

4th Issue,
April 2024

H4D Review



THE WORLD BANK
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ESMAP
Energy Sector Management
Assistance Program



Dear H4D Partners:

The [Hydrogen for Development \(H4D\) Partnership](#) is a global initiative established by the World Bank (WB) to facilitate knowledge sharing, capacity building, and financing. The partnership aims to foster international cooperation to provide customized solutions for developing countries and emerging markets in clean hydrogen. The knowledge generated by the H4D Partnership Partnership will advance the development of policies and regulations to promote a hydrogen economy. The [Energy Sector Management Assistance Program](#) (ESMAP) supports the Secretariat of the H4D Partnership and collaborates closely with partners, stakeholders, and observers.

The World Bank team is pleased to announce the fourth quarterly newsletter, H4D Review. The objective is to provide the latest information on activities, analytical work, and upcoming events related to clean and low-carbon hydrogen to H4D's partners, stakeholders, and observers.



List of H4D Partners

H4D Partnership has 42 partners, including associations, business organizations, hydrogen clusters, knowledge institutions, laboratories, public agencies, and development institutions. List of H4D Partners (status April 1, 2024):

- ✓ Africa Green Hydrogen Alliance (AGHA)
- ✓ Ammonia Energy Association (AEA)
- ✓ Australian Hydrogen Council (AHC)
- ✓ Centre for Hydrogen Energy Systems Sweden (CH2ESS)
- ✓ Chilean Hydrogen Association (H2Chile)
- ✓ Clean Fuel Ammonia Association
- ✓ Corporation for the Promotion of Production (CORFO)
- ✓ Costa Rican Hydrogen Alliance
- ✓ Development Agency of the State of Ceara (ADECE)
- ✓ Dii Desert Energy
- ✓ Electricity Commercialization Chamber of Brazil (CCEE)
- ✓ Freeport Saldanha
- ✓ Fuel Cell and Hydrogen Energy Association (FCHEA)
- ✓ German Development Cooperation Agency (GIZ)
- ✓ Green Hydrogen Catapult
- ✓ Green Hydrogen Organization (GH2)
- ✓ H2 Global Foundation
- ✓ H2 Korea
- ✓ H2AR Consortium
- ✓ H2LAC
- ✓ H2 Mexico
- ✓ Hydrogen Colombia Association
- ✓ Hydrogen Council
- ✓ Hydrogen Egypt
- ✓ Hydrogen Europe
- ✓ Hydrogen Task Force
- ✓ India Hydrogen Alliance (IH2A)
- ✓ International Finance Corporation (IFC)
- ✓ Japan Bank for International Cooperation (JBIC)
- ✓ Japan Hydrogen Association (JH2A)
- ✓ Ministry of Energy and Mineral Resources of Jordan
- ✓ Ministry of Foreign Affairs of The Netherlands (MINBUZA)
- ✓ National Administration of Fuels, Alcohol, and Portland (ANCAP)
- ✓ National Renewable Energy Laboratory (NREL)
- ✓ Netherlands Enterprise Agency (RVO)
- ✓ Organization for Economic Co-Operation and Development (OECD)
- ✓ Pecem Complex (PECEM)
- ✓ Petroleum Development Authority of Sri Lanka (PDASL)
- ✓ Research Institutes of Sweden (RISE)
- ✓ Rocky Mountain Institute (RMI)
- ✓ Western Cape Government
- ✓ World Bank (WB)

The H4D team is pleased to welcome the new partners: Ammonia Energy association (AEA); National Administration of Fuels, Alcohol, and Portland (ANCAP); Costa Rican Hydrogen Alliance; Clean Fuel Ammonia Association (CFAA) and H2Global Foundation. These institutions joined the initiative between December 2023 and March 2024. We expect the number of partners to continue growing as we reach out to other key players in the hydrogen space, including governments, IFIs, and business associations.

Operationalizing H4D



3rd Partners Meeting and Stakeholder Forum

On April 8, 2024, eleven H4D partner organizations and several stakeholders will gather in Bogota, Colombia to discuss the advancements of the H4D working program.

The partners attending the meeting in person will be: Ammonia Energy Association (AEA), the Electricity Commercialization Chamber of Brazil (CCEE), Chilean Economic Development Agency (CORFO), Dii Desert Energy, GIZ, Green Hydrogen Organization (GHO), Hydrogen Council, H2Colombia, H2Global, JBIC, Netherlands Enterprise Agency (RVO), Pecem Complex, U.S. Department of Energy, Western Cape Government and the World Bank.

