ENERGY

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UNECE Hydrogen Task Force

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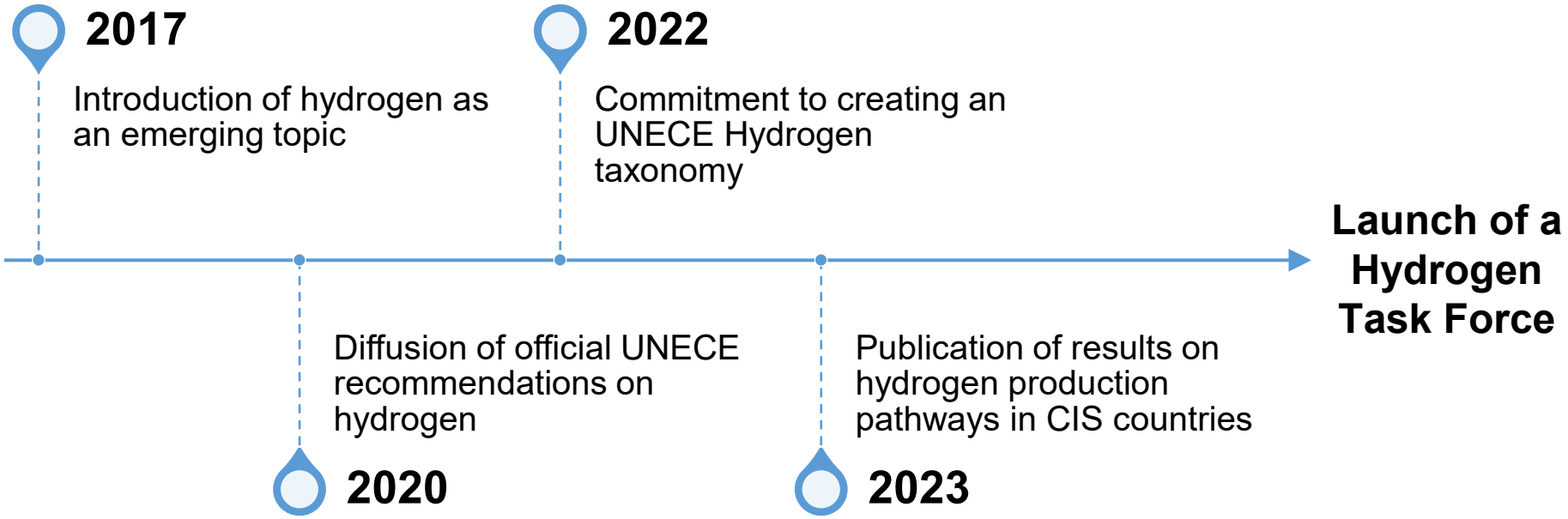
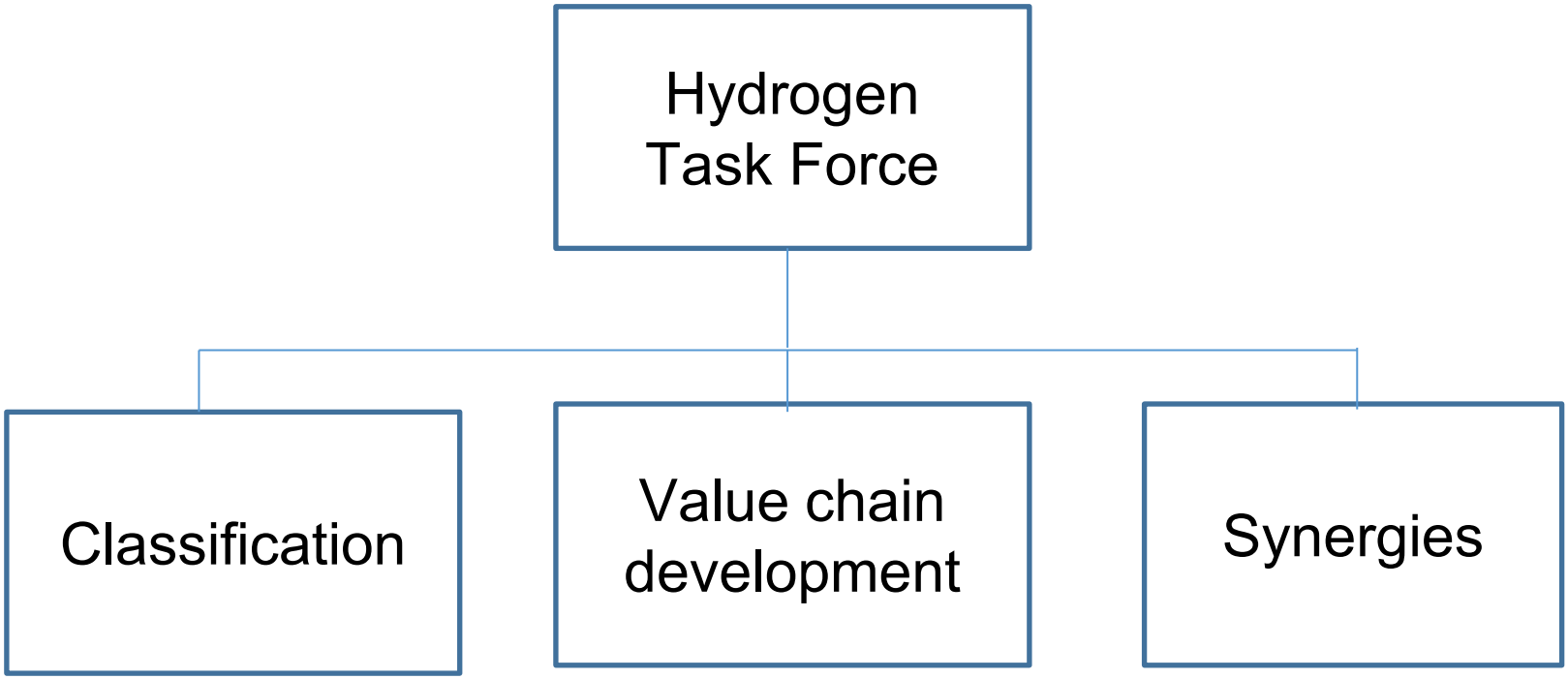
5 April 2024, 14:00 – 17:30 CET

