

# Power2X Subgroup webinar

21<sup>st</sup> February 2023



European Union



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**EUROPE & SCOTLAND**

European Regional Development Fund  
Investing in a Smart, Sustainable and Inclusive Future



North of Scotland Offshore Wind Cluster

## Today's Programme

- 10.00am - Introduction and housekeeping – **Jeya Calder**, Highlands and Islands Enterprise
- 10.05am - Old and New Co-chairs changeover, **Paul O'Brien**, DeepWind
- 10.10am - Introduction to Draeger - **Megan Hine**
- 10.20am - Introduction to Arup, - **Clare Lavelle**
- 10.30am - Floating Offshore Hydrogen Production Platform – **Stéphane Le Berre**, Lhyfe
- 10.50am – Q&A Session - **Lauren Macintosh**, Cluster Builder
- 11.00am – End of webinar

## Co-chair handover

John Sinclair



Neil Wilkinson



Clare Lavelle

**ARUP**

Megan Hine

**Dräger**

Megan Hine

**Dräger**

# MEGAN HINE

Business Development Manager – **SAFE ENERGY TRANSITION**

5 years experience in Draeger Safety portfolio

Gas and fire detection systems background

Guest lecturer University of Aberdeen – Gas safety for the energy transition

Wireless gas detection expert







# Dräger Project Solutions

Global portfolio Dräger Marine & Offshore



# Dräger Project Packages

## At a Glance

### **Firefighting Packages**

**Active fire protection in all sizes**

- Deluge systems
- Gaseous extinguishing systems
- Sprinkler and water mist
- Foam systems
- Helideck protection
- GRP/Stainless steel cabinets

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We offer custom engineering project management, maintenance and consulting on the entire product range.





# Dräger Project Packages

## At a Glance

### Misc. Firefighting

#### Firefighting for all applications

- Fire extinguishers
- Hydrant stations
- Monitor systems
- Fire hoses and nozzles
- Fireman's equipment
- GRP / Stainless steel cabinets

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We offer custom engineering project management, maintenance and consulting on the entire product range.



