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2023 G7 Hiroshima Summit Interim Compliance Report

22 May 2023 to 3 December 2023

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“We have meanwhile set up a process and there are also independent institutions monitoring which objectives of our G7 meetings we actually achieve. When it comes to these goals we have a compliance rate of about 80%, according to the University of Toronto. Germany, with its 87%, comes off pretty well. That means that next year too, under the Japanese G7 presidency, we are going to check where we stand in comparison to what we have discussed with each other now. So a lot of what we have resolved to do here together is something that we are going to have to work very hard at over the next few months. But I think that it has become apparent that we, as the G7, want to assume responsibility far beyond the prosperity in our own countries. That’s why today’s outreach meetings, that is the meetings with our guests, were also of great importance.”

Chancellor Angela Merkel, Schloss Elmau, 8 June 2015

G7 summits are a moment for people to judge whether aspirational intent is met by concrete commitments. The G7 Research Group provides a report card on the implementation of G7 and G20 commitments. It is a good moment for the public to interact with leaders and say, you took a leadership position on these issues — a year later, or three years later, what have you accomplished?

Achim Steiner, Administrator, United Nations Development Programme,
in G7 Canada: The 2018 Charlevoix Summit

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7. Energy: Low Carbon and Renewable Hydrogen Markets

“We will enhance our efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable international standards and certification schemes adhering to environmental and social standards.”

Hiroshima G7 Leaders Communiqué

Assessment

	No Compliance	Partial Compliance	Full Compliance
Canada			+1
France			+1
Germany			+1
Italy			+1
Japan			+1
United Kingdom			+1
United States			+1
European Union			+1
Average	+1.00 (100%)		

Background

In the ongoing global effort to address climate change and transition to more sustainable energy sources, G7 members have played a pivotal role in advancing the development and adoption of low carbon and renewable hydrogen markets. These commitments represent a key component of the G7 leaders’ broader strategy to combat climate change, reduce greenhouse gas emissions (GHG), and promote energy security. While the G7 members’ interest in low carbon and renewable energy markets can be traced back to the energy crises of the 1970s, focus on low carbon and renewable energy has gained greater prominence in recent years due to increasing concerns about climate change and the need to reduce GHGs, including hydrogen energy. Highlights of this on the G7’s agenda follow:

At the 1978 Bonn Summit, G7 leaders acknowledged the need to explore alternatives to imported oil, particularly considering the oil crisis.⁸²⁷ It was during this summit that the importance of investing in research and development (R&D) initiatives for renewable energy alternatives was first highlighted. Emphasis was placed on reducing dependency on imported oils and recognizing the long-term significance of coal as an energy source.

At the 1990 Houston Summit, G7 members recognized the importance of cooperatively developing new technologies and processes to reduce carbon dioxide and other GHG emissions.⁸²⁸ Leaders also agreed to prioritize the development of alternative energy sources, such as nuclear energy, to protect health and the environment.

At the 1996 Lyon Summit, G7 leaders reemphasized the seriousness of threats such as global warming and climate change and expressed their commitment to aiding countries in developing more efficient energy policies.⁸²⁹

⁸²⁷ Bonn Summit G7 Communiqué, G7 Information Centre (Toronto) 17 July 1978. Access Date: 30 September 2023. <http://www.g7.utoronto.ca/summit/1978bonn/communique.html>

⁸²⁸ Houston Economic Declaration, G7 Information Centre (Toronto) 11 July 1990. Access Date: 08 October 2023. <http://www.g7.utoronto.ca/summit/1990houston/declaration.html>

⁸²⁹ Chairman’s Statement: Toward Greater Security and Stability in a More Cooperative World, G7 Information Centre (Toronto) 29 June 1996. Access Date: 08 October 2023. <http://www.g7.utoronto.ca/summit/1990houston/declaration.html>

At the 2005 Gleneagles Summit, G7 leaders committed to transforming the way they used energy and managing the impact of climate change.⁸³⁰ To this end, they indicated a commitment to support the development of clean energy technologies and frameworks through the collaboration of the public and private sectors. Although there was no direct mention of hydrogen technologies, the summit paved the way for future developments in the space.

At the 2007 Heiligendamm Summit, combatting climate change was addressed as one of the major challenges for humankind, and energy efficiency and technological cooperation were discussed as solution pathways.⁸³¹

At the 2015 Schloss Elmau Summit, the G7 emphasized the importance of decarbonizing the global economy and supporting renewable energy sources.⁸³² Leaders committed to “decarbonize the global economy over the course of this century” and “to achieve a low-carbon global economy in the long-term including developing and deploying innovative technologies striving for a transformation of the energy sectors by 2050,” indicating a long-term commitment to reducing carbon emissions using low carbon technologies. At the summit, the G7 leaders expressed their support for the Hamburg Initiative, which targeted “performance and reduction of the cost of technologies such as smart grids, systems optimization, energy storage, electric vehicles, offshore wind energy.”⁸³³

At the 2016 Ise-Shima Summit, G7 leaders reaffirmed their commitment to addressing climate change and energy security by accelerating the transition to a decarbonized economy.⁸³⁴ Leaders acknowledged the role of energy efficiency and the importance of renewable energy technologies in reducing greenhouse gas emissions by committing to further investments into innovating technologies with low GHG emissions.

At the 2017 Taormina Summit, discussions included topics on energy security and sustainability.⁸³⁵ Leaders affirmed their commitment to the Paris Agreement on climate change, which includes efforts to reduce carbon emissions and promote renewable energy.

At the 2019 Biarritz Summit, members focused on reducing inequality and addressing climate change.⁸³⁶ Various aspects of climate action were discussed, including transitioning to clean and sustainable energy sources.

At the 2021 Cornwall Summit, leaders committed to accelerating the shift away from unabated coal capacity and inefficient fossil fuel subsidies by 2021.⁸³⁷ They also pledged to support the development and deployment of hydrogen as a clean energy source, marking the first time that hydrogen was specifically targeted as an avenue to achieve net-zero by the G7.

⁸³⁰ The Gleneagles Communiqué, G7 Information Centre (Toronto) 08 July 2005. Access Date: 14 December 2023.

<http://www.g7.utoronto.ca/summit/2005gleneagles/communique.pdf>

⁸³¹ Chair's Summary, G7 Information Centre (Toronto) 08 June 2007. Access Date: 08 October 2023.

<http://www.g7.utoronto.ca/summit/2007heiligendamm/g8-2007-summary.html>

⁸³² Leaders' Declaration: G7 Summit, G7 Information Centre (Toronto) 08 June 2015. Access Date: 30 September 2023.

<http://www.g7.utoronto.ca/summit/2015elmau/2015-G7-declaration-en.html>

⁸³³ G7 Hamburg Initiative for Sustainable Energy Security, G7 Information Centre (Toronto) 12 May 2015. Access Date: 30 September 2023. <http://www.g7.utoronto.ca/energy/150512-hamburg.html>

⁸³⁴ G7 Ise-Shima Leaders' Declaration, G7 Information Centre (Toronto) 27 May 2016. Access Date: 30 September 2023.

<http://www.g7.utoronto.ca/summit/2016shima/ise-shima-declaration-en.html>

⁸³⁵ G7 Taormina Leaders' Communiqué, G7 Information Centre (Toronto) 27 May 2017. Access Date: 30 September 2023.

<http://www.g7.utoronto.ca/summit/2017taormina/communique.html>

⁸³⁶ G7 Leaders' Declaration, G7 Information Centre (Toronto) 26 August 2019. Access Date: 30 September 2023.

<http://www.g7.utoronto.ca/summit/2019biarritz/declaration-of-leaders.html>

⁸³⁷ Carbis Bay G7 Summit Communiqué: Our Shared Agenda for Global Action to Build Back Better, G7 Information Centre (Toronto) 13 June 2021. Access Date: 30 September 2023. <http://www.g7.utoronto.ca/summit/2021cornwall/210613-communique.html>

At the 2023 Hiroshima Summit, G7 members reaffirmed their commitment towards the Paris Agreement.⁸³⁸ G7 leaders committed to pursuing trade policies that drive emissions reduction and overall decarbonization, recognizing that carbon leakage can increase with divergent trade and climate policy. Leaders also pledged to help combat climate change by leveraging the World Trade Organization to mobilize additional funding for clean energy initiatives.

Commitment Features

At the 2023 Hiroshima Summit, leaders committed to “enhance [their] efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable international standards and certification schemes adhering to environmental and social standards.”⁸³⁹ This commitment has two dimensions for G7 members to receive full compliance: a) developing low carbon and renewable hydrogen supply chains and b) developing the global market for hydrogen based upon international standards and certification schemes. Both dimensions must adhere to environmental and social standards.

Definitions and Concepts

“Enhance” is understood to mean heighten or intensify.⁸⁴⁰

“Develop” is understood to mean to make active or promote the growth of.⁸⁴¹

“Rule-based” in the context of the commitment, refers to markets and supply chains operating according to the “rule-of-law” which is understood to mean “a principle of governance in which all persons, institutions, and entities, public and private ... are accountable to laws that are publicly promulgated, equally enforced and independently adjudicated.”⁸⁴²

“Transparent global markets and supply chains” is understood to mean traceability through the production, sale, and use process.⁸⁴³ The Organization for Economic Cooperation and development defines traceability as the process by which enterprises track materials and products and the conditions in which they were produced throughout the supply chain.⁸⁴⁴ In the context of the commitment, transparency and traceability refer to calculating carbon content and intensity through the supply chain including inputs, production, and use.⁸⁴⁵

“Low carbon hydrogen” refers to hydrogen produced from a) “abated fossil hydrogen production, in which hydrogen is produced using natural gas, steam methane reforming and a form of carbon capture and sequestration (commonly known as blue hydrogen)” or b) “pyrolysis of natural gas, in which hydrogen and a solid carbon black product are produced (such hydrogen is commonly known as turquoise hydrogen).”⁸⁴⁶

⁸³⁸ G7 Clean Energy Economy Action Plan, G7 Information Centre (Toronto) 20 May 2023. Access Date: 08 October 2023. <http://www.g7.utoronto.ca/summit/2023hiroshima/230520-energy-action-plan.html>

⁸³⁹ G7 Hiroshima Leaders' Communiqué, G7 Research Group (Toronto). 20 May 2023. Access Date: 30 September 2023. <http://www.g7.utoronto.ca/summit/2023hiroshima/230520-communicue.html>

⁸⁴⁰ Compliance Coding Manual for International Institutional Commitments, G7 and G20 Research Groups (Toronto) 12 November 2020. Access Date: 28 September 2023

⁸⁴¹ Develop, Merriam Webster (Springfield) n.d. Access Date: 28 September 2023. <https://www.merriam-webster.com/dictionary/develop>

⁸⁴² Rule of Law, LexisNexis Canada (Toronto) n.d. Access Date: 29 September 2023. <https://www.lexisnexis.ca/en-ca/about-us/rule-of-law.page>

⁸⁴³ Supply Chain Transparency as a Consumer or Corporate Tool: The Case of Nudie Jeans Co, Journal of Consumer Policy (New York) 12 February 2015. Access Date: 6 December 2023. doi.org.10.1007/s10603-015-9283-7

⁸⁴⁴ OECD Due Diligence Guidance for Responsible Business Conduct, Organization for Economic Cooperation and Development (Paris) 31 May 2018. Access Date: 6 December 2023. <https://mneguidelines.oecd.org/OECD-Due-Diligence-Guidance-for-Responsible-Business-Conduct.pdf>

⁸⁴⁵ Certification Schemes, CertifiHy (Brussels) n.d. Access Date: 6 December 2023. <https://www.certifyhy.eu/go-definition/>

⁸⁴⁶ Identifying the differences in between Green, Low Carbon, and Renewable Hydrogen, United Nations Environment Program (Copenhagen) 27 April 2023. Access Date: 28 September 2023. <https://c2e2.unepccc.org/wp-content/uploads/sites/3/2023/03/identifying-the-differences-in-between-green-low-carbon-and-renewable-hydrogen.pdf>

“Renewable hydrogen” refers to hydrogen derived via the electrolysis of water powered by renewable sources such as hydro, solar, and wind.⁸⁴⁷ “Renewable hydrogen may also be produced through the reforming of biogas (instead of natural gas) or biochemical conversion of biomass, if in compliance with sustainability requirements.”

“Reliable” is understood to mean able to be trusted.⁸⁴⁸ In the context of international standards and certification schemes, “reliable” is understood to mean standards or certifications developed by a G7 member body or an organization to which a G7 member is a party.

“International standards and certification schemes” refer to voluntary common conditions that can create certainty for cross-border trade.⁸⁴⁹ Existing examples include the Green Hydrogen Organisation’s Green Hydrogen Standard and the EU’s CertifiHy.

“Environmental and social standards” refers to “strengthening the social and environmental outcomes of markets and supply chains, avoiding adverse impacts to people and the environment, and minimizing, mitigating, and managing adverse impacts where avoidance is not possible.”⁸⁵⁰ The following principles govern the United Nations Development Programme’s (UNDP) Social and Environmental Standards (SES): leave no one behind, human rights, gender equality and women’s empowerment, sustainability and resilience, and accountability.⁸⁵¹ The SES covers standards for biodiversity conservation and sustainable natural resource management, climate change and disaster risks, community health, safety and security, cultural heritage displacement and resettlement, indigenous peoples labour and working conditions, pollution prevention and resource efficiency. The UNDP also identifies the following as management system requirements: quality assurance and risk management screening, categorization assessment and management, stakeholder engagement and response mechanisms, access to information, monitoring, reporting and compliance.

General Interpretive Guidelines

Full compliance, or a score of +1, will be given to G7 members that take strong actions to develop low carbon and renewable hydrogen supply chains, and to develop the global market for hydrogen based upon international standards and certification schemes while also ensuring that those supply chains and global market rules adhere to environmental and social standards.

Examples of strong actions include, but are not limited to, establishment and/or modernization and/or sharing of codes and standards to define types of hydrogen, account for emission thresholds/carbon intensity, and related accountability metrics. It may also comprise hydrogen policy and regulatory framework supports. Strong action can include national hydrogen strategies and inclusion of hydrogen in clean energy pathway maps. Fiscal supports including funds, subsidies, tax credits and/or loans for research and development, scale up of manufacturing processes, investment in infrastructure such as hydrogen pipelines, liquefaction plants, and refuelling stations all entail strong actions. G7 members’ national hydrogen strategies endorse the inclusion of corollary policies including regulations, carbon pricing, clean fuel standards, zero emission standards, and other market signals to reflect GHG emissions in baseline fuel costs and de-risk investments in fossil-fuel alternatives

⁸⁴⁷ Identifying the differences in between Green, Low Carbon, and Renewable Hydrogen, United Nations Environment Program (Copenhagen) 27 April 2023. Access Date: 28 September 2023. <https://c2e2.unepccc.org/wp-content/uploads/sites/3/2023/03/identifying-the-differences-in-between-green-low-carbon-and-renewable-hydrogen.pdf>

⁸⁴⁸ Reliable, Encyclopedia Britannica (Chicago) n.d. Access Date: 28 September 2023. <https://www.britannica.com/dictionary/reliable>

⁸⁴⁹ Identifying the differences in between Green, Low Carbon, and Renewable Hydrogen, UN Environment Program, Copenhagen Climate Centre (Copenhagen) 27 April 2023. Access Date: 28 September 2023. <https://c2e2.unepccc.org/wp-content/uploads/sites/3/2023/03/identifying-the-differences-in-between-green-low-carbon-and-renewable-hydrogen.pdf>

⁸⁵⁰ FAO’s environmental and social standards, Food and Agriculture Organization of the United Nations (Rome) n.d. Access Date: 29 September 2023. <https://www.fao.org/environmental-social-standards/standards/fr/>

⁸⁵¹ Social and Environmental Standards, United Nations Development Program (New York) 1 January 2021. Access Date: 29 September 2023. https://ses-toolkit.info.undp.org/sites/g/files/zskgke446/files/2023-03/UNDP%20Social%20and%20Environmental%20Standards_2019%20UPDATE_rev%202023.pdf

as crucial actions towards developing hydrogen supply chains.⁸⁵² For compliance, these corollary policies must explicitly state a goal to advance hydrogen or alternative fuels of which hydrogen is one. G7 members' strategies also identify R&D investments as necessary to reduce costs and enable scale up.⁸⁵³ Similarly, efforts to attract domestic businesses that can apply hydrogen use, as well as securing agreements with international governments and businesses constitute strong actions.

Partial compliance, or a score of 0, will be assigned to G7 members that take strong action in one or weak action towards both a) developing low carbon and renewable hydrogen supply chains or b) developing the global market for hydrogen based upon international standards and certification schemes. Supply chain and global market actions must adhere to environmental and social standards. Weaker actions include verbal statements of support, government studies on hydrogen supply chains, diplomatic meetings, and organization of forums that advance the commitment. Further, it is not enough for the country to take domestic action, given the international nature of the commitment and its focus on international standards and supply chains.

Non-compliance, or a score of -1, will be assigned if the G7 member demonstrates little to no effort on this commitment.

Scoring Guidelines

-1	The G7 member has taken little to no action to develop rules-based, transparent, and reliable low carbon and renewable hydrogen supply chains or to develop the global the global market for hydrogen based upon international standards and certification schemes.
0	The G7 member has taken weak actions towards both or strong actions towards one of developing low carbon and renewable hydrogen supply chains or developing the global market for hydrogen based upon international standards and certification schemes.
+1	The G7 member has taken several strong actions to develop both low carbon and renewable hydrogen supply chains and to develop the global market for hydrogen based upon international standards and certification schemes while also ensuring that supply chains and global market rules adhere to environmental and social standards.

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Canada: +1

Canada has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable standards and certification schemes adhering to environmental and social standards.

On 25 May 2023, Parliamentary Secretary to the Minister of Natural Resources and to the Minister of Environment and Climate Change Julie Dabrusin announced a new call for proposals for research, development and demonstration projects aimed at eliminating carbon emissions from Canada's transportation sector.⁸⁵⁴ The selected projects will help improve vehicle energy efficiency through implementing technologies such as hydrogen fuel cells to address the transportation sector's carbon footprint, particularly in medium and heavy-duty vehicles. Under Canada's Energy Innovation Program, successful research and development

⁸⁵² Hydrogen Strategy for Canada, Natural Resources Canada (Ottawa) December 2020. Access Date: 28 November 2023. https://natural-resources.canada.ca/sites/nrcan/files/environment/hydrogen/NRCan_Hydrogen%20Strategy%20for%20Canada%20Dec%2015%202200%20clean_low_accessible.pdf

⁸⁵³ US National Clean Hydrogen Strategy and Roadmap, United States Department of Energy (Washington D.C.) 5 June 2023. Access Date: 28 November 2023. <https://www.hydrogen.energy.gov/docs/hydrogenprogramlibraries/pdfs/us-national-clean-hydrogen-strategy-roadmap.pdf>

⁸⁵⁴ New Federal Call for Proposals to Decarbonize On-Road Transportation, Natural Resources Canada (Ottawa) 25 May 2023. Access Date: 2 December 2023. <https://www.canada.ca/en/natural-resources-canada/news/2023/05/new-federal-call-for-proposals-to-decarbonize-on-road-transportation.html>

proposals receive up to 75 per cent of project costs to a maximum of CAD1.5 million and accepted demonstration projects receive up to 50 per cent of projects costs to a maximum of CAD5 million.

On 30 May 2023, Minister of Energy and Natural Resources Jonathan Wilkinson and provincial partners expanded the regulatory framework for Nova Scotia's and Newfoundland and Labrador's offshore energy regulators, with the new mandates including the mandate over developing offshore clean energy infrastructure.⁸⁵⁵ The Minister explained that the amendments help the provinces pursue the opportunity to develop, oversee, and implement offshore clean energy generation infrastructure, which includes infrastructure for producing clean hydrogen.

On 31 May 2023, Minister Wilkinson announced a CAD150,000 investment to launch a local awareness campaign into local hydrogen production.⁸⁵⁶ The campaign aims to close many Canadians' knowledge gap on clean energy and its use in the economy. The Minister also spoke about the Newfoundland and Labrador Collaboration Framework, identifying hydrogen and carbon capture utilization and storage as areas for the province to excel in developing a low-carbon economy.

On 14 June 2023, Minister Wilkinson discussed Canada's continued partnership on issues of common interest, such as hydrogen, with the Czech Minister of Industry and Trade, Jozef Síkela.⁸⁵⁷ The Ministers pledged to strengthen cooperation to create a more resilient green, sustainable, and low-carbon global economy and reaffirmed shared interest in understanding the renewable hydrogen's role as a clean energy source for the future. The discussion also involved the prospects of exporting clean and renewable hydrogen to the Czech Republic to satisfy its electricity demand through low-carbon means.

On 26 June 2023, Prime Minister Justin Trudeau underscored Canada's interest and commitment towards partnering with the Nordic countries to develop advanced technologies in carbon capture and storage, and clean hydrogen to transition toward a low-carbon economy.⁸⁵⁸

On 27 June 2023, Minister Wilkinson pledged to invest over CAD100 million to advance and develop British Columbia's low-carbon economy, and announced the Collaboration Framework for Accelerating a Low-Carbon Economy, identifying clean hydrogen and carbon management systems as one of key opportunity areas.⁸⁵⁹ The investment includes almost CAD48.7 million for feasibility studies related to hydrogen as a clean fuel source and CAD15 million to further hydrogen fuel cell technologies development.

⁸⁵⁵ Building Offshore Renewables in Newfoundland and Labrador and Nova Scotia, Natural Resources Canada (Ottawa) 30 May 2023. Access Date: 2 December 2023. <https://www.canada.ca/en/natural-resources-canada/news/2023/05/building-offshore-renewables-in-newfoundland-and-labrador-and-nova-scotia.html>

⁸⁵⁶ Government of Canada Announces Support to Grow the Newfoundland and Labrador Clean Fuels Sector and Create Middle-Class Jobs, Natural Resources Canada (St. John's) 31 May 2023. Access Date: 2 December 2023. <https://www.canada.ca/en/natural-resources-canada/news/2023/05/government-of-canada-announces-support-to-grow-the-newfoundland-and-labrador-clean-fuels-sector-and-create-middle-class-jobs.html>

⁸⁵⁷ Minister Wilkinson and Minister Síkela Discuss Shared Interest in Advancing Climate Action and Clean Energy, Natural Resources Canada (Ottawa) 14 June. Access Date: 2 December 2023. <https://www.canada.ca/en/natural-resources-canada/news/2023/06/minister-wilkinson-and-minister-sikela-discuss-shared-interest-in-advancing-climate-action-and-clean-energy.html>

⁸⁵⁸ Prime Minister strengthens partnerships with Nordic countries, Prime Minister of Canada (Vestmannaeyjar) 26 June 2023. Access Date: 2 December 2023. <https://www.pm.gc.ca/en/news/news-releases/2023/06/26/prime-minister-justin-trudeau-strengthens-partnerships-nordic-countries>

⁸⁵⁹ First Regional Energy and Resource Tables Collaboration Framework for Accelerating a Low-Carbon Economy Released, Natural Resources Canada (Vancouver) 27 June 2023. Access Date: 2 December 2023. <https://www.canada.ca/en/natural-resources-canada/news/2023/06/first-regional-energy-and-resource-tables-collaboration-framework-for-accelerating-a-low-carbon-economy-released.html>

On 29 June 2023, Minister Wilkinson issued a call for funding proposals to promote clean fuels and zero-emission vehicle awareness.⁸⁶⁰ Natural Resources Canada will share up to 75 per cent of accepted proposal costs from not-for-profits and up to 50 per cent of costs from for-profit organizations. This funding advances the market for clean fuels including hydrogen.

On 29 June 2023, Minister Wilkinson announced installation funding for a Kelowna hydrogen refuelling station off the Trans-Canada Highway, enhancing the hydrogen supply chain.⁸⁶¹

On 1 July 2023, the Canadian government's Clean Fuel Standards regulations took effect.⁸⁶² The regulation creates a credit system that incentivizes renewable emission reductions including by investment in hydrogen fuel cell vehicles and stations.⁸⁶³

On 6 July 2023, Parliamentary Secretary Dabrusin participated in an event announcing the first public hydrogen refueling station for light and heavy-duty vehicles in Ontario which builds the hydrogen supply-chain out to consumers.⁸⁶⁴

On 18 July 2023, Prime Minister Trudeau, in his speech at the Australia-Canada Economic Leadership Forum, reaffirmed Canada's commitment to building a clean world economy through global partnerships to develop low-carbon sources such as hydrogen.⁸⁶⁵

On 22 July 2023, Minister Wilkinson and the G20 Energy Ministers committed to “support acceleration of production, utilization, as well as development of transparent and resilient global markets for hydrogen produced from zero and low emission technologies and its derivatives such as ammonia by developing voluntary and mutually agreed harmonizing standards as well as mutually recognized, and interoperable certification schemes.”⁸⁶⁶ The Ministers also agreed to high level steps needed to achieve their commitment including collaboration on national standards development for low carbon hydrogen and movement towards global harmonization, free trade advancement, research and development cooperation for technological innovation, finance activation to support the entire supply chain, as well as voluntary information exchanges.

On 22 July 2023, Canada, along with Australia, Brazil, Chile, Germany, Japan, Saudi Arabia, Korea, the Netherlands, United Arab Emirates, the United Kingdom, the United States, Uruguay and the European Commission on behalf of the European Union jointly launched the International Hydrogen Trade Forum to

⁸⁶⁰ Now Open: Call for Applications Supporting Clean Fuels and Zero-Emission Vehicles Awareness Projects, Natural Resources Canada (Ottawa) 29 June 2023. Access Date: 7 November 2023. <https://www.canada.ca/en/natural-resources-canada/news/2023/06/now-open-call-for-applications-supporting-clean-fuels-and-zero-emission-vehicles-awareness-projects.html>

⁸⁶¹ Federal Support for New Refuelling Options for Highway Drivers in Kelowna, Natural Resources Canada (Kelowna) 29 June 2023. Access Date: 7 November 2023. <https://www.canada.ca/en/natural-resources-canada/news/2023/06/federal-support-for-new-refuelling-options-for-highway-drivers-in-kelowna.html>

⁸⁶² Climate policies and fossil fuel: Clean fuel regulations and carbon pricing explained, CTV News (Ottawa) 30 June 2023. Access Date: 7 November 2023. <https://www.ctvnews.ca/climate-and-environment/climate-policies-and-fossil-fuel-clean-fuel-regulations-and-carbon-pricing-explained-1.6463483>

⁸⁶³ Clean Fuel Regulations: Recap of June 2023 media technical briefing, Environment and Climate Change Canada (Gatineau) 30 June 2023. Access Date: 26 November 2023. <https://www.canada.ca/en/environment-climate-change/news/2023/06/clean-fuel-regulations-recap-of-june-2023-media-technical-briefing.html>

⁸⁶⁴ PS Dabrusin to Participate in Groundbreaking Event at Toronto Pearson International Airport, Natural Resources Canada (Mississauga) 6 July 2023. Access Date: 6 November 2023. <https://www.canada.ca/en/natural-resources-canada/news/2023/07/ps-dabrusin-to-participate-in-groundbreaking-event-at-toronto-pearson-international-airport.html>

⁸⁶⁵ Prime Minister's keynote speech at the Australia-Canada Economic Leadership Forum (Toronto) 18 July 2023. Access Date: 2 December 2023. <https://www.pm.gc.ca/en/news/speeches/2023/07/18/prime-ministers-keynote-speech-australia-canada-economic-leadership-forum>

⁸⁶⁶ Outcome Document and Chair' Summary, G20 Information Centre (Goa) 22 July 2023. Access Date: 10 November 2023. <http://www.g20.utoronto.ca/2023/230722-energy.html#annex1>

advance the global hydrogen market.⁸⁶⁷ The Forum aims to connect importers and exporters and reduce barriers to trade and bolsters the global market for hydrogen.

On 24 July 2023, Minister of Environment and Climate Change Steven Guilbeault released the Inefficient Fossil Fuel Subsidies Government of Canada Self-Review Assessment Framework and the Inefficient Fossil Fuel Subsidies Government of Canada Guidelines which phase out fossil fuel subsidies.⁸⁶⁸ Removing fossil fuel subsidies moves the energy market toward better reflecting baseline costs and helps cleaner fuels including hydrogen to compete.

On 10 August 2023, Ministers Guilbeault and Wilkinson announced draft Clean Electricity Regulations to move Canada towards a net-zero electrical grid by 2035.⁸⁶⁹ Clean electricity forms a necessary component of renewable hydrogen supply chains.⁸⁷⁰

On 7 September 2023, the Minister responsible for the Federal Economic Development Agency for Southern Ontario Filomena Tassi announced that Canada will invest CAD3.5 million for a green hydrogen-producing plant to adopt new manufacturing techniques and expand its capacity fivefold.⁸⁷¹

On 25 September 2023, Prime Minister Trudeau held a meeting with the Premier of British Columbia, David Eby, where the two leaders discussed joint efforts to foster clean economic growth in the province.⁸⁷² The discussion also included increasing investments in the clean economy and nurturing partnerships with indigenous communities to open new areas of growth for clean hydrogen.

On 15 October 2023, the Canadian government issued payments to Canadians living in Ontario, Manitoba, Alberta, Saskatchewan, New Brunswick, Newfoundland and Labrador, Nova Scotia, and Prince Edward Island where the federal carbon pollution pricing system operates.⁸⁷³ The Climate Action Incentive Payment aims to facilitate the transition to cleaner fuels including hydrogen by helping households offset federal carbon pollution pricing costs through payments occurring quarterly.

On 30 October 2023, Parliamentary Secretary Dabrusin and Minister Wilkinson announced a call for proposals for projects set to improve Canada's smart grid system and address the barriers of scaling small-scale pilot

⁸⁶⁷ LAUNCH OF THE INTERNATIONAL HYDROGEN TRADE FORUM TO ACCELERATE GLOBAL COLLABORATION, Clean Energy Ministerial (Goa) 22 July 2023. Access Date: 15 December 2023. <https://www.cleanenergyministerial.org/launch-of-the-international-hydrogen-trade-forum-to-accelerate-global-collaboration/>

⁸⁶⁸ Government of Canada delivers on key climate commitment to phase out inefficient fossil fuel subsidies, Environment and Climate Change Canada (Montreal) 24 July 2023. Access Date: 7 November 2023. <https://www.canada.ca/en/environment-climate-change/news/2023/07/government-of-canada-delivers-on-key-climate-commitment-to-phase-out-inefficient-fossil-fuel-subsidies.html>

⁸⁶⁹ Canada powers toward more clean, affordable, and reliable electricity with draft regulations, Environment and Climate Change Canada (Toronto) 10 August 2023. Access Date: 7 November 2023. <https://www.canada.ca/en/environment-climate-change/news/2023/08/canada-powers-toward-more-clean-affordable-and-reliable-electricity-with-draft-regulations.html>

⁸⁷⁰ Identifying the differences in between Green, Low Carbon, and Renewable Hydrogen, UN Environment Program, Copenhagen Climate Centre (Copenhagen) 27 April 2023. Access Date: 28 September 2023. <https://c2e2.unepccc.org/wp-content/uploads/sites/3/2023/03/identifying-the-differences-in-between-green-low-carbon-and-renewable-hydrogen.pdf>

⁸⁷¹ Government of Canada Invests Over \$3.5 million to Support Growth of Clean Hydrogen in Owen Sound, Federal Economic Development Agency for Southern Ontario (Ottawa) 7 September 2023. Access Date: 4 November 2023. <https://www.canada.ca/en/economic-development-southern-ontario/news/2023/09/government-of-canada-invests-over-35-million-to-support-growth-of-clean-hydrogen-in-owen-sound.html>

⁸⁷² Prime Minister Justin Trudeau meets with British Columbia Premier David Eby, Prime Minister of Canada (Ottawa) 25 September 2023. Access Date: 2 December 2023. <https://www.pm.gc.ca/en/news/readouts/2023/09/25/prime-minister-justin-trudeau-meets-british-columbia-premier-david-eby>

⁸⁷³ Climate action incentive payment, Canada Revenue Agency (Ottawa) 5 October 2023. Access Date: 7 November 2023. <https://www.canada.ca/en/revenue-agency/services/child-family-benefits/cai-payment.html>

projects into large-scale grid deployments.⁸⁷⁴ The move aims to improve the overall grid reliability, energy efficiency, and make it easier for pilot projects, such as hydrogen-generating plants, to deploy on a macro-scale.

On 2 November 2023, Minister of Export Promotion, International Trade and Economic Development Mary Ng attended a tour of liquefied hydrogen terminal and storage facility in Osaka, where she promoted Canada as a reliable investment destination and energy security partner in clean energy.⁸⁷⁵

On 9 November 2023, Deputy Prime Minister and Minister of Finance Chrystia Freeland and Manitoba Premier Wab Kinew announced a joint CAD475.6 million investment into Manitoba's energy grid to support clean energy.⁸⁷⁶ A strong renewable electricity supply chain forms part of the hydrogen supply chain. This investment will service Manitoba's hydrogen plants, like H2MB, and support future hydrogen production development projects.⁸⁷⁷

On 14 November 2023, Minister of Foreign Affairs Mélanie Joly and the other ministers participating in the Asia-Pacific Economic Cooperation (APEC) forum released a statement that included the goal to identify best practices and frameworks for producing hydrogen from zero to low emissions technologies in the APEC region.⁸⁷⁸

On 16 November 2023, Minister of Emergency Preparedness and Minister Responsible for the Pacific Economic Development Agency Harjit Sajjan announced over CAD1.1 million to grow the clean energy sector in Burnaby, British Columbia.⁸⁷⁹ The investment aims to improve the development and production of clean energy equipment including hydrogen fuel cells.

On 17 November 2023, Parliamentary Secretary Dabrusin on behalf of Minister Guibeault announced the launch applications for a CAD170 million Low Carbon Challenge in an effort to generate green growth.⁸⁸⁰ Eligible projects would bring forward innovative solutions to reduce emissions and cut energy costs, which includes hydrogen energy-related submissions.

On 21 November 2023, Minister Freeland outlined the implementation timetable for the Clean Hydrogen Tax Credit and introduced Carbon Contracts for Difference as part of the Fall 2023 Economic Statement.⁸⁸¹ Consultations on draft legislation will commence in Fall 2023. Subject to consultation results, legislation for the

⁸⁷⁴ New Federal Call for Proposals for Smart Grid Projects, Natural Resources Canada (Moncton) 30 October 2023. Access Date: 2 December 2023. <https://www.canada.ca/en/natural-resources-canada/news/2023/10/new-federal-call-for-proposals-for-smart-grid-projects.html>

⁸⁷⁵ Minister Ng celebrates successful Team Canada Trade Mission to Japan, Global Affairs Canada (Ottawa) 2 November 2023. Access Date: 13 December 2023. <https://www.canada.ca/en/global-affairs/news/2023/11/minister-ng-celebrates-successful-team-canada-trade-mission-to-japan.html>

⁸⁷⁶ Governments of Canada and Manitoba invest nearly \$500 million to deliver clean, reliable, and affordable electricity to Manitobans, Department of Finance Canada (Winnipeg) 9 November 2023. Access Date: 13 December 2023. <https://www.canada.ca/en/department-finance/news/2023/11/governments-of-canada-and-manitoba-invest-nearly-500-million-to-deliver-clean-reliable-and-affordable-electricity-to-manitobans.html>

⁸⁷⁷ The Fuel of the Future, H2MB (Winnipeg) n.d. Access Date: 16 December 2023. <https://www.h2mb.ca>

⁸⁷⁸ 2023 APEC Ministerial Meeting, Asia-Pacific Economic Cooperation (San-Francisco) 17 November 2023. Access Date: 13 December 2023. <https://www.meti.go.jp/press/2023/11/20231116004/20231116004-a-eng.pdf>

⁸⁷⁹ Government of Canada announces over \$1.1 million to grow the clean technology sector in Burnaby, Pacific Economic Development Canada (Burnaby) 16 November 2023. Access Date: 13 December 2023. <https://www.canada.ca/en/pacific-economic-development/news/2023/11/government-of-canada-announces-over-11-million-to-grow-the-clean-technology-sector-in-burnaby.html>

⁸⁸⁰ Government of Canada launches applications for \$170 million Low Carbon Economy Challenge, highlighting University of Victoria pollution-cutting project, Environment and Climate Change Canada (Victoria) 17 November 2023. Access Date: 13 December 2023. <https://www.canada.ca/en/environment-climate-change/news/2023/11/government-of-canada-launches-applications-for-170-million-low-carbon-economy-challenge-highlighting-university-of-victoria-pollution-cutting-project.html>

⁸⁸¹ Deputy Prime Minister and Minister of Finance Freeland Announces Fall 2023 Economic Statement, Ministry of Finance (Ottawa) 21 November 2023. Access Date: 11 December 2023. <https://www.budget.canada.ca/fes-eea/2023/report-rapport/FES-EEA-2023-en.pdf>

Clean Hydrogen Tax Credit will be introduced in Parliament early in 2024. The tax credit will be backdated to take effect 28 March 2023. To achieve the maximum tax credit, projects must pay prevailing union wages and offer apprenticeship opportunities. The companion legislation to implement these labour requirements will be introduced during Fall 2023 based on consultations which ended 8 September 2023. Further tax credits to support clean electricity will support a renewable energy supply for hydrogen; these tax credits will follow Summer 2024 consultations and Fall 2024 legislation but will also be effective 28 March 2023. In the statement, Minister Freeland also announced Carbon Contracts for Difference as a new tool in the Canada Growth Fund's financial offerings suite. Carbon Contracts for Difference represent a means to backstop future carbon prices and to ensure predictability for businesses making large-scale investments in emissions reduction projects; Carbon Contracts for Difference will also facilitate robust carbon credit markets and encourage alternative energy production such as hydrogen. The Canada Growth Fund will allocate up to CAD7 billion of its current CAD15 billion in capital for Carbon Contracts for Difference as well as Offtake Agreements.

On 29 November 2023, Minister of Housing, Infrastructure and Communities Sean Fraser announced CAD125 million debt financing to support the development of a clean energy hub by EverWind in Nova Scotia.⁸⁸² The loan is designed to support electricity generation through clean hydrogen production, intended for domestic consumption and exports to foreign markets such as Germany.⁸⁸³

Canada has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable international standards and certification schemes adhering to environmental and social standards. Canada advanced strong actions to develop the supply chain for low carbon and renewable hydrogen through funding, tax credits, and loans for hydrogen production plants, supply chain supportive funding for fuel cell technologies, zero-emission vehicles, and renewable electricity access for hydrogen production facilities, investments in research and development, legal framework amendments to empower hydrogen infrastructure deployment, and regulatory incentives for fuel-switching and de-risking hydrogen investments. Canada supported the development of the rule-based global market for hydrogen, with strong actions, by jointly establishing an organization dedicated to facilitating hydrogen trade. Canada's Clean Hydrogen Tax Credit creates eligibility requirements around labour standards and demonstrates their commitment for hydrogen to adhere to social standards.

Thus, Canada receives a score of +1.

Analyst: Giorgi Kaikatsishvili

France: +1

France has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable international standards and certification schemes adhering to environmental and social standards.

On 25 May 2023, Minister for the Ecological Transition and Territorial Cohesion Christophe Bechu and Minister for Energy Transition Clément Beaune called proposals for decarbonization roadmap proposals in the development, building and transportation sectors.⁸⁸⁴ The ministers emphasized that electrification will not be

⁸⁸² Canada announces support for new hydrogen project in Nova Scotia, Global Affairs Canada (Ottawa) 29 November 2023. Access Date: 2 December 2023. <https://www.canada.ca/en/global-affairs/news/2023/11/canada-announces-support-for-new-hydrogen-project-in-nova-scotia.html>

⁸⁸³ The Government of Canada announces funding to accelerate clean energy development in Atlantic Canada, Newswire (Port Hawkesbury) 17 November 2023. Access Date: 2 December 2023. <https://www.newswire.ca/news-releases/the-government-of-canada-announces-funding-to-accelerate-clean-energy-development-in-atlantic-canada-837814849.html>

⁸⁸⁴ Remise des propositions de feuilles de route de décarbonation de l'aménagement, du bâtiment et du transport aux pouvoirs publics, Ministère de la Transition écologique et de la Cohésion des territoires & Ministère de la Transition énergétique (Paris) 25 May 2023. Translation Provided by Google Translate. Access Date: 13 December 2023. <https://www.ecologie.gouv.fr/remise-des-propositions-feuilles-route-decarbonation-lamenagement-du-batiment-et-du-transport-aux>

sufficient to facilitate a clean energy transition in the transportation industry, indicating a potential role for hydrogen energy, especially in heavy duty vehicles where electrification is challenging. Overall, the shift in roadmap toward decarbonization can pave the way for enhanced hydrogen production and use.

On 20 June 2023, the Transport Innovation Agency organized a seminar featuring innovative companies such as EnHyWhere, which develops hydrogen refueling stations.⁸⁸⁵

On 22 June 2023, the Senate passed the Green Industry Act.⁸⁸⁶ The Act aims to make France a leader in green industry and green technologies by creating and accelerating green industries and decarbonizing existing industries.⁸⁸⁷ The Act lists green hydrogen as an example of a major decarbonization technology to be accelerated.

On 6 July 2023, the Ministry of Ecological Transition and Territorial Cohesion and the Ministry of Energy Transition announced a revision to the multiannual energy programme for Corsica to set objectives for renewable energy and hydrogen development in Corsican territory.⁸⁸⁸

On 8 July 2023, the National Assembly committed the military to analyze its needs for hydrogen and biofuels.⁸⁸⁹

On 8 July 2023, Minister for Energy Transition Agnès Pannier-Runacher announced a joint statement between France and Saudi Arabia indicating low carbon hydrogen's importance in decarbonizing energy.⁸⁹⁰ France and Saudi Arabia agreed on a roadmap for cooperation in hydrogen with three main pillars: technological development, commercial cooperation and policies and regulations.

On 21 July 2023, the National Assembly passed amendments to the Green Industry Act.⁸⁹¹ The Act aims to make France a leader in green industry and green technologies by creating and accelerating green industries and decarbonizing existing industries.⁸⁹² The Act lists green hydrogen as an example of a major decarbonization technology earmarked for acceleration.

On 22 July 2023, Minister Pannier-Runacher and the G20 Energy Ministers committed to “support acceleration of production, utilization, as well as development of transparent and resilient global markets for hydrogen produced from zero and low emission technologies and its derivatives such as ammonia by developing

⁸⁸⁵ Séminaire de l'Agence de l'Innovation pour les Transports (AIT) au Salon international de l'aéronautique et de l'espace de Paris-Le Bourget - mercredi 21 juin, Ministère de la Transition écologique et de la Cohésion des territoires Ministère de la Transition énergétique (Paris) 20 June 2023. Access Date: 6 December 2023. <https://www.ecologie.gouv.fr/seminaire-lagence-innovation-transports-ait-au-salon-international-laeronautique-et-lespace-paris-0>

⁸⁸⁶ Industrie Verte, Sénat (Paris) 23 October 2023. Access Date: 8 December 2023. <https://www.senat.fr/dossier-legislatif/pjl22-607.html>

⁸⁸⁷ Que contient la loi industrie verte?, Ministère de l'Économie Des Finances et de la Soveraineté Industrielle et Numérique (Paris) 25 October 2023. Translation provided by Google Translate. Access Date: 1 November 2023. <https://www.economie.gouv.fr/que-contient-la-loi-industrie-verte>

⁸⁸⁸ Publication de la révision simplifiée de la programmation pluriannuelle de l'énergie pour la Corse, Ministère de la Transition écologique et de la Cohésion des territoires Ministère de la Transition énergétique (Paris) 6 July 2023. Access Date: 6 December 2023. <https://www.ecologie.gouv.fr/publication-revision-simplifiee-programmation-pluriannuelle-lenergie-corse>

⁸⁸⁹ PROJET DE LOI MODIFIÉ PAR LE SÉNAT, relatif à la programmation militaire pour les années 2024 à 2030 et portant diverses dispositions intéressant la défense, Assemblée Nationale (Paris) 8 July 2023. Access Date: 6 December 2023. https://www.assemblee-nationale.fr/dyn/16/textes/l16b1516_projet-loi#

⁸⁹⁰ Communiqué conjoint entre la France et l'Arabie saoudite, à l'occasion du déplacement d'Agnès Pannier-Runacher en Arabie saoudite le 8 juillet 2023, Ministère de la Transition écologique et de la Cohésion des territoires Ministère de la Transition énergétique (Paris) 13 July 2023. Translation provided by Google Translate. Access Date: 1 November 2023. <https://www.ecologie.gouv.fr/communique-conjoint-entre-france-et-larabie-saoudite-loccasion-du-deplacement-dagnes-pannier>

⁸⁹¹ Industrie Verte, Sénat (Paris) 23 October 2023. Access Date: 8 December 2023. <https://www.senat.fr/dossier-legislatif/pjl22-607.html>

⁸⁹² Que contient la loi industrie verte?, Ministère de l'Économie des Finances et de la Soveraineté Industrielle et Numérique (Paris) 25 October 2023. Translation provided by Google Translate. Access Date: 1 November 2023. <https://www.economie.gouv.fr/que-contient-la-loi-industrie-verte>

voluntary and mutually agreed harmonizing standards as well as mutually recognized, and interoperable certification schemes.⁸⁹³ The Ministers also agreed to high level steps needed to achieve their commitment including collaboration on national standards development for low carbon hydrogen and movement towards global harmonization, free trade advancement, research and development cooperation for technological innovation, finance activation to support the entire supply chain, as well as voluntary information exchanges.

On 25 July 2023, President Emmanuel Macron and other members of the European Council approved the ‘Fit for 55’ legislative package, including the Alternative Fuel Infrastructure Regulation.⁸⁹⁴ The adopted legislation dictates required targets for hydrogen refuelling infrastructure.⁸⁹⁵

On 28 July 2023, the Ministry for Energy transition released a report on strategies for supply chains highlighting the hydrogen’s role in decarbonization.⁸⁹⁶

On 28 August 2023, the Government of France announced EUR4 billion in subsidies to support the low-carbon hydrogen development.⁸⁹⁷ The funding aims to support annual production of 140,000 tons.

On 30 August 2023, Minister Pannier-Runacher visited a low-carbon hydrogen production site and the first European electrolyser Gigafactory on a trip to promote hydrogen.⁸⁹⁸

On 19 September 2023, the Ministry of Ecological Transition and Territorial Cohesion and the Ministry of Energy Transition opened a consultation on the mechanisms to support decarbonized hydrogen production.⁸⁹⁹

On 27 September 2023, Minister for Economy, Finance and Industrial and Digital Sovereignty Bruno Le Maire and Minister Delegate for Public Accounts Thomas Cazenave tabled the draft Finance Bill 2024 in the National Assembly.⁹⁰⁰ The draft bill allocates EUR700 million to support low-carbon hydrogen production in France in 2024.⁹⁰¹

⁸⁹³ Outcome Document and Chair’ Summary, G20 Information Centre (Goa) 22 July 2023. Access Date: 10 November 2023. <http://www.g20.utoronto.ca/2023/230722-energy.html#annex1>

⁸⁹⁴ European Green Deal: Energy Efficiency Directive, FuelEU Maritime Regulation and Alternative Fuel Infrastructure Regulation adopted helping make the EU ‘Fit for 55’, European Commission Directorate-General for Mobility and Transport (Brussels) 25 July 2023. Access Date: 8 December 2023. https://transport.ec.europa.eu/news-events/news/european-green-deal-energy-efficiency-directive-fueu-maritime-regulation-and-alternative-fuel-2023-07-25_en

⁸⁹⁵ European Green Deal: ambitious new law agreed to deploy sufficient alternative fuels infrastructure, European Commission (Brussels) 28 March 2023. Access Date: 11 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_1867

⁸⁹⁶ PLAN DE PROGRAMMATION DES RESSOURCES MINÉRALES DE LA TRANSITION BAS-CARBONE, Ministère de la Transition énergétique (Paris) 28 July 2023. Access Date: 6 December 2023. https://www.ecologie.gouv.fr/sites/default/files/rapport_08_cgdd_ressources_minerales_critiques_energies_bas_carbone_juillet2023.pdf

⁸⁹⁷ French government earmarks €4 bln for low-carbon hydrogen, EURACTIV (Paris) 31 August 2023. Access Date: 1 November 2023. <https://www.euractiv.com/section/energy-environment/news/french-government-earmarks-e4-bln-for-low-carbon-hydrogen/>

⁸⁹⁸ Agnès Pannier-Runacher se rendra dans le Haut-Rhin (68) pour un déplacement consacré au développement de la production d’hydrogène en France - jeudi 31 août, Ministère de la Transition écologique et de la Cohésion des territoires Ministère de la Transition énergétique (Paris) 30 October 2023. Access Date: 6 December 2023. <https://www.ecologie.gouv.fr/agnes-pannier-runacher-se-rendra-dans-haut-rhin-68-deplacement-consacre-au-developpement-production>

⁸⁹⁹ Consultation sur le mécanisme de soutien à la production d’hydrogène décarboné, Ministère de la Transition écologique et de la Cohésion des territoires Ministère de la Transition énergétique (Paris) 19 September 2023. Access Date: 6 December 2023. <https://www.ecologie.gouv.fr/consultation-sur-mecanisme-soutien-production-dhydrogene-decarbone>

⁹⁰⁰ Projet de loi de finances 2024 : 10 milliards d’euros supplémentaires pour la planification écologique, Ministère de la Transition écologique et de la Cohésion des territoires Ministère de la Transition énergétique (Paris) 26 September 2023. Translation provided by Google Translate. Access date: 1 November 2023. <https://www.ecologie.gouv.fr/projet-loi-finances-2024-10-milliards-deuros-supplementaires-planification-ecologique>

⁹⁰¹ DP - Présentation du projet de loi de finances 2024, Ministère de l’Économie des Finances et de la Souveraineté Industrielle et Numérique (Paris) 17 September 2023. Translation provided by Google Translate. Access Date: 1 November 2023. <https://presse.economie.gouv.fr/27092023-dp-presentation-du-projet-de-loi-de-finances-2024/>

On 28 September 2023, Minister Pannier-Runacher met with Japanese Minister of Economy, Trade, and Industry Yasutoshi Nishimura confirmed bilateral cooperation in fields including hydrogen and ammonia.⁹⁰²

On 2 October 2023, Minister Le Maire, and Minister Pannier-Raucher announced the implementation of the Carbon Border Adjustment Mechanism (CBAM).⁹⁰³ The CBAM aims to reduce carbon leakage, will enter a transitional phase that lasts until the end of 2025. During this phase, reporting will be required from six sectors including hydrogen.

On 9 October 2023, President Macron and other members of the European Council granted final approval of two pillars of the ‘Fit for 55’ legislative package the ReFuelEU Aviation Regulation, and the revised Renewable Energy Directive.⁹⁰⁴ The updated directives outline greenhouse gas emission reductions of 14.5 per cent in the transport sector. The regulation increases the quota for renewable fuels, including hydrogen. The approval ensures fair competition among European companies through the implementation of the CBAM.

On 23 October 2023, the joint commission of the National Assembly and Senate passed the Green Industry Act.⁹⁰⁵ The Act aims to make France a leader in green industry and green technologies by creating and accelerating green industries and decarbonizing existing industries.⁹⁰⁶ The Act lists green hydrogen as an example of a major decarbonization technology to be accelerated.

On 24 October 2023, Minister Pannier-Runacher, Minister Delegate for Industry Clément Beaune, and the Minister Delegate for Transport Roland Lescure announced three decrees to allow for further retrofitting deployment to transform thermal vehicles into electric vehicles with batteries, hydrogen, or plug-in hybrid solutions.⁹⁰⁷

On 9 November 2023, the National Assembly passed the Finance Bill for 2024.⁹⁰⁸ The Bill replaces the previous age-based vehicle tax with a tax on emissions which provides a full tax exemption for hydrogen vehicles.⁹⁰⁹ The new vehicle tax increases hydrogen end-product affordability and encourages hydrogen vehicle uptake. The Bill creates a certification scheme for hydrogen origins as part of the Bill’s new Valued Added Tax rules. The Budget tasks the Public Energy Service to develop a subsidy program for carbon-free hydrogen based on production

⁹⁰² METI Minister Nishimura Attends IEA Critical Minerals and Clean Energy Summit, Ministry for Economy, Trade and Industry (Paris) 29 September 2023. Access Date: 6 December 2023. https://www.meti.go.jp/english/press/2023/0929_004.html

⁹⁰³ Mise en œuvre du Mécanisme d’ajustement carbone aux frontières (MACF) au 1er octobre 2023, Ministère de la Transition écologique et de la Cohésion des territoires Ministère de la Transition énergétique (Paris) 2 October 2023. Access Date: 6 December 2023. <https://www.ecologie.gouv.fr/mise-en-oeuvre-du-mecanisme-dajustement-carbone-aux-frontieres-macf-au-1er-octobre-2023>

⁹⁰⁴ Final adoption of ReFuelEU Aviation completes ‘Fit for 55’ legislation, putting EU on track to exceed 2030 targets, European Commission Directorate-General for Mobility and Transport (Brussels) 9 October 2023. Access Date: 8 December 2023. https://transport.ec.europa.eu/news-events/news/final-adoption-refueleu-aviation-completes-fit-55-legislation-putting-eu-track-exceed-2030-targets-2023-10-09_en

⁹⁰⁵ Que contient la loi industrie verte?, Ministère de L’Économie Des Finances Et de la Soveraineté Industrielle et Numérique (Paris) 25 October 2023. Translation provided by Google Translate. Access Date: 1 November 2023. <https://www.economie.gouv.fr/que-contient-la-loi-industrie-verte>

⁹⁰⁶ Que contient la loi industrie verte?, Ministère De L’Économie Des Finances Et De La Soveraineté Industrielle Et Numérique (Paris) 25 October 2023. Translation provided by Google Translate. Access Date: 1 November 2023. <https://www.economie.gouv.fr/que-contient-la-loi-industrie-verte>

⁹⁰⁷ Plan d’action national en faveur du rétrofit : Agnès Pannier-Runacher, Roland Lescure et Clément Beaune annoncent la publication de trois arrêtés afin de préciser et simplifier la réglementation, Ministère de la Transition écologique et de la Cohésion des territoires Ministère de la Transition énergétique (Paris) 24 October 2023. Access Date: 6 December 2023. <https://www.ecologie.gouv.fr/plan-daction-national-en-faveur-du-retrofit-agnes-pannier-runacher-roland-lescurer-et-clement-beaune>

⁹⁰⁸ Budget 2024, Sénat (Paris) n.d. Access Date: 9 December 2023. <https://www.senat.fr/dossier-legislatif/pjlf2024.html>

⁹⁰⁹ Projet de loi de finances n°1680, Assemblée Nationale (Paris) 27 September 2023. Access Date: 8 December 2023. https://www.assemblee-nationale.fr/dyn/16/textes/l16b1680_projet-loi

cost differential to fossil-fuel-based hydrogen. The Bill allocates EUR700 million to support low carbon hydrogen production in France in 2024.⁹¹⁰

On 11 November 2023, Minister Le Maire presented a draft law laying down provisions for adaptation to European Union law, and specifically introduces a definition into French law for renewable and low-carbon hydrogen.⁹¹¹

On 13 November 2023, France and Ireland signed a joint declaration of intent on energy transition cooperation, which included recognizing the role played by hydrogen production through electrolysis.⁹¹²

On 15 November 2023, the National Assembly passed the Public Finance Programming for the years 2023-2027 Act that allocates nearly EUR30 billion over 2024-2027 to commercialize small nuclear reactors, green hydrogen, and French industry decarbonization.⁹¹³

France has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable international standards and certification schemes adhering to environmental and social standards. France advanced strong actions to develop the supply chain for low carbon and renewable hydrogen through legislation designed to increase hydrogen fuelling infrastructure, funding to support hydrogen production, and tax exemptions for hydrogen powered vehicles. France supported the development of the rule-based global market for hydrogen, with strong actions, by enforcing hydrogen reporting requirements, implementing hydrogen origin certifications, and jointly establishing a hydrogen governance body to support market development.

Thus, France receives a score of +1.

Analyst: Sarab Wilczynski

Germany: +1

Germany has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable standards and certification schemes adhering to environmental and social standards.

On 26 May 2023, Germany's National Development Bank (KfW) announced its USD325 million contribution towards financing the world's largest green hydrogen project in Saudi Arabia.⁹¹⁴ This investment aims to help achieve global climate neutrality and successful energy transition through promoting reliable and large-scale green hydrogen production.

⁹¹⁰ DP - Présentation du projet de loi de finances 2024, Ministère De L'Économie Des Finances Et De La Souveraineté Industrielle Et Numérique (Paris) 17 September 2023. Translation provided by Google Translate. Access Date: 1 November 2023.

<https://presse.economie.gouv.fr/27092023-dp-presentation-du-projet-de-loi-de-finances-2024/>

⁹¹¹ Lettre de la DAJ – Un projet de loi portant diverses dispositions d'adaptation au droit de l'Union européenne déposé au Sénat, Ministère de l'économie des finances et de la souveraineté industrielle et numérique (Paris) 23 November 2023. Access Date: 6 December 2023. <https://www.economie.gouv.fr/daj/lettre-de-la-daj-un-projet-de-loi-portant-diverses-dispositions-dadaptation-au-droit-de-lunion>

⁹¹² L'Irlande et la France marquent le début des travaux de construction du "Celtic Interconnector" et signent une déclaration commune sur l'énergie, Ministère de la Transition écologique et de la Cohésion des territoires Ministère de la Transition énergétique (Paris) 13 November 2023. Access Date: 6 December 2023.

<https://www.ecologie.gouv.fr/lirlande-et-france-marquent-debut-des-travaux-construction-du-celtic-interconnector-et-signent>

⁹¹³ PROJET DE LOI MODIFIÉ PAR LE SÉNAT EN NOUVELLE LECTURE de programmation des finances publiques pour les années 2023 à 2027, Assemblée Nationale (Paris) 17 October 2023. Access Date: 6 December 2023. https://www.assemblee-nationale.fr/dyn/16/textes/l16b1746_projet-loi#

⁹¹⁴ KfW IPEX-Bank: Financing for the world's largest green hydrogen project, KfW development Bank (Frankfurt) 26 May 2023. Access Date: 2 December 2023. https://www.kfw-ipex-bank.de/Presse/News/Pressemitteilungsdetails_764672-2.html

On 31 May 2023, Minister for Economic Affairs and Climate Action Robert Habeck and European Commissioner for Energy Kadri Simson released a joint statement detailing plans to link the European Hydrogen Bank with Germany's H2Global to enhance hydrogen standards and markets.⁹¹⁵

On 8 June 2023, Federal Chancellor Olaf Scholz and Italian Prime Minister Giorgia Meloni announced an agreement to build a new hydrogen pipeline between Italy and Germany.⁹¹⁶ The pipeline will have the capacity to transport around four million tons of green hydrogen per year and aims to enhance German and European hydrogen infrastructure capacity.⁹¹⁷

On 13 June 2023, Parliamentary State Secretary at the Federal Ministry for Economic Affairs and Climate Action Franziska Brantner announced an agreement with the Government of Quebec to provide joint funding for innovation projects by startups, enterprises, and research societies in green hydrogen and energy transition technologies.⁹¹⁸ The agreement aims to deepen Germany's partnership with Quebec on innovation and decarbonization.

On 14 June 2023, the KfW, the Head of Division for the Latin American and Caribbean Public Sector for the European Investment Bank (EIB) Kritstin Lang, Executive Vice-President José Miguel Benavente of the Product Development Corporation, and Chilean Minister of Finance Mario Marcell Cullell signed a statement of intent establishing the Team Europe Renewable Hydrogen Funding Platform for Chile.⁹¹⁹ The agreement allows for up to EUR200 million in financing and a grant of EUR16.5 million from the EU Latin America and Caribbean Investment Facility and aims to support Chile's renewable hydrogen industry. The initiative advances Chile's goals of achieving 100 per cent clean energy by 2050, promoting economic decarbonization, creating green jobs, and fostering business opportunities for both Chilean and European companies.

On 20 June 2023, Chancellor Scholz signed the German-Chinese Memorandum of Understanding on electric and hydrogen mobility with the intention to continue information exchanges regarding safety, regulation, and standardization of its use.⁹²⁰

On 26 June 2023, Minister Habeck and South Africa's Minister of Electricity Kgosientsho Ramokgopa signed a cooperation agreement to further expand partnership on green hydrogen and its production, processing, and transport.⁹²¹ The deal aims to increase the supply of low-carbon energy in South Africa through green hydrogen, while securing its reliable, diversified supply to Germany.

⁹¹⁵ Joint statement by Commissioner Simson and German Minister Habeck on energy issues, European Commission (Brussels) 31 May 2023. Access Date: 5 November 2023. https://energy.ec.europa.eu/news/joint-statement-commissioner-simson-and-german-minister-habeck-energy-issues-2023-05-31_en

⁹¹⁶ Federal Chancellor Olaf Scholz in Rome, The Federal Government of Germany (Berlin) 8 June 2023. Access Date: 26 October 2023. <https://www.bundesregierung.de/breg-en/search/scholz-rome-meloni-2195154>

⁹¹⁷ Germany, Italy support new hydrogen-ready pipeline project, Reuters (Rome) 8 June 2023. Access Date: 26 October 2023. <https://www.reuters.com/business/energy/germany-italy-support-new-hydrogen-ready-pipeline-project-2023-06-08/>

⁹¹⁸ Economic Affairs Ministry and Canadian province of Quebec agree on joint funding for R&D projects of SMEs, Federal Ministry of Economic Affairs and Climate Action of Germany (Berlin) 13 June 2023. Access Date: 2 December. <https://www.bmwk.de/Redaktion/EN/Pressemitteilungen/2023/06/20230613-economic-affairs-ministry-and-canadian-province-of-quebec-agree-on-joint-funding-for-rd-projects-of-smes.html>

⁹¹⁹ Chile: EU, EIB and KfW to finance renewable hydrogen projects with up to €216.5 million, European Investment Bank (Santiago de Chile) 14 June 2023. Access Date: 7 December 2023. <https://www.eib.org/en/press/all/2023-223-eu-eib-and-kfw-to-finance-renewable-hydrogen-projects-in-chile-with-up-to-eur216-5-million>

⁹²⁰ 7th German-Chinese Intergovernmental Consultations, The Federal Government of Germany (Berlin) 20 June 2023. Access Date: 26 October 2023. <https://www.bundesregierung.de/breg-en/search/german-chinese-intergovernmental-consultations-2197554>

⁹²¹ Germany and South Africa sign cooperation agreement on green hydrogen, Federal Ministry of Economic Affairs and Climate Action of Germany (Berlin) 27 June 2023. Access Date: 2 December 2023. <https://www.bmwk.de/Redaktion/EN/Pressemitteilungen/2023/06/20230627-germany-south-africa-cooperation-green-hydrogen.html>

On 5 July 2023, the Federal Cabinet adopted the Act Adopting the Federal Budget for the 2024 Fiscal Year and Fiscal Plan to 2027.⁹²² The budget supports additional measures for future technologies and climate action via the almost EUR250 billion Climate and Transformation Fund 2023-2027. Examples include financing for the hydrogen strategy, industrial decarbonization and initiatives under the Renewable Energy Sources Act.

On 7 July 2023, the Bundestag passed amendments to the Liquefied Natural Gas Acceleration Act, stating that land-based Liquefied Natural Gas terminals will need to be retrofitted to show a proof of green readiness, or the ability to operate on green hydrogen.⁹²³ The amendment promotes sustainable investments into new gas terminals allowing for greater hydrogen infrastructure.

On 19 July 2023, Minister Habeck emphasized the importance of Germany's closer cooperation with India on issues like green hydrogen, decarbonizing the economy, and mitigating the climate crisis.⁹²⁴

On 20 July 2023, the representatives from the KfW discussed the importance of collaboration with other leading European development banks to jointly contribute to transforming the European Union's energy sector to a low-carbon model through green hydrogen initiatives.⁹²⁵

On 21 July 2023, Minister Habeck and Japanese Minister of Economy, Trade and Industry Yasutoshi Nishimura discussed bilateral cooperation on hydrogen at the 14th Clean Energy Ministerial and 8th Mission Innovation Ministerial.⁹²⁶

On 22 July 2023, Minister Habeck and the G20 Energy Ministers committed to “support acceleration of production, utilization, as well as development of transparent and resilient global markets for hydrogen produced from zero and low emission technologies and its derivatives such as ammonia by developing voluntary and mutually agreed harmonizing standards as well as mutually recognized, and interoperable certification schemes.”⁹²⁷ The Ministers also agreed to high level steps needed to achieve their commitment including collaboration on national standards development for low carbon hydrogen and movement towards global harmonization, free trade advancement, research and development cooperation for technological innovation, finance activation to support the entire supply chain, as well as voluntary information exchanges.

On 22 July 2023, Germany, along with Australia, Brazil, Canada, Chile, Japan, Saudi Arabia, Korea, the Netherlands, United Arab Emirates, the United Kingdom, the United States, Uruguay and the European Commission on behalf of the European Union jointly launched the International Hydrogen Trade Forum to

⁹²² German Draft Budgetary Plan, Federal Ministry of Finance (Berlin) 13 October 2023. Access Date: 8 December 2023.

https://economy-finance.ec.europa.eu/system/files/2023-10/2024_dbp_de_en.pdf

⁹²³ Bundesrat adopts draft legislation amending the LNG Acceleration Act, Federal Ministry of Economic Affairs and Climate Action of Germany (Berlin) 7 July 2023. Access Date: 2 December 2023.

<https://www.bmwk.de/Redaktion/EN/Pressemitteilungen/2023/07/20230707-bundesrat-adopts-draft-legislation-amend-ing-the-lng-acceleration-act.html>

⁹²⁴ Minister Habeck travels to India: Important partner in the diversification of the German economy, Federal Ministry of Economic Affairs and Climate Action of Germany (Berlin) 19 July 2023. Access Date: 2 December 2023.

<https://www.bmwk.de/Redaktion/EN/Pressemitteilungen/2023/07/20230719-minister-habeck-travels-to-india.html>

⁹²⁵ The Joint Initiative on Circular Economy (JICE) reaches €8.9 billion and continues its efforts, KfW Development Bank (Madrid) 20 July 2023. Access Date: 2 December 2023. https://www.kfw.de/About-KfW/Newsroom/Latest-News/Pressemitteilungen-Details_773952.html

⁹²⁶ METI Minister Nishimura Attends the 14th Clean Energy Ministerial (CEM14) and 8th Mission Innovation Ministerial (MI-8), and a G20 Energy Transitions Ministers' Meeting, Ministry of Economy, Trade and Industry (Goa) 23 July 2023. Access Date: 9 December 2023. https://www.meti.go.jp/english/press/2023/0723_001.html

⁹²⁷ Outcome Document and Chair' Summary, G20 Information Centre (Goa) 22 July 2023. Access Date: 10 November 2023. <http://www.g20.utoronto.ca/2023/230722-energy.html#annex1>

advance the global hydrogen market.⁹²⁸ The Forum aims to connect importers and exporters and reduce barriers to trade and bolsters the global market for hydrogen.

On 25 July 2023, Chancellor Scholz and other members of the European Council approved the 'Fit for 55' legislative package, including the Alternative Fuel Infrastructure Regulation.⁹²⁹ The adopted legislation dictates required targets for hydrogen refuelling infrastructure.⁹³⁰

On 26 July 2023, Minister Habeck presented the updated National Hydrogen Strategy which sets development plans for hydrogen infrastructure across Germany.⁹³¹ Minister Habeck also underlined progress in funding distribution to create hydrogen-capable power plants in Germany's electricity sector. The presentation emphasized that, before green hydrogen becomes fully available, priority would be given to utilizing other low-carbon techniques below like blue and turquoise hydrogen with greenhouse gas (GHG) emissions below unabated fossil fuel use. According to the federal government's plans, Germany will have a capacity of at least ten gigawatts for domestic electrolysis by 2030 and a new hydrogen import strategy.

On 1 August 2023, Minister Habeck concluded discussions between Germany and the European Commission with the regards to the framework conditions for future hydrogen plants and converting existing plants towards hydrogen capability.⁹³² The framework now moves to the consultation phase. The Minister outlined that Germany intends to tender hydrogen power plants with generating capacity up to 15 gigawatts of electricity by 2035 that are currently operating with natural gas.

On 9 August 2023, Chancellor Scholz announced that the federal government will invest in German mechanical engineering and heavy industry to promote the production of green steel using carbon-neutral or low-carbon hydrogen.⁹³³

On 9 August 2023, the Federal Cabinet approved the draft for the Special Climate and Transformation Fund for 2024 to achieve Germany's goal of creating a climate-neutral economy and includes EUR3.7 billion for boosting the hydrogen economy.⁹³⁴

⁹²⁸ LAUNCH OF THE INTERNATIONAL HYDROGEN TRADE FORUM TO ACCELERATE GLOBAL COLLABORATION, Clean Energy Ministerial (Goa) 22 July 2023. Access Date: 15 December 2023. <https://www.cleanenergyministerial.org/launch-of-the-international-hydrogen-trade-forum-to-accelerate-global-collaboration/>

⁹²⁹ European Green Deal: Energy Efficiency Directive, FuelEU Maritime Regulation and Alternative Fuel Infrastructure Regulation adopted helping make the EU 'Fit for 55', European Commission Directorate-General for Mobility and Transport (Brussels) 25 July 2023. Access Date: 8 December 2023. https://transport.ec.europa.eu/news-events/news/european-green-deal-energy-efficiency-directive-fueleu-maritime-regulation-and-alternative-fuel-2023-07-25_en

⁹³⁰ European Green Deal: ambitious new law agreed to deploy sufficient alternative fuels infrastructure, European Commission (Brussels) 28 March 2023. Access Date: 11 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_1867

⁹³¹ Energie aus klimafreundlichem Gas, The Federal Government of Germany (Berlin) 26 July 2023. Translation provided by Google Translate. Access Date: 3 November 2023. <https://www.bundesregierung.de/breg-de/schwerpunkte/klimaschutz/wasserstoff-technologie-1732248>

⁹³² Rahmen für die Kraftwerksstrategie steht – wichtige Fortschritte in Gesprächen mit EU-Kommission zu Wasserstoffkraftwerken erzielt, Bundesministerium für Wirtschaft und Klimaschutz (Berlin) 1 August 2023. Translation provided by Google Translate. Access Date: 2 December. <https://www.bmwk.de/Redaktion/DE/Pressemitteilungen/2023/08/20230801-rahmen-fuer-die-kraftwerksstrategie-steht.html>

⁹³³ Realizing a Successful Transformation, The Federal Government of Germany (Berlin) 9 August 2023. Access Date: 3 November 2023. <https://www.bundesregierung.de/breg-en/search/business-hub-germany-2209048>

⁹³⁴ Federal Cabinet adopts business plan for the Climate and Transformation Fund (CTF), Federal Ministry of Economic Affairs and Climate Action of Germany (Berlin) 9 August 2023. Access Date: 2 December 2023. <https://www.bmwk.de/Redaktion/EN/Pressemitteilungen/2023/08/20230809-federal-cabinet-adopts-business-plan-for-the-climate-and-transformation-fund-ctf.html>

On 5 September 2023, Chancellor Scholz announced that a part of the EUR58 billion from the Climate and Transformation Fund would be used for ramping up hydrogen energy utilization and development.⁹³⁵

On 15 September 2023, the Ministry of Finance submitted a payment application to the European Commission through the Recovery and Resilience Plan including for hydrogen projects, electromobility, digitalization, and public administration efficiency.⁹³⁶

On 25 September 2023, Chancellor Scholz reiterated Germany's commitment to replace fossil fuels like coal, gas and oil with hydrogen and announced further developments of hydrogen-capable infrastructure in the country.⁹³⁷

On 26 September 2023, State Secretary for Energy Phillip Nimmerman and United Kingdom Minister for Energy Efficiency and Green Finance John Callanan announced a new agreement between the UK and Germany to assist in accelerating international hydrogen industry development.⁹³⁸ Germany and the UK committed to assist in establishing regulations to aid hydrogen trade and include low-carbon hydrogen into their nations' energy mix and to work together to advance renewable hydrogen technologies through research and innovation.

On 27 September 2023, Chancellor Scholz emphasized the importance of developing a hydrogen-based economy at the annual reception of the German Society for International Collaboration.⁹³⁹

On 4 October 2023, Minister Habeck announced the adoption of Germany's 2023 Climate Action Programme.⁹⁴⁰ The Minister cites that the further expansion of the hydrogen network as crucial for work towards climate neutrality.

On 9 October 2023, Chancellor Scholz and other members of the European Council granted final approval of two pillars of the 'Fit for 55' legislative package the ReFuelEU Aviation Regulation, and the revised Renewable Energy Directive.⁹⁴¹ The updated directives outline GHG emission reductions of 14.5 per cent in the transport sector. The regulation increases the quota for renewable fuels, including hydrogen. The approval ensures fair competition among European companies through the implementation of the Carbon Border Adjustment Mechanism.

⁹³⁵ Federal Chancellor at the International Motor Show, The Federal Government of Germany (Berlin) 5 September 2023. Access Date: 3 November 2023. <https://www.bundesregierung.de/breg-en/search/chancellor-iaa-2221436>

⁹³⁶ Deutschland stellt ersten Zahlungsantrag im Rahmen der Aufbau- und Resilienzfähigkeit, Bundesministerium der Finanzen (Berlin), 18 September 2023. Translation Provided by Google Translate. Access Date: 13 December 2023. <https://www.bundesfinanzministerium.de/Content/DE/Pressemitteilungen/Finanzpolitik/2023/09/2023-09-18-zahlungsantrag-aufbau-und-resilienzfaehigkeit.html>

⁹³⁷ Taking off into a new and better age, The Federal Chancellor (Hamburg) 25 September 2023. Access Date: 2 December 2023. <https://www.bundeskanzler.de/bk-en/news/national-aviation-conference-2225882>

⁹³⁸ UK and Germany partner to further advance hydrogen developments, Government of the United Kingdom (London) 26 September 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/uk-and-germany-partner-to-further-advance-hydrogen-developments>

⁹³⁹ Federal Chancellor at the GIZ Annual Reception, The Federal Government of Germany (Berlin) 27 September 2023. Access Date: 3 November 2023. <https://www.bundesregierung.de/breg-en/search/scholz-at-the-giz-annual-reception-2226648>

⁹⁴⁰ Federal Cabinet adopts comprehensive 2023 Climate Action Programme, Federal Ministry of Economic Affairs and Climate Action of Germany (Berlin) 4 October 2023. Access Date: 2 December 2023. <https://www.bmwk.de/Redaktion/EN/Pressemitteilungen/2023/10/20231004-federal-cabinet-adopts-comprehensive-2023-climate-action-programme.html>

⁹⁴¹ Final adoption of ReFuelEU Aviation completes 'Fit for 55' legislation, putting EU on track to exceed 2030 targets, European Commission Directorate-General for Mobility and Transport (Brussels) 9 October 2023. Access Date: 8 December 2023. https://transport.ec.europa.eu/news-events/news/final-adoption-refueleu-aviation-completes-fit-55-legislation-putting-eu-track-exceed-2030-targets-2023-10-09_en

On 11 October 2023, State Secretary Nimmermann delivered a speech at the sixth German-French Energy Forum, with a particular focus on hydrogen as a means to decarbonize the economy.⁹⁴² Both sides acknowledged the importance of European hydrogen infrastructure and a common regulatory framework for hydrogen in areas like mobility, manufacturing, and electricity.

On 11 October 2023, Minister for Education and Research Bettina Stark-Watzinger and Italian Minister of University and Research Anna Maria Bernini hosted the Green Hydrogen Generation, Transport and Application: German-Italian Perspectives on the Energy Transition and Hydrogen Economy workshop.⁹⁴³ The event facilitated hydrogen discussions on national strategies, projects underway, plans for a hydrogen corridor and proposed solutions to market barriers.

On 23 October 2023, at the Fifth German-Algerian Energy Day, Parliamentary State Secretary of the German Federal Ministry for Economic Affairs and Climate Protection Stefan Wenzel held discussions with the Algerian Minister for Energy and Mining Mohamed Arkab over the conversion and expansion of gas pipelines between two countries to be hydrogen-capable, especially as Algeria increases green hydrogen production.⁹⁴⁴

On 7 November 2023, the KfW announced an agreement with the Industrial Development Corporation, South Africa's state-owned promotional bank, pledging EUR23.1 million for a programme to promote sustainable economy development by financing projects for large scale green hydrogen production and use.⁹⁴⁵

On 3 November 2023, Germany and the United Kingdom issued a joint declaration of cooperation on energy and climate change with hydrogen as a key area for cooperation.⁹⁴⁶

On 3 November 2023, Minister Habeck met British Minister for Energy Security and Net Zero Claire Coutinho to discuss energy cooperation.⁹⁴⁷ In a joint agreement, both ministers reaffirmed their commitment to cooperation in hydrogen energy.

On 11 November 2023, the Bundestag passed a law to adapt energy regulations to comply with European Union law and otherwise amend energy regulations.⁹⁴⁸ The law further ensures the security and affordability of energy and the expansion of the hydrogen network.

⁹⁴² 6. Deutsch-französisches Energieforum, Bundesministerium für Wirtschaft und Klimaschutz (Berlin) 11 October 2023.

Translation provided by Google Translate. Access Date: 2 December 2023.

<https://www.bmwk.de/Redaktion/DE/Pressemitteilungen/2023/10/20231011-6-deutsch-franzoesisches-energieforum.html>

⁹⁴³ Green Hydrogen Generation, Transport And Application: German-Italian Perspectives On The Energy Transition And Hydrogen Economy, Federal Ministry of Education and Research (Berlin) 11 October 2023. Access Date: 27 November 2023.

https://live.invitatio.com/data/uploads/files/21541/20230912_Workshopprogramm.pdf

⁹⁴⁴ New hydrogen pipeline and accelerated solar expansion deepen German-Algerian energy partnership, Federal Ministry of Economic Affairs and Climate Action of Germany (Algiers) 23 October 2023. Access Date: 2 December 2023.

<https://www.bmwk.de/Redaktion/DE/Pressemitteilungen/2023/10/20231023-neue-wasserstoffpipeline-und-beschleunigter-solarausbau-vertiefen-deutsch-algerische-energiepartnerschaft.html>

⁹⁴⁵ Launch of green hydrogen in South Africa: harnessing the extraordinary potential of renewable sources of energy, KfW Development Bank (Frankfurt) 7 November 2023. Access Date: 2 December. https://www.kfw.de/About-KfW/Newsroom/Latest-News/Pressemitteilungen-Details_786048.html

⁹⁴⁶ Joint Declaration of cooperation on energy and climate, Government of the United Kingdom (London) 3 November 2023.

Access Date: 6 December 2023. <https://www.gov.uk/government/publications/cooperation-on-energy-and-climate-joint-declaration-between-united-kingdom-and-germany/joint-declaration-of-cooperation-on-energy-and-climate>

⁹⁴⁷ Habeck reist nach London – Künstliche Intelligenz und Energiefragen stehen im Vordergrund, Bundesministerium für Wirtschaft und Klimaschutz (Berlin) 2 November 2023. Translation Provided by Google Translate. Access Date: 13 December 2023. <https://www.bmwk.de/Redaktion/DE/Pressemitteilungen/2023/11/20231102-habeck-london-kuenstliche-intelligenz-und-energiefragen.html>

⁹⁴⁸ Land unter Strom: Bundestag billigt Anpassung an EU-Recht und weitere Änderungen im Bereich, Bundeszentrale für politische Bildung (Bonn) 11 November 2023. Translation Provided by Google Translate. Access Date: 13 December 2023. https://www.das-parlament.de/2023/46/wirtschaft_und_finanzen/977012-977012

On 13 November 2023, the KfW released its Climate Financing Roadmap.⁹⁴⁹ The roadmap outlines a framework for developing and producing clean energy solutions to combat climate change, including hydrogen energy, through investments and funding opportunities for developers. These investments will serve to catalyze hydrogen supply chains.

On 14 November 2023, representatives from the Federal Ministry for Economic Affairs and Climate Protection and the Dutch Ministry of Economic Affairs and Climate Policy signed two joint declarations of intent on cooperation in the field of hydrogen between Germany and Netherlands.⁹⁵⁰ Countries pledged to cooperate on accelerating the expansion of hydrogen infrastructure and joint green hydrogen imports under the newly established H2Global instrument.

On 15 November 2023, the German Federal Cabinet passed an amendment to the Energy Industry Act to create a comprehensive network of hydrogen-capable infrastructure across the country.⁹⁵¹ The plan sets off a process to rapidly develop the hydrogen infrastructure and connect central hydrogen locations, central to reaching large hydrogen consumption and production capabilities.

On 20 November 2023, Chancellor Scholz attended the Compact with Africa Conference. Chancellor Scholz called for greater business cooperation with Africa, including more private investment in the field of hydrogen energy.⁹⁵² He highlighted the competitive conditions in Africa for hydrogen production and encouraged it as a potential pathway to a climate-friendly energy supply chain based on green energy.

On 21 November 2023, the Bundestag released a Small Inquiry on Franco-German energy and hydrogen cooperation for Europe.⁹⁵³ The Inquiry emphasized the use of clean, low-emission hydrogen as key to achieving both climate goals and geopolitical independence in the European energy sphere in context of global threats.

On 22 November 2023, Chancellor Scholz emphasized, via video at the G20, the importance of developing a southern corridor for hydrogen to increase energy supply security for Italy and Germany across the Alps in the context of the conflicts in Ukraine and the Middle East.⁹⁵⁴

⁹⁴⁹ The Climate Financing Roadmap How Development Finance Institutions Can Build Bridges to Unlock Private Capital, Boston Consulting Group & KfW Development Bank (Frankfurt) November 2023. Access Date: 13 December 2023.

[https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-Studien-und-Materialien/PDF-Dateien-Paper-and-Proceedings-\(EN\)/The-Climate-Financing-Roadmap.pdf](https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-Studien-und-Materialien/PDF-Dateien-Paper-and-Proceedings-(EN)/The-Climate-Financing-Roadmap.pdf)

⁹⁵⁰ Deutschland und Niederlande arbeiten noch enger im Bereich Wasserstoff zusammen – zwei gemeinsame Absichtserklärungen unterzeichnet, Bundesministerium für Wirtschaft und Klimaschutz (Berlin) 14 November 2023. Translation provided by Google Translate. Access Date: 2 December 2023.

<https://bmwk.de/Redaktion/DE/Pressemitteilungen/2023/11/20231114-deutschland-und-niederlande-arbeiten-noch-enger-im-bereich-wasserstoff-zusammen.html>

⁹⁵¹ Gesetz zur Wasserstoff-Netzplanung und Kernnetz-Finanzierung beschlossen, Federal Ministry of Economic Affairs and Climate Action of Germany (Berlin) 15 November 2023. Translation provided by Google Translate. Access Date: 2 December 2023. <https://www.bmwk.de/Redaktion/DE/Pressemitteilungen/2023/11/20231115-gesetz-zur-wasserstoff-netzplanung-und-kernnetz-finanzierung-beschlossen.html>

⁹⁵² Promoting Africa as a sustainable business partner, The Federal Chancellor (Berlin) 20 November 2023. Access Date: 13 December 2023. <https://www.bundeskanzler.de/bk-en/news/compact-with-africa-conference-2245262>

⁹⁵³ Deutsch-französische Energie- und Wasserstoffzusammenarbeit für Europa, Deutscher Bundestag (Berlin) 21 November 2023. Translation Provided by Google Translate. Access Date: 13 December 2023. <https://dserver.bundestag.de/btd/20/094/2009439.pdf>

⁹⁵⁴ A pipeline for greater energy security, The Federal Chancellor (Berlin) 22 November 2023. Access Date: 13 December 2023. <https://www.bundeskanzler.de/bk-en/news/intergovernmental-consultations-germany-italy-2245266>

On 29 November 2023, Minister Habeck reaffirmed the importance of building up green hydrogen production at the United Nations Climate Change Conference in Dubai.⁹⁵⁵

On 30 November 2023, the German International Climate Initiative (IKI) released The Strategy of the International Climate Initiative up to 2030.⁹⁵⁶ The strategy outlines the IKI's intention to mobilize EUR1.5 billion in private investment towards targets including energy efficiency improvements using green hydrogen as a means of energy storage.⁹⁵⁷

Germany has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable international standards and certification schemes adhering to environmental and social standards. Germany advanced strong actions to develop the supply chain for low carbon and renewable hydrogen through funding for domestic and international hydrogen production projects, pipeline development and retrofitting, research, development and scaleup investments, legislation designed to increase hydrogen fuelling infrastructure, updates to the hydrogen strategy, and funding for hydrogen solutions to industry abatement. Germany supported the development of the rule-based global market for hydrogen, with strong actions, by enforcing hydrogen reporting requirements and jointly establishing a hydrogen governance body to support market development.

Thus, Germany receives a score of +1.

Analyst: Giorgi Kaikatsishvili

Italy: +1

Italy has fully complied with its commitment to enhance the global market and supply chains for low carbon and renewable hydrogen.

On 8 June 2023, Prime Minister Giorgia Meloni and German Chancellor Olaf Scholz announced an agreement to build a new hydrogen pipeline between Italy and Germany.⁹⁵⁸ The pipeline will have the capacity to transport around four million tons of green hydrogen per year and is designed to enhance Italian and European hydrogen infrastructure capacity.⁹⁵⁹

On 26 June 2023, Deputy Minister of Environment and Safety Vannia Gava unveiled, Rome's first hydrogen refuelling station and lauded Q8 and NextChem.⁹⁶⁰ Gava's attendance demonstrates the government's support for hydrogen.

⁹⁵⁵ Mehr Tempo, Solidarität, globale Partnerschaft: Deutschland auf der Weltklimakonferenz in Dubai, des Auswärtigen Amts, des Bundesministeriums für Wirtschaft und Klimaschutz, des Bundesministeriums für wirtschaftliche Zusammenarbeit und Entwicklung und des Bundesministeriums für Umwelt, Naturschutz, nukleare Sicherheit und Verbraucherschutz (Berlin) 29 November 2023. Translation Provided by Google Translate. Access Date: 13 December 2023.

<https://www.bmuv.de/pressemitteilung/mehr-tempo-solidaritaet-globale-partnerschaft-deutschland-auf-der-weltklimakonferenz-in-dubai-1>

⁹⁵⁶ Internationale Klimaschutzinitiative (IKI): Bundesregierung legt Strategie bis 2030 vor, dem Bundesministerium für Wirtschaft und Klimaschutz und dem Auswärtigen Amt (Berlin) 30 November 2023. Translation Provided by Google Translate. Access Date: 13 December 2023. <https://www.bmuv.de/pressemitteilung/internationale-klimaschutzinitiative-iki-bundesregierung-legt-strategie-bis-2030-vor>

⁹⁵⁷ The Strategy of the International Climate Initiative up to 2030, International Climate Initiative (Berlin) 30 November 2023. Access Date: 13 December 2023. <https://www.international-climate-initiative.com/en/iki-media/publication/the-strategy-of-the-international-climate-initiative-up-to-2030-1812/>

⁹⁵⁸ Federal Chancellor Olaf Scholz in Rome, The Federal Government of Germany (Berlin) 8 June 2023. Access Date: 26 October 2023. <https://www.bundesregierung.de/breg-en/search/scholz-rome-meloni-2195154>

⁹⁵⁹ Germany, Italy support new hydrogen-ready pipeline project, Reuters (Rome) 8 June 2023. Access Date: 26 October 2023. <https://www.reuters.com/business/energy/germany-italy-support-new-hydrogen-ready-pipeline-project-2023-06-08/>

⁹⁶⁰ Stazione ad idrogeno Roma, Gava: "Sinergia che risponde a sfida transizione energetica," Ministero dell'Ambiente e della Sicurezza Energetica (Rome) 26 June 2023. Translation provided by Google Translate. Access Date: 8 December 2023. <https://www.mase.gov.it/notizie/stazione-ad-idrogeno-roma-gava-sinergia-che-risponde-sfida-transizione-energetica>

On 22 July 2023, Minister of the Environment and Energy Security Gilberto Pichetto and the G20 Energy Ministers committed to “support acceleration of production, utilization, as well as development of transparent and resilient global markets for hydrogen produced from zero and low emission technologies and its derivatives such as ammonia by developing voluntary and mutually agreed harmonizing standards as well as mutually recognized, and interoperable certification schemes.”⁹⁶¹ The Ministers also agreed to high level steps needed to achieve their commitment including collaboration on national standards development for low carbon hydrogen and movement towards global harmonization, free trade advancement, research and development cooperation for technological innovation, finance activation to support the entire supply chain, as well as voluntary information exchanges.

On 25 July 2023, Prime Minister Meloni and other members of the European Council approved the ‘Fit for 55’ legislative package, including the Alternative Fuel Infrastructure Regulation.⁹⁶² The adopted legislation dictates required targets for hydrogen refuelling infrastructure.⁹⁶³

On 7 August 2023, Italy informed the European Commission about a EUR100 million project under the Temporary Crisis and Transition Framework to produce electrolyzers to accelerate and promote hydrogen production.⁹⁶⁴

On 28 August 2023, Minister of Business and Made in Italy Adolfo Urso approved an innovation agreement including EUR2.8 million in government funding to construct two pilot plants for fuel cells and flow batteries.⁹⁶⁵ Fuel cells form a part of the hydrogen supply chain, especially for electricity production.⁹⁶⁶

On 5 September 2023, the Ministry of Business and Made in Italy allocated EUR300 million from the ‘Fund to support industrial transition’ to assist companies in their environmental protection investment programs.⁹⁶⁷ Qualifying projects include hydrogen production. The government plans to cover expenses ranging between EUR3 million to EUR20 million for eligible programs.

On 3 October 2023, Ferrovie Nord Milano (FNM) and Alstom jointly unveiled the Coradia Stream, a EUR160 million hydrogen-powered train.⁹⁶⁸ Ferrovie Dello Stato, the Italian state-owned rail company owns 14.74 per

⁹⁶¹ Outcome Document and Chair’ Summary, G20 Information Centre (Goa) 22 July 2023. Access Date: 10 November 2023. <http://www.g20.utoronto.ca/2023/230722-energy.html#annex1>

⁹⁶² European Green Deal: Energy Efficiency Directive, FuelEU Maritime Regulation and Alternative Fuel Infrastructure Regulation adopted helping make the EU ‘Fit for 55’, European Commission Directorate-General for Mobility and Transport (Brussels) 25 July 2023. Access Date: 8 December 2023. https://transport.ec.europa.eu/news-events/news/european-green-deal-energy-efficiency-directive-fueeu-maritime-regulation-and-alternative-fuel-2023-07-25_en

⁹⁶³ European Green Deal: ambitious new law agreed to deploy sufficient alternative fuels infrastructure, European Commission (Brussels) 28 March 2023. Access Date: 11 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_1867

⁹⁶⁴ State aid: Commission approves €100 million Italian scheme to support the production of electrolyzers to foster the transition to a net-zero economy’, European Commission (Brussels) 9 October 2023. Access Date: 10 November 2023 https://ec.europa.eu/commission/presscorner/detail/en/ip_23_4730

⁹⁶⁵ Energia green, Urso autorizza accordo per l’innovazione per lo sviluppo di materiale per celle a combustibile e batterie a flusso, Ministero delle Imprese e del Made in Italy (Rome) 28 August 2023. Translation provided by Google Translate. Access Date: 8 December 2023 <https://www.mimit.gov.it/it/notizie-stampa/energia-green-urso-autorizza-accordo-per-linnovazione-per-lo-sviluppo-di-materiale-per-celle-a-combustibile-e-batterie-a-flusso>

⁹⁶⁶ Water Electrolyzers and Fuel Cells Supply Chain Deep Dive Assessment, Department of Energy Office of Energy Efficiency and Renewable Energy (Washington D.C.) n.d. Access Date: 16 December 2023. <https://www.energy.gov/eere/fuelcells/water-electrolyzers-and-fuel-cells-supply-chain-deep-dive-assessment>

⁹⁶⁷ Transizione green, stanziati 300 milioni per i programmi di investimento delle imprese, Ministero delle Imprese e del Made in Italy (Rome) 5 September 2023. Translation provided by Google Translate. Access Date: 8 December 2023 <https://www.mimit.gov.it/it/notizie-stampa/transizione-green-stanziati-300-milioni-per-i-programmi-di-investimento-delle-imprese>

⁹⁶⁸ FNM and Alstom present Italy’s first hydrogen-powered train, Alstom (Paris) 3 October 2023. Access Date: 10 November 2023. <https://www.alstom.com/press-releases-news/2023/10/fnm-and-alstom-present-italys-first-hydrogen-powered-train>

cent of FNM.⁹⁶⁹ FNM plans for the Coradia to begin operating commercially in Valcamonica between late 2024 and early 2025.⁹⁷⁰ This initiative forms part of the H2iseO project, which aims to establish Italy's first Hydrogen Valley in the Brescia region. The Coradia Stream aligns with European environmental objectives and entails renewable hydrogen because it produces zero direct carbon emissions using hydrogen fuel cells.

On 4 October 2023, the Ministry of the Environment and Energy security announced the implementation of the Carbon Border Adjustment Mechanism (CBAM).⁹⁷¹ The CBAM, meant to reduce carbon leakage, enters a transitional phase to the end of 2025, requiring reporting from six sectors, including hydrogen.

On 9 October 2023, Prime Minister Meloni and other members of the European Council granted final approval of two pillars of the 'Fit for 55' legislative package the ReFuelEU Aviation Regulation, and the revised Renewable Energy Directive.⁹⁷² The updated directives outline GHG emission reductions of 14.5 per cent in the transport sector. The regulation increases the quota for renewable fuels, including hydrogen. The approval ensures fair competition among European companies through the implementation of the CBAM.

On 11 October 2023, Minister of University and Research Anna Maria Bernini and German Minister for Education and Research Bettina Stark-Watzinger hosted the Green Hydrogen Generation, Transport and Application: German-Italian Perspectives on the Energy Transition and Hydrogen Economy workshop.⁹⁷³ The event facilitated hydrogen discussions on national strategies, projects underway, plans for a hydrogen corridor and proposed solutions to market barriers.

On 16 October 2023, Minister of Economy and Finance Giancarlo Giorgetti, tabled the 2024 Draft Budget Plan with the Cabinet; its main measures comprise growing the national economy with a focus on the green energy transition including hydrogen, while maintaining sound public finances.⁹⁷⁴ The REPowerEU chapter for Italy represented in the budget plan consists of EUR2.76 billion for investments in energy networks, the green transition & energy efficiency, and green energy supply chains. Measures to support the green transition and energy efficiency include tax credits, non-repayable contributions, subsidized loans, and instruments like development contracts. Types of projects favoured comprise renewable energy production, self-production facilities, hydrogen production especially in disused areas, and R&D related to hydrogen. Energy supply chain development focuses on strategic, sustainable & circular, safe supplies of critical materials, parts, and technologies.

On 18 October 2023, Minister Urso and President of the National Association for the Automotive Industry Roberto Vavassori, signed a Memorandum of Understanding, outlining keys to address Italy's ecological

⁹⁶⁹ La holding FNM è una società per azioni quotata in Borsa, Ferrovie Nord Milano (Milan) 19 July 2022. Translation provided by Google Translate. Access Date: 13 November 2023.

<https://web.archive.org/web/20220719212151/https://www.fnmgroup.it/it/il-gruppo-fnm-in-borsa>

⁹⁷⁰ FNM and Alstom present Italy's first hydrogen-powered train, Alstom (Paris) 3 October 2023. Access Date: 13 November 2023. <https://www.alstom.com/press-releases-news/2023/10/fnm-and-alstom-present-italys-first-hydrogen-powered-train>

⁹⁷¹ Parte il meccanismo di adeguamento del carbonio alle frontiere (CBAM), avviata prima fase transitoria, Ministero dell'Ambiente e della Sicurezza Energetica (Rome) 4 October 2023. Access Date: 16 December 2023.

<https://www.mase.gov.it/notizie/parte-il-mechanismo-di-adequamento-del-carbonio-alle-frontiere-cbam-avviata-prima-fase>

⁹⁷² Final adoption of ReFuelEU Aviation completes 'Fit for 55' legislation, putting EU on track to exceed 2030 targets, European Commission Directorate-General for Mobility and Transport (Brussels) 9 October 2023. Access Date: 8 December 2023.

https://transport.ec.europa.eu/news-events/news/final-adoption-refueleu-aviation-completes-fit-55-legislation-putting-eu-track-exceed-2030-targets-2023-10-09_en

⁹⁷³ Green Hydrogen Generation, Transport And Application: German-Italian Perspectives On The Energy Transition And Hydrogen Economy, Federal Ministry of Education and Research (Berlin) 11 October 2023. Access Date: 27 November 2023.

https://live.invitatio.com/data/uploads/files/21541/20230912_Workshopprogramm.pdf

⁹⁷⁴ 2024 Draft Budget Plan Italy, Minister of Economy and Finance (Rome) 16 October 2023. Access Date: 13 December 2023.

https://economy-finance.ec.europa.eu/system/files/2023-11/2024_dbp_it_en.pdf

transition within the automotive supply chain by 2030.⁹⁷⁵ The Memorandum supports market policy adoption to encourage hydrogen utilization.

On 31 October 2023, the Council of Ministers published the Decree No. 145 and introduced Senate Act No. 926, the Budget Law 2024, approved in Cabinet on 18 October 2023.⁹⁷⁶ The 2024 Budget recognizes the main upcoming European deadlines (Milestones and Targets) for the Ministry of Environment and Energy Security (MASE).⁹⁷⁷ MASE will follow up on the timetable of reforms, including awarding and starting projects related to production and consumption of green hydrogen together with the completion of the related regulatory framework. The budget strategy differentiates energy sources and favors the development of renewables, biofuels, biomethane and hydrogen as part of Component 2 Implementation (M2C2) through specific incentive policies. The budget also focuses on sustainable mobility as a key contributor to the “Fit for 55” targets through various technologies driven by research and development (R&D) and market arrangements; these include electric transport, with widespread charging stations, biofuels, and hydrogen. To contribute to various energy objectives, including implementation of M2C2, the budget plan provides for a tax credit up to 80 per cent of costs incurred until 31 December 2024 for system investments powered by renewable sources with power exceeding 20 kW. The overall spending envelope for the tax credit allocates EUR20 million for 2024 and EUR50 million for 2025. In total, for all national investments within the scope of the Recovery and Resilience Plan’s implementation, including hydrogen, the Budget Plan authorizes EUR200 million euros for 2024, 2025 and 2026 as well as for financing specific experimental projects connected to the progressive increase in zero-emission mobility through the replacement or conversion of diesel-powered trains with electrically powered, as well as hybrid or hydrogen-powered trains. The Estimates of the Minister of Infrastructure and Transport section creates a fund with an initial allocation of EUR50 million for each of 2024 to 2026, for the purchase of railway rolling stock hydrogen. An amount up to EUR10 million per year can be allocated to the financing of experimental projects linked to the use of hydrogen in rail transport. The Budget Plan establishes a second fund called the “Mediterranean Project” for a range of projects to develop Italy’s economy from the sea, such as R&D for electric and hydrogen powered boats. The plan authorizes EUR100 million from 2024.

On 13 November 2023, Minister Pichetto opened a call for electrolyser proposals with EUR100 million in funding available.⁹⁷⁸ The funding aims to achieve one gigawatt in annual electrolyser production by 2026 to fill part of the supply chain for in demand renewable hydrogen.

On 14 November 2023, Minister Pichetto addressed the Merita Foundation on hydrogen.⁹⁷⁹ He reiterated Italy’s commitment to hydrogen as a decarbonization solution especially for difficult to abate sectors. Pichetto also signaled Italy’s intention to use existing and in-development pipelines for hydrogen transportation in Europe and with North African countries.

⁹⁷⁵ MIMIT e ANFIA siglano accordo strategico per la transizione del settore automotive, Ministero delle Imprese e del Made in Italy (Rome) 18 October 2023. Translation provided by Google Translate. Access Date: 8 December 2023

<https://www.mimit.gov.it/it/notizie-stampa/mimit-e-anfia-siglano-accordo-strategico-per-la-transizione-del-settore-automotive>

⁹⁷⁶ Atto Senato n.926, Senato Della Repubblica (Rome) n.d. Translation provided by Google Translate. Access Date: 13 December 2023. https://www.senato.it/leg/19/BGT/Schede/Ddliter/aula/57654_aula.htm

⁹⁷⁷ Bilancio di previsione dello Stato per l'anno finanziario 2024 e bilancio pluriennale per il triennio 2024-2026, Senato Della Repubblica (Rome) 6 December 2023. Access Date: 6 December 2023.

<https://www.senato.it/leg/19/BGT/Schede/FascicoloSchedeDDL/ebook/57654.pdf>

⁹⁷⁸ Idrogeno green: da MASE 100 milioni per nuovi investimenti in elettrolizzatori. Proposte dal prossimo 11 dicembre fino al 26 gennaio 2024., Ministero dell'Ambiente e della Sicurezza Energetica (Rome) 13 November 2023. Translation provided by Google Translate. Access Date: 16 December 2023. <https://www.mase.gov.it/comunicati/idrogeno-green-da-mase-100-milioni-nuovi-investimenti-elettrolizzatori-proposte-dal>

⁹⁷⁹ Idrogeno: Pichetto, Italia può essere centrale nella produzione e ponte per il Nordafrica, Ministero dell'Ambiente e della Sicurezza Energetica (Rome) 14 November 2023. Translation provided by Google Translate. Access Date: 16 December 2023. <https://www.mase.gov.it/comunicati/idrogeno-pichetto-italia-puo-essere-centrale-nella-produzione-e-ponte-il-nordafrika>

On 17 November 2023, Minister Pichetto announced EUR118 million for hydrogen R&D to support cost reductions and uptake.⁹⁸⁰

On 20 November 2023, Minister Pichetto delivered a speech to the Proxigas assembly where he declared hydrogen “a path of the future” for Italy.⁹⁸¹ His remarks show investors across gas supply chains Italy’s commitment to market certainty and support for hydrogen.

On 26 November 2023, Minister Urso and Qatari Minister of Trade and Industry Mohammed Al Thani discussed commercial cooperation including for renewable and low carbon hydrogen.⁹⁸² Minister Urso presented hydrogen trade opportunities centered around the Port of Trieste.

On 27 November 2023, Minister Urso and Saudi President of the Royal Commission for Jubail and Yanbou Khalid al Saalem discussed investment implementation for green technology and hydrogen.⁹⁸³

Italy has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable international standards and certification schemes adhering to environmental and social standards. Italy advanced strong actions to develop the supply chain for low carbon and renewable hydrogen through funding and tax credits for hydrogen production projects, research and development investments, hydrogen powered rail infrastructure, pipeline development agreements, legislation designed to increase hydrogen fuelling infrastructure, supply-chain supportive funding for fuel cell technologies and electrolyzers. Italy supported the development of the rule-based global market for hydrogen, with strong actions, by enforcing hydrogen reporting requirements and jointly establishing a hydrogen governance body to support market development.

Thus, Italy receives a score of +1.

Analyst: Minabil Syed

Japan: +1

Japan has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable standards and certification schemes adhering to environmental and social standards.

On 25 May 2023, the Ministry of the Environment announced the successful applicants from its City-to-City Collaboration Program that advances global decarbonization, and approved 5 projects that advance hydrogen.^{984, 985}

⁹⁸⁰ Energia : da MASE 502 milioni di euro per accelerare la transizione energetica, Ministero dell'Ambiente e della Sicurezza Energetica (Rome) 17 November 2023. Translation provided by Google Translate. Access Date: 16 December 2023. <https://www.mase.gov.it/comunicati/energia-da-mase-502-milioni-di-euro-accelerare-la-transizione-energetica>

⁹⁸¹ Gas: Pichetto, c'è nuova centralità italiana, puntare su diversificazione e nuovi rigassificatori, Ministero dell'Ambiente e della Sicurezza Energetica (Rome) 20 November 2023. Translation provided by Google Translate. Access Date: 16 December 2023. <https://www.mase.gov.it/comunicati/gas-pichetto-ce-nuova-centralita-italiana-puntare-su-diversificazione-e-nuovi>

⁹⁸² Qatar: Urso incontra Mohammed Al Thani, Ministero delle Imprese e del Made in Italy (Doha) 26 November 2023. Translation provided by Google Translate. Access Date: 16 December 2023. <https://www.mimit.gov.it/it/notizie-stampa/qatar-urso-incontra-mohammed-al-thani>

⁹⁸³ Urso in Missione in Arabia Saudita, Ministero delle Imprese e del Made in Italy (Riyadh) 27 November 2023. Translation provided by Google Translate. Access Date: 16 December 2023. <https://www.mimit.gov.it/it/notizie-stampa/arabia-saudita-incontro-urso-al-saalem-partnership-nel-settore-minerario>

⁹⁸⁴ MOE Japan selects 21 projects for the City-to-City Collaboration Program to support the decarbonization efforts by overseas subnational governments, Ministry of the Environment Government of Japan (Tokyo) 25 May 2023. Access Date: 5 December 2023. https://www.env.go.jp/en/press/press_01487.html

⁹⁸⁵ 令和5年度脱炭素社会実現のための都市間連携事業委託業務 採択事業一覧, 環境省 (Tokyo) 25 May 2023. Access Date: 9 December 2023. <https://www.env.go.jp/content/000135129.pdf>

On 25 May 2023, Deputy Commissioner for International Policy on Carbon Neutrality Ryo Minami and Korean Director General for Energy Policy Wonju Lee attended the 2nd Japan-Korea Energy Cooperation Dialogue.⁹⁸⁶ At the forum, both country representatives introduced clean energy policies for their respective countries and discussed future collaboration on hydrogen policy.

On 28 May 2023, Minister of Economy, Trade and Industry Yasutoshi Nishimura and participants at the Indo-Pacific Economic Framework Ministerial Meeting voted in favor of hydrogen cooperation led by Japan and Singapore.⁹⁸⁷

On 30 May 2023, State Minister of Economy, Trade and Industry Fusae Ota and David Eby, Premier of British Columbia in Canada, discussed cooperation.⁹⁸⁸ This discussion emphasised strengthening energy security and achieving carbon neutrality through diverse technologies and energy sources, including renewable energy, energy conservation, hydrogen, and carbon capture, use and storage (CCUS).

On 6 June 2023, the Agency for Natural Resources and Energy released its updated Overview of Basic Hydrogen Strategy.⁹⁸⁹ The updated strategy indicates a Japanese policy to provide immediate funding for up to YEN20 trillion in support of green hydrogen transformation and decarbonization. Japan aims to increase consumption of hydrogen from anticipated 3 million tons per year by 2030, to about 20 million tons per year by 2050. The main aims of the initiative include increasing hydrogen competitiveness, increasing production capacities, and increasing Japanese hydrogen's international presence. The updated strategy also includes measures to build a safety regulation system which covers the entire Japanese hydrogen supply chain to promote safe use of hydrogen.

On 12 June 2023, Minister Nishimura and United Arab Emirates (UAE) Minister of Foreign Affairs Abdullah bin Zayed Al Nahyan announced their commitment to strengthening cooperation and economic ties between Japan and the UAE, particularly in the hydrogen industry.⁹⁹⁰

On 26 June 2023, Deputy Commissioner Minami and Deputy Commissioner for International Affairs Izuru Kobayashi participated in the first Asia Zero Emission Community (AZEC) Senior Officials Meeting in Jakarta.⁹⁹¹ AZEC participants agreed to create action plans addressing hydrogen, CCUS standards, and Japan's Joint Credit Mechanism (JCM) for carbon emissions.

On 28 June 2023, Parliamentary Vice-Minister of the Environment Isato Kunisada and Mongolian Vice-Minister of Environment and Tourism Ganbaatar Myagmarjav conducted the 15th Japan-Mongolia Environmental Policy Dialogue in Mongolia.⁹⁹² The two countries agreed to continue cooperation and introduce advanced decarbonizing technologies, including green hydrogen.

⁹⁸⁶ The 2nd Japan-Korea Energy Cooperation Dialogue Held, Ministry of Economy, Trade and Industry (Busan) 25 May 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0525_002.html

⁹⁸⁷ METI Minister Nishimura Visits Detroit, the United States, Ministry of Economy, Trade and Industry (Detroit) 28 May 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0528_001.html

⁹⁸⁸ METI and the Government of British Columbia, Canada Confirmed Cooperation in the Fields of Energy and R&D, Ministry of Economy, Trade and Industry (Tokyo) 30 May 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0530_001.html

⁹⁸⁹ Overview of Basic Hydrogen Strategy, Agency for Natural Resources and Energy (Tokyo) 6 June 2023. Access Date: 13 December 2023. https://www.meti.go.jp/shingikai/enecho/shoene/shinene/suiso_seisaku/pdf/20230606_4.pdf

⁹⁹⁰ Minister Nishimura Holds Meeting with Minister of Foreign Affairs of the United Arab Emirates (UAE) Abu Dallah, Ministry of Economy, Trade and Industry (Tokyo) 12 June 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0612_002.html

⁹⁹¹ The First Asia Zero Emission Community Senior Officials Meeting (AZEC SOM) Held (Jakarta), Ministry of Economy, Trade, and Industry (Tokyo) 26 June 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0626_001.html

⁹⁹² Results of the 15th Japan-Mongolia Environmental Policy Dialogue, Ministry of the Environment Government of Japan (Ulaanbaatar) 7 July 2023. Access Date: 5 December 2023. https://www.env.go.jp/en/press/press_01647.html

On 30 June 2023, the Ministry of Economy, Trade and Industry (METI) launched a safety portal website for the Hydrogen Safety Strategy.⁹⁹³ The portal aims to facilitate safe hydrogen utilization across the supply chain and contribute to the development of a hydrogen society.

On 6 July 2023, Ambassador of Japan Hideki Goda and Kyrgyz Deputy Minister of Natural Resources Ecology and Technical Supervision Azamat Temirkulov signed a Memorandum of Cooperation to establish the JCM between Japan and the Kyrgyz Republic.⁹⁹⁴ Japan's JCM system creates incentives for uptake of decarbonization technologies including hydrogen.⁹⁹⁵

On 10 July 2023, Parliamentary Vice-Minister of Economy, Trade and Industry Ryuji Satomi and Chilean Minister of Energy Diego Gonzalo Pardow, discussed sharing expertise and fostering cooperation between the countries' hydrogen industries.⁹⁹⁶

On 12 July 2023, Vice-Minister Satomi and Colombian Vice-Minister of Trade, Industry, and Tourism Luis Filipe Quintero discussed the Japanese interest in Colombian hydrogen development.⁹⁹⁷

On 16 July 2023, Prime Minister Fumio Kishida and Crown Prince Mohammed bin Salman agreed to deepen cooperation in clean energy, including hydrogen and critical minerals.⁹⁹⁸ The meeting emphasized support for the green transformation, industrial diversification, and human development.

On 21 July 2023, Minister Nishimura separately discussed bilateral cooperation on hydrogen with Indian Minister of Power and New and Renewable Energy Raj Khumar Singh, United States Secretary of Energy Jennifer Granholm, German Minister of Economic Affairs and Climate Action Robert Habeck, European Union Energy Commissioner Kadri Simson, Singapore Minister for Manpower and Second Minister for Trade and Industry Tan See Leng, Oman Minister of Energy and Minerals Salim bin Nasser bin Said al Aufi, Denmark Minister for Development Cooperation and Global Climate Policy Dan Jørgensen, and South African Minister of Mineral Resources and Energy Samson Gwede Mantashi at the 14th Clean Energy Ministerial and 8th Mission Innovation Ministerial.⁹⁹⁹

On 22 July 2023, Minister Nishimura and the G20 Energy Ministers committed to “support acceleration of production, utilization, as well as development of transparent and resilient global markets for hydrogen produced from zero and low emission technologies and its derivatives such as ammonia by developing voluntary and mutually agreed harmonizing standards as well as mutually recognized, and interoperable certification schemes.”¹⁰⁰⁰ The Ministers also agreed to high level steps needed to achieve their commitment including collaboration on national standards development for low carbon hydrogen and movement towards

⁹⁹³ Hydrogen Safety Portal Website Launched, Ministry of Economy, Trade, and Industry (Tokyo) 30 June 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0630_002.html

⁹⁹⁴ Japan and Kyrgyz Republic Sign a Memorandum of Cooperation Establishing a Joint Crediting Mechanism (JCM), Ministry of Economy, Trade, and Industry (Tokyo) 6 July 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0706_001.html

⁹⁹⁵ Joint Crediting Mechanism (JCM), Ministry of Foreign Affairs of Japan (Tokyo) 10 July 2023. Access Date: 9 December 2023. https://www.mofa.go.jp/ic/ch/page1we_000105.html

⁹⁹⁶ METI Parliamentary Vice-Minister Satomi Visits South America (Chile, Colombia and Brazil), Ministry of Economy, Trade, and Industry (Tokyo) 20 July 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0720_001.html

⁹⁹⁷ METI Parliamentary Vice-Minister Satomi Visits South America (Chile, Colombia and Brazil), Ministry of Economy, Trade, and Industry (Tokyo) 20 July 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0720_001.html

⁹⁹⁸ Press Conference by Prime Minister Kishida on the Japan-Saudi Arabia Summit Meeting and Other Matters, Prime Minister's Office of Japan (Tokyo) 16 July 2023. Access Date: 5 December 2023. https://japan.kantei.go.jp/101_kishida/statement/202307/16kaiken2.html

⁹⁹⁹ METI Minister Nishimura Attends the 14th Clean Energy Ministerial (CEM14) and 8th Mission Innovation Ministerial (MI-8), and a G20 Energy Transitions Ministers' Meeting, Ministry of Economy, Trade and Industry (Goa) 23 July 2023. Access Date: 9 December 2023. https://www.meti.go.jp/english/press/2023/0723_001.html

¹⁰⁰⁰ Outcome Document and Chair' Summary, G20 Information Centre (Goa) 22 July 2023. Access Date: 10 November 2023. <http://www.g20.utoronto.ca/2023/230722-energy.html#annex1>

global harmonization, free trade advancement, research and development cooperation for technological innovation, finance activation to support the entire supply chain, as well as voluntary information exchanges.

On 22 July 2023, Japan, along with Australia, Brazil, Canada, Chile, Germany, Saudi Arabia, Korea, the Netherlands, the United Arab Emirates, the United Kingdom, the United States, Uruguay and the European Commission on behalf of the European Union, jointly launched the International Hydrogen Trade Forum to advance the global hydrogen market.¹⁰⁰¹ The Forum aims to connect importers and exporters and reduce barriers to trade and bolsters the global market for hydrogen.

On 24 July 2023, Prime Minister Kishida and President of the United Arab Emirates Mohamed bin Zayed Al Nahyan signed a joint declaration of interest on establishing the Energy Security and Industry Accelerator.¹⁰⁰² The Accelerator aims to advance industries like hydrogen.

On 26 July 2023, Minister Nishimura and Australian Minister for Climate Change and Energy Efficiency Chris Bowen discussed shared concerns related to decarbonization, energy security, and economic growth.¹⁰⁰³ Japan and Australia have collaborated closely in the fields of hydrogen and fuel ammonia. Future energy cooperation plans were discussed, aligning with the Asia Zero Emissions Community concept.

On 8 August 2023, Minister Nishimura and Namibian Minister of Mines and Energy Thomas Kavaningilamo discussed strengthening cooperation between Japan and Namibia in the fields of hydrogen, ammonia, mining and trade and investment.¹⁰⁰⁴

On 16 August 2023, State Minister Ota and New Zealand Minister of Natural Resources and Energy Megan Wood discussed bilateral hydrogen cooperation at the Asia-Pacific Economic Cooperation Energy Ministerial.¹⁰⁰⁵

On 31 August 2023, METI, in coordination with the U.S. Department of Energy, National Energy Technology Laboratory (NETL), and the New Energy and Industrial Technology Development Organization (NEDO) hosted the US-Japan CCUS/Carbon Recycling Working Group.¹⁰⁰⁶ Participants in the working group agreed on the need to expand collaboration projects and deploy technologies in various regions, including the Asia-Pacific. Notably, the importance of ongoing collaboration between NETL'S National Carbon Capture Center (NCCC) and NEDO's R&D and Demonstration base for Carbon Recycling at Osaki-Kamijima was emphasized. CCUS represents a crucial element in the low carbon hydrogen supply chain.¹⁰⁰⁷

¹⁰⁰¹ LAUNCH OF THE INTERNATIONAL HYDROGEN TRADE FORUM TO ACCELERATE GLOBAL COLLABORATION, Clean Energy Ministerial (Goa) 22 July 2023. Access Date: 15 December 2023. <https://www.cleanenergyministerial.org/launch-of-the-international-hydrogen-trade-forum-to-accelerate-global-collaboration/>

¹⁰⁰² Japan – UAE Innovation Partnership Released, Ministry of Economy, Trade and Industry (Tokyo) 24 July 2023. Access date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0724_001.html

¹⁰⁰³ Minister Nishimura Holds Meeting with Mr. Chris Bowen, Minister for Climate Change and Energy of Australia, Ministry of Economy, Trade and Industry (Tokyo) 26 July 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0726_003.html

¹⁰⁰⁴ METI Minister Nishimura Visits the Republic of Namibia and Signs a Joint Statement on Cooperation in the Mining Sector with H.E. Mr. Thomas Kavaningilamo Alweendo, Minister of Mines and Energy, and a Joint Statement on Cooperation in Improving Investment Environment and Economic Relationship with H.E. Ms. Lucia lipumbu, Minister of Industrialization and Trade, Ministry of Economy, Trade and Industry (Tokyo) 8 August 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0808_002.html

¹⁰⁰⁵ METI State Minister Ota Attends APEC (Asia-Pacific Economic Cooperation) Energy Ministerial Meeting, Ministry of Economy, Trade and Industry (Seattle) 17 August 2023. Access Date: 15 December 2023. https://www.meti.go.jp/english/press/2023/0817_001.html

¹⁰⁰⁶ The U.S.-Japan CCUS/Carbon Recycling Working Group Held), Ministry of Economy, Trade and Industry (Pittsburgh) 5 September 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0905_002.html

¹⁰⁰⁷ Identifying the differences in between Green, Low Carbon, and Renewable Hydrogen, United Nations Environment Program (Copenhagen) 27 April 2023. Access Date: 28 September 2023. <https://c2e2.unepccc.org/wp-content>

On 31 August 2023, METI hosted the Indo-Pacific Economic Framework Japan week.¹⁰⁰⁸ The four-day program focused in on the clean economy and covered topics such as hydrogen and ammonia, which accelerating negotiations and promoting cooperation.

On 6 September 2023, Minister Nishimura and UK Secretary of State for Business and Trade Kemi Badenoch held the first Japan-UK Strategic Economic Policy and Trade Dialogue in London.¹⁰⁰⁹ The Ministers committed to cooperation in the deployment of clean energy technologies including Hydrogen and Carbon Capture, Utilisation and Storage technology.

On 9 September 2023, Prime Minister Kishida conducted a meeting with Australian Prime Minister Anthony Albanese at the G20 Summit.¹⁰¹⁰ The leaders specifically, they agreed to collaborate on decarbonization in Asia through the AZEC initiative. They also emphasized cooperation in the hydrogen and ammonia sectors.

On 12 September 2023, State Minister of Economy, Trade and Industry Shinichi Nakatani and a delegation of the hydrogen taskforce of the Movement of Enterprises of France (MEDEF) led by Frederic Sanchez discussed economic relations between Japan and France with a particular focus on cooperation in the field of hydrogen.¹⁰¹¹ State Minister Nakatani and the MEDEF delegation explored potential support measures to enhance collaboration between the industrial communities of both countries.

On 25 September 2023, the METI and the New Energy and Industrial Technology Development Agency jointly hosted the Sixth Hydrogen Energy Ministerial meeting.¹⁰¹² The meeting discussed a global hydrogen demand target, industry and job creation, setting carbon intensity based international standards and certifications, and advancing fiscal supports for emerging economies.

On 27 September 2023, the METI signed a memorandum of cooperation to advance CCUS projects with the Japan Organization for Metals and Energy Strategy and the Malaysian national oil company, Petronas.¹⁰¹³ The collaborative venture envisions transporting carbon from Japanese industries to Malaysia for storage and abating emissions from blue and grey hydrogen as highlighted in Japan's hydrogen strategy.¹⁰¹⁴

On 27 September 2023, the METI and the New Energy and Industrial Technology Development Organization jointly held the Fifth International Conference on Carbon Recycling.¹⁰¹⁵ This conference released a summary statement that emphasized the pivotal role of carbon-recycled fuels in achieving carbon neutrality including as a part of the hydrogen supply-chain. The conference called for the establishment of a system to measure and evaluate the environmental value of carbon recycling, fostering a global market for such products.

¹⁰⁰⁸ METI held the IPEF Japan Week, Ministry of Economy, Trade and Industry (Tokyo) 31 August 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0831_003.html

¹⁰⁰⁹ Joint Statement of the Japan-UK Strategic Economic Policy and Trade Dialogue, Government of the United Kingdom (London) 6 September 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/joint-statement-of-the-japan-uk-strategic-economic-policy-and-trade-dialogue>

¹⁰¹⁰ Japan-Australia Leaders' meeting (Summary), Prime Minister's Office of Japan (New Delhi) 9 September 2023. Access Date: 5 December 2023. https://japan.kantei.go.jp/101_kishida/diplomatic/202309/09australia.html

¹⁰¹¹ State Minister Nakatani Receives Courtesy Call from the Hydrogen Taskforce of Mouvement des Entreprises de France (MEDEF), Ministry of Economy, Trade and Industry (Tokyo) 13 September 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0913_002.html

¹⁰¹² Sixth Hydrogen Energy Ministerial Meeting Held, Ministry of Economy, Trade and Industry (Tokyo) 25 September 2023. Access Date: 3 November 2023. https://www.meti.go.jp/english/press/2023/0925_002.html

¹⁰¹³ METI, JOGMEC and PETRONAS Have Concluded MoC on Cross-Border Transportation of CO2 for CCS Businesses (Tokyo) 6 October 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/1006_002.html

¹⁰¹⁴ Overview of Basic Hydrogen Strategy, Agency for Natural Resources and Energy (Tokyo) 6 June 2023. Access Date: 10 December 2023. https://www.meti.go.jp/shingikai/enecho/shoene/shinene/suiso_seisaku/pdf/20230606_4.pdf

¹⁰¹⁵ The Fifth International Conference on Carbon Recycling Summary Document, Carbon Management Division Agency for Natural Resources and Energy (Hiroshima) 28 September 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/pdf/0928_002a.pdf

On 28 September 2023, Minister Nishimura discussed hydrogen promotion with counterparts at the International Energy Agency summit. During the summit, he exchanged views with Polish Minister of Climate and Environment Anna Moskwa, Korean Minister of Trade, Industry and Energy, Kyu Bang Moon and French Minister for Energy Transition, Agnes Pannier-Runacher.¹⁰¹⁶ The meetings discussed fostering greater cooperation among companies to realize the widespread use of hydrogen and fortifying bilateral cooperation in various energy sectors, encompassing ammonia, hydrogen, and offshore wind power generation.

On 6 October 2023, State Minister of Economy, Trade, and Industry Kazuchika Iwata attended the opening ceremony for the Abu Dhabi International Petroleum Exhibition and Conference.¹⁰¹⁷ Japan's delegation showcased decarbonization technologies including hydrogen production, transportation, and utilization. Minister Iwata reiterated Japan's commitment to continued cooperation with the United Arab Emirates in hydrogen and other clean energy deployment and production.

On 16 October 2023, Parliamentary Vice-Minister Yoshida and Basque President Iñigo Urkullu emphasized the need for further hydrogen collaboration during the Business Leaders' Summit in Spain.¹⁰¹⁸

On 17 October 2023, Director-General for Energy and Environmental Policy for the METI Kihara Shinichi, Deputy Director General and Deputy Assistant Minister to the Ministry of Foreign Affairs Taketani Atsushi and Assistant Secretary for Energy Resources for the US Department of State Geoffrey Pyatt issued a joint statement emphasizing their collective commitment to advancing efforts in clean energy, technologies and mineral resource supply chains.¹⁰¹⁹ The statement included a shared commitment to collaborate on regulations and standards for hydrogen including carbon-content measurement.¹⁰²⁰

On 17 October 2023, Parliamentary Vice-Minister of METI Taku Ishii and Deputy Minister of Industry and Trade of the Czech Republic held a meeting that solidified their commitment to strengthen bilateral ties in the energy sector.¹⁰²¹ The meeting discussed the ongoing cooperating in the field of nuclear power and hydrogen. Additionally, the meeting discussed Japan's plans regarding the discharge of treated water into the sea.

On 24 October 2023, Minister Nishimura and Danish Minister of Climate Energy and Utilities Lars Aagaard signed a memorandum on cooperation on hydrogen and its derivatives.¹⁰²² The memorandum details personnel exchanges, technology and cost reduction collaboration, alignment of regulations and international market development among other areas of cooperation.

On 30 October 2023, Ambassador of Japan to the Republic of Kazakhstan, Jun Yamada and Minister of Ecology and Natural of the Republic of Kazakhstan Yerlan Nyssanbayev signed a Memorandum of

¹⁰¹⁶ METI Minister Nishimura Attends IEA Critical Minerals and Clean Energy Summit, Ministry of Economy, Trade and Industry (Paris) 29 September 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0929_004.html

¹⁰¹⁷ METI State Minister Iwata Visits the United Arab Emirates (UAE), Ministry of Economy, Trade and Industry (Tokyo) 6 October 2023. Access Date: 3 November 2023. https://www.meti.go.jp/english/press/2023/1006_005.html

¹⁰¹⁸ Parliamentary Vice-Minister Yoshida Delivers Guest Speech at a Business Leaders' Summit Hosted by the Basque Government of the Kingdom of Spain, Ministry of Economy, Industry and Trade (Tokyo) 17 October 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/1017_001.html

¹⁰¹⁹ Second Annual Japan-U.S. Energy Security Dialogue Held, Ministry of Economy, Trade and Industry (Palo Alto) 30 October 2023. Access Date: 10 December 2023. https://www.meti.go.jp/english/press/2023/1030_004.html

¹⁰²⁰ Joint Statement on the Second Annual Japan-U.S. Energy Security Dialogue, Ministry of Economy, Trade and Industry (Palo Alto) 30 October 2023. Access Date: 10 December 2023. <https://www.meti.go.jp/press/2023/10/20231030004/20231030004-2.pdf>

¹⁰²¹ Parliamentary Vice-Minister Ishii Holds Meeting with Mr. Petr Třešňák, Deputy Minister of Industry and Trade of the Czech Republic (Tokyo) 18 October 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/1018_001.html

¹⁰²² MEMORANDUM ON COOPERATION ON HYDROGEN, AMMONIA AND DERIVATIVES BETWEEN THE MINISTRY OF ECONOMY, TRADE AND INDUSTRY OF JAPAN AND THE MINISTRY OF CLIMATE, ENERGY AND UTILITIES OF THE KINGDOM OF DENMARK, Ministry of Economy, Trade and Industry (Tokyo) 24 October 2023. Access Date: 5 December 2023. <https://www.meti.go.jp/press/2023/10/20231024001/20231024001-1.pdf>

Cooperation to establish Kazakhstan as a party to Japan's JCM.¹⁰²³ Japan's JCM system creates incentives for uptake of decarbonization technologies, including hydrogen.¹⁰²⁴

On 31 October 2023, Japan and Sri Lanka adopted rules and guidelines for promoting decarbonization technologies including hydrogen at the first Joint Crediting Mechanism meeting in Sri Lanka.¹⁰²⁵

On 14 November 2023, Minister for Foreign Affairs Yoko Kamikawa met with United States Secretary of State Antony Blinken and Secretary of Commerce Gina Raimondo in San Francisco for the second ministerial meeting of the Japan-US Economic Policy Consultative Committee.¹⁰²⁶ Both countries reaffirmed their commitment to strengthen supply chains for clean hydrogen production by investing in research and development.

On 14 November 2023, Minister Kamikawa, Minister Nishimiura and the other ministers participating in the Asia-Pacific Economic Cooperation (APEC) forum released a statement that included the goal to identify best practices and frameworks for producing hydrogen from zero to low emissions technologies in the APEC region.¹⁰²⁷

On 14 November 2023, Parliamentary Vice-Minister of Economy, Trade and Industry Nobuhiro Yoshida spoke with Governor of the State of Hawaii, Josh Green on continuing cooperation in clean energy fields, including hydrogen.¹⁰²⁸

On 16 November 2023, Parliamentary Vice-Minister of Economy, Trade, and Industry Ishii Taku spoke with German Minister for Tourism, Agriculture, and Forestry Sven Schulze on future economic cooperation, specifically in the field of hydrogen.¹⁰²⁹

On 1 December 2023, Minister Nishimura met with European Commissioner for Energy Kadri Simson to welcome the progress of the Japan-EU Green Alliance and to discuss energy cooperation including on hydrogen.¹⁰³⁰

Japan has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable international standards and certification schemes adhering to environmental and social standards. Japan advanced strong actions to develop the supply chain for low carbon and renewable hydrogen through funding for hydrogen projects and updates

¹⁰²³ Japan and Kazakhstan Sign a Memorandum of Cooperation Establishing a Joint Crediting Mechanism (JCM), Ministry of Economy, Trade and Industry (Tokyo) 30 October 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/1030_003.html

¹⁰²⁴ Joint Crediting Mechanism (JCM), Ministry of Foreign Affairs of Japan (Tokyo) 10 July 2023. Access Date: 9 December 2023. https://www.mofa.go.jp/ic/ch/page1we_000105.html

¹⁰²⁵ Result of First Joint Committee of the Joint Crediting Mechanism (JCM) between Japan and Sri Lanka, Ministry of the Environment Government of Japan (Colombo) 31 October 2023. Access Date: 5 December 2023. https://www.env.go.jp/en/press/press_02057.html

¹⁰²⁶ Joint Statement of the Japan-U.S. Economic Policy Consultative Committee, Ministry of Economy, Trade and Industry (Tokyo) 14 November 2023. Access Date: 13 November 2023. <https://www.meti.go.jp/press/2023/11/20231116006/20231116006-1.pdf>

¹⁰²⁷ 2023 APEC Ministerial Meeting, Asia-Pacific Economic Cooperation (San-Francisco) 17 November 2023. Access Date: 13 December 2023. <https://www.meti.go.jp/press/2023/11/20231116004/20231116004-a-eng.pdf>

¹⁰²⁸ Parliamentary Vice-Minister Yoshida Receives a Courtesy Call from Mr. Josh Green, Governor of the State of Hawaii, Ministry of Economy, Trade and Industry (Tokyo) 15 November 2023. Access Date: 13 December 2023. https://www.meti.go.jp/english/press/2023/1115_001.html

¹⁰²⁹ Parliamentary Vice-Minister Ishii Receives a Courtesy Call from Mr. Sven Schulze, Minister for Economic Affairs, Tourism, Agriculture and Forestry of the Federal State of Saxony-Anhalt, Germany, Ministry of Economy, Trade and Industry (Tokyo) 16 November 2023. Access Date: 13 December 2023. https://www.meti.go.jp/english/press/2023/1116_001.html

¹⁰³⁰ Minister Nishimura Holds Meeting with Ms. Kadri Simson, European Commissioner for Energy, Ministry of Economy, Trade and Industry (Tokyo) 1 December 2023. Access Date: 13 December 2023. https://www.meti.go.jp/english/press/2023/1201_002.html

to the hydrogen strategy. Japan supported the development of the rule-based global market for hydrogen, with strong actions, by jointly establishing an organization dedicated to facilitating hydrogen trade.

Thus, Japan receives a score of +1.

Analyst: Ritika Roy Chowdhury

United Kingdom: +1

The United Kingdom has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable standards and certification schemes adhering to environmental and social standards.

On 31 May 2023, the Competition and Markets Authority (CMA) released advice for shoppers on green home heating, highlighting the potential for greenwashing of marketing boilers as hydrogen-ready given the non-availability currently of hydrogen fuel for home heating.¹⁰³¹ The CMA endorsed quality assurance schemes that will help develop a rule-based transparent market for heating fuels including hydrogen.

On 7 June 2023, Secretary of State for Energy Security and Net-Zero Grant Shapps and Saudi Minister of Commerce Majid Al Qassabi released a joint statement, as co-chairs, on behalf of the United Kingdom and Kingdom of Saudi Arabia Strategic Partnership Council: Economic and Social Pillar.¹⁰³² The co-chairs agreed to strengthen collaboration in several areas including sharing and development of best practices on new technologies such as hydrogen, carbon capture and decarbonization and expanding commercial partnerships in clean energy.

On 9 June 2023, Minister for Investment Dominic Johnson announced government backing for the Northern Ireland-based bus manufacturer Wrightbus with GBP50 million in financing.¹⁰³³ This funding by the UK Export Finance will support Wrightbus in delivering hydrogen powered buses to new markets.

On 13 June 2023, the Prime Minister's Trade Envoy Richard Faulkner and Taiwan's Representative to the UK Kelly Hsieh opened the 5th UK-Taiwan Energy Dialogue in London.¹⁰³⁴ The Dialogue concentrated on challenges and opportunities on greening the economy, energy security and included discussions and sessions about low carbon hydrogen.

On 28 June 2023, Minister for Energy Security and Net Zero Graham Stuart announced GBP82.9 million in government funding for businesses in the United Kingdom to reduce carbon emissions and switch to cleaner energy alternatives such as hydrogen.¹⁰³⁵

¹⁰³¹ Advice for shoppers after report highlights difficulties buying 'green' home heating, Government of the United Kingdom (London) 31 May 2023. Access date: 6 December 2023. <https://www.gov.uk/government/news/advice-for-shoppers-after-report-highlights-difficulties-buying-green-home-heating>

¹⁰³² United Kingdom and Kingdom of Saudi Arabia Strategic Partnership Council: Economic and Social pillar joint statement, Government of the United Kingdom (London) 7 June 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/publications/united-kingdom-and-kingdom-of-saudi-arabia-strategic-partnership-council-economic-and-social-pillar-joint-statement/united-kingdom-and-kingdom-of-saudi-arabia-strategic-partnership-council-economic-and-social-pillar-joint-statement-7-june-2023>

¹⁰³³ Wrightbus secures £50 million UKEF financing to turbocharge green exports, Government of the United Kingdom (London) 9 June 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/wrightbus-secures-50-million-uk-ef-financing-to-turbocharge-green-exports>

¹⁰³⁴ 5th UK-Taiwan Energy Dialogue, Government of the United Kingdom (London) 18 July 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/5th-uk-taiwan-energy-dialogue>

¹⁰³⁵ £80 million boost to help UK businesses tackle carbon emissions, Government of the United Kingdom (London) 28 June 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/80-million-boost-to-help-uk-businesses-tackle-carbon-emissions>

On 3 July 2023, the UK Emissions Trading Scheme Authority announced tighter caps on industrial, power, and aviation emissions beginning in 2024.¹⁰³⁶ The emissions cap scheme induces fuel-switching creating incentives for hydrogen adoption.

On 5 July 2023, the Department for Energy Security and Net Zero released a report on the future of hydrogen in industry.¹⁰³⁷ The report featured seven industrial sites to understand the switch from natural gas to 100 per cent hydrogen for heat on these sites. The report aims to discover the impacts, costs, feasibility, and safety of switching from natural gas to hydrogen for heating and to share the findings with other industrial sites and industry considering hydrogen as an option to decrease carbon emissions.

On 17 July 2023, the Department of Science, Innovation, and Technology sponsored the release of a report by the Regulatory Horizons Council, an independent expert committee, regarding the regulation of hydrogen fuel in maritime vessels.¹⁰³⁸ In their report, the Regulatory Horizons Council made recommendations on how the United Kingdom can support the transition to net-zero by changing the regulatory system to promote the use of hydrogen fuel in the domestic maritime sector.

On 22 July 2023, Secretary Shapps and the G20 Energy Ministers committed to “support acceleration of production, utilization, as well as development of transparent and resilient global markets for hydrogen produced from zero and low emission technologies and its derivatives such as ammonia by developing voluntary and mutually agreed harmonizing standards as well as mutually recognized, and interoperable certification schemes.”¹⁰³⁹ The Ministers also agreed to high level steps needed to achieve their commitment including collaboration on national standards development for low carbon hydrogen and movement towards global harmonization, free trade advancement, research and development cooperation for technological innovation, finance activation to support the entire supply chain, as well as voluntary information exchanges.

On 22 July 2023, the United Kingdom, along with Australia, Brazil, Canada, Chile, Germany, Japan, Saudi Arabia, Korea, the Netherlands, the United Arab Emirates, the United States, Uruguay and the European Commission on behalf of the European Union, jointly launched the International Hydrogen Trade Forum to advance the global hydrogen market.¹⁰⁴⁰ The Forum aims to connect importers and exporters and reduce barriers to trade and bolsters the global market for hydrogen.

On 2 August 2023, the Department for Energy Security and Net Zero updated the UK Hydrogen strategy with a summary of recent hydrogen policy development and schemes.¹⁰⁴¹

On 2 August 2023, Transport Secretary Mark Harper announced GBP8 million for hydrogen transport for airport vehicles and supermarket delivery trucks.¹⁰⁴² The funding aims to support construction of four new

¹⁰³⁶ Tighter limit on industrial, power and aviation emissions, as the UK leads the way to net zero, Government of the United Kingdom (London) 3 July 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/tighter-limit-on-industrial-power-and-aviation-emissions-as-uk-leads-the-way-to-net-zero>

¹⁰³⁷ Future of hydrogen in industry: initial industrial site surveys, Government of the United Kingdom (London) 5 July 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/publications/future-of-hydrogen-in-industry-initial-industrial-site-surveys>

¹⁰³⁸ Regulatory Horizons Council: the regulation of hydrogen fuel propulsion in maritime vessels, Government of the United Kingdom (London) 17 July 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/publications/regulatory-horizons-council-the-regulation-of-hydrogen-fuel-propulsion-in-maritime-vessels>

¹⁰³⁹ Outcome Document and Chair' Summary, G20 Information Centre (Goa) 22 July 2023. Access Date: 10 November 2023. <http://www.g20.utoronto.ca/2023/230722-energy.html#annex1>

¹⁰⁴⁰ LAUNCH OF THE INTERNATIONAL HYDROGEN TRADE FORUM TO ACCELERATE GLOBAL COLLABORATION, Clean Energy Ministerial (Goa) 22 July 2023. Access Date: 15 December 2023. <https://www.cleanenergyministerial.org/launch-of-the-international-hydrogen-trade-forum-to-accelerate-global-collaboration/>

¹⁰⁴¹ UK Hydrogen Strategy, Government of the United Kingdom (London) 2 August 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/publications/uk-hydrogen-strategy#full-publication-update-history>

¹⁰⁴² North East to benefit from new funding for hydrogen transport, Government of the United Kingdom (London) 2 August 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/north-east-to-benefit-from-new-funding-for-hydrogen-transport>

hydrogen refuelling stations and allocates GBP300,000 to Tees Valley area colleges to upskill the local workforce needed to support hydrogen supply-chains.

On 2 August 2023, Secretary Shapps met with corporate energy firms who highlighted the importance of hydrogen during the Department for Energy Security and Net Zero's Energy Week.¹⁰⁴³

On 21 August 2023, the Ministry of Defence and Strategic Command announced the launch of the first of three hydrogen-fuelled charging facilities to power front-line command electric fleet vehicles.¹⁰⁴⁴

On 24 August 2023, the UK Government commenced its first Clean Energy Trade Mission to Australia with hydrogen company Hydrasun.¹⁰⁴⁵

On 4 September 2023, Chancellor of the Exchequer Jeremy Hunt, Minister for Industry and Economic Security Nusrat Ghani, and Decarbonisation and Technology Minister Jesse Norman announced over GBP50 million to cutting edge manufacturing projects for products such as hydrogen fueled farm tractors, and hydrogen fuel-cell coaches.¹⁰⁴⁶

On 6 September 2023, Secretary of State for Business and Trade Kemi Badenoch and Japanese Minister of Economy, Trade and Industry Yasutoshi Nishimura held the first Japan-UK Strategic Economic Policy and Trade Dialogue in London.¹⁰⁴⁷ The Ministers committed to discussions and to cooperation when deploying clean energy technologies including Hydrogen and carbon capture, use and storage (CCUS).

On 6 September 2023, the Department for Energy Security and Net Zero published summary of responses and government response to the Offshore Hydrogen regulation Consultation.¹⁰⁴⁸

On 13 September 2023, Minister for Energy Consumers and Affordability Amanda Solloway announced GBP45.7M in funding for new government-backed projects to reduce carbon emissions.¹⁰⁴⁹ The Red Diesel Replacement Competition awarded over GBP6 million for Catagen's green hydrogen industrial vehicle initiative. The Industrial Hydrogen Accelerator Competition awarded over GBP6 million to the Bay Hydrogen Hub and over GBP900,000 to the Hydrogen for the decarbonization of Sheffield Steel project.

¹⁰⁴³ Industry and government agree to seize the "immense opportunities ahead" as Britain builds a world-leading energy sector, Government of the United Kingdom (London) 2 August 2023. Access Date: 6 December 2023.

<https://www.gov.uk/government/news/industry-and-government-agree-to-seize-the-immense-opportunities-ahead-as-britain-builds-a-world-leading-energy-sector>

¹⁰⁴⁴ Supporting the transition to electric vehicles, Government of the United Kingdom (London) 21 August 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/supporting-the-transition-to-electric-vehicles>

¹⁰⁴⁵ UK companies explore clean energy opportunities in Australia, Government of the United Kingdom (London) 24 August 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/uk-companies-explore-clean-energy-opportunities-in-australia>

¹⁰⁴⁶ Over £50 million awarded to cutting edge manufacturing projects, Government of the United Kingdom (London) 4 September 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/over-50-million-awarded-to-cutting-edge-manufacturing-projects>

¹⁰⁴⁷ Joint Statement of the Japan-UK Strategic Economic Policy and Trade Dialogue, Government of the United Kingdom (London) 6 September 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/joint-statement-of-the-japan-uk-strategic-economic-policy-and-trade-dialogue>

¹⁰⁴⁸ Proposals for offshore hydrogen regulation, Government of the United Kingdom (London) 6 September 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/consultations/proposals-for-offshore-hydrogen-regulation#full-publication-update-history>

¹⁰⁴⁹ £45.7 million for businesses to cut emissions and boost home-grown energy, Government of the United Kingdom (London) 13 September 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/457-million-for-businesses-to-cut-emissions-and-boost-home-grown-energy>

On 15 September 2023, Minister for Energy Efficiency and Green Finance John Callanan launched a consultation pursuing a process for blending increased amounts of hydrogen in the UK gas network.¹⁰⁵⁰

On 21 September 2023, Minister Stuart announced GBP160 million in funding at the UN Climate Ambitions Summit in New York to help developing countries accelerate the use and development of green technologies and reduce their emissions.¹⁰⁵¹ The funding will help energy-intensive industries cut their emissions by utilizing clean technologies such as hydrogen-based fuels for steel production.

On 22 September 2023, Trade Envoy Faulkner attended the 19th UK-Taiwan Renewable Energy Conference to discuss goals of reaching net-zero targets by 2050 and opportunities for collaboration on renewable energy development.¹⁰⁵² Taiwan's Chief Secretary of Ministry of Economic Affairs Yu-Ling Chen and Trade Envoy Faulkner discussed the importance of the UK and Taiwan developing renewable energy such as hydrogen and CCUS.

On 26 September 2023, Minister Callanan and German State Secretary for Energy Phillip Nimmerman announced a new agreement between the United Kingdom and Germany to assist in accelerating international hydrogen industry development.¹⁰⁵³ The United Kingdom and Germany committed to assist in establishing regulations to aid hydrogen trade and include low-carbon hydrogen into their nations' energy mix and to work together to advance renewable hydrogen technologies through research and innovation.

On 9 October 2023, Minister of State for International Trade Nigel Huddleston met with Colombian Minister of Trade, Industry and Tourism Germán Umaña to discuss UK-Colombia trade.¹⁰⁵⁴ The ministers discussed renewable energy and agreed to co-ordinate strategies for the development of hydrogen regulations in Colombia to assist in developing the renewable energy market.

On 9 October 2023, Minister for Industry and Economic Security Nusrat Ghani announced GBP42.5 million in government funding for 20 net-zero technology projects including hydrogen-powered offroad vehicles.¹⁰⁵⁵

On 13 October 2023, Minister Nigel Huddleston and Peruvian Minister of Foreign Trade and Tourism Juan Carlos Mathews Salazar released a joint statement on the importance of continuing partnership to reduce emissions and address climate change.¹⁰⁵⁶ Minister Huddleston stated the UK will support Peru in their energy transition, including in the green hydrogen sector.

On 19 October 2023, Parliamentary Undersecretary of State for Roads and Local Transport Richard Holden announced GBP200 million in funding to rollout up to 370 zero emission trucks, 57 refueling and electric

¹⁰⁵⁰ Industry to have their say on increasing role of hydrogen in energy system, Government of the United Kingdom (London) 15 September 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/industry-to-have-their-say-on-increasing-role-of-hydrogen-in-energy-system>

¹⁰⁵¹ UK government support for developing countries to tackle climate change, Government of the United Kingdom (London) 21 September 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/uk-government-support-for-developing-countries-to-tackle-climate-change>

¹⁰⁵² UK-Taiwan Renewable Energy Conference highlights collaboration, Government of the United Kingdom (London) 22 September 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/uk-taiwan-renewable-energy-conference-highlights-collaboration>

¹⁰⁵³ UK and Germany partner to further advance hydrogen developments, Government of the United Kingdom (London) 26 September 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/uk-and-germany-partner-to-further-advance-hydrogen-developments>

¹⁰⁵⁴ Joint Statement on the third Edition of the UK Colombia Trade Dialogue: October 2023, Government of the United Kingdom (London) 17 October 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/joint-statement-on-the-third-edition-of-the-uk-colombia-trade-dialogue-october-2023>

¹⁰⁵⁵ £89 million of funding to develop cutting edge new electric vehicle technology, Government of the United Kingdom (London) 9 October 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/89-million-of-funding-to-develop-cutting-edge-new-electric-vehicle-technology>

¹⁰⁵⁶ UK-Peru Trade Dialogue: Building For The Future, Government of the United Kingdom (London) 13 October 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/uk-perutrade-dialogue-building-for-the-future>

charging stations, and other critical infrastructure.¹⁰⁵⁷ The freight decarbonization investments include projects like Protium's Hydrogen Aggregated Logistics.

On 23 October 2023, Minister of State at the Department for Science, Innovation, and Technology George Freeman announced GBP75 million in funding for eight innovation launchpads across the country.¹⁰⁵⁸ The Net-Zero Launchpad located at Tees Valley focuses on hydrogen production, CCUS, and offshore wind.

On 24 October 2023, Consul General for the United Kingdom in Houston Richard Hyde and Oklahoma Secretary of Energy and the Environment Ken McQueen jointly chaired the first working group meeting after the signing of the Memorandum of Understanding on trade in April 2023.¹⁰⁵⁹ The working group discussed opportunities for knowledge exchange specifically on carbon sequestration and hydrogen fuel innovation.

On 25 October 2023, the UK and Oklahoma held their inaugural working group meeting where they highlighted opportunities for further work and knowledge exchange on several areas including hydrogen fuel innovation.¹⁰⁶⁰

On 26 October 2023, the Government of the United Kingdom passed the Energy Act 2023. The Energy Act 2023 overhauls the energy system to support the delivery of net-zero commitments and ensure energy security.¹⁰⁶¹ The Act provides wide support for technologies such as carbon capture and storage and hydrogen while establishing a new independent body, the Future System Operator, to help ensure policy goals are met while maintaining customer affordability.

On 27 October 2023, the Department for Business, Energy & Industrial Strategy and Department for Energy Security and Net Zero responded to the consultation of the UK Low Carbon Hydrogen Certification Scheme and revised its impact assessment.¹⁰⁶²

On 30 October 2023, the Department for Energy Security and Net Zero published a report on Hydrogen production and industrial carbon capture business models containing the outcome and government response to the public consultation on revenue support regulations for hydrogen.¹⁰⁶³ Based on consultation responses,

¹⁰⁵⁷ Government invests £200 million to drive innovation and get more zero emission trucks on our roads, Government of the United Kingdom (London) 19 October 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/government-invests-200-million-to-drive-innovation-and-get-more-zero-emission-trucks-on-our-roads>

¹⁰⁵⁸ Expert regional innovation hubs given £75 million boost to local research, businesses and economics across UK, Government of the United Kingdom (London) 23 October 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/expert-regional-innovation-hubs-given-75-million-boost-to-local-research-businesses-and-economies-across-uk>

¹⁰⁵⁹ UK and Oklahoma hold inaugural Working Group meeting, Government of the United Kingdom (London) 25 October 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/news/uk-and-oklahoma-hold-inaugural-working-group-meeting>

¹⁰⁶⁰ UK and Oklahoma hold inaugural Working group meeting, Government of the United Kingdom (London) 25 October 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/uk-and-oklahoma-hold-inaugural-working-group-meeting>

¹⁰⁶¹ New laws passed to bolster energy security and deliver net zero, Government of the United Kingdom (London) 26 October 2023. Access Date: 2 November 2023 <https://www.gov.uk/government/news/new-laws-passed-to-bolster-energy-security-and-deliver-net-zero>

¹⁰⁶² UK Low Carbon Hydrogen Certification Scheme, Government of the United Kingdom (London) 27 October 2023. Access Date: 2 November 2023. <https://www.gov.uk/government/consultations/uk-low-carbon-hydrogen-certification-scheme#full-publication-update-history>

¹⁰⁶³ Proposals for hydrogen production and industrial carbon capture regulations, Government of the United Kingdom (London) 30 October 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/consultations/proposals-for-hydrogen-production-and-industrial-carbon-capture-regulations>

the report recommends that compliance with the UK Low Carbon Hydrogen Standard determine eligibility for public funding.¹⁰⁶⁴

On 3 November 2023, the UK and Germany issued a joint declaration of cooperation on energy and climate change with hydrogen as a key area for cooperation.¹⁰⁶⁵

On 6 November 2023, Parliamentary Undersecretary of State in the Wales Office James Davies visited a research vessel being retrofitted with a hydrogen propulsion system and funded by the government.¹⁰⁶⁶ He reiterated the UK's commitment to decarbonizing the marine industry including through hydrogen fuel.

On 15 November 2023, the Subsidy Advice Unit of the Competition and Markets Authority published a report providing advice to the Department for Energy Security and Net Zero concerning the proposed net-zero hydrogen subsidy scheme.¹⁰⁶⁷

On 16 November 2023, the Minister of State for the Middle East and North Africa Tariq Ahmad and Algerian Minister of Foreign Affairs and National Community Abroad held the second session of the UK-Algeria Strategic Dialogue and launched the joint higher education committee to strengthen collaboration in fields including green hydrogen.¹⁰⁶⁸

On 16 November 2023, the Department for Transport announced the launch of the Transport Decarbonisation Demonstrators programme.¹⁰⁶⁹ The program aims to encourage business to help develop transport schemes that cut long-term emissions. UK business will be eligible to apply for up to GBP500,000 in grants for successful schemes. Hydrogen focused schemes meet eligibility requirements and won funding in previous rounds.¹⁰⁷⁰

On 17 November 2023, Secretary Harper announced six winning projects awarded a total of over GBP27 million to convert carbon dioxide and green hydrogen into aviation fuel.¹⁰⁷¹

On 20 November 2023, Secretary of State for Foreign, Commonwealth, and Development Affairs David Cameron and Austrian Minister for European and International Affairs Alexander Schallenberg released a joint

¹⁰⁶⁴ Hydrogen production and industrial carbon capture business models, Government of the United Kingdom (London) 30 October 2023. Access date: 8 December 2023. <https://www.gov.uk/government/consultations/proposals-for-hydrogen-production-and-industrial-carbon-capture-regulations#full-publication-update-history>

¹⁰⁶⁵ Joint Declaration of cooperation on energy and climate, Government of the United Kingdom (London) 3 November 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/publications/cooperation-on-energy-and-climate-joint-declaration-between-united-kingdom-and-germany/joint-declaration-of-cooperation-on-energy-and-climate>

¹⁰⁶⁶ Minister Davies visits Bangor University research ship as it undergoes green retrofit, Government of the United Kingdom (London) 6 November 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/minister-davies-visits-bangor-university-research-ship-as-it-undergoes-green-retrofit>

¹⁰⁶⁷ Referral of Net Zero Hydrogen Fund scheme by the Department for Energy Security and Net Zero, Government of the United Kingdom (London) 15 November 2023. Access Date: 6 November 2023. <https://www.gov.uk/cma-cases/referral-of-net-zero-hydrogen-fund-scheme-by-the-department-for-energy-security-and-net-zero>

¹⁰⁶⁸ Algeria-UK Strategic Dialogue November 2023: joint statement, Government of the United Kingdom (London) 16 November 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/algeria-uk-strategic-dialogue-november-2023-joint-statement>

¹⁰⁶⁹ New £2 million competition launched to help decarbonise local transport, Government of the United Kingdom (London) 16 November 2023. Access Date: 13 December 2023. <https://www.gov.uk/government/news/new-2-million-competition-launched-to-help-decarbonise-local-transport>

¹⁰⁷⁰ Transport Research Innovation Grant (TRIG): funding winners, Publishing Service for the Government of the United Kingdom (London) n.d. Access Date: 16 December 2023. <https://assets.publishing.service.gov.uk/media/647dc477103ca60013039919/trig-funding-winners.csv>

¹⁰⁷¹ Advanced Fuels Fund Competition Winners, Government of the United Kingdom (London) 17 November 2023. Access Date: 8 December 2023. <https://www.gov.uk/government/publications/advanced-fuels-fund-competition-winners/advanced-fuels-fund-aff-competition-winners>

vision statement with Austria to deepen cooperation in areas including the hydrogen economy and hydrogen research.¹⁰⁷²

On 21 November 2023, Secretary of State for Energy Security and Net Zero Claire Coutinho and Korean Minister for Trade, Industry, and Energy Kyu Bang Moon signed a new UK and Republic of Korea clean energy partnership to accelerate net-zero transition including exploring opportunities for hydrogen collaboration.¹⁰⁷³

On 22 November 2023, the Chancellor of the Exchequer, Jeremy Hunt, delivered the Autumn 2023 Economic Statement and outlined financial vehicles and investments to develop supply chains and leverage global market potential for hydrogen and CCUS, and other clean technology sectors.¹⁰⁷⁴ First, the Statement makes full write-off of expenses for qualifying plant and machinery investments in the year of investment permanent to encourage investment. Second, new solar and offshore wind projects decided upon after the Statement's date will be exempted from the Electricity Generator Levy to bring on renewable supply to fuel hydrogen and other projects as well as to service the power grid. The government intends to introduce legislation to provide the Crown Estate with borrowing and wider investment capacity to unlock 20-30 GW of new seabed rights by 2030. The Crown Estate will consider enhancements to floating wind projects in the Celtic Sea in the order of 12GW by 2030. Measures will also be taken to reduce barriers to investment such as quicker connections to the power grid within six months and reforms to the planning process including updates to the National Networks and National Energy Policy Statements. In addition, the government will extend the critical national priority designation to nationally significant low carbon energy projects. Further, the 2023 Statement sets out the revised parameters for the next auction round of Carbon Contracts for Difference to increase the maximum price allowed to de-risk and encourage investment in hydrogen and other alternatives. Finally, Chancellor Hunt announced a GBP960 million Green Industries Growth Accelerator to support manufacturing investments in the green energy sectors where the UK has leading opportunities such as hydrogen and CCUS, nuclear, offshore wind, and electricity networks. The extension of the regional investment zone program from five to ten years further supports hydrogen project decisions as does the creation of the new East Midlands Investment Zone with its focus on green industries. This decision doubles the size of the funding envelope and tax relief available to GBP160 million and partners these funds with a new five-year GBP150 million Investment Opportunity Fund.

On 23 November 2023, Secretary Clare Coutinho announced a GBP960 million government investment to the Green Industries Growth Accelerator, which includes hydrogen development.¹⁰⁷⁵

On 27 November 2023, Secretary of State for Science, Innovation and Technology Michelle Donelan announced regulatory framework reforms for emerging technologies including hydrogen-based aviation fuel.¹⁰⁷⁶

¹⁰⁷² Joint vision statement on bilateral cooperation between Austria and the UK, Government of the United Kingdom (London) 20 November 2023. Access Date: 8 December 2023. <https://www.gov.uk/government/publications/uk-austria-bilateral-cooperation-joint-vision-statement/joint-vision-statement-on-bilateral-cooperation-between-austria-and-the-uk>

¹⁰⁷³ New UK and Republic of Korea clean energy partnership to accelerate net zero transition, Government of the United Kingdom (London) 21 November 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/new-uk-and-republic-of-korea-clean-energy-partnership-to-accelerate-net-zero-transition>

¹⁰⁷⁴ Minister of the Exchequer Delivers Autumn 2023 Economic Statement, Her Majesty's Treasury (London) 22 November 2023. Access Date: 11 December 2023. https://assets.publishing.service.gov.uk/media/6568909c5936bb00133167cc/E02982473_Autumn_Statement_Nov_23_Accessible_Final.pdf

¹⁰⁷⁵ Huge boost for UK green industries with £960 million government investment and major reform of power network, Government of the United Kingdom (London) 23 November 2023. Access Date: 13 December 2023. <https://www.gov.uk/government/news/huge-boost-for-uk-green-industries-with-960-million-government-investment-and-major-reform-of-power-network>

¹⁰⁷⁶ Tech Secretary strips back red tape to unleash innovation in clean aviation, drones and autonomous marine tech, Government of the United Kingdom (London) 27 November 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/tech-secretary-strips-back-red-tape-to-unleash-innovation-in-clean-aviation-drones-and-autonomous-marine-tech>

On 28 November 2023, the British high Commission Singapore announced that it was seeking pilot project proposals under the UK-Singapore Green Economy Framework including hydrogen technology and green transport.¹⁰⁷⁷

On 3 December 2023, Secretary Coutinho and Brazilian Minister of Mines and Energy Alexandre Silveira announced the Brazil-UK Hydrogen Hub to facilitate knowledge sharing, bilateral, and international cooperation. The Hub aims to develop the Hydrogen market in Brazil and increase competitiveness of low carbon hydrogen as an energy source.¹⁰⁷⁸

The United Kingdom has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable international standards and certification schemes adhering to environmental and social standards. The United Kingdom advanced strong actions to develop the supply chain for low carbon and renewable hydrogen through funding hydrogen powered transit, heavy transport, aviation and refuelling infrastructure, regulatory incentives for fuel-switching and de-risking hydrogen investments, legislated priority designations, innovation investments, and funding for hydrogen solutions to industry abatement. The United Kingdom supported the development of the rule-based global market for hydrogen, with strong actions, by advancing low carbon hydrogen standards and jointly establishing an organization dedicated to facilitating hydrogen trade.

Thus, the United Kingdom receives a score of +1.

Analyst: Sarah Wilczynski

United States: +1

The United States has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable standards and certification schemes adhering to environmental and social standards.

On 22 May 2023, the Department of Energy (DOE) announced a USD42 million project to invest in 22 projects to advance technologies for the production, storage, and deployment of clean hydrogen.¹⁰⁷⁹ The projects aspire to develop solar fuel technologies, higher-density and lower-pressure hydrogen storage methods, cost-effective hydrogen fuel cells, and improved emissions detection and monitoring. The DOE has also allocated USD17.8 million to establish a North American University Research consortium, led by Stanford University, focusing on grid resilience and decarbonization programs. The consortium will help states, tribes, and regions in developing data, modelling tools, a workforce, and methods to achieve the aforementioned goals.

¹⁰⁷⁷ Calls for bids 2023-24: UK-Singapore Green Economy Framework Regional Fund, Government of the United Kingdom (London) 28 November 2023. Access Date: 6 December 2023. <https://www.gov.uk/government/news/call-for-bids-2023-24-uk-singapore-green-economy-framework-regional-fund>

¹⁰⁷⁸ Joint statement of intent between Brazil and the United Kingdom to co-chair a Brazil-UK Hydrogen Hub, Government of the United Kingdom (London) 4 December 2023. Access Date: 9 December 2023. <https://www.gov.uk/government/publications/hydrogen-hub-brazil-uk-joint-statement-of-intent/joint-statement-of-intent-between-brazil-and-the-united-kingdom-to-co-chair-a-brazil-uk-hydrogen-hub>

¹⁰⁷⁹ DOE Announces Nearly \$60 Million to Advance Clean Hydrogen Technologies and Improve the Electric Power Grid, Department of Energy (Washington D.C.) 22 May 2023. Access Date: 8 December 2023. <https://www.energy.gov/articles/doe-announces-nearly-60-million-advance-clean-hydrogen-technologies-and-improve-electric>

On 23 May 2023, the Environmental Protection Agency (EPA) proposed five actions under section 111 of the Clean Air Act to address greenhouse gas (GHG) emissions from fossil fuel-fired electric generating units.¹⁰⁸⁰ This includes performance standards for hydrogen co-firing and emissions.

On 24 May 2023, the DOE launched the Clean Fuel and Products Shot – its seventh DOE Energy Earthshot initiative.¹⁰⁸¹ The program aims to decarbonize transportation and heavy industry with targets to achieve at least an 85 per cent GHG emission reductions by 2035. The initiative plans to leverage clean hydrogen as part of carbon efficient conversions to advance decarbonization in hard to abate sectors.¹⁰⁸²

On 31 May 2023, the Internal Revenue Service released supplementary eligibility for the Qualifying Advanced Energy Project tax credit program.¹⁰⁸³ The new guidelines list hydrogen fuel cells and hydrogen storage technologies as eligible for the tax credit. The requirements stipulate that the hydrogen must be derived from renewables.

On 5 June 2023, the Department of Energy unveiled the National Clean Hydrogen Strategy and Roadmap. The framework outlines how clean hydrogen can help the country achieve its decarbonization goals across sectors.¹⁰⁸⁴ The framework provides insights into the current state of hydrogen production, transportation, storage, and utilization, and outlines a plan to enhance clean hydrogen production and use by 2030, 2040, and 2050. The roadmap aims to facilitate a 50 to 52 per cent reduction in GHG emissions from 2005 levels by 2030, achieve 100 per cent carbon pollution-free electricity by 2035, and reach net-zero GHG emissions by 2050.

On 8 June 2023, Under Secretary of Commerce for International Trade Marisa Ligo and Singapore Permanent Secretary of the Ministry of Trade and Industry Gabriel Lim agreed to cooperate to further Singapore's National Hydrogen Strategy.¹⁰⁸⁵

On 5 July 2023, the DOE released a Notice of Intent and Request for Information to invest upwards to USD1 billion in an initiative to support the Regional Clean Hydrogen Hubs (H2Hubs).¹⁰⁸⁶ The funding originates from broader energy sections of the Infrastructure Investments and Jobs Act but now specifically allocates investments to advance renewable hydrogen. The funding aims to establish a national clean hydrogen network to reduce emissions from energy-intensive sectors. The plan aspires to address market uncertainties and help producers and end users have the support necessary to unlock private investment and realize the potential of

¹⁰⁸⁰ New Source Performance Standards for Greenhouse Gas Emissions From New, Modified, and Reconstructed Fossil Fuel-Fired Electric Generating Units; Emission Guidelines for Greenhouse Gas Emissions From Existing Fossil Fuel-Fired Electric Generating Units; and Repeal of the Affordable Clean Energy Rule, Environmental Protection Agency (Washington D.C.) 23 May 2023. Access Date: 8 December 2023. <https://www.federalregister.gov/documents/2023/05/23/2023-10141/new-source-performance-standards-for-greenhouse-gas-emissions-from-new-modified-and-reconstructed>

¹⁰⁸¹ DOE Launches New Energy Earthshot to Decarbonize Transportation and Industrial Sectors, Department of Energy (Washington D.C.) 24 May 2023. Access Date: 8 December 2023. <https://www.energy.gov/articles/doe-launches-new-energy-earthshot-decarbonize-transportation-and-industrial-sectors>

¹⁰⁸² Clean Fuels & Products Shot™: Alternative Sources for Carbon-based Products, Department of Energy Office of Energy Efficiency and Renewable Energy (Washington D.C.) n.d. Access Date: 15 December 2023. <https://www.energy.gov/eere/clean-fuels-products-shotm-alternative-sources-carbon-based-products>

¹⁰⁸³ Additional Guidance for the Qualifying Advanced Energy Project Credit Allocation Program under Section 48C(e), Department of Energy (Washington D.C.) 31 May 2023. Access Date: 8 December 2023. <https://www.irs.gov/pub/irs-drop/n-23-44.pdf>

¹⁰⁸⁴ U.S National Clean Hydrogen Strategy and Roadmap US Department of Agriculture (Washington D.C.) 5 June 2022. Access Date: 9 November 2023. <https://www.hydrogen.energy.gov/docs/hydrogenprogramlibraries/pdfs/us-national-clean-hydrogen-strategy-roadmap.pdf>

¹⁰⁸⁵ Joint Statement: The U.S. Department of Commerce and Singapore Ministry of Trade and Industry Meet for the Second U.S.-Singapore Partnership for Growth and Innovation Annual Dialogue, U.S. Department of Commerce International Trade Administration (Singapore) 8 June 2023. Access Date: 15 December 2023. <https://www.commerce.gov/news/press-releases/2023/06/joint-statement-us-department-commerce-and-singapore-ministry-trade-and>

¹⁰⁸⁶ Biden-Harris Administration to Jumpstart Clean Hydrogen Economy with New Initiative to Provide Market Certainty And Unlock Private Investment, Department of Energy (Washington D.C.) 5 July 2023. Access Date: 8 December 2023. <https://www.energy.gov/articles/biden-harris-administration-jumpstart-clean-hydrogen-economy-new-initiative-provide-market>

clean hydrogen. The mechanism outlined within the Notice of Assessment aims to connect H2Hubs with prospective purchasers.

On 10 July 2023, the DOE announced USD72 million R&D grants to support small businesses. The selected projects include EvolOH which develops technology to reduce the water purity needed to produce hydrogen through electrolysis, thereby reducing costs in the supply chain.¹⁰⁸⁷

On 18 July 2023, Secretary of Energy Jennifer M. Granholm and Indian Minister of Petroleum and Natural Gas Hardeep Singh Guri resolved to deepen collaboration in hydrogen deployment and scaling at the third ministerial meeting of the U.S.-India Strategic Clean Partnership.¹⁰⁸⁸

On 21 July 2023, Secretary Granholm and Brazilian Minister of Mines and Energy, Alexandre Silveira, announced their joint commitment for clean hydrogen cooperation through the Clean Energy Industry Dialogue.¹⁰⁸⁹

On 21 July 2023, Secretary Granholm and Japanese Minister for Economy, Trade and Industry Yasutoshi Nishimura discussed bilateral cooperation on hydrogen at the at the 14th Clean Energy Ministerial and 8th Mission Innovation Ministerial.¹⁰⁹⁰

On 22 July 2023, Secretary Granholm and the G20 Energy Ministers committed to “support acceleration of production, utilization, as well as development of transparent and resilient global markets for hydrogen produced from zero and low emission technologies and its derivatives such as ammonia by developing voluntary and mutually agreed harmonizing standards as well as mutually recognized, and interoperable certification schemes.”¹⁰⁹¹ The Ministers also agreed to high level steps needed to achieve their commitment including collaboration on national standards development for low carbon hydrogen and movement towards global harmonization, free trade advancement, in research and development (R&D) cooperation for technological innovation, finance activation to support the entire supply chain, as well as voluntary information exchanges.

On 22 July 2023, the United States, along with Australia, Brazil, Canada, Chile, Germany, Japan, Saudi Arabia, Korea, the Netherlands, the United Arab Emirates, the United Kingdom, Uruguay and the European Commission on behalf of the European Union, jointly launched the International Hydrogen Trade Forum to advance the global hydrogen market.¹⁰⁹² The Forum aims to connect importers and exporters and reduce barriers to trade and bolsters the global market for hydrogen.

On 17 August 2023, the DOE awarded USD34 million to 19 projects that increase clean hydrogen availability and affordability for industrial and transport decarbonization.¹⁰⁹³ The selected projects are centred around cost

¹⁰⁸⁷ DOE Announces \$72 Million For Small Business Research and Development Grants, Department of Energy (Washington D.C.) 10 July 2023. Access Date: 8 December 2023. <https://www.energy.gov/articles/doe-announces-72-million-small-business-research-and-development-grants>

¹⁰⁸⁸ U.S. and India Advance Partnership on Clean Energy, Department of Energy (New Delhi) 18 July 2023. Access Date: 15 December 2023. <https://www.energy.gov/articles/us-and-india-advance-partnership-clean-energy>

¹⁰⁸⁹ United States and Brazil Strengthen Bilateral Clean Energy Cooperation with a Renewed Commitment to Mobilize Private Sector and Community Engagement, Department of Energy (Washington D.C.) 21 July 2023. Access Date: 8 December 2023. <https://www.energy.gov/articles/united-states-and-brazil-strengthen-bilateral-clean-energy-cooperation-renewed-commitment>

¹⁰⁹⁰ METI Minister Nishimura Attends the 14th Clean Energy Ministerial (CEM14) and 8th Mission Innovation Ministerial (MI-8), and a G20 Energy Transitions Ministers’ Meeting, Ministry of Economy, Trade and Industry (Goa) 23 July 2023. Access Date: 9 December 2023. https://www.meti.go.jp/english/press/2023/0723_001.html

¹⁰⁹¹ Outcome Document and Chair’ Summary, G20 Information Centre (Goa) 22 July 2023. Access Date: 10 November 2023. <http://www.g20.utoronto.ca/2023/230722-energy.html#annex1>

¹⁰⁹² LAUNCH OF THE INTERNATIONAL HYDROGEN TRADE FORUM TO ACCELERATE GLOBAL COLLABORATION, Clean Energy Ministerial (Goa) 22 July 2023. Access Date: 15 December 2023. <https://www.cleanenergyministerial.org/launch-of-the-international-hydrogen-trade-forum-to-accelerate-global-collaboration/>

¹⁰⁹³ DOE Awards \$34 Million to Advance Clean Hydrogen, Department of Energy (Washington D.C.) 17 August 2023. Access Date: 8 December 2023. <https://www.energy.gov/articles/doe-awards-34-million-advance-clean-hydrogen>

and energy reduction in clean hydrogen production, the use of abated biomass and other waste, and the transportation and storage of hydrogen.

On 18 August 2023, Department of Energy Hydrogen and Fuel Cell Technologies Office Director Sunita Satyapal announced the creation of the Hydrogen Interagency Task Force during a stakeholder webinar concerning the National Clean Hydrogen Strategy and Roadmap.¹⁰⁹⁴ The Hydrogen Interagency Task Force comprises various government agencies working in tandem to support the National Clean Hydrogen Strategy. The task force's principal goal comprises fostering the development of a sustainable market for clean hydrogen, creating viable jobs, and promoting domestic supply chains.

On 25 August 2023, the DOE awarded USD126 million in R&D grants to small businesses including for hydrogen and fuel cell technology.¹⁰⁹⁵

On 31 August 2023, the DOE in coordination with the Japanese Ministry of Economy, Trade and Industry, National Energy Technology Laboratory (NETL), and the New Energy and Industrial Technology Development Organization (NEDO) hosted the US-Japan CCUS/Carbon Recycling Working Group.¹⁰⁹⁶ Participants in the working group agreed on the need to expand collaboration projects and deploy technologies in various regions, including the Asia-Pacific. Notably, the importance of ongoing collaboration between NETL'S National Carbon Capture Center (NCCC) and NEDO's R&D and Demonstration base for Carbon Recycling at Osaki-Kamijima was emphasized. Carbon capture, use and storage (CCUS) represents a crucial element in the low carbon hydrogen supply chain.¹⁰⁹⁷

On 20 September 2023, the DOE announced USD47.7 million in funding for 16 research, development, and demonstration projects to foster clean hydrogen technologies.¹⁰⁹⁸ The projects aspire to lower technology costs, enhance hydrogen infrastructure, and improve fuel cell performance. The selected projects will focus on numerous aspects of the clean hydrogen supply chain, including hydrogen delivery, storage technologies, and durable fuel cells. The investment advances the DOE's goal to reduce the cost of clean hydrogen to USD1 dollar per kilogram within 10 years.

On 29 September 2023, the DOE allocated USD264 million towards 29 projects aimed at developing solutions for clean energy technologies.¹⁰⁹⁹ Among selected projects are The Lawrence Berkeley National Laboratory and Princeton Plasma Physics Laboratory, which focus on advancing clean hydrogen production through electrolysis and research into achieving net-negative carbon emissions and creating innovative methods for hydrogen production respectively.

¹⁰⁹⁴ Hydrogen Stakeholder Webinar: National Clean Hydrogen Strategy and Roadmap and Interagency Coordination, US Department of Energy (Washington D.C.) 18 August 2023. Access Date: 13 November 2023. <https://www.hydrogen.energy.gov/docs/hydrogenprogramlibraries/pdfs/webinar-national-hydrogen-strategy-interagency-collaboration.pdf>

¹⁰⁹⁵ DOE Announces \$126 Million for Small Businesses to Pursue Clean Energy Research and Development, Department of Energy (Washington D.C.) 25 August 2023. Access Date: 8 December 2023. <https://www.energy.gov/articles/doe-announces-126-million-small-businesses-pursue-clean-energy-research-and-development>

¹⁰⁹⁶ The U.S.-Japan CCUS/Carbon Recycling Working Group Held), Ministry of Economy, Trade and Industry (Pittsburgh) 5 September 2023. Access Date: 5 December 2023. https://www.meti.go.jp/english/press/2023/0905_002.html

¹⁰⁹⁷ Identifying the differences in between Green, Low Carbon, and Renewable Hydrogen, United Nations Environment Program (Copenhagen) 27 April 2023. Access Date: 28 September 2023. <https://c2e2.unepccc.org/wp-content>

¹⁰⁹⁸ DOE Announces Nearly \$48 Million To Advance Clean Hydrogen Technologies, Department of Energy (Washington D.C.) 20 September 2023. Access Date: 8 December 2023. <https://www.energy.gov/articles/doe-announces-nearly-48-million-advance-clean-hydrogen-technologies>

¹⁰⁹⁹ DOE Announces \$264 Million for Basic Research in Support of Energy Earthshots™, Department of Energy (Washington D.C.) 29 September 2023. Access Date: 8 December 2023. <https://www.energy.gov/articles/doe-announces-264-million-basic-research-support-energy-earthshotstm>

On 13 October 2023, the Biden-Harris administration announced a USD7 billion investment to create seven Regional Clean Hydrogen Hubs.¹¹⁰⁰ The hubs aim to accelerate large-scale use of low-cost clean hydrogen. Funding for this initiative comes from the Bipartisan Infrastructure Law and the Department of Energy's Office of Clean Energy Demonstrations will be responsible for its management. The Hub strategy seeks to create a network of hydrogen producers, users, and infrastructure, to produce three million metric tons of hydrogen annually.

On 17 October 2023, Assistant Secretary for Energy Resources for the Department of State Geoffrey Pyatt, Director-General for Energy and Environmental Policy for the Japanese Ministry of Economy, Trade and Industry Kihara Shinichi, and Deputy Director General and Deputy Assistant Minister to the Japanese Ministry of Foreign Affairs Taketani Atsushi issued a joint statement emphasizing their collective commitment to advancing efforts in clean energy, technologies and mineral resource supply chains.¹¹⁰¹ The statement included a shared commitment to collaborate on regulations and standards for hydrogen including carbon-content measurement.¹¹⁰²

On 14 November 2023, Secretary of State Antony Blinken and Secretary of Commerce Gina Raimondo met with Japanese Minister for Foreign Affairs Yoko Kamikawa in San Francisco for the second ministerial meeting of the Japan-US Economic Policy Consultative Committee.¹¹⁰³ Both countries reaffirmed their commitment to strengthen supply chains for clean hydrogen production by investing in research and development.

On 14 November 2023, Secretary Blinken and Deputy Trade Representative Katherine Tai and the other ministers participating in the Asia-Pacific Economic Cooperation (APEC) forum released a statement that included the goal to identify best practices and frameworks for producing hydrogen from zero to low emissions technologies in the APEC region.¹¹⁰⁴

The United States has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable international standards and certification schemes adhering to environmental and social standards. The United States advanced strong actions to develop the supply chain for low carbon and renewable hydrogen through full hydrogen lifecycle funding including for transport and heavy industry, R&D investments to lower costs, and a hydrogen strategy. The United States supported the development of the rule-based global market for hydrogen, with strong actions, by jointly establishing an organization dedicated to facilitating hydrogen trade. The United States advanced standards by establishing renewable derived requirements for hydrogen tax credits.

Thus, the United States receives a score of +1.

Analyst: Minabil Syed

¹¹⁰⁰ Biden-Harris Administration Announces \$7 Billion for America's First Clean Hydrogen Hubs, Driving Clean Manufacturing and Delivering New Economic Opportunities Nationwide" Hydrogen and Fuel Cell Technologies Office (Washington D.C.) 13 October 2023. Access Date: 10 November 2023. <https://www.energy.gov/eere/fuelcells/articles/biden-harris-administration-announces-7-billion-americas-first-clean>

¹¹⁰¹ Second Annual Japan-U.S. Energy Security Dialogue Held, Ministry of Economy, Trade and Industry (Palo Alto) 30 October 2023. Access Date: 10 December 2023. https://www.meti.go.jp/english/press/2023/1030_004.html

¹¹⁰² Joint Statement on the Second Annual Japan-U.S. Energy Security Dialogue, Ministry of Economy, Trade and Industry (Palo Alto) 30 October 2023. Access Date: 10 December 2023. <https://www.meti.go.jp/press/2023/10/20231030004/20231030004-2.pdf>

¹¹⁰³ Joint Statement of the Japan-U.S. Economic Policy Consultative Committee, Ministry of Economy, Trade and Industry (Tokyo) 14 November 2023. Access Date: 13 November 2023. <https://www.meti.go.jp/press/2023/11/20231116006/20231116006-1.pdf>

¹¹⁰⁴ 2023 APEC Ministerial Meeting, Asia-Pacific Economic Cooperation (San-Francisco) 17 November 2023. Access Date: 13 December 2023. <https://www.meti.go.jp/press/2023/11/20231116004/20231116004-a-eng.pdf>

European Union: +1

The European Union has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable standards and certification schemes adhering to environmental and social standards.

On 22 May 2023, European Commission President Ursula von der Leyen and Korean President Suk Yeol Yoon announced the EU-Korea Green Partnership at the EU-Korea Summit in Seoul.¹¹⁰⁵ This partnership affirmed their commitment to achieving their respective 2030 goals of reducing greenhouse gas emissions and increased cooperation on the clean and fair energy transition, focusing on low-carbon hydrogen, green mobility, and carbon capture, utilization and storage (CCUS), and transitioning away from unabated coal-fired power generation.

On 24 May 2023, European Commissioner for Transport Adina Vălean announced the Commission's support for the development of sustainable aviation fuels through the International Civil Aviation Organization's Capacity-building and Training for Sustainable Aviation Fuels programme.¹¹⁰⁶ The project allocates EUR4 million to selected partner countries for feasibility study completion and fuel certification and is aligned with the European Green Deal commitment. The majority of feasibility studies published by the programme focus on hydrogen as a potential fuel.¹¹⁰⁷

On 25 May 2023, European Commissioner for Energy Kadri Simson delivered the keynote address at the Estonian Hydrogen Days in Tartu, demonstrating the EU's commitment to hydrogen and bolstering market certainty as proposed delegated acts move through the European Parliament.¹¹⁰⁸

On 31 May 2023, European Commissioner for Energy Kadri Simson and German Minister for Economic Affairs and Climate Action Robert Habeck released a joint statement on linking the European Hydrogen Bank with Germany's H2Global to enhance hydrogen standards and markets.¹¹⁰⁹

On 6 June 2023, the European Climate, Infrastructure and Environment Executive Agency (CINEA) selected sixteen projects under the Innovation Fund.¹¹¹⁰ These projects received around EUR60 million from Emission Trading System revenues in grants to bring low-carbon technologies to the market in energy-intensive industries, including the hydrogen, energy storage, and renewable energy sectors.

On 7 June 2023, President von der Leyen and High Representative of the European Union for Foreign Affairs and Security Policy Josep Borrell adopted a Joint Communication for a New Agenda for Relations between the

¹¹⁰⁵ European Green Deal: EU and Republic of Korea launch Green Partnership to deepen cooperation on climate action, clean energy and environmental protection, European Commission (Seoul) 22 May 2023. Access Date: 7 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_2816

¹¹⁰⁶ Decarbonising aviation: European Commission to support development of sustainable aviation fuels around the world, European Commission Directorate for Mobility and Transport (Brussels) 24 May 2023. Access Date: 7 December 2023. https://transport.ec.europa.eu/news-events/news/decarbonising-aviation-european-commission-support-development-sustainable-aviation-fuels-around-2023-05-24_en

¹¹⁰⁷ ICAO Assistance, Capacity-building and Training for Sustainable Aviation Fuels (ICAO ACT-SAF), International Civil Aviation Organization (Montreal) 17 November 2023. Access Date: 11 December 2023. <https://www.icao.int/environmental-protection/Pages/act-saf.aspx>

¹¹⁰⁸ Keynote speech by Commissioner Simson at the Estonian Hydrogen Days 2023, European Commission (Tartu) 25 May 2023. Access Date: 7 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_23_2928

¹¹⁰⁹ Joint statement by Commissioner Simson and German Minister Habeck on energy issues (Brussels) 31 May 2023. Access Date: 7 December 2023. https://energy.ec.europa.eu/news/joint-statement-commissioner-simson-and-german-minister-habeck-energy-issues-2023-05-31_en

¹¹¹⁰ 16 grants from the Innovation Fund awarded to projects across Europe, European Climate, Infrastructure and Environment Executive Agency (Brussels) 6 June 2023. Access Date: 7 December 2023. https://cinea.ec.europa.eu/news-events/news/16-grants-innovation-fund-awarded-projects-across-europe-2023-06-06_en

EU and Latin America and the Caribbean (EU-LAC).¹¹¹¹ This partnership launched the EU-LAC Global Gateway Investment Agenda with green hydrogen as a key focus.

On 11 June 2023, President von der Leyen, Italian Prime Minister Giorgia Meloni, Dutch Prime Minister Mark Rutte and Tunisian President Kais Saied released a press statement on EU-Tunisia relations.¹¹¹² The statement proposed to modernize the trade agreement and focus on digital and energy sectors for investment. The parties committed to organizing an investment forum as a way to inject funds into Tunisia's renewables industries, including hydrogen.

On 12 June 2023, Commissioner Simson gave a speech at the 9th Energy Infrastructure Forum declaring hydrogen as the Commission's long-term energy focus.¹¹¹³ The speech highlighted the revised TEN-E regulation as the framework for hydrogen infrastructure development signals adherence to regulatory frameworks for sustainable energy solutions.

On 13 June 2023, President von der Leyen announced EUR10 billion in Global Gateway investments in the Caribbean and Latin America and EUR2 billion to boost Brazil's green hydrogen production and improve energy efficiency in its industries.¹¹¹⁴ This action highlights the EU's commitment to clean energy, and to addressing hydrogen production as a crucial component of sustainable development and environmental compliance in both regions.

On 14 June 2023, the Head of Division for the Latin American and Caribbean Public Sector for the European Investment Bank (EIB) Kritstin Lang, Executive Vice-President José Miguel Benavente of the Product Development Corporation, Chilean Minister of Finance Mario Marcell Cullell, and the KfW Development Bank signed a statement of intent establishing the Team Europe Renewable Hydrogen Funding Platform for Chile.¹¹¹⁵ The agreement allows for up to EUR200 million in financing and a grant of EUR16.5 million from the EU Latin America and Caribbean Investment Facility and aims to support Chile's renewable hydrogen industry. The initiative advances Chile's goals of achieving 100 per cent clean energy by 2050, promoting economic decarbonization, creating green jobs, and fostering business opportunities for both Chilean and European companies.

On 20 June 2023, the European Commission published two delegated acts specifying detailed rules on the EU definition of renewable hydrogen.¹¹¹⁶ The first act details requirements for categorizing hydrogen, hydrogen-based fuels, or other energy carriers as renewable fuels of non-biological origin (RFNBOs). The second act standardises calculation methodology for life-cycle greenhouse gas emissions for RFNBOs. The regulations ensure legal certainty and develops the rules-based, transparent global market for low-carbon and renewable hydrogen.

¹¹¹¹ New Agenda to strengthen EU's partnership with Latin America and the Caribbean, European Commission (Brussels) 7 June 2023. Access Date: 7 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3045

¹¹¹² Press statement by President von der Leyen with Italian Prime Minister Meloni, Dutch Prime Minister Rutte and Tunisian President Saied, European Commission (Tunis) 11 June 2023. Access Date: 7 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/statement_23_3201

¹¹¹³ Opening address by Commissioner Simson at the 9th Energy Infrastructure Forum, European Commission (Copenhagen) 12 June 2023. Access Date: 7 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/speech_23_3219

¹¹¹⁴ In Brazil, President von der Leyen announces EUR 10 billion of Global Gateway investments in Latin America and the Caribbean, European Commission (Brasilia) 13 June 2023. Access Date: 7 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ac_23_3265

¹¹¹⁵ Chile: EU, EIB and KfW to finance renewable hydrogen projects with up to €216.5 million, European Investment Bank (Santiago de Chile) 14 June 2023. Access Date: 7 December 2023. <https://www.eib.org/en/press/all/2023-223-eu-eib-and-kfw-to-finance-renewable-hydrogen-projects-in-chile-with-up-to-eur216-5-million>

¹¹¹⁶ Renewable hydrogen production: new rules formally adopted, European Commission Directorate-General for Energy (Brussels) 20 June 2023. Access Date: 7 December 2023. https://energy.ec.europa.eu/news/renewable-hydrogen-production-new-rules-formally-adopted-2023-06-20_en

On 22 June 2023, the European Commission approved a EUR280 million Belgian initiative to support ArcelorMittal Belgium with its goal of partially decarbonizing its steel production processes through hydrogen.¹¹¹⁷ The plant plans to use the financing to phase out natural gas, replacing it with renewable hydrogen.

On 26 June 2023, the European Union approved France's revised EUR40.3 billion recovery and resilience plan, which includes a REPowerEU chapter that plans to support industrial applications for hydrogen.¹¹¹⁸

On 26 June 2023, CINEA Acting Director Paloma Aba Garotte announced EUR144.6 million in grants for the Antwerp@C CO2 Export Hub for CCUS.¹¹¹⁹ Decarbonizing the Port of Antwerp-Bruges which houses the hydrogen-committed Fluxys pipeline advances renewable and low carbon hydrogen supply chains and enhances their adherence to environmental standards.¹¹²⁰

On 4 July 2023, European Commission Executive Vice President and Commissioner for Climate Action Frans Timmermans and Vice Premier of the People's Republic of China Xuexiang Ding released a joint statement on cooperation in implementing the United Nations Framework Convention on Climate Change, the Paris Agreement, and the Kunming-Montreal Global Biodiversity Framework during the fourth EU-China High Level Dialogue on Environment and Climate in Beijing.¹¹²¹ Both sides identified hydrogen as a key area for cooperation.

On 6 July 2023, Commissioner Simson visited pioneering projects in the decarbonization technology field, including several projects for renewable hydrogen production and carbon capture utilization and storage at the Port of Antwerp-Bruges.¹¹²² These projects included the Fluxys pipeline which will transition from transporting natural gas to hydrogen. The commissioner collected input from stakeholders and citizens to inform the development of a new EU strategy for carbon capture, utilization, and storage deployment.

On 6 July 2023, Commissioner Simson delivered the keynote at the Eurogas First European Renewable Gas Conference where she encouraged the adoption of regulatory frameworks for fossil-fuel alternatives including hydrogen.¹¹²³ Adopting the Commission's proposed legislation across the EU aims to advance the rules-based, transparent market for hydrogen.

¹¹¹⁷ State Aid: Commission approves E €280 million Belgian measure to support ArcelorMittal decarbonize its steel production, European Commission (Brussels) 22 June 2023. Access Date: 7 December 2023.

https://ec.europa.eu/commission/presscorner/detail/en/IP_23_3404

¹¹¹⁸ NextGenerationEU: European Commission endorses France's €40.3 billion modified recovery and resilience plan, including REPowerEU chapter (Brussels) 26 June 2023. Access Date: 7 December 2023.

https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3495

¹¹¹⁹ CEF Energy: Antwerp@C CO2 Export Hub receives 144.6 million of EU funding for CO2 capture infrastructure, European Climate, Infrastructure and Environment Executive Agency (Antwerp) 26 June 2023. Access Date: 7 December 2023.

https://cinea.ec.europa.eu/news-events/news/cef-energy-antwerpc-co2-export-hub-receives-1446-million-eu-funding-co2-capture-infrastructure-2023-06-26_en

¹¹²⁰ REPowerEU: Commissioner Simson to visit pioneering hydrogen and CCUS projects in Belgium, European Commission (Brussels) 6 July 2023. Access Date: 5 November 2023. https://energy.ec.europa.eu/news/repowereu-commissioner-simson-visit-pioneering-hydrogen-and-ccus-projects-belgium-2023-07-06_en

¹¹²¹ Joint Press Release following the fourth EU-China High Level Environment and Climate Dialogue, European Commission Directorate-General for Climate (Beijing) 24 July 2023. Access Date: 8 December 2023. https://climate.ec.europa.eu/news-your-voice/news/joint-press-release-following-fourth-eu-china-high-level-environment-and-climate-dialogue-2023-07-24_en

¹¹²² REPowerEU: Commissioner Simson to visit pioneering hydrogen and CCUS projects in Belgium, European Commission (Brussels) 6 July 2023. Access Date: 5 November 2023. https://energy.ec.europa.eu/news/repowereu-commissioner-simson-visit-pioneering-hydrogen-and-ccus-projects-belgium-2023-07-06_en

¹¹²³ Keynote speech by Commissioner Simson at Eurogas 1st European Renewable Gas Conference, European Commission (Brussels) 6 July 2023. Access Date: 7 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/speech_23_3720

On 10 July 2023, CINEA selected CICERONEGreenNH3stud to receive an EUR3.4 million grant as part of a project to build international green hydrogen supply-chains.¹¹²⁴

On 10 July 2023, the European Commission modified the Netherlands state aid scheme and approved EUR30 billion to support a variety of projects, encompassing renewable electricity and heat, low carbon and renewable gas and hydrogen, and transport fuels.¹¹²⁵

On 11 July 2023, the European Parliament approved new rules on alternative fuel stations for cars and trucks.¹¹²⁶ EU members will deploy hydrogen refuelling stations along the core TEN-T network every 200 km.

On 11 July 2023, European Union Commissioner Adina Vălean presented the CountEmissionsEU regulation, introducing a standardized formula for calculating emissions in the transport sector based on an International Organization of Standardization.¹¹²⁷ The CountEmissionsEU regulation introduces a standardized formula for calculating emissions, fostering transparency, and standardizing reporting to enhance efficiency.

On 12 July 2023, EIB Group announced an additional EUR45 billion in clean energy financing and extended support for manufacturing in state-of-the-art Strategic Net-Zero Technologies.¹¹²⁸ Funding allocation eligibility aligns with the EU's Green Industrial Plan and its emphasis on hydrogen.¹¹²⁹

On 13 July 2023, the EU invested EUR3.6 billion in 41 clean tech projects, financed through Emissions Trading System (ETS) revenues.¹¹³⁰ These projects cover a wide range of industries, including wind and solar energy, and renewable hydrogen. The selected projects span 15 EU Member States.

On 14 July 2023, EIB and the European Union-Community of Latin American and Caribbean States (CELAC) Summit of Heads of State and Government announced financing of EUR800 million, aiming to support the renewable hydrogen industry as part of the European Union's Global Gateway initiative.¹¹³¹

On 17 July 2023, President von der Leyen and Argentinian President Alberto Fernandez signed a Memorandum of Understanding (MoU) at the summit of the EU and Community of Latin American and Caribbean States in

¹¹²⁴ CEF Energy: two studies selected for funding under cross-border renewables, European Climate, Infrastructure and Environment Executive Agency (Brussels) 10 July 2023. Access Date: 7 December 2023. https://cinea.ec.europa.eu/news-events/news/cef-energy-two-studies-selected-funding-under-cross-border-renewables-2023-07-10_en

¹¹²⁵ State aid: Commission approves modification of Dutch scheme to reduce greenhouse gas emissions, European Commission (Brussels) 10 July 2023. Access Date: 7 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3743

¹¹²⁶ MEPs adopt new rules for more charging stations and greener maritime fuels, European Parliament (Strasbourg) 11 July 2023. Access Date: 8 December 2023. <https://www.europarl.europa.eu/news/en/press-room/20230707IPR02419/meps-adopt-new-rules-for-more-charging-stations-and-greener-maritime-fuels>

¹¹²⁷ Press Conference by Commissioner Vălean on Commission proposals for more efficient and sustainable freight, European Commission (Strasbourg) 11 July 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/speech_23_3810

¹¹²⁸ EIB to support Green Deal Industrial Plan with €45 billion | additional financing 12 July 2023. Access Date: 8 December 2023. <https://www.eib.org/en/press/all/2023-270-eib-to-support-green-deal-industrial-plan-with-eur45-billion-in-additional-financing>

¹¹²⁹ COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS A Green Deal Industrial Plan for the Net-Zero Age, European Commission (Brussels) 1 February 2023. Access Date: 11 December 2023. https://commission.europa.eu/system/files/2023-02/COM_2023_62_2_EN_ACT_A%20Green%20Deal%20Industrial%20Plan%20for%20the%20Net-Zero%20Age.pdf

¹¹³⁰ Innovation Fund: EU invests €3.6 billion of emissions trading revenues in innovative clean tech projects, European Commission (Brussels) 13 July 2023. Access Date: 5 November 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3787

¹¹³¹ Latin American: EIB to announce EUR800 million in financing for climate action projects in Argentina, Brazil, Chile at EU-CELAC summit, European Investment Bank (Luxembourg City) 14 July 2023. Access Date: 8 December 2023. <https://www.eib.org/en/press/all/2023-274-latin-america-eib-to-announce-eur800-million-in-financing-for-climate-action-projects-in-argentina-brazil-and-chile-at-eu-celac-summit>

Brussels.¹¹³² The MoU enhanced EU and Argentina's energy collaboration on key areas including renewable energy, hydrogen utilization, and methane emissions reduction. The MoU emphasized the need to ensure that future investments adhere to pertinent environmental legislation.

On 17 July 2023, the EIB, under the Team Europe Renewable Hydrogen Funding Platform for Chile, approved an EUR100 million loan for Chile's renewable hydrogen industry.¹¹³³

On 18 July 2023, Commissioner Simson and Uruguay's Minister for Foreign Affairs Francisco Bustillo signed a Memorandum of Understanding to collaborate on renewable energy, energy efficiency and renewable hydrogen.¹¹³⁴ The Memorandum stressed that investments in renewable energy, energy efficiency, and renewable hydrogen adhere to pertinent environmental legislation in both the EU and Uruguay.

On 21 July 2023, Commissioner Simson and Japanese Minister for Economy, Trade and Industry Yasutoshi Nishimura discussed bilateral cooperation on hydrogen at the 14th Clean Energy Ministerial and 8th Mission Innovation Ministerial.¹¹³⁵

On 21 July 2023, Commissioner Simson addressed the Joint Ministerial Plenary of the 14th Clean Energy Ministerial and 8th Mission Innovation Ministerial, where she emphasized hydrogen's role in the energy transition and called for its mass commercialization.¹¹³⁶

On 22 July 2023, Commissioner Simson delivered a speech at the G20 Energy Transitions Ministerial Meeting.¹¹³⁷ The speech urged the G20 to adopt transparent, rules-based global hydrogen markets with reliable international standards and certification schemes.

On 22 July 2023, Commissioner Simson and the G20 Energy Ministers committed to "support acceleration of production, utilization, as well as development of transparent and resilient global markets for hydrogen produced from zero and low emission technologies and its derivatives such as ammonia by developing voluntary and mutually agreed harmonizing standards as well as mutually recognized, and interoperable certification schemes."¹¹³⁸ The Ministers also agreed to high level steps needed to achieve their commitment including collaboration on national standards development for low carbon hydrogen and movement towards global harmonization, free trade advancement, research and development (R&D) cooperation for technological innovation, finance activation to support the entire supply chain, as well as voluntary information exchanges.

On 22 July 2023, the European Commission, along with Australia, Brazil, Canada, Chile, Germany, Japan, Saudi Arabia, Korea, the Netherlands, the United Arab Emirates, the United Kingdom, the United States and

¹¹³² EU-CELAC Summit: EU and Argentina step up cooperation on clean energy transition and energy security, European Commission (Brussels) 17 July 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_3859

¹¹³³ Chile: EIB to finance climate action projects in Chile with more than E €300 million including its first green mortgage loan outside Europe, European Commission (Brussels) 17 July 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3864

¹¹³⁴ EU-CELAC Summit: EU and Uruguay boost cooperation on renewable energy, energy efficiency and renewable hydrogen, European Commission (Brussels) 18 July 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_3899

¹¹³⁵ METI Minister Nishimura Attends the 14th Clean Energy Ministerial (CEM14) and 8th Mission Innovation Ministerial (MI-8), and a G20 Energy Transitions Ministers' Meeting, Ministry of Economy, Trade and Industry (Goa) 23 July 2023. Access Date: 9 December 2023. https://www.meti.go.jp/english/press/2023/0723_001.html

¹¹³⁶ Remarks by Commissioner Simson at the Joint Ministerial Plenary of the 14th Clean Energy Ministerial and 8th Mission Innovation Ministerial, European Commission (Goa) 21 July 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/speech_23_3984

¹¹³⁷ Remarks by Commissioner Simson at the G20 Energy Transitions Ministerial Meeting, European Commission (Goa) 22 July 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/speech_23_3985

¹¹³⁸ Outcome Document and Chair' Summary, G20 Information Centre (Goa) 22 July 2023. Access Date: 10 November 2023. <http://www.g20.utoronto.ca/2023/230722-energy.html#annex1>

Uruguay, jointly launched the International Hydrogen Trade Forum to advance the global hydrogen market.¹¹³⁹ The Forum aims to connect importers and exporters and reduce barriers to trade and bolsters the global market for hydrogen.

On 25 July 2023, the European Council approved the ‘Fit for 55’ legislative package, including the Alternative Fuel Infrastructure Regulation.¹¹⁴⁰ The adopted legislation dictates required targets for hydrogen refuelling infrastructure.¹¹⁴¹

On 27 July 2023, the European Commission approved a EUR40 million German support measure for the construction and operation of an onshore Liquefied Natural Gas (LNG) terminal in Brunsbüttel.¹¹⁴² The construction of the LNG terminal will adhere to requirements allowing for future conversion to renewable hydrogen.

On 28 July 2023, the European Commission granted EUR246 million in funding for renewable hydrogen production in the Netherlands.¹¹⁴³ The funding, along with the Dutch government scheme, supports at least 60MW in electrolysis capacity construction.

On 28 July 2023, the European Commission approved a Hungarian scheme of EUR2.36 billion under the State aid Temporary Crisis and Transition Framework to advance investments, facilitating the transition to a net-zero economy.¹¹⁴⁴ This will aid investments in crucial sectors, encompassing the production of renewable hydrogen, solar panels, wind turbines, equipment for carbon capture usage and storage.

On 1 August 2023, the European Commission and Germany represented by Minister for Economic Affairs and Climate Action Robert Habeck concluded discussions with the regards to the framework conditions for future hydrogen plants and converting existing plants towards hydrogen capability.¹¹⁴⁵ The framework now moves to the consultation phase.

On 10 August 2023, the European Commission approved a EUR6.5 billion German initiative to combat the carbon leakage risk from the German fuel emission trading system.¹¹⁴⁶ Reducing carbon-leakage and enhancing

¹¹³⁹ LAUNCH OF THE INTERNATIONAL HYDROGEN TRADE FORUM TO ACCELERATE GLOBAL COLLABORATION, Clean Energy Ministerial (Goa) 22 July 2023. Access Date: 15 December 2023. <https://www.cleanenergyministerial.org/launch-of-the-international-hydrogen-trade-forum-to-accelerate-global-collaboration/>

¹¹⁴⁰ European Green Deal: Energy Efficiency Directive, FuelEU Maritime Regulation and Alternative Fuel Infrastructure Regulation adopted helping make the EU ‘Fit for 55’, European Commission Directorate-General for Mobility and Transport (Brussels) 25 July 2023. Access Date: 8 December 2023. https://transport.ec.europa.eu/news-events/news/european-green-deal-energy-efficiency-directive-fueu-maritime-regulation-and-alternative-fuel-2023-07-25_en

¹¹⁴¹ European Green Deal: ambitious new law agreed to deploy sufficient alternative fuels infrastructure, European Commission (Brussels) 28 March 2023. Access Date: 11 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_1867

¹¹⁴² State aid: Commission approves € 40 million German support for on-shore LNG terminal in Brunsbüttel, European Commission (Brussels) 27 July 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3612

¹¹⁴³ State aid: Commission approves € 246 million Dutch scheme to support renewable hydrogen production, European Commission (Brussels) 28 July 2023. Access Date: 5 November 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3967

¹¹⁴⁴ State aid: Commission approves €2.36 billion Hungarian scheme for accelerated investments in strategic sectors to foster the transition to a net-zero economy, European Commission (Brussels) 28 July 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_3851

¹¹⁴⁵ Rahmen für die Kraftwerksstrategie steht – wichtige Fortschritte in Gesprächen mit EU-Kommission zu Wasserstoffkraftwerken erzielt, Bundesministerium für Wirtschaft und Klimaschutz (Berlin) 1 August 2023. Translation provided by Google Translate. Access Date: 2 December. <https://www.bmwk.de/Redaktion/DE/Pressemitteilungen/2023/08/20230801-rahmen-fuer-die-kraftwerksstrategie-steht.html>

¹¹⁴⁶ State aid: Commission approves €6.5 billion German scheme to address carbon leakage risk for energy-intensive companies resulting from national fuel emission trading system, European Commission (Brussels) 10 August 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_4105

emission transparency develops the rule-based, transparent market for hydrogen and incentivizes the use of fossil-fuel alternatives including hydrogen.

On 17 August 2023, the European Commission adopted disclosure regulations for the transitional phase of the Carbon Border Adjustment Mechanism (CBAM).¹¹⁴⁷ The regulations contribute to the rule-based, transparent global market for hydrogen and incentivize the use of fossil-fuel alternatives including hydrogen.

On 30 August 2023, the European Commission published the Terms and Conditions for the EU Hydrogen Bank pilot auction.¹¹⁴⁸ The auction opens hydrogen investment opportunities, and its creation of common standards advances the global market for hydrogen.

On 1 September 2023, the North Adriatic Hydrogen Valley project commenced with EUR25 million in Commission backing.¹¹⁴⁹ The project aims to build and enhance European hydrogen markets and supply chains, especially in sectors where abatement progress lags.

On 11 September 2023, the European Commission announced EUR352 million in funding for the implementation of alternative fuels infrastructure.¹¹⁵⁰ The chosen initiatives facilitate the broad adoption of low- and zero-emission vehicles across all modes of transportation. Projects earmarked for funding include eighteen hydrogen refuelling stations.

On 12 September 2023, the European Parliament voted to enhance the deployment of renewable energy including hydrogen.¹¹⁵¹ The updated Renewable Energy Directives outline greenhouse gas emission reductions of 14.5 per cent in the transport sector. This initiative increases the quota for renewable fuels, including hydrogen.

On 28 September 2023, Commissioner Simson announced the EU's intention to hold the first joint renewable hydrogen import auction through the European Hydrogen Bank before June 2024.¹¹⁵² Joint auctions common criteria aim to enhance rule-based hydrogen market development.

On 1 October 2023, the European Commission Directorate-General Taxation and Customs Union began implementing the CBAM.¹¹⁵³ The CBAM, meant to reduce carbon leakage, enters a transitional phase to the end of 2025, requiring reporting from six sectors, including hydrogen.

On 5 October 2023, Commissioner Simson and Algerian Minister of Energy and Mines Mohamed Arkab discussed enhancing energy ties between the EU and Algeria at the fifth annual EU-Algeria High Level Energy

¹¹⁴⁷ Commission adopts detailed reporting rules for the Carbon Border Adjustment Mechanism's transitional phase, European Commission (Brussels) 17 August 2023. Access Date: 8 December 2023.

https://ec.europa.eu/commission/presscorner/detail/en/ip_23_4186

¹¹⁴⁸ Upcoming EU Hydrogen Bank pilot auction: European Commission publishes Terms & Conditions, European Directorate-General for Climate Action (Brussels) 30 August 2023. Access Date: 8 December 2023. https://climate.ec.europa.eu/news-your-voice/news/upcoming-eu-hydrogen-bank-pilot-auction-european-commission-publishes-terms-conditions-2023-08-30_en

¹¹⁴⁹ North Adriatic Hydrogen Valley, European Commission Clean Hydrogen Partnership (Ljubljana) 1 September 2023. Access Date: 8 December 2023. https://www.clean-hydrogen.europa.eu/projects-repository/nahv_en

¹¹⁵⁰ Alternative fuels infrastructure: €352 million in EU funding for low-and zero-emission transport projects 11 September 2023. Access Date: 8 December 2023. https://transport.ec.europa.eu/news-events/news/alternative-fuels-infrastructure-eu352-million-eu-funding-low-and-zero-emission-transport-projects-2023-09-11_en

¹¹⁵¹ MEPs back plans to boost use of renewable energy, European Parliament (Strasbourg) 12 September 2023. Access Date: 8 December 2023. <https://www.europarl.europa.eu/news/en/press-room/20230911IPR04926/meps-back-plans-to-boost-use-of-renewable-energy>

¹¹⁵² Opening remarks by Commissioner Simson at public stakeholder workshop on the international auction under the European Hydrogen Bank, European Commission (Brussels) 28 September 2023. Access Date: 5 November 2023. https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_23_4691

¹¹⁵³ Carbon Border Adjustment Mechanism (CBAM) Outline Questions and Answers, European Commission Directorate-General Taxation and Customs Union (Brussels) 28 November 2023. https://taxation-customs.ec.europa.eu/system/files/2023-11/CBAM%20Frequently%20Asked%20Questions_November%202023.pdf

Dialogue in Brussels.¹¹⁵⁴ The meeting discussed energy cooperation between the EU and Algeria with a focus in areas such as renewable hydrogen.

On 9 October 2023, the European Council granted final approval of two pillars of the 'Fit for 55' legislative package the ReFuelEU Aviation Regulation, and the revised Renewable Energy Directive.¹¹⁵⁵ The updated directives outline emission reductions of 14.5 per cent in the transport sector. The regulation increases the quota for renewable fuels, including hydrogen. The approval ensures fair competition among European companies through the implementation of the CBAM.

On 10 October 2023, Executive Vice-President for Interinstitutional Relations Maroš Šefčovič hosted the Clean Transition Dialogue on Hydrogen.¹¹⁵⁶ The Dialogue engages stakeholders to promote the EU renewable hydrogen import auction system and to develop the rule-based hydrogen market.

On 11 October 2023, Battolyser Systems signed a EUR40 million agreement with European Investment Bank to produce green hydrogen.¹¹⁵⁷ This financing will enable the company to scale its production facility in Rotterdam towards mass production of its combined electricity storage and electrolyser stack system.

On 17 October 2023, the Directorate-General for Climate Action of the European Commission announced the adoption of a new Auctioning Regulation for 'Fit for 55' and REPowerEU plan.¹¹⁵⁸ The Regulation expands the scope of the ETS to include the maritime industry and extends auctioning allowances for road transport creating incentives for lower carbon fuels like hydrogen.

On 20 October 2023, the European Commission adopted a revised Strategic Energy Technology (SET) Plan. The SET Plan now reflects the European Green Deal, the REPowerEU Plan, and the Green Deal Industrial Plan, incorporating the Net-Zero Industry Act.¹¹⁵⁹ The approach establishes a dedicated workstream on hydrogen to implement the European Research Area pilot on Green Hydrogen and fosters collaboration between the European Technology and Innovation Platforms and the Clean Hydrogen Alliance.

On 24 October 2023, President Von der Leyen and Mauritanian President Mohamed Ould Ghazouani announced a new Team Europe initiative to support green hydrogen development in Mauritania.¹¹⁶⁰ The initiative includes infrastructure development to increase production and the legal and fiscal frameworks that contribute to a rule-based global hydrogen market according to environmental and social standards.

¹¹⁵⁴ Commissioner Simson hosts EU-Algeria High-Level Energy Dialogue in Brussels tomorrow, European Commission (Brussels) 4 October 2023. Access Date: 8 December 2023. https://energy.ec.europa.eu/news/commissioner-simson-hosts-eu-algeria-high-level-energy-dialogue-brussels-tomorrow-2023-10-04_en

¹¹⁵⁵ Final adoption of ReFuelEU Aviation completes 'Fit for 55' legislation, putting EU on track to exceed 2030 targets, European Commission Directorate-General for Mobility and Transport (Brussels) 9 October 2023. Access Date: 8 December 2023. https://transport.ec.europa.eu/news-events/news/final-adoption-refueleu-aviation-completes-fit-55-legislation-putting-eu-track-exceed-2030-targets-2023-10-09_en

¹¹⁵⁶ Opening remarks by President von der Leyen at the Clean Transition Dialogue on Hydrogen, European Commission (Brussels) 10 October 2023. Access Date: 5 November 2023. https://ec.europa.eu/commission/presscorner/detail/en/speech_23_4866

¹¹⁵⁷ €40 million European backing for Dutch hydrogen innovator Battolyser Systems, European Commission (Brussels) 11 October 2023. Access Date: 5 November 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_4921

¹¹⁵⁸ Commission adopts new ETS Auctioning Regulation for Fit for 55, European Commission Directorate-General for Climate Action 17 October 2023. Access Date: 8 December 2023. https://climate.ec.europa.eu/news-your-voice/news/commission-adopts-new-ets-auctioning-regulation-fit-55-2023-10-17_en

¹¹⁵⁹ Updated Strategic Energy Technology Plan for Europe's clean, secure and competitive energy future, European Commission (Brussels) 20 October 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_5146

¹¹⁶⁰ Global Gateway: EU launches a Team Europe Initiative to develop green hydrogen in Mauritania and accelerate its energy transition, European Commission (Brussels) 24 October 2023. Access Date: 8 November 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5268

On 24 October 2023, Commissioner Simson and Norwegian Minister of Petroleum and Energy Terje Aasland, co-chaired the EU-Norway Energy Dialogue in Brussels.¹¹⁶¹ This dialogue included panels on hydrogen and addressed policies within the EU's Fit for 55 package and the Net-Zero Industry Act.

On 24 October 2023, President von der Leyen and President of Namibia Hage Geingob agreed to a strategic partnership for sustainable raw materials value chains and renewable hydrogen at the Global Gateway Forum held in Brussels.¹¹⁶² This collaboration, supported by EUR1 billion in investments from the EU, its member states, and European financial institutions, aimed to enhance economic development and integration in the region. The Namibian Ports Authority will receive support for operational excellence to establish the Port of Walvis Bay as a regional hub for the green hydrogen and derivatives economy. The partnership roadmap includes harmonization efforts for environmental and social standards in addition to green fuel certification adherence.

On 24 October 2023, the European Parliament Environment Committee adopted proposals to enhance emission standards for new heavy-duty vehicles (HDVs), encompassing buses, trucks, and trailers.¹¹⁶³ The emission reduction timelines and targets develop the demand side of the market for hydrogen. The proposals also call on the commission to organize annual forums on zero emission HDVs.

On 25 October 2023, the European Commission hosted the Global Gateway Forum which included dialogues on the green energy transition and renewable hydrogen.¹¹⁶⁴ This event fosters leader discussion in developing a rule-based global market for hydrogen based on international standards and certification schemes.

On 25 October 2023, the European Commission adopted a Delegated Regulation amending the Registry Regulation 2019/1122 in line with the revised ETS Directive within the Fit for 55 legislative package.¹¹⁶⁵ The Regulation expands the scope of the ETS to include the maritime industry and extends auctioning allowances for road transport creating incentives for lower carbon fuels like hydrogen.

On 26 October 2023, the EIB strengthened its collaboration with Hrvatske Autoceste, concentrating on projects related to the environmental sustainability of Croatia's motorway network.¹¹⁶⁶ The EIB will provide advisory services on the development of a multiyear plan for the decarbonization of the bus fleet and for hydrogen refuelling stations along highways.

¹¹⁶¹ Commissioner Simson hosts EU-Norway Energy Dialogue and 6th Energy Conference to deepen Green Alliance and support the clean energy transition, European Commission Directorate-General for Energy (Brussels) 24 October 2023. Access Date: 8 December 2023. https://energy.ec.europa.eu/news/commissioner-simson-hosts-eu-norway-energy-dialogue-and-6th-energy-conference-deepen-green-alliance-2023-10-24_en

¹¹⁶² Global Gateway: EU and Namibia agree on next steps of strategic partnership on sustainable raw materials and green hydrogen, European Commission (Brussels) 24 October 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_5263

¹¹⁶³ MEPs support CO2 emissions reduction target for trucks and buses, European Parliament (Strasbourg) 24 October 2023. Access Date: 8 December 2023. <https://www.europarl.europa.eu/news/en/press-room/20231023IPR08171/meps-support-co2-emissions-reduction-targets-for-trucks-and-buses>

¹¹⁶⁴ Global Gateway Forum 2023, European Commission Global Gateway Forum (Brussels) 25 October 2023. Access Date: 8 November 2023. https://global-gateway-forum.ec.europa.eu/index_en

¹¹⁶⁵ Commission adopts new ETS Union Registry Regulation for Fit for 55, European Commission Directorate-General for Climate Action (Brussels) 25 October 2023. Access Date: 8 December 2023. https://climate.ec.europa.eu/news-your-voice/news/commission-adopts-new-ets-union-registry-regulation-fit-55-2023-10-25_en

¹¹⁶⁶ Croatia: EIB supports sustainable development of green transport infrastructure, European Investment Bank (Luxembourg City) 26 October 2023. Access Date: 8 December 2023. <https://www.eib.org/en/press/all/2023-397-croatia-eib-supports-sustainable-development-of-green-transport-infrastructure>

On 15 November 2023, EIB Board of Directors approved EUR3.1 billion for research and development including solid-oxide electrolysers, part of the hydrogen supply chain.¹¹⁶⁷

On 16 November 2023, the European Commission approved Belgium's modified recovery and resilience plan, worth EUR5.26 billion.¹¹⁶⁸ The funds include a REPowerEU chapter which supports increasing the production and deployment of renewable hydrogen and decarbonizing industry and transport.

On 20 November 2023, European Commission Vice-President for Interinstitutional Relations and the European Green Deal Maroš Šefčovič delivered the keynote speech to kick off the European Hydrogen Week 2023.¹¹⁶⁹ The European Hydrogen Week provides a forum for stakeholders to develop hydrogen industry.

On 21 November 2023, the European Commission approved Greece's modified recovery and resilience plan, worth EUR35.95 billion.¹¹⁷⁰ The funds include a REPowerEU chapter to boost renewable hydrogen production and promote energy sharing.

On 21 November 2023, the European Commission approved Finland's modified recovery and resilience plan, worth EUR1.95 billion.¹¹⁷¹ The reforms include a REPowerEU chapter aiming to accelerate renewable hydrogen deployment and invest in the net-zero industry value chain.

On 21 November 2023, the European Commission approved Croatia's modified recovery and resilience plan, worth EUR10 billion.¹¹⁷² The funds include a REPowerEU chapter aiming to increase the production and deployment of renewable hydrogen and addressing bottlenecks in zero-emission energy transport.

On 23 November 2023, the European Commission approved Hungary's modified recovery and resilience plan, worth EUR10.4 billion.¹¹⁷³ The funds include a REPowerEU chapter to boost renewable energy production and integration, including hydrogen energy.

On 23 November 2023, the European Commission opened the EUR4 billion Innovation Fund's call for proposals to support the development of decarbonization technologies, including cleantech manufacturing and hydrogen production.¹¹⁷⁴

¹¹⁶⁷ EIB backs €9.3 billion transport, business, energy, water and urban investment, European Investment Bank (Luxembourg City) 15 November 2023. Access Date: 8 December 2023. <https://www.eib.org/en/press/all/2023-423-eib-backs-eur9-3-billion-transport-business-energy-water-and-urban-investment>

¹¹⁶⁸ Commission endorses Belgium's €5.3 billion modified recovery and resilience plan, including a REPowerEU chapter, European Commission (Brussels) 16 November 2023. Access Date: 15 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5788

¹¹⁶⁹ European Hydrogen Week 2023 kicks off in Brussels, European Commission Directorate-General for Energy (Brussels) 20 November 2023. Access Date: 8 December 2023. https://energy.ec.europa.eu/news/european-hydrogen-week-2023-kicks-brussels-2023-11-20_en

¹¹⁷⁰ Commission endorses Greece's €35.95 billion modified recovery and resilience plan, including a REPowerEU chapter. European Commission (Brussels) 21 November 2023. Access Date: 15 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5914

¹¹⁷¹ Commission endorses Finland's €1.95 billion modified recovery and resilience plan, including a REPowerEU chapter. European Commission (Brussels) 21 November 2023. Access Date: 15 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5917

¹¹⁷² Commission endorses Croatia's €10 billion modified recovery and resilience plan, including a REPowerEU chapter*, European Commission (Brussels) 21 November 2023. Access Date: 15 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5915

¹¹⁷³ Commission endorses Hungary's €4.6 billion REPowerEU chapter, to complement its recovery and resilience plan, European Commission (Brussels) 23 November 2023. Access Date: 15 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_5991

¹¹⁷⁴ Commission opens €4 billion call for proposals for net-zero technologies under the Innovation Fund, European Commission (Brussels) 23 November 2023. Access Date: 15 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_5948

On 23 November 2023, the European Commission held the inaugural European Hydrogen Bank auction with EUR800 million in Innovation Fund subsidies bid on through a per kilogram premium price.¹¹⁷⁵ The Commission also allows the member states to fund additional projects not chosen at auction. The auction develops a market for low carbon and renewable hydrogen while providing investment and production incentives. Provisions for member states to fund additional projects based on the auction process encourages certification and standard diffusion and safeguards an integrated market.

On 23 November 2023, Commissioner Simson and the representatives of South Africa's Presidency met to discuss energy investments, with specific focus on wind generation, electricity grids, and hydrogen.¹¹⁷⁶ The discussion led to an information and idea exchange on South Africa's energy landscape and transition initiatives.

On 24 November 2023, the European Commission approved Italy's modified recovery and resilience plan, worth EUR194.4 billion.¹¹⁷⁷ The plan funds an increase in hydrogen production and contributes to Italy's zero-emission rail and bus network.

On 27 November 2023, The EIB and IVECO Group signed a financial agreement, granting up to EUR500 million in loans to support various initiatives including hydrogen fuel cell production.¹¹⁷⁸ The financing aims to support the decarbonization of the transport sector by developing advanced electrification, efficiency, and safety technologies, which may include hydrogen.

On 28 November 2023, the European Commission released an action plan for decarbonizing the energy grid.¹¹⁷⁹ The plan also outlined the kickstart of low-carbon hydrogen production as one of its key value drivers. The plan also includes provisions for the disbursement of public funding into hydrogen storage, distribution, and infrastructure.

On 28 November 2023, the European Commission adopted the first list of Projects of Common Interest and Projects of Mutual Interest.¹¹⁸⁰ Of the 166 selected projects, 65 focus on hydrogen and electrolyzers.

On 29 November 2023, the European Commission announced a new tool to map renewable energy projects, infrastructure, and other data.¹¹⁸¹ The mapping tool can be used to identify areas for renewable energy investment and development, including hydrogen energy.

¹¹⁷⁵ Commission launches first European Hydrogen Bank auction with €800 million of subsidies for renewable hydrogen production, European Commission (Brussels) 23 November 2023. Access Date: 8 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_5982

¹¹⁷⁶ Commissioner Simson in South Africa to discuss energy investments and renewable hydrogen, European Commission Directorate-General for Energy (Brussels) 23 November 2023. Access Date: 8 December 2023. https://energy.ec.europa.eu/news/commissioner-simson-south-africa-discuss-energy-investment-and-renewable-hydrogen-2023-11-23_en

¹¹⁷⁷ Commission endorses Italy's €194 billion modified recovery and resilience plan, including a REPowerEU chapter, European Commission (Brussels) 24 November 2023. Access Date: 15 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/ip_23_6050

¹¹⁷⁸ Italy: The EIB grants loans of up to €500 million to IVECO Group N.V. for decarbonization of the transport sector, European Investment Bank (Turin) 27 November 2023. Access Date: 8 December 2023. <https://www.eib.org/en/press/all/2023-474-eib-to-finance-iveco-group-n-v-for-up-to-500-million-euros-for-the-decarbonisation-of-the-transport-sector>

¹¹⁷⁹ COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS, European Commission (Brussels) 28 November 2023. Access Date: 13 December 2023. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52023DC0757>

¹¹⁸⁰ Commission proposes 166 cross-border energy projects for EU support to help deliver the European Green Deal, European Commission (Brussels) 28 November 2023. Access Date: 15 December 2023. https://ec.europa.eu/commission/presscorner/detail/en/IP_23_6047

¹¹⁸¹ New tool to map energy infrastructure and renewable energy potential whilst protecting nature, European Commission Directorate-General for the Environment (Brussels) 29 November 2023. Access Date: 13 December 2023. https://environment.ec.europa.eu/news/new-tool-map-energy-infrastructure-and-renewable-energy-potential-whilst-protecting-nature-2023-11-29_en

On 30 November 2023, Executive Vice President Maroš Šefčovič spoke at the Clean Transition Dialogue.¹¹⁸² Šefčovič emphasized the need to scale up renewables by investing in energy storage solutions and hydrogen to accelerate the green transition.

On 1 December 2023, Commissioner Simson met with Japanese Minister of Economy, Trade, and Industry Yasutoshi Nishimura to welcome the progress of the Japan-EU Green Alliance and to discuss energy cooperation in hydrogen and other areas.¹¹⁸³

On 2 December 2023, EIB Vice-President Ambroise Fayolle and President of the Brazilian Development Bank Aloizio Mercadante signed a Memorandum of Understanding on co-financing clean and renewable energy projects at COP28 in Dubai.¹¹⁸⁴ The Memorandum enhanced coordination, engaged in potential credit line discussions, and advanced renewable energy collaboration, including on hydrogen energy.

On 4 December 2023, the EIB granted Ørsted EUR400 in loans to accelerate new offshore wind farm construction.¹¹⁸⁵ Ørsted directly utilizes offshore wind electricity to power renewable hydrogen plants in nine projects across the EU.¹¹⁸⁶ The funding aims to expedite the rollout of wind energy and plans to cover projects along the Polish coast and Germany's North Sea coast.

The European Union has fully complied with its commitment to enhance efforts to develop the rule-based, transparent global market and supply chains for low carbon and renewable hydrogen based on reliable international standards and certification schemes adhering to environmental and social standards. The European Union advanced strong actions to develop the supply chain for low carbon and renewable hydrogen through funding for domestic and international hydrogen production projects, international feasibility studies, hydrogen solutions to industry and transportation abatement, supply chain decarbonization, legislation designed to increase hydrogen fuelling infrastructure, pipeline and port development and retrofitting, and loans for fuel cell technology innovation and renewable electricity access for hydrogen production facilities. The European Union supported the development of the rule-based global market for hydrogen, with strong actions, by developing a transparent, rule-based auction system for hydrogen including subsidies, legislating standard carbon content calculation methodology, creating and enforcing hydrogen reporting requirements jointly establishing an organization dedicated to facilitating hydrogen trade, and jointly establishing a hydrogen governance body to support market development. The European Union forged agreements to ensure developing international supply chains adhere closely to the bloc's environmental and social standards.

Thus, European Union receives a score of +1.

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¹¹⁸² Speech by Executive Vice-President Šefčovič at the Clean Transition Dialogue with energy intensive industries, European Commission (Brussels) 30 November 2023. Access Date: 15 December 2023.

https://ec.europa.eu/commission/presscorner/detail/en/speech_23_6218

¹¹⁸³ Minister Nishimura Holds Meeting with Ms. Kadri Simson, European Commissioner for Energy, Ministry of Economy, Trade and Industry (Tokyo) 1 December 2023. Access Date: 15 December 2023.

https://www.meti.go.jp/english/press/2023/1201_002.html

¹¹⁸⁴ COP28: EIB to co-finance climate action projects with the Brazilian Development Bank, BNDES, European Investment Bank (Dubai) 2 December 2023. Access Date: 8 December 2023. <https://www.eib.org/en/press/all/2023-485-cop28-eib-to-co-finance-climate-action-projects-with-the-brazilian-development-bank-bndes>.

¹¹⁸⁵ Denmark: REPowerEU-EIB and Ørsted sign €400 million framework loan for offshore wind farms 4 December 2023. Access Date: 8 December 2023. <https://www.eib.org/en/press/all/2023-494-repowereu-eib-and-oersted-sign-eur400-million-framework-loan-for-offshore-wind-farms>

¹¹⁸⁶ Power-to-X: Our green hydrogen projects and other green fuels projects, Ørsted (Fredericia) 6 December 2022. Access Date: 12 December 2023. <https://orsted.com/en/what-we-do/renewable-energy-solutions/power-to-x/our-projects>