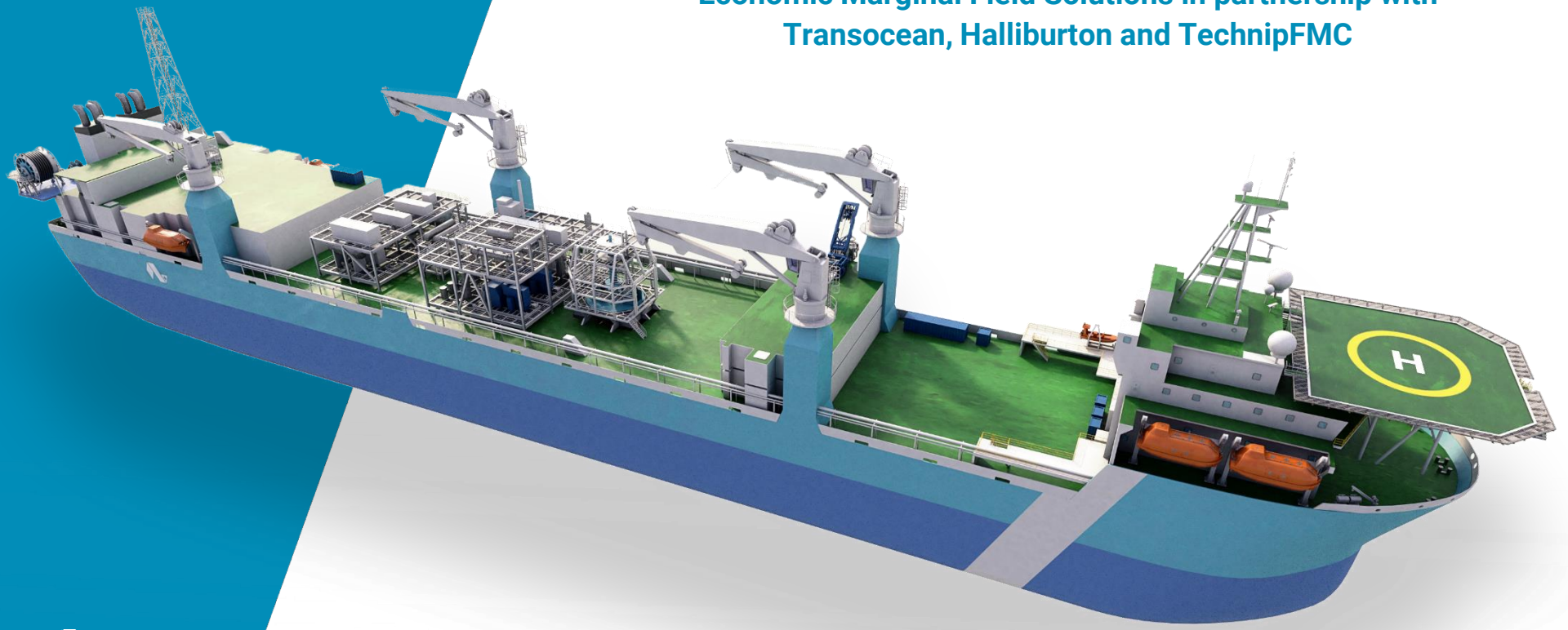
AMPLUS

Amplus Marginal Field Development Solution

Economic Marginal Field Solutions in partnership with Transocean, Halliburton and TechnipFMC



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Section 1

Introduction to Amplus

Amplus Offering

- Amplus Energy Services Ltd has been established to design and build mobile Versatile Production Units (VPU) to economically develop global full field / marginal fields with minimal subsea infrastructure.

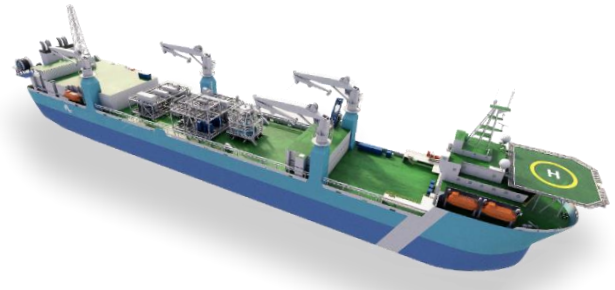
- The Amplus VPU designs are overall unique in that :

