The Power Hub concept - a route to NetZero

Location: *Aberdeen, Scotland*
Date: *2020*

We believe passionately in the world's transition to net zero. We are a team of trusted technical advisors who meet and exceed our clients' aspirations.

In line with our aspiration, ITPEnergised (ITPE) has partnered with Sealand Projects to complete work with the Oil & Gas Technology Centre (OGTC) Power Hub project. The Power Hub addresses current methods of power generation used in the offshore oil and gas sector which result in relatively high quantities of carbon dioxide (CO_2), amongst other greenhouse gases (GHGs), being released into the atmosphere.

As the costs of offshore wind continues to fall, floating offshore wind technology offers an opportunity in powering oil and gas assets with clean renewable power, helping the sector towards net-zero whilst keeping MER (maximising Economic Recovery) very much in focus.

ITPE & Sealand conducted a detailed feasibility study on three core elements to identify a Power Hub concept that demonstrates the overall benefits in terms of cost and the environment.

Core Project Elements:

▪ Core Element 1 - Autonomous Power Hub – This case study assessed if autonomous power could offer sufficient generating capacity to power offshore oil and gas installations by utilising:

1a) Floating Offshore Wind - Installation of a standalone 40 MWe wind farm to provide power direct to offshore oil and gas installations; and

1b) Power from Shore – Installation of a cable from shore to provide power to offshore oil and gas installations

▪ Core Element 2 - Satellite Hub – This case study assessed the feasibility and commercial viability of a Normally Unmanned Installation (NUI) to have an in-field power cable tied back to the adjacent facility, removing the reliance of diesel for power generation.

▪ Core Element 3 - Integrated Power Hubs – This case study will assess the capabilities of establishing power to O&G installations from existing/planned offshore wind farms drawing on generated power from windfarm infrastructure.

Next Steps:

Combustion of fossil fuels and the resulting emission of pollutants to the atmosphere from offshore oil and gas installations occurs throughout the life of field. Energy efficiency of installations tends to decrease in late life as it can be more energy intensive to extract oil and gas at this stage, increasing the carbon intensity of production. Emissions can also increase as installations become gas deficient and rely on diesel deliveries to fuel combustion equipment.

The industry is committed to improving the energy efficiency of late life installations through initiatives such as the Oil and Gas UK "Roadmap to 2035: A Blueprint for net-zero". The aim is to ensure that the Oil and Gas sector can continue to provide secure energy supply whilst recognising the need for, and contributing to, government plans to reduce or offset carbon emissions to net zero by 2050 in the UK and 2045 in Scotland.

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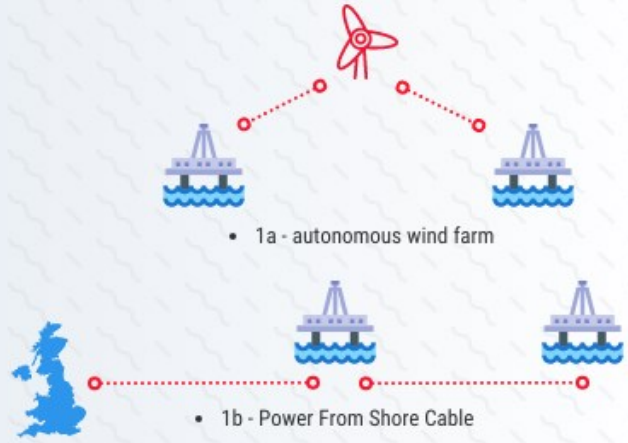
Core Element 1

Autonomous Power Hub

Power provided to offshore installation either via a purpose built offshore wind farm (1a) or a cable providing power from shore



- 1a - autonomous wind farm
- 1b - Power From Shore Cable

Core Element 2

- 2 - Cable from manned Installation to NUI

Satellite Hub

Installation of a new power cable between a NUI, generating power using diesel engines, and an adjacent installation which has excess power available. Power will be generated by efficient gas turbines on the adjacent installation and exported to the NUI.

Core Element 3

Integrated Power Hub

Installation of a power cable from an existing or planned offshore wind farm to an oil and gas installation, minimising fossil fuel combustion for power generation.

- 3 - Cable from existing wind farm

ITPEnergised is a trusted advisor providing client focused on reliable energy efficiency, environmental support and energy transition services enabling Net Zero and effective compliance with environmental social and governance frameworks (ESG).

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