



Welcome to the **Edition 15** 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.

Edition 16 of **P2N0**, covering the first **two weeks** of **September 2024**, will be published in **mid-September 2024**.

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

Content	
Headline from August 2024 (pages 1 to 2)	
News from Around the World	
<ul style="list-style-type: none"> Africa (page 3) 	<ul style="list-style-type: none"> Middle East and South Asia (pages 4 to 5)
<ul style="list-style-type: none"> Americas (pages 5 to 7) 	<ul style="list-style-type: none"> APAC (pages 7 to 11)
<ul style="list-style-type: none"> Europe and the UK (pages 11 to 12) 	
Helpful publications and data bases (pages 12 to 13)	
Baker Botts Team (page 13)	

Edition 15: covering significant news items arising during August 1, to August 31, 2024.

HEADLINES FROM AUGUST 2024

During **August 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:

- Long Term Road Maps:** During **August 2024**, the **International Energy Agency (IEA)** published [Can government partnerships support responsible and reliable critical mineral supply chains?](#)

The publication provides an excellent summary of the current state of play, and a treasure trove of links to source materials:

- Strategic partnerships on critical minerals between [European Union and the Democratic Republic of Congo, United Kingdom and Zambia](#) and [United States and Japan](#)
- Research from [Natural Resource Governance Institute](#) on State-State Mining Partnerships and Their Implications
- [Critical Minerals Policy Tracker](#)
- [Extractive Industries Transparency Initiative \(EITI\) Standard](#)
- [EU Critical Raw Materials Act](#)
- [EU Global Gateway Strategy](#)
- Status of Hydrogen and Potential for Cooperation:** In previous editions of **P2N0**, the cooperation between countries in respect of the development of supply and demand for hydrogen and hydrogen based / derived fuels has been covered. In **July, 2024**, **adelphi** published [Status of Hydrogen and Potential for Cooperation, Australia, Germany, Japan and Korea](#). The author has long expressed the view that there is a need for **Government-to-Government (G-t-G) cooperation** to develop CCS / CCUS project and hydrogen and hydrogen based / derived fuels supply and demand. The publication provides a helpful overview of the key interfaces that will enable **G-t-G cooperation**.

To the author, the key feature of **G-to-G cooperation** is the role that governments can play as the wholesale buyers and sellers of hydrogen and hydrogen based / derived fuels to provide a structure that sells and buys hydrogen and

hydrogen based / derived fuels at a range of prices, noting that one of the challenges at the moment is early mover disadvantage, with higher costs and prices, knowing the costs and prices will reduce overtime. Wholesale buyers and sellers across the global market can sell at a price point that will encourage investment in new technology and demand for hydrogen.

- **State of the Art: CCS Technologies 2024:** During the first week of **August 2024**, the good folk at the **Global CCS Institute** published [State of the Art: CCS Technologies](#). The publication is excellent providing an insight into technologies being used, and contemplated for use, for carbon capture.
- **Article 6.2 Reference Manual:** During the first week of **August 2024**, the [Article 6.2 Reference Manual – Reference Manual for the accounting, reporting and review of cooperative approaches](#) was published. What is “written on the tin, is in the tin”. For those active in this area, this publication is well-worth a read.
- **Global Methane Pledge:** Ahead of **COP-26 in Glasgow, Scotland, in November 2021**, the **EU** and the **US** signed the Global Methane Pledge to reduce CH₄ emissions by one third by 2030. 158 participants have now signed the Global Methane Pledge (with the details of the countries that have pledged listed at www.globalmethanepledge.org).

On **August 7, 2024**, the **World Economic Forum** published [Global Methane Pledge: which countries are cutting emissions?](#) The publication provides a light-touch in noting that more needs to be done.

- **Net-zero BloombergNEF:** During the first week of **August 2024**, the good folk at **BloombergNEF** published [New Energy Outlook 2024 \(NEO 2024\)](#). **NEO 2024** considers whether it is likely that we will achieve net-zero GHG emissions by 2050. **NEO 2024** concludes that while possible to achieve net-zero GHG emissions by 2050, the likelihood is lessening.

The headlines from **NEO 2024** are consistent with each other publication considering like or associated matters (including the need to triple renewable electrical energy generation capacity by 2030). Interestingly, **NEO 2024** states that green hydrogen is to play a crucial role in the industrial and the transportation sectors. The publication is excellent.

- **N-BS in Global South:** During the first few days of **August 2024**, the good folk at the **Council on Energy, Environment, Energy and Water (CEEW)** published [Accelerating Investments for Nature-based Solutions in the Global South – A Unified Framework for Mapping and Estimating Benefits](#).

The publication is both excellent and timely. Excellent because it provides a sound basis for assessing n-b solution projects for the purposes of investment – the ENSURE methodology. Timely because it provides an excellent addition for the purposes of the development of projects for the purposes of Articles 2 and 4 of the Paris Agreement. The publication is well-worth a read.

