OFFSHORE STRUCTURES

OUR AWARD WINNING STRUCTURES SOLVING YOUR OFFSHORE CHALLENGES
Aquatera Energy’s work in developing innovative solutions and delivering bespoke offshore structures has earned the company a place in the top rankings of the world’s offshore oil and gas engineering providers.

We have a unique perspective as recognised experts in analysis, design, procurement and installation of complex offshore structures, using innovative approaches. This means that we are able to consider installation from the very start of structural analysis and devise greatly improved overall solutions. For customers this often results in the reduction or removal of installation vessel requirements, simplified operations, improved safety and lower overall project costs.

Our in-house team of highly qualified and skilled offshore structure engineers is responsible for technological advancements in platforms, subsea protective structures, drilling templates, tension decks, skidding systems, and more. Our exemplary reputation is supported by a robust track record of service delivery for customers worldwide.

“...Our approach removed the need for any vessel, including dive support, and made the operation completely platform based. The positive impact in terms of safety, SIMOPS and cost was huge...”
SubSea Protective Structures

We provide a complete solution to all subsea protection requirements, ensuring design and optimisation meet each specific project’s needs.

We supply a range of subsea protective structures for subsea equipment, including subsea trees and wellheads. These protective structures can be fully overtrawlable and withstand trawl and dropped object loadings, in line with standards specified by Norsok U-001 and ISO 13628-1.

We also provide alternative smaller deflector structures. Greatly reduced in size and lighter in nature, these structures provide a temporarily suspended subsea wellhead protection from dropped objects while, at the same time, being fully enclosed with sloped sides to help deflect fishing activity and other debris.

Deflector structures can easily be installed from a drilling rig with Aquaterra Energy providing the necessary procedures, personnel and equipment, including running tools, drill string orientation tools and subsea cameras to enable fast and efficient installation.

SubSea Drilling Templates

We supply expertly engineered template installation packages to suit a range of applications, from casing to seabed supported, run on drill string or on conductor, for a variety of well spacing configurations and conductor sizes.

With an emphasis on providing a complete solution, our experienced installation engineers undertake responsibility for the entire project, including initial concepts, project management, design, production, QA testing and offshore installation.

Providing a complete service that includes design, fabrication and installation ensures we can deliver accurate spacing of wells prior to platform installation and assist in jacket docking. This allows for the provision of docking piles, if required.

Using field proven running tools and centre slot locking mechanisms, our subsea drilling templates are designed to withstand environmental, installation and jacket docking loads across a range of seabed conditions and operational requirements. All templates are optimally designed for rig installation by the use of field proven equipment and methodologies.
Aquaterra Energy’s conductor supported platform (Sea Swift) allows marginal fields to be developed quickly, using just the jack-up and supply vessel needed to drill the wells to install a complete platform.

Sea Swift offers all the benefits of a platform, coupled to the rig based installation of a subsea development. Doing this, the widely used, field proven technology helps our customers to achieve reduced platform costs, lower installation costs, simplified critical path and reduced intervention costs within shallow water developments.

Sea Swift offers operators different development options, increasing overall development flexibility. It opens up opportunities for accelerated first oil and removes the scheduling barriers inherent in developments requiring multiple installation vessel types. It has become a key ingredient in minimising field development costs.

Minimising costs on shallow water developments; tipping the balance and making marginal field developments viable; reducing field development costs and minimising time to first oil”
As an alternative to shallow water subsea developments, Sea Swift offers a compelling option to minimise maintenance and capital costs by utilising dry trees and eliminating costly intervention vessels from simple, routine operations. It also allows installation to be carried out by a standard jack-up rig, without additional installation vessels and without large investment in traditional platform structures. Sea Swift removes constraints from the procurement process – it can be fabricated in a much larger range of yards, has a lower fabricated weight than a traditional platform and does not rely on large forgings or complex machining, as would be required with a subsea solution. This all helps to reduce overall associated project costs, increase the speed at which it is delivered and offers significant fast-tracking production opportunities.
The Sea Swift wellhead tower provides an easy solution for adding new slots to existing platforms or enabling wells to be drilled and completed before the arrival of a larger platform for new developments. It is a low cost option that is delivered significantly faster than traditional platforms and can rapidly increase production from platforms constrained by existing slots.

