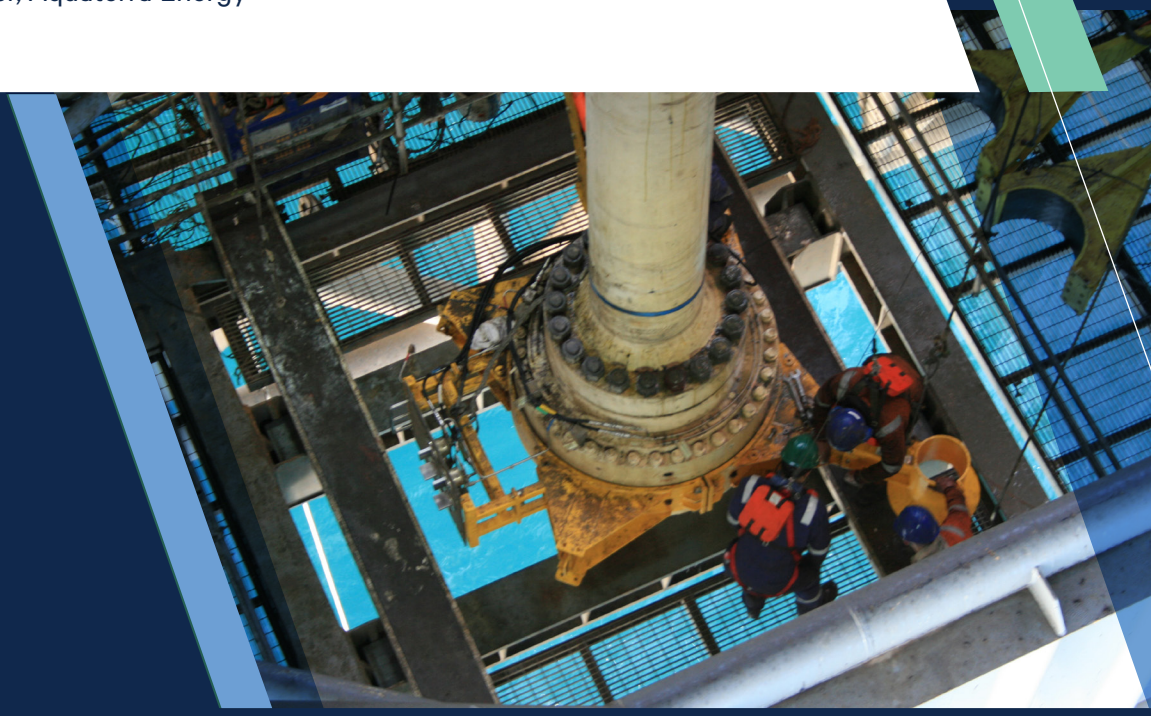

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No one in this industry needs reminding that offshore projects run on high stakes and fine margins. There is often no chance to rework decisions once designs are fixed and procurement is committed, and if there is, the cost is likely to be high. Deepwater rig day rates can sit in the low to mid 500,000 dollars per day, according to analysis by Evercore ISI, which means even a short delay or adjustment can quickly run into millions.

This is the key factor driving the use of offshore analysis across the sector. The investment required for an analytical scope is small compared to the cost of committing to the wrong approach or missing potential efficiency gains that could have been revealed. In many cases, saving just a single day offshore can more than offset the cost of the study many times over - and in the best cases, early analysis studies have delivered returns tens or even hundreds of times their original cost.

The early bird catches the worm

In this context, offshore analysis means turning data about wells, structures and environments into actionable insight for better decision making. It is a broad discipline: at one end, it might test how new concepts will perform in specific sea conditions, modelling factors such as waves and currents; and at the other, it might determine whether a mature asset has suitable fatigue life to safely continue producing as it approaches end of life.

Of course, offshore projects don't lend themselves to off-the-shelf answers. Each field, rig and environment brings its own challenges, so it's never just cranking the handle on a standard template. It's about shaping each scope to the realities of the project - whether that's local metocean conditions, campaign length, or the particular equipment being used.

It then follows that the earlier analysis is carried out, the greater the value it can deliver. At the earliest stages of a project, designs are still flexible, procurement paths are undecided and campaign sequences are open to adjustment. Early analysis provides a clearer picture of how different options might play out in practice, ensuring that the choices are viable across both operational and cost parameters.

In the past many offshore decisions, particularly in oil and gas, were made on sound engineering judgement alone. Without the foresight provided by detailed early analysis, however, some viable alternatives were simply not visible. We saw this firsthand in the North Sea, working with an operator who was preparing for a major structural retrofit on the conductor guides of a platform - a job expected to cost about £5 million with significant complexity to its delivery.