The importance and significance of n-b solutions at a **carbon dioxide removal (CDR)** technology is known. In the final week of July 2024 (July 24, 2024), the importance of n-b solutions involving afforestation and reforestation was enhanced by the finding the bark absorbs methane (CH₄), along with CO₂ and N₂O, one of the Big Three GHGs. See [Global atmospheric methane uptake by upland tree woody surfaces](#), published in **nature** (at <https://www.nature.com>).



Africa

Namibia wind in its sails: In **August 2024**, the **Government of the Republic of Namibia** published [A blueprint for Namibia's green industrialization](#). The publication is excellent, and itself may be regarded as a blueprint in respect of the basis of the assessment and possible implementation of the increased industrialization for countries developing their industrial capacity. Of particular interest and resonance for the author are **Section B, A new growth agenda**, and **Section C, Delivering** of the blueprint.

Wind-up Africa: On **August 12, 2024**, the **World Economic Forum** republished an [information video](#) reminding us that the potential of wind power across Africa is considerable, with the wind resources to provide its electrical energy needs 250 times over 250.

Pioneering Waste-to-Hydrogen Solutions in Nigeria: On **August 9, 2024**, the **African Hydrogen Hub** posted [Unleashing Nigeria's Green Potential: Pioneering Waste-to-Hydrogen Solutions](#). The publication is the fifth in a series: a link to each publication is [attached](#).

One of the areas likely to provide growth is the use of waste to derive hydrogen. This has been recognized increasingly over time, taking us back to the wise words of Raven SR co-founder and CEO, Mr Matt Murdock, who said: "Our planet produces over 5.5 million tonnes of municipal solid waste and 16.5 million tonnes of agricultural waste every day. Theoretically, if we convert all this waste, we could produce over two million tonnes of renewable hydrogen per day – enough to satisfy over 25% of total global oil demand."

Tunisian Green Hydrogen: On **August 1, 2024**, [hydrogen today](https://hydrogentoday.info) (at <https://hydrogentoday.info>, under [Tunisia Signs an MOU with HDF Energy to Produce Hydrogen](#)) reported that the **Minister of Industry, Mines and Energy**, had signed a **memorandum of understanding (MOU)** with **HDF Energy** to provide the basis to assess the development of a **USD 3 billion** green hydrogen production projects in Tunisia.

As reported, initially, the project will involve the development of **1 GW** of onshore wind farm capacity, and **500 MW** of photovoltaic solar capacity, to provide renewable electrical energy to power electrolyzers to produce **65,000 metric tonnes** a year of green hydrogen. The green hydrogen produced will be exported to the EU using the SouthH₂ Corridor¹.

The development of this project is consistent with the [Tunisian Hydrogen Roadmap](#).

¹ By way of reminder, in [Edition 12](#) of P₂N₀ reported (under [Italy, Germany and Austria support SouthH₂ Corridor](#)) that: "On **May 14, 2023**, it was reported widely that the energy ministries of **Italy, Germany and Austria** signed a letter of support for the development of the **SouthH₂ Corridor** by **Snam, Trans Austria Gasleitung** and **Gas Connect Austria**, and German **bayernets GmbH**. The letters will support applications for [Important Project of Common European Interest \(PCI\)](#) status for each part of the **Corridor** under which funding support will be sought for the development of the **3,300 km Corridor** as part of the [European Hydrogen Backbone](#). As reported, the **Corridor** will have capacity to transport up to **4 million metric tonnes** of hydrogen from North Africa and Southern Italy.



Middle East and South Asia

AM Green Ammonia and Greenko take FID on green ammonia project: On **August 27, 2024**, it was reported widely that **AM Green Ammonia** and **Greenko** took a positive final investment decision to develop a **renewable fuels of non-biological origin (RFNBO)** production facility in **Kakinada, Andhra Pradesh, India**. The **RFNBO** production facility will produce green hydrogen (using 1.3 GW of electrolyser capacity) and combine that green hydrogen with nitrogen to produce green ammonia. As reported, Keppel, Uniper and Yara have signed term sheet for off-take.

CCS in KSA: On **August 15, 2024**, the good folk at the **Global CCS Institute** (at <https://www.globalccsinstitute.com>, under [Saudi Arabia steps up efforts to achieve ambitious CCS targets](#)) published an article (under its **Insights and Commentaries** series) on the goals and intentions of the Kingdom of Saudi Arabia. The article is excellent.

Oriana Power to develop electrolyser factory: On **August 7, 2024**, it was reported widely that **Oriana Power** intends to develop a **1 GW** capacity electrolyser factory in India. As reported, **Oriana Power** will manufacture electrolysers with alkaline pressurized technology.

Love me tender suite²: India intends to have installed 500 GW of renewable electrical energy capacity by 2030. Throughout **August 2024**, there was a good deal of activity, providing a positive indication that progress is being made to achieve this target.

