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## Renewable energies and 'green hydrogen': Renewing destruction?

*Industrial-scale renewable energy infrastructure has seen a revival in the agenda of the 'energy transition' and as part of the economic recovery plans in front of the pandemic. Besides, the production of so-called 'green hydrogen' from these projects adds another layer of injustices. The energy matrix and over consumption remain untouched.*

In a 2020 statement from the International Hydropower Association, the world's largest hydropower corporations are calling on governments for "fast-track planning approvals" to ensure new large dams construction can commence as soon as possible. (1) The hydro energy industry is also lobbying to make sure large dams are seen as essential to the economic recovery from the Covid-19 pandemic and to "the transition to net-zero carbon economies" (2), casting devastating projects as both 'clean' and central to a 'green energy transition'.

Industrial-scale renewable energy, including hydro, wind and solar, is positioned as a solution to our ever-increasing energy consumption. On top of this, the production of the so-called 'green hydrogen,' adds another layer of injustices related to this mega infrastructure. Yet, the replacement of the energy source by no means addresses the real problem posed by the excessive levels of energy consumption, which are driven by accumulative economic growth. This also leaves unchallenged the violence intrinsic to the societies that such energy powers. (3)

Many corporate and state actors are pushing for increasing their capacity to produce and use hydrogen as part of the 'green' recovery plans from the economic crisis caused by the pandemic. It is becoming central in the 'green transition' debates. The German government has announced plans to spend 9 billion euros (USD10.7 billion dollars) supporting its domestic hydrogen industry. (4) Likewise, the European Commission has started to promote hydrogen as a way of cutting carbon emissions and reaching its Green Deal climate targets. The EU plans to scale up 'renewable hydrogen' projects and invest a cumulative amount of 470 billion euros (USD740 billion dollars) by 2050. (5) Moreover, US Energy Secretary, Jennifer Granholm, said that hydrogen "will help decarbonize high-polluting heavy-duty and industrial sectors [in the United States] (...) and realizing a net-zero economy by 2050." (6)

### ***What is 'green hydrogen'?***

Typically, 'green hydrogen' or 'renewable hydrogen' refers to the generation of hydrogen energy without using fossil fuels. The most common technique is to extract hydrogen from water, which is two parts hydrogen and one part oxygen (H<sub>2</sub>O). A process called electrolysis splits the water molecule into its two constituent elements. Thus, to produce 'green hydrogen' one needs water, an electrolyzer and plentiful supplies of electricity. If the electricity comes from renewable sources, such as wind, solar or hydro, then the hydrogen is categorized as 'green.' Hydrogen can then be used in roughly two ways. It can be burnt to produce heat or fed into a fuel cell to make electricity.

Storing and transporting the highly flammable gas is not easy; it takes up a lot of space. Because of this, the bulk transport of 'green hydrogen' requires dedicated pipelines, pressurizing the gas, or

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cooling it to a liquid. Additionally, it is crucial to highlight that producing 'green hydrogen' can require as much as nine kilograms of high-purity water per kilogram of hydrogen. (7) This might dispute the resource with other needs and uses of clean water, which is increasingly becoming scarce.

Major oil companies like Shell and BP have already announced investments in the production of 'green hydrogen.' (8) And several major 'green hydrogen' projects are already being planned or under development by the governments of Canada, China, Germany, Japan, Norway, Portugal, the United States, UK, The Netherlands, Australia, and others.

Nowadays, producing 'green hydrogen' has turned into one more justification by which vested interests fast-track the construction of large-scale renewable energy infrastructure. The harmful impacts for communities and the life spaces that get destroyed by the construction of this infrastructure remain largely hidden.

This is the case of The Grand Inga project in the Democratic Republic of Congo (DRC), with the controversial mega dam 'Inga 3' currently threatening communities living with and along the Congo River.

On June 15, 2021, DRC's government announced that Australian Fortescue Metals Group would develop The Grand Inga hydroelectric power project. Fortescue is the world's fourth-largest iron ore miner, and has set a plan to become 'carbon neutral' by 2030; 10 years earlier than its previous target. Fortescue Future Industries (FFI), a wholly-owned subsidiary of Fortescue, is advancing projects to build large-scale renewable energy and 'green hydrogen' production capacity.

Andrew Forrest, chairman of Fortescue, said in a press release in April 2021, "Our aim is to provide the two 'missing links' in the climate change battle, to create both the demand and the supply of green hydrogen. Due to its high-energy performance and environmental neutrality, green hydrogen and direct green electricity has the potential to eliminate fossil fuels from supply chains. Once established, these advances will also substantially reduce Fortescue's operating costs." (9)

### ***The Grand Inga in DRC: a chain of dispossessions***

The Grand Inga refers to a series of dams proposed for the lower Congo River. This is the world's second largest river in terms of flow rate, after the Amazon, and the second longest river in Africa, after the Nile River. The plan is to construct The Grand Inga in seven phases. Inga 1 and Inga 2 were commissioned in 1972 and 1982 respectively. Inga 3 is the next in line, a project filled with controversies and criticisms. The Inga 3 site is on the world's largest waterfall by volume, the Inga Falls, which consist of a series of falls and rapids that drop in elevation via small rapids.