H4D co-chairs will provide an update on the progress of the activities implemented in the past six months:

WS 1. Clean hydrogen technologies, infrastructure, and systems integration (Co-chaired by JH2A and RMI)

Progress and agreements to be discussed: (a) a short paper on Hydrogen Consumption and Export from the Indian Perspective will be published by mid-2024, (b) a short paper on Systems Integration (to be published by mid-2024) and (c) a study tour to Norrbotten cluster in Sweden (postponed).

WS 2. Enabling frameworks - policies, laws, regulations and institutional capacities (Co-chaired by CCEE and Hydrogen Council)

Progress and agreements to be discussed: (a) Capacity building workshops on certification, new uses of hydrogen such as steel and marine, economic impact of the hydrogen economy, etc.; and (b) handbook on regulations for exporting hydrogen to Europe based on the Delegated Acts (to be published by May 2024).

WS 3. Investments, financing, business models and procurement (Co-chaired by GHO and FCHEA)

Progress and agreements to be discussed: (a) A short paper on global best practices for defining offtake (to be published in May 2024); and (b) provide comments to the Scaling Hydrogen Financing for Development Report (successfully published).

WS 4.

Socioeconomics and sustainability (Co-chaired by H2 Colombia and AGHA)

Progress and agreements to be discussed: (a) Collect and define five socio-economic case studies, including Australia, Colombia, the Netherlands, Finland, and Namibia, to be published by April 2024; and (b) Collect and define five case studies on social acceptance, including best practices from Australia, Colombia, the Netherlands, Finland and Namibia (to be published by mid-2024).

Partners' news



CCEE: Voluntary schemes under the Renewable Energy Directive.

In 2022, CCEE developed the initial version of its hydrogen certification. Throughout 2023, CCEE updated the certification scheme with the assistance of the World Bank to meet European criteria and comply with the European Renewable Energy Directive. Based on this update, at the start of 2024, CCEE submitted the certification scheme for recognition to the European Commission. [\(link\)](#)



CORFO: CORFO's Green Hydrogen Committee highlighted as one of the 50 most influential women in the industry.

Ana María Ruz, Executive Director of Green Hydrogen Committee was included in the list of the 50 most influential women in the hydrogen industry worldwide, "Woman in Hydrogen," prepared by Gulf Information and its Hydrogen Economist ranking. [\(link\)](#)



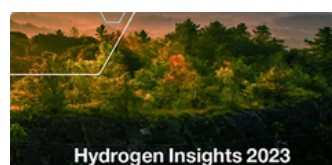
HIF Global: Ayat Soliman, Director of Strategy and Operations for the World Bank in Latin America, in Haru Oni.

Ayat Soliman visited the Haru Oni demonstration facility in Southern Chile and shared her vision for the eFuels industry after touring their plant. [\(link\)](#)



LTU CH2ESS: Cecilia Wallmark winner of the 2023 Hydrogen Prize.

The Hydrogen Leader of the Year 2023 award recognizes individuals who have made significant contributions to promoting the development of hydrogen technology in Sweden. [\(link\)](#)



Hydrogen Council: Project pipeline grows by 35% since January 2023 despite macro-economic headwinds.

Deployment continues, with more than 1 GW electrolysis capacity deployed globally (400 MW added this year) and a total of 12 GW having passed FID. Announced clean hydrogen supply globally has reached about 45 Mt p.a. through 2030. However, only 7% of investments in clean hydrogen overall have passed FID. Continued efforts are needed to foster the faster maturing of projects from announcement to deployment. [\(link\)](#)



PECEM: Complex do Pecém meets with IFC entourage, financial arm for private World Bank projects.

Representatives of the International Finance Corporation (IFC) met the president of the Pecem Complex, Hugo Figueirêdo, to discuss the development of clean hydrogen projects. Four private companies have a pre-contract with the Pecem Complex for the installation of a manufacturing unit focused on the production and distribution of green hydrogen in Ceara. [\(link\)](#)



AHC: Regional hydrogen hubs set to kickstart Australia's hydrogen industry

The Australian Government is investing over \$500 million to support the development of the hydrogen industry in regional Australia. The funding is allocated across seven regional hydrogen hubs located in the Hunter Valley (NSW), Port Bonython (SA), Central Queensland (QLD), Kwinana (WA), Bell Bay (TAS), Townsville (QLD), and Pilbara (WA). [\(link\)](#)



ANCAP: The Uruguayan Government signs an MOU to build an efuels plant in Paysandú

The Memorandum of Understanding (MOU) marks the initial stage towards the signing of an investment contract. It is necessary to evaluate the feasibility of the project. If successful, the 6 billion dollar facility would become the largest private investment in the country's history. The plant will produce efuels by utilizing biogenic CO2 generated at ANCAP's Group bioethanol plant in Paysandú. [\(link\)](#)



H4D: The H4D Partnership and ESMAP's Green Hydrogen Support Program revamped their websites.

