



Welcome to the **fourteenth 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** does not cover news items about climate change generally, M&A activity, or news items that are negative.

The **fifteenth edition** of **P₂N₀**, covering **August 2024**, will be published during the first week of **September 2024**. From September onwards we will publish **P₂N₀** every other week.

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

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Edition 14: covering significant news items arising during July 1, to July 31, 2024.

HEADLINES FROM JULY 2024

During **July 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:

- **Sunday July 21, 2024, and Monday July 22, 2024 - the hottest of days:** During the week beginning **July 22, 2024**, there was considerable reporting on the fact that Sunday July 21, 2024, at 17.09° Celsius or 62.76° Fahrenheit, and Monday July 22, 2024, at 17.15° Celsius or 62.87° Fahrenheit, were the two hottest days by the average surface temperature around the globe since measurements began in 1940. For the source information, pulse.climate.coperinus.eu.) While **P₂N₀** does not cover climate change generally, this news seems worthy of particular note.
- **bp Energy Outlook 2024:** During **July 2024**, the good folk at bp published the flagship [bp Energy Outlook 2024 edition](#). This is one of the publications that is awaited eagerly, providing a targeted assessment of themes and trends.

Consistent with other flagship reports (awaited eagerly), the **bp publication** states that if current trends continue, we are going to exceed a 2°C increase in global average temperatures by 2040, and as such not achieve the objectives of the Paris Agreement.

Key to this assessment is that the mass of CO₂ emissions continues to increase, rather than to peak. There is an increased focus on energy security and energy efficiency, and an increased role is being assumed by governments. There are many gems in the **bp publication**, and it is well-worth a read and a re-read.

- **Long Term Road Maps:** During **July 2024**, the **International Energy Agency (IEA)** published:
 - [Electricity Mid-Year Update](#), which provides a progress check on the development and deployment of electrical energy capacity. As reported, during 2024, it is expected that photovoltaic (**PV**) solar and wind renewable energy capacity will exceed that of hydroelectric power.

The publication is best read with the **IEA's [World Energy Investment](#)** report, one of flagship reports from the **IEA** each year. The key theme from the report is that PV solar may be regarded as the leading technology used to deploy renewable electrical energy (and electrical energy as a whole), and that this will continue to be the case. It is estimated that over **USD 500 billion** will be invested in PV solar during 2024.

In addition to the deployment of PV solar at utility scale, households and commercial and industrial businesses are deploying roof-top PV solar and investing in energy efficiency. The report estimates that in 2024, over **USD 3 trillion** will be invested across the energy sector, with **USD 2 trillion** of that investment being in respect of clean or cleaner technologies. The report is well-worth a read¹.

- **[Global EV Outlook 2024](#)**, which provides a stock-take of the state of the development of the market for electrical vehicles globally. As usual, the publication provides insightful commentary on the state of the market, and the anticipated development of it.
- **[Developing Capacity for Long-Term Energy Policy Planning: A Roadmap](#)**, which provides a basis to consider policy setting over the long term. The publication provides a valuable roadmap for the consideration of how to develop policy and is well-worth a read for those involved in this area.
- **Energy Transition:** During **July 2024** the **International Renewable Energy Agency (IRENA)** published:

- **[Geopolitics of the Energy Transition, Energy Security](#)**. The publication helps order thinking around the dynamics at large, and defining, the energy transition. As the title of the publication suggests, Energy Security now runs through policy settings around the world and will continue to do so as countries seek to ensure affordable energy over the near, medium, and long term.

This publication is worth reading with the **IEA** publication, **[Developing Capacity for Long-Term Energy Policy Planning](#)**, and the **IRENA** publication **[International Cooperation to Accelerate Green Hydrogen Deployment](#)**.

- **[Green hydrogen strategy – A guide to design](#)**, continuing the theme of the month from the **IEA** and **IRENA**, from the what needs to be done, to the how that needs to be done can be done. The publication provides a stock-take of the green hydrogen production targets of countries with hydrogen roadmaps and strategies. (In this context, there is alignment on the assessment of the EU member states, and the assessment in **[EU Court of Auditors report](#)**.)

This publication provides a clear sense of where production of green hydrogen is at, and why it is not more advanced. For those actively working in the sector, this is confirmatory. The publication is excellent to orientate those seeking to understand the entirety of the policy setting regimes globally.

¹In addition, it is worth recalling that the **IEA** reported on progress towards the achievement of the pledge (given at COP-28) to triple installed renewable electrical energy by 2030 **[COP-28 Tripling Renewable Capacity Pledge: Tracking countries' ambitions and identifying policies to bridge the gap](#)**. Stated in absolute numbers, an additional **11,000 GW** (or **11 TW**) of renewable electrical energy capacity needs to be installed and deployed from the end of 2023 to 2030 to achieve the pledge. The report provides a country-by-country analysis to assess progress so far, considering the best-case scenario based on current policy settings and commitments, concluding that if all of them are achieved, about **7,500 GW** of renewable electrical capacity will be installed and deployed by 2030. The report is well-worth a read. Also, the **IEA** has published recently its **[Energy Efficiency Policy Toolkit 2024](#)**. For those active or interested in this area, the publication is well-worth a read.