It is a fact that people living in DRC need power: more than 90% of the population lack access to the electricity grid. DRC's capital, Kinshasa, has over 10 million inhabitants and less than 30% of them have access to electricity. Despite this huge energy divide, a series of high-voltage transmission lines would tap the proposed Inga 3 mega dam power and transport the electricity to industrial and urban centres far away. These transmission lines will not bring power to the Congolese people. (10)

Inga 1 and Inga 2 forcibly displaced communities without compensation, resettled them into camps, deteriorating their standards of living, and negatively affecting their livelihoods. Many still live in 'Camp Kinshasa' without basic services such as adequate water and sanitation. Not only will the construction of Inga 3 deepen poverty-induced 'development', generational debt and human rights violations, but also the mega dam will adversely affect DRC's freshwater ecosystems. Inga 3 would

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flood the Bundi Valley, affecting agricultural lands and diverse territories. The valley is also a cultural cradle, home to cemeteries, sacred sites, including those for ancestral rites practices. The effect of a reduced flow in the river may cause loss of biodiversity and a shift in the dominant species. The flooded area may also create an environment that is conducive for the breeding of water-borne vectors such as malaria with the malanquin mosquito. The dam might, moreover, cause huge methane emissions, contributing to global warming. (11) The director of the Agency for the Development and Promotion of The Grand Inga, Bruno Kapandji, estimates that 37,000 people would be displaced by Inga 3. (12)

The Grand Inga project, including the Inga 3 dam, was already conceded to a Chinese consortium that includes China Three Gorges Corporation and a Spanish consortium that includes AEE Power. The deal was signed in 2018, but, due to concerns over financial viability, construction has not yet begun. DRC's top infrastructure advisor, Alexy Kayembe De Bampende, said in June 2021 that The Grand Inga project will now be led by Fortescue and that the "Chinese [and Spanish] company are welcome to join Fortescue." (13) Fortescue's chairman has declared that the company will use the energy to produce hydrogen to export around the world. (14)

### ***'Green hydrogen': a façade for further pollution and dispossession***

The revival of the incredible huge Grand Inga project – if built, it would be the world's largest hydropower scheme – would be ignoring the long resistance of communities already affected by Inga 1 and 2 and those that would be affected by Inga 3. (15) It would be a direct violation against the Congo River and the communities that co-exist with and depend on it.

The push and promotion of 'green hydrogen' as the 'fuel of the future,' and the path towards a 'hydrogen economy,' is an alarm for communities around the world fighting against mega infrastructure for renewable energy. This push is also a clear signal of how the current unequal and unjust energy matrix will remain untouched under the so-called 'green economy.'

Fortescue's 'green hydrogen' will not deliver energy to the 90% of Congolese that lack it. Besides, the impacts and pollution of the construction of the mega dam as well as the liquefaction facilities and the transport of the fuel to consumers and industries in mostly the global North, remain concealed.

And DRC is not the only country targeted by Fortescue. The company is planning to build a 'green hydrogen' plant in the Rio de Janeiro state, Brazil, which would be powered by solar and wind energy projects. Similarly, in November 2020, the company announced it was considering a 250-MW 'green hydrogen' plant in Tasmania. (16) The company is also venturing to Indonesia and Papua New Guinea to find hydropower resources. (17) Fortescue even pretends to label the steel industry as 'green steel' by providing 'green hydrogen' as fuel for the industry. (18)

Other companies and governments are also advancing with 'green hydrogen' projects around the world. Morocco signed in 2020 a Memorandum of Understanding with Germany over potential production of this fuel. (19) EneGix Energy signed a Memorandum of Understanding with the government of the Brazilian state of Ceará to build the world's largest 'green hydrogen' plant, which will be powered by large wind projects (see article in this bulletin on the local impacts in Ceará). (20) Similarly, in Chile, HIF, a consortium that includes Dutch-AME, Italian-Enel Green Power, German-Porsche, German-Siemens Energy and the collaboration of the Chilean national energy company Enap, has announced the first 'green hydrogen' project in the country, powered by wind mills. (21)

### ***Just energy sovereignty!***

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The statement from the International Hydropower Association mentioned at the beginning of this article is definitely a hard pill to swallow for the tens of millions of people whose lives and livelihoods have been directly violated by the construction of mega dams around the world, as in the cases of Inga 1 and Inga 2.

Industrial scale renewable energy infrastructure and the 'green hydrogen' industries, as well as their financial backers, conceal the devastating social effects of such large scale infrastructure and are silent about the extreme impacts to life spaces, biodiversity, freshwater sources, forests, fertile land and many others.

Instead of fast-tracking more destruction and pollution, governments must prioritize a localized, off-grid and just energy access that respects river ecosystems, life spaces and its communities. The tactic of labelling 'green hydrogen' as the 'fuel of the future' is a desperate attempt of keeping the increasing production and consumption levels untouched, along with the inequalities that this triggers. Discrimination, racism and exploitation are reinforced by the imposition of this energy matrix and mega infrastructures, which in turn feeds an unjust energy system that mainly benefits big industries.

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