

## Hydrogen: Green Solution or Energy Colonialism?

Article by Gabriela Cabaña

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Amid Europe's ongoing rush for renewables, the EU has partnered up with Chile to supply its green hydrogen imports. Brussels and Santiago have touted the strategic and economic benefits of this partnership, but in reality, the negative effects of hydrogen projects on local Chilean communities are already visible in some parts of the country.

The years of green hydrogen being hailed as the solution for decarbonisation are over. In 2020 and 2021, several countries – including Chile, from where I am writing – set themselves the goal of becoming global energy players through green hydrogen. One of the main drivers of this interest was the European Commission's decision to make hydrogen a key element in meeting European decarbonisation targets. Various EU policies have contributed to ramping up the race for hydrogen production and transport infrastructures, both within and outside the continent. Today we can already see the first fruits of these efforts outside Europe's borders.

The promotion of hydrogen in Chile highlights the dynamics that Europe is developing with potential producers of the 10 million tonnes of renewable hydrogen it seeks to import by 2030. The first announcements of commercial exports of hydrogen-related products present early warning signs of environmental injustice and energy colonialism. The pursuit of a just transition demands that richer countries abandon their push for unlimited growth (even if it's branded as "green").

### Chile: prioritising export

Hydrogen is a versatile element: it is used in a variety of industrial processes, such as the manufacture of explosives and fertilisers, food processing, and the treatment of metals. However, the vast majority of hydrogen production today uses fossil fuels as feedstock. Therefore, there is a need to move towards "green" or carbon-free hydrogen, which it is hoped to take a leading role in the future as a fuel. In the form of hydrogen itself, its ammonia derivative, or carbon-neutral e-fuels (which first capture CO<sub>2</sub> from the environment and then release it when the fuel burns), hydrogen is seen as a solution to energy processes that are difficult to electrify. To make it "green," two things are required: non-conventional renewable energies such as wind and solar, and water in a high state of purity.

However, hydrogen's great promise comes at a cost for any country hoping to become an exporter. The energy needed to produce green hydrogen and derivatives such as ammonia is in direct competition with national resource needs. Critically, hydrogen production increases the demand for water in Chile, which is an increasingly water-stressed country.

For Chilean citizens, these challenges are most evident in the rising cost of electricity. Energy prices have continued to rise despite a growing share of renewable energies such as solar and wind in the national electricity grid. Chile has recently begun increasing electricity bills in response to debts owed to energy companies after previous price freezes. While the country may indeed be rich in the "energies of the future", this potential has not led to an abundance of cheap energy for its citizens.

Many Chileans – especially in the colder south – use firewood for heating, damaging both public health and forests. This is mainly due to a lack of affordable electricity, which has led to significant levels of energy poverty. Why, then, is “green” hydrogen favoured as an export product?

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The answer lies in the corporate capture of the energy market. The ecomodernist fantasy of hydrogen as cheap and abundant energy – illustrated by [President Gabriel Boric’s claim](#) that a single region of Chile could cover 13 per cent of the world’s demand for green hydrogen – is built on green capitalist ideas of “win-win” solutions. In theory, supply to Europe should translate into the growth of “local hubs” and employment. However, the conduct of the first green hydrogen companies in the country tells a very different story.

In 2023 and 2024, the Ministry of Energy created a [Green Hydrogen Action Plan](#) to complement Chile’s [Green Hydrogen Strategy](#), which was published in 2020 and laid out the vision for the future of the industry. The plan acknowledges the concerns raised by various stakeholders about the rapid pace of green hydrogen development. Public feedback to the original scheme highlighted, among other things, serious shortcomings in the approach to hydrogen production targets. A major issue was that the risks and impacts of the industry had not been studied before committing to extraction goals that well exceeded the country’s renewables capacity. Today, for example, Chile has 34 GW of net installed capacity, while the 2020 strategy aimed to increase the capacity associated with hydrogen production to 300 GW by 2050 – almost nine times more.

Citizens’ concerns about Chile’s green hydrogen plan pointed to the root cause of the problem: the strategy’s undemocratic origin. The initial consultation done by McKinsey and Co. to assess Chile’s future green hydrogen competitiveness had not taken into account socio-ecological considerations of storage capacity and compatibility of resource use with other needs at the territorial level.

## **Infringed rights and compromised ecosystems**

Two regions in Chile already offer useful lessons of a transition guided by the corporate interests behind green hydrogen. The first one is Antofagasta in northern Chile, which has tied the supply of green hydrogen and ammonia meant for local mining activity to future expectations for international export. [Some projects](#) there are “integral” and bring together solar farms, a hydrogen plant and export infrastructure in a single package. [Others](#) are presented as “green” despite being directly connected to the national electricity system, which is not entirely powered by renewable energy sources. This blurs the meaning of “green” hydrogen, which comes from the renewable energy used to produce it – itself a rather limited criterion for sustainability.

In addition to the fact that hydrogen plants need more water (supplied either by increasing seawater desalination or by using wastewater), the synthesis of green hydrogen increases the burden on solar and wind farms. Thus, Indigenous communities in the Puna de Atacama have to guard themselves not only from the lithium rush, but also from the creep of wind and solar farms onto their territories. Last year, the Lickan Antay Atacameña community of Peine [denounced](#) new energy plants in the territory that makes up part of their historical claim. They protest that the concessions of public lands have been made

without consulting them.

