Location:

Angola

Platform Design:

Jacket Supported Platform (Solar-Powered)

Key Features:

- 76m water depth
- 6 Slots, 12 production wells (dual completion)
- Entirely Powered by Solar Energy
- 16” Export Flowline
- Installed by HLV
- 20m x 12m x 14m Topside Structure
- 577Te Topside Weight
- 1169Te Jacket Weight

Background

A supermajor engaged Aquaterra Energy to design an unmanned, remotely operated and 100% autonomously powered by renewable energy platform for offshore Angola.

It was to be designed for accessibility via small crew transfer vessels and optimised for minimal equipment, focusing on gathering and metering production fluids. These fluids would then be combined through a manifold and transported via an export flowline to an existing facility for processing.

Solution

A key challenge was ensuring a reliable renewable power supply. This was addressed through industry-standard solar panels strategically arrayed around the platform’s weather deck. A custom-designed projecting platform supported the panels while allowing easy access for maintenance. To ensure continuous operation, backup batteries housed on the lower deck were capable of storing up to four days of power. Additionally, a connection point was incorporated into the design to allow for a temporary generator if required.

To match the 3kW capacity of the solar panels, the topside equipment was streamlined to optimise power consumption. The topsides were designed to be as simple as possible to minimise power demand. As a result, the produced fluids were not separated into oil, gas, and water. Instead, fluids from all wells were combined in a manifold pipe and exported through a single riser and subsea pipeline to a nearby platform. In terms of topside optimisation, particular focus was placed on the electrical distribution system, with cable lengths minimised to reduce unnecessary voltage drop losses. The team collaborated closely with the client to integrate innovative solutions that ensured critical production and safety systems remained operational at all times.

The platform jacket was engineered for a single-lift installation, significantly streamlining the deployment process. Weight control was a key priority throughout the design phase to meet the heavy lift vessel’s (HLV) capacity constraints. The jacket was transported horizontally to the site, lifted and upended by the HLV, with piles successfully installed and driven to depth.

For the topside, transport from the fabrication facility was completed using Self-Propelled Modular Transporters (SPMTs), followed by barge loading at a marine port. The structure was then sailed to the location for final HLV installation.

Results

The platform jacket was successfully installed in December 2024, with the topside lift completed in January 2025. The solar power system has been fully commissioned and is operational as designed. The drilling campaign is scheduled to commence in June 2025. Throughout the project, Aquaterra Energy played a key role in fabrication, installation, pre-commissioning, and commissioning, offering expertise and leadership at every stage. This project underscores Aquaterra Energy’s commitment to sustainable innovation, cost efficiency, and operational excellence in offshore energy solutions.

ESG:

- 100% fabricated in-country, supporting local industries and workforce
- Over 1.2 million local content hours generated through employment
- Zero Lost Time Incidents (LTIs) recorded, with over 2.4 million total project hours
- 100% of produced fossil fuels allocated for customer use
- Reduced OPEX and CAPEX, improving financial efficiency
- Eliminated the need for re-fueling visits, reducing offshore personnel exposure
- Zero greenhouse gas emissions from electricity generation
- Optimised design, reducing steel usage and minimising operational equipment needs