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GREEN HYDROGEN AND ESG: TOGETHER ON THE PATH OF GREEN RECOVERY IN BRAZIL

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Two themes that have been effervescent in the industrial sector and in corporate world are green hydrogen and ESG (acronym for Environmental, Social and Governance, which, in Portuguese, corresponds to *Ambiental*, *Social* and *Governança*). Quite different at first glance, these two issues relate in a unique way and bring opportunities and advantages for entrepreneurs and investors, especially in Brazil.

Although the adoption of a business strategy based on the environmental, social and governance aspects and implications has been debated for some time, it is undeniable that this theme has gained greater relevance recently, when many companies and governments had to restructure and adapt to changes imposed by social isolation measures to contain the Covid-19 pandemic.

The health crisis on a global scale revealed the weaknesses of economic strategies currently adopted, highlighting the need of reviewing modes of production, consumption and, mainly, the relationship of people, companies, leaders and nations with the environment. Nowadays, much is said about economies' "green recovery" and " stakeholder capitalism", in opposition to "shareholders capitalism". It is time for nations and corporations to take advantage of the crisis and the efforts undertaken in economic recovery and (re)affirm commitments and agendas in favor of sustainability.

The recent announcement of green hydrogen production initiatives and investments in Brazil and the imminent edition of a National Hydrogen Program, which should be approved by the end of 2021[1] by the National Congress, revived discussions on the feasibility of hydrogen and opportunities related to its use in various markets and sectors.

Hydrogen is one of the main industrial insums,[2] with wide application and aptitude to optimize several processes and products, but the high production cost has limited its use in the country. Obtaining hydrogen mostly involves using polluting energy sources such as oil, natural gas, or coal. The green variety corresponds to hydrogen produced by using energy from renewable sources (such as wind, solar and biofuels) and applying electrolysis to separate hydrogen from oxygen on water molecules.

However, the consortium of large-scale renewable energy generation projects with green hydrogen plants has proven to be an increasingly feasible way to overcome the obstacles to production and use of this element on a large scale, especially in face of the continuously price rising of fossil fuels and consequential increase in the competitiveness of alternative energy sources. In this context, Brazil has a frank and undeniable competitive advantage to this important global energy transition tool, with his 80% renewable sources composed energy matrix.

Green hydrogen, especially on energy sector, may be the key to guarantee Brazil's protagonism on economical restructuring based on ESG strategies, assuming the role of a fundamental component of the Brazilian energy matrix.

As an environmental corporate strategy, green hydrogen is an important tool for decarbonization of the economy, industrial processes and transportation sector by reducing greenhouse gas (GHG) emissions and serving as a very interesting tool for achieving Sustainable Development Goals (SDGs)[3] and other sustainability goals, especially if positive aspects of reducing carbon emissions and the potential credit of renewable energy are observed.

In the social aspect, the production of green hydrogen on a commercial scale and the production, storage and distribution chains structuring in the country will demand large investments, resulting in thousands of new jobs and greater income generation.

Considering Brazil's energy potential, especially the one concentrated in North and Northeast regions and focused on clean energy (wind, solar and hydro) production, the implementation of green hydrogen related initiatives can imply on an important economic development of these regions, with greater investment, better income distribution and the reduction of social inequalities. In addition, green hydrogen is expected to promote the unification of the fuel, industrial and electric markets, given its versatility and multiple application.

From the point of view of governance, while the production and distribution of green hydrogen in Brazil is moving towards becoming a reality, government institutions and instruments must prepare legal, economic and regulatory scenarios conducive to the integration of the green hydrogen chain to Brazilian energy policy, involving civil society and business sectors, as well as directing efforts and resources towards an economic restructuring integrated with the ideals and agendas aligned with the issue of sustainability.

It is necessary, therefore, to closely monitor the Brazilian regulatory scenario and the mobilization of its authorities to establish the National Hydrogen Program, as well as be open to the numerous opportunities of green recovery

tied to green hydrogen as an important strategy to strengthen the ESG aspects and decarbonization initiatives of Brazilian economy.

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[1] Regarding this theme, Resolution No. 6 of April 20, 2021, of the National Energy Policy Council, determined that Ministry of Mines and Energy submit a proposal of National Hydrogen Program guidelines within 60 days (counted from this resolution publication, which took place on May 17, 2021).

[2] Used in the food, agribusiness, petrochemical, mining, technology and energy industries.

[3] The Sustainable Development Goals are a global agenda agreed by the 193 United Nations (UN) member countries composed of 17 objectives and 169 goals to be achieved by 2030, with commitments aimed at eradicating poverty, food security, health, education, gender equality, reducing of inequalities, energy, water and sanitation, sustainable patterns of production and consumption, climate change, sustainable cities, protection and sustainable use of oceans and terrestrial ecosystems, inclusive economic growth, infrastructure, industrialization and others.