



Welcome to the **twelfth edition** of **P₂N₀** covering the drive to reduce greenhouse gas (**GHG**) emissions to net-zero (**NZE**). **P₂N₀** identifies significant news items globally, reporting on them in short form, focusing on policy settings and project developments. **P₂N₀** will not cover news items relating to climate change generally, M&A activity, or news items that are negative. In this edition, we broaden the subject matter to include transport and waste.

The **thirteenth edition** of **P₂N₀**, covering **June 2024**, will be published during the first week of **July 2024**.

Access previous editions of **P₂N₀** by clicking [here](#).

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Edition 12: covering significant news items arising during May 1, to May 31, 2024.

HEADLINES FROM MAY 2024

During **May 2024**, the following significant news items arose globally and seem to us to be the most note-worthy in the context of progress towards net-zero:

- **BloombergNEF**: One of the flagship publications each year is the **BloombergNEF New Energy Outlook**. On **May 21, 2024**, [New Energy Outlook 2024 \(NEO 2024\)](#) was published. The publication is excellent, and should be read in full. The conclusions in the publication are consistent in broad terms with the other flagship publications.
- **NEO 2024** outlines two climate scenarios **Net Zero Scenario** (the **NZS case**) and an **Economic Transition Scenario** (the **Base Case**). The **NZS Case** contemplates that peak demand for natural gas and oil and coal will be reached by 2025, and will decline steeply after 2050. **NEO 2024** is excellent, and is an easy read.
- **Japan provides ever increasing clarity on funding support for H₂ and carbon capture and storage (CCS)**: On **May 17, 2024**, the House of Councilors of Japan enacted:
 - **Hydrogen Society Promotion Act 2024 (HSPA)**, which provides a framework for assessing applicants and the award of subsidies (in the form of contracts for differences (**CfDs**)). Over the next one to two months, it is understood that the first auction for funding support for hydrogen and hydrogen based / derived fuels will be undertaken, providing funding support for up to 1 million metric tonnes a year of ammonia. This is likely to provide funding support for one or two projects under the first auction, with the support to be provided under 15-year CfDs. The funding support will be sourced from funds raised by the GX Bond, under which around USD 20 billion was raised.
 - **CCS Business Act 2024 (CCS Act)** provides for the implementation of CCS in Japan. The **CCS Act** provides for the tender of exploration rights and for the award of storage rights in respect of storage areas in which CO₂ may be stored permanently. The **CCS Act** contemplates that licences will be issued to allow exploration of storage areas and the storage of CO₂ in those areas, a two licence regime.

The **CCS Act** follows the announcement of the national emissions trading scheme of (**GX-ETS**) in 2023. On **April 22, 2024**, it was announced that the **GX-ETS** will accept voluntary carbon credits under it. The acceptance of voluntary carbon credits reflects the nature of the **GX-ETS** – a **pledge and review scheme**.

Over the next couple of months, **Baker Botts** will share a paper on the **HSPA** and the **CCS Act** as the policy setting become defined. It is expected that the paper will cover the role of the CfDs, including on the basis of fixed and floating prices.

By way of background: Green Transformation (GX) is a prefix for a number of initiatives intended to avoid, reduce and remove carbon emissions toward carbon neutrality. **GX** is underpinned by the [Basic Policy for the Realization of GX and A Roadmap for the Next 10 Years](#), and the development and use of [GX Economic Transition Bonds](#) and the [GX Promotion Bill](#). Under the **GX-ETS pledge and review scheme** (currently in phase 1) there will be progress after 2033 to an auction mechanism for emission units under which participants in the power sector will have to bid for emissions permits which each participant will acquire against the CO₂ emissions arising from its activities.

- **Critical Minerals – front and centre stage:** On **May 17, 2024**, the **International Energy Agency (IEA)** published [Global Critical Minerals Outlook 2024](#). As with the developments in Japan and the dynamics surrounding data centres, the supply and price of critical minerals is a matter in sharp focus.

The complexity of each area puts the author in mind of a metaphor used in 2021, progress to net zero involves the piecing together of an 8-billion-piece three-dimensional jigsaw puzzle.

- **A few words about data centres:** A theme has been emerging for some time, the direct and indirect impact of the development and deployment of data centres, and the increased data centre capacity that will be required to provide capacity. The demand for data centres is clear, and this demand will be magnified to accommodate AI.

With the increased rate of development of data centres gives rise to indirect and direct GHG emission consequences:

- The indirect GHG emission footprints of corporations increase: for example, the GHG emission footprint of Microsoft has increased by 30% since 2020 as a result of the construction of data centres, including as a result of the production of iron and steel and cement (and the resulting) concrete; and
- the direct GHG emission footprints of data centres reflect that they are electrical energy intensive, and while renewable electrical energy is the preferred source of electrical energy for data centres, it is clear that the increased use of AI will place increased demand on the development and deployment of renewable electrical energy to match load from data centres, with ever increasing demand to accommodate AI. This will require base load across grids, and in the near to medium term this is likely to result in delayed retirement of electrical energy capacity sourced from fossil fuels.

This is not a localised issue, it is a global issue, and is reflected in increases in estimated demand for electrical energy in developed countries. And yet, this is not a developed country phenomenon only: on **May 27, 2024**, it was reported widely that Kenya is to develop a 1 GW data centre. As reported, the electrical energy for the data centre will be source for geothermal developments.

- **New Guidelines Rules Greenwashing:** On **May 14, 2024**, the **European Securities and Markets Authority (ESMA)** published its [guidelines](#) for use of ESG and sustainability related terms in the names of investment funds.

On **May 30, 2024**, **ESGtoday** (at www.esgtoday.com, under [Nearly Half of Sustainability-Labelled Funds May Have to Change Names to Meet New EU Anti-Greenwashing Rules](#)) reported that over 40% of investment funds may have to change the name of their funds to comply with the guidelines. The ESGtoday article is well worth a read.

- **SBTI's Corporate Net-Zero Standard V.20 among us:** During the first half of **May 2024**, the **Standard Based Targets Initiative (SBTI)** published [Corporate Net-Zero Standard V.20 Terms of Reference](#). The **SBTI** provides a framework to inform corporations and other organisations to set net-zero targets based on current climate science. The publication provides a clear basis for setting and achieving net-zero targets, providing clarity for corporations and other organisations to achieve GHG avoidance, reductions and removals of 90% or more by 2050.

- **CO₂ levels leap:** On **May 9, 2024**, the **Scripps Institution of Oceanography** reported that over the first four months of 2024 (to the end of April 2024) the rate of increase in the concentration of CO₂ in the climate system was increasing, and that year-on-year (from March 2023 to March 2024) the concentration of CO₂ in the climate system in March 2024 coincided with the **El Niño** climate condition, which has since waned. The opposite of El Niño, La Niña, is waxing.

By way of background: The US National Ocean Service defines El Niño and La Niña as follows: “El Niño and La Niña are climate patterns in the Pacific Ocean that can affect weather worldwide. During normal conditions in the Pacific Ocean, trade winds blow west along the equator, taking warm water from South America towards Asia. To replace that warm water, cold water rises ... upwelling. El Niño and La Niña are two opposing climate patterns that break these normal conditions ... During El Niño, trade winds weaken. Warm water is pushed back east, toward the west coast of the Americas ... During La Niña ... trade winds are even stronger than usual, pushing more warm water towards Asia ... with ... upwelling increasing, bringing [more] cold ... water to the surface.”

- **Solar embers glowing:**

- On **May 7, 2024**, the good folk at Ember published [Global Electricity Review 2024](#) (analysing data from 215 countries) marking the fact that the world has now installed sufficient renewable electrical energy to supply 30% of global demand for electrical energy. The publication concludes that while progress to 30% of electrical energy being provided by renewable electrical energy is good news, the rate of growth is not sufficient in the context of the need to triple the level of renewable energy by 2030. The publication is fact and stat packed, for example, in 2023, India was the third largest photovoltaic power generator. As always from the good folk at Ember, the publication is excellent.

- On **May 8, 2024**, the good folk at **LONGi Green Energy Technology** (the largest supplier of photovoltaic solar panels globally), announced that it had achieved a conversion efficiency level of 27.3%. While this efficiency level was achieved in laboratory conditions, LONGi also announced the availability of a new photovoltaic solar panel is able to achieve a conversion efficiency level of 24.43%.

By way of background: conversion efficiency level is a measure of the incident solar energy that is converted into renewable electrical energy, the greater the efficiency the greater the electrical energy generated from a photovoltaic solar panel.

- **High Court of Justice in London:** On **May 3, 2024**, the English High Court found that the climate action plan of the UK Government did not provide sufficient information to support that its implementation will achieve the climate targets of the UK: “It is not possible to ascertain from the materials provided presented ... which of the proposals and policies would not be delivered at all, or in full”. The [judgment](#) of Sheldon, J is well worth a read.

The judgment of **Sheldon J** continues to demonstrate the active role that courts are taking in Europe and the UK.

By way of background:

- On **April 9, 2024**, the **ECHR** found in favour of a claim made by older Swiss women that policy settings in Switzerland were not addressing effectively the increased risk to them of death from heatwaves as a result of climate change.

At the core, the judgment of the **ECHR** found that the Switzerland had not addressed the risk, and had violated the human rights of the claimants. The [judgment](#) of the **ECHR** provides grist for the mills on both sides of the debate as to whether courts or governments should initiate and implement policy settings to address climate change. What is clear is that the judgment is likely to result in a number of further cases, each case representing, at the very least from those bringing the actions, an expression of frustration that policy settings are insufficient.

- On **April 2, 2024**, it was reported widely that the appeal of the decision made in May 2021 is underway: in May 2021, the District Court in The Hague, in the Netherlands, delivered its judgement in a case brought against **Royal Dutch Shell plc (RDS)** by Mileudefensie (et al). This judgment required **RDS** to reduce the net CO₂ emissions of the **RDS** group by at least 45% by 2030, compared to 2019. The required reduction is across Scope 1, 2, and 3 emissions, not in respect of each Scope. The judgment is founded on **RDS** owing a duty of care to all Dutch citizens. At the time, the author noted that whatever one's views on climate change, the decision of the court resembled policy making on a piecemeal basis, and that Governments were better placed to formulate and to require implementation of these policy settings.
- **Reporting Standards Taxonomy**: On **May 1, 2024**, the **IFRS Foundation's International Sustainability Standards Board (ISSB)** published the **IFRS Sustainability Disclosure Taxonomy**. The **Taxonomy** is intended to "enable investors to search, extract and compare UK (ISSB) and the **European Sustainability Reporting Standards (ESRS)**, including to provide guidance to corporations wishing to comply with both the sustainability standards".
- The **Esbjerg Cooperation** brings together nine countries bordering the North Sea to develop the North Sea as the "green power plant" for Europe. While this is not new, the principles on which the Esbjerg Cooperation are based may be regarded as having broader application than the North Sea. **Two expert reports** have been developed (**The Esbjerg Cooperation**, and **Offshore TSO Collaboration – Unlocking the potential of the North Seas**), and both are invaluable.



Tunisia published Green Hydrogen Strategy: In **May 2024**, **Tunisia** published its **Green Hydrogen Strategy**. With the publication of by Tunisia of its **Green Hydrogen Strategy**, there is now a clear and consistent theme in respect of each North Africa country with a strategy – export.

Kenya goes live on Guidelines on Green Hydrogen and its Derivatives: On **May 7, 2024**, the **Energy and Petroleum, Regulatory Authority of Kenya**, published **Kenya's Guidelines on Green Hydrogen and its Derivatives**.

Africa Green Hydrogen Alliance: On **May 17 and 18, 2024**, it was reported widely that **Egypt, Kenya, Mauritania, Morocco, Namibia, and South Africa** had established the **Africa Green Hydrogen Alliance (AGHA)**. The purpose of the **AGHA** is to provide a formal framework for cooperation, and to provide for the accelerated development of green hydrogen projects across Africa.

Background: Green Hydrogen Market in North Africa with forecast to 2050 provides background on the potential for green hydrogen production in North Africa. The **European Investment Bank** regards Africa as having the potential to develop and to deploy up to 50 million metric tonnes of green hydrogen production by 2035.

Progress on 10 GW onshore wind farm: On **May 15, 2024**, **Masdar**, as a member of a consortium with **Hassam Allam Utilities** and **Infinity Power**, announced that a **Land Access Agreement** had been executed to allow the **USD 10 billion** onshore wind farm project development to progress. The **Land Access Agreement** allows access to 3,025 km² of land in West Suhag to allow continued assessment of the project to be undertaken.

Gaffney Cline provides reflections on the potential of H₂ in North Africa: The good folk at Gaffney Cline have published a punchy publication entitled **North Africa's Hydrogen Opportunity**. The publication is good.

Egypt positioned for:

- **Green Hydrogen:** The **Carnegie Endowment for International Peace** has published [Meeting Egypt's Environmental Challenges](#). This publication provides a helpful analysis of the role that Egypt may play.
- **Green Ammonia and Methanol:** The good folk at **PTX International, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, H₂-diplo – Decarbonization Diplomacy**, and the **University of Cologne** published [Towards a green shipping gateway – Establishing a green hydrogen economy in Egypt](#). The publication considers the role of Egypt in providing ammonia and methanol as bunkers for shipping. The publication is helpful.



Middle East and South Asia

Al Dhafra goes live: On **May 13, 2024**, it was reported widely that the **2 GW Al Dhafra** photovoltaic solar farm (the world's largest) had gone live and is generating electrical energy.

Glass making: On **May 12 and 13, 2024**, it was reported widely that **INOX Air Products** (a 50/50 joint venture between **Air Products** and **INOX Group**) is likely to commission its green hydrogen in Chittorgarh, Rajasthan, India. Glass making is regarded as a difficult to decarbonise industry, and like other difficult to decarbonise industries this is because those industries need high temperature heat. The **INOX Air Products** is reported to have agreed a 20-year offtake agreement for **green hydrogen** with an Indian subsidiary of **Asahi**.

A India's Green H₂ Revolution writ large: On **May 11, 2024**, the **MNRE** published [India's Green Hydrogen Revolution – An Ambitious Approach](#). The publication is well-worth a read.

Iron and Steel and Hydrogen standard setting: During the first half of **May 2024**:

- **Iron and Steel:** the **International Energy Agency (IEA)** published [Standards for net zero iron and steel sector in India](#). India is reported to be the second largest producer of iron and steel globally, with production set to continue to increase to respond to increased population and urbanisation, at rates exceeding those of any other country. Essentially, the publication informs policy setting development. The publication is excellent.
- **Green Hydrogen:** the **Ministry of New and Renewable Energy (MNRE)**, working with the **Council on Energy, Environment and Water**, published [Green Hydrogen Standards and Approval Systems in India: Streamlining the Green Hydrogen Ecosystem for Accelerated Implementation of National Green Hydrogen Mission](#). Also, a portal was launched for the [National Green Hydrogen Mission](#). The publication is well-worth reading in full.

The key takeaways are:

- the green hydrogen ecosystem in India needs to be understood including that:
 - it involves the MNRE, the Ministry of Natural Resources and Environmental Sustainability (**NRES**), the Ministry of Petroleum and Natural Gas, and each State Government; and
 - five national organisations have developed or adopted standards for green hydrogen, Bureau of Indian Standards, Ministry of Road Transport and Highways, Oil and Safety Directorate, Petroleum and Explosives Safety Organisation, and Petroleum and Natural Gas Regulatory Board.
- of all 201 standards that are covered by the publications, 87 are developed or adopted, 59 are under development, and 52 may be considered for development and adoption.

Solar shining: On **May 7, 2024**, **pv-magazine** (at pv-magazine.com, under [India's renewable tenders hit 70GW](#)) reported that, year to date, India has accepted bids to develop renewable electrical energy capacity in respect of 69.8 GW. As reported, this level of accepted bids is nearly 20 GW ahead of the target of 50GW for the current year, 2024. Renewable electrical energy is reported to account for over 70% of new power generation installed. For further detail see a report entitled [Utility-scale renewable energy tendering trends in India](#) published by the **Institute of Energy Economics and Financial Analysis (IEEFA)** and **JMK Research and Analytics**.



Americas

US releases policy statement on Voluntary Carbon Markets: On **May 28, 2024**, the **US Departments of Treasury, Energy and Agriculture** released a [Joint Statement of Policy and Principles for Responsible Participation in Voluntary Carbon Markets](#). The Joint Statement was signed by each Department Secretary and John Podesta, Senior Advisor to the President for International Climate Policy, Lael Brainard, National Economic Advisor, Ali Zaidi, National Climate Advisor. Also, the White House (at <https://www.whitehouse.gov>, under [Fact Sheet: Biden-Harris Administration Announces New Principles for High-Integrity Voluntary Carbon Markets](#)) affirmed the initiative. The [Voluntary Carbon Markets Joint Policy Statement and Principles](#) brings it all together.

Baker Botts will provide an assessment of the implications of the policy and principles during June 2024.

Pathways to decarbonization – A North American Roadmap (Aluminum Report): During **May 2024**, **ICF** and **The Aluminum Association** published the [Aluminum Report](#). The report may be regarded as a diamond in the rough, and it is well worth a read.

A dozen insights on H₂ for Brazil: In April 2024, **Agora Energiewende** and **Agora Industry** published [12 insights on Hydrogen – Brazil Edition](#). The publication is excellent both in the context of Brazil and more broadly.

Hydrogen for the “low hanging fruits”: On **May 3, 2024**, the good folk at **The Oxford Institute for Energy Studies** published [Hydrogen for the “low hanging fruits” of South America: Decarbonising hard-to-abate sectors in Brazil, Argentina, Colombia, and Chile](#). As might be expected from the title, the publication provides a helpful analysis of the hard-to-abate sectors in each country, and the possible role for domestically produced hydrogen in each country.

Hydrogen and Fuel Cell forward planning: In **May 2024**, the **US Department of Energy (DOE)**, Hydrogen and Fuel Cell Technologies Office, published a [Multi-Year Program Plan](#). The **Plan**, informed by the US [National Clean Hydrogen Strategy and Roadmap](#), provides proposed solutions and policy settings to reduce the cost of clean hydrogen, to de-risk the scaling up of technology development and use across the value chain, and to address barriers to large-scale adoption of clean hydrogen. To make real the objectives of the Plan, the Plan provides benchmarks / milestones to which to work as follows:

Benchmarks and Milestones	
Clean H₂ production: USD 2 / kg by 2026, USD 1 / kg by 2030	H₂ for heavy transportation: < USD 7 / kg by 2028
Electrolyser systems (lower temperature): USD 250 kw, 65% efficiency, 80,000-hour durability	Fuel Cell manufacturing for heavy transportation: 20,000 stacks a year by 2030
Electrolyser systems (higher temperature): USD 500 kw, 76% efficiency, 40,000-hour durability	Fuel Cell Systems for heavy transportation: USD 40 / kw and 20,000-hour durability

The publication is excellent, and is highly recommended for those following or interested in the size and shape of supply and demand for clean hydrogen in the US, and how policy settings may guide the supply and demand side.

CO₂ transportation system planning: On **May 2, 2024**, the **US DOE** announced (see [DOE Announces \\$500 Million to Build a Safe and Reliable Carbon Dioxide Transportation System](#)) its **USD 500 million** funding program for CO₂ transportation system development, including using pipelines, rail, trucks and ships and barges that will connect two or more sources of CO₂ to sites for storage (sequestration in the lexicon of the DOE) or use (conversion in the lexicon of the DOE, including, for example, to produce methane or methanol).

Applications for funding are required by July 30, 2024.

DOE announces recipient of 48C tax credits: The **DOE** has [announced](#) 35 clean-energy projects across 20 states entitled to receive, in total, **USD 1.93 billion in tax credits**. The awards of the **Qualifying Advanced Energy Project Credits (48C)** are intended to accelerate clean energy manufacture and the recycling and reduction of CO₂ emissions at industrial facilities.

Vermont out in front:

- On **May 31, 2024**, it was reported widely that the **US State of Vermont** had passed legislation under which the polluter pays principle will be monetized, with the Treasurer of the State to report (by 2026) on the damage arising from the emission of GHG emissions.
- On **May 7, 2024**, the **US State of Vermont** passed legislation ([H.289](#)) mandating that the State's utilities use 100% renewable electrical energy sources to provide electrical energy across the State by 2035. Vermont is one of 25 US States (under the [US Climate Alliance](#)) that have agreed to comply with the Paris Agreement based on the policies of each State, i.e., independently of the policy settings at a Federal level.



APAC

China CO₂ emissions dip in March: On **May 28, 2024**, **The Straits Times** (at www.straitstimes.com, under [Have CO₂ emissions in China peaked? A 3% fall in March gives reason for hope](#)) reported that the carbon emissions arising in China during March 2024 fell by 3%, following "a 14-month surge" in carbon emissions.

The dynamics in China are fascinating: demand for electrical energy in China continues to increase, with a year-on-year increase of 7.4% to the end of March 2024, with 90% of that increased demand matched by ever increasing photovoltaic solar and wind development and deployment.

By way of background: **DNV** published its [Energy Transition China Outlook](#) during April 2024. The publication is excellent, providing a balanced and insightful (as ever from **DNV**) assessment, and aligns with the dip during March.

Data Centres to pass go: On **May 30, 2024**, it was reported widely that Singapore is to make available 300 MW (in the near term) of electrical energy to allow the continued development and deployment of data centres in Singapore.

Implementation Agreement between Singapore and Ghana: On **May 27, 2024**, it was reported widely that Singapore had signed an Implementation Agreement with Ghana for the purposes of cooperation in respect of carbon credits. On December 8, 2023, Singapore signed an Implementation Agreement with Papua New Guinea for the same purpose.

Malaysia progresses legal framework: On **May 21, 2024**, the **Ministry of Economy** announced that it has tabled a **Memorandum to the Cabinet** in respect of a legal framework for CCS, including a CCS Bill and Bilateral Agreements.

Hydrogen has a future: On **May 14, 2024**, the **Federal Government of Australia** announced that it would provide a tax incentive for the production of hydrogen for a 10-year period – the **Hydrogen Production Tax Incentive** or **HPTI**.

The **HPTI** will provide an **AUD 2 / kg tax credit** commencing in 2027. As reported, projects that commence production of hydrogen **before 2030** will be entitled to the **tax credit for 10 years** from the date of first production.

The Australia Institute (under [The tax incentive for green hydrogen is a start, but it has a very, very long way to go](#)), provides helpful (and accurate) editorial comment in respect of the production green hydrogen for fuel.

Dr Andrew Forrest, AO, seeing the wood for the trees, rightly pointed out that this should be viewed as an historic moment, because it will “fast-track the development of the green iron industry”. On **May 20, 2024**, **Quinbrook Infrastructure Partners** [announced](#) interest in the development of the **AUD 3.5 billion Gladstone Green Iron** project to use magnetite (rather than hematite) iron ore to produce green iron.

Natural gas has a future: The author of this publication has long expressed the view that natural gas has an essential role to play in the energy transition. While the role of natural gas will continue, it is not permanent, but certainly lasts beyond 2050, and in the view of the author to 2075. While not a preference of the author, it is a function of the practical.

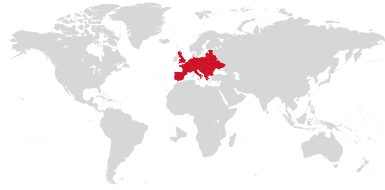
- On **May 9, 2024**, the **Federal Government of Australia**, through its [Future Gas Strategy \(FSG\)](#) leaned forward to commit to natural gas for domestic supply security and to deliver on “its commitment to being a reliable trading partner”. The **FSG** draws its factual and policy basis from the [Future Gas Strategy Analytical Report](#). The **FSG** does not dilute existing policy settings in respect of renewable electrical energy development and deployment and progress to the achievement of net-zero GHG emissions by 2050, rather it embraces the practical, and the energy trilemma, affordable, secure, and sustainable supply. It might be expected that the development of new sources of natural gas will be combined with CCS.
- On **May 30, 2024**, there was considerable coverage of the research from **Global Energy Monitor** using its [Asia Gas Tracker](#), noting that Southeast Asian countries may invest up to USD 220 billion in natural gas and LNG projects. As reported, if each planned development proceeds, the natural gas and LNG produced would provide sufficient feedstock for a further 100 GW on electrical energy generation capacity.

Critical Mineral and Rare Earth Mapping: On **May 7, 2024**, the **Federal Government of Australia** announced its intention to undertake a comprehensive mapping program of critical minerals within Australia, onshore and offshore. **Geosciences Australia** (a Federal Government Agency) will coordinate and lead the program. The announced budget for the program is **AUD 600 million** over 10 years. This marks a further initiative by the **Federal Government of Australia** recognising the need for government to provide funding to assist and to support progress to net-zero emissions.

By way of background: [Edition 11](#) of **P₂N₀** reported on the increased engagement of the Federal Government of Australia as follows (under **Australia announces Future Made in Australia Act**):

“On **April 11, 2024**, the **Federal Australian Government** announced the introduction of policy settings intended to promote the development of a clean energy industry, including the development of manufacturing capacity.

While the announcement is short on detail, it would seem that Australia is following the lead of the USA and the EU to allow public funding to be provided in support of the development of private sector projects. While the **Federal Australian Government** has provided some funding, it has not embraced the need for the Government to lead the way to promote accelerated manufacturing capacity and project development as has been the case in the USA and EU. ”



Europe and the UK

Germany continues to define CO₂ and H₂: On **May 29, 2024**, the **Cabinet of the Federal German Government** adopted principles for its [Carbon Management Strategy](#), and a draft of [Carbon Storage Act](#), and a draft of the [Hydrogen Acceleration Act](#). The adoption of these principles and the draft Acts may be regarded as material progress.

ArcelorMittal, BHP and Mitsubishi (Development and Heavy Industries) commence CO₂ capture: On **May 22, 2024**, operation of a pilot carbon capture plant commenced at the blast furnace of **ArcelorMittal** in **Gent, Belgium**. The pilot plant will be operated for up to two years to assess the feasibility of the full-scale development and deployment of the capture of CO₂ arising from the combustion of high temperature heat fossil fuels used at the blast furnace. The carbon capture technology is provided by **Mitsubishi Heavy Industries** (its Advanced KM CDR process).

French winds up floating: On **May 20, 2024**, it was reported widely that France had announced the successful bidder for the **250 MW floating offshore** wind field development, the first commercial scale offshore floating wind project globally. The successful bidder was a consortium comprising **BayWa r.e.** and **Elicio**, with the successful bid being **€86 / MWh**.

Arup provides UK / Europe H₂ network export perspective: On **May 10, 2024**, the good folk at **Arup**, having been asked to do so by the **UK Government** (Department for Energy Security and Net Zero) published [The Potential for exporting hydrogen from the UK to continental Europe](#). The publication brings together a considerable number of strands and variables to provide an excellent publication. For anyone involved in the H₂ value chain the publication is well worth a read.

On **May 8, 2024**, it was reported widely that to the end of **April 2024 Portugal** is averaging 91% of electrical energy demand being matched by the dispatch of renewable electrical energy and has the lowest electrical energy power prices.

Microsoft Stockholm Landing: On **May 6, 2024**, it was reported widely that **Microsoft** and **Stockholm Exergi** had signed a ten-year offtake agreement under which **Microsoft** will purchase carbon credits from **Stockholm Exergi** in respect of around **3.3 million** metric tonnes of CO₂ captured using BECCS, at Vartan, Stockholm.

As reported, the sale and purchase effected by the offtake agreement is the largest globally to date. The BECCs system at Vartan, Stockholm, is expected to capture up to 800,000 metric tonnes of CO₂ a year (or 8 million metric tonnes over 10 years). It is to be expected that the carbon credits not sold to Microsoft (in respect of around 4.7 million tonnes of captured CO₂) will be sold and purchased by other offtakers.

CCS on WtE: On **May 1, 2024**, **enfinium** announced plans to capture up to **1.2 million metric tonnes of CO₂** a year. As one of UK's largest waste-to-energy operators, the capture of CO₂ will decarbonize the operations of **enfinium**, and contribute materially to the achievement of the UK's GHG avoidance, reduction and removal targets. The carbon capture program will allow **enfinium** to achieve net-zero across its Scope 1 and Scope 2 emissions by 2033.

HELPFUL PUBLICATIONS AND DATA BASES

The most noteworthy publications read by the author during **May 2024** are as follows:

- **United Nations Environment Programme (UNEP) publishes three technical reports:**
 - [Managing physical climate-related risks on loan portfolios;](#)
 - [Assessing Climate Transition Risk: Methodologies and Roles for Financial Institutions;](#) and
 - [The Climate Data Challenge: The Critical Role of Open-Source and Neutral Data Platforms.](#)

The three technical reports are supplemental to the [UNEP FI Climate Risk Landscape Report](#).

- **World Bank Carbon Pricing:** On **May 21, 2024**, the **World Bank** published [World Bank, State and Trends of Carbon Pricing 2024](#). The publication is a great resource as to the means of pricing carbon globally.
- **Transition Minerals Tracker:** On **May 16, 2024**, the **Business & Human Rights Resource Centre** published [Transition Minerals Tracker: 2024 Analysis](#). The publication provides a clear reminder of the standards that should be applied in the extraction of critical minerals.
- **Advancing Clean Technology Manufacturing:** In **May 2024**, the **IEA** published [Advancing Clean Technology Manufacturing – An Energy Technology Perspectives Special Report](#). The publication provides a helpful summary of the levels of development and expenditure of manufacturing of capacity.
- **Mixing water for electrical energy:** During the first half of **May 2024**, the good folk at **The Oxford Institute For Energy Studies** published [The impact of desalination projects on power grids: Insights from the Gulf States](#). The publication is well-worth a read, providing a helpful overview of water stress levels across countries, and the interface with desalination and the electrical energy needed for that purpose.
- **BloombergNEF H₂ Supply Outlook:** On **14 May 2024**, the good folk at **BloombergNEF** published its [Hydrogen Supply Outlook 2024: A Reality Check](#). The publication is well-worth a read: identifying 477 projects that BloombergNEF considers will come online by 2030, and a 30-fold increase in the supply of hydrogen, which while not sufficient to match all targets set by countries, will match around 65% of those targets. It is expected that the US will be largest producer of hydrogen globally by 2030.
- **Carbon for Power-to-X:** In **April 2024**, **Dechema** (funded by IKI and International PtX Hub, and supported by the Federal Ministry of Economic Affairs and Climate Action, and giz) published [Carbon for Power-to-X – Suitable CO₂ sources and integration in PtX value chains](#). The publication considers CO₂ as a feedstock, the sources of CO₂, and each of the CO₂ capture technologies and Processes. The publication is excellent. It appears that CO₂ as feedstock, and CO₂ for electrical energy generation (see [cleantechnica.com](#), under [Electricity from Carbon Dioxide](#)), are receiving increased coverage.
- **WMO Spotlight on Asia:** In **April 2024**, the **World Meteorological Organization (IMO)** published [State of the Climate in Asia 2023](#). The publication is well-worth a read, outlining that the status of the regional climate, extreme events, and climate related impacts and risks.

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