

MICEDD

DEEPWATER DEVELOPMENT

28 - 30 March 2023 | Millennium Gloucester Hotel | London, UK

ORGANIZED BY



Quest Offshore

World Oil®

Unlocking Deepwater Gas Reserves in the Mediterranean Sea: Subsea Controls, Remote Access, and All-Electric Solutions for Ultra-Long Tiebacks

Burkhard Sommer – Product Champion All-Electric & Controls

OneSubsea, An SLB company

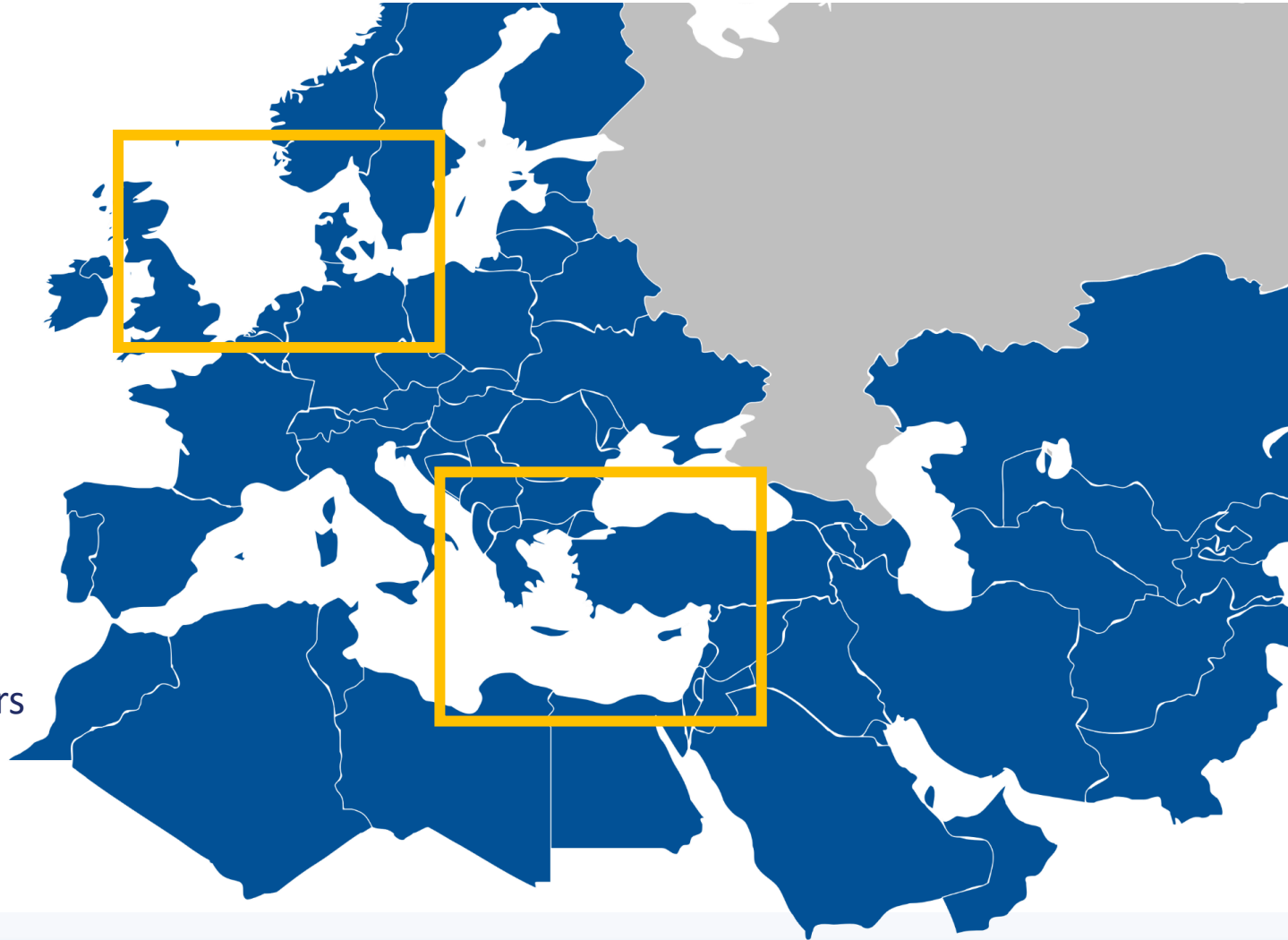
Market Overview

North Sea CCS

- Remote, ultra-long distances up to 250km
- Shallow water, subsea-to-shore