- **Gujarat:** On **August 30, 2024**, **Gujarat Urja Vikas Nigam Ltd** issued a [Request for Selection \(RfS\) Document](#) in respect of the development of **400 MW / 800 MWh** of standalone **BESS**. The **RfS** contemplates a 12-year term offtake contract under a build, own, operate (**BOO**) model;
- **Maharashtra:** On **August 16, 2024**, the Indian State **Maharashtra Electricity Distribution Company** issued a [Request for Selection \(RfS\) Document](#) in respect of the development of **300 MW / 600 MWh** of standalone **BESS**. The **RfS** contemplates a 12-year term offtake contract under a **BOO** model;
- **Uttar Pradesh:** On **August 12, 2024**, the Indian State of **Uttar Pradesh** issued a [Request for Selection \(RfS\) Document](#) in respect of the development of **300 MW / 1.4 GWh** of standalone **BESS**; and
- **SECI:** On **July 31, 2024**, the **Solar Energy Corporation of India Limited (SECI)** issued a [Request for Selection \(RfS\) Document](#) in respect of the development of **2 GW** of **photovoltaic solar capacity** and **1 GW / 4 GWh** of **BESS** to be connected to the grid. In global terms, this is world scale procurement. The **RfS** contemplates a 25-year term offtake contract under a **BOO** model.

By way of progress check, across India, 9 BESS tenders have been issued (so far) in 2024, with 19 BESS tenders since procurement of BESS commenced.

² **By way of reminder:** [Edition 14](#) of **P2N0** reported that: “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.”

[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 fertilize production) and will be delivered to 11 delivery points across India”.

On **August 20, 2024**, the good folk at **Ember** published, [Drivers to Coal Phase-Down in India: Part 1 – Battery Cost Declines](#), with the headline of “India can STOP NEW COAL after 2030 if battery storage systems (BESS) COSTS FALL by 15% annually”. This assumes (some may say ambitiously) that renewable electrical energy can generate electrical energy to match up to 83% day-time load. BESS is required to cover non-day-time load. The publication is excellent.

Kuwait’s Energy Transition White Paper: In early **August 2024**, a White Paper, entitled [Kuwait’s Energy Transition](#) was published (the link is to the executive summary). The publication is well-worth a read, proving once again that each country has to find and to define its path to decarbonization.

Kingdom of Saudi Arabia continues energy transition on all fronts:

- **Role of KSA in Hydrogen Economy:** On **August 9, 2024**, **H₂-diplo** (Decarbonization Diplomacy) through **giz** (Deutsche Gasellschaft für Internationale Zusammenarbeit (GIZ) GmbH) published [Saudi Arabia’s Potential to Enhance its Position as a Key Goods’ Provider for the Energy Transition and the Upcoming Hydrogen Economy](#). The publication is excellent, placing the position of the Kingdom in the context of the energy transition domestically and internationally, in particular, progress on energy efficiency, renewable electrical energy generation and production of hydrogen, and initiatives in respect of all of them.

It is important to note that the means of, and initiatives to achieve, the energy transition detailed in the publication are not to the exclusion of other means and initiatives, noting the work that the Kingdom is currently doing on CCS/CCUS.

- **Revisiting geothermal in KSA:** In **April 2024** **KAPSARC** published [Geothermal – Saudi Arabia’s Next Energy Vector](#). The publication assessed (at a high level) the prospects of the development of geothermal electrical energy capacity, in particular in the west, and northwest, of the Kingdom. Given the emerging theme of various countries revisiting geothermal, the author re-read the publication, recalling that the publication considered the use of geo-exchange for cooling at a district level and residence-by-residence.



Linde takes FID on Blue Hydrogen project: On **August 27, 2024**, **Linde** took a positive final investment decision in respect of the development of a **USD 2 billion** blue hydrogen project in **Alberta, Canada**. The blue hydrogen production facility will supply blue hydrogen to **Dow**, with the blue hydrogen to be used by Dow to produce plastics.

NREL Offshore Wind Market Report 2024 Edition: On **August 22, 2024**, the US **Department of Energy (DOE)** released the [NREL Offshore Wind Market Report 2024 Edition](#). The publication provides a summary of the US and the global market for offshore wind farm (**OWF**) development. A headline from the publication is that the that OWF development program developed to a little over 80 GW, with 6 GW of OWF capacity under construction. The publication is well-worth a read.

Texas = Energy transition in real time: On **August 22, 2024**, [reneweconomy reported](#) on the continued demonstration of fitness for purpose of grid in Texas. The reporting from **reneweconomy** notes that average rate of penetration of photovoltaic solar and wind generation in Texas is 31%, and peak instantaneous wind and solar penetration 71%.

During the week ending **August 23, 2024**, gross load across Texas achieved a record peak of **86 GW**, with net-load also at a record peak of **70.9 GW**.

The key takeaway for the author is that even at these peak level prices, in real time, stayed tethered to USD 45 MWh during day-time hours. As the sun sets, load was matched by natural gas, nuclear and coal-fired power generation.

As the grid in Texas continues to develop, expect more BESS, considerably more BESS. Whether Texas or California is leading the way in comparison to each other, one thing is for sure, they are leading the way³.

