



GREEN HYDROGEN
SUMMIT

Fueling a Sustainable Future

GREEN HYDROGEN
SUMMIT REPORT

ADSW 2023

Part of



ABU DHABI
SUSTAINABILITY WEEK

Hosted by

MASDAR 



**Mohamed Jameel
Al Ramahi**

Chief Executive Officer
Masdar

Foreword

At long last, we see the hydrogen economy in the making. Around the world, governments are pushing ahead with hydrogen strategies. It is finally an accepted fact: to address the world's pressing climate issues, we need green hydrogen as a key driver of the green energy transformation.

At the world's first Green Hydrogen Summit, held at Abu Dhabi Sustainability Week in January 2023, we could see the pieces of the hydrogen economy coming together. It was also obvious, however, that much more must be accomplished at every step of the hydrogen value chain to make it a reality, including driving down the cost of hydrogen production, improving the infrastructure for hydrogen transportation and storage, agreeing and adopting clear industry-wide regulations and standards and, most importantly, creating a viable global marketplace for hydrogen.

The potential is clear. Experts say that hydrogen can help the world abate some 80 gigatons of carbon dioxide by the middle of the century – meeting around 12 percent of global energy demand by 2050. To unlock this potential, we must rapidly grow the hydrogen ecosystem from small projects and proposals to investments that are large, scalable, and global.

In order to build this ecosystem of hydrogen infrastructure, we first have to create an ecosystem of hydrogen finance. The Hydrogen Council estimates that building the hydrogen economy will require investments of around US\$700 billion by 2030 alone. That is why we urgently need to reform international climate finance. To unlock the billions, if not trillions of dollars needed, we have to put structures in place that make it possible for the world's governments, institutions, investors, and global businesses to partner in their hydrogen investments.

At the same time, we must continue to accelerate investments in a broad range of carbon-neutral energy sources – from solar and wind to nuclear, carbon capture, and storage, and a range of low-carbon fuels. And hydrogen needs to be a major segment of this energy mix because it can solve the decarbonization challenges of hard-to-abate industries like heavy manufacturing and transport.

The UAE and Masdar are leading the charge on both fronts – accelerating the deployment of renewables and pushing ahead with aspirations to be an early-mover in the hydrogen economy. For Masdar's part, we plan to grow our capacity to 100 GW of clean energy and 1 million tons of green hydrogen production annually by 2030.

The scale of investment required to achieve our collective green hydrogen ambitions is daunting, but it is not insurmountable. As we have seen at The Green Hydrogen Summit, nations are stepping up to the challenge, and there is tremendous momentum building. Now is the time for everyone to move from planning to action, so that we can build a low-carbon hydrogen economy, together.



Introduction

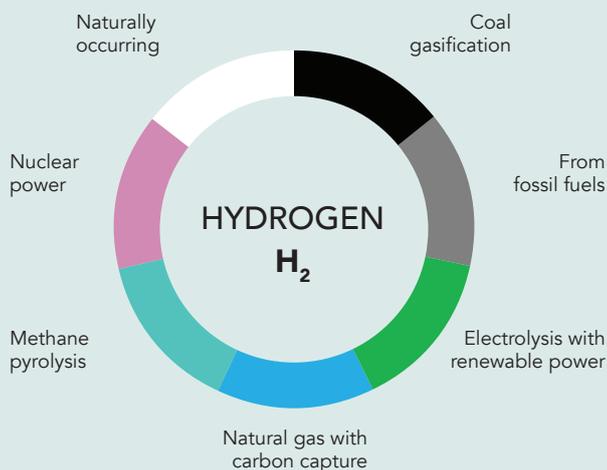
As the world moves rapidly towards net zero, green hydrogen is expected to be one of the pillars on which a sustainable economy will be built. Put simply, green hydrogen is an energy source that is produced using renewable energy. It is expected to play a significant role in the energy transition, including in industries that are considered “hard-to-abate”. Although a large number of projects have been announced, deployment on ground has been thin due to many factors. Among these is the fact that green hydrogen presents a new market that global investors have only begun including in their projections.

The benefits of using hydrogen as an energy source go beyond domestic decarbonization. Development of the emerging sector is expected to expand investment and create new jobs, resulting in a virtuous economic cycle. In the long term, this is expected to encourage the use of hydrogen for transportation, industry, power generation, and heating. Exporting green hydrogen to fulfill soaring demand in Europe and other international markets could generate significant profits for producers.

