

Green Hydrogen: Diversifying and moving towards clean energy

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Green economy, decarbonisation, carbon footprint, and clean and green energy – these are some of the highly ubiquitous terms that form the base of global sustainable goals pursued by countries that are putting in tremendous efforts to fight climate change. Over the years, our way of living has drastically increased the amount of energy required for daily functioning. And as a result, today, we're witnessing an upsetting increase in energy consumption with the increase in energy-driven technologies.

Which brings us to the question of what are our alternatives to fuel the clean and renewable solutions? And the answer we believe in is green hydrogen – capable of driving sustainable green economies globally as it shows significant potential for environmentally friendly and low-cost power generation.

There has been an ever-growing need for more renewable energy as power generation from fossil fuels results in high carbon and greenhouse gas emissions. Green hydrogen proves to be an excellent replacement for fossil fuels. 320 pilot projects to produce green hydrogen in several countries have recently been launched to complement this global trend of using green hydrogen to generate power and drive development in several vital sectors. According to the latest Frost & Sullivan report, annual production of green hydrogen is projected to increase by 57 per cent annually from 40,000 tonnes to 5.7 million tonnes. Green hydrogen has been attracting global attention as a clean energy source that can contribute to decarbonisation efforts to tackle climate change and global warming.

The transportation sector amounts to approximately 41 per cent of global emissions, and green hydrogen is the feasible solution to ensure sustainable mobility. Additionally, it can be utilised in fertiliser and chemical production, and there is a projected rise in demand for hydrogen used in plastic production. The energy sector can leverage green hydrogen for electricity production, as hydrogen does not emit pollutants during combustion or production and is easy to store. It can also be transformed into synthetic gas for commercial and industrial usage.

With the UAE's ambitious vision to net-zero, green hydrogen is being seen at the core of the global efforts for decarbonisation. The energy players in the MENA region are now focusing on tackling the increasing energy demand to accelerate climate action. The efforts of the wise leadership of the UAE is to transition to a green economy by moving towards a new energy landscape with clean and renewable energy as key components. Being in the top 10 list of oil exporters in the world, the UAE aims at leveraging its financial resources, technological expertise, and client base to diversify from fossil fuels to supplying renewable energy and clean hydrogen to its customer base in the coming years.

A recent report on clean hydrogen published by WGEO and Zest Associates in collaboration with HSBC, shed light on the importance of exchange of knowledge, experience, and best practices in the clean hydrogen sector between the two nations – UAE and the UK, by identifying priorities, exploring avenues and strengthening bilateral collaboration. Clean hydrogen is essential to achieving the UAE and UK's net

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zero commitments, particularly in the industrial and heavy transport sectors where other technologies are unable to reduce emissions. The report reveals that hydrogen is estimated to deliver up to \$8.7 billion (AED 32 billion) annually to Dubai's economy alone, and \$14.8 billion (£13 billion) Gross Value Added (GVA) to the UK. It is also projected that the sector will create over 100,000 new jobs opportunities in each country. Hence, underlining that hydrogen is key for nations' economic development agenda, as well as economic diversification.

The UAE is making major investments to capture 25 per cent of the global green hydrogen market, which is projected to reach more than USD 400 billion. For instance, one of the key green hydrogen projects, implemented by Dubai Electricity and Water Authority (DEWA), in cooperation with Expo 2020 Dubai and Siemens Energy, is located at the Mohammed bin Rashid Al Maktoum Solar Park. The project plays an essential role in supporting the UAE's efforts to achieve global competitiveness in the green hydrogen market. This project is the first one-of-its-kind in the MENA region that leverages solar power to produce green hydrogen. Dubai has also implemented exceptional regulatory and legislative frameworks that encourages the private sector and global investors to adopt the Independent Power Producer (IPP) model to participate in clean and green energy production. Through this model, the DEWA has attracted over AED 40 billion in investments, which gives a boost to value-added partnerships between the private and public sector.

Green hydrogen also contributes to the Dubai Clean Energy Strategy 2050 and the Dubai Net Zero Carbon Emissions Strategy 2050 which aims at providing 100 per cent of Dubai's total energy capacity from clean energy sources by 2050.

DEWA and Emirates National Oil Company (ENOC) have collaborated to launch a hydrogen fuelling station to help realise the goals of Dubai Green Mobility Strategy 2030, which aims to achieve sustainability in the mobility sector. In 2021, the UAE Hydrogen Alliance was established, bringing together international organisations such as Siemens Energy, Total Energies, and BP. UAE-based Beeah and Chinook, a UK-based organisation, have collaborated to construct the first waste-to-hydrogen plant in Sharjah, which is expected to be completed in 2024.

While there is a long way to go green, the UAE's proud heritage of being one of the top energy providers in the world has only helped strengthen the foundation of growth and development and more importantly has helped in boosting the economy. Currently, the country is transitioning from being a hydrocarbon producer to a leading nation in energy transition. Energy that is clean, reliable, and safe has become a necessity, and the transition is underway. Sustainability has become the highest priority for every nation to ensure a prosperous and viable future for the coming generations.

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