

Breakthrough Agenda: Hydrogen

Update for the IPHE Steering
Committee meetings in wb 24th April
2023

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The Breakthrough Agenda: a recap


An annual process – linked to the COP cycle – to strengthen international collaboration and so help make clean energy tech affordable, reliable & accessible globally by 2030 in key sectors by:

- **Coordinating** between initiatives and governments in each sector through a series of roundtables, including mapping the international landscape of activity;
- **Tracking progress** through an independent annual report (from the IEA ,IRENA and UN HLCs), which includes recommendations for coordinated international Priority Actions to which countries respond at COPs; and
- **Reinforcing delivery via the existing landscape** by crowding-in efforts and resources (incl. philanthropy funding) behind the leading established initiatives, in particular to deliver Priority Actions.

Delivery mechanism:

- Launched at COP26 in 2021, established in 2022 under the COP26 Presidency. In 2023 running as a joint (pilot) project under the **oversight of the CEM and MI Steering Committees** working jointly
- Deliver of individual Breakthroughs coordinated by co-leads countries (**for Hydrogen, current co-leads are USA and UK**, looking to broaden that) in consultation with active stakeholders.
- Supported by a **Breakthrough Agenda Project team** (currently resourced by the UK but transitioning to an international team during 2023).

Progress to date:

- **Five Priority Actions for Hydrogen agreed** at COP27 (H1 - H5). Specific Initiatives asked to coordinate delivery of each Action, working in close consultation and partnership with all relevant initiatives.
- **Delivery Plans for each Priority Action** drafted and work underway. Plans discussed at a roundtable at the CEM-MI meetings in Rio in March.
- UAE as the **President-designate for COP28 is actively supporting** and utilising Hydrogen Breakthrough Priority Action plans as a focus for COP28 preparation on hydrogen. (Activities marked with a  are a particular focus for the CO28 team).

Overview of the Priority Actions for H2 Breakthrough in 2023

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Priority International Action	2023 Objectives	Coordinating initiative(s)
<p>H1: Standards & Certification Accelerate the development of standards for clean hydrogen</p>	Accelerated progress on key workstreams; A shared assessment of the key international standards and certification needs; A fully resourced multi-year work programme to address those standards & certification needs	IPHE, IEA's Hydrogen TCP, IRENA's Collaborative Framework on Green Hydrogen
<p>H2: Demand Creation & Management Coordinate internationally to drive demand for clean hydrogen</p>	A strengthened and coordinated portfolio of activities which has delivered: Shared targets and a global assessment of demand; Fora for discussion and information exchange trade; Mechanism(s) for scaling private-sector demand signals (e.g. a buyers club); A suite of new public and private-sector clean H2 demand commitments.	[First Movers Coalition, Clean Energy Ministerial Hydrogen Initiative, Mission Innovation Clean Hydrogen Mission]
<p>H3: Research & Innovation Expand the number and scope of innovative clean hydrogen projects</p>	A portfolio of high impact 100 Hydrogen Valley / Hubs / Cluster projects identified and connected globally, including in developing countries. A robust research and innovation portfolio to achieve metrics for cost and commercial viability.	Mission Innovation Clean Hydrogen Mission
<p>H4: Finance & Investment Scale and facilitate access to financial & technical assistance, particularly for developing countries</p>	A strengthened and coordinated portfolio of activities which has delivered: A shared analysis of finance barriers, good practice and the current international assistance offer; a suite of enhanced and more transparent measures and a coalition of initiatives systematically strengthening the international assistance offer.	World Bank & UNIDO
<p>H5: Landscape Coordination Enhance the coordination and transparency of international collaboration on clean hydrogen</p>	A widely supported, structured, open, resource-efficient approach to the voluntary and consensus-based coordination of international hydrogen initiatives.	Breakthrough Agenda project team in close partnership with initiatives.