With such a wide range of prospective uses, global green hydrogen demand is expected to reach around 30 million tons per annum (mtpa) by 2030, continuing to grow exponentially to 610 mtpa by 2050, according to H.E. Sharif Salim Al Olama, the UAE Undersecretary for Energy and Petroleum Affairs at the Ministry of Energy and Infrastructure. This requires focus on scaling up production and deployment.

National strategies and investment: Tangible signs of this trend are already available – 30 countries have developed national hydrogen strategies; investment has started flowing into hydrogen projects; and countries have built dedicated hydrogen diplomatic missions for developing partnerships and agreements.

The UAE aspires to become one of the top 10 hydrogen producers worldwide by 2031, according to H.E. Al Olama.



The many colors of hydrogen

Hydrogen is a colorless and odorless gas, but it is described in a variety of colors depending on how it is produced. Black (or brown) hydrogen is produced by coal gasification; grey hydrogen comes from the gas reforming of fossil fuels; blue hydrogen results from the auto thermal reforming (ATR) or steam methane reforming (SMR) of natural gas with carbon capture; turquoise hydrogen modifies this process by splitting natural gas using a pyrolyzer; pink hydrogen uses nuclear energy to electrolyze water; and green hydrogen uses renewable energy to electrolyze water.



“We are this year updating our energy strategy that we launched in 2017, which called for 50 percent clean energy, of which 44 gigawatts is solar. I think the revised strategy is going to put hydrogen as one element. That would require us to significantly increase the installed capacity of solar in order for us to produce enough hydrogen to use it as a fuel.”

H.E. Suhail Al Mazrouei

Minister of Energy and Infrastructure, United Arab Emirates

Currently, hydrogen trading takes place mainly at the regional level. The market needs a push to grow from local to regional to global. In terms of investment, it is critical to create incentives and make public investments in ecosystem infrastructure as well as in companies. Financing runs the gamut of public (ensuring safety), public-private (risk allocation), and private (market viability) sectors.

A lot of the innovation is taking place on the electrolyzer/production side. This needs to accelerate. Innovation is, however, also needed in transmission of hydrogen over long distances and its storage.

Hydrogen can help the world abate some 80 gigatons of carbon dioxide by the middle of this century. In order to unlock that climate value, the ecosystem needs to go from projects and project announcements and proposals to final investment decisions. According to Hydrogen Council estimates, developing trade in hydrogen and derivatives can help bring down costs by up to 25 percent across the hydrogen supply, or an equivalent of US\$6 trillion in investments by mid-century.

International partnerships and collaboration: To reach these goals, partnerships will be crucial. An alignment of policies, standards, and regulations to develop international trade in green hydrogen and to unlock financing will need international cooperation in sharing best practice as well as R&D.

This is especially true for the countries in the global South that are potentially rich in renewable energy due to natural resources but may need financing, technologies, and routes to market to make clean hydrogen available in the large and affordable quantities required to compete with other fuels. For such geographies, green hydrogen can act as a catalyst for renewables deployment and will also catalyze broader socio-economic benefits such as job creation, GDP growth, and affordable electrification.





“Hydrogen will play a significant role in achieving the UAE Net Zero by 2050 Strategic Initiative and the UAE National Energy Strategy 2050. Locally produced hydrogen will act as a driver of innovation and economic diversification, allowing for the decarbonization of the economy, along with existing long-term strategies, as well as the recently announced national net zero 2050 pathway. Hydrogen is expected to play a critical role in the global transition towards lower carbon energy sources.”

H.E. Mariam bint Mohammed Saeed Hareb Almheiri

Minister of Climate Change and Environment, United Arab Emirates

A global hub

H.E. Suhail Al Mazrouei, UAE Minister of Energy and Infrastructure, hoped that the upcoming COP28 summit in the UAE in November-December 2023 will agree on a roadmap for many countries to not only embark on green transformation, but also to speed up the process and implement it at the pace required to address climate change issues.

The UAE’s vision is to be a global hub in the hydrogen economy. The country is doubling its investments internationally, he said, including a strategic partnership with the United States signed in November 2022 to invest US\$100 billion to produce 100 gigawatts of clean energy globally by 2035.

The UAE is upgrading its energy strategy in 2023, which calls for 50 percent clean energy, of which 44 gigawatts is solar. “We believe the market for hydrogen will be in the trillions of dollars by 2050. And that’s a huge market. And we would like to capture part of that as we are installing more renewable energy projects,” the minister said.

