TEAM EUROPE INITIATIVE

Green hydrogen cooperation with Chile:

FAST FORWARD TO CARBON-NEUTRALITY

The **Team Europe Initiative (TEI) on Green Hydrogen (GH2) development in Chile**, is a joint effort of the EU and its Member States to foster cooperation with Chile for the development of its green hydrogen economy. The aim is to boost investment opportunities in the field of green hydrogen in Chile by supporting the creation of an attractive enabling environment, providing concessional financing, promoting collaboration in R&D and fostering business cooperation and technology transfer. **The GH2 TEI initiative will support the decarbonisation of the Chilean economy, creating green jobs and generating business opportunities for Chilean and European companies, whilst meeting Europe's own demand for import of green hydrogen.**

As part of the European Green Deal announced in December 2019, the EU aims to achieve climate neutrality by 2050. Europe needs to speed up its energy transition and reduce greenhouse emissions by at least 55% over this decade compared to levels in 1990. Green hydrogen is considered a strategic component of the energy transition not only for fulfilling climate targets but also for economic development and European industrial leadership in hydrogen-based technologies worldwide. In the context of *REPowerEU: Joint European Action for more affordable, secure and sustainable energy, the EU aims to increase its target for renewable hydrogen from 5.6 to 20.6 million tonnes by 2030.* ***Ten million tonnes of the planned 15 million tonnes increase in green hydrogen should be imported.***

Chile is recognised as one of the leading global candidates and LAC front runner for cheap GH_2 production due to its enormous renewable energy resources and ambitious GH_2 strategy. The "Future of Hydrogen" report of the International Energy Agency (IEA, 2019) highlights that the country by itself could produce 160 million tons (Mt) per year at production costs lower than 2 USD/kg.

The Chilean Ministry of Energy published its first "National Green Hydrogen Strategy" in November 2020, establishing the country's main hydrogen production, storage, and export goals in the short and long term, targeting the deployment of 25 GW electrolysis (operational or under development) by 2030 and the production of the worldwide cheapest GH_2 <1.5 USD/kg.

There is currently a portfolio of more than sixty GH_2 projects and six R&D efforts in Chile. Most of these projects are at a very early stage of development. Still, some have already pilots under construction and are targeting long-term purchase agreements that could secure their commercial viability. Several European private companies are involved in developing GH2 investment projects for the production of ammonia, e-fuels and GH2 export. In addition, European engineering consulting companies, which have already developed green hydrogen projects in Europe, have offices in Chile. The Ports of Rotterdam, Antwerp and Hamburg have already signed MoUs with the Chilean Ministry of Energy to pave the way for importing green hydrogen from Chile.

Chile shares the main global challenges and needs in terms of GH_2 policy:

- Need for a certification scheme that would account for the guarantee of origin for GH_2 production to ensure low-carbon H_2 market development;
- H_2 tailored policies and incentives for low-carbon H_2 adoption in replacement of fossil fuels that can boost business development;
- Mobilisation of financing to facilitate investments and infrastructure deployment;
- Support to R&D and innovation to assist market readiness of GH_2 technologies.

To address these challenges, the EU and its Member States have developed a Team Europe Initiative that foresees actions in the following areas:

A) **S**trengthening the enabling environment for the green hydrogen economy
B) Supporting Technological Development and Human Capital
C) Market Development/Business Cooperation
D) Project Development/Finance

The ongoing and future actions in each of these areas developed by EU and its Member States are described below. Most of the future EU technical assistance actions will be funded through the **4MEUR Chile Country Window under the new Euroclima Programme for Latin America and the Caribbean**, co-financed with another 4MEUR by the German Ministry of Energy, Environment and Climate Change (BMWK): "*Renewable Hydrogen Development Chile" project.*
Direct project finance will sought to be mobilised through the Latin American and Caribbean Investment Facility (LACIF), the **European Fund for Sustainable Development Plus (guarantee schemes) and European Financial Institutions**, as well as export credit agencies and investment funds.