# Dräger Firefighting Solutions

## Product highlights

### Products



#### Firefighting Skids

Project-specific sizes for helidecks and other applications



#### Composite Fire Extinguisher

No corrosion, up to 15% lighter, 10 years warranty and 100% recyclable



#### DMO IPX6 Storage cabinets

Various sizes, wall and deck mounted, custom shelves

### Accessories



Atmosphere monitoring



Custom solutions



ATEX heating and lighting systems



# Dräger Project Packages

## At a Glance

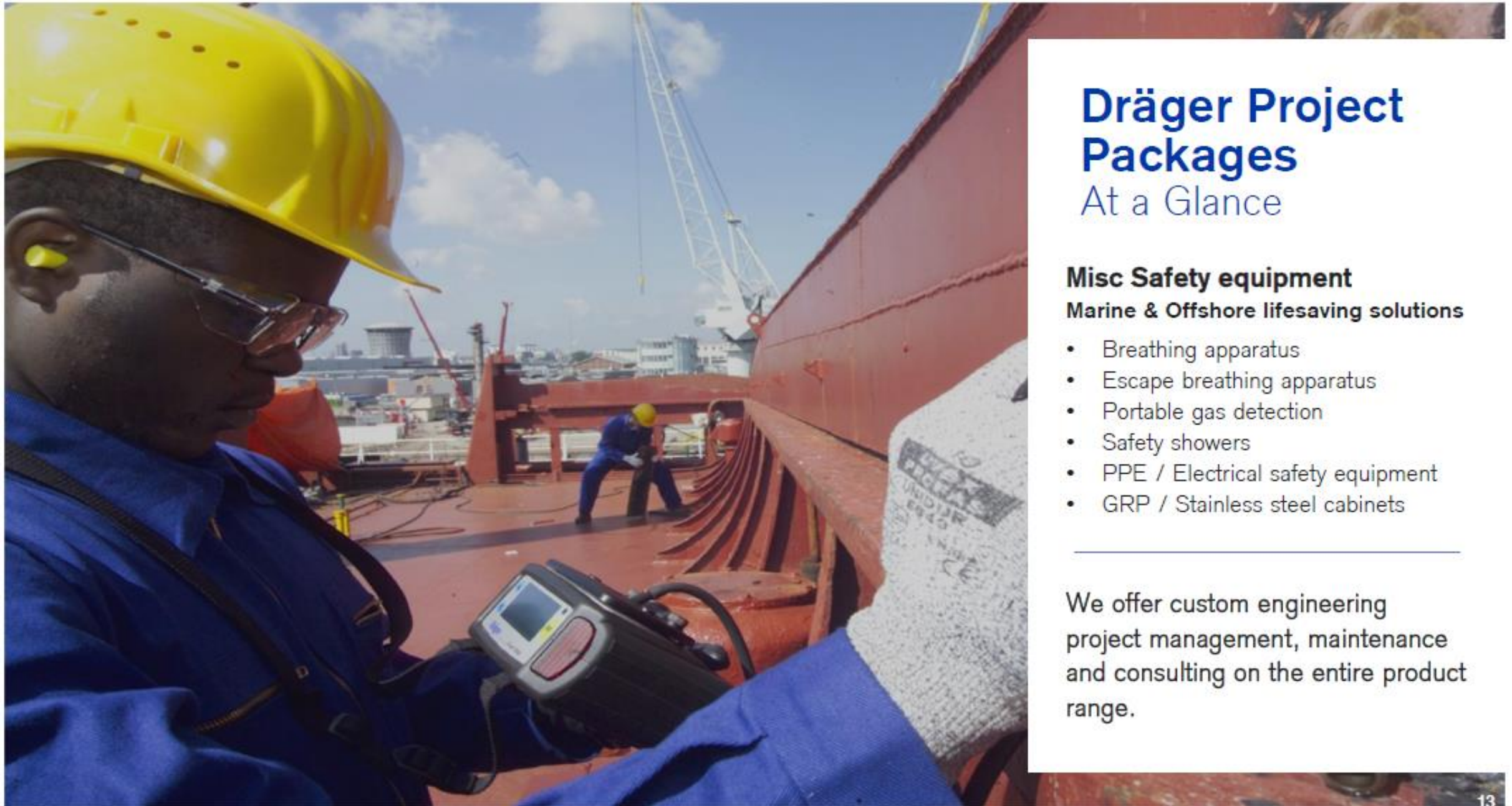
### **Misc Rescue & Lifesaving** **Marine & Offshore lifesaving solutions**

- Lifejackets and survival suits
- Lifebuoys and accessories
- Pyrotechnics
- Liferrafts
- GRP / Stainless steel cabinet

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We offer custom engineering project management, maintenance and consulting on the entire product range.





# Dräger Project Packages

## At a Glance

### **Misc Safety equipment**

#### **Marine & Offshore lifesaving solutions**

- Breathing apparatus
- Escape breathing apparatus
- Portable gas detection
- Safety showers
- PPE / Electrical safety equipment
- GRP / Stainless steel cabinets

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We offer custom engineering project management, maintenance and consulting on the entire product range.



