HYDROGEN PLEDGES

Sustainable Markets Initiative - WBCSD

The World Business Council for Sustainable Development (WBCSD) and The Sustainable Markets Initiative (SMI) gathered ambitious companies to drive growth in the demand for, and supply of, hydrogen - an essential part of the future net-zero energy system.

Pledges across three categories – demand, supply and financial or technical support – have been made by 28 companies representing different sectors from mining to energy, vehicle and equipment manufacturers, and financial services.

The Hydrogen Council estimates that in 2030, the decarbonisation potential for hydrogen could equate to approximately 800 million tonnes per annum (mtpa) of carbon dioxide (CO_2) emissions avoided. The pledges announced already equate to nearly one quarter of this total.

Read the full press release from COP26 here.

November 2021

Sustainable Markets Initiative

wbcsd

COMPANIES PLEDGING

8 RIVERS

acciona energía

AngloAmerican

BANK OF AMERICA

bp

CLP 中電

Cummins

EDF

edp

enel

ENGIE

equinor

ERM

FORTESCUE FUTURE INDUSTRIES

Hinicio

IBERDROLA

ITM POWER

JM Johnson Matthey

Linde

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snam

TotalEnergies

YARA

YOKOGAWA

YOSEMITE CLEAN ENERGY

DEMAND AND SUPPLY SIDE PLEDGES

ACCIONA ENERGIA

At ACCIONA Energía we are committed to the creation of a robust renewable hydrogen ecosystem that helps meet decarbonization targets in an environment of economic growth. To this end, ACCIONA Energía recently teamed up to establish a joint venture with Plug Power, through which we target to achieve a 20% market share in the renewable hydrogen business in Spain and Portugal by 2030, through an initially planned investment of more than €2 billion.

ANGLO AMERICAN

We are currently in the process of engineering world-class green hydrogen technologies – including the world's first 2000kw hydrogen fuel-cell powered ultra-class mine haul truck and producing green hydrogen at our mine sites.

- We pledge to both produce and consume 100 kilo tonnes of green hydrogen per year by 2030.
- We pledge to develop green hydrogen production systems at 7 of our open cut sites by 2030, with 3-8 hydrogen refuelling facilities at each, based on their haul truck fleet size.
- We pledge that by 2030 we will convert all our diesel-powered ultra-class mine haul trucks at these sites to green hydrogen power, as well as to stimulate a wide range of hydrogen associated industries and opportunities within our host communities.

bp

By 2030 bp aims to participate in:

- Production of at least 500ktpa new gross low and ultra-low carbon hydrogen in core markets, with up to 50% ultra-low carbon hydrogen from renewable sources. Some of this new production will be used in our European refineries as a substitute for the natural-gas based SMR-grey hydrogen currently used.
- More than 50 hydrogen refuelling stations dispensing low carbon and renewable ultra-low carbon hydrogen, with an initial focus in Germany and the UK.

CLP

To support CLP's Climate Vision 2050, we are committed to provide a net-zero electricity supply to our customers by that date. As part of this commitment, we expect to transition our natural gas generation units to run on 'low carbon hydrogen' during the 2030s and 2040s. To do so, we will need not only Government support but the market to provide us with an average of around 550ktpa of 'low carbon hydrogen', delivered to our generation plants at a cost competitive to other alternatives which in today's prices would equate to less than US$2 per kg. This pledge is therefore both a clear commitment to increase the use of hydrogen as a zero-carbon fuel in generation but also a challenge to potential producers to develop additional capacity at scale and commercially attractive prices, to help us underpin our world class electricity supply reliability over the long term.

CUMMINS

Cummins' next generation environmental sustainability strategy looks out to 2050, setting quantifiable goals for 2030 along with visionary longer-term aspirations to 2050. As a global hydrogen technology supplier, Cummins pledges to support the growth of clean hydrogen by scaling up our electrolyzer production capacity to 2GW by 2030 to enable green hydrogen production. Additionally, Cummins pledges to ramp up production capacity to produce fuel cell power modules and components to meet market demand and will continue to invest in research and development to develop new hydrogen products.

EDF

EDF will announce a hydrogen pledge in the near future, provisional numbers are included in the aggregated numbers in the introduction.

EDP

As leaders in the energy transition, EDP has committed to be coal free by 2025 and all green by 2030. To strengthen our support to all sectors of the economy to decarbonize, including those that are hard to electrify, we pledge to invest in more than 1.5GW of renewable hydrogen by 2030.

8 RIVERS CAPITAL

Develop and commercialise a novel ultra-low carbon hydrogen process technology capable of delivering clean, industrial scale hydrogen at a price that will enable the displacement of natural gas, and further drive the deployment of at least 435 ktpa of ultra-low carbon hydrogen by 2030.

ENEL

Enel, one of the world's leading renewable energy companies with 50.8GW of renewable installed capacity and the target to triple it to 145GW by 2030, pledges to produce only renewable hydrogen with a forecast of 2GW of electrolysers capacity by 2030.

