

INTERVIEW

Colombia will focus on green H2, but not exclusively

Countries in South America have big ambitions for clean hydrogen production and Colombia is no exception. Colombia is targeting 1-3GW of electrolyser capacity by 2030, and is also looking into natural gas-based output with carbon capture and storage and on naturally occurring subsurface hydrogen. In the long run, exports might provide lucrative opportunities, but hydrogen could initially help clean up domestic processes – although state-owned Ecopetrol recently postponed final investment decisions for two electrolysis plants at its refineries. Argus spoke with Monica Gasca, president of industry association Hidrogeno Colombia, about the country’s project pipeline, its distinct advantages, challenges and policy support measures. Edited highlights follow:

Selected H2 targets in South America	
Country	2030 target
Argentina	300,000 t/yr low-carbon H2 (from renewables, nuclear power and natural gas with carbon capture)
Chile	25GW electrolyser capacity installed or under development; renewable H2 production costs below \$1.50/kg
Colombia	1-3GW electrolyser capacity; 50,000 t/yr blue H2; H2 production costs at \$1.70/kg
Ecuador	1GW electrolyser capacity
Uruguay	500MW-1GW electrolyser capacity fed by 1-2GW renewable power

– Argus

Are companies embracing hydrogen opportunities in Colombia?

Currently, we have 50 companies in the association. Most of them are from abroad, trying to investment in Colombia. We are tracking 28 projects under development. Most of them are in the Caribbean, in the north of the country, because that’s where we have a lot of solar and wind. We have ports in Guajira, Cartagena and Barranquilla that can be used for exports to Europe and Asia. We also have scope for some domestic demand. In Colombia, demand for hydrogen has traditionally come from refineries. We have one in Cartagena and one in Barrancabermeja. We also have some food companies that use a little bit of hydrogen. Glass companies are currently using hydrogen produced through electrolyzers, but they take energy from the grid, so it’s not completely renewable.

What about the prospects for natural gas-based hydrogen with carbon capture?

We have the opportunity to continue exploring natural gas. There is the target in the national hydrogen roadmap to have a 50,000 t/yr blue hydrogen plant by 2030, but we are not seeing developments in carbon storage. We haven’t seen a study on sites to store carbon, and without that you cannot do the financial analysis of the project. Of the 28 listed projects, most are for green hydrogen. There’s one plant for 190,000 t/yr of blue hydrogen, but it is in a really early state. I would say Colombia is going to focus on green hydrogen because internationally people are tending to go greener. Europe is going really green. Maybe Japan and Korea will have a little bit of a margin, but everyone is trying to go green.

And naturally-occurring subsurface hydrogen?

We are an exporting country in the oil and gas sector and we want our companies to continue to have business opportunities. Our national oil company Ecopetrol is really invested in finding white hydrogen. Colombia has the type of rock in the Pacific that can produce white hydrogen, and we have some oil rigs that have seen hydrogen through the years. Recently, we had an expert in white hydrogen from France showing us possibilities. If we have this opportunity, it could be great for national consumption. But we need to be careful with the environmental aspects of natural hydrogen – is this really renewable? How many years will it be active? We also need to look at what is in the mix because it can come with helium – and that’s OK because helium could be a side business and it’s not bad for the environment. But if it comes with methane or carbon and you need to clean it, that’s going to bump up the price and it is not going to be that competitive.

What challenges do you see in developing projects?

There is a challenge we need to address – to be mindful of the indigenous communities in the La Guajira region. This is something that has been happening



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in Colombia since oil and gas businesses started to develop. These groups are nomads, they move between Colombia and Venezuela. So when you start doing a project, you do a consultation process and sometimes at the beginning you have 20 communities and then they continue to appear. If you come to La Guajira to develop these projects, you have to be honest with yourself and say 'I need to have a really good social team. I need to get these communities on board first.' That is one mistake that we made with the renewable energy industry. We are trying to fix that with hydrogen, trying to come in really early to the communities and show that it will create stable jobs for a long period of time, and create infrastructure too.

I think Colombia has an advantage over Chile, for example – we have a lot of hydropower

Are there incentive mechanisms in place for project developers?

There are no subsidies for green hydrogen yet, and I don't think there will be for the next year. What we do is give tax incentives for these new technologies and renewable energy. The incentives help developers by reducing the income tax and value-added tax and removing customs duties. We're also trying to structure a finance facility that looks like the Chilean one that was developed by development agency Corfo. We had the first launch last year, now we have to go into the deployment and develop the financing. We are talking with the multilateral institutions. Chile now has \$1bn for this facility and we're expecting to get the same amount to help projects on the demand and supply sides. In Colombia, the supply side is ready, but there's something missing out there and we think that is the demand. Europe and Asia have these aggressive climate change goals and they need hydrogen, and we're ready to produce that green hydrogen. But we need offtakers to start signing the long-term contracts. If they don't sign, there's no warranty to develop the project.

What advantages does Colombia have over its peers in Latin America?

I think Colombia has an advantage when you look at it against Chile, for example, which is that we have a lot of hydropower. About 70pc of our electricity mix is hydropower and we still have potential to develop new hydropower plants with reservoirs and without them. And that's a good mix for producing green hydrogen because when you mix it with wind or solar – which are producing most of the time, and the hydropower plant provides a back-up – that will be clean and stable. That is what we need to have really competitive prices.

We are focusing on ammonia because of the opportunity to export hydrogen and because Colombia is an agricultural country

Is there a focus on any hydrogen derivative in particular?

We are focusing more on ammonia because while we have some biomass in the country, it's not as massive as in Brazil, for example. We are focusing on ammonia because of the opportunity to export hydrogen, and also because Colombia is an agricultural country. We use ammonia for our agriculture. This ammonia is currently imported mainly from Trinidad and Tobago. There is a question of price of course, because when you talk about fertilisers, at the end you are talking about food prices, and food prices affect inflation directly. So it's not an easy conversation to have, and we will need a contract for difference or some way of subsidising this change. In Colombia, we don't have a really high carbon tax. In Europe, you might get \$50-100/t of CO₂, but in Colombia, maybe you get \$5-10/t. So there's not a huge incentive to go into green fuels. It is priced too low and I haven't seen the government wanting to change this. Maybe the next government will try to do this, but when we have these conversations, it's always about the competitiveness of our country. So if we are bumping up the carbon price, we're going to be less competitive.