*Many thanks*

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**Dräger**

**Clare Lavelle**

**ARUP**

# DeepWind

## Power2X Subgroup

**Clare Lavelle**

February 2023



# Global presence



**89** offices

**33** countries

**£1.9bn** turnover

**76 yrs** of profitable trading debt free

**17,400+** people

# Aims

1

Quality  
of work

2

Total  
architecture

3

Humane  
organisation

4

Straight and  
honourable  
dealings

5

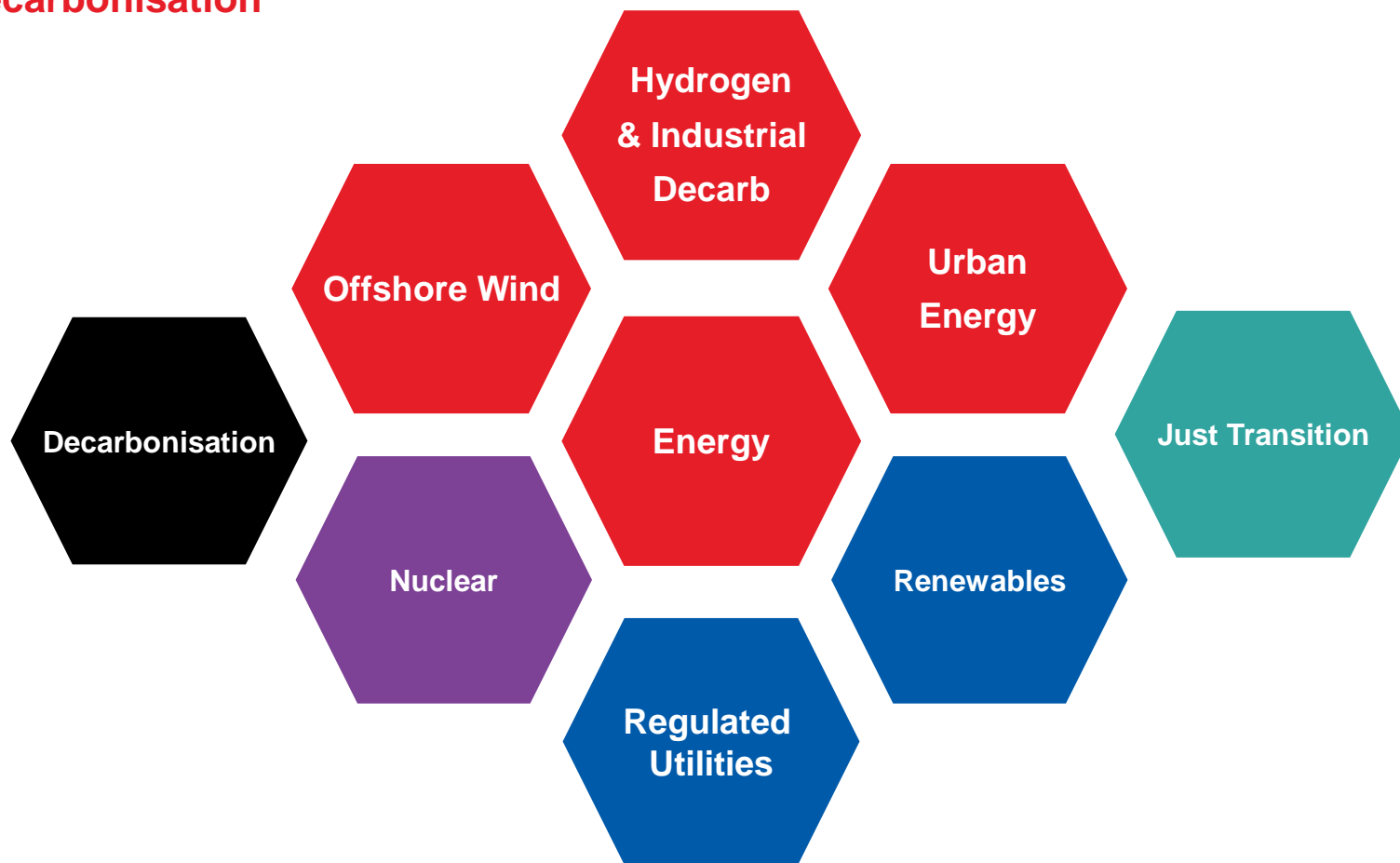
Social  
usefulness

6

Reasonable  
prosperity

