INTERNATIONAL PARTNERSHIP FOR HYDROGEN AND FUEL CELLS IN THE ECONOMY

IPHE Country Update Nov 2024 – May 2025: Brazil

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1. New Initiatives, Programs, and Policies on Hydrogen and Fuel Cells

- Hydrogen legal framework approved in Brazil: Laws 14.948/2024 and 14.990/2024
    - Guidelines the Brazilian Policies National Public for low-carbon hydrogen
        - Law 14.948/2024 instituted the legal framework of low-carbon hydrogen defining targets for its production, certification and use. The Law also created two more incentive mechanisms for low-carbon hydrogen: Brazilian Hydrogen Certification System (SBCH2) to ensure traceability and transparency in the production and commercialization of hydrogen. The Special Incentive Regime for the Production of Low-Carbon Hydrogen (Rehidro), which offers tax benefits, such as tax suspension, for companies involved in the production, distribution and commercialization of low-carbon hydrogen.
        - Law 14.990/2024 instituted the supply and use of low-carbon hydrogen as a clean and renewable energy. This program aims at the conceded tax credits in the commercialization of hydrogen and derivatives.
        - The National Institute of Metrology, Quality and Technology (INMETRO) was defined as an official accredited mechanism by the Government Committee of PNH2 (Coges-PNH2)
        - 2025 will be a year of more technical work for the regulation and certification of the hydrogen industry in Brazil
- Carbon Market: Bill of Law 2.148/2015 to Law 15.042/2024
    - Establishes the Brazilian Greenhouse Gas Emissions Trading System (SBCE)
        - The new legislation allows pollutant gas emissions to be converted into tradable financial assets, which attracts international investment, encourages environmental preservation and generates new income opportunities for Brazilians. In this context, the low-carbon hydrogen will become

one the energy solutions, due to its potential to help meet Brazil's decarbonization goals. Investments in low-carbon hydrogen, which kill and sell credits in the regulated market, become valuable instruments to attract investors.

- National Hydrogen Program (PNH2): Hydrogen Hubs
    - The Ministry of Mines and Energy (MME) releases results of a public call for hydrogen hubs focused on decarbonizing the industry. Seventy proposals were received, aligned with the PNH2 strategy, in all regions of the country, with different production sources, for different industrial uses.
    - Twelve proposals have been selected in this first stage of the Climate Investments Funds - Industry Decarbonization (CIF-ID). The proponents will be invited to expose the projects in detail. The funds will be used in engineering services, plant construction, equipment payment and other costs relative to the company's restructuring. The objectives of these investments will be to make Brazil one of the most competitive countries in the world in low-carbon hydrogen.
- Brazil Climate & Ecological Transformation Investment Platform (BIP)
    - BIP is a Brazilian government initiative created with the ambition of increasing investments in ecological transformation towards the decarbonization of the economy, including low-carbon hydrogen
    - The Brazilian government has announced the selection of projects from Acelen, Vale, Fortescue, Atlas Agro, and Meteoric – focused on biofuels, green hydrogen, and critical minerals – to join the BIP
- UK Pact
    - Comprehensive Strategic Plan for Hydrogen in Brazil: Mapping, Certification, Hubs, and Capacity Building for a Low-Emission Future
        - This project, led by the Brazilian Hydrogen Association (ABH2), aims to develop a comprehensive strategic plan for the advancement of low-emission hydrogen technologies, production, and utilization in Brazil. The project focuses on addressing critical gaps in regulation, capacity building, and market readiness for hydrogen deployment, supporting Brazil's additional decarbonization and transition to a lower-carbon economy, despite possessing one of the cleanest energy mixes among the world's main economies. Through a series of activities such as stakeholder workshops, conferences, interactive tools and project development, the project will enhance public and private sectors' knowledge, skills, and readiness for hydrogen adoption, also fostering iconic applications.

- Energy Scenarios of Brazil's National Energy Plan 2055 (PNE 2055)
    - EPE publishes the energy scenarios of the PNE 2055 that comply with the main inputs produced between March 2023 and June 2024 within the Scenarios Working Group framework, as part of the development of PNE 2055.
- EPE's Database on Hydrogen Production and Technical Potential in Brazil
    - https://gisepeprd2.epe.gov.br/arcgisportal/apps/storymaps/stories/68332aaa3fc64524a656583e1367daa3

2. Hydrogen and Fuel Cell R&D Update

- Mapping Study for the Brazilian Hydrogen R&D and Innovation Sector. This mapping study, conducted by the Brazilian Hydrogen Association (ABH2) and the Netherlands Innovation Network (NIN) provides a comprehensive overview of Brazil's hydrogen R&D and innovation sector. This collaboration has revealed valuable insights into science-based technological developments at various maturity levels in the landscape for low-carbon hydrogen in Brazil. (https://abh2.org/abh2-nin-rdi-mapping-study)
- Natural Hydrogen Fact Sheet
    - The Energy Research Company (EPE) publishes the Fact Sheet "Natural Hydrogen: Basic concepts and state of the art on one of the potential sources of renewable energy for decarbonization", in which it consolidates essential technical information on natural hydrogen.
- EPE's INOVAE Database on Research Investment and Patents in Energy Systems in Brazil

