



Energy Minister Stuart Young, fifth from left, with IDB executive director, Robert Le Hunte, left, National Energy, president, Dr Vernon Paltoo; THA Chief Secretary Farley Augustine, Planning and Development Minister, Penelope Beckles; IDB country head Carina Cockburn, and National Energy, chairman, Dr Joseph Khan, display the Roadmap for a Green Hydrogen Economy during its launch at the Hilton Trinidad and Conference Centre, Lady Young Road, Port-of-Spain. PICTURE ANISTO ALVES

Green Hydrogen Economy on the horizon

A study proposing a 35-year development programme split into three horizons will enable T&T to develop a green hydrogen economy.

This is detailed in a 60-page Green Hydrogen study titled, 'The Roadmap for a Green Hydrogen Economy In T&T' which was developed in collaboration between the Inter-American Development Bank (IDB) and the National Energy Corporation of T&T (National Energy), with the support of the Ministry of Energy and Energy Industries (MEED) and the advisory services of KBR, a US-based company operating in the fields of science, technology and engineering.

This new report highlights the opportunity to expand the country's portfolio of products based on low-carbon solutions which are expected to be in high demand in international markets, and again position T&T at the forefront of innovation in the global energy market.

It also noted T&T is at the beginning of an exciting, yet challenging, energy transition journey as a regional energy leader and a powerhouse in petrochemicals.

"Its oil and gas infrastructure, including storage and export facilities, as well as operational experience gives this nation a head start when it comes to developing a hydrogen economy. In fact, it is in the best starting position in the Caribbean and Latin American region," the report added.

National Energy's president, Dr Vernon Paltoo, reiterated the need for visible and tangible efforts to demonstrate this coun-



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try's energy transition.

He said once the study is completed, National Energy intends to work with the IDB to secure funding for the development of green hydrogen demonstration pilot projects, which is expected to commence in 2023.

The report outlined that Horizon One of the study is defined as the period 2022 to 2028, allocated to building a strong foundation for T&T, and is key to achieving the vision.

It advised this is the most critical part of the roadmap as it looks to achieve consensus amongst all local stakeholders, develop the required enabling policies and regulatory framework as well as establish visible decarbonisation initiatives in the country.

The first offshore wind pilot is also envisaged towards the end of Horizon One.

Broadly, the report said the activities in Horizon One can be grouped into four different categories; demonstration projects to test the end-use applications of green hydrogen in T&T; the activities required to support the offshore wind developments, most importantly the offshore Wind Resource Assessment Programme (WRAP); planning for the renewable energy and hydrogen campaign and the most important part the enablers that will support

the development of this hydrogen economy.

WRAP is recommended with the offshore deployment of floating lidars to measure offshore wind speeds and metocean conditions.

This assessment, estimated to cost approximately US\$10 million, is the most important part of planning a wind farm and lies on the critical path with a minimum of four to five years, the study reiterated.

This timeline includes the start of the offshore wind study to the deployment of the first pilot offshore wind turbine towards the end of Horizon One (2028).

Naturally, Horizon Two builds on Horizon One and the enabling environment developed to initiate the first utility-scale renewable energy project as well as a green hydrogen production facility, fully launching this country on this pathway.

By the end of Horizon Two, the study said T&T will have installed 25 GW of offshore wind with 10.5 GW output to feed electrolyzers to produce 1.5 Mtpa of green hydrogen Horizon Three reinforces the leadership of T&T in the new energy sector, reaching 57 GW of offshore wind capacity with 25 GW output to feed electrolyser to produce four Mtpa of green hydrogen by 2065.

Further opportunities

According to the study setting up a local supply chain for wind development and hydrogen production would support the long-term aspirations of this country, as well as the Caribbean, in devel-

oping a competitive green energy sector.

A local supply chain will bring down costs associated with renewable energy and electrolyser technologies, driving to a lower LCoH.

The levelised cost of hydrogen of LCOH is a methodology used to account for all of the capital and operating costs of producing hydrogen and therefore, enables different production routes to be compared on a similar basis.

New manufacturing facilities and assembly sites to support the supply chains will also create jobs for many, allowing for the current workforce to be unskilled.

Moreover, the study noted, transferable skills from the oil and gas can be used, giving rise to a new generation of workers skilled in the assembly, maintenance, and operations of wind turbines as well as electrolysis facilities.

Building skills

According to the report the development of the green hydrogen market must be established in an inclusive manner and as part of a fair and just transition.

It noted although there is little disaggregated data on gender in the energy sector in this country, the estimates indicate women are generally under-represented.

According to the T&T Central Statistical Office (CSO), women make up approximately 41 per cent of the national workforce.

However, in the energy sector (petroleum and gas sector, including production, refining 10 and service contractors), women accounted for less than 20 per cent

of that segment of the workforce in 2017.

"On this basis, we would support the country to work on these new market opportunities bearing in mind closing of the gender gap," it said.

Additionally, the study explained as new skills and competencies will be required in the new processes to expand the production of renewable energy and launch green hydrogen production; the country will have to rigorously manage the transition to ensure that no worker is left behind and there are proper safety nets built to protect those who are most vulnerable.

Experience from other countries indicates that an important activity in a fair and just transition is to provide proper retooling and reskilling to the workforce.

In this respect, T&T is in a very advantageous position considering its expertise built over time in offshore hydrocarbon operations which can be transferable to offshore renewable energy production.

"These emerging activities in T&T will be deployed combining the latest and most modern digital tools and technologies. These activities will also contribute to and be aligned with T&T's Digital Transformation Strategy 2023 to 2026, in particular the categories of Digital Economy and Digital Government," the study added.

The IDB is also implementing a country strategy with this country for 2021 to 2025, which aims to help it advance its digital transformation agenda to achieve more sustainable and inclusive growth.