Find relevant news, publications, events and blogs related to the H4D partnership and ESMAP's Green Hydrogen Support Program. [\(link\)](#)



RMI/World Bank: Supporting the Breakthrough Agenda.

Rocky Mountain Institute (RMI) in collaboration with Clean Energy Ministerial (CEM) will coordinate the Hydrogen Breakthrough Agenda's Demand Creation & Management Priority Action (DC&M). World Bank in collaboration with OECD and UNIDO will coordinate the Finance and Investment Priority Action (F&I). [\(link\)](#)



Latest events and presentations by WB and H4D Partners

ESMAP (Livestream): Scaling Global Clean Hydrogen Financing @COP28, December 3, 2023.



Demetrios Papathanasiou, Global Director of Energy and Extractives at the World Bank, and a panel of stakeholders from the public and private sectors gathered to discuss how we could scale up global clean hydrogen financing at COP28. [\(link\)](#)

ESMAP (Webinar): Unveiling the Advanced Methodology for Assessing GHG Emissions in Hydrogen Production, January 23, 2024



Panelists explored new methods to assess greenhouse gas emissions in global hydrogen production and into the role of hydrogen standardization in certification. [\(link\)](#)

OECD - UNIDO (Meeting): Stakeholder meeting for Egypt's low-carbon hydrogen development, January 30, 2024. Cairo, Egypt.



The OECD and UNIDO delved with stakeholders from Egypt's thriving low-carbon hydrogen ecosystem to coordinate efforts, identify partnerships, and strengthen synergies in the sector. [\(link\)](#)

OECD (Meeting): Framework for industry's net-zero transition in Thailand's petrochemical sector and plastics value chain, February 15, 2024. Bangkok, Thailand.



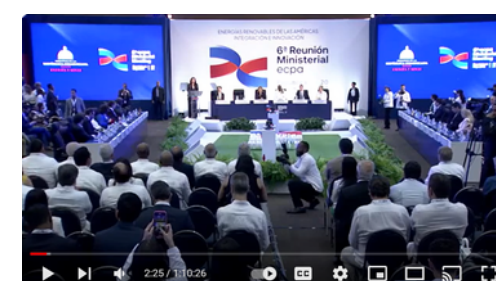
The meeting focused on the importance of fine-tuning the Framework's focus area, i.e., technologies or projects that have the potential to reduce emissions but are struggling to achieve economic viability and/or access financing. [\(link\)](#)

ESMAP (Webinar): Hydrogen Production, the Role of Storage, and Transportation-Related Infrastructure, February 22, 2024.



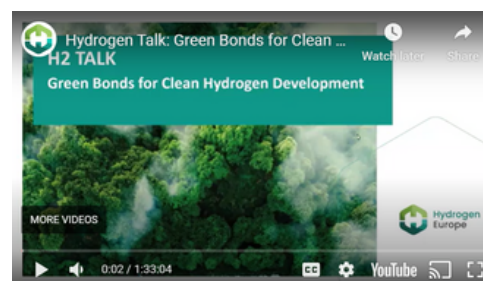
The webinar offered insights on hydrogen storage, transportation economics, and costs, including alternative modes like shipping and pipelines. It also covered alternative carriers like ammonia. [\(link\)](#)

ECPA (Meeting): 6th Meeting of Energy Ministers, March 14 - 15, 2024. Punta Cana, Dominican Republic.



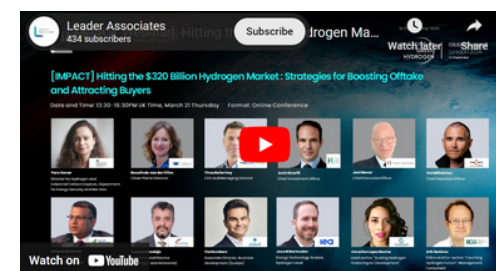
The meeting convened high-level government leaders, private sector representatives and experts in energy and sustainable development. The objective was to strengthen regional commitment to accelerate the transition to clean energy [\(link\)](#)

Hydrogen Europe (Webinar): Green Bonds for Clean Hydrogen Development, March 21, 2024.