Geneva, Palais des Nations, room H-207-208-209 and online

Joint UNECE WP.6 – Hydrogen Task Force (HTF) event

Timeline


2017
Introduction of hydrogen as an emerging topic
2022
Commitment to creating an UNECE Hydrogen taxonomy
Launch of a Hydrogen Task Force
Diffusion of official UNECE recommendations on hydrogen
2020
Publication of results on hydrogen production pathways in CIS countries
2023


Hydrogen
Task Force
Classification
Value chain
development
Synergies

Publication: Towards a Hydrogen Economy in the UNECE Region

- Key elements of proposed classification
- International efforts
- Next steps towards certification

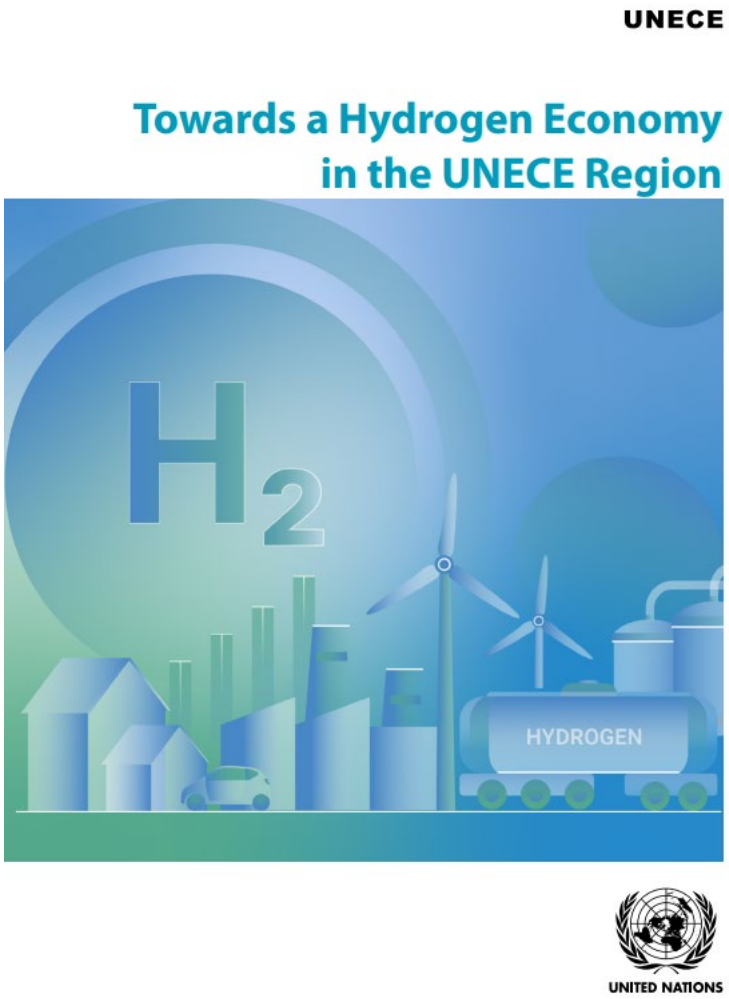
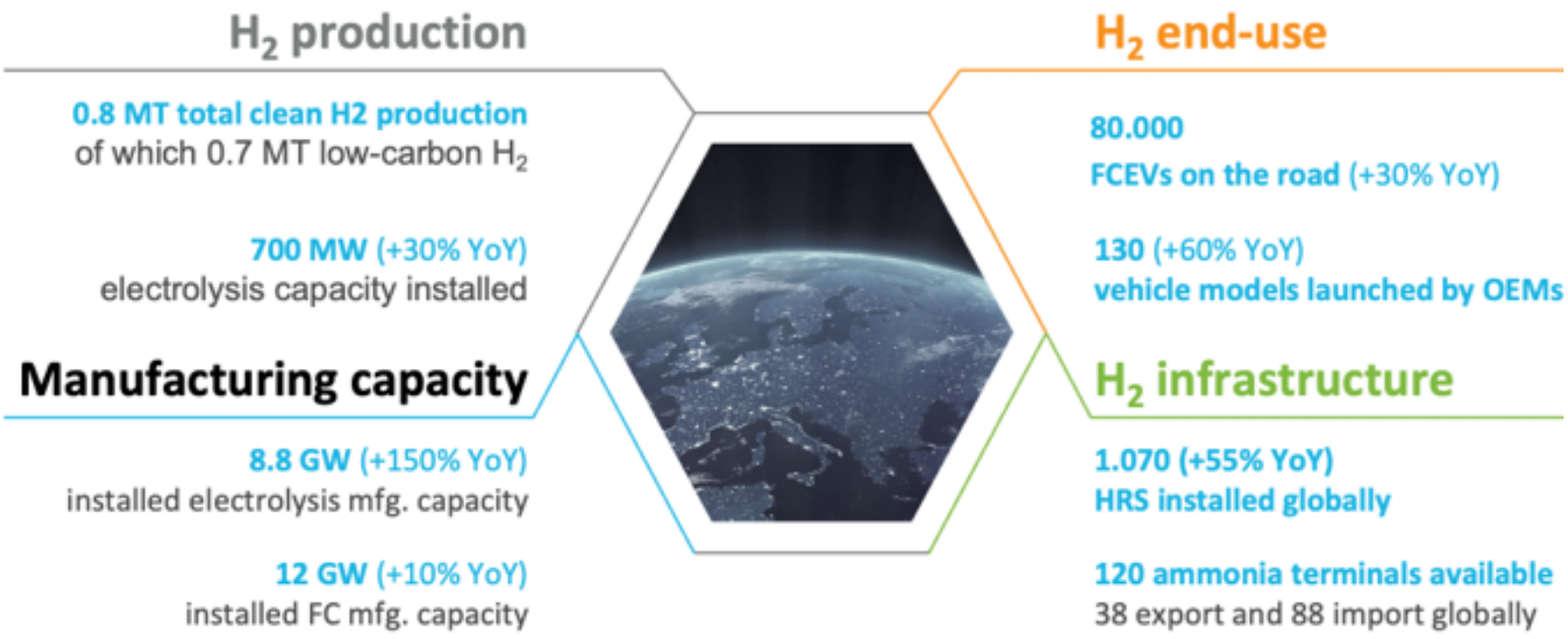


Figure 2

Hydrogen deployment growing steadily: status as of January 2023



Source: Hydrogen Council, 2023.