It also offers the ultimate application for pre-drilling template operations, enabling wells to be drilled, completed, with dry trees installed, before the arrival of the main processing platform. This allows pipelines to be laid and tied-in before platform delivery and its simple hook-up method enables oil and gas production to begin as soon as the platform is delivered, eliminating the need for rig and construction vessel's intervention.
MODULAR PLATFORM

In its largest configuration, Sea Swift can take the form of a significant platform. The modular design concept allows a central wellbay module, typically containing up to 12 slots, to be combined with separate process modules. This results in a larger platform than can easily be handled by the rig as a single piece. This innovative modular design allows a significant platform to be installed while maintaining all the benefits of the Sea Swift concept.

The modular platform system has also been considered for landlocked developments, where access to and from the port of disembarkation is narrow. Modular sections 12ft wide are easily transported on the back of a standard low loader and delivered to the port. The single sections are then shipped to the development site and constructed into a standard topside facility.

BENEFITS

- Reduced platform capital cost
- Simplified critical path – all operations can be carried out by the rig vessel, removing the need for heavy lift vessels
- Fast delivery of the wellbay module allows drilling and dry tree installation to start while design and manufacture continues in the process modules – so earlier first oil or gas is achievable
- Combines the benefits of subsea and platform developments in a simple, low cost solution

SUMMARY OF FEATURES

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TENSION DECKS

Using our experience in the specification and design of riser systems, combined with its extensive structural engineering expertise, we are in the unique position of being able to design bespoke tension decks to meet client’s requirements. This means we offer an improved level of operational flexibility, accommodating the needs of modern jack-up drilling.

Whether installing decks on new-build rigs or designing a new deck for an existing rig, we are able to offer a design that is simple and efficient, both economically and operationally.

The size and capacity of the deck will depend entirely on the capacity of the rig and the client’s requirements. We have produced concepts and final fabrications for decks ranging from 300TE – 1,500TE tension capacity.
BESPOKE OFFSHORE STRUCTURES

We have the skills to design, fabricate and install bespoke offshore structures.

Aquaterra Energy has the ability to deploy teams of experienced, highly creative engineers, focused on solving complex offshore problems. Our experience in working on a challenge with no immediate off the shelf answers available and developing a complete, technically robust solution has been used for wide ranging applications by clients worldwide.

Projects undertaken have ranged from low cost commodity product design through to major multimillion dollar innovative solutions.

We have a track record of achieving outstanding technical success and we deliver structured, staged development processes adopted to minimise upfront costs and client commercial risk.

MOPU WELLBAY MODULE

Combining our experience in developing conductor supported platforms (CSP) and large tension decks for drilling rigs with our knowledge of riser analysis, we are among the leaders in spearheading development of the mobile offshore production unit (MOPU) wellbay module concept, as a solution to low cost field development.

The use of MOPUs as an economic means of developing a field is widely known, but often the costs involved in installing a platform to ‘feed’ the production capabilities of the vessel can mean the economics of marginal developments become unworkable.

However, installing a wellbay module on the hull of the MOPU, removes the requirement for a permanent minimum facilities platform and allows production from multiple wells.

Using our detailed knowledge of how risers behave in varying marine conditions, we are able to push the boundaries of what is traditionally considered limiting conditions for production risers, unsupported by a jacket. This, combined with our detailed understanding of the capabilities of jack-up rigs and the operational requirements of drilling, position us to offer the overall expertise to specify, design and install wellbay modules, with the potential for successful production on previously unviable fields.
Conductor slot additions provide access to previously unreachable targets and extend the life of existing assets.”
We provide a complete slot addition service. The team assesses platforms for suitability, plans and engineers the solution and completes operations offshore, leading to installation of a new conductor ready for well construction.

Conductor slot additions provide the ability to increase production from assets by adding new internal guides on to the platform. They offer advantages over slot recovery or subsea tiebacks; they are not reliant on old, potentially damaged conductors; not restricted in range or direction by the existing well bore; do not require expensive subsea trees, pipelines, umbilicals and flowlines; and can allow a bigger conductor to be installed enabling longer reach wells to be drilled, providing access to previously unreachable targets. This service can be highly advantageous on ageing platforms, where new wells are required but no slots exist to facilitate drilling.
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