Africa

Progress for Fortescue in Morocco: On **July 24, 2024**, it was announced that the **Morocco Competition Council (MCC)** had approved the establishment of a joint venture between Fortescue and OCP Group. This is a substantive step in progress to the plans of **Fortescue** and **OCP Group** to develop a green hydrogen and green ammonia hub, which was announced in April 2024.

Geothermal in Africa: An ever-increasing theme across Africa, is the development of geothermal power. As a helpful summary of the state of play, during July the following [presentation](#) was given by Shadrack Phetia. It is very helpful.



Middle East and South Asia

Indian Steel: During **July 2024**, the **Indian Steel Association** working with **Deloitte** published [Economic, greener, and always faster steel: Shaping the Future](#), which provides a State-by-State assessment of iron and steel production in India, and the potential for the decarbonization of the production of iron and steel production. The publication provides a helpful summary of the state of play and possible progress.

Also, during July, the **Government of India** (Ministry of Statistics & Programme Implementation) has published [EnviStats India 2024](#). For those interested or working on policy settings or projects and transactions in India, the publication is fact and stat rich.

On **July 30, 2024**, the **Ministry of Steel** announced [Policies to Promote Decarbonization in Steel Industry](#). Key elements of the announcement are the use of carbon capture, and carbon capture and utilization, the use of green hydrogen, and provides the basis for the continued decarbonization of the iron and steel industry.

Second Tender for GH₂: On **July 5, 2024**, the **Solar Energy Corporation of India Limited (SECI)** issued a **Notice Inviting Tender** in respect of the supply of green hydrogen produced from green hydrogen production facilities in India. The invitation to tender is in respect of up to **450,000 metric tonnes** of green hydrogen a year, offering up to US 60 cents a kilogram in the first year of production with the price declining in the second and third years. This follows the same model as that used in the first tender for green hydrogen.

² By way of reminder, [Edition 13](#) of P₂N₀ reported that on **June 10, 2024**, the Indian state-owned enterprise, **Solar Energy Corporation of India (SECI)** is undertaking a reverse auction process to procure **540,000 metric tonnes** of green ammonia a year. As reported, the green ammonia is to be used for domestic purposes (it is understood as feedstock for fertilizer production) and will be delivered to 11 delivery points across India.

Coal still key³: On **July 3, 2024**, **Reuters** (at [reuters.com](https://www.reuters.com), under [India asks utilities to order \\$33 billion in equipment this year to boost coal output](#)) reported on one of the key dynamics that exists in countries that have increasing populations and urbanization, and that continue to develop their economies, affordable electrical energy is needed, and for a while to come, coal will be key. In India, these dynamics will result in an additional **31 GW** of installed coal-fired power generation capacity. This is a continued dynamic.

World Bank to provide USD 1.5 billion: On **July 1, 2024**, it was reported widely that the **World Bank** is to provide up to **USD 1.5 billion** in funding to support the development, in **India**, of green hydrogen production, and renewable electrical energy (including use of **battery energy storage system (BESS)**), and to encourage private sector investment across each of these areas. This is the **Second Low-Carbon Energy Programmatic Development Policy Operation**, complementary to the **First Low-Carbon** funding round (which also provided up to **USD 1.5 billion** of funding support) to which the **World Bank** committed in June 2023.



Americas

ERCOT Q2 47% renewable: In the final week of **July 2024**, it was reported widely that **ERCOT** (Electricity Reliability Council of Texas) had matched **47%** of electrical energy load within the **US State of Texas** from clean energy sources. This level of renewable electrical energy dispatch has been achieved in a relatively short period of time.

In an article by Renew Economy (at reneweconomy.com.au, under [Learnings from the Texas grid, and why it's been able to add so much solar and battery storage](#)), the success of ERCOT in connecting solar and BESS is analyzed.

Connecticut Hydrogen Roadmap: In a month of increased focus on hydrogen roadmaps and strategies, a [Draft 2024 Connecticut Clean Hydrogen Roadmap](#) was published by Engie. The hydrogen road map is well-worth a read.

CF Industries and ExxonMobil CO₂ deal: On **July 25, 2024**, **ExxonMobil** announced that it had executed an agreement with **CF Industries**, under which **ExxonMobil** will remove up to **500,000 metric tonnes** of **CO₂** from the **CF Industries'** site at **Yazoo City, Mississippi**. As announced by **ExxonMobil**, it now has contracted for **5.5 million metric tonnes** of **CO₂**. It is understood that this is the second agreement with **CF Industries**, and the fourth in total.

IRS Notice 2024-60 issued: On **July 24, 2024**, the US **Internal Revenue Service** issued [Notice 2024-60](#) providing guidance on the credit regime for the storage of **CO₂** under the **Inflation Reduction Act 2022**, with details of the information that must be provided in a **life cycle analysis (LCA)** report. Each **LCA** report must be approved by the IRS before any credit will be determined.

Hydrogen Hubs:

- On **July 17, 2024**, it was [announced](#) that the **US State of California** had launched its **Hydrogen Hub (ARCHES)**, as announced, the first State in the US to do so. The launch follows the execution by the US **Department of Energy**

³ By way of reminder, **Edition 13** of **P2N0** stated that on **June 19, 2024**, the **Business Standard** (at www.business-standard.com, at [India set to register biggest jump in coal-fired power in a decade](#)) reported that in the 12 months to **March 2025**, India would complete the installation of **15.4 GW** of coal-fired power stations. It is important to have in mind that India continues to develop its economy, increasing electrification to those without electrical energy and to respond to the increased demand arising from an increasing population, and increasing urbanization, and economic activity across its economy. India should not be criticized for the continued development and use of coal-fired power generation.