  - VPU's are dynamically positioned – No mooring system is required as uses a dis-connectable turret buoy, which can support multi-riser/control umbilical requirements
  - Disconnectable - Turret System (DTS) enables rapid disconnection from the energy source and protects the subsea infrastructure from damage.
  - Improved Flow Assurance - reduced Subsea Architecture (i.e. complete removal or significant reduction in Subsea Flowlines/Subsea Manifolds) by removing the requirement for separate Drilling and Production centres, as unlike Conventional FPSO's the VPU can sit directly over the Well(s).
  - Reduced decommissioning costs - compared to conventional moored FPSO solutions due to lower subsea equipment requirements

- Through our Transocean/Halliburton/TechnipFMC/Amplus consortium we offer a "full package" fast-track, economic and flexible development and operating solution via which multiple existing discoveries can be brought into production.

Amplus Versatile Production Unit (VPU) (Vessel Reconfiguration)

Amplus offering for marginal field solutions is based on either new build hulls with unique designs or through deployment of vessel conversions

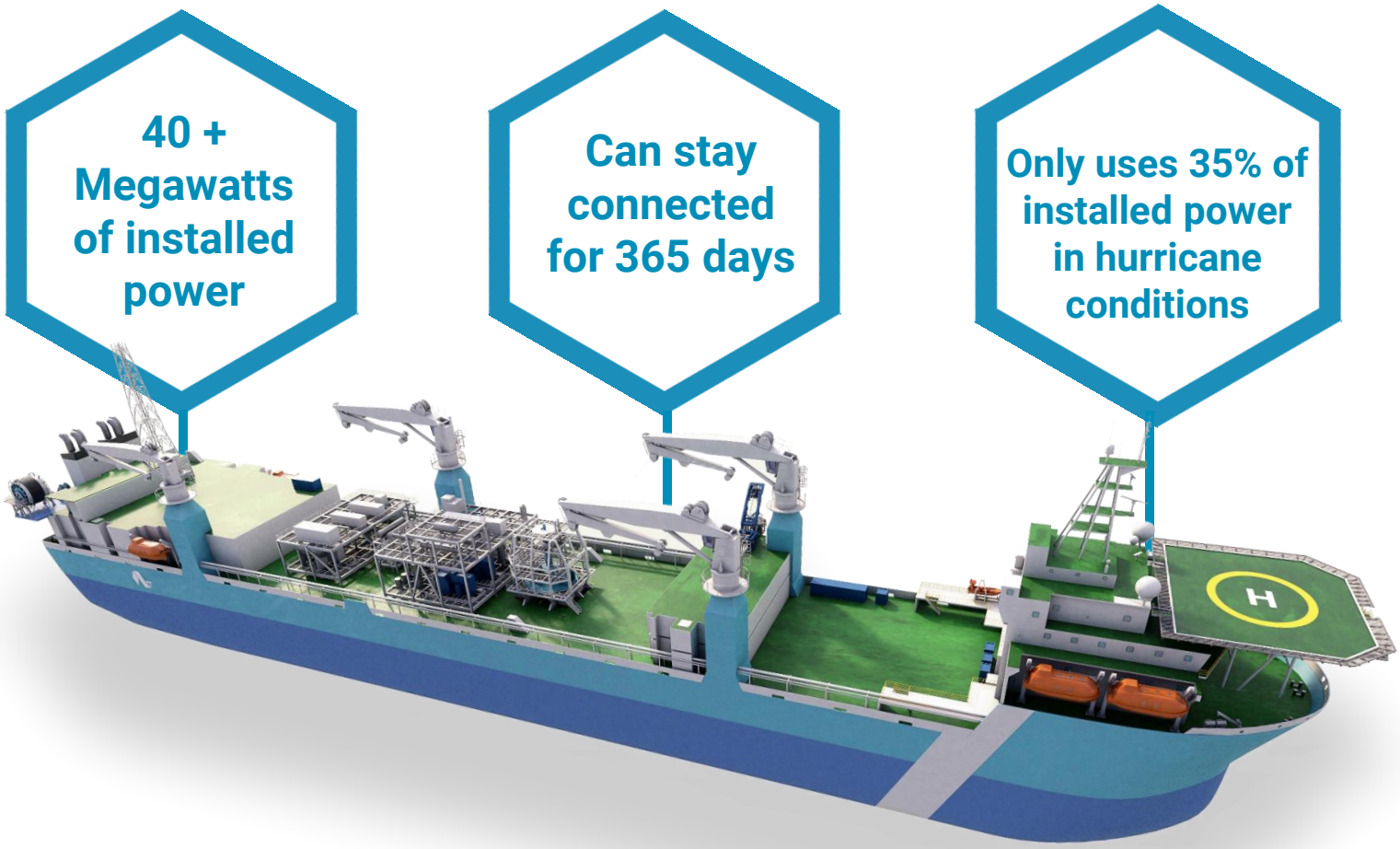


- VPU arrives onsite, connects to riser buoy system and starts producing.
- Amplus have several vessels available for rapid deployment with reconfiguration schedule of circa 24 - 28 months.
- Capable of producing 50,000 barrels per day
- 200,000 – 360,000 barrel storage capacity
- Up to 100mscfd of gas export capacity

VPU™ Drill Ship Conversion
Length 254m
Breadth 37m
Oil Storage Capacity 200,000 bbl and potential to increase capacity further
Daily Production Rate 30,000 bbl +
1A1 Oil Storage Vessel
Gas Handling Capability up to 100 mmscfd
Stern Discharge
Accommodation for up to 200

Amplus VPU Operability

- Whilst the VPU's are DP vessels, the VPU's (conversion or new build) are designed to stay on location through all weather conditions and provide sufficient power for any development concept.
- Compared to a conventional mooring system, a DP system provides a flexible and cost-effective station keeping solution,
- Additional benefit of being able to relocate the VPU to other fields quickly



Section 2

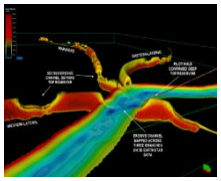
Consortium Model and Success in West Africa

Amplus Consortium

- Amplus has established an alliance with major “blue chip” contractors Technip FMC, Transocean and Halliburton to increase the offering to clients and deliver field developments
- Amplus Energy Services lead the alliance to act as a single point of contact for clients
- Each project is managed by an integrated management team comprising of experienced personnel from Amplus Energy Services, Transocean, TechnipFMC and Halliburton to ensure the companies work seamlessly in each phase of the project planning process.