3. Demonstration, Deployments, and Workforce Developments Update

- Petrobras signs Memorandum of Understanding with CSN
    - This agreement represents a first step towards structuring a business partnership aimed at implementing a low-carbon hydrogen plant on a commercial scale in Paraná.
- Hydrogen Hubs
    - H2Orizonte Verde Project – CSN Group (RJ)
    - DRHy – EDP Renováveis Brasil (CE)
    - Camaçari H2V HUB – Neoenergia (BA)
    - Uberaba Green Fertilizer (UGF) – Atlas Agro (MG)
    - Hydrogen Hub – São Paulo – Petrobras (SP)

- H2 Açu Hub – Prumo Logística (RJ)
- B2H2 – Copel GET (PR)
- H2AL-BRUK – Solatio Holding Solar Project Management (SP)
- Cubatão H2V Hub – Eletrobras (SP)
- Hydrogen and Ammonia Hub in MG – Cemig Generation and Transmission (MG)
- H2V Project – Ecohydrogen Energy (BA)
- Suape TE HUB – Suape Industrial Port Complex (PE)

- Vale-GEP
  - The Vale-GEP partnership is in the feasibility study phase for a hydrogen production plant for hot-briquetted iron production

4. Events and Solicitations

- MME Workshop (13/03/25): Main guidelines for H2 regulation after Laws nº 14.948/2024 and 14.990/2024
- International Technical Mission (29/10/24 to 11/12/2024): “Strengthening the Renewable Energy Sector to Combat Climate Change – A Project for Brazil”
  - EPE took part in this mission focused on the hydrogen industry, which took place within the scope of the professional exchange program called "International Visitors for Leadership Program - IVLP", promoted by the US Department of State. The IVLP program agenda involved meetings with institutions linked to the development of hydrogen and renewable energies, as well as representatives of the federal government and local governments, taking place in the following US cities: Washington DC, Seattle WA, Pittsburgh PA and Morgantown WV.
- V Hydrogen Congress for Latin America and the Caribbean (H2LAC 2025)
  - São Paulo (SP), 15 to 16 July
- IV Brazilian Hydrogen Congress
  - Brasília (DF), 22 to 24 October
- Hydrogen Expo South America 2025
  - Rio de Janeiro (RJ), 11 to 12 June
- Latin America Green Energy & Hydrogen 2025
  - Rio de Janeiro (RJ), 25 to 26 March

5. Investments: Government and Collaborative Hydrogen and Fuel Cell Funding

- More Innovation Brazil - Renewable Energies (FINEP)
    - The Ministry of Science, Technology and Innovation (MCTI) and the Studies and Projects Financing Agency (Finep), with technical support from the Ministry of Mines and Energy (MME), the Ministry of Development, Industry, Commerce and Services (MDIC) and the National Bank for Economic and Social Development (BNDES) announced a public Selection aiming to grant economic subsidy resources for innovative and technologically risky projects, which one of the lines of research is the development of technologies for the production, storage, transport and use of low-carbon hydrogen
- Hydrogen Hubs
    - This program is one of the strategies of the National Hydrogen Program (PNH2), coordinated by the Ministry of Mines and Energy (MME), with the objective of consolidating integrated hubs for the production, storage, transportation and consumption of low-carbon hydrogen in Brazil by 2035. With the result of the Public Call of 2024, 12 projects were selected to be structured in detail.
- ANP Nave
    - With its first edition in 2025 this program aims to develop startups in production chains considered a priority for the oil, natural gas and biofuels sector.
- Call Projects ANEEL
    - The National Electric Energy Agency (ANEEL) has published Strategic Call for Research, Development and Innovation Project (PDI) No. 23, focusing on "Hydrogen in the Context of the Brazilian Electric Sector". Hydrogen can connect the electricity sector, several sectors of industry, and the economy, which is carbon-intensive and difficult to decarbonize. The public call is structured in two parts: "Parts and Components": focused on the development and nationalization of technologies for the hydrogen chain. In the second part, "Pilot Plant": aims at the implementation of plants for hydrogen, a low-carbon electricity source.

6. Regulations, Codes & Standards, and Safety Update

- Technical standards under work in ABNT CEE 067 – Hydrogen Technologies.

Code	Title	Status
067:000.000-003-7-1	Fuel Cell Technology - Part 7-1: Test Methods - Single Cell Performance Tests for Polymer Electrolyte Fuel Cells (PEFC)	Commission
067:000.000-007	Hydrogen detection equipment - Stationary applications	Commission
067:000.000-008-8	Gaseous hydrogen — Fueling stations — Part 8: Fuel quality control	Commission
067:000.000-010	Hydrogen Technologies — Methodology for determining greenhouse gas emissions associated with the production, packaging and transportation of hydrogen to the consumer gate	Commission
ABNT IEC/TS 62282-7-2	Fuel Cell Technologies - Part 7-2: Test Methods - Single Cell and Stack Performance Testing for Solid Oxide Fuel Cells (SOFC)	Technical Committee
ABNT ISO/TR 15916	Basic considerations for the safety of hydrogen systems	Technical Committee