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Department for
Energy Security
& Net Zero

Hydrogen Energy and Trade

United Kingdom

Department for Business and Trade,
Department for Energy Security & Net Zero

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Linking EGS beyond trade policy

- EGS is cross-cutting area and requires input from relevant sectoral experts
- The UK's all-of-government approach to EGS policy development is ensuring wider coherence
- The UK's non-paper on hydrogen and trade covers:
 - Hydrogen's importance for decarbonisation efforts
 - The goods and services needed in the hydrogen sector, illustrated by further value chain maps
 - Barriers to trade in and up take of hydrogen
 - Signposts to different global initiatives in the development of hydrogen standards



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Hydrogen's role in global decarbonisation

1. Hydrogen is a clean fuel utilised in 'hard to abate' applications where other decarbonisation options are limited
2. Unlike hydrocarbon energy, hydrogen energy is a conversion rather than an extraction business and there is more widespread resource availability
3. Hydrogen has the potential to be produced competitively in many places – potential for decentralised production means a wide variety of countries are potential exporters of hydrogen energy



Hydrogen combustion engine



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Services required in the hydrogen sector

Technical Services	Ancillary Services
<ul style="list-style-type: none">• Lifecycle analysis• Engineering• Construction• Operation and maintenance• Research and development• Testing and certification	<ul style="list-style-type: none">• Consulting• Financing• Insurance• Legal support• Regulatory support

Key Barrier: Skills recognition in technical services specific to the hydrogen economy



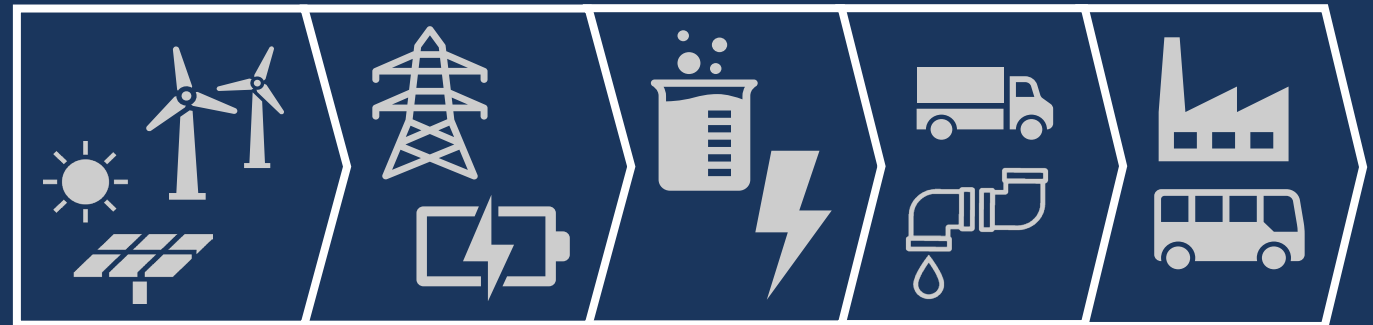
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Goods required in the hydrogen sector

- **Important technologies in hydrogen value chains include:**
 - PEM electrolyzers
 - Onboard hydrogen storage tanks
 - PEM fuel cells
 - Solid oxide and alkaline electrolyzers
- The full value chain diagrams describing a green hydrogen plant are also available in the non-paper
- Green hydrogen production-to-use stages:



Renewable
electricity
generation

Getting
electricity to
electrolyser

Electrolysis to
produce
hydrogen

Distribution
and
storage

In-situ
net zero
emissions



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Barriers, Standards, & Supply Chains

1. Challenges in hydrogen include both trade measures and wider barriers to uptake
2. There is a need for interoperability of different hydrogen standards, since there already 19 certification schemes

3.



Hydrogen TCP

4. Demand for relevant technologies currently outstrips supply, significant gaps remain for:
 - Reformers
 - Line pipe
 - Electrolyser packages
 - Hydrogen compressors
 - CO2 compressors
 - High integrity valves
 - Packaged dehydration units



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Final Reflections

1. Trade policymakers have a role to play in bridging the gaps between different policy communities in advance of environmental objectives
2. We must consider carefully the role we play in signposting towards existing efforts and complementing these to avoid any duplication of work
3. There is a unique opportunity for countries on all development pathways to participate in the hydrogen sector, together we can realise that ambition

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