ENGIE

As part of our commitment to Net Zero by 2045 across all scopes, Engie targets to develop 4GW of renewable hydrogen production by 2030, to deliver low or ultra-low carbon hydrogen under the WBCSD framework definition. As of today, and pending customer's final decision and grants, our committed volumes represent already 6kt of renewable hydrogen per year.

EQUINOR

As part of its strategy to provide clean hydrogen in 3 to 5 major industrial clusters and to supply 10 percent of the European market for clean hydrogen by 2035, Equinor pledges that all the projects it brings onstream by 2030 will deliver low-carbon or ultra-low carbon hydrogen.

ERM

Supply

By 2030, ERM intends to enable the production of 45ktpa (500MW) of ultra-low carbon hydrogen through ERM Dolphyn and other projects, reaching a minimum of 360ktpa (4GW) by 2035.

Support

As the size of the low carbon Hydrogen market grows significantly through to 2030, ERM will be materially involved in this market supporting leading companies in moving towards low carbon hydrogen solutions and through thought leadership and active collaboration in developing methodologies, safety standards and insights.

FORTESCUE

Supply

Fortescue will target the production of 15 million tonnes per annum of green hydrogen by 2030. Fortescue's vision is to make renewable green hydrogen the most globally traded seaborne energy commodity in the world.

Support

Fortescue will allocate 10 per cent of Net Profit After Tax to fund renewable energy growth through Fortescue Future Industries to drive the acceleration of Green Hydrogen projects around the globe.

GENCOMM

GenComm pledges to supply 365ktpa of green hydrogen by 2030 to Hydrogen Ireland.

IBERDROLA

In its mission to lead the energy transition, Iberdrola is spearheading the development of green hydrogen with projects in a number of countries (Spain, the United Kingdom, Brazil, the United States, among others) to meet the demand for electrification and decarbonisation in hard-to-abate sectors such as industry and long-haul heavy transport. The group is addressing the technological challenge of producing and supplying green hydrogen from clean energy sources, powering the electrolytic process with 100 % renewable electricity. Iberdrola plans to have 3 gigawatts (GW) of electrolysers capacity to produce renewable hydrogen by 2030.

ITM POWER

ITM Power pledges to support the expansion of green hydrogen by investing £0.4billion in order to increase its electrolyser manufacturing capacity to:

- 1 GW p.a. by Q4 2022
- 2.5 GW p.a. by Q4 2023
- 5 GW p.a. by Q4 2024

This will reduce the full system price of electrolysis by 50% by 2030.

RIVERSIMPLE MOVEMENT LTD

Riversimple is making the world's most sustainable vehicles and will need green hydrogen to achieve its mission of eliminating the environmental impact of personal transport. Riversimple will be mass producing a local car, a commercial van and a family car that will be affordable and convenient. The vehicles are offered on an all-in subscription basis which includes the fuel and so the company are the wholesale purchasers of the Hydrogen. By 2030 the total cumulative consumption by the fleet is predicted to be 10kt of hydrogen of which a minimum of 90% will be from zero-carbon renewable sources. By 2040, Riversimple will be running a fleet of 250k vehicles in the UK with an annual hydrogen demand of 27kt per annum 100% of which will originate from zero carbon renewable sources.

SHELL

Demand

Shell pledges that by 2030, at least 65% of the hydrogen consumption in its Chemicals and Energy parks will be Reduced Carbon or better (~300ktpa, excluding co-produced hydrogen).

Supply

Shell pledges to produce 75ktpa of Ultra Low Carbon Hydrogen and 100ktpa of Reduced Carbon Hydrogen by 2030.

TOTALENERGIES

TotalEnergies has the ambition to decarbonize 100% of grey hydrogen consumed in its European Refineries with Low Carbon Hydrogen or Renewable Hydrogen by 2030.

YARA

Yara pledges to source and/or produce a minimum of 3 million tonnes of reduced-carbon ammonia (equivalent of 530 kt of reduced-carbon hydrogen) by 2030, of which minimum 50 % will be low-carbon or ultra-low carbon.

YOSEMITE CLEAN ENERGY

Yosemite Clean Energy and our subsidiary companies under the Yosemite Umbrella are committed to providing our first portfolio of Carbon Negative renewable hydrogen from waste biomass (Carbon Intensity score of -56 or better) that will be produced at three production facilities currently under development in California and slated for production beginning in 2024.

We commit to the completing our first portfolio of 3 hydrogen projects, with an estimated completion date of 2025. The first portfolio will reduce GHGs by eliminating an estimated 402k metric tonnes CO_2e per year and will reduce the use of Diesel fuels by an approximate 19.5 million diesel gallon equivalents annually.

Each of our projects will produce an estimated 12.2MT of SJ2719 fuel cell grade hydrogen daily, therefore 3 plants will produce an estimated 11ktpa of hydrogen. These figures would supply over 500 heavy duty class 8 trucks on an annual basis, or an approximate 1,400 busses to support public transportation.

SUPPORT PLEDGES

BANK OF AMERICA

Bank of America (BofA) is actively assessing the development of the clean hydrogen opportunity on a world-wide basis. Clean hydrogen is already part of BofA's identified sustainable technologies which BofA targets to support with commercially viable financing solutions.

HINICIO

As Hinicio, we have been investing in the design of hydrogen certification schemes and systems since 2014 through the CertifHy© Initiative, supported financially by the FCH-JU. Hinicio pledges today to continue designing renewable hydrogen certification systems in line with the upcoming regulation, such as RED2, CBAM, EU Taxonomy, FuelEU Maritime, RefuelEU Aviation, etc. Moreover, Hinicio pledges in a first step to set up an Issuing Body for Renewable Hydrogen Guarantees of Origin and a "Renewable Fuel of Non-Biological Origin" certification scheme recognized by the European Commission, as the regulation of these certification systems starts to be well defined. Other certification purposes might follow later, as regulation becomes clearer.

JOHNSON MATTHEY

Johnson Matthey has been a leader in hydrogen technology for decades, and our experience cuts across numerous parts of the hydrogen value chain, including market leading hydrogen production catalysts and processes, components for hydrogen fuel cells and new technologies for ultra-low carbon hydrogen production.

JM is putting its science and experience at the heart of solutions that support a cost-effective transition to a secure and environmentally sustainable energy system. By 2030, Johnson Matthey pledges to invest c.£1bn in the research, development, and deployment of clean hydrogen technologies.

LINDE

Linde has set a sustainable development target of reducing its GHG intensity 35% by 2028 and to achieve a 35% reduction in our Scope 1 and Scope 2 emissions by 2035 - 35 by 35.

Linde is also committed to pursuing our goal of becoming climate-neutral by 2050.

To support Linde's climate change commitment, the company plans to triple the amount of clean hydrogen produced. It will pursue competitive low-carbon sources of hydrogen, including energy efficient steam methane reformers with carbon capture, electrolysis with renewable power and piloting new low-carbon technologies.

SIEMENS ENERGY

As part of our Euro 1Bn research and development budget, Siemens Energy pledge to commit to developing products, services, and solutions to help limit climate change caused by the global increase in CO_2 emissions. We will find through innovation and technology, solutions which lead to carbon neutral power generation through having H_2 ready Gas Turbines by 2030, and a portfolio of Electrolysers, Renewable Energy Sources and other technologies that will enable the transition to green energy.

SNAM

As an infrastructure operator, SNAM commits to initiate the repurposing of its assets to pure H_2 within the next decade, unlocking H_2 potential to reach 20-25% of energy demand in 2050 through access to cheap renewable power. In addition, in line with its Net Zero Carbon by 2040 Strategy, SNAM pledges to achieve a 28% reduction of Direct and Indirect energy emissions (Scope 1 and 2) emissions by 2025 compared to 2018 values and a 50% reduction by 2030.

YOKOGAWA

Yokogawa, as a leading industrial automation company, is committed to supporting the deployment of energy such as hydrogen with the lowest possible carbon intensity.

We currently supply automation systems to one of the world's largest green hydrogen production plants in Japan.

We will contribute to achieving carbon neutrality by helping our customers to measure and control 1 billion t CO_2 emissions by 2030 (accumulative from FY18), with 50% or more of that achieved from renewable energy and new technologies.

EXPLANATORY NOTE

Definitions - the terms "reduced carbon hydrogen", "low carbon hydrogen", and "ultra low carbon hydrogen" used in the pledges have the meanings attributed to them in the WBCSD *Policy Recommendations to accelerate Hydrogen deployment for a 1.5 scenario* report.
Renewable (or green) hydrogen made from hydro and wind electricity is expected to meet the ultra-low carbon definition today. Renewable hydrogen from solar can have a wider range of intensities from around the low-carbon definition (today) to the ultra-low carbon definition (expected in 2030).

Carbon intensity calculations – in the absence of a globally approved standard methodology to calculate the carbon intensity of hydrogen, companies have estimated the expected carbon intensity of hydrogen in 2030 on a full life cycle basis – including any significant emissions from infrastructure, transport and distribution - from all relevant and material greenhouse gases, using the 100-year time-horizon global warming potential (GWP) values from the IPCC Fifth Assessment Report.

Forward-looking statements – the pledges made by companies make certain forward-looking statements, forecasts or projections with respect to the financial condition, results or plans and objectives of that company. By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that will or may occur in the future. Actual results may differ materially from those expressed in such statements depending on a variety of factors.
Given that the hydrogen market is still relatively immature and there is a lot of uncertainty as to how the market will scale, companies intend to keep their pledges under review and update them periodically as appropriate.

Commercial and policy contexts – the pledges are subject to government policy support for hydrogen towards net zero carbon emissions, such as those outlined in WBCSD's *Policy Recommendations to accelerate Hydrogen deployment for a 1.5 scenario* and also rely on assumptions about the commercial availability of hydrogen and the development of critical infrastructure.