BOEM goes live on:

- **Offshore Oregon:** On **August 30, 2024**, it was reported widely the **Bureau of Ocean Energy Management (BOEM)** had announced the lease auction of two **Wind Energy Areas** (each a **WEA**) offshore of the US State of **Oregon**. The two WEAs, **Brookings**, and **Coos Bay** will be auctioned on **October 15, 2024**. As reported, the two WEAs have a high combined OWF installed capacity of up to **3.1 GW**.
- **Central Atlantic 2:** On **August 21, 2024**, it was reported widely that **BOEM** had announced a 13.5 million-acre “call area” for the development of OWF capacity, in the second leasing around the coast of the US **Central Atlantic region (Central Atlantic 2)**.
- **First floating offshore wind lease:** On **August 20, 2024**, it was reported widely that **BOEM** had signed a research lease with the US State of Maine for floating offshore wind field capacity development.

Form Works: One of the privileges of writing about the energy transition is to follow the development of emerging technologies, and to see those technologies become commercialized. On **August 15, 2024**, it was reported widely that Form Energy is to develop **85 MW / 8,500 MWh** BESS in the US **State of Maine**. The **Form Energy** technology uses its **iron-air technology**, effectively, from iron to rust on discharge of electrical energy, and from rust to iron on recharging. The technology provides long-duration discharge, 85 MWh over 100 hours (and long-duration recharge, 85 MWh an hour for 100 hours). As reported, the BESS will be operational by 2027.

OWF lease areas awarded provisionally: On **August 14, 2024**, **Equinor** was awarded **OCS-A 0557** lease area (covering 101,443 acres, around 48 km from Delaware Bay), and **Virginia Electric and Power Co** (a Dominion subsidiary company) was awarded **OCS-A 0558** lease area (covering 176,505 acres, around 65 kms from Chesapeake Bay). As announced by **BOEM**, the leases areas have capacity for up to 6.3 GW of OWF⁴. This concluded **Central Atlantic 1**.

Great Plains Institute Brief: On **August 12, 2024**, the good folk at the **Great Plains Institute** published an article entitled [Examining the Safety Record of Carbon Dioxide Carbon Dioxide Pipelines](#). The article reminds us that there “are over 5,000 miles of CO₂ pipelines currently operating in the US”. The article aggregates data and information from the Pipeline and Hazards Safety Administration “to analyze the safety record of CO₂ pipelines in the US”. The article is well-worth a read. It is a source for comfort, not an invitation to complacency.

SB308 front and centre: On **August 12, 2024**, carbon capture (at <https://www.carboncapture.com>, under [The Game-Changer in Carbon Removal: What You Need to Know About SB308](#)), reported on the likely implications of SB308. The good folk at carbon capture note that SB308 “will create the first CDR compliance market in the world by

³ **By way of background:** [Edition 14](#) of **P2N0** reported, under “ERCOT Q2 47% renewable” that: “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.

⁴ **By way of reminder,** [Edition 14](#) of **P2N0** under **No drift on Atlantic Shores** reported that: “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, 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)**.”

requiring the US State of California to use CDR to counterbalance the CO₂ that emitters in the State continue to put into the atmosphere” to ensure that the State achieves net-zero by 2045⁵.

Hydrogen Hubs: In early **August 2024**, the **Appalachian Hydrogen Hub (ARCH2)** was awarded funding for initial planning and development activities across the US States of **Ohio, Pennsylvania, and West Virginia**⁶. This represents the continuation of the roll-out of the **Regional Clean Hydrogen Hubs Program** managed by the US **Department of Energy (DOE)**.

CCS + initiative – [US guide to an integrated carbon accounting infrastructure for the industrial carbon management market \(US Carbon Guide\)](#): During **August 2024**, **CCS + initiative** published the **USD Carbon Guide**. The **USD Carbon Guide** provides a basis for the methodology for carbon accounting the industrial sector.

SAF industry, state of play: At the end of **July 2024**, the US **Department of Energy (DOE) Bioenergy Technology Office and National Renewable Energy Laboratory** released the first **two** parts of their **Sustainable Aviation Fuel (SAF) State-of-Industry Report**, **[State of SAF Production Process](#)** and **[Hydroprocessed Esters and Fatty Acids Pathway](#)**.



APAC

China’s Energy Transition: On **August 29, 2024**, the **Information Office of the State Council of the People’s Republic of China** published a **[White Paper on China’s Energy Transition](#)**. The publication pulls together a number of strands, including governance, key to the energy transition in China. As will be apparent from other news items in this section of **Edition 15** of **P₂N₀**, having achieved its 2030 renewable electrical energy target in July 2024 (five and a half years ahead of schedule), China is now developing policy settings to decarbonization of other sectors.

Hygreen Energy to develop €2 billion factory in Spain: On **August 28, 2024**, it was reported widely that **Hygreen Energy** had announced plans to develop an electrolyser production facility in the **Andalusia Region of Spain**. As reported, **Hygreen Energy** will invest up to **€2 billion** in the development of the facility.

City of Shanghai rolls out offshore solar allocation plans: On **August 26, 2024**, it was reported widely that a plan has been released by the **Shanghai Municipal Development and Reform Commission** that contemplates that before the end of 2024, **1 GW** (and possibly more) of **offshore solar capacity** would be allocated⁷.

