



The road towards climate neutrality. What contribution of clean hydrogen?

*A long-term energy planning perspective
from international think tanks*

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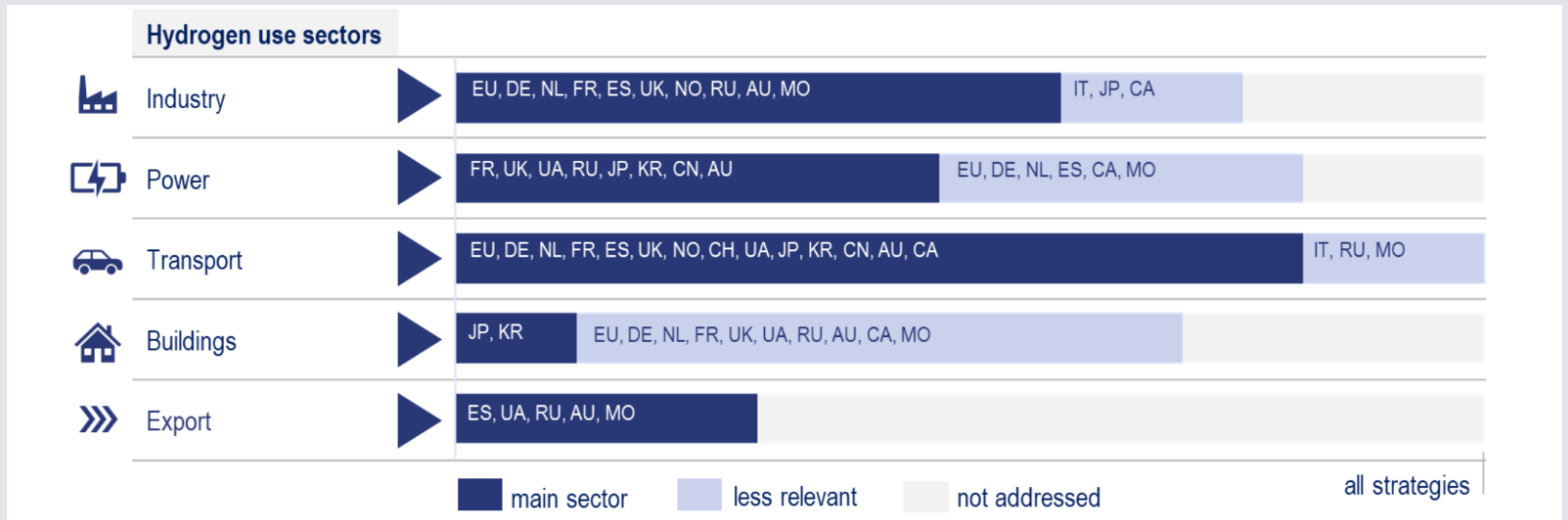
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1. National decarbonization pathways and role of hydrogen

International hydrogen strategies identify transport, industry and power sector as main target sectors for hydrogen.