(DOE) and **ARCHES** of a cooperation agreement in respect of **USD 12.6 billion** for the development of a clean, renewable **Hydrogen Hub** in California, which includes the **USD 1.2 billion** of funding announced in 2023⁴.

- On **July 24, 2024**, the **Pacific Northwest Hydrogen Association (PNWH2)** executed a cooperation Agreement with the US **DOE**.

US State of Utah geothermal project: On **July 2, 2024**, kslnnewsradio.com, under [Largest geothermal energy development in the U.S. is here in Utah](#), reported that in **southwest Utah**, near **Milford**, a **400 MW** geothermal project was being developed by **Fervo Energy**, with **Fervo Energy** intending to sell electrical energy produced by the project to **Southern California Edison**. (For further coverage, see newatlas.com, under [Geothermal fracking plant scores world-record energy contract in Utah](#).)

US Senate Nuclear Progress: On **July 1, 2024**, the US Senate approved (by 88 votes to 2 votes against) the [Accelerating Deployment of Versatile Advanced Nuclear for Clean Energy Act \(ADVANCE Act\)](#). The **ADVANCE Act** is designed to reduce the costs and time spent on obtaining regulatory approvals for projects using advanced nuclear reactor technologies, and to incentivize innovation (consistent with the recent [announcement](#) that the **US Department of Energy** will provide up to **USD 900 million** to support the development of **small modular reactor (SMR)** technologies). This is another example of a coherent policy setting of itself, and fitting within the existing energy policy settings of the US.

No drift in US Policy Settings: On **July 1, 2024**, the **International Energy Agency (IEA)** published [United States 2024 – Energy Policy Review](#) prepared in partnership with the **Federal Government of the US**. The **Review** shines a light on the energy policy settings in the US, concluding that the US: “has put in place significant energy and climate policy reforms designed to put the country on a pathway towards a clean, secure and affordable energy system for a new zero economy while promoting equity and high-quality jobs”. The [Executive Summary](#) provides a succinct report card. Both the full form **Review** and the **Executive Summary** are excellent, and each is well-worth a read.

No drift on Atlantic Shores: On **July 1, 2024**, the **Bureau of Ocean Energy Management (BOEM)** in the US:

- issued **Records of Decision** in respect of the offshore wind field developments, **Atlantic Shores Project 1 (1.51 GW)** and **Atlantic Shores Project 2 (1.327 GW)** offshore of the **US State of New Jersey**, being developed by **EDF** and **Shell**; and
- approved the **Construction and Operation Plan (COP)** for two offshore wind field developments, **New England Wind 1** and **New England Wind 2**, being developed by **Avangrid** (to be wholly-owned by **Iberdrola**) offshore of the **US State of Massachusetts**. The **COP** will allow the development of up to **2.6 GW** of offshore wind field capacity,

⁴ See [Edition 10](#) of P₂N₀ which reported that on **March 13, 2024**, the DOE [announced](#) that it had granted funding in respect of 52 clean hydrogen projects across 24 states. As announced, the funding is intended to reduce dramatically the cost of clean hydrogen production – among other things, the funding is aimed at supporting the production of 10 GW of electrolyser capacity a year and 14 GW of fuel cell capacity a year.

Also see [Edition 3](#) of P₂N₀ which reported on **US Regional Clean Hydrogen Hubs**: On **October 13, 2023**, seven **Regional Clean Hydrogen Hubs (H₂ Hubs)** were announced, with the H₂ Hubs, between them, to be eligible for up to **USD 7 billion** in US Federal Government funding. The funding will be provided under the [Bipartisan Infrastructure Law](#). A link is attached to the **White House** announcement (under [Biden-Harris Administration Announces Regional Clean Hydrogen Hubs to Drive Clean Manufacturing and Jobs](#)).

As announced, four hubs will produce Blue Hydrogen, five hubs will produce Green Hydrogen, and two hubs will produce Pink Hydrogen. The H₂ Hubs are: **1. Appalachian Hydrogen Hub**, eligible for up to USD 925 million; **2. California Hydrogen Hub**, eligible for up to USD 1.2 billion; **3. Gulf Coast Hydrogen Hub**, eligible for up to USD 1.2 billion; **4. Heartland Hydrogen Hub**, eligible for up to USD 925 million; **5. Mid-Atlantic Hydrogen Hub**, eligible for up to USD 750 million; **6. Midwest Hydrogen Hub**, eligible for up to USD 1 billion; and **7. Pacific Northwest Hydrogen Hub**, eligible for up to USD 1 billion. The US Department of Energy (DOE), Office of Clean Energy Demonstrations, administers the H₂ Hubs program. It is understood that the DOE Loan Program Office has received an application from one of the H₂ Hubs. Please click [here](#) to view a Baker Botts article published soon after the announcement of the H₂ Hubs.

in line with the Records of Decision issued in April 2024, **New England Project 1 (791 MW)** and **New England Project 2 (1.08 GW)**.