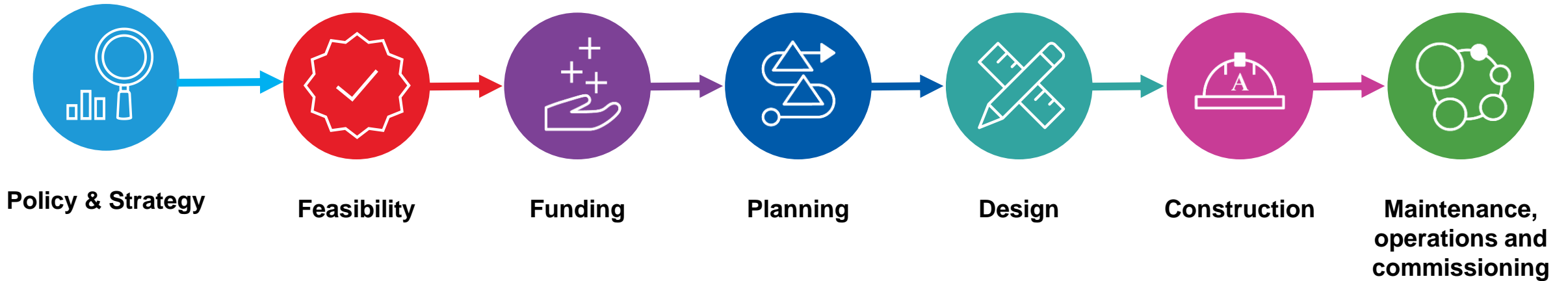
# Energy Markets

Delivering deep decarbonisation





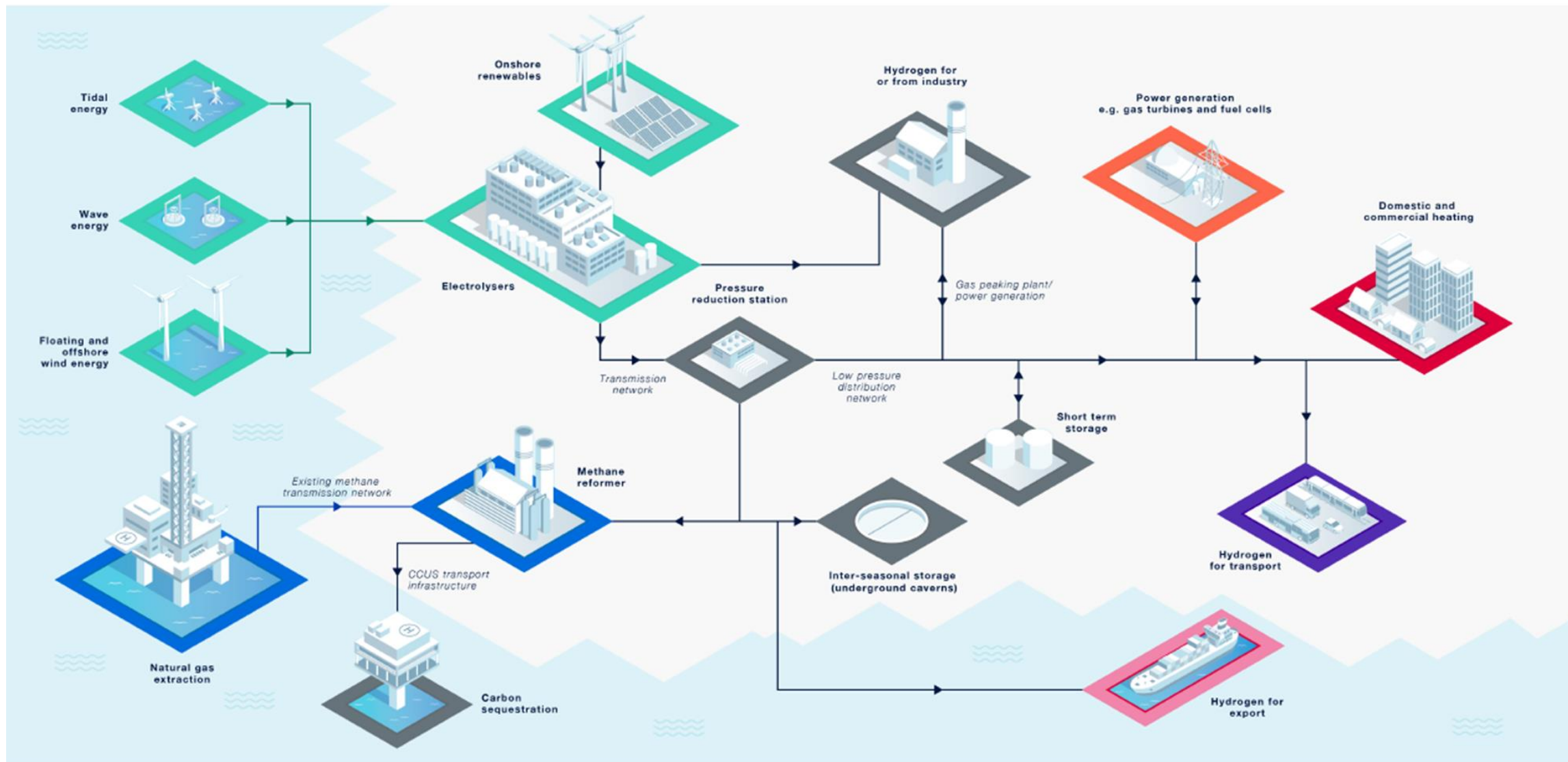
# Working across a project life-cycle



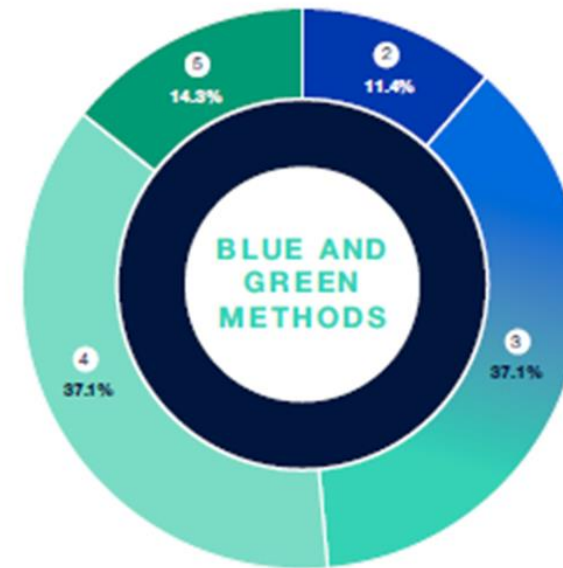
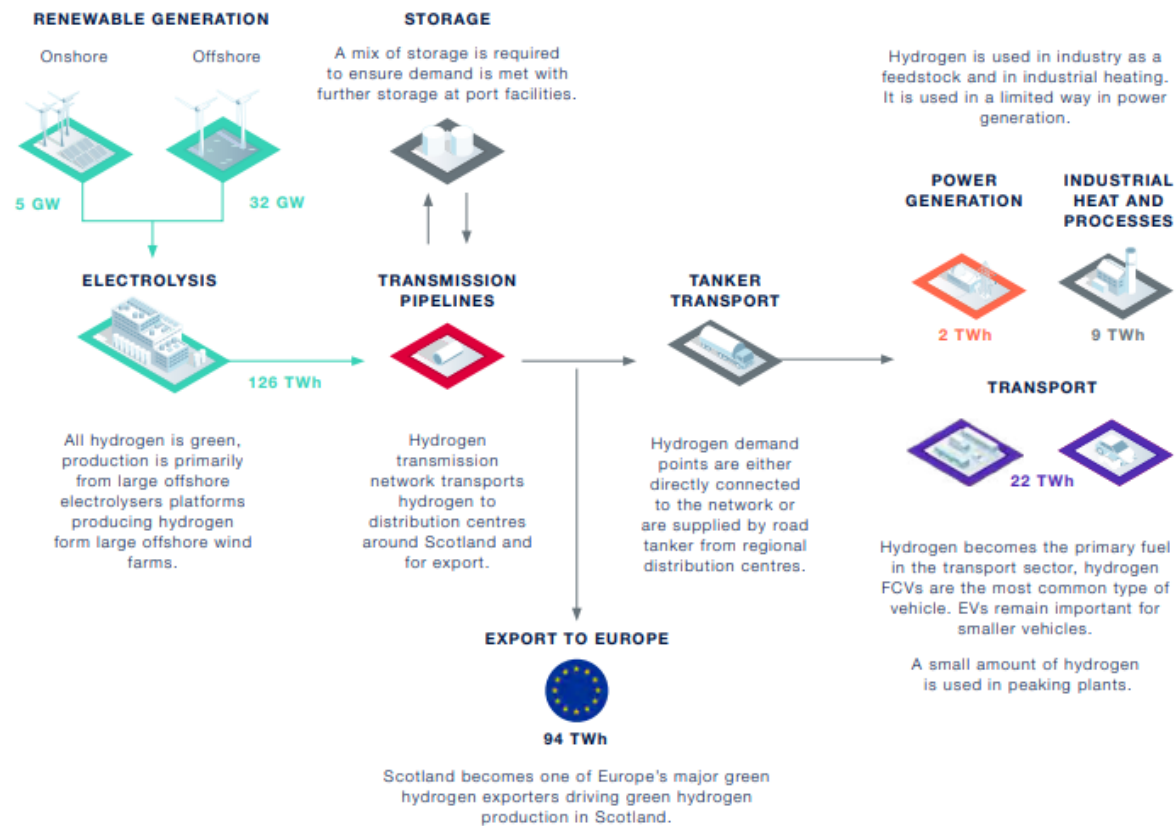
# Providing Integrated Services



