



# **Pilot projects in international cooperation in sustainable hydrogen in CIS countries**

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# 17 UNECE member States not covered by most international hydrogen initiatives



# Hydrogen Task Force: Key activities

- Promote and facilitate policy dialogue on hydrogen and foster cooperation on it within the UNECE region
- Support current and future extrabudgetary projects on hydrogen managed by the Sustainable Energy Division
- Monitor current international initiatives and developments on hydrogen in the UNECE region and beyond, with an aim to minimize duplication of efforts

# STRUCTURE

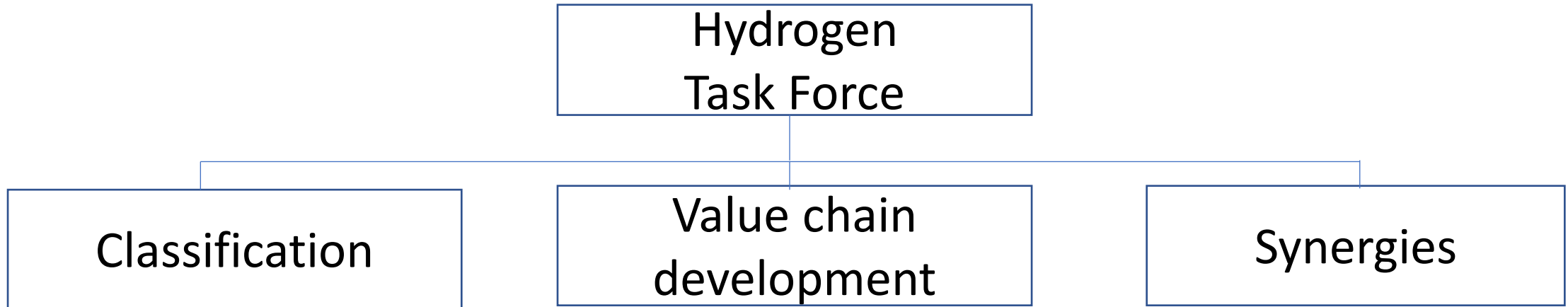
Hydrogen  
Task Force

Classification

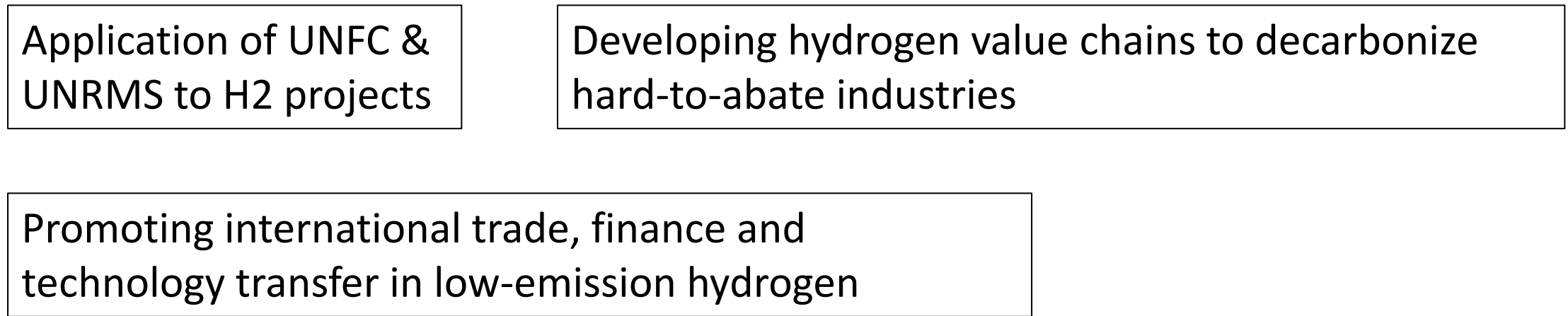
Value chain  
development

Synergies

## STRUCTURE



## PROJECTS IN THE PIPELINE



# Developing hydrogen value chains to decarbonize hard-to-abate industries

- Develop local hydrogen value chains to decarbonize production of several large-volume commodities (steel, cement, ammonia, bulk polymers, petrochemicals).
- Define a set of guiding principles of industrial decarbonization via low-emission hydrogen
- Illustrate these principles through model case studies applicable to all UNECE member States
- Develop several prefeasibility studies that consider technical and economic constraints that project countries face in developing hydrogen ecosystems
- Such a pre-feasibility study could be done in Uzbekistan

# Application of the United Nations Framework Classification for Resources (UNFC) and UNRMS to hydrogen projects

- A pathway to hydrogen classification in the UNECE region
- Classification of 1 kg of hydrogen vs classification of projects
- Is hydrogen a resource?
- Currently no internationally-accepted classification of hydrogen **projects**
- One element is certain: the greenhouse gas emissions that come from its “value chain” - production, transport, and use.
- How about other economic, environmental and social considerations?

# Promoting international trade, finance and technology transfer in low-emission hydrogen

- The time for intl trade in low-emission hydrogen has now come yet
- If hydrogen is to be exported, how its trade could be facilitated? Can UN and UNECE mechanisms facilitate it?
- If hydrogen is to be produced in country X and sold in country Y, can this trade be used to promote technology transfer and finance?
- How to develop a Guarantee of Origin for Hydrogen?



# What is the cost of production of low-emission hydrogen?

- The production of hydrogen often expressed as watts of installed electrolyser capacity (or in kW, MW, GW)
- Its consumption as industrial feedstock is mostly expressed in kilograms of hydrogen (or tons, thousand tons, or million tons) per year.
- Some assumptions:
  - 1 kg of hydrogen is equivalent to 40 kWh of electricity
  - Large-scale electrolysers conversion efficiency is 60%
  - They are on 7,000 hours per year
- Based on this, to produce 1 kg of hydrogen in a year, approx 10 W of installed electrolyser power is needed.
- Current cost is \$3-5 per W installed → to produce 1 million tpa, some 10 GW installed (or \$30 to 50 billion) is needed

**Thank you!**