

FACILITATING INTERNATIONAL CLEAN HYDROGEN TRADE NETWORKS THROUGH PUBLIC- PRIVATE COLLABORATION



Hosted by

Roundtable - Rotterdam

MASDAR 

Introduction

During the 2024 World Hydrogen Summit and Exhibition in Rotterdam, Abu Dhabi Sustainability Week (ADSW) hosted a roundtable discussion to facilitate greater cross-border collaboration between the public and private sectors in establishing the power-to-X value chain (the conversion of electricity into other forms of energy with various applications), with green hydrogen at its core. More than 30 global leaders from government, industry and the private sector came together to discuss actionable steps for building the global green hydrogen economy.



Key takeaways



The green hydrogen market is not developing quickly enough to become the vital tool of decarbonization it needs to be.



Regulation across borders and shared international standards are essential for investor confidence and establishing a global market.



Governments must engage in more regional cooperation and build shared infrastructure to make the market viable.



Gradually adding green hydrogen into the current energy mix and introducing global regulation simultaneously can drive demand and allow industries to adapt.

Why green hydrogen?

The consensus at the roundtable was that electrification via renewable energy is crucial for decarbonizing global energy systems. However, some energy demand cannot easily be electrified. New solutions such as hydrogen, produced with renewable energy, can satisfy these energy demands with little or no carbon emissions.

Green hydrogen offers a solution at the nexus of the energy trilemma: balancing sustainability, security and affordability, participants noted. They also highlighted that building a green hydrogen economy is essential for the planet, but also for people, and all efforts must aim to create a just and affordable energy transition.

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Accelerating market development

The green hydrogen market is not developing quickly enough to become the vital tool of decarbonization it needs to be. Participants highlighted the crucial role of support from government and the private sector in changing that.

20 years ago, the renewable energy industry was considered too expensive to be viable. Today, renewable energy is a booming sector, producing some of the world's most affordable energy. For green hydrogen and its derivatives to follow the same trajectory, the right infrastructure and long-term commercial off-take agreements must be in place. To kick-start the green hydrogen market, banks must provide financing for projects to allow long-term demand for green hydrogen to develop.

Roundtable participants also discussed the possibility for governments to develop strategic reserves of green hydrogen to create demand and provide initial market stimulation. Governments can mandate hydrogen quotas, as well, or decarbonization targets, especially for hard-to-abate sectors such as steel.



While many green hydrogen projects have been announced, few have reached the final investment decision (FID) stage. In addition to supporting projects to reach this stage, the group agreed that governments must engage in more regional cooperation and build shared infrastructure to make the market viable.

Innovative infrastructure and finance

One area with potential for rapid development is onsite hydrogen production, where green hydrogen plants are located at the same site as green steel plants, refineries and ports. These projects can help build the market, drive down costs and even supply surplus green hydrogen to local mobility clusters or other small-scale uses, or where financing is more complicated.

Many roundtable participants urged action, for example building infrastructure before or at the same time as production facilities, to spur the use of hydrogen and help develop the nascent green hydrogen market. They also emphasized the ongoing need for small-scale and trial projects to drive down costs, build momentum and scale up the industry. Banks will be more willing to provide the finance necessary for larger projects, if the technology is proven in more case studies.

The private sector, however, cannot provide all of the financing needed to build green hydrogen infrastructure, participants acknowledged. Public investment can help create trade corridors for green hydrogen and reduce costs for the end user. Participants also noted that finding new sources of capital is crucial. One unconventional suggestion was for the significant funds available in offset credits to be used in developing local green hydrogen projects and infrastructure.

Regulation and standards

Cross-border regulation and mutual recognition of standards are essential for establishing a global market with bankable projects and value chains, participants said. They noted that a practice of grandfathering policies is important to provide stability, so that new regulations set after the FID stage do not render a project unviable. They also remarked that regulation must, at the same time, evolve in parallel to support this nascent market as new projects develop.



The EU has set ambitious targets, requiring that 42% of hydrogen used in industry be produced using renewable energy by 2030, and 60% by 2035. This steep target raises concerns about sufficient green hydrogen availability and the risk of carbon leakage, if industries relocate outside the EU. Participants proposed gradually adding green hydrogen into the current energy mix, annually increasing the percentage to allow industries to gradually adapt and invest. At the same time, global regulation and mandates for shipping, aviation and land transportation can be gradually introduced to drive demand.

Discussions also touched on significant fossil fuel subsidies worldwide, which participants said should be redirected to green technologies. Carbon taxes can account for externalities, ensuring that fossil fuels reflect their true economic costs. Without this, polluting industries continue to benefit from a “dirty discount.” Social impacts, such as local ecosystem preservation, meaningful employment and economic diversification should also be considered in the cost of fossil fuels.