Figure 3

Global snapshot: more than 1,040 hydrogen projects announced in 2023

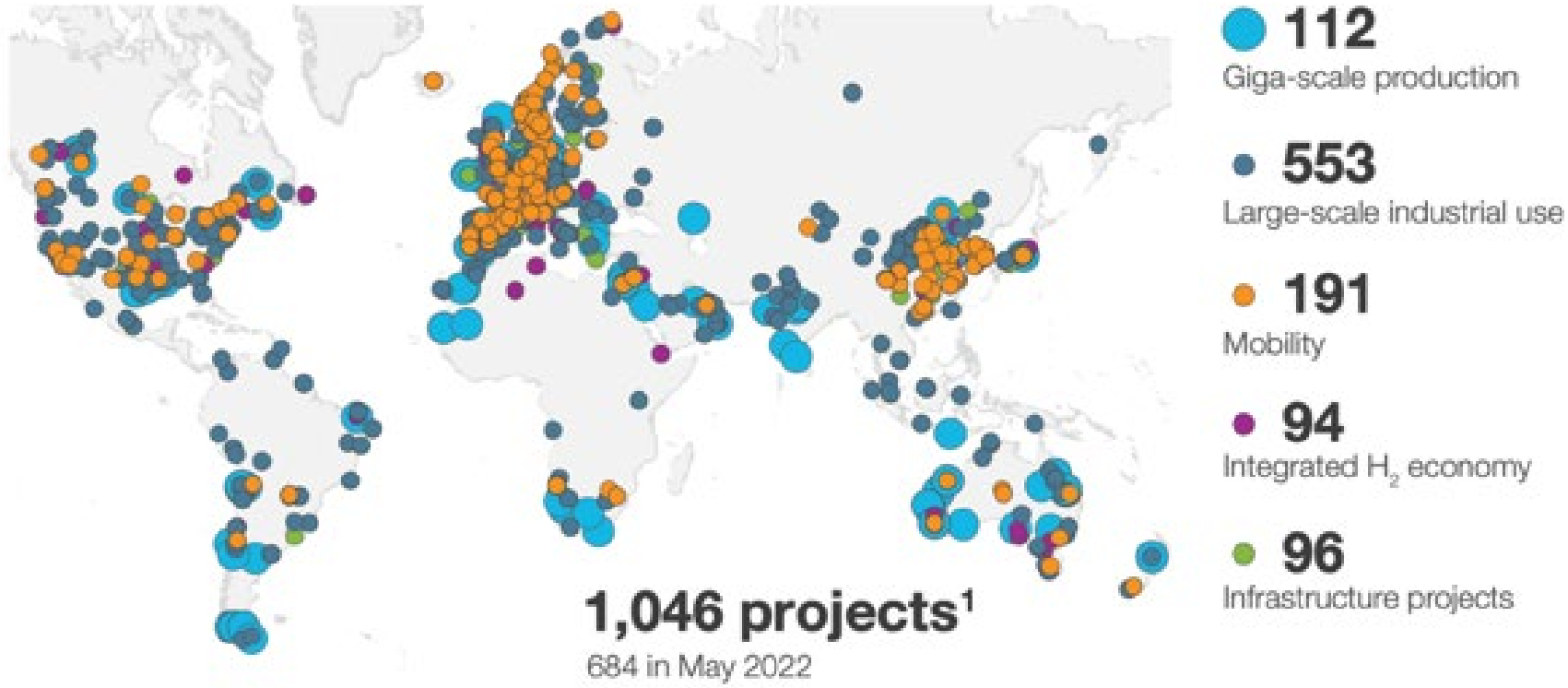
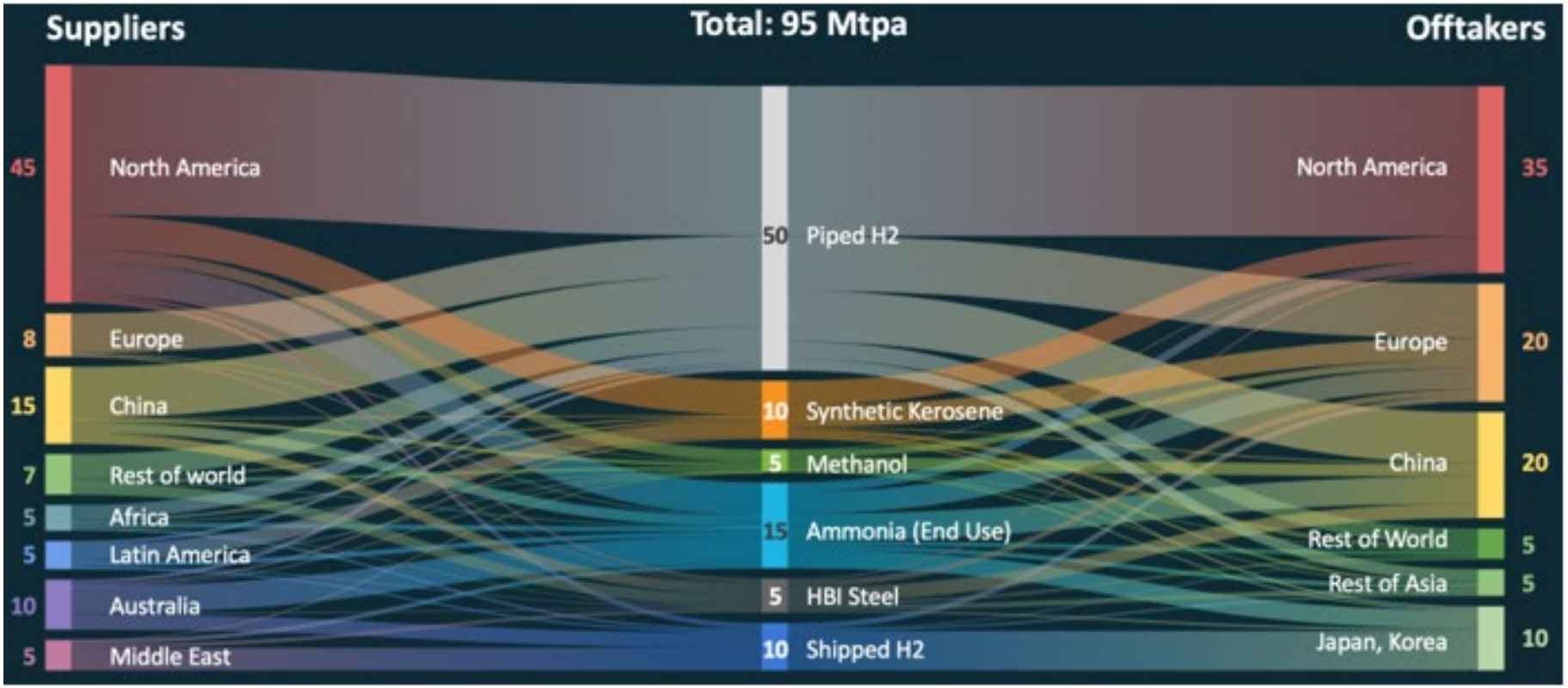