Carbon Tax in Thailand: On **July 30, 2024**, **channel news asia** (at www.channelnewsasia.com, under **“No brainer”:** **Thailand to become second in Southeast Asia to tax carbon emissions**) reported that Thailand is to follow Singapore with the introduction of a carbon tax. In **June 2024**, the **Thai Government** announced that the amount of the carbon tax will start at **USD 5.60** a tonne of **CO₂-e**, with existing duties and taxes on hydrocarbons to cease, with introduction of the “carbon tax” resulting in no net additional cost to users of the hydrocarbons.

Jilin – the place to be ... Da’an Project to be operational by then end of 2024⁵: On **July 11, 2024**, **hydrogeninsight.com** provided an **update** on the **USD 900 million Da’an Wind and Solar Green Hydrogen and Ammonia Integrated Demonstration Project**. The **Da’an Project** (part of the **Jilin West Clean Energy Chemical Industry Park**) will be the world’s largest green hydrogen and ammonia synthesis report, which will produce **32,000 metric tonnes** of green hydrogen and **180,000 metric tonnes** of green ammonia.

The progress of the **Da’an Project** is a further illustration of the leading role of China in the energy transition.

A search of the search term **#chinagreenhydrogennews** on LinkedIn will throw up interesting news items in relation to energy transition across China.

Shanghai to install 29 GW of offshore wind field capacity: On **July 22, 2024**, **offshorewind.biz** (at <https://offshorewind.biz>, under **Shanghai Plans to Install 29 GW of Offshore Wind Capacity**) reported that Shanghai plans to install **29.3 GW of offshore wind field capacity** with the intention of supplying **100 TWh** a year of green electrical energy to the **City of Shanghai**.

South Korea Green Steel: During **July 2024**, the **Korean Sustainability Investing Forum (KoSIF)** published **Transition to Green Steel in the Korean Steel Industry**. The publication provides a helpful, and realistic, assessment of the pace at which the iron and steel industry may transition given current policy settings and laws and regulations.

Renewable Energy Transformation: On **July 10, 2024**, it was reported widely that the **Federal Government of Australia** and the **State of South Australia** had signed a **Renewable Energy Transformation Agreement (RETA)**. As reported, under the **RETA**, the **Federal Government of Australia** has agreed to provide funding support, and the **South Australian Government** has committed to undertake and to complete initiatives that will result in South Australia achieving **100% renewable electrical energy by 2027**, three years ahead of the target of 2030.

⁵ **By way of reminder:** **Edition 13** of **P₂N₀** reported that on **June 29, 2024**, a **USD 4.2 billion Green Hydrogen-Ammonia-Methanol Integrated Project** was to be developed by **Sungrow Hydrogen** in **Jilin, China**, to produce **110,000 metric tonnes** of green hydrogen and **600,000 metric tonnes** of green ammonia / green methanol a year. The project is to be developed in stages, with the first stage involving the development of **800 MW** of renewable electrical energy capacity (comprising photovoltaic solar and wind), **45,000 metric tonnes** a year of green hydrogen from a green hydrogen production facility, and **200,000 metric tonnes** of green ammonia a year from a green ammonia facility, and **20,000 metric tonnes** of green methanol a year from a green methanol production facility.

Singapore getting ahead of the wave⁶:

- On **July 9, 2024**, it was reported widely that Singapore had signed a **voluntary cooperation agreement (VCA)** with Laos for the purposes of the transfer of the benefit of the avoidance, reduction, and removal of GHG emissions in one country to another country, anticipating the operationalisation of **Article 6 of the Paris Agreement**. This is the 19th VCA signed by Singapore and provides a clear pathway for carbon credits arising under **Article 6** that made be used by Singapore corporations and other organisations to satisfy up to 5% of their liability for the carbon tax in Singapore by the surrender of **Article 6** carbon credits.

On **July 11, 2024**, **The Straits Times** provided a [summary](#) of the **VCAs** to which Singapore is a party.

- On **July 31, 2024**, it was reported widely that the **Singapore Carbon Market Alliance (SCMA)** had been established by **EDB** (the Singapore Economic Development Board) and **IETA** (International Emissions Trading Association) The **SCMA** has been established to provide a trading platform to allow acquisition, and trading, of carbon credits arising under **Article 6**, by those invited to participate in the **SCMA**.

These initiatives illustrate again the integrated planning undertaken those developing and implementing policy settings within Singapore.

China continues scaling up of renewable capacity: On **July 4, 2024**, it was reported widely that the **Three Gorges Renewable Group** is to develop a **16 GW electrical energy hub**, the cost of which is likely to be a little over **USD 11 billion**. The electrical energy hub, to be located in Inner **Mongolia**, will provide electrical energy to **Beijing, Hebei, and Tianjin**, and will comprise **8 GW of photovoltaic solar capacity, 4 GW of wind capacity and 4 GW of coal-fired capacity** (and **200 MW** of solar thermal, and **500 MWh** of **BESS**).