Hydrogen Breakthrough: Planned Next Steps

April - May	<ul style="list-style-type: none"> Refine, and in parallel, work to deliver the high level delivery plans for each H2 Priority Action. 	
	Wed 10 th or Thur 11 th May	(not yet confirmed) Meeting in the margins of the World Hydrogen Summit in Rotterdam
	Mon 15 th May	Delivery plans to be circulated to all H2 Breakthrough stakeholders (countries, organisations, initiatives).
	Mon 22 nd May	Online briefing for all stakeholders – to seek feedback/support for the Priority Action plans
June - July	<ul style="list-style-type: none"> Continue work to deliver the high level delivery plans for each Priority Action. Consider progress and opportunities to strengthen delivery. 	
	During June	Progress Review meetings to consider progress and explore how to strengthen activities and how to address resource needs or other challenges, to maximise impact by COP28.
	wb Mon 26 th June	IEA/ IRENA/ UN-HLCs circulate draft of the 2023 Report for peer review – including review of progress since 2022 report and draft recommendations for priority actions in 2024.
wb Mon 17 th July	CEM & MI Ministerials in Goa – to include Ministerial & senior officials discussions of: progress, strengthening plans for delivery by COP28 and emerging priorities for action in 2024.	
August - November	<ul style="list-style-type: none"> Continue work to deliver the high level delivery plans for each Priority Action. Develop and secure support for priority actions in 2024 – informed by the 2023 BtA Report (to be published in September). 	
December	30 Nov - 12 Dec 2023	COP28 – announcements demonstrating the progress made to strengthen collaboration and accelerate progress in 2023 and agreed and resourced plans for 2024.

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Summary Delivery Plans for Hydrogen Breakthrough Priority Actions

H1. Standards & Certification

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Action agreed at COP27: Accelerate the development of standards for clean hydrogen

Accelerate and expand a coordinated programme of work to develop a comprehensive portfolio of international renewable and low carbon hydrogen standards and to facilitate associated certification schemes

Coordinating initiatives



Hydrogen TCP



IRENA

International Renewable Energy Agency

2023 objectives: By COP28 a consortium of key international organisation and initiatives will have co-developed and agreed a strengthened and coordinated programme that has delivered:

1. *Accelerated progress on key workstreams e.g., on ISO standard and political declaration on certification*
2. *An evidence-backed, shared assessment of the key international standards needs and required criteria for cross-border recognition of certification.*
3. *A fully-resourced, multi-year, connected work programme agreed to address key international standards needs & related requirements.*

Active public-sector initiatives / organisations

IPHE, IEA H2TCP, IRENA, IEA, CEM H2I, UNIDO, G7, G20, COP28 Presidency, Hydrogen Council

Progress and plans

1. *Plan for 2023 agreed and underway by end April (on track)*
2. *Complete 2024-25 resource needs assessment by July 2023 (scope tbd)*
3. *Aim to announce ISO standard in late 2023 (progressing)*
4. *International consensus to be built on recognition of certification – delivered through a coordinated approach across G7, G20 & COP28 (underway, connections to be made)*
5. *Fully resourced plan for 24-25 to be presented at COP28.*

What can you do to support this

1. *Join and/or provide additional resources and guidance to the listed initiatives (either allocating expert time or financial contributions).*
2. *Encourage those pursuing other related work to engage with and align with the coordinated work programme.*



H1. Standards & Certification – key activities

2023 Objectives	Activities / Status	Organisations / Initiatives Involved [or who could be involved]
1. Accelerated progress on key workstreams e.g. on ISO standard and political declaration on certification.	IPHE coordinating a plan across multiple initiatives/workstream for 2023. Aim to have that agreed and underway by end April.	Coordinated by IPHE with IEA H2 TCP and IRENA and input from all relevant initiatives
	☆ G7 (potentially in coordination with G20 and COP28 Presidency) aiming to build international consensus on cross-border recognition of certification. Agreement sought by late 2023 – in time for COP28.	G7 (led by Japan) & IPHE – ideally coordinated with G20 (led by India) and COP28 Presidency (UAE) with analytical input from IEA TCP, IEA, IRENA & H2 Council.
	☆ Development of an ISO Technical Specification on the quantification of GHG emissions related to the production, conditioning and transport of hydrogen	IPHE, ISO IEA H2TCP
	☆ Description of principles and terminology of product certification and analysis highlighting similarities and differences between mechanisms and assessment of interoperability of certification mechanisms (beyond GHG emissions).	G7 (led by Japan)) – ideally coordinated with G20 (led by India) and COP28 Presidency (UAE) with IPHE, IRENA, IEA H2 TCP, H2 Council
2. An evidence-backed, shared assessment of the key international standards needs and required criteria for cross-border recognition of certification.	IPHE coordinating evidence gathering (detailed in the draft delivery plan).	Coordinated by IPHE with IEA H2 TCP and IRENA and input from all relevant initiatives.
3. A fully-resourced, multi-year, connected work programme agreed to address key international standards needs & related requirements.	Resource needs assessment for post-COP28 by end June.	Coordinated by IPHE with IEA H2 TCP and IRENA and input from all relevant initiatives.
	Resourced plan for 2024 & 2025 to be presented at COP28.	Coordinated by IPHE with IEA H2 TCP and IRENA and input from all relevant initiatives.