Figure 5

Outlook for global trade flows in hydrogen and derivative over long-distance (exceeding 1000km) by 2040, MT H2 equivalent



Source: Hydrogen Trade Flows. Hydrogen Council. 2022.

Figure7

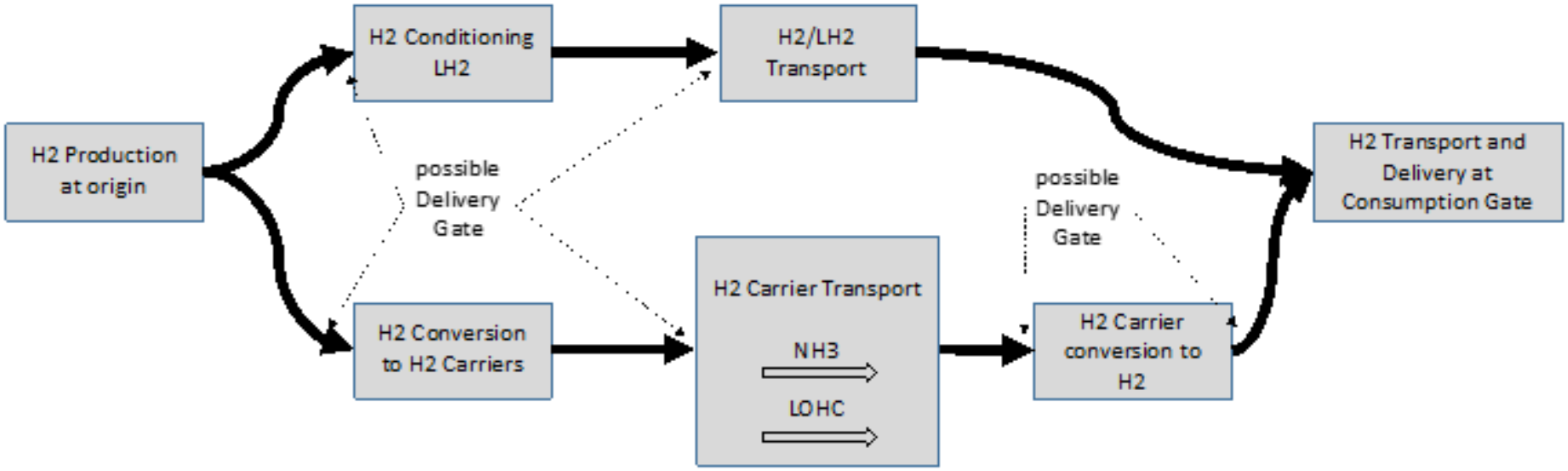
ISO/TC 197 Working Groups and Standards

WG	Title	ISO
WG1	Liquid hydrogen - Land vehicles fuel tanks	13985 revision
WG35	Liquid hydrogen - Land vehicle fueling protocol	13984 revision
WG27	Hydrogen fuel quality	14687 revision
WG29	Basic considerations for the safety of hydrogen systems	TR15916 revision
WG5	Gaseous hydrogen land vehicle refuelling connection devices (up to and above 120 g/s flow)	17268-1, -2 rev.
WG36	Gaseous hydrogen land vehicle refuelling connection devices – Cryo-compressed H2 gas	17268-3
WG19	Gaseous hydrogen fueling station – Dispensers	19880-2
WG21	Gaseous hydrogen fueling station – Compressors	19880-4
WG22	Gaseous hydrogen fueling station – Hoses	19880-5
WG23	Gaseous hydrogen fueling station – Fittings	19880-6
WG31	Gaseous hydrogen fueling station – O-rings	19880-7
WG28	Gaseous hydrogen fueling station – Hydrogen quality control	19880-8
WG33	Gaseous hydrogen fueling station – Sampling for fuel quality analysis	19880-9
WG18	Gaseous hydrogen land vehicle fuel tanks and TPRDs	19881, 19882 rev.
WG15	Cylinders and tubes for stationary storage	19884
WG24	Gaseous hydrogen – Fuelling protocols for hydrogen-fuelled vehicles	19885-1, -2, -3
JWG30	Gaseous hydrogen land vehicle fuel system components	19887
WG34	Hydrogen generators using water electrolysis – Industrial, commercial, and residential applications	22734-1 revision
WG32	Hydrogen generators using water electrolysis – Test protocols for performing electricity grid services → **To be moved to SC 1 as WG 2 (expect NWIP from Germany for TS)**	TR22734-2 **TR → TS**

Source: Hydrogen Council.

Figure 8

Examples of hydrogen supply chain considered in ISO/TS 19870



Source: Hydrogen Council.