⁵ To illustrate how **SB308** will work, the good folk at **carbon capture** state: “... if [the State’s] emissions are equivalent to 300 million [tonnes] in 2030 (they were 381 million tonnes in 2021), [the State] would be required to offset at 3 million tonnes with CDR. If [the State] has 75 million tonnes of CO₂ equivalent remaining in 2045, it would be required to use CDR to remove at least 75 million tonnes to cover all remaining emissions”.

⁶ **Edition 14** of **P₂N₀** reported as follows:

- 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 (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 2023⁶.
- On **July 24, 2024**, the **Pacific Northwest Hydrogen Association (PNWH2)** executed a cooperation Agreement with the US **DOE**.

⁷ By way of reminder: **Edition 14** of **P₂N₀** reported as follows: “**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**.”

Danish CCUS Roadmap 2024: On **May 21, 2024**, INNO-CCUS published [Direction 2050 – Danish CCUS Roadmap 2024](#). The publication provides a great summary of each element of the carbon value chain to, and within, Denmark. The publication is excellent, whether or not involved in projects in Denmark.

Eleven million metric tonnes of H₂ production capacity under development in China: On **August 23, 2024**, the good folk at [hydrogeninsight](#) reported on a publication from the **Orange Research Institute**. As reported, the publication provides helpful insights, critically, insights in respect of the proposed use of the H₂, with a over 90% of the H₂ produced to be used for chemical and hydrogen based fuel production (4.9 million metric tonnes of methanol production, 3.1 million metric tonnes of ammonia and a little less than 1 million metric tonnes for aviation fuel), around 3% for power generation (and storage), a little less than 3% to be used as fuel for transport, with the balance to be used to decarbonise difficult to decarbonise sectors.

Energy transition in the top end:

- **Sunshining ahead of the rainy season:** During the third week of **August 2024**, the Federal Government of Australia announced that it had given environmental approval for the first stage of the **SunCable project**. The first stage involves the development of **4 GW** of renewable energy capacity to supply renewable electrical energy to Darwin and its surrounds, including the **Middle Arm Sustainable Development Precinct**.
- **Middle Arm Sustainable Development Precinct:** On **August 5, 2024**, the **Northern Territory Government** and **Vopak Terminals Australia** announced that they had signed a [memorandum of understanding](#) to provide a framework to assess the feasibility of the development of common shared infrastructure to receive and to store CO₂, as one of the initiatives as part of the **Middle Arm Sustainable Development Precinct**.

Australia to update its NDC: On **August 22, 2024**, RepuTex Energy (at <https://www.reputex.com>, under [Looming Large – How will Australia’s new 2035 target re-shape the Safeguard Mechanism, and when?](#)) reported that before the end of the first reporting cycle under the **Safeguard Mechanism**, Australia will update its **National Determined Contribution (NDC)**⁸ under the Paris Agreement. It is expected that the updated NDC will increase materially Australia’s commitment to avoid, reduce and remove GHG emissions.

CCS in Japan and Singapore: On **August 21, 2024**, **The Business Times** (at www.businesstimes.com.sg, under [Singapore, Japan to deepen cooperation on carbon capture and storage technologies](#)) reported that Japan and Singapore had signed a **memorandum of cooperation (MOC)**. As reported, under the **MOC** Japan and Singapore will exchange best approaches and practices for the development of carbon capture, and the entire carbon value chain, including the development of cross-border carbon storage.

CCS in Malaysia: On **August 20, 2024**, it as reported widely that **ADNOC, Petronas** and **Storegga** had signed a **Joint Study and Development Agreement** in respect of the prospective development of saline aquifer capacity in Penyu Basin, offshore of Peninsular Malaysia. As reported, saline aquifer has capacity to store up to **5 million metric tonnes** of CO₂. This represents real progress in the development of the CO₂ storage capacity of Malaysia.

CCS in Western Australia: On **August 20, 2024**, **CCIWA** (Chamber of Commerce and Industry WA) published [Capturing our Future: Why Carbon Capture is critical to Australia’s Energy Transition](#). The headline arising from the publication is that carbon capture may result in **AUD 79.5 billion** of economic benefits for Western Australia between 2030 and 2050. While Western Australia centric, the publication is well-worth a read.

Green hydrogen in green headlines: On **August 19, 2024**, it was reported widely that the **Government of Indonesia** intends to invest up to **USD 25 billion** by **2060** to develop the green hydrogen sector within Indonesia, to produce a little under **10 million metric tonnes** of green hydrogen annually.

⁸ **Nationally Determined Contributions**, or **NDCs**, are countries’ self-defined national climate pledges under the Paris Agreement, to contribute addressing climate change so as to limit the average increase in global temperatures to 1.5°C and 2°C.

Green hydrogen green light: On **August 14, 2024**, it was reported that **LONGi** is to develop a green hydrogen production facility, powered by 1.05 GW of renewable electrical energy and 157.5 MW / 315 MWh of BESS to produce **54,000 metric tonnes** of green hydrogen a year in **Inner Mongolia**. As reported, the **USD 977 million** integrated development project will **commence construction in 2025**, with **first production to commence in 2026**.