H2. Demand Creation & Management

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Action agreed at COP27: Coordinate internationally to drive demand for clean hydrogen

Strengthen demand signals for renewable and low carbon hydrogen by coordinating the agreement and announcement of packages of firm and sustained public and private commitments for the large-scale use renewable and low carbon hydrogen that displaces fossil fuel use in a wide range of applications.

Coordinating initiatives



First Movers
Coalition



CLEAN
HYDROGEN
MISSION



HYDROGEN
INITIATIVE
AN INITIATIVE OF THE CLEAN ENERGY MINISTERIAL

2023 Objectives: By COP28 a consortium of key international organisation and initiatives will have co-developed and agreed a strengthened and coordinated portfolio of activities which has delivered:

1. *International targets for clean H2 demand & a comprehensive global assessment of (firm) clean H2 demand*
2. *Fora established for discussion and information exchange on cross-border trade of clean hydrogen*
3. *Mechanism(s) for encouraging, collating and supporting increased commitments to clean hydrogen use, in particular from the private sector (e.g., a buyers' club).*
4. *A suite of new public and private-sector clean H2 demand commitments at or before COP28.*

Active initiatives: FMC, MI CHM, CEM H2I, IEA, IRENA, IEA, UNIDO, COP28 Presidency, GH2, Hydrogen Council, H2 Catapult.

Progress and plans

1. *Scope approach to delivery (*
2. *Agree roles and process for defining targets & mapping current demand by end April*
3. *Agree mechanism(s) for strengthening commitments by end June and begin lobbying for new commitments.*

What can you do to support this

1. *Have your experts / expert organisations join discussions and/or provide additional resources to support the implementation activities.*
2. *Encourage those pursuing other related work to engage with and align with the coordinated work programme.*

H2. Strengthening Demand - key activities



2023 Objectives	Activities / Status	Organisations / Initiatives Involved [or who could be involved]
1. International targets for clean H2 demand & a comprehensive global assessment of (firm) clean H2 demand	Scoping who would define the target and who provides supporting analysis.	Involved in discussion: COP28 team, UN High-level Climate Champions team. Potential to draw on IEA, IRENA and other analysis and the CEM H2I Global Goals workstream.
	Discussions ongoing about how to leverage existing / planned analysis of demand commitments.	Potential to leverage the IEA Global Hydrogen Review (produced under CEM H2I for Japan's HEM)
2. Fora established for discussion and information exchange on cross-border trade of clean hydrogen	☆ Scoping relevant fora and their plans. Discussions needed on how to ensure complementary (and ideally coordinated) activities.	CEM HI Trade Forum, Egypt's Global Renewable Hydrogen Producers Forum, Japan's Hydrogen Energy Ministerial, [other suggestions welcomed]
3. Mechanism(s) for encouraging, collating and supporting increased commitments to clean hydrogen use, in particular from the private sector (e.g. a buyers club).	☆ Some existing mechanism for supporting the linking of supply & demand exist and can be scaled (e.g., Mission Innovation's Hydrogen Valleys) but to encourage and support new private-sector commitments will require a modified or new mechanism.	Under discussion. Likely includes Mission Innovation's Clean Hydrogen Mission, the Green Hydrogen Catapult and the First Mover Coalition (supported by the World Economic Forum). Links to be established with initiatives working on end-use including Industry (e.g. CEM IDDI & MI Mission, MPP etc) Infrastructure (CEM H2I Ports, CEM-Hubs) & Transport Initiatives.
4. A suite of new public and private-sector clean H2 demand commitments at or before COP28.	Enabled by the above activities but could be amplified by campaign in the run up to COP28 (to be explored).	To be discussed.

H3. Research & Innovation

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Action agreed at COP27: Expand the number and scope of innovative clean hydrogen projects

Drive a significant increase in the number and geographical distribution of new hydrogen projects across a diversity of hydrogen's high-value end use sectors, backed by mechanisms to broaden and more rapidly share learnings from projects.