# Arup in Hydrogen



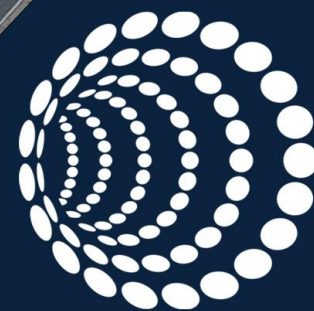
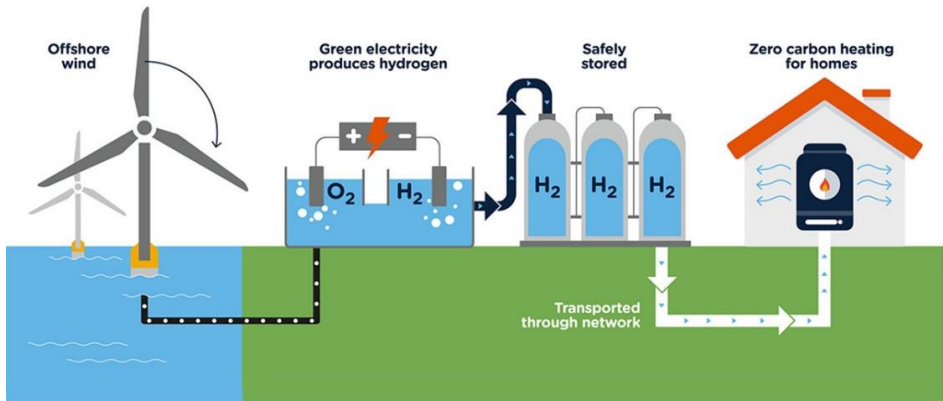
# Scottish Hydrogen Assessment