Indonesia's continued expansion of renewable capacity: On **August 14, 2024**, the busy folk at **Ember** published [Indonesia's expansion of clean power can spur growth and equality](#). The publication is in anticipation of the launch of a new **National Energy Policy (NEP)** for Indonesia. The publication is helpful in outlining the potential that could be realised across Indonesia from a NEP that puts renewable electrical energy development front and centre.

AREH and Murchison Green fast-tracked: On **August 13, 2024**, the **Federal Government of Australia** announced that the **26 GW Australian Renewable Energy Hub (AREH)** and **6 GW Murchison Green** projects had been given major project status by the **Major Projects Facilitation Agency**. While not unexpected, it is good to see this progress.

First Korean LCO₂ carrier: On **August 13, 2024**, [assafinaonline](https://assafinaonline.com) (at <https://assafinaonline.com>, under [HD Hyundai Mipo starts building Korea's first LCO₂ carrier](#)), reported that **HD Hyundai Mipo** had commenced steel cutting for a **22,000 m³** liquified carbon dioxide (**LCO₂**) carrier. As reported, this is the first of four **LCO₂ carriers** ordered by **Capital Maritime Group**, with each LCO₂ carrier to have three "Bi-lobe type carbon dioxide storage tanks" to store the CO₂ at 5 bar and -55 °C. As noted by the author before, this configuration will allow the transportation, separately, of both ammonia and LPG.

No feigning: On **August 12, 2024**, the world's largest hydro pumped storage complex, the **3.6 GW Fengning Pumped Storage Project**, commenced commercial operation, operated by **State Grid Corporation of China (SGCC)**. SGCC has long led the world in the development and development of pumped storage across its transmission network to provide system integrity and stability.

The Philippines and Singapore align around Article 6: On **August 15, 2024**, the **Philippines** and **Singapore** [signed a memorandum of understanding \(MOU\)](#) in respect of **Article 6** of the **Paris Agreement**. This reflects the continued cooperation between the countries in respect of climate change and environmental matters, also it reflects Singapore's continued focus on the development of bilateral agreements to allow it to realise the benefits of the operationalization of **Article 6**⁹.

Malaysia electrical energy profile: On **August 7, 2024**, the good folk at **Ember** (at <https://ember-climate.org>, under [Solar and grid flexibility for Malaysia's future electricity affordability and security](#)) provided a helpful perspective on the current electrical energy profile of Malaysia, and how that profile (and the increasing electrical energy needs of the country) may be met by the development of a mix of renewable electrical energy solutions over time. The publication is informative.

⁹ **Singapore getting ahead of the wave**^[1]:

- 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. These policy settings are being backed by practical "on the ground" engagement to identify specific projects that may be developed to allow the realisation of ITMOS. For example, during July the Ministry of Trade led a carbon credits mission to Ghana.

^[1] **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.

China to publish 70 carbon reduction standards: On **August 8, 2024**, China's **NDRC (National Development and Reform Commission)** announced plans, under [Notice on Action Plan for Further Strengthening the Construction and the Standard Measurement of System for Carbon Peak and Carbon Neutrality \(2024-2025\)](#), to establish plans and standards to achieve GHG emission reductions.

By way of an overview (at a very high level):

- by the end of 2024, it is intended to provide carbon measurement and accounting standards across all industries, in each case tied to carbon credits and carbon offsets; and
- during 2025, it is intended to ensure compliance with energy consumption and energy efficiency methodologies to match those use internationally.

This initiative should be considered in the context of the assessment that China achieved peak GHG emissions in 2023 (two years ahead of the previous best estimate for when peak GHG emissions would be achieved). Also, and as foreshadowed in previous editions of P₂N₀, in July 2024, China has achieved the targets set in December 2020 for the roll-out of renewable electrical energy capacity for 2030 of 1,200 GW of installed capacity.

China is showing no signs of slowing down on the roll-out of renewable electrical energy, and the reduction standards tend to indicate that now there will be an acceleration in decarbonisation.

Consistent with the ongoing roll-out of policy settings, on **August 23, 2024**, China announced that the **National Center for Climate Change Strategy and International Cooperation (NCSC)** to accept applications for the registration of projects as CCER projects. This followed the issue on **August 21, 2024**, of a list of eligible verification organisations for CCER projects.

Geothermal on the agenda in Indonesia: At the start of **August 2024**, there were a number of reports that the Geological Agency of Indonesia is continuing to assess the geothermal of Indonesia to use geothermal heat sources to provide heat and electrical energy to contribute to the reduction in GHG emissions and achieving net-zero by 2060. As reported, Indonesia has 18 geothermal power plants, with 61 of the identified 362 potential sources of geothermal energy having been assessed.

Republic of Korea offshore wind plans: On **August 8, 2024**, it was reported widely that the **Ministry of Trade, Industry and Energy (MOTIE)** in **South Korea** is to undertake a series of tenders for the development of offshore wind field capacity offshore, fixed bottom and floating to be auctioned under separate auction processes. As reported, that tenders will be undertaken in October 2024, with more to be undertaken through Q2 of 2026, and will be weighted equally between price and non-price selection criteria.