What this community draws attention to is not exceptional. Of all the solar projects currently under construction and operating in the Antofagasta region, none has been approved with an Environmental Impact Assessment – or the means of determining significant impacts on their surroundings. The use of a less demanding assessment (the Environmental Impact Statement) in these projects means that statutory rights and protections such as Indigenous consultation (Mandated under Convention 169 of the International Labour Organization, ILO) have not been respected as they should have been.

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In Taltal, in the south of Antofagasta, swathes of wind farms and solar-wind hybrids are planned. There, the Chango people have sought ways to defend their ancestral territory, which is threatened both in the Inner Pampas and on the coast, where large-scale green hydrogen projects have been proposed. Of particular concern is the use of desalinated water as Chile has poor regulation on the use of seawater for industrial processes. Fishermen on the coast of Antofagasta are looking on with frustration at the depletion of marine life, with no mechanisms in place to measure the impacts of multiple and growing industrial activities.

Another region where the consequences of the green hydrogen rush are visible is Magallanes in the far south, which is home to Chile's first e-fuel pilot. Highly Innovative Fuels (HIF) Global has been the only company to report successful commercial exports of carbon-neutral fuels from the area. The first shipment, limited to 24,600 litres of synthetic gasoline, was carried out in November 2023.

The southern region also expects to receive several “integrated” green hydrogen mega-projects, including wind farms, ports, pipelines, and desalination plants, such as the recently published Integrated project for the production and export of green ammonia. The 11 billion-dollar project will include 194 wind towers and is funded by HNH, a consortium comprising AustriaEnergy, Copenhagen Infrastructure Partners, and Oköwind. It is one of 18 green hydrogen projects on the agenda for Magallanes. Some of these schemes are located dangerously close to areas protected for their high ecological importance, such as the coastal wetland Bahía Lomas, which is classified as a Ramsar site (a category attributed to wetlands with international significance).

## **Energy hoarding**

The exploitation of hydrogen echoes some of the issues posed by lithium extraction as both efforts respond to the Global North's decarbonisation needs. Lithium and hydrogen formed a large part of the recently signed Advanced Framework Agreement between the EU and Chile, which aims to ensure “better access to clean raw materials and fuels”. However, while President Boric's National Lithium Strategy has a strong state component – creating a National Lithium Company and betting on public-private partnerships under the supervision of state companies such as Codelco – hydrogen has involved less state control.

The government's main actions so far include the promotion of commercial cooperation agreements and

the creation of wealth funds to encourage private investment. However, while the state's measures around lithium could be seen as more "progressive" (there was false talk of a "nationalisation" of lithium, something denied by the mining minister), the strategy launched in 2023 did not abide by any democratic process or consultation with communities in lithium-rich territories. That same year, more than 100 networks and communities denounced the National Lithium Strategy for violating the rights of Indigenous peoples, such as those guaranteed by Convention 169 of ILO.

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The Chilean government's unequivocal political support for the hydrogen industry is accompanied by the promise of significant economic benefits, especially job creation. The Chilean Green Hydrogen Association, for example, claims that jobs associated with the sector could reach 80,000 by 2030. However, citizens' organisations such as the Citizens' Panel on Hydrogen in Magallanes have warned that these claims and other corporate promises should be viewed with caution. Oftentimes, they point out, companies present projects to vulnerable communities with poor public services, making offers and promises that are hard to refuse.

A year ago, the same panel called for "a discussion on the compatibility of proposed social and territorial development with the installation of the H2 industry". Members of the network have pointed out that the large number of planned projects in the Magallanes region would affect species with critical conservation status, such as the Magellanic plover and other birds.

The incorporation of some monitoring tools and advisory councils in the 2024 Green Hydrogen Action Plan has failed to seriously address the underlying issue of the green hydrogen industry: the plan pushes for the same production targets set in the widely criticised 2020 scheme. While the push for green hydrogen is proposed as urgent and the case has been made to take advantage of a unique "window of opportunity", socio-environmental collectives are increasingly questioning the "green" label that is being given to this energy source. Additionally, conflicts can be expected to continue to escalate, given the aggressive scale of projects aimed at exporting hydrogen and its derivatives.

## **Alternative models**

Who is entitled to how much energy? Is it fair that one continent or group of countries, by concentrating power and resources, can demand a disproportionate amount of ecological resources to sustain its way of life? Just as Ireland has become a haven for data centres – which require ever more water and energy – hydrogen risks reproducing the same patterns of inequality, channelling ever more land, water, and materials to supply an increasingly obsolete form of civilisation. And while there are some small-scale hydrogen projects that are described as directly benefiting local communities, they are no more than token initiatives.

So, what are the alternatives? From a degrowth perspective, before talking about production and decarbonisation targets, it is necessary to critically examine the current energy consumption and needs of the world's richest societies. Degrowth intellectuals argue that the desire to continue to support the "imperial mode of living" of Europeans – is an inevitably colonialist political stance.

Fortunately, there are already alternative proposals that aim more directly at the degrowth of resources and energy use in the future and raise key questions about the energy transition. Whether with regard to [lithium](#) or other “critical” minerals needed for the energy transition, there is still considerable room for thinking about a society that has not only moved beyond fossil fuels but is also much more just and democratic.

This article draws from research and activism at [Fundación Tantí](#) and the [Panel Ciudadano de Hidrógeno Verde de Magallanes](#).

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