1. Blue only (no stakeholder selected)
2. Mainly blue
3. Mixture of blue and green
4. Mainly green
5. Green only

**Figure 27:** Stakeholder responses to 'how hydrogen production is split between blue and green production methods.





**SGN**  
H100 Fife

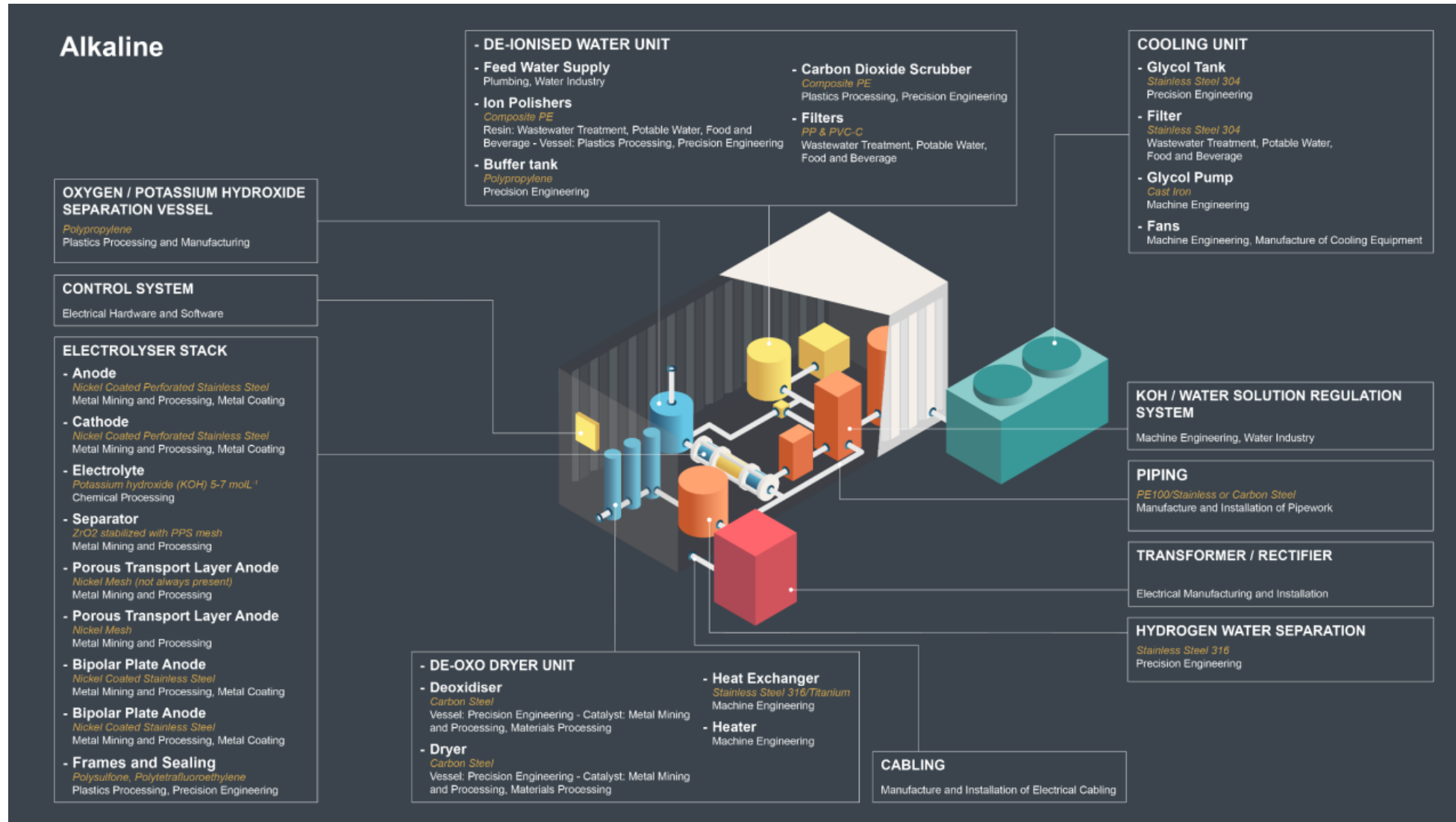
An end to end 100% hydrogen system



# Hydrogen Transport



# Assessment of Electrolysers



# Future Offshore Wind Scenarios



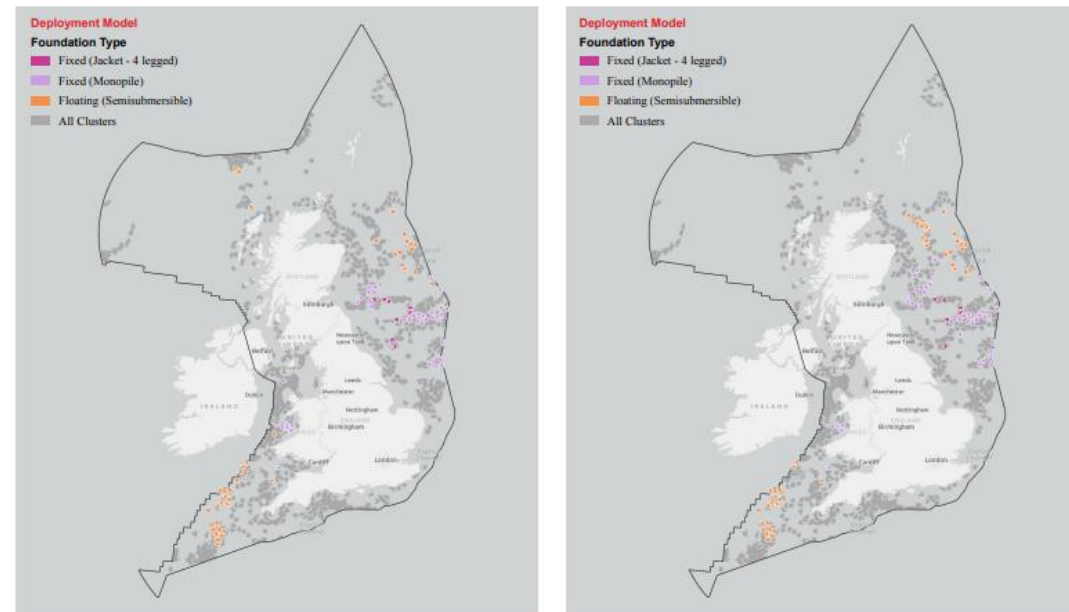
## 3. Key messages

### 3.4 Hydrogen as part of the energy mix

Including hydrogen in the portfolio has a minimal impact on the overall portfolio LCOE. Although the assumed onshore hydrogen hubs draw deployment towards them, this clustering effect is less pronounced because the influence of other geospatial factors is more dominant on the spatial distribution of offshore wind deployment.

With green hydrogen predicted to be part of the energy mix required to reach net zero by 2050<sup>[1]</sup>, the research explored – in the High Ambition pathway – the impact on cost and spatial distribution of including offshore wind sites dedicated exclusively to producing green hydrogen. Figure 29 shows hydrogen-dedicated sites in areas that could favour both fixed and floating foundations.