H.E. Mariam bint Mohammed Saeed Hareb Almheiri, UAE Minister of Climate Change and Environment, said hydrogen will play a significant role in achieving the UAE Net Zero by 2050 Strategic Initiative and the UAE National Energy Strategy 2050. “Locally produced hydrogen will act as a driver of innovation and economic diversification, allowing for the decarbonization of the economy, along with existing long-term strategies, as well as the recently announced national net zero 2050 pathway,” she said.

The UAE recently exported the first batch of blue hydrogen-based ammonia to Germany, to help replace the coal and gas used by energy-intensive industries, the minister added. Hydrogen is sometimes stored as liquid ammonia.





“We can expect a very strong call for evidence of going from headline commitments to specific policies, R&D incentives, concessional finance POTS, procurement pool, commitment to standards on the government side, and then actual capex and procurement commitments like future demand commitments from things like the First Movers Coalition.”

Nigel Topping

UN Climate Change High Level
Climate Champion, COP26

As part of its hydrogen roadmap, the UAE aims to have 25 percent market share of the global hydrogen market. The UAE has launched seven strategic hydrogen production projects and is expected to produce 14 to 22 million tons annually by 2050, while the overall global production annually is expected to be 250 million tons. TAQA, Mubadala, and ADNOC have announced a joint shareholding in Masdar, Abu Dhabi’s flagship clean energy company, which has an expanded mandate covering renewable power, green hydrogen, and other enabling clean energy technologies. Masdar’s ambition is to accelerate the development of its renewable energy capacity to 100 gigawatts by 2030 and ultimately double that to 200 GW, said H.E. Dr. Sultan Ahmed Al Jaber, the UAE’s Minister of Industry and Advanced Technology, President-Designate at COP28, and the Chairman of Masdar.

Nikunj Gupta, Vice President – Hydrogen Studies at ADNOC, said the Middle East and North Africa (MENA) region is as blessed with renewable resources as it is with oil and gas, putting it at the forefront of the development of the green hydrogen market.





“It is now very important to work together as a cluster, as a network, to prepare strategic agreements, because we share the same goals. Thanks to the UAE, this type of summit is a very good opportunity to develop this relationship and to be ready for the next step.”

**H.E. Neila Nouira
Gongi**

Minister of Industry, Mines, and
Energy, Republic of Tunisia

An ecosystem mandate

The international community has made clear commitments toward decarbonization, which will be strengthened at COP28 to be held in the UAE in November-December 2023. According to the NDC Synthesis Report published by UN Climate Change in October 2022, the combined climate pledges of 193 parties under the Paris Agreement could put the world on track for around 2.5 degrees Celsius of warming by the end of the century, an improvement over the 2010 levels. Nationally Determined Contributions (NDCs) contain information on targets, policies, and measures for reducing national emissions.

The UAE has stressed the need to create a market for green hydrogen by introducing policies and regulations that incentivize its use and also by working with the private sector to develop new business models and revenue streams.

According to Al Mazrouei, a major issue is affordability. Scaling up is critical to reach the levels of US\$1.5 per kilogram or even below, the minister said, for green hydrogen to become a competitive commodity. “The UAE is also investing in Sustainable Aviation Fuel together with airlines, and we are discussing the potential of hydrogen in the shipping industry. All of these projects, in addition to others, are going to be part of our strategy,” he said.

However, decarbonizing hard-to-abate sectors would be near impossible without extensive deployment of green hydrogen, said Mohammad Abdelqader El Ramahi, Executive Director of Green Hydrogen, Masdar. Large industries cannot be decarbonized with any other source of fuel, he said, adding that Masdar expects the first commercial production of green hydrogen by 2026-2027.

Abu Dhabi is one of the fastest movers in the world in setting up the ecosystem to produce and ship green hydrogen, said Gert-Jan Nieuwenhuizen, Managing Director, Port of Amsterdam International, which has signed an MoU with Masdar, along with





“2023 will be a crucial year for renewable hydrogen. All the work that is being done to establish the global hydrogen market and to develop the necessary policies and technologies needs to be scaled up. This is the moment to boost clean energy in general and clean hydrogen in particular.”