Coordinating initiatives



2023 Objectives: By COP28 we will have identified and catalogued:

1. *A portfolio of (high impact, firm) 100 Hydrogen Valley [or cluster or hub] projects identified and connected globally.*
2. *A range of (high impact) hydrogen projects in developing countries projects identified.*
3. *A concept framework established for sharing lessons learned, identifying gaps and facilitating access to support.*
4. *Set-up of joint call for international R&I projects e.g. via the Clean Energy Transition Partnership, and establish metrics for success.*

Active initiatives: MI CHM, IEA H2 TCP, UNIDO

Progress and plans

1. *MI CHM accelerated its goals and now aims to map 100 hydrogen valleys (or clusters or hubs) by COP28. Need to ensure hydrogen valleys includes a range of Global South projects.*
2. *Joint call mechanism in place e.g. via CETP*
3. *Joint workshops/webinars on R&I needs*

What can you do to support this

1. *Join and/or provide additional resources and guidance to the initiatives (either the time of your experts or financial contributions).*
2. *Consider how to strengthen support for hydrogen valley projects (or hubs/clusters) in your countries and encourage engagement in this exercise.*
3. *Set up or reinforce national funding schemes to stimulate clean hydrogen R&I and new hydrogen projects.*

H4. Finance & Investment

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Action agreed at COP27: Expand the number and scope of innovative clean hydrogen projects

Enhance the overall public offer of international assistance for clean hydrogen projects, by coordinating and facilitating access to increased concessional finance and related support mechanisms that address obstacles to investment, with the goal of mobilising private investment at scale in emerging and developing economies.

Coordinating initiatives



THE WORLD BANK
IBRD • IDA



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION
Progress by innovation

2023 Objectives: By COP28 a consortium of key international organisation and initiatives will have co-developed and agreed a strengthened and coordinated portfolio of activities which has delivered:

1. *An evidence base including a shared analysis of finance barriers & global examples good practice, and a comprehensive picture of the international assistance offer for clean hydrogen in developing countries*
2. *A coalition of collaborating countries and initiatives working together to systematically strengthen the international assistance offer*
3. *A suite of measures to simplify and improve access to assistance*
4. *A suite of new or enhanced assistance measures announced at or before COP28*

Active initiatives: WB, UNIDO, [other IFIs & donors]

Progress and plans

1. *Convening key initiatives to coordinate this effort.*
2. *Develop a shared evidence base:*
 - a. *WB led study on barriers to finance and good practice (draft in June, finalised in late 23)*
 - b. *UNIDO led study of development finance availability (initial findings by June)*
3. *Develop a package based in response to WB and UNIDO report by COP28.*

What can you do to support this

1. *Join discussions and/or provide additional resources to shape the implementation activities.*
2. *Encourage those pursuing other related work to engage with and align with the coordinated work programme.*



H4. Finance & Investment – key activities

2023 Objectives	Activities / Status	Organisations / Initiatives Involved [or who could be involved]
1. An evidence base including a shared analysis of finance barriers & global examples good practice, and a comprehensive picture of the international assistance offer for clean hydrogen in developing countries	Develop a shared evidence base: World Bank led study on barriers to finance and good practice (draft in June, finalised in late 23)	World Bank under its Hydrogen for Development Partnership drawing on expertise from other key organisations likely including IRENA, OECD and others
	Develop a shared evidence base: UNIDO led study of development finance availability (initial findings by June)	UNIDO in coordination with World Bank and potentially other MDBs/IFIs.
2. A coalition of collaborating countries and initiatives working together to systematically strengthen the international assistance offer	Details being scoped in order to be discussed and developed in June & July once evidence base further refined.	Under discussion. Plans to be coordinated with the CO28 Presidency
3. A suite of measures to simplify and improve access to assistance	New or enhanced assistance measures could for example include the launch / expansion of novel financing mechanisms, developing new funding windows that go beyond concessional finance, leveraging IFI reform etc.	
4. A suite of new or enhanced assistance measures announced at or before COP28	☆	

H5. Landscape Coordination

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Action agreed at COP27: Enhance the coordination and transparency of international collaboration on clean hydrogen

Coordinating initiatives

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COP28 Outcome: By COP28 to have established a widely supported, structured, open, resource-efficient approach to the voluntary and consensus-based coordination of international hydrogen initiatives. Potentially to include:

1. *Shared data repository;*
2. *Shared calendar of events;*
3. *Common data gathering templates;*
4. *Coordinated forums to discuss the landscape;*
5. *Shared workplans for key topics;*
6. *A central coordinator, facilitator and neutral broker.*

Active initiatives: Engagement open to all international initiatives with a global relevance

Progress and plans

1. *Co-leads to develop strawman to test with key stakeholders (drafted, preliminary consultation beginning)*
2. *Scoping shared calendar and data repository (initial, light touch sharing underway, scop to formalise and expand)*
3. *Hold workshops of countries/initiatives to discuss strawmen proposals in Q2*
4. *Operationalise by COP28*

What can you do to support this

1. *Join the discussions to share your perspectives and encourage an open, flexible approach to help broker a consensus plan.*
2. *Encourage those initiatives you lead or engage with work to engage with this scoping exercise and support the consensus conclusions.*