The tenders will be undertaken under the reverse auction process with up to **8 GW** of fixed bottom offshore wind field capacity to be awarded. Another process will be undertaken for the development of floating offshore wind field capacity.

Taiwan awards 2.7 GW of OWF capacity: At the end of the first week of **August 2024**, following an auction process, **Taiwan** awarded five **OWF** projects, with combined project installed capacity of **2.7 GW**.

The five projects are: 1. **Copenhagen Offshore Partners (Formosa 2, 600 MW)**; 2. **Corio Generation / TotalEnergies (Formosa 3, 360 MW)**; 3. **Enervest (Deshuai, 240 MW)**; 4. **Shinfox Energy (Youde, 700 MW)**; and 5. **Synera Renewable Energy (Formosa 6, 800 MW)**.

Autoflow-Road from Osaka to Tokyo: On **August 5, 2024**, the good folk at **euronews** (at www.eurocnews.com, under [A 500 km conveyor belt road from Tokyo to Osaka could help Japan slash transport emissions](#)) reported on the plans of the **Ministry of Land, Infrastructure, Transport and Tourism (MLIT)** to automate roads, using driverless EVs travelling down central reservations of, on the hard shoulders, of highways, to carry the equivalent of 25,000 trucks a day. Buckle-up, this looks like a long road!

LFO loaded: On **August 5, 2024**, **TotalEnergies Marine Fuels** supplied **700 metric tonnes** of **100% biofuel** or **B100 (LFO)** to a **Hyundai Glovas roll-on-roll-off car carrier** in Singapore. The **LFO** comprised methylester (**UCOME**), having been certified under the **International Sustainability & Carbon Certification (ISCC)** system.

Arking Up: On August 1, 2024, **The Energy Storage Report 2024** (at <https://www.energy-storage.news>, under [Ark Energy developing 2.2GWh 8-hour co-located BESS in Australia](#)) reported on the plans of **Ark Energy** to develop **500 MW photovoltaic solar-plus-storage project (S-P-S project)** in Mytle Creek, in the Richmond Vallely, northern New South Wales. The **S-P-S project** will include a **275 MW / 2,200 MWh BESS**.



Europe and the UK

German Government plans CCS / CCUS funding program: On August 23, 2024, the **Federal German Government** announced plans to provide up to **€3.3 billion** to fund decarbonization initiatives across German industries. In context, Germany is committed to achieving net-zero GHG emissions by 2045, and German industry has not been decarbonizing at a rate consistent with this target. The use of CCS / CCUS is now recognized as an integral part achieving this target. As reported, from the launch of the program in **September 2024** German corporations and other organizations will have three months to propose projects for funding support.

German gigafactory to open in September: On August 21, 2024, **hydrogeninsight** (at <https://www.hydrogeninsight.com>, under [German electrolyser maker to open gigafactory at end of September to “meet future green hydrogen demand”](#)) reported that H-Tec Systems is to commence manufacture of proton-exchange-membrane (PEM) electrolysers at its **5 GW** a year gigafactory by the end of September 2024.

Dutch auction: On August 20, 2024, **h2-view** (at <https://www.h2-view.com>, under [Dutch Government to hold \\$1billion hydrogen auction in October](#)) reported that the Dutch Government is to commence auction for the procurement of green hydrogen¹⁰ on **October 15, 2024**, and conclude the auction process by the end of October. The auction will provide up to **€998 million** in subsidies¹¹ to allow the development of 200 MW of electrolyser production capacity. As reported previously in [Edition 14](#) of P₂N₀, it is contemplated that the subsidies will provide up to 80% of the capital cost of the development of the capacity.

CDR onshore and CO₂ storage hub in EU: On August 19, 2024, **euronews** (at www.euronews.com, under [EU to get its first onshore carbon removal and storage facility in France](#)) reported that:

- **C-Questra** and **RepAir Carbon** are to develop an onshore **direct air capture (DAC)** project to be located in the Île-de-France region in north central France. As reported, the **DAC project** will remove up to **100,000 metric tonnes** a year of CO₂ from the climate system by 2030;
- **France, Greece, and Italy**, as part of the **Mediterranean Carbon Capture and Storage (CCS) Strategic Plan**, intend to develop a commercial-scale CO₂ storage hub.

SSEN and heard: On August 13, 2024, the development of a **bi-directional sub-sea 510 km HVDC** was given the go head by regulator, Ofgem (under its fast-track approval process). The HVDC will run from Peterhead, Aberdeenshire, Scotland, with landfall at Bridlington, in East Yorkshire, to Drax, North Yorkshire, England, with a capital cost of up to GBP 4.3 billion.

Topsoe SOEC 500 MW factory to open by end of 2024: On August 13, 2024, the **Hydrogen Council** (at <https://hydrogencouncil.com>, under [Topsoe’s new SOEC factory: A pioneering effort at hydrogen production](#))

¹⁰ To be eligible to any subsidy, bidders must prove that the production capacity will comply with the requirements for renewable fuels of non-biological origin (RFNBOs).

¹¹ **By way of reminder:** [Edition 14](#) of P₂N₀ reported that “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.”

[comes on line](#)) provided an update on the development of the Topsoe solid oxide electrolyser cell (SOEC) factory in Herring, Denmark.

Successful bidders announced for 5.5 GW of OWF capacity: On **August 12, 2024**, **Luxcara** and **RWE** were announced as the successful bidders for OWF capacity in the German sector of the North Sea. **Luxcara** was awarded area **N-9-3** (with up to **1.5 GW** of capacity), and **RWE** was awarded areas **N-9-1** and **N-9-2** (each with up to **2 GW** of capacity).

Fluxys up flexes: On **August 12, 2024**, **Fluxys** announced that it had increased its planned capital investment to develop a hydrogen pipeline network, with plans to spend up to **€2 billion** by 2033. More broadly across Belgium, this is part of a **€5.9 billion** capital investment plan.

Federal German Government adopts CMS: On **August 6, 2024**, the Cabinet of the Federal German Government adopted the **Carbon Management Strategy (CMS)** for Germany, which will facilitate the capture, transportation, and storage (offshore) of CO₂. While CO₂ storage onshore is not provided for under the Federal **CMS**, Federal States may allow storage within their States. Use of CCS is not permitted in respect of coal-fired power generation capacity, with the policies to phase-out / retire coal-fired power generation capacity remaining.

Role of Great British Energy (GBE): At the start of **August 2024**, the good folk at **The Oxford Institute for Energy Studies (OIES)** published [The UK's Decarbonisation Objectives and the Role of Great British Energy](#). The publication considers the policy settings of the UK Government and an assessment of how **GBE** may contribute to the achievement of those policy settings. While it is (very) early days, the publication provides a helpful "scene setter".

HELPFUL PUBLICATIONS AND DATA BASES

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

- **Environmental life cycle assessment (LCA) across Europe:** On **May 22, 2024**, the **European Commission, Joint Research Centre (JRC)** published [Environmental life cycle assessment \(LCA\) comparison of hydrogen delivery options within Europe](#). The publication is excellent, providing a balanced and helpful perspective across the range of energy carriers / vectors, including ammonia, liquid organic hydrogen carriers (LOHC), methanol and synthetic natural gas (SNG).
- **Ammonia Availability:** In **May 2024**, the good folk at **DNV** published [Availability of Green And Blue Ammonia in 2030 to 2050](#). The publication is well-worth a read.
- **H₂ ready gas-fired power generation:** One of the emerging themes over since the Q3 of 2023 has the development of new natural gas-fired power generation capacity, and that, overtime, that gas-fired power generation capacity will be ready to combust hydrogen rather than natural gas. Of particular interest has been the thinking and planning emerging from Germany, Singapore¹², the UK and the US.

On **August 19, 2024**, **Siemens Energy** published **Decarbonization pathways for gas turbines, White Paper**, providing a helpful outline for the role of gas turbines. The publication is well-worth a read.

On **August 5, 2024**, the **Institute for Energy Economics and Financial Analysis (IEEFA)** published [Hydrogen: Not a Solution for Gas-Fired Turbines](#). The publication is worth a read, providing a counterpoint to some of the thinking and planning that has emerged.

- **Decarbonizing the Iron Steel Industry:** During **August 2024**, a good number of publications were published, and the author revisited a good number of publications, and the following provides a sample:
 - [Energy and Exergy Analysis of an Improved Hydrogen-Based Direct Reduction Shaft Furnace Process with Waste Heat Recovery](#), authored by Yuzhang Ji, Zhongyuan Chi, Tianchi Jiang, Xin Liu, and Weijun Zhang,

¹² In addition to the procurement to develop new gas-fired capacity, on August 5, 2024, the EMA, Singapore, announced that it was undertaking a study to assess the policy settings and legal and regulatory settings that to assess if, and, if so, how, low-carbon hydrogen may be sourced as feedstock for up to 50% of the electrical energy needs of Singapore by 2050. Around 95% of the electrical energy requirements are matched by electrical energy sourced from gas-fired capacity.

providing a helpful analysis of the use of hydrogen-based direct reduction shaft furnace (**HDRSF**) technology. The publication is both accessible and helpful to the non-technical reader.

- [Decarbonizing the Steel Industry](#), authored by **Osama Fawzy Georgy Henien**, providing a helpful analysis of the world iron and steel industry, and the decarbonization of it.

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.

The materials in this communication are made available by Baker Botts L.L.P. for informational purposes only and are not legal advice. The transmission and receipt of information contained in this communication do not form or constitute an attorney-client relationship. If these materials are inconsistent with the rules governing attorney communications in a particular jurisdiction, and the materials result in a client contact in such jurisdiction, Baker Botts may be prohibited from assuming representation of the client contact.

Under the rules of certain jurisdictions, this communication may constitute 'Attorney Advertising'.

© Baker Botts L.L.P. 2024. All rights reserved.

Learn more about Baker Botts' Energy Transition Practice