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# Colombia chases clean hydrogen potential

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While exports would enable economies of scale, Colombia's refining and mobility sectors could provide a springboard for development, writes Pamela Machado

London, 23 April (Argus) — Colombia has not received the same widespread attention for its hydrogen ambitions as South American peers such as Chile or Brazil. But the country has a solid project pipeline, ample scope for domestic clean hydrogen use, and financial incentives for developers — although early plans are facing the teething problems common to the industry.

As of late last year, 28 renewable or low-carbon hydrogen projects were planned across the country, data from industry body Hidrogeno Colombia show. Most projects are still at very early development stages, but the association says the plans put the country on track to reach 4GW of electrolyser capacity by 2030 — exceeding even the top end of the government's 1-3GW target.

Some firms are planning large export-oriented projects and these will be key for reaching economies of scale and for spurring transport infrastructure development, helping Colombia "get a better price for national and local consumption", says Hidrogen Colombia's president, Monica Gasca. The country has an ambitious renewable hydrogen production cost target of $1.70/kg — a level that should make exports competitive with those from countries including Chile and Australia.

But Gasca notes that there is ample scope for domestic use of renewable or low-carbon hydrogen too. Replacing grey hydroge at national oil company Ecopetrol's refineries in Cartagena and Barrancabermeja would be an obvious starting point. Of the 155,000 t/yr of natural gas-based hydrogen with unabated emissions that Colombia currently consumes, over 80pc is used in refining processes and Ecopetrol is planning to build a 60MW electrolyser plant next to each refinery. But the company has pushed back final investment decisions (FIDs) for the facilities, citing high costs and urging the government to provide more financial incentives.

This was despite Colombia having in 2021 already laid out incentives for renewable hydrogen projects, such as income tax benefits, exclusions from value-added tax on equipment, and import tariff exemptions for machinery — support measures tha many other hydrogen hopefuls in South America have not introduced. More support might be on the table, as President Gustav Petro has proposed the creation of a fund that would use royalties and taxes from the fossil fuel sector to help finance clean energy initiatives, including hydrogen. And Colombia could set up a hydrogen investment fund supported by international development banks, akin to a $1bn vehicle established for Chilean projects last year, Gasca says.

In any event, Ecopetrol's 60MW plants would only be a start towards cleaning up refining operations. They would arguably replace less than 10pc of the refineries' hydrogen demand, while the government wants at least 40pc of industrial hydrogen use to be renewable or low-carbon by 2030.

Clean hydrogen could also be directed to fertiliser production. Colombia currently uses around 2mn t/yr of fertiliser, based on government estimates, but most of its needs are met by imports, notably from Trinidad and Tobago.

Bogota also sees a key role for hydrogen in mobility — especially for heavy-duty applications. With Colombia's mountainous geography requiring many steep climbs, hydrogen-powered trucks and other vehicles will be more energy efficient than their battery-electric counterparts, Gasca notes. In its roadmap, the government set a target of 3,500 light and heavy-duty fuel cel vehicles for 2030 and wants 50-100 hydrogen refuelling stations up and running by then.

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