Kadri Simson

European Commissioner for Energy, European Commission

SkyNRG, Evos Amsterdam, and Zenith Energy to explore the development of a green hydrogen supply chain between Abu Dhabi and Amsterdam to support Dutch and European markets. Nieuwenhuizen stressed the urgency of receiving green hydrogen from Abu Dhabi, especially for aviation.

Port of Amsterdam International currently handles about 45 million tons of gasoline fuels and 5 million tons of coal trans-shipment, along with about 4 million tons of aviation fuel. The challenge for Amsterdam and for many other ports in the world, Nieuwenhuizen added, is to have the infrastructure to receive green hydrogen ready in time for the first shipments.

British multinational energy company bp has also indicated that carbon capture is core to its strategy to decarbonize the company. Felipe Arbelaez, SVP Hydrogen and Carbon Capture and Storage, bp, pointed out that the company consumes about half a million tons per annum of hydrogen for refining operations. bp’s carbon capture and storage project is located at its Teesside hub in the United Kingdom, where ADNOC is an investor.

ADNOC will take a 25 percent stake in the design stage of the blue hydrogen project named H2Teesside. will include two 500MW hydrogen production units, and is expected to commence operations in 2027. The project will include two 500MW hydrogen production units to generate 60MW megawatt electrical input (MWe) of hydrogen when it starts operations in 2025. H2Teesside will gradually increase production to 500MWe by 2030.

As part of the collaboration, bp and ADNOC will also conduct a feasibility study for a new blue hydrogen project in Abu Dhabi.





“We need to move from project announcements and proposals to final investment decisions. The industry has already come up with a mature pipeline of 680 projects globally. Yet less than 10 percent of these projects have seen final investment decisions. We need to synchronize efforts between industry and governments in creating the enabling frameworks for those investments to ultimately be committed.”

Daria Nochevnik

Director for Policy and Partnerships, Hydrogen Council

International partnerships and collaboration

Collaboration is crucial to building an integrated green hydrogen ecosystem that can compete effectively with existing fuel types. International collaboration has increased significantly in recent years with hydrogen partnerships being led by both government and private sector entities.

“Partnerships that can actually unlock financing and move in a very agile manner are going to be really critical, as will be partnerships to get bilateral agreements done, because at the end of it, investments will only come when they see long-term market viability,” said Gauri Singh, Deputy Director-General of the International Renewable Energy Agency (IRENA).

IRENA has set up the Collaborative Framework to serve as a vehicle for dialogue, cooperation, and coordinated action to accelerate the development and deployment of green hydrogen and its derivatives for the global renewable energy transformation. The Collaborative Framework leverages the Agency’s work on green hydrogen, the knowledge and expertise that exists within IRENA’s membership, and the benefits that may be reaped through wider global cooperation with other entities. Participation in the Collaborative Framework is open to the private sector and other international organizations.

At the same time, however, securing the offtake side is crucial, said Atsushi Suzuki, CEO of Marubeni Middle East & Africa Power Limited. “In order for the supply side or production side to make a project feasible, offtake must be more certain,” he said.

Nathalie Oosterlinck, Global Head, Offshore Wind Power Business at JERA, highlighted the increasing number of partnerships being crafted between entities globally to develop tangible projects for the future. “And it’s bringing all of those industry players together,” she added.

At COP27, the World Bank Group announced the creation of the Hydrogen for Development Partnership (H4D), a global initiative to enhance the deployment of low-carbon hydrogen in developing countries. H4D is intended as a catalyst of financing for hydrogen investments from both public and private sources. It will also help foster capacity building and regulatory solutions, business models, and technologies toward the roll out of low-carbon hydrogen.





“The significant investment opportunity is there. And when we look at the Hydrogen Council’s 2022 numbers, we need to invest US\$700 billion until 2030 to make it happen for the 2050 carbon neutral target. But only 3 percent of that is committed.”

Florian Merz

Director – UAE Industries,
Mubadala

Strategic investment, financing, and pricing

As the next step from production, infrastructure for the transportation and storage of hydrogen needs considerable investment. According to the 2022 estimates of the Hydrogen Council, there is a need to invest US\$700 billion until 2030 to achieve the 2050 carbon neutral target. But only 3 percent of this amount has been committed, said Florian Merz, Director – UAE Industries at Mubadala. Mubadala was co-chair of the Green Hydrogen Workstream of the One Planet Sovereign Wealth Fund network of 46 such funds and asset managers with a total of US\$37 trillion in assets under management. More than 90 percent of these entities have indicated that this is a long-term investment target in which they are going to invest, he added.

According to Jean-Baptiste Djebbari, Chairman of Hopium and the former French Minister for Transport, Europe as a market requires more than five million power stations. This is expected to need anywhere between EUR 10 to 15 billion in investment. Djebbari stressed the need to provide incentives that enhance affordability and acceptance of alternatives like hydrogen.

The European Union adopted a hydrogen strategy in July 2020, said Kadri Simson, European Commissioner for Energy, European Commission. The strategy takes a comprehensive approach to hydrogen development, including the signing of hydrogen partnerships with nations across the world. Many countries are following suit with detailed strategies and concrete targets, Simson said.

Germany will spend another EUR 3.5 billion over the next 10 years to buy green hydrogen products, said Dr. Christian Storost, Head of Division ‘Funding Instruments and Hydrogen Initiatives’, German Federal Ministry for Economic Affairs and Climate Action. “Markets have been in an early phase until now. We see some early developments, some strategic investment, and now it’s all about getting this early investment into a more mature phase. We try to de-risk also at this point and altogether this will mean that Germany will invest EUR 4.4 billion within the forthcoming 10 years in this sort of de-risking strategy,” he said.





Scale and volume of manufacturing are key to lowering the cost of production, said Prof. Nigel Brandon, Dean of the Faculty of Engineering at Imperial College and founder of the UK fuel cell and electrolyzer company Ceres Power, citing the case of lithium-ion batteries. According to him, a 20 percent cost reduction can be achieved with a doubling of the volume of manufacturing.

As electrolyzers are key to the production of green hydrogen, the cost of building them is also crucial. Scaling up manufacturing of electrolyzers to meet rising demand will play an important role in the overall affordability of hydrogen.

Although production and consumption are both localized at present and pipelines can handle transportation up to 1,500 km, shipping would be necessary beyond that range, said Gauri Singh, Deputy Director-General of IRENA. The cost of financing infrastructure would play a key role in developing this aspect of the market. According to Singh, bilateral agreements are essential for unlocking financing for investment.

Andreas Lehmann of Hydrogenious Technologies said the company has a technology for storing and transporting hydrogen using liquid organic hydrogen carriers (LOHC). However, he added, “We need to rebuild everything that we have been building over the last hundred years for transporting energy in the world, and that is the challenge.”

Olivier Dhez, Deputy Chief Executive Officer at Hydrogen Refueling Solutions, wondered whether a possible carbon tax to induce people to use alternative means of energy should be introduced but added that it was not possible to gauge the impact of such a measure at this point.



“We all know that Europe is going to be carbon neutral by 2050. And to reach this goal, of course, one of the items on the European agenda is to provide for at least 20 million tons of hydrogen, 10 of which is to be produced within the European Union and 10 imported.”

H.E. Parviz Shahbazov

Minister of Energy, Republic of Azerbaijan

Technology and innovation

Continuous innovation and technology upgrades are critical to produce green hydrogen on a commercially viable scale. Much of the innovation is expected to be in the storage and transmission of hydrogen.

“A lot of the work is going to be done on creating clusters zones where you can start to match large-scale supply and demand of hydrogen in these areas,” said Dr. Steven Griffiths, Senior Vice President, Research and Development, and Professor of Practice, Khalifa University of Science and Technology.

Marco Alverà, Chief Executive Officer, TES Hydrogen for Life, highlighted an older technology called Sabatier, which is being tested to create methane. “So, we end up with a product which is methane, exactly like fossil methane, but made entirely from green, renewable hydrogen. The beauty of this model is that it can be scaled up very rapidly because it doesn’t need to change anything in the infrastructure,” he said. “We can get directly to the factories, to the power plants with a completely renewable product.”

Discussing the development of the hydrogen value chain through innovation, Rick Beuttel, Vice President, Hydrogen Business, Bloom Energy, said that in terms of technology scale, projects are becoming larger. “That gives us suppliers and manufacturers leverage to build larger, more efficient factories to get value out of our supply base and commitments to bring costs down,” he said. This is particularly important as it is possible to address a sizable portion of the carbon footprint in heavy industries by changing fuel. “Using existing infrastructure and finding ways to repurpose the energy inputs into those facilities helps to more cleanly decarbonize that customer’s end-product,” Beuttel added.





