NATIONAL ENERGY AND IDB LAUNCH "THE ROADMAP FOR A GREEN HYDROGEN ECONOMY IN T&T"

ESTIMATED READ TIME: 5 MINUTES

ON THE GREEN AGENDA

KEY TAKEAWAYS

Trinidad and Tobago has the requisite infrastructure, expertise and offtake market to facilitate development of a green hydrogen economy.

Over the last year, National Energy collaborated with the IDB and KBR Inc. to assess the potential of Trinidad and Tobago to produce green hydrogen as a major decarbonisation option for the power and industrial sectors.

The findings of that study were launched in the "The Roadmap for a Green Hydrogen Economy in Trinidad and Tobago" — a 35-year development programme split into three broad horizons.

> "The future use of green hydrogen in Trinidad to produce ammonia and methanol is inevitable."

Stuart Young, Minister of Energy and Energy Industries, fifth from left, together with, Robert Le Hunte, left, IDB Executive Director; Dr Vernon Paltoo, President, National Energy; Farley Augustine, THA Chief Secretary; Pennelope Beckles, Minister of Planning and Development; Carina Cockburn, IDB, Country Head, and Dr Joseph Khan, Chairman, National Energy, display the Roadmap for a Green Hydrogen Economy during its launch at the Hilton Trinidad and Conference Centre, Lady Young Road, Port of Spain on November 29, 2022.

National Energy and IDB Launch "The Roadmap for a Green Hydrogen Economy in T&T" | CONTINUED

On Tuesday November 29, 2022 National Energy, on behalf of the Ministry of Energy and Energy Industries and in collaboration with the Inter-American Development Bank (IDB), launched "The Roadmap for a Green Hydrogen Economy in Trinidad and Tobago", which is the summary of findings of the Study to establish a Green Hydrogen Market in Trinidad and Tobago. Over the last year, National Energy collaborated with the IDB and KBR Inc. to assess the potential of Trinidad and Tobago to produce green hydrogen as a major decarbonisation option for the power and industrial sectors.

THE **HYDROGEN POTENTIAL** AND **VALUE PROPOSITION** IN T&T

The idea of building a hydrogen economy for Trinidad and Tobago is based on the premise that the nation can leverage its existing hydrocarbons and fossil fuel infrastructure and know-how to build capacity in another way — green hydrogen and green products.

Trinidad and Tobago currently has installed infrastructure with a capacity for approximately 1.7 million tonnes per annum (Mtpa) of hydrogen.

Moreover, being one of the leading exporters of ammonia and methanol globally, the country has a captive demand of 1.5Mtpa of grey hydrogen (hydrogen derived from fossil fuels such as natural gas) for use as feedstock for these applications. The future use of green hydrogen in Trinidad to produce ammonia and methanol is inevitable.

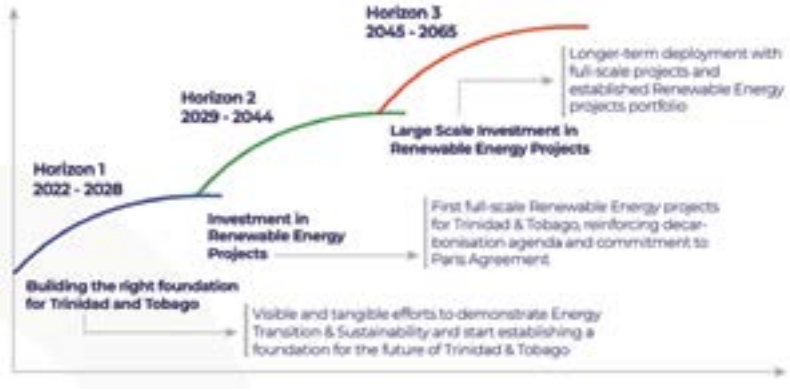

FIGURE 1: TRINIDAD AND TOBAGO'S HYDROGEN ECONOMY ROADMAP

The other major uses of grey hydrogen in Trinidad are for steel and cement production. Whilst steel production facilities are currently mothballed, the 0.2 Mtpa allocated for that sector allows for the possibility of the revival of this industry as green steel gains traction in the market. Cement production is a major emitter of greenhouse gases (GHGs). As such, green hydrogen could be used to fuel the cement facility, reduce emissions and produce green cement for local use, with the potential for exports if the market conditions are appropriate and local production capacities increase.