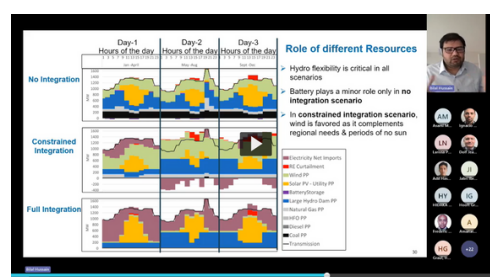
This webinar aimed to discuss how the Capital Markets Union can facilitate financing for European companies that are spearheading the energy transition through bond issuance. [\(link\)](#)

IMPACT (Webinar): Hitting the \$320B Hydrogen Market: Strategies for Boosting Offtake, March 21, 2024.



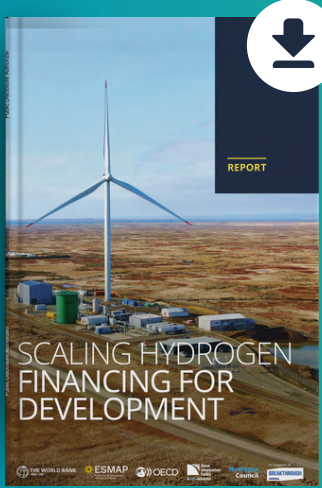
The webinar provided insights on actionable solutions to enable the financing of clean hydrogen alternatives. [\(link\)](#)

H4D - IRENA - AGHA (Webinar): Hydrogen as a Catalyst for Energy Transition in Africa, March 26, 2024.

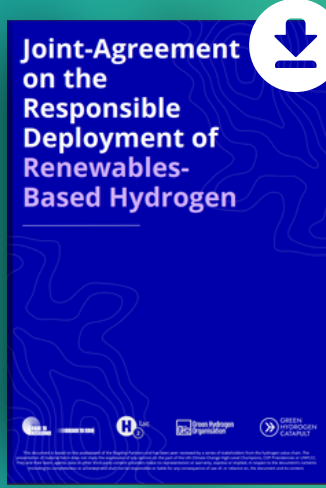


AGHA presented its initiatives to impulse clean hydrogen production and its key role in Africa's energy transition. Additionally, IRENA presented the African Continental Power Systems Master Plan (CMP). [\(link\)](#)

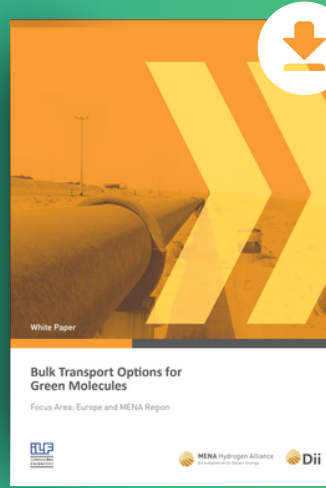
Recent publications and articles on clean hydrogen



Scaling Hydrogen Financing for Development
* Available in Spanish and English



Joint-Agreement on the Responsible Deployment of Renewables Based Hydrogen



Bulk Transport Options for Green Molecules



The Hydrogen Europe Quarterly

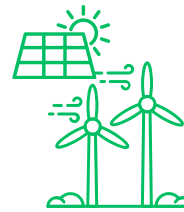


Hydrogen Europe Manifesto for the 2024 European elections

Major hydrogen project financing updates in the news



Egypt opened the door to \$40B of investment in clean hydrogen and renewable technology by signing seven MoUs with international developers. [\(link\)](#)



Azerbaijan, which will be hosting COP29, announced the creation of Socar Green, a green division within its national oil and gas company, to finance solar and wind projects, green hydrogen production, and carbon capture and storage (CCS). [\(link\)](#)



Morocco decided to earmark 1M hectares of land for green hydrogen projects, the land allocation will be gradually starting with an initial release of 300,000 hectares. [\(link\)](#)



Colombia identified 6 green hydrogen hubs: La Guajira (subject to compliance with sustainability criteria), Barranquilla, Cartagena, Antioquia, Manizales and Valle del Cauca. [\(link\)](#)

Upcoming WB and H4D activities



H4D-3rd Partners' Meeting and Stakeholders Forum
Bogota, Colombia.



3rd International Hydrogen Congress
Bogota, Colombia. [\(link\)](#)



World Forum Energy Summit
IRENA in-person session.
Abu Dhabi, UAE. [\(link\)](#)



H4D – RMI – Green Hydrogen Catapult Online Webinar:
Green Iron Trade Corridors



World Hydrogen Summit
Rotterdam, The Netherlands.
Open Side event on financing. [\(link\)](#)



Asia-Pacific Hydrogen Summit & Exhibition
Brisbane, Australia. [\(link\)](#)