Federal Government of Australia introduces Future Made in Australia Bill: On **July 3, 2024**, the **Federal Government of Australia** introduced its [Future Made in Australia Bill](#) in the Federal Parliament. The **Bill** follows the conceptual blueprint from the US and the EU: “**to build a stronger, more diversified and more resilient economy powered by renewable energy that creates secure, well-paid jobs around [Australia]**”. The role of government in the US and the EU is taking different forms, but the conceptual blueprint is the same, government support is needed to accelerate the energy transition, and the benefits that this will bring.

Muswellbrook Pumped-up: On **July 3, 2024**, **Idemitsu** announced (at <https://www.idemitsu.com.au>, under [NSW Government declares Muswellbrook Pumped Hydro Critical State Significant Infrastructure](#)) that it, and its joint venture partner, **AGL Energy Limited**, welcomed obtaining **Critical State Significant Infrastructure (CSSI)** status for their **400 MW Muswellbrook Pumped Hydro Project**, in the Hunter Valley region of State of New South Wales.

The **Muswellbrook Pumped Hydro Project** is one of six renewable energy projects, three of which are pumped hydro projects, to have received **CSSI** status, the other two pumped hydro projects being the **335 MW EnergyAustralia Lake Lyall** pumped hydro project, near **Lithgow, NSW**, and the **Yancoal Stratford Renewable Energy Hub**, with its **300 MW** pumped hydro project. **CSSI** status will allow the development of these projects on a more timely basis than might otherwise be the case.

Carbon Market Adjustment: On **July 2, 2024**, **Bloomberg** (at <https://www.bloomberg.com>, under [China's New Carbon Market Rules Aims to Reduce Oversupply](#)) reported that China has released a [draft allocation plan for the 2023-2024 carbon market](#). While the attached link is in mandarin, we understand that public consultation is underway in respect of allocations, based on a consultation paper included in the attached link.

Clean Energy Innovation in China: In early **July 2024**, the good folk at **The Oxford Institute for Energy Studies (OIES)** published [Clean Energy Innovation in China: fact and fiction, and implications for the future](#). The publication is well-worth a read, providing a perspective on why China has come to dominate the clean energy market, and the key

⁶ By way of reminder: [Edition 12](#) of **P2N0** reported that on **May 27, 2024**, **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.

factors for any country or corporation seeking to compete with China. Critically, it is noted that in the area of clean energy technology, China has made its own way.

Pausing to reflect:

- [Edition 13](#) of **P2N0**, reported that: “In Q3 of 2020, the author wrote about the plans of China articulated by Chinese President, Xi Jinping, as China committed to achieve net zero by 2060. At that time, China committed to have 1,200 GW of PV solar and wind capacity installed by 2030. By the end of 2024, it is estimated that China will have 1,310 GW of installed PV solar and wind capacity. This demonstrates that planned roll-out can be achieved”.
- The themes outlined in [Edition 13](#) have continued to be covered in detail throughout **July 2024**. It would seem that the penny has dropped – China has led, and will continue to lead, the world, by some distance in the development and deployment of renewable electrical energy. The good folk at [Global Energy Monitor](#), have published a 12-page summary of the progress made, and continuing to be made, [China Continues to lead the world in wind and solar, with twice as much capacity under construction as the rest of the world combined](#).

Offshore wind projects awarded feasibility licences⁷: On **July 17, 2024**, it was reported widely that the joint venture between **Origin Energy** and **RES** had been awarded a feasibility licence in respect of the **1.5 GW Origin X RES Navigator North Project** within the **Gippsland offshore wind zone**. In addition to the Origin Energy and RES award, RWE was awarded a feasibility licence for its **2 GW Kent Project**.

Six feasibility licences have now been granted / signed in respect of the **Gippsland** and **Portland offshore wind zones**.



Europe and the UK

EU to promote €5 billion to develop wind manufacturing: On **July 31, 2024**, it was reported widely that the **European Investment Bank**, in conjunction with **Deutsche Bank**, has developed a **€5 billion** initiative to support increased equipment and plant manufacturing capacity within the EU to enable the supply to the wind power industry.

Measurement of carbon intensity: In the final week of **July 2024**, **The Oxford Institute for Energy Studies** published [How proper measurement of low carbon hydrogen’s carbon intensity can reduce regulatory risk](#). The publication considers clean hydrogen (a US concept), low carbon (UK concept, and which can include hydrogen produced using nuclear power) and renewable hydrogen (EU concept, based on RFNBOs). The key point from the publication is the recognition that, as yet there are no established standards used internationally. The publication is excellent.

⁷ By way of reminder: [Edition 13](#) of **P2N0** reported as follows:

“Australian offshore wind has tail wind:

- On **June 15, 2024**, the **Federal Government of Australia** announced the creation of another offshore wind zone, offshore of the coast of the Illawarra region south of Sydney, NSW, on Australia’s east coast. As announced, the **Illawarra offshore wind zone** (covering 1022 km²), located 20 km offshore, will allow the installation of **2.9 GW** of renewable electrical energy capacity. The **Illawarra offshore wind zone** is the fourth zone to be created by the Federal Government, with another zone approved off the NSW central coast (the **Hunter offshore wind zone**), and two zones created offshore of the State of Victoria, off the coasts of the Gippsland and Portland regions.
- On **June 20, 2024**, the **Federal Government of Australia** announced that a feasibility licence has been granted in respect of a floating offshore wind project to be located within the **Hunter offshore wind zone** (within the Pacific Ocean Zone, an 1,800 km² area between Swansea and Port Stephens), the **Novocastrian Offshore Wind Farm**, being developed by **Equinor** and **Oceanex Energy**.”

EC approves State-Aid:

- **By Spain:** On **July 26, 2024**, the **European Commission (EC)** approved a **€1.2 billion** scheme to provide direct grants to promote the development of renewable hydrogen production capacity within Spain.

On **July 30, 2024**, **bp** announced a positive final investment decision in respect of the development of green hydrogen production capacity in joint venture with **Iberdrola**, with the green hydrogen to be used at **bp's Castellon refinery in Spain**.

- **By the Netherlands:** On **July 30, 2024**, the **EC** approved a **€1 billion** scheme to provide support for the development of up to **200 MW** of green hydrogen production capacity. Under the scheme the **Dutch Government** may commit to provide up to **80%** of the capital cost of project developments through grants.

H₂ FIDs – a busy week: In addition to **bp's FID**, during the final week of **July 2024**, **TotalEnergies** took a positive final investment decision to progress with its **OranjeWind** offshore wind field project to produce green hydrogen, **EWE** took FID on its **280 MW Clean Hydrogen Coastline project**, and **Shell** took FID on its **100 MW Refhyne 2 project**.

EU CSDDD enters into force⁸: On **July 25, 2024**, the **EU Corporate Sustainability Due Diligence Directive (CSDDD)** entered into force. The **CSDDD** applies to large EU and non-EU corporations (large EU limited liability companies & partnerships are defined as >1000 employees and >EUR 450 million turnover (net) worldwide, and large non-EU companies are defined as > EUR 450 million turnover (net) in EU), mandating that each corporation must integrate into their policies due diligence activities that will enable them to identify, assess and address the adverse impact of their activities on climate change, and the effectiveness of mitigation measures to avoid, to reduce or to remove the adverse impact, and develop **Climate Change Transition Plans**.

EU Member States must enact the **CSDDD** in their national laws and regulations by **July 26, 2026**, with corporations the subject of the **CSDDD** required to comply with its requirements as enacted from **July 2027**.

UK state of play⁹:

- With the change in administration in the UK there has been a renewed focus and awareness of the state of play in the achievement of GHG emission avoidance, reduction, and removal targets by 2030 (**GHG ARR**). The **Climate Change Committee (CCC)** has stated that the policy settings for the achievement of these targets do not provide a credible basis for achieving these targets, rather credible policy settings are needed in respect of two-thirds of the targeted **GHG ARR**.
- With the **CCC** perspective sounding in the ears of the new administration, the following policy settings are planned, with legislation introduced to:

⁸ **By way of a reminder:** **Edition 10** of **P₂N₀** reported as follows, "**EU Corporate Sustainability Due Diligence Directive (CSDDD)**: On **March 27, 2024**, the **European Commission (EC)** approved the **CSDDD**. Under the **CSDDD**, corporations of a certain size (employees and turnover) will be required to undertake due diligence in respect of corporations operating within the EU with whom they do business. Depending on the size of corporations, the **CSDDD** will be phased on over the next three, four and five years. The next step is for the **CSDDD** to be adopted by the European Parliament (EP)."

⁹ **By way of reminder:** **Edition 7** of **P₂N₀** reported as follows:

"On **November 15, 2023**, the **UK Government** is to increase the strike price for the contracts for differences awarded to successful bidders for offshore wind field capacity in AR6. The strike price will increase **£73/MWh** (for fixed bottom wind), and **£176/MWh** (for floating wind). The announcement from the UK Government can be found at <https://www.gov.uk> under [Boost for offshore wind as government raises maximum prices in renewable energy auction](#).

- **Establish Great British Energy (GBE)**, with GBE to be funded by the UK Government with **GBP 8.3 billion** with the objective of achieving renewable energy targets by 2030; and
- **Mandate use of SAF**: all flights taking off from the UK will have to use 10% SAF by 2030.

In addition, the UK Government has increased the amounts payable under contracts for differences (CfDs) by more than 50% comparing the allocation round 5 round against the allocation round 6: £1.555 billion will be made available for CfDs under allocation round 6.

The increase in the strike price arose from the news on **September 8, 2023**, in respect of the UK Government's **Allocation Round 5 (AR5)**, that no offshore wind developments had been successful in the award of contracts for differences (CfDs), with both fixed bottom and floating offshore wind not being awarded CfDs. In contrast, in **AR4** held in 2022, **7 GW** of offshore wind capacity was awarded CfDs. Notwithstanding the becalmed OWF sector, CfDs were awarded in respect of **3.7 GW** of capacity, including in respect of **1.9 GW** of **photovoltaic solar projects** and **1.5 GW** of **on shore wind farm projects**."

Also, during **July 2024**, the **Carbon Capture and Storage Association (CCSA)** published [UK CCUS Supply Chain – Initial Forecast 2024 – Main Report](#). The Report provides data and information in respect of CCS projects, and identifies areas where action is required to ensure the scaling-up of CO₂ projects in the UK.

Renewable Energy state of play:

During **July 2024**, it was reported widely that during the **first half of 2024**:

- **57%** of the gross electrical energy consumed in Germany was from renewable sources; and
- **30%** of the gross electrical energy consumed across EU.

This represents continued progress, consistent with achieving renewable energy deployment targets.

In mid-July there was a good deal of coverage of:

- **The approval by the European Commission of State-Aid by Finland and Italy** decarbonization initiatives - **Finland** (€200 million) and **Italy** (€400 million); and
- The audit by the **European Court of Auditors** contained in a special report entitled [The EU's industrial policy on renewable hydrogen](#). The report provides a realistic assessment of the progress that is being made in achieving targets set. The report is well-worth a read, and its findings help explain a number of initiatives now being undertaken across the EU.

European Hydrogen Backbone (EHB) developing:

- **EnBW €1 billion commitment**: On **July 23, 2024**, **EnBW** [announced](#) that it intends to invest **€1 billion** in expanding the core national hydrogen pipeline system, which will form part of the **EHB**.
- **Enagás closing in on €4.9 billion commitment**: On **July 31, 2024**, the Spanish Government approved, provisionally, the development of a national hydrogen pipeline network, and two hydrogen storage facilities, and, as part of the **EHB**, hydrogen pipeline infrastructure with France and Portugal.

German Governments commit to €4.6 billion of funding support: On **July 16, 2024**, it was reported widely that the Federal and State Governments of Germany had agreed to provide funding support in respect of 23 green hydrogen projects given **Important Project of Common European Interest Status (IPCEI)**.

By way of reminder: [Edition 13](#) of P₂N₀ reported (under **European Commission approves fourth round of IPCEI projects**) that: "On **May 28, 2024**, ... the **European Commission** announced (see <http://ec.europa.eu>, under [Commission approves up to €1.4 billion of State aid by seven Member States for the fourth Important Project of Common European Interest in the hydrogen value chain](#)) that under **IPCEI HyMove**, Estonia, France, Germany,

Italy, the Netherlands, Slovakia, and Spain, are permitted to provide up to **€1.4 billion** to provide funding support for **13 projects**, to be undertaken by **11 corporations**, across the **seven EU Member States**.

As reported on previously, by the author, IPCEI **HyMove** follows three earlier IPCEI rounds, **Hy2Tech** (July 15, 2022), **Hy2Use** (September 21, 2022), and **HyInfra** (February 15, 2024)."

German tender for green H₂: On **July 11, 2024**, it was reported widely that **Fertiglobe** had been successful in the auction process to procure green hydrogen into Europe. As reported, under the **H2Global Foundation** initiative, **Fertiglobe** is to receive **€397 million** in respect of the supply of green ammonia to Europe. The supply is to commence in 2027 with the supply of **19,500 metric tonnes**, increasing to **397,000 metric tonnes** by 2033, at a delivered contract price of **€1,000 a metric tonne**.

The **German Federal Ministry for Economic Affairs and Climate Action** has committed up to **€4.43 billion** for the procurement of green hydrogen from around the world under the **H2Global Initiative**. Effectively the Federal Government of Germany will be the wholesale buyer and seller of green hydrogen procured under the initiative, under the so-called double-auction system.

By way of related reading, consider [Covering Germany's green hydrogen demand: Transport options for enabling imports](#) published by **Guidehouse**.

On **July 31, 2024**, it was reported widely that the **Canadian Government** had committed **USD 200 million** in support in respect of a further auction process under which green hydrogen / green ammonia will be exported from Canada to Germany.

Essar Energy Transition (EET) H₂ ready: On **July 12, 2024**, it was reported widely **EET** is to develop a **125 MW H₂ ready** power station at EET's **Stanlow refinery, Ellesmere Port** in the North-West of England. As reported, the power station is to achieve operational completion by 2027.

Germany to tender for H₂ ready electrical energy generation capacity: On **July 6, 2024**, it was reported widely that the **Federal Government of Germany**, by the end of 2024 or early 2025, will tender for works to construct or to modify, **12.5 GW** of gas-fired power stations so that they are ready to fire H₂. As reported, there will be two tenders, each for **5 GW** of new hydrogen-ready gas-fired power stations, (1) tenders to modify **2GW** of existing gas-fired power station capacity, and (2) a tender for **500 MW** of H₂ fired power stations, and for **500 MW** of H₂ storage capacity.

Cepsa €1 billion e-methanol plant: During the first week or so of **July 2024** there was a good deal of reporting around the development of the **Cepsa e-methanol plant in Huelva**, and the planned positive final investment decision during 2025. As reported, the **Huelva e-methanol plant** would have capacity to develop up to **300,000 metric tonnes** of e-methanol a year.

Austria and France Carbon Management: During the first week of **July 2024**, there was considerable reporting on the release by Austria and France of their Carbon Management Strategies.

As reported:

- the [Carbon Capture, Utilization, and Storage \(CCUS\) strategy](#) for **France** contemplates that by 2030, 4 to 8 million metric tonnes of CO₂ will be captured and stored permanently, increasing to between 30 and 50 million metric tonnes by 2050, with the creation of four industrial carbon clusters / hubs, and the use of 15 year contracts for differences, the development of open access for CO₂ transportation, with export of CO₂ to the Mediterranean and the North Sea.

On **July 30, 2024**, the **Global CCS Institute** published [The Status of CCUS in France: Present & Future Opportunities](#), co-authored with **Vernova**. The publication is helpful, providing a briefing on the policy settings, the legal and regulatory regime, both existing and proposed, CCUS targets, CO₂ transportation (as contemplated in the CCUS strategy), and an overview of CCUS projects.

- the [Carbon Management Strategy](#) for **Austria** contemplates that Austria will allow onshore CO₂ storage within Austria, the development of a model for the transportation of CO₂, and developing minimum targets for capture,

transportation, and storage of CO₂, and to develop a financial, legal, and organizational framework to promote projects.

Mapping Geothermal Development: On **July 3, 2024**, **euronews** (at www.euronews.com, under [Hungary eyes EU consensus on geothermal energy future by end of year](#)) outlines the likely dynamics within the EU around the development of geothermal capacity across the EU. **Euronews** reports that Austria, Croatia, France, Germany, Hungary, Ireland, and Poland all have national geothermal roadmaps. It would seem likely that geothermal is going to join the mainstream of renewable energy capacity development.

Mapping H₂ production costs: On **July 3, 2024**, **Agora Industry** published its on-line [EU map of hydrogen production costs](#). The publication is a helpful tool for those seeking to follow the ever-changing dynamics involved in H₂ production. On **July 4, 2024**, **Reuters** (at www.reuters.com, under [Germany could import up to 100 TWh of green hydrogen via pipelines by 2035, study shows](#)) picked up on the **Agora** publication, i.e., by 2035 around 11% of total demand (of 894 TWh) for Germany could be sourced from green hydrogen.

Mapping H₂ underground storage: At the start of **July 2024**, **H2eart for Europe** published [A European underground hydrogen storage roadmap](#). The publication provides a step-by-step approach to the development of H₂ underground storage facilities. The publication is timely, and it is excellent, identifying the risks that need to be understood, and addressed, at each step.

Draft in the Baltic: On **July 1, 2024**, it was reported widely that the **Eolus** had applied to the Swedish Government to develop a **2.2 GW** floating offshore wind field project, **Skidbladner**, 20 kms offshore of **Gotska Sandön**.

HELPFUL PUBLICATIONS AND DATA BASES

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

- **Measurement of carbon intensity:** In the final week of **July 2024**, **The Oxford Institute for Energy Studies** published [How proper measurement of low carbon hydrogen's carbon intensity can reduce regulatory risk](#). The publication considers clean hydrogen (US concept), low carbon (UK concept, which can include hydrogen produced using nuclear power) and renewable hydrogen (EU concept, based on RFNBOs). The key point from the publication is the recognition that as yet there are no established standards used internationally. The publication is excellent.
- **Green Steel Economics:** During the second part of **July 2024**, **Transition Asia**, **Global Efficiency Intelligence**, and **Sustainable for Our Climate**, published [Green Steel Economics – Comparing Economics of Green H₂ – DRI and Traditional Steelmaking Around the World](#). The publication is excellent, and well-worth a read.
- **Climate Risk Assessment:** During the second part of **July 2024**, the **UNEP**, **Finance Initiative**, and the **National Institute of Economic and Social Research** published [Scenarios for Assessing Climate-Related Risks: New Short-Term Scenario Narratives by UNEP FI, and NIESR](#). For those involved in policy setting the publication provides helpful insights and is worth a read.
- **Climate Data:** During the first part of **July 2024**, the good folk at the **Network for Greening the Financial System** published [Improving Greenhouse Gas Emissions Data](#). The publication is both excellent and timely. One of the key issues in most jurisdictions in the monitoring, reporting and verification of GHG emissions data and information.
- **Steel and CCS/U:** During the first part of **July 2024**, the good folk at **Sandbag** published [Steel and CCS / U, Decarbonisation potential, costs, and bottlenecks](#). The publication is recommended, highly, providing an excellent assessment of CO₂ capture technologies.
- **Renewable Hydrogen from Biomass:** On **July 2, 2024**, **Pre prints.org** published [Renewable Hydrogen from Biomass: Technology Pathways and Economic Perspectives](#). The publication is excellent, providing a helpful summary to provide a clear basis for understanding, and very helpful facts and stats.

Primary Author:



MICHAEL HARRISON*
Partner
michael.harrison@bakerbotts.com

Other Contacts:



JASON BENNETT
Partner
jason.bennett@bakerbotts.com



RICHARD GUIT
Partner
richard.guit@bakerbotts.com



LEWIS JONES
Partner
lewis.jones@bakerbotts.com



STUART JORDAN
Partner
stuart.jordan@bakerbotts.com



DANIEL REINBOTT
Partner
daniel.reinbott@bakerbotts.com



ANDREW ROCHE
Partner
andrew.roche@bakerbotts.com



MARK ROWLEY
Partner
mark.rowley@bakerbotts.com



SHAILESH SAHAY
Partner
shailesh.sahay@bakerbotts.com



SHANE WILSON
Partner
shane.wilson@bakerbotts.com

* Michael Harrison is the primary author of **P2N0**, and editor, written on Saturday mornings. Any errors are Michael's. Michael sources news items from original material. If a news item is covered broadly, the words **reported widely** connote that at least three publications have covered that news item, and **reported** connotes at least two sources. If there is only one source that is not the original source for the new item, that source is named.

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