P2N0

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

Welcome to the **Edition 20** of **P_2N_0** covering the drive to reduce greenhouse gas (**GHG**) emissions to net-zero (**NZE**). **P_2N_0** identifies significant news items globally, reporting on them in short form, focusing on policy settings and project developments. This **Edition 20** covers news arising during the period **November 1** to **November 17**, **2024**.

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

Edition 21, covering **COP-29**, will be published before the end of **November 2024**. During **December**, **Edition 22** will be published providing a look-back over **2024**. **Edition 23** will be published on **January 17**, **2025**.

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

Content

HEADLINES FROM NOVEMBER 1 TO 17, 2024

Opening observation: After two months of a considerable number of news items packed into **Editions** 16, 17, 18, and 19 of **P_2N_0**, in the week (or so) leading up to **COP-29** the number of news items reduced. This is consistent with the week ahead of each **COP** since **COP-25**. Also, with the exemption of reporting on the consensus in respect of **Article 6.4** of the Paris Agreement, this **Edition 20** of **P_2N_0** does not cover news arising from **COP-29**. News arising from **COP-29** will be covered in **Edition 21**. As a result, this **Edition 20** is a little shorter than recent editions.

Shell wins appeal: On **November 12**, **2024**, the **Court of Appeal** in **The Hague** ruled in favour of **Royal Dutch Shell** (**Shell**) in the appeal against the decision in **Milieudefensie at al** v. **Royal Dutch Shell**. As noted in **Edition** 12 of **P_2N_0**, **Shell** appealed against the decision of the **District Court of The Hague**: the decision required **Shell** to reduce the net CO_2 emