P2N0

NEWS AND VIEWS ON THE DRIVE TOWARDS NET-ZERO GHG EMISSIONS

Welcome to the **Edition 19** of **P_2N_0** covering the drive to reduce greenhouse gas (**GHG**) emissions to net-zero (**NZE**). **P_2N_0** identifies significant news items globally, reporting on them in short form, focusing on policy settings and project developments. This **Edition 19** covers news arising during the period **October 17** to **October 31**, **2024**.

P_2N_0 does not cover news items about climate change generally, M&A activity, or news items that are negative.

Edition 20 of **P_2N_0**, covering the first **two weeks** of **November 2024**, will be published on or around **November 18**, **2024**, and **Edition 21**, covering **COP-29**, will be published before the end of **November 2024**. During **December**, **Edition 22** will be published providing a look-back over **2024**.

Access previous editions of **P_2N_0** by clicking **here**.

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HEADLINES FROM OCTOBER 17 TO 31, 2024

As foreshadowed in **Editions** 17 and 18 of **P_2N_0**, **COP-16** took place in Cali, Columbia, between **October 21, 2024**, and **November 1**, **2024**. **COP-16** is the **Sixteenth meeting of the Conference of Parties to the** Convention on Biological Diversity.

Ahead of **COP-16**, the **European Parliament** commissioned a study entitled the Issues at stake at the COP-16 Convention on Biological Diversity. **COP-16** is the first **COP** under the **Convention on Biological Diversity** since the adoption of the Kunming-Montreal Global Diversity Framework (**GBF**).

In short, the **GBF** established four goals and 23 action-orientated targets. The commitments to preserving 30% of the world's land mass and oceans and to halt loss of biodiversity being totemic.

Without wishing to over-simplify, the major issues were:

1. **National Implementation of the GBF targets**: all Parties to the Convention were obliged to develop or revise their **National Biodiversity Strategies and Action Plans** (**NBSAPs**) and adopt national targets aligned with the GBF targets ahead of COP-16;

2. **Implementation mechanisms**, including a comprehensive framework to measure progress, and mechanisms for planning, monitoring, reporting and review of progress in implementing the goals and targets of the GBF; and

3. **Multilateral agreement for the fair and equitable sharing of benefits** from the use of **Digital Sequence Information** (**DSI**) on generic resources, critically whether they should be **Access and Benefit-sharing** (**ABS**) obligations.

Suffice it to say that limited progress on the first two of the major issues, with progress on the third major issue with the establishment of the Cali Fund to share the benefits from DSI. This is not to say that this was the only progress, and the good folk at **esa.org**, under COP16 Dispatch: Week 2 On the Path to Peace with Nature: Wins and Challenges from COP16 Outcomes provides a helpful summary.

BAKER BOTTS

Next COP stops:

- **COP-29** being the **Twenty-ninth meeting of the Conference of Parties of the United Nations Framework Convention on Climate Change** to take place in **Baku**, **Azerbaijan**, between **November 11** and **22**, **2024**; and

- (the other) **COP-16** being the **Sixteenth meeting of the Conference of Parties to the Convention to Combat Desertification** to take place in **Riyadh**, **Saudi Arabia**, between **December 2** and **December 13**, **2024**.

Continuing the theme recognized in **Editions** 17 and 18 of **P_2N_0**, ahead of **COP-29** a good number of publications and reports dropped during the second half of **October 2024**:

- The **International Energy Corporation** (**IEA**) published its:

  - **Energy Technology Perspectives 2024**. The publication is a first for the IEA. The publication assesses the possible implications of the energy transition (and the accompanying energy transition technologies) on economies and trade, and policy settings. The publication is well-worth a read.

  - **Global Energy and Climate Model**. The model has been developed by the IEA as its **Global and Energy Climate Change Model**, covering the energy sector across 27 regions, together aggregated into whole of globe results. The report is data and information rich and is a report with which is well-worth getting to grips.

  - **Southeast Asia Energy Outlook 2024** (**SAEO**). The report is the sixth **SAEO**, very much building on the previous five reports. The report covers each of the **ASEAN** nations. As the report, **ASEAN** is the region on which **IEA** has reported most frequently.

    The **SAEO** ties back to each of the scenarios in the **World Energy Outlook** published on **October 16**, **2024**[1]. The report provides a helpful **executive summary**. The report notes key drivers to increased energy demand, including increasing urbanization, electrification, and passenger vehicles (with ASEAN being second only to India in modelled increase in energy demand (expressed in percentage terms). The report is well-worth a read for those working across the region.

- The **International Renewable Energy Agency** (**IRENA**) continued to publish ahead of **COP-29**:
  - **Green hydrogen auctions – A guide to design**. The publication outlines the policy basis for green hydrogen auctions and design elements of auctions, and case studies of Denmark, the European Union, Germany, Italy, the Netherlands, and the United Kingdom. The publication is helpful and timely.

  - **A Just and Inclusive Transition in Emerging Markets and Developing Economies Energy Planning, Financing, Sustainable Fuels and Social Dimensions**. The publication outlines the benefits of and the

[1] **Edition** 18 of **P_2N_0** reported on the **World Energy Outlook 2024** as follows: "On **October 16**, **2024**, the **IEA** published its flagship publication, World Energy Outlook 2024 (**WEO 2024**). Continuing the publication of publications and reports ahead of COP-29, **WEO 2024** is alongside **BloombergNEF** flagship publication, **Energy Transition Fact Book** and **IRENA's** **Delivering on the UAE Consensus Tracking progress toward tripling renewable energy capacity and doubling energy efficiency by 2030** (see below) as the bulge bracket publications that have dropped since the end of **September 2024**. Given the release date of **WEO 2024**, and publication date of this **Edition 18**, what follows is very high level, but reflects the key high-level takeaways.
WEO 2024 continues the ongoing analysis of its **three scenarios**, **Announced Policy Settings** (**APS**), **Stated Policies Scenario** (**STEPS**) and **Net Zero Emissions by 2050 Scenario** (**NZE**). Click through to the previous WEOs, 2021, 2022 and 2023.
Given the current dynamics of the energy market, each of **APS**, **STEPS** and **NZE** are view through the dynamics of those dynamics, including AI, efficiency of energy use and the development of renewable electrical energy capacity, the impacts of heatwaves and the impact of the increasing use of LNG. This is a helpful development.
In addition, **WEO 2024** takes in themes outlined below, and what may be regarded as orthodoxy (and reflected in agreed outcomes from COP-28), the tripling of the renewable electrical energy capacity to 11,000 GW by 2030, and the doubling of energy efficiency. Again, this is helpful.

challenges with progress to a just and inclusive transition in emerging markets and developing countries (**EMDEs**). The publication is a great addition to the commonwealth of information, critically, focusing on the means to progress to a just and inclusive transition.

This should be read with **Clean Energy Innovation Policies in Emerging and Developing Economies** published in early October 2024. The publication is well-worth a read, among other things, providing 11 case studies (which are specific to the country to which they relate), on domestic national policy development and implementation in economies that continue to develop, being, Argentina, Brazil, China, Colombia, India, Kazakhstan, Kenya, Mexico, Morocco, Nigeria, and South Africa. The publication outlines seven shared findings[2].

Africa

South Africa progresses Just Energy Transition Funding Platform: On **October 28**, **2024**, the **South African** Government launched its **Just Energy Transition Partnership** (**JETP**) **Funding Platform**. As reported, the **Funding Platform** will make available funding in respect of 20 projects in 2025, and 50 projects in 2026. This follows news that on **October 15**, **2024**, it was reported widely that **Eskom** intends to develop around **2 GW** of renewable electrical energy capacity.

By way of background, **South Africa** is one of four developing countries that has entered into a Just Energy Transition Partnership **Indonesia**, **Senegal**, **South Africa**, and **Vietnam**. Under **each JETP** funding is committed by developed donor countries, and the European Union, to provide funding to assist in progress to energy transition. The **South African JETP** was concluded at **COP-26** (in 2021), with commitments from developed countries of up to USD 9.3 billion in funding.

Middle East and South Asia

India publishes draft investment plan: During the final week of **October 2024**, the **Ministry of New and Renewable Energy** (**MNRE**) for India published a draft **REI Investment Plan** under the **Climate Investment Funds** (**CIF**) **Renewable Energy Integration** (**REI**) **Program**. The draft Plan provides a clear plan to source funding and technical capacity to allow the development and enhancement of the transmission and distribution systems in India to allow the development on a timely basis of renewable electrical energy generation capacity and energy storage systems.

Edition 18 of **P_2N_0** reported, under **KSA 4.5 GW renewable energy procurement** that:

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[2] **1**. Clean energy innovation has risen to high up the policy agenda; **2**. Innovation policy can build upon and reinforce broader trends to catalyze technological change; **3**. There are multiple ways to set innovation in motion; **4**. Institutional history exerts powerful influence on policy choices; **5**. Existing technical expertise can provide a springboard; **6**. There are demonstrated ways to make the most of limited resources; and **7**. Few countries have well-established and comparable processes for evaluations outcomes against the original policy goals.

"On **September 24**, **2024**, the **Saudi Power Procurement Company** (**SPPC**) released a **request for qualification** (**RfQ**). The **RfQ** is the sixth procurement undertaken by the **SPPC**, as part of the **National Renewable Energy Programme** (**NREP**).

As reported, five projects are contemplated: **1**. the **1.5 GW Dawandi Wind IPP**, to be located in Riyadh; **2**. the **1.4 GW Najran Photovoltaic Solar IPP**, to be located in Najran; **3**. the **600 MW Samtah Photovoltaic Solar IPP**, to be located in Jizan; **4**. the **600 MW Ad Darb Photovoltaic Solar IPP**, to be located in Jizan; and **5**. the **400 MW As Sufun Photovoltaic Solar IPP**, to be located at Hail[3]."

On **October 23**, **2024**, the **SPPC** announced the bidders that had been shortlisted for the fifth round:

Name	Shortlisted Bidders	Bid prices
2 GW Al-Sadawi Project	Masdar and KEPCO consortium; SPIC Huanghe Hydropower Development Limited and EDF consortium	USD 0.0129 per kWh USD 0.0131 per KWh
1 GW Al-Masaa Project	Al Jomaih Energy and Water Company and TotalEnergies consortium SPIC Huanghe Hydropower Development Limited and EDF consortium	USD 0.0136 per KWh USD 0.0131 per KWh
400 MW Al-Henakiyah2 Project	Masdar and Nesma Renewable Energy consortium SPIC Huanghe Hydropower Development Limited, EDF KEPCO consortium	USD 0.0151 per KWh USD 0.0140 per KWh
300 MW Rabigh2 Project	Al Jomaih Energy and Water Company, TotalEnergies and KEPCO consortium Masdar and Nesma Renewable Energy consortium	USD 0.0178 per KWh USD 0.0189 per KWh

To provide some perspective on the roll-out of **KSA** **Future Investment Initiative**, at the end of **October 2024**, **31.2 GW** of renewable electrical energy projects had been tendered for development, of which **6.16 GW** of installed capacity has been developed and deployed and grid-connected, **12.74 GW** of renewable electrical energy capacity is under development, and a further **12.3 GW** of planned renewable electrical energy capacity is under tender.

It is understood that by the end of 2024, **44.4 GW** of renewable energy projects will have been tendered, and that around **20 GW** of new renewable electrical energy capacity development will be tendered year on year, with the plan to have **130 GW** of installed capacity by 2030.

The rate of progress within the KSA is marked, and the tender process at scale is yielding some of the lowest if not the lowest price points for renewable electrical energy globally. These price points are a function of many things, but critical among them are clear policy settings, and creditworthy off-take.

Green Steel Production – Pathways for India – October 2024: In the final week of **October 2024**, the good folk at **Ernst & Young** published a report on the pathways available to India to clean and green the production of iron and

[3] **By way of reminder Edition** 17 of **P_2N_0** under "**Kingdom of Saudi Arabia (KSA) overview**" we reported on **interactive maps** at **https://renewable.vision**, among other things which depict **30 GW** of renewable electrical energy capacity being developed within **KSA**, and many other initiatives and projects to decarbonize activities within the KSA. The interactive maps are excellent. Also **Edition** 17 of **P_2N_0** reported on a similar procurement program in Oman under "**Oman pre-qualifies applicants for wind power projects**" reporting that: "On **September 16**, **2024 Nama Power and Water Procurement Company** (**PWP**) released a **list** of pre-qualified applicants for the purposes of the participation in the five wind power projects: **1**. Dohor II Wind IPP, **2**. Duqm Wind IPP, **3**. Jaalan Bani Bu Ali Wind IPP, **4**. Mahoot I Wind IPP, and **5**. Sadah Wind IPP. As will be noted for those who click on the link, the names of the pre-qualified applicants speak volumes from the process being run by PWP"

steel across the country. The report is excellent: the report covers, in an integrated basis, the policy settings needed to allow progress[4] to transition to the production of clean and green iron and steel.

Turkey set to target 22.6 GW of PV solar by the end of 2025: On **October 21**, **2024**, it was reported that the Ministry of Energy and Natural Resources for Turkey intends to propose to a target of **22.6 GW** of installed photovoltaic solar capacity by the end of **2025**, a **3.8** GW increase from current levels.

BESS continues at pace in India: On **October 19**, **2024**, **Gujarat Urja Bikas Nigam Ltd** issued a **Request for Selection** (**RfS**) for **200 MW** / **1,600 MWh** standalone **long duration energy storage** (**LDES)** in the State of Gujarat. The **RfS** continues an ongoing theme from 2024 (reported on in **Editions** 15, 16 and 17, of **P_2N_0**) i.e., the procurement of renewable electrical energy generation capacity, and, to accompany that renewable electrical energy (and to mitigate its intermittent nature), short and long duration energy storage capacity.

Americas

US power grid adding battery energy storage capacity: On **October 24**, **2024**, **The Guardian** published an article entitled **US power grid added battery equivalent of 20 nuclear reactors in the past four years**. The article reports that the US now has **21.4 GW** of installed battery storage capacity, with **5 GW** of that capacity having been installed to the end of July 2024. The article references a report from the **Energy Information Administration** (**EIA**). The **EIA** predicts that capacity could double, to **40 GW**, by the end of 2025.

US DOE provides USD 518 million in funding: On **October 21**, **2024**, the **US Department of Energy** (**DOE**), **Office of Fossil Energy and Carbon Management** (**FECM**) announced that it is to provide **USD 518 million** in funding to support the "development and validation" of 23 carbon capture and storage projects across 19 US States.

First CCS project in California approved: On **October 21**, **2024**, it was reported widely that the **California Resources Corp** has obtained approval from Kern County for its **Carbon Terra Vault** project to capture and store CO_2 in the **San Joaquin Valley**, in the US State of California. As reported, the **Carbon Terra Vault** project will store up to **1 million metric tonnes** of CO_2 a year (with CO_2 sourced from point of capture of CO_2 and direct air capture).

Fervor around geothermal: On **October 17**, **2024**, it was reported widely that **Fervo Energy** had obtained federal approval from the **Bureau of Land Management** for the development of its **2 GW Cape Geothermal Power Project** in the US State of Utah. To our knowledge, this represents the largest geothermal project to receive approval.

Some clarity on US EPA CO_2 limits: **Edition** 11 of **P_2N_0** reported under "**EPA and CCS**" that:

> "On **April 25, 2024**, the **US Environmental Protection Agency** (**EPA**) released a **new regulation** under which coal-fired power generators will be required to reduce their GHG emissions by 90% by 2039. For these purposes,

[4] By way of reminder, **Edition** 18 of **P_2N_0** under **Hydrogen procurement for production of iron and steel using blast furnace and DRI technology** reported that: "At the end of the first week of **October 2024** the **Ministry of Steel** and the **Ministry of New and Renewable Energy** released a **Request for Proposal for Hydrogen Injection in Existing Blast Furnace and Existing Vertical Shaft**.
The **Request for Proposal** is consistent with the **National Green Hydrogen Mission** for India. The hydrogen procured will displace existing fossil fuel sources of high heat so as to decarbonize the production of iron and steel. This marks continued, and accelerating progress by the Government of India across all sectors of the Indian economy."

coal-fired generators may use carbon capture and storage to capture CO2 arising from the continued use of coal-fired capacity."

These limits were introduced under Section 111 of the Clean Air Act: these limits contemplate a 90% reduction in CO_2 emissions from existing coal-fired power stations and new gas-fired turbines. The Supreme Court declined to order a halt to the application of these limits. The action for the order was brought by 20 state attorneys general to halt the application of the limitation. **Welligence Energy Analysis** provide a helpful technical analysis.

APAC

Electricity market designs in Southeast Asia: In the final week of **October 2024**, the project Clean, Affordable and Secure Energy for Southeast Asia, funded by the German Federal Ministry of Economic Affairs and Climate Action via the International Climate Initiative published **Electricity market designs in Southeast Asia – Harnessing opportunities for renewable energy growth in Indonesia, Thailand, Viet Nam and The Philippines**. While available time has not allowed a deep dive into the publication, it seems likely to be compulsory reading for the coming weekend.

Hydrogen Society Promotion Act comes into effect: **Edition 12** of **P_2N_0** reported that "**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."

On **October 23**, **2024**, the **HSPA** came into effect, having been promulgated in **May 2024**. To accompany the **HSPA** going live, the Japan Organization for Metals and Energy Security (**JOGMEC**) and Ministry of Economy, Trade and Industry (**METI**) went live with webpages dedicated to the **HSPA**.

Edition 18 of **P_2N_0** reported, under **Floating OWFs off South Korea connect**, that: "On **October 11**, **2024**, it was reported widely that five floating OWF developments, Bandibuli, Gray Whale, Haewoori, KF Wind, and MunmuBaram, had entered into transmission service agreements (**TSAs**) with KEPCO. Under the five TSAs, **6 GW** of **installed OWF capacity** is now connected to the **KEPCO** transmission grid".

During the final week of **October 2024**, further details emerged from the **Ministry of Trade and Industry**, that it is to run a tender for **1.8 GW** of wind generation capacity development, with **1.5 GW** of **OWF** capacity of which **1 GW** will be fixed bottom, and **500 MW** floating.

China aims to introduce 70 national standards: During the third week of **October 2024** there was a good deal of reporting relating to the plan that China is developing to standardise carbon emission calculation across key sectors, as part of its efforts to provide a framework within which emitters of GHG emission must work to achieve its carbon reduction targets. 70 national standards on carbon accounting, footprint, reduction, capture, utilization, and storage, covering all key sectors and companies will be published by the end of 2024 and to be phased in during 2025.

Gentari and Senoko Energy to explore use of hydrogen: On **October 23**, **2024**, it was reported widely that **Gentari** and **Senoko Energy** had signed a memorandum of understanding to assess the use of hydrogen produced in Malaysia as a fuel source for power generation in Singapore. On **October 25**, **2024**, it was reported that **YTL PowerSeraya** had broken ground on its hydrogen ready unit at its **Pulau Seraya Power Station**.

H_2 Ready Power Stations		
Keppel Sakra Cogen Plant, 600 MW CCGT (COD in 2026)	**SembCorp**, 600 MW CCGT (COD in 2027)	**YTL Power Seraya**, 600 MW CCGT (COD in 2027)
Meranti Power and **PacificLight** are developing four power stations with fast start capacity to respond so as respond to short run demand increases and in so going provide maintain system integrity and stability		

Singapore grants Conditional Approval for import of 1.75 GW of electrical energy from Australia: On **October 22**, **2024**, the **Energy Market Authority** (**EMA**) of Singapore announced that it had granted Conditional Approval[5] to **Sun Cable** (**Singapore**) **Assets Pte Ltd** to import **1.75 GW** of low-carbon electricity from Australia to Singapore. The announcement stated that: "The imported electricity is expected to harness solar power from Australia's Northern Territory and transmitted to Singapore via new subsea cables over a distance of approximately 4,300km" from point to generation in the Northern Territory to Singapore.

The Conditional Approval is one of a number of Conditional Approvals granted by the EMA[6].

CO_2 value chain to be assessed: On **October 22**, **2024**, it was reported widely that **Chubu Electric Power Company** and **Inpex** had agreed to undertake a study jointly to assess the feasibility of a CO_2 value chain to capture CO_2 in Japan and transport that CO_2 to Australia for storage permanently. The development of CO_2 value chains between LNG producing countries, notionally returning CO_2 arising from the combustion of natural gas is seen as a means of addressing concerns about energy security and progress to net-zero through the energy transition.

Singapore to provide grants for CCS feasibility studies: On **October 21**, **2024**, it was reported widely that the **EMA** is to provide grants to enable power generation corporations to undertake feasibility studies to enable that to assess the development of carbon capture facilities, and associated transportation and storage.

As reported, the grants will be in respect of feasibility studies to assess post-combustion capture of CO_2 existing from CCGT generation capacity, and pre-combustion CO_2 capture with CO_2 being captured during the production of hydrogen from the reforming of natural gas.

PLN and Sembcorp sign JDA: On **October 21**, **2024**, it was reported widely that **PT PLN Energy Primer Indonesia** and **Sembcorp Utilities** had entered into a **Joint Development Agreement** (**JDA**) to develop a 100,000 metric tonne a year green hydrogen production facility in Sumatra, Indonesia.

WEL and Keppel enter into conditional agreement: On **October 21**, **2024**, it was reported widely that **Woodside Energy Limited** (**WEL**) and **Keppel** had signed a conditional agreement for the supply by **WEL** of liquid hydrogen (**LH_2**) to Keppel for the purposes of providing a fuel source to power **data centres** of **Keppel** located in Singapore.

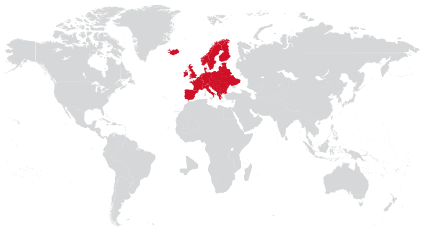
POSCO outlines decarbonisation investment plans: On **October 19**, **2024**, it was reported widely the South Korean iron and steel corporation, **POSCO**, intends to invest **USD 88 billion** by 2030 on the development and deployment of GHG emission avoidance and reduction projects. Among other things, the projects will include investments in **cleaner to green steel** (**USD 21 billion**) initiative, and the use of blue hydrogen in its production processes and technologies (**USD 730 million**). As reported, new clean to green steel production facilities (USD14.5 billion) will be developed in the home city of POSCO, **Pohang**, and **Gwangyang**, to include three new DRI and an EAF facilities.

State of NSW Australia to legislate 28 GWh of LDES: On **October 18**, **2024**, it was reported widely that the **NSW Energy Minister**, Penny Sharpe, had announced that the State of NSW is to legislate to set a target for the development

[5] As stated by the **EMA**: "The Conditional Approval awarded to Sun Cable recognizes that the project can be technically and commercially viable based on the proposal and information submitted thus far".

[6] This follows news on **September 5, 2024**, that **Shell Eastern Trading (400MW)** and **Singa Renewables (1 GW)** had been given "conditional approval" by the EMA in respect of the proposal to import up to **1.4 GW** renewable electrical energy. This continues the grant of conditional approvals, intended to facilitate engagement with regulators to obtain approvals and licences that would allow the import of renewable electrical energy into Singapore. For more detail, see the EMA announcement at **https://www.ema.gov/**, under **Singapore and Indonesia Make Substantive Progress on Electricity Imports**), which provides coverage of five other Indonesian-based projects, and previously covered by P2N0.

and deployment of **Long Duration Energy Storage** (**LDES**) at **28 GWh by 2034**. The target will provide a "clear investment signal to incentivise sufficient infrastructure to be built to address scheduled coal-fired power station closures".



Europe and the UK

Climate Action Progress Report: On **October 31**, **2024**, the **European Commission** published the **Report from the Commission to the European Parliament and the Council – EU Climate Progress Report 2024**. Among a good number of positive findings, the headline findings are that across the EU Member States, in 2023 GHG emissions were **8.3% less** than they were in 2022, and that the EU is on target to reduce GHG emissions by at least 55% by 2030.

€3.1 billion CDR funding in Sweden: The **Swedish Government** is running a series of auctions under which CDR projects will be provided with funding support. The first auction is intended to encourage **BECCS projects**. As understood, the first auction will provide funding support in respect of **600,000 metric tonnes** of capture and storage to commence by 2026, with a target to capture and store permanently **2 million metric tonnes** of CO_2 a year by 2030. The support will be provided following demonstration that CO_2 has been stored permanently.

Funding for first energy island: On **October 29**, **2024**, it was reported widely that the **European Investment Bank** (**EIB**) had agreed to provide **€650 million** to **Elia Transmission Belgium** for the development of the first energy island. As understood, the energy island will consolidate renewable electrical energy from **3.5 GW** of OWF installed capacity and transmit that electrical energy to Belgium.

H2Global auction: On **October 24**, **2025**, the good folk at **hydrogeninsight** (at **https://www.hydrogeninsight.com**, under **The next round of H2Global auctions will procured hydrogen made in Europe as well as from outside the EU**) reported that the next round of auctions in the **H2Global initiative** will award **€3.5 billion** in funding for the development of renewable hydrogen produced inside and outside the EU. As reported, the auction will be vector open (i.e., agnostic as to the means by which the renewable hydrogen is carried, it can be in gaseous or liquid form, including ammonia, methanol and e-methane). Results of the previous **H2Global initiative** auction conducted can be found **here**.

By way of a reminder, we have included in footnote[7] background on the **European Hydrogen Bank initiative**, which is distinct from the **H2Global initiative**. Results of the previous **European Hydrogen Bank initiative** can be found **here**.

EU Innovation Funding announced: On **October 23**, **2024**, the **European Commission** announced funding for 85 projects intended to contribute to achieving net-zero across member states of the **European Union**. As reported, the funding announced totals **€4.8 billion**. The full list of the projects can be found **here**[8].

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[7] By way of reminder, **Edition 17** of **P_2N_0** reported that "**Terms and conditions for second auction by European Hydrogen Bank published**: On September 27, 2024, the European Commission published **Invitation Fund IF24 Auction**, Terms and Conditions. Under the terms and conditions of the second auction, up to **€1.2 billion** of funding support will be provided, with successful bidders awarded fixed amount for each kg of renewable hydrogen to be produced and supplied into the European Union from the European Economic Area, with that funding support to be provided under contracts that will have terms of up to 10 years. The second auction will open on December 3, 2024. By way of reminder, **Editions 1**, **2**, **5**, **9** and **11** of **P_2N_0** reported on the development of the auction process by the European Hydrogen Bank.

[8] By way of reminder, **Edition 11** of **P_2N_0** reported that "**EU publishes PCI-PMI List**: On **April 8**, **2024**, the **European Commission** published the first list of 166 **Projects of Common Interest (PCI)** and **Projects of Mutual Interest (PMI)**. The PCIs and PMIs were published in the **OJ**. Each of the 166 PCIs and PMIs will be eligible to apply for financing under the **Connecting Europe Facility**, with calls for application made during the second half of

Germany approves construction of country wide hydrogen network: On **October 22**, **2024**, the German **Federal Network Agency** approved the construction of a **€19 billion** hydrogen network across Germany. As announced, the hydrogen network will be developed by 2032, and will have a total length of 9,040km.

CO_2 shipped from Rotterdam to Yantian: On **October 22**, **2024**, it was reported widely that **Air Liquide** and **China National Offshore Oil Corporation** (**CNOOC**) has completed the loading at the **Port of Rotterdam**, in the Netherlands, and delivery of at the **Port of Yantian**, in China, a cargo of **LH_2** contained in tanks the size of shipping containers on board the container vessel, the *Cezanne*. As reported, this is the greatest distance travelled by a cargo of LH_2.

Climate Protection Contracts awarded: **Edition 9** of **P_2N_0** reported in the proposed introduction of Climate Protection Contracts as follows:

> "On **February 24, 2024**, the **EC** approved the provision of **€4 billion** of funding support under **15-year** contracts for differences (**CfDs**), characterized (and named) as two-way carbon contracts for differences (or **CCfDs**) or climate protection contracts. Readers of **P_2N_0** will know that the Netherlands uses a similar policy setting.
>
> In context, the current price for emissions permits under the **EU ETS** is around **€60 per emission permit**, representing **one metric tonne of CO2-e emitted**. This is not a price point that will provide sufficient incentive to decarbonize: the price point of emissions permits needs to be considerably greater. Indeed, given current dynamics in the EU ETS market for emissions permits it seems likely that other policy settings will be needed to ensure decarbonization.
>
> To encourage acceleration of decarbonization, the **German Federal Government** is to incentivize industrial emitters to decarbonize sooner than they would otherwise, and the amount payable under the climate protection contracts will compensate emitters for the difference between the cost of decarbonization and the cost of emissions permits. The climate protection contracts will be awarded through auctions, the first of which is expected during 1H."

On **October 18**, **2024**, it was reported widely that the **Federal German Government** had awarded around **€1 billion** in funding support to **five industrial corporations** to adopt the use of hydrogen to reduce the GHG emissions arising from the processes and technologies used by those corporations. This policy setting reflects that the Federal German Government recognized the need to develop the demand side for hydrogen to align with the policy settings to develop the supply side.

Poland plans €2 billon green hydrogen project: On **October 17**, **2024**, it was reported widely that the Polish Government intends to develop a **€2 billion** green hydrogen project. As reported, the green hydrogen project will be developed to enable the supply of green hydrogen to the automotive industry. It is understood that the statement was made in conjunction with the adoption of hydrogen legislation, among other things, defining low carbon CO_2 and providing a legislative framework to enable the development of a hydrogen transportation network.

Climate Contracts for Difference funding defined: **Edition 10** of **P_2N_0** reported on the proposed introduction of **Climate Contracts for Difference** (**CCfDs**) as follows: "**German Government launches €4 billion auction for carbon contracts for differences** (**CCfD**): **On March 14, 2024**, the **Federal German Government** launched the first round of bids to incentivize German industry to transition to lower, low or no GHG emission processes. The **CCfDs** or **climate protection contracts** are intended to accelerate the transition (by providing a positive incentive), with a clear recognition that the price on carbon under the **EU ETS** not sufficient (as a negative incentive)."

On **October 15**, **2024**, it was reported widely that the **Federal German Government** has identified the need for **€2.8 billion** of funding in the first round of CCfDs to support **15 industrial corporations** to progress their decarbonization

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April 2024, with applications to be submitted by the end of October 2024. The full list of the PCIs and PMIs is in the **OJ**. By way of a quick summary, 85 of the projects are electrical energy projects (consistent with the **European Grid Action Plan**), offshore and smart electrical energy grid projects, 65 projects are hydrogen projects, and 14 are CO_2 network projects. "

efforts. As reported previously, the CCfDs will compensate corporations for the additional costs and expense that they incur to adopt lower, low and no CO_2 emission technologies. The CCfDs will allow these corporations to adopt these technologies without uncompetitive.

HELPFUL PUBLICATIONS AND DATA BASES

In addition to publications covered by this edition of P_2N_0, the most noteworthy publications read by the author during the second two weeks of **October 2024** are:

- **Energy Transition Factbook 2024**, prepared for the 15th Clean Energy Ministerial Meeting: The good folk at Clean **Energy Ministerial**, **Bloomberg Philanthropes** and **BloombergNEF** published the **Energy Transition Factbook** 2024. The publication provides an excellent summary of progress towards the energy transition.
- **Criteria for High-Quality Carbon Dioxide Removal**: The good folk at **Microsoft** and **Carbon Direct** published **Criteria for High-Quality Carbon Dioxide Removal**. The publication provides a clear (crystal clear) assessment of carbon dioxide removal (**CDR**) processes and technologies. It is hoped that the publication will become the touchstone for those wishing to develop CDR project using the processed and technologies outlined in the publication.
- Towards the end of **October 2024**, an **overview with links** popped up (published by Professor Andreas Rasche) detailing the **Green Deal Policies of the EU**. The overview and the links are comprehensive and helpful.

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