Additionally, the hydrogen potential for Trinidad and Tobago doesn't stop there.

Green hydrogen can play a significant role in the transportation sector of Trinidad and Tobago through the transition of heavy-goods vehicles, long-haul carriers and public transport to green hydrogen vehicles.

In the shipping sector, green ammonia and methanol are expected to play a significant role in the decarbonisation of this sector, providing an opportunity for Trinidad and Tobago to transition local ferries to green fuels in the future.

Trinidad and Tobago's value proposition lies in leveraging its existing petrochemical facilities, operational experience and associated infrastructure. All other nations exploring green hydrogen and hydrogen derivatives will need to invest additional sums in the transformation facilities (ammonia, methanol or other hydrogen carriers) as well as storage and export facilities, and this will require not only high levels of capital expenditure (CAPEX), but also the workforce and know-how required to build, operate and maintain these facilities, all of which are pre-existing in Trinidad and Tobago.

KEY FEATURES OF THE GREEN HYDROGEN ROADMAP

The proposed roadmap for Trinidad and Tobago is based on a 35-year development programme and is split into three broad horizons as illustrated above.

ON THE GREEN AGENDA

Horizon 1: Building the Right Foundation for Trinidad and Tobago

The first horizon and probably the most critical of all three will focus on building a strong foundation for Trinidad and Tobago. Some of the key activities in Horizon 1 will be the following:

1. The completion of an offshore Wind Resource Assessment Programme (WRAP) to realise the activities required to support offshore wind development in Trinidad and Tobago. Of all the renewable energy sources available in Trinidad and Tobago, offshore wind offers the largest potential for the island.

2. Development of demonstration projects to test the end-use applications of green hydrogen in Trinidad and Tobago.

3. Creating the right enablers through regulations, policies and incentives that will support the development of this hydrogen economy.

4. Planning for the renewable energy and hydrogen campaign.

Horizon 2: Investment in Renewable Energy Projects

Horizon 2 builds on Horizon 1 and the enabling environment developed to initiate a utility scale renewable energy project as well as a green hydrogen production facility, fully launching Trinidad and Tobago on this pathway. By the end of Horizon 2, Trinidad and Tobago will have installed 25 gigawatts (GW) of offshore wind with 10.5 GW output to feed electrolysers to produce 1.5 Mtpa of green hydrogen.

Horizon 3: Large-Scale Investments in Renewable Energy Projects

Horizon 3 reinforces the leadership of Trinidad and Tobago in the new energy sector, reaching 57 GW of offshore wind capacity with 25 GW output to feed electrolysers to produce 4 Mtpa of green hydrogen by 2065. This would provide Trinidad and Tobago with the opportunity to decarbonise the existing petrochemical industry and expand this industry in the future to contribute to the Gross Domestic Product (GDP) growth of Trinidad and Tobago through additional export potential.

> "Creating a hydrogen economy will be a massive undertaking, but it is one that is well within the reach of Trinidad and Tobago through government intervention in policy and regulation in conjunction with careful planning and actions from key stakeholders."

FUTURE LANDSCAPE FOR GREEN HYDROGEN AND NEXT STEPS

Creating a hydrogen economy will be a massive undertaking, but it is one that is well within the reach of Trinidad and Tobago through government intervention in policy and regulation in conjunction with careful planning and actions from key stakeholders. The immediate next steps will include a few interlinked activities such as:

- Securing funding for the activities in the roadmap. Funding sources, such as climate finance, carbon markets, private sector and national finance, will be explored by creating financing mechanisms that promote renewable energy and green hydrogen projects.

- Initiating the activities required to support the offshore wind developments, most importantly, the offshore WRAP.

- Introducing demonstration projects to test the end-use applications of green hydrogen in Trinidad and Tobago.

- Securing the enablers that will support the development of the green hydrogen economy.

A green hydrogen economy will generate net benefits in the billions and create thousands of jobs in the construction, operation and maintenance sectors, and significantly reduce carbon dioxide (CO_2) emissions. Trinidad and Tobago is at the beginning of a challenging and exciting journey.

The country will continue to play a major role as a natural gas exporter while leveraging existing heritage and facilities to position itself in the evolving energy landscape, thereby ensuring sustainable economic growth in the future. This journey starts with setting up a strong foundation with the right enabling policies, regulatory framework and institutional support to launch Trinidad and Tobago's hydrogen economy. ■