Classification schemes

Market participants at the table felt that the current color scheme denoting the carbon used to produce hydrogen is too simplistic. Instead, standards should be technology-agnostic, categorizing hydrogen production by carbon intensity alone.

At COP28, the International Organization for Standardization (ISO) unveiled technical standards for assessing greenhouse gas (GHG) emissions of hydrogen pathways on a life-cycle-analysis basis (ISO/TS 19870), and further progress is expected at COP29.

Separating green hydrogen's environmental properties from the physical commodity can encourage green hydrogen production where it is cheapest and overcome transportation challenges. Such a "book-and-claim system," participants suggested, would separate hydrogen produced through clean technology from other hydrogen, allowing producers to book the amount they have produced and customers to claim it through purchasing certificates. This system could be particularly useful in the markets for hydrogen used in the shipping, sustainable aviation fuel and fertilizer industries, which are already accustomed to such schemes and have strong motivations to decarbonize. Support from, and collaboration amongst, the various regulators, certifiers and traders would be necessary in this system.

Urgency of action

The group's final and most critical conclusion was that there is no time to waste. For the sake of the planet, these actions must be taken quickly.



Roundtable participants

Laurent Antoni, Executive Director, International Partnership for Hydrogen and Fuel Cells in the Economy

Dean Bialek, External Affairs and Government Relations, CWP Global

Andreas Bieringer, Director, Hydrogen Business Development and Commercial, MASDAR

Rob Campbell, CEO, First Hydrogen Energy

Theo Cilliers, CEO, Resh2

Joao Cunha, COO and Deputy CEO, SMARTENERGY Group AG

Fernanda Delgado, CEO, Brazilian Association of the Green Hydrogen Industry

Alicia Eastman, Host of Everything About Hydrogen and Board Member, InterContinental Energy

Waleed ElKalash, MD, SmartEnergy Group

Gerben Epema, Senior Project Development Manager, Power2X

Rafael Fejervary, Global Hydrogen Director, Gene Gebolys, CEO, World Energy

Pedro Guedes De Campos, Director Business Development Hydrogen and eSAF, SMARTENERGY Group AG

Pau Ruiz Guix, Trade & International Relations, Hydrogen Europe

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Jop van Hattum, Managing Director, Theia Energy Pty Ltd

Joaquin Rodriguez Jadraque, Director of Hydrogen and Clean Energies, Cepsa

Isabelle Kamlah, Policy Officer, International Relations – Hydrogen, South East Asia and India, European Commission

Denis Krude, CEO, Hydrogen Optimized

Paul MacLean, Managing Director, Bear Head Energy

Andrew McCluskey, Executive General, Manager Hydrogen, Siemens

Florian Merz, Associate Director, Business Development (Europe), Masdar

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Lucas Prat Bertrams, EVP, Power2X

Samir Rachidi, Director General, IRESEN – Institute for Research in Solar Energy & New Energies

Mohammad Abdelqader El Ramahi, Chief Green Hydrogen Officer, Masdar

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Klaus Sehling, Commercial Management, Verbund

Paul Van Son, President, Dii Desert Energy

Matthew Tinari, Chief Financial Officer & Chief Strategy Officer, EverWind Fuels

Per Øyvind Voie, Managing Director, Vireon

Uwe Weichenhain, Senior Partner (Global Lead Hydrogen), Roland Berger

Michael Whiteley, Global Head of Clean Hydrogen, HSBC

Frank Wouters, Chair, MENA Hydrogen Alliance



Abu Dhabi Sustainability Week (ADSW) is a global initiative championed by the UAE and its clean energy powerhouse, Masdar, to accelerate sustainable development and advance economic, social, and environmental progress. Established in 2008, ADSW provides a global platform for all who have a stake in the future of our planet.

ADSW brings together leaders from across governments, the private sector, and civil society to discuss and engage in bold climate action and innovations that will ensure a sustainable world for future generations.



Masdar (Abu Dhabi Future Energy Company) is one of the world's fastest-growing renewable energy companies. As a global clean energy pioneer, Masdar is advancing the development and deployment of solar, wind, geothermal, battery storage and green hydrogen technologies to accelerate the energy transition and help the world meet its net-zero ambitions. Established in 2006, Masdar has developed and invested in projects in over 40 countries with a combined capacity of over 20 gigawatts (GW), providing affordable clean energy access to those who need it most and helping to power a more sustainable future.

Masdar is jointly owned by TAQA, ADNOC, and Mubadala, and is targeting a renewable energy portfolio capacity of 100GW by 2030 while aiming to be a leading producer of green hydrogen by the same year.



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