We considered the costs associated with both onshore and offshore electrolysis. Generating hydrogen offshore and piping it to shore is potentially more economically attractive than onshore electrolysis due to capital savings and reduced electrical losses.



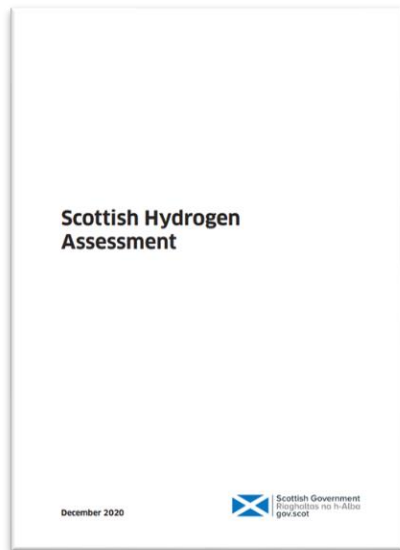
**Figure 29.** Deployment model output showing effect of dedicating 40GW of offshore wind to producing hydrogen and transporting to the onshore hubs in Figure 9. Base Case (left) and Hydrogen Sensitivity (right) (High Ambition pathway, Scenario 7).



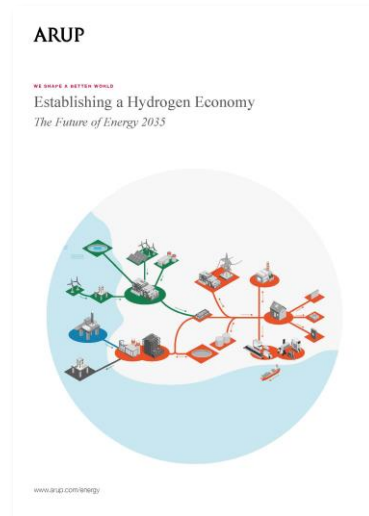
# Publications from Arup on hydrogen

ARUP

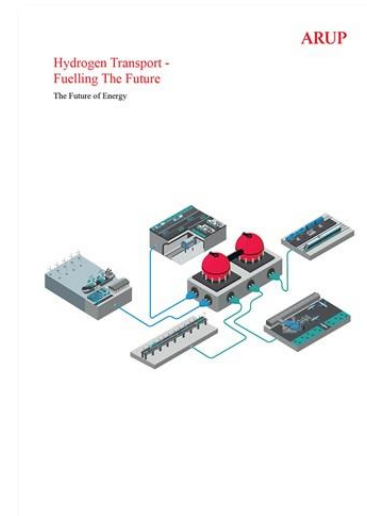
If you'd like to know about Hydrogen and its role in the future energy system...



Scottish Hydrogen Assessment



ESTABLISHING A HYDROGEN ECONOMY:  
THE FUTURE OF ENERGY 2035



THE FUTURE OF ENERGY: GREEN  
HYDROGEN TRANSPORT



FIVE MINUTE GUIDE TO HYDROGEN



ARUP

**Stéphane Le Berre**

*Lhyfe*

**Lhyfe policy means that we  
cannot share the presentation**

# Q&A Session

Facilitated by  
Lauren McIntosh,  
Cluster Builder



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