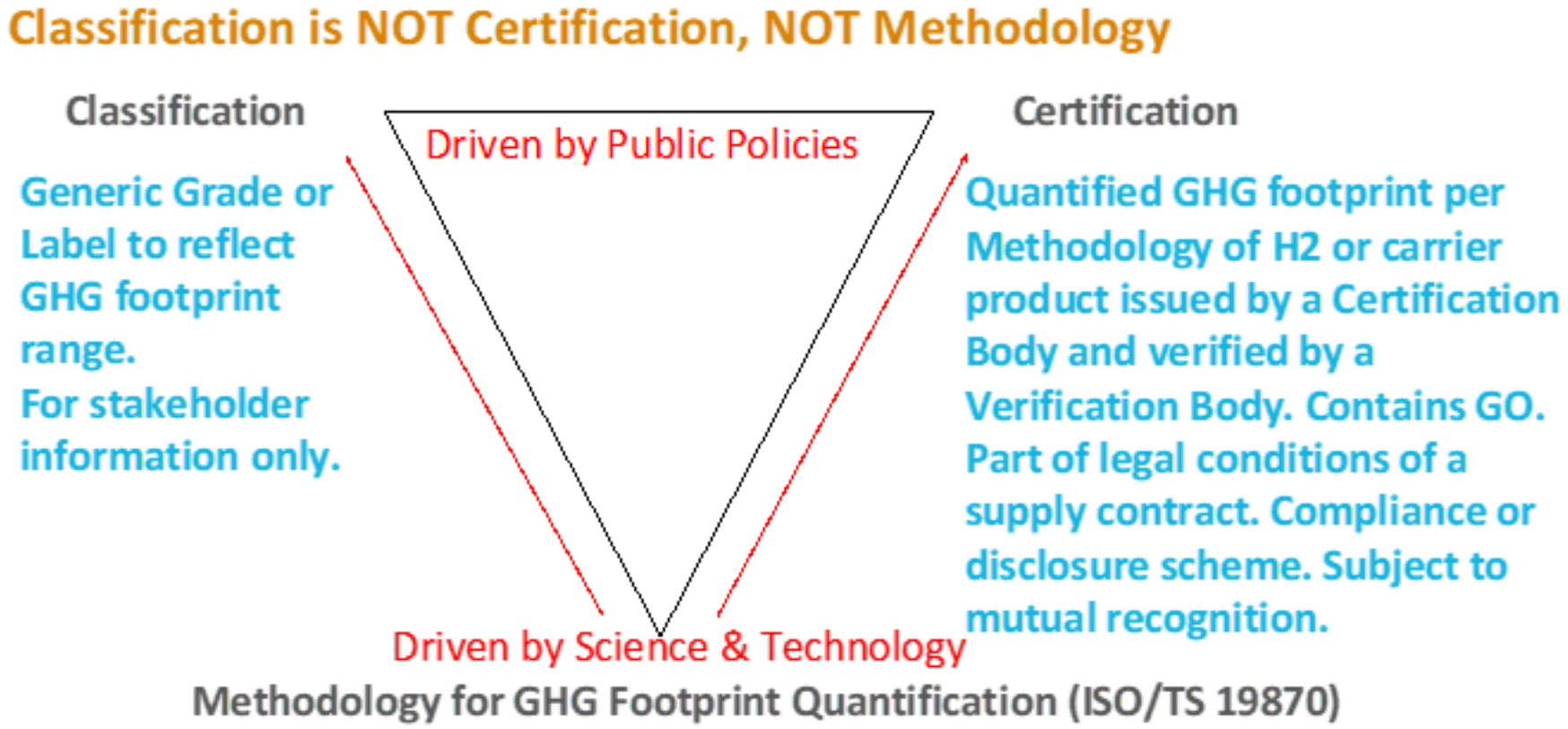
Table 1

Examples of ranges in GHG emissions footprint of hydrogen production pathways

Production pathway	CO2 footprint range
H2 production from PV electricity (LCA)	0.9-2.5 kg CO2-eq/kg H2
H2 production from wind (LCA)	0.4-0.8 kg CO2-eq/kg H2
H2 production from coal gasification, without CCS	22-26 kg CO2-eq/kg H2
H2 production from coal gasification, with CCS (capture rate at 93%)	2.6-6.3 kg CO2-eq/kg H2
H2 production from natural gas (SMR) with CCS (capture rate at 93%) – considering direct emissions	0.7 kg CO2-eq/kg H2
H2 production from natural gas (SMR) with CCS (capture rate at 93%) – including the upper and lower end of global upstream and midstream emissions for natural gas supply today	1.5-6.2 kg CO2-eq/kg H2

Figure 13

Hydrogen Product Climate Impact Triangle



Source: Hydrogen Council.

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Thank you!

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