“With the support of our stakeholders, we have been working on a policy and regulatory framework for low-carbon hydrogen, which is in the final stages of approval. It’s not a reality yet, but we’re almost there. With that piece, we think that we have prepared, at least initially, this nascent business, this nascent energy vector, to become a tangible reality for local use and eventually also to conquer some of the most promising markets beyond UAE.”

Carlos Gasco Travesedo

Energy Policy Executive Director,
Abu Dhabi Department of Energy

Global regulation

It is crucial to synchronize efforts between governments and industry to accelerate the deployment of hydrogen, according to Daria Nochevnik, Director of Policy and Partnerships at the Hydrogen Council. “Hydrogen can help us abate some 80 gigatons of CO₂ by mid-century. In order to unlock that climate value, we need to move from projects and project announcements and proposals to final investment decisions.” she said.

According to Hydrogen Council estimates, developing trade in hydrogen and derivatives can help saving some and bringing down the cost by up to 25 percent across the hydrogen supply, or an equivalent of US\$6 trillion in investments by mid-century. It is important to “avoid the fragmentation of standards that will ultimately allow us to compare apples and apples,” she added.

The UAE is working on a policy and regulatory framework for low-carbon hydrogen, which is in the final stages of approval, said Carlos Gasco Travesedo, Energy Policy Executive Director of the Abu Dhabi Department of Energy. “The first thing we need to take into consideration from a regulatory and policy framework is the way to produce hydrogen, which is a nascent technology or market,” he said.

A global collaboration on the regulatory standards related to green hydrogen will develop the mechanisms that will make it a truly global market, said Kenneth Vareide, CEO, DNV – Digital Solutions.





“Egypt’s national strategy is to be one of the leaders in the field of green hydrogen with the ambitious target of an 8 percent share of the global market. We are geographically close to the European market, which is considered a big market for green hydrogen.”

Dr. Eng. Ahmed Mohamed Mohina

First Undersecretary for Strategic Planning, Performance, Follow-up, and International Cooperation, Ministry of Electricity and Renewable Energy, Egypt

Hydrogen and the global South: Challenges and opportunities on the African continent

More than 600 million Africans are without access to electricity, making green hydrogen an important component of the continent’s sustainable power equation. “One of the difficulties of financing projects in Africa is where your consumers are paying in local currency and your financing is in hard currency. This introduces significant currency risk, said Wale Shonibare, Director – Energy Financial Solutions, Policy and Regulation, at African Development Bank (AfDB). “In this situation, the opportunity offered by green hydrogen is that if you have an export market, your revenues are in hard currency and that helps you to eliminate some of that risk.”

In September 2023, the AfDB convened the first meeting of the Africa Green Hydrogen Alliance, which has Egypt, Morocco, Mauritania, Kenya, Namibia, and South Africa as members.

Bernd Hyde, Senior Partner at McKinsey and Company, stressed that green hydrogen is crucial for Africa and the global South. Africa, he said, is being disproportionately affected by the climate crisis. According to McKinsey’s investment tracker, there are 680 mega scale projects around the world that deployed US\$280 billion of capital to be invested until 2030. This has grown by 50 percent since 2022.

“By 2030, Africa and the Middle East will be able to produce hydrogen for US\$1.5 to US\$5 per kilogram. This is very competitive,” Hyde said. At the international level, the energy-importing countries have a 2.5 times higher cost of local production. That means 30 to 60 million tons of hydrogen can be exported out of Africa, he added.





“Securing the offtake side is crucial. In order for the supply side or production side to make a project feasible, offtake must be more certain.”

Atsushi Suzuki

Chief Executive Officer, Marubeni Middle East & Africa Power Limited

Eng. Karim Badr of the Sovereign Fund of Egypt said there are hubs within Africa today with the potential to produce 50 million tons by 2050. These include northwest Morocco, Mauritania, Egypt, South Africa, and Namibia. Egypt has the world’s second largest pipeline of projects, behind Australia. These have the potential to produce 5 million tons of hydrogen by 2030, which is just 50 percent of what Europe needs, he said.

Amr Allam, Chief Executive Officer of Hassan Allam Utilities, stressed that Africa is not in the energy transition phase but in the energy availability phase. Focusing on hydrogen enables African countries to capitalize on the inflow of foreign investment in the types of projects to upgrade the grid and supply power at cheaper tariffs.

