New Energy Neptune
GREEN HYDROGEN; CCS; BLUE HYDROGEN
WHAT DOES THIS MEAN FOR THE OIL & GAS STANDARDS?
Objectives:

• Mitigate our carbon emissions as economically as possible (ESG) [tons CO$_2$/Boe]
• By co-use of our infrastructure and sharing costs:
  - Produce the tail-end volumes
  - Defer decommissioning cost
• Asses the opportunity for developing a scalable Hydrogen and CCS business

• **Neptune – New Energy Group organisation**
• **PosHYdon project to learn and to demonstrate**
• **Application for a CO$_2$ storage licence for L10-A, L10-B, and L10-E**
NEW ENERGY STRATEGY AND INITIATIVES

• **Hydrogen:**
  - PosHYdon
  - Upscaled hydrogen pilot
  - Large scale hydrogen production offshore
  - Blue hydrogen production

• **Carbon Capture and Storage (CCS):**
  - L10-block: shipping and piping
NERLANDS HIGHLY DEPENDS ON THE NORTH SEA TO ACHIEVE ITS PARIS GOALS

Follow Up CCS?

Electrification

Follow Up Hydrogen?

CCS L10

Den Helder Integration

Blue H₂

Aramis H₂

Shipping CCS

Athos-TATA

Hydrogen Backbone

PosHYdon

Porthos CCS

Pipeline Options

Electrification

Carbon Storage CCS

Hydrogen
WHY HYDROGEN?
TIME TO ACT NOW!

- EU (Green Deal) and NL government (Hydrogen Vision)
- Neptune joining the European Clean Hydrogen Alliance
- Partners are potentially open to work together to solve the challenges of the energy transition
- Investors target for low carbon investments
- A (European) **Hydrogen backbone** is planned to become operational as from 2026/2027
- PosHYdon is the example – **unlocking the potential for large scale offshore hydrogen production.**
WHY **OFFSHORE** HYDROGEN AND WHY POSHYDON?

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**Offshore Hydrogen vs Onshore generation has several advantages**

- Independent of electrical grid connection:
  - Acceleration of the energy Transition
  - Lower socialised costs
- Public acceptance/ stakeholder buy-in; spacial planning
- Environmental benefits
- Efficiency: No loss of electricity conversion AC/DC
- CO-use of existing E&P infrastructure: OPEX sharing and ABEX postponement

**Disadvantage:**

- Mixing $\text{H}_2$ with natural devaluates $\text{H}_2$ => SMR might solve this (Blue Hydrogen production)
POSYDON AND BEYOND
PARTNERS & BENEFITS

Partners:

Benefits short term:

• Safety is our #1 priority – so how to fit in hydrogen safely
• To learn how hydrogen and an electrolyser perform on a live offshore platform
• Regulatory adjustments needed to blend hydrogen into the national gas grid
• How to maintain value of green hydrogen (certificates of origin)

Benefits longer term:

• Allow development of a business case for large scale H₂ far from shore within the consortium
• PosHYdon to test prior to largescale offshore H₂ production
• Windpower far from shore can be evacuated via existing gas infrastructure to shore, and beyond international borders
• H₂ can carry part of the cost operational cost and enable tail-end offshore domestic gas production
WHAT DOES THIS MEAN FOR STANDARDS AND SPECIFICATIONS?

What needs being done in the world of Standards:

• What Oil & Gas standards need being reviewed for co-use with hydrogen?
• Offshore facilities will handle O&G and CO₂ simultaneously. What does this mean for standards?
• Existing well completions suitable for CCS?
• Fiscal metering of a mixture of natural gas and Hydrogen
• What safety standards are affected by CO₂ and H₂?