Hydrogen target sectors in international hydrogen strategies



Where do we need green molecules to decarbonize? – a closer look

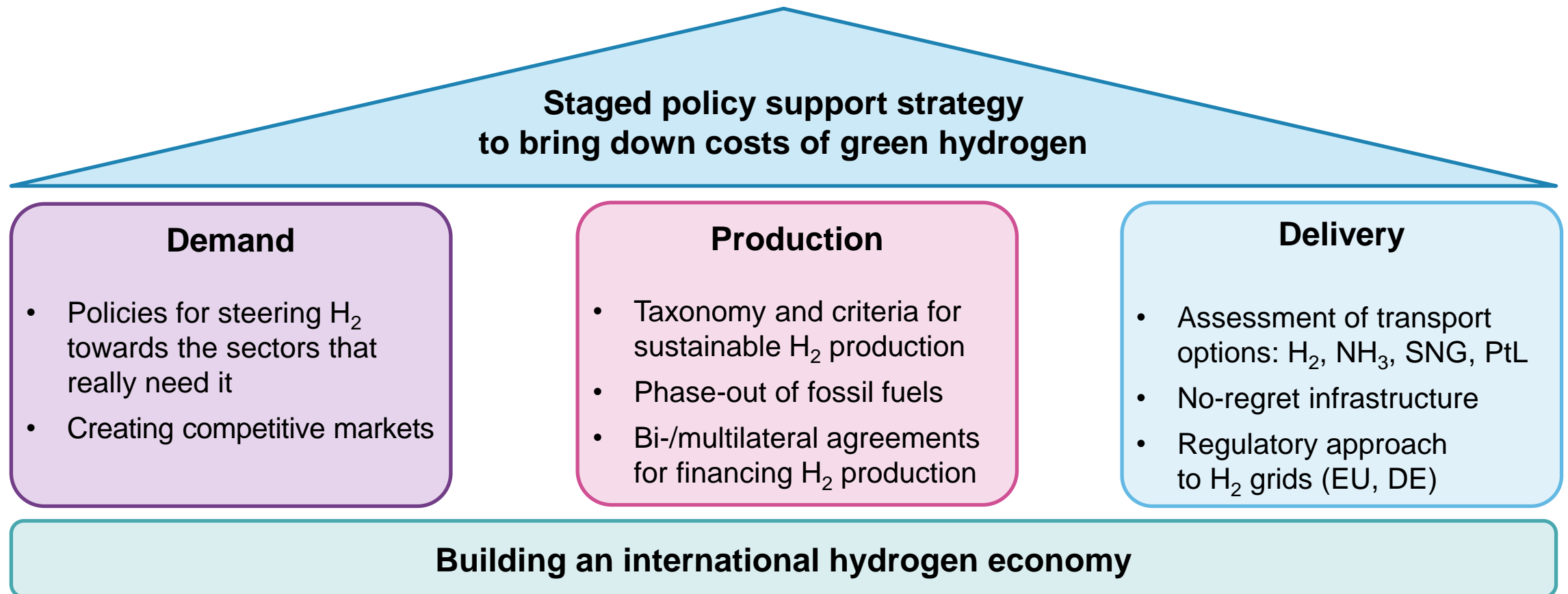
Need for green molecules, in addition to green electrons

Green molecules needed?	Uncontroversial	Controversial
Industry	<ul style="list-style-type: none"> - Reaction agents (DRI steel) - Feedstock (ammonia, chemicals) 	<ul style="list-style-type: none"> - High-temperature industrial heat
Transport	<ul style="list-style-type: none"> - Long-haul aviation - Maritime shipping 	<ul style="list-style-type: none"> - Ground-based transportation - Short-haul aviation and shipping
Power sector	<ul style="list-style-type: none"> - Long-term storage for variable renewable energy back-up 	<ul style="list-style-type: none"> - Absolute size of need given other flexibility and storage options
Buildings	<ul style="list-style-type: none"> - District heating (residual heat load in large existing systems with high flow temperature)* 	<ul style="list-style-type: none"> - Heat systems for individual buildings

* According to the UNFCCC Common Reporting Format, district heating is classified as being part of the power sector



2. International perspective for the emergence of a hydrogen economy

Regulatory architecture for a green hydrogen economy



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Thank you for your attention!

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Agora Energiewende is a joint initiative of the Mercator Foundation and the European Climate Foundation.



Agora publications on climate-neutrality and hydrogen

No-regret hydrogen:
Charting early steps
for H₂ infrastructure
in Europe



> full study

> data appendix
> webinar

Towards a climate-
neutral Germany



> summary (EN)
> full study (DE)

> data appendix (DE)

Breakthrough
Strategies for
Climate-Neutral
Industry in Europe



> summary

A Clean Industry
Package for the EU



> full study

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The Future Cost of
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