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In this case, a study conducted before the work began revealed an alternative approach; using a thicker walled conductor that could safely take the load and eliminate the need for the retrofit entirely. That change in approach cost the operator about £50,000 in extra steel, and the analysis that uncovered it was a fraction of that again - yet together, they delivered an enormous return on investment, avoiding a spend over a hundred-times-larger.

Planning with analysis in hand

Those types of potential gains are also equally obvious during field development planning. This is the stage with the most room to manoeuvre - when analysis can test boundaries before major commitments are made. It can help inform decisions on the likes of whether a design needs extra steel or can be leaner, whether a heavy duty rig is essential or a lighter one will do, how long conductors are likely to last in local conditions and what sequence of wells will keep offshore time to a minimum.

Because of these advantages, demand for early, planning-stage studies has steadily grown in recent years. One example is our work with INPEX on the Masela development, offshore Indonesia, where we are delivering multi-phase conductor and riser studies to support upcoming subsea drilling campaigns. By feeding this analysis into procurement and rig selection, INPEX can establish safe operating limits and make efficient design choices, ensuring technical input informs decisions from the very start of field development.

Consistency is key

It is true that the earlier this work is carried out the better, but it shouldn't be viewed as a one and done consideration. Even after an initial path is chosen, consistent application of analysis ensures ongoing decisions are made with the maximum level of insight. It guards against unnecessary conservatism, preventing drift in design and keeps campaigns focused on what truly adds value.

We saw this firsthand in a North Sea plug and abandonment campaign, where the operator's original plan assumed every well in the sequence would require tethering - a cautious approach that locked in weeks of unnecessary rig time.

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Our analysis challenged that assumption and demonstrated that several wells could run safely without tethers. With that knowledge, the sequence was reshaped, wells were re-ordered, redundant operations removed, and the campaign was streamlined, with savings running into the millions.

That campaign also showed that the strongest results come from analysis teams who combine technical rigour with practical understanding of delivery. When teams understand how equipment is designed, installed and operated, they can challenge assumptions and highlight more effective options, helping operators optimise project performance.

That delivery awareness can also mean recognising that the neatest design on paper may not be the best in practice. A slightly different configuration, one that can be fabricated in more yards, lifted with more cranes, or transported more easily for example, can save time and reduce bottlenecks, even if it appears less efficient in isolation.

Beyond the end of life

That same depth of understanding also matters when assets reach what was assumed to be the end of their life. Platforms and wells are designed with a calendar end of life date, but analysis can test whether those limits are real. By assessing fatigue life, structural strength, corrosion and performance under local metocean conditions, it becomes possible to determine if an asset can continue to operate safely beyond its initially planned lifespan.

Sometimes, if the analysis is favourable, the outcome is life extension. In one example, we've seen a major platform thought to be nearing retirement proven to have another ten years of safe operation ahead, deferring removal and unlocking two more decades of value.

Another outcome is the potential to repurpose offshore structures for entirely new applications. In Denmark's Project Greensand, we have worked with INEOS to demonstrate how detailed integrity checks on platforms can prove that existing oil and gas infrastructure is suitable for CO2 injection. This offers a path to extending asset life and value, while also giving regulators and stakeholders the confidence that these assets can play a new role in the energy transition. As the industry moves further towards transition, analysis will have a central role to play in determining whether infrastructure should be retired, replaced, or adapted for renewable and transitional purposes.

For more information about how our offshore analysis services can strengthen decision-making and improve project efficiency, get in touch.

Contact us

Smarter choices at every stage

The lesson is clear: analysis consistently pays for itself many times over, whether the goal is short-term efficiency or long-term transition. It strengthens decision making and uncovers smarter and more efficient solutions that might otherwise remain hidden. The upfront cost is minimal compared with the day-rates of offshore campaigns, yet the return can be measured in millions saved, or years of additional asset life gained.

Whether it is guiding the first decisions of a new development, refining a campaign mid-stream, extending the life of an existing platform, or enabling its reuse for CO2 storage, analysis delivers immediate value, while helping to lay the foundations for the industry's next chapter.

About Aquaterra Energy

Aquaterra Energy delivers intelligently engineered products and services for well access and offshore developments - supporting efficient operations across the full life cycle of oil, gas, and energy transition projects. From complete offshore development packages to seabed-to-surface well access services, Aquaterra Energy enables safe and efficient drilling, completion, intervention and abandonment operations.

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