Dr. Faye Al Hersh, Head of Business Development – UAE, Green Hydrogen, Masdar, said the deployment of green hydrogen projects would lead to the expansion and acceleration of renewable energy development in Africa, which would further stabilize the African grid. “These green hydrogen plants would also serve as a grid buffer that would facilitate the integration of renewable energy into the system. This is attributed to the flexibility of let’s say the electrolyzers, because they can be operated at partial or full capacity, depending on the available energy and its cost.”

Africa is expected to produce 30 to 60 million tons per annum of green hydrogen by 2050, a large proportion of which would be exported. This has the potential to create up to 3.7 million jobs by 2050, according to a joint report by Masdar and ADSW¹.

Ahmed El-Hoshy, Chief Executive Officer at OCI NV and Fertigllobe, stressed that in terms of labor and land availability, Africa and the Middle East would be the ideal place to build these projects. He highlighted three issues – financial and technical support, managing demand, and the regulatory development to spur that demand.



1. [Africa’s Green Energy Revolution](#). Abu Dhabi Sustainability Week and Masdar. November 2022.

About



The inaugural Green Hydrogen Summit, hosted by Masdar Green Hydrogen, demonstrated Abu Dhabi's achievements and ambitions to become a global hub for green hydrogen innovation and investment while providing a platform for leading hydrogen players worldwide to meet and exchange views. This unique event highlighted the latest industry trends and developments in green hydrogen production, conversion, transport, storage, and use.

The Green Hydrogen Summit 2023 played a crucial role in pushing Green Hydrogen up the agenda at COP28, while enabling impactful dialogue between global stakeholders to help create the hydrogen economy in the region and worldwide.



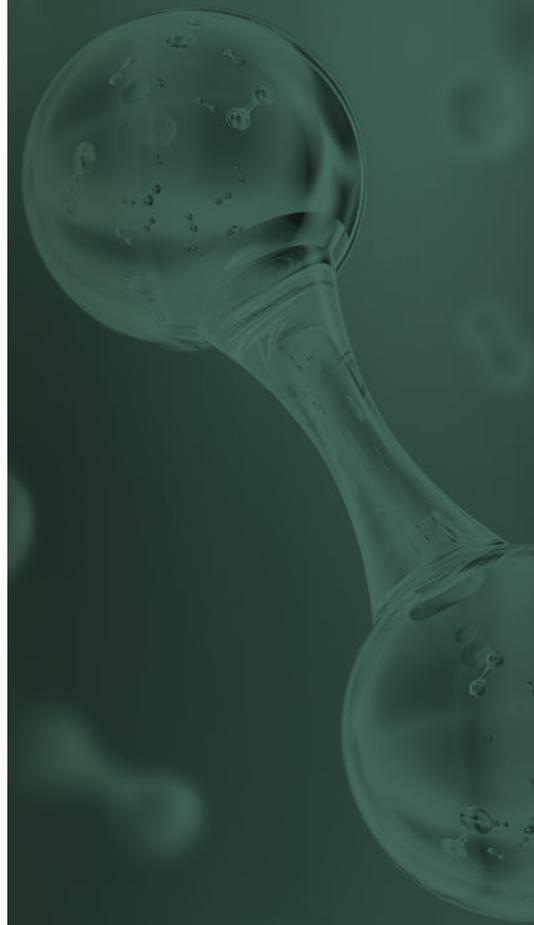
Abu Dhabi Sustainability Week (ADSW) is a global initiative championed by the UAE and its clean energy powerhouse Masdar to accelerate sustainable development and advance economic, social and environmental progress.

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 on bold climate action and the innovations that will ensure a sustainable world for future generations.

ADSW is not only a premier convenor for global dialogue, but a catalyst for concrete results, providing multi-stakeholder platforms where thought leadership can evolve into thoughtful action.



Abu Dhabi Future Energy Company (Masdar) is the UAE's clean energy champion and one of the largest companies of its kind in the world, advancing the development and deployment of renewable energy and green hydrogen technologies to address global sustainability challenges. Established in 2006, Masdar is today active in over 40 countries, helping them to achieve their clean energy objectives and advance sustainable development. Masdar is jointly owned by Abu Dhabi National Oil Company (ADNOC), Mubadala Investment Company (Mubadala), and Abu Dhabi National Energy Company (TAQA), and under this ownership the company is targeting a renewable energy portfolio capacity of at least 100 gigawatts (GW) by 2030 and an annual green hydrogen production capacity of up to 1 million tons by the same year.



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