A) Strengthening the enabling environment for the green hydrogen economy

Actions:

- Providing regulatory development support through **GH2 regulation codes and standards (RCS) development.**
- Providing assistance for **policy development and analysis**, e.g. relating to the impact and design of new carbon pricing instruments, green taxonomy / green bonds and/or certificate of origin schemes, regional climate action plans development for Antofagasta and Magallanes including green hydrogen development.
- **Assessing** expected **infrastructure** investments and upgrades required at national level; specific attention on shared infrastructure that can enable the development of hydrogen valleys/islands or hubs (linked to Chile's participation in Mission Innovation and FCH-JU).

Support programmes

EU:

RCS development: "*Renewable Hydrogen Development Chile" project*
Policy development and analysis: "*Renewable Hydrogen Development Chile" project*, Euroclima+, Copernicus, EU-Chile Triangular Cooperation Fund (support for policy development in third LAC countries)

Assessment infrastructure needs: "*Renewable Hydrogen Development Chile" project*, Clean Hydrogen Alliance

EU Member States:

RCS development: GIZ (4E Programme)
Policy development and analysis: GIZ (4E Programme), Netherlands (pilot on certification)
Assessment infrastructure needs: GIZ (4E Programme), Netherlands (Port of Rotterdam/KIWA/DNV GL)

B) Supporting Technological Development and Human Capital

Actions:

- Providing support for GH2 prospective **platforms and tools for market appraisals**, including the development of interactive maps to assess solar and wind potential for costs appraisal, for which the **EU Copernicus earth observation programme could provide key data**.
- Promoting continued Chilean participation in **research and training activities** with focus on production, distribution, and storage of clean hydrogen.

Support programmes

EU:

Prospective tools: "*Renewable Hydrogen Development Chile" project*, Copernicus Earth Observation
Research and training: "*Renewable Hydrogen Development Chile" project*, Erasmus+, Marie Curie Action, **Horizon Europa/Clean Hydrogen** Partnership **(FCH-JU), Joint Research Center**

C) Market development/business cooperation

Actions:

- Developing market studies, organise seminars, high-level events and other collaboration activities to promote GH2 market strengthening.
- Carrying out networking/matchmaking activities (i.e. business rounds and exchanges) between European and Chilean and Latin American organizations to promote business, technological, logistical cooperation and generate aggregate demand and supply for GH2 production and applications.

Support programmes:

EU:

Market development: "*Renewable Hydrogen Development Chile" project*
Business cooperation: "*Renewable Hydrogen Development Chile" project*, Low Carbon Business Action (LCBA): specialises in *tailor-made matchmaking actions* between European and several Latin American countries, sourcing European technology and finance.

EU Member States:

Market development: Netherlands market study in 6 LA countries, import feasibility studies Port of Rotterdam, Finland market study on GH2 Chile

- **Business cooperation:** matchmaking activities by Hydrogen Associations, Energy Agencies, Chambers of Commerce and MS Embassies (e.g. PT, SP, IT, DK, FI, NL, AU, FR, DE, SE); through H2Global, Germany will implement a **double auction** programme based on a contract for differences scheme to support both supply and demand of H_2. It is open to international partnerships.

D) Project development/finance

Actions:

- Technically supporting the **design and development of GH_2 production and application projects** in different sectors and activities.
- Financing of **GH2 production/application projects and technology**, inter alia making use of the Latin American and Caribbean Investment Facility and the European Fund for Sustainable Development Plus (EFSD+) and loans provided by European Financing Institutions (EFIs) & export credit agencies.

Support programmes:

EU:

Project development support: EU-Chile Development in Transition Facility, "*Renewable Hydrogen Development Chile" project*
Project finance: NAMA Facility for auto-consumption of renewable energy, Low Carbon Business Action, Latin American and Caribbean Investment Facility: **grant** financing for blending with loans from EFIs (incl EIB) and technical assistance, **European Fund for Sustainable Development Plus:** guarantees for projects and infrastructure.

EU Member States:

Project development support: Germany GIZ (4E Programme), Netherlands DHI instrument
Project finance: Grants - Germany finances innovative pilot GH2 projects abroad through its EUR 200 M International GH2 strategy (e.g. synthetic fuel Project Haru Oni).
Loans: SBI-BMI (BE), COFIDES, ICO and FIEM (ES), Simest (IT), KfW (DE) Proparco (FR), IFU (DK), Invest International (NL) can provide loans in high-income countries; in addition, most Member States have **export credit agencies** that can play a specific role in opening markets for technology suppliers.