- The Alliance covers the provision of flexible/ rigid flow lines, flexible risers, all other subsea services, well design, reservoir development/management and drilling/completion services associated with a VPU field development.
- The alliance was successful in securing their first major contract with a major oil company to review its stranded oil pools offshore Angola providing technical and commercial solutions for full-field development.

How Does it Work - Consortium Overview

Halliburton undertaken reservoir and subsurface assessments and studies



Use Halliburton “know how” approach to deliver marginal fields and think differently to operators.

Transocean drill and complete marginal wells

Transocean provide extremely efficient drill rigs

TechnipFMC fabricate and install SURF / SPS

TechnipFMC provide standardised subsea umbilicals, risers and flowlines (SURF) and subsea production systems (SPS).

Halliburton undertake subsurface studies

↓

Transocean drill and complete marginal wells

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TechnipFMC fabricate & install SURF / SPS

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Amplus VPU connects and produces

AMPLUS

West Africa Study Scope and Targets

- The aim of the study was to find an economic solution for several marginal fields offshore Angola.
- The study was entirely vendor led by Amplus to demonstrate that use of VPU and consortium approach can make marginal fields economic
- Study was unique for industry as study incorporated not just subsea and VPU systems but the subsurface and reservoir modelling work
- The fields that were to be reviewed were a mixture of proven reserves and nearby exploration targets
- The estimated reserves were stated as “Field A” (55 mmbbls of oil and 170bcf of gas) and “Field B” (47 mmbbls of oil and 39bcf of gas) which were based on 20 Year Profiles
- The first oil target for the fields was 2023

Element	Desired targets/outcome
Cost per barrel	$ 6-11/ Bbl **Note : Oil Company previously only achieved $26/bbl**
First Oil	2023-2024

- Study targets were set to meet Oil Company internal development metrics and establish an economic project

Consortium Value Creation

- The largest value creation in the study and proposed solution has come from the consortium approach to the development

- With the consortium being involved from the start at “ground level” there has been the ability to influence and find industry solutions to the development of marginal fields

- Approaches by the consortium have not been limited by company standards and process in providing a solution to the development challenges

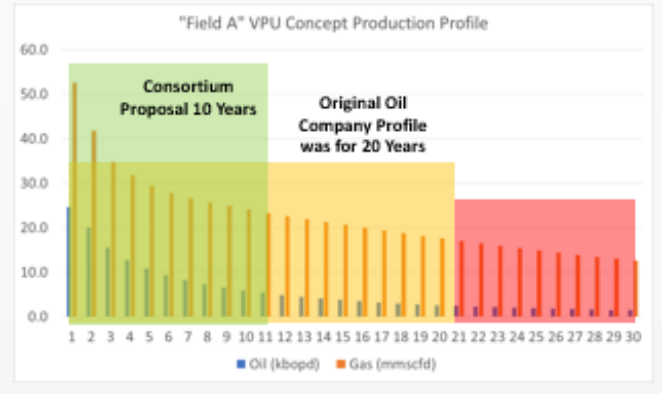
- The vendor led solution ensured the application of “best in class” technology and solutions which is based on -
  - Vendor approach to new technology
  - Vendor approach to equipment / solution selection
  - Application of the latest technology/solutions
  - Vendor standards
  - Vendor execution methodology
  - Iteration of solution is seamless through collaborative approach

- As a result the consortium have been able to have wider integration across subsurface, subsea and VPU streams in the self-led early phase study which is generally not achieved Pre-FEED

Study Key Approach and Outcomes

- Consortium implemented a “Step Change” in approach to the study –

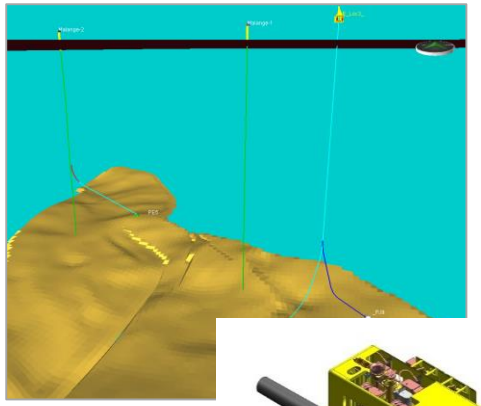
- Use vendor technology
- Focus on economic production not necessarily UR of fields (Regulatory misalignment on approach !)
- Tail end production in fields is difficult to make economic in most situations
- In most profiles 80% of reserves producing in first 10 years of field life, therefore economics hurt by pushing to 100% of 2p reserves over 20 years
- Consortium moved focus of study to the first 10 years of production and improving recovery in this period (50 mmbbls of oil reserves) vs original view of 53 mmbbls of reserves over 20 years
- Through the application of consortium technology and associated costs (OPEX and CAPEX) in the first 10 years of production there was 93% recovery of original 20 year profile reserves vs no recovery due to poor field economics
- Note : Life extension of facilities was possible if field performance exceed expectations (VPU design life is 20 Years)

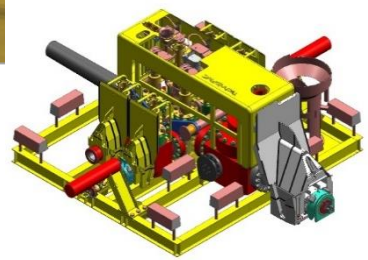


WOA Study – Outcome

- Consortium application of technology has been key to reducing costs and progressing project

- Key approaches taken by the consortium were in areas of –
  - Wells – Use of Multi Lateral Technology
  - Subsea - Use of Subsea 2.0 (TechnipFMC compact system design)
  - VPU – Reduction in subsea equipment requirements, improved flow assurance,
  - Reduced field life – Focus on economic years but increase up front recovery
  - EOR – Subsea booster
- The benefit can be seen in development cost/bbl being $10.62/bbl which is in line with the oil company requirements set at the start of the project
- The VPU as a production platform lends itself to CAPEX (as a result of reduced subsea equipment) and OPEX (low operating cost compared to host platforms) savings over conventional tie back solutions to ageing host platforms with declining production levels





Element	Desired targets/outcome
Cost per barrel	$ 10.62/ Bbl **Oil Company previously only achieved $26/bbl**
First Oil	2023-2024
CAPEX Savings (Compared to Oil Company View)	53%

Section 3

How can success applied to UKCS

What can Amplus bring to the North Sea

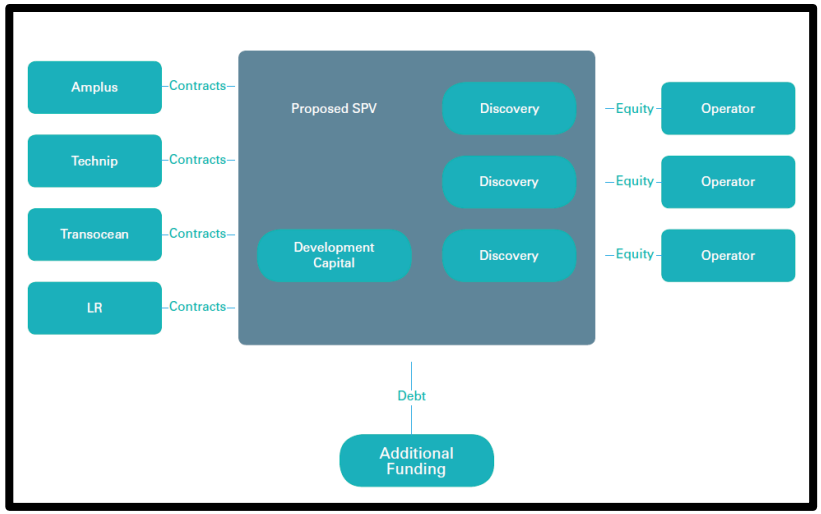
- The consortium approach to marginal field developments that has been proven in offshore Angola can work in the UKCS
- In the UKCS there are numerous marginal hydrocarbon discoveries in the range of 5mmbl – 25mmbls have been identified in UKCS
- Development of these resources is simply not economically viable using conventional development techniques with extended subsea infrastructure.
- The application of the consortium technology could be key in unlocking stranded reserves, (the consortium approach and ability to save costs is reliant on the use of consortium company technology)
- As a first step, the consortium could look for similar sized fields currently in operators ownership (when combined) in a single area to ensure that VPU can be deployed over a number of fields economically
- The operators would need to buy into the consortium approach of using consortium own technology and standards
- VPU design can be applicable to all areas of the UKCS, even certain locations in the SNS.
- VPU conversion option primary focus for marginal fields as pricing ensures success
- Amplus North Sea Production Club initiative

The North Sea Challenges

- CAPEX allocation – Challenges for all ….. especially IOC where $5/6/bbls metrics are used as basis for screening projects and more stringent economic value for projects therefore marginal projects do not move up ranking process.
- Independent operators and mid tier companies are more flexible in screening development metrics and final economic project value
- The consortium approach and ability to save costs is reliant on the use of consortium company technology.
- The application of a VPU and consortium requires the low cost approach and execution strategies, therefore marginal projects cannot sustain additional large company overhead being placed on the project
- A first step for consortium may be to work with independent operators or mid tier companies who may be more flexible in their approach and economic criteria
- The following approach can be taken for progressing marginal field developments with operators in the UKCS, being –
- **Unfunded operators** (CAPEX) – There is ability to bring financing in to the development (through consortium).
- **Funded operators** - These operators would benefit from the consortium approach and technology in reducing costs and providing a different and lower cost solution to previously uneconomical fields

UKCS Production Club

- OGA has identified the Amplus VPU solution as the primary floating solution for small pools in the UKCS.
- OGA has recognised the need to change the approach to small pool development and has established with Amplus a small pools “club” where operators/licence holders are to review the potential of pooling their smaller reserves together to create economic developments.
- The Amplus Operators Production Club initiative offers Operators the potential of significant savings in developing Marginal Fields in the North Sea through sharing of FEED/Well Management/Drilling/SURF/SPS and VPU costs with other Production Club members.



Why use the Amplus VPU for Marginal Field Development?

- A single VPU can unlock fields currently viewed as stranded/marginal
- Distance between the production sites and varying water depth is immaterial and redeployment is rapid. The production system is thus ideally suited for marginal fields.
- Amplus and Consortium can deliver a step change in development and operating costs.
- VPU is a completely mobile asset and can move field to field as required
- VPU conversion option primary focus for marginal fields as pricing ensures success
- The Amplus Operators Production Club initiative significantly reduces Operators overall Marginal Field Development costs through sharing of FEED/Well Management/Drilling/ SURF/SPS and VPU costs with several other Operators