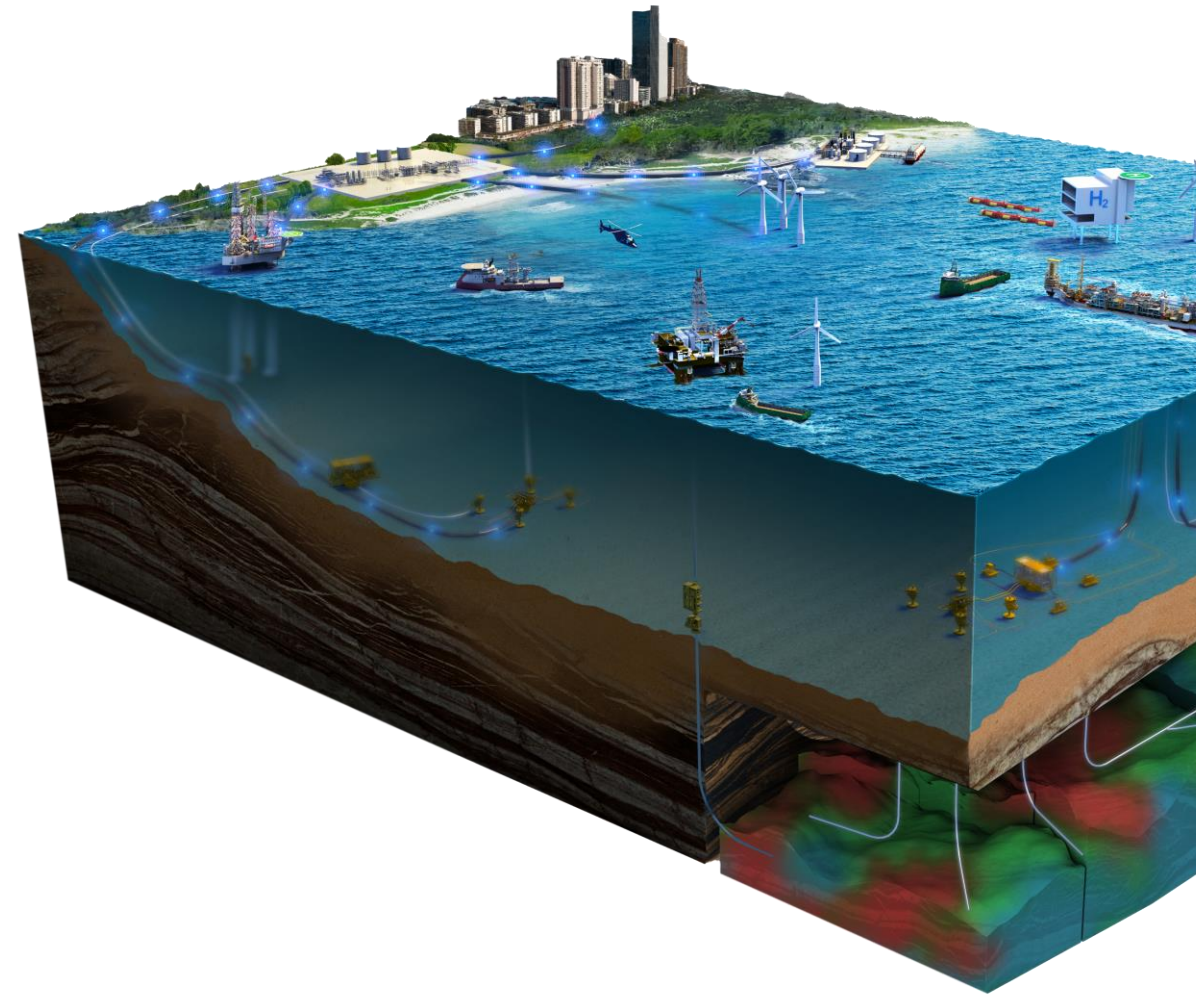
Mediterranean - Gas

- Remote, large volume, 100km to 400km offsets
- Europe's potential future Gas Hub
- Technically challenging, high cost, multiple players
- Deepwater up to 2,500m



Motivation

- Avoid thousands of tons of CO₂e per field
- Minimize environmental impact
- Save millions of dollars for the infrastructure
- Increase feasibility of Subsea Developments
- Provide input to industry (e.g., technology roadmaps for connector and cable suppliers)



Today's All-Electric Technologies

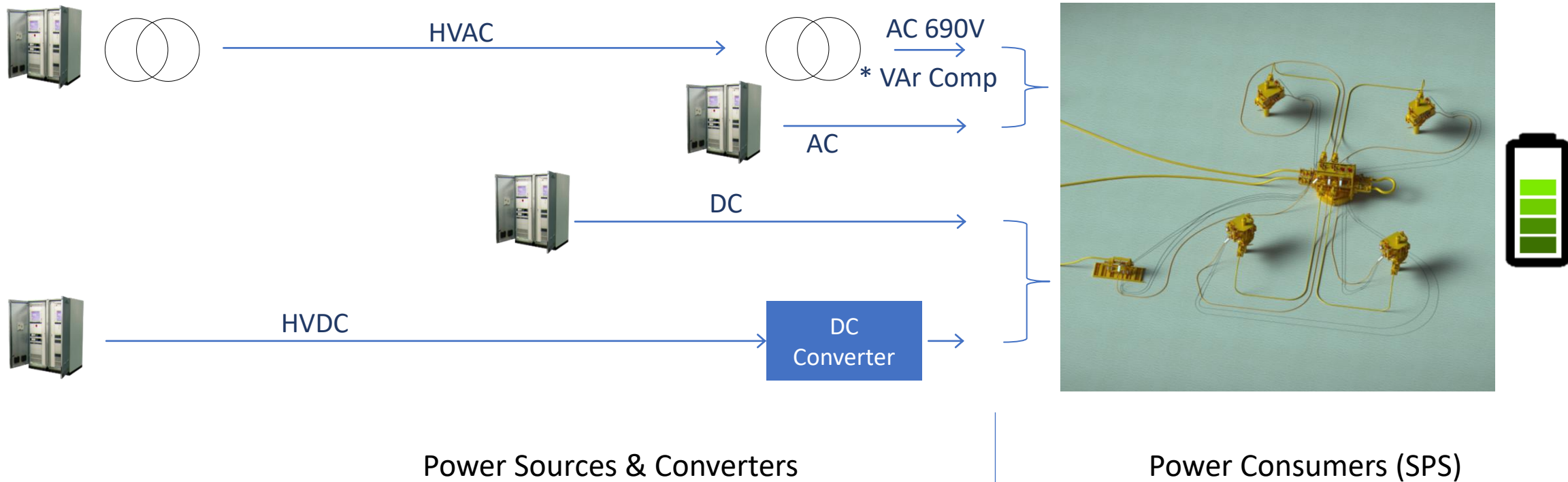
- CAPEX reduction for long tiebacks
- Use only **one** type of power (electricity)
- **Low peak power** due to utilization of subsea batteries
- Provide **significant simplification** of infrastructure

Power systems require optimization

Power Efficiency is (CAPEX) King



Power Systems – Several Options



“Optimize the Power Cord”

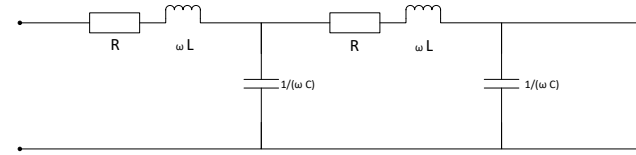
	DC Systems			AC Systems*		
Subsea Power	2500W	2500W	5000W	2500W	5000W	5000W
Power System	DC 5000V	DC 3000V	DC 5000V	AC 3000V	AC 3000V	AC 6000V 3-Phase
Topside Power	4.2kW	4.2kW	8.3kW	51.3kVA	54.5kVa	83kVA
Cross-Section	6mm ²	16mm ²	12mm ²	55mm ²	64mm ²	55mm ²

Example: 400km Stepout

*VAr comp.



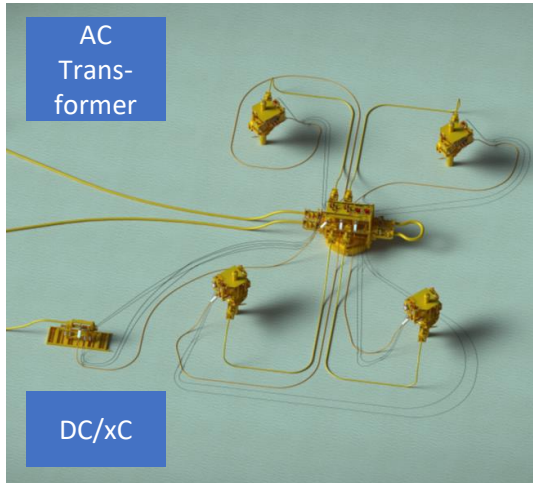
Power Systems



1.)



AC
Trans-
former



2.)



HVDC
Panel

HVDC & Fiber Optic Comms



- Cheaper Umbilical
- Less Infrastructure/Interconnections
- Less Failure Points
- Less Subsea Operations
- Less CO2 emissions during Subsea Installation
- Less CO2 during manufacturing (embedded carbons)

DC Rules of Thumb
2x Power -> 2x Copper
2x Voltage -> 1/4 x Copper

Alternative: “Wireless” All-Electric Setup



- Satellite link with encryption and full remote control available
- Can be integrated with remote low-power sources (wave or solar power)
- Ideal for CCS
- Multi-location controls

Summary

- OneSubsea has experience with DC for **15 years**
- OneSubsea is constantly enhancing DC power and Fiber Optic Communication portfolio to adapt to needs of Offshore **Gas and CCS** market for low power systems
- Enabling significant reduction in **SURF** cost
- Satellite links are a perfect match for decentralized power/comms systems, e.g. for CCS
- Enhancements in developments for eHIPPS, Subsea Chemical Injection Skids and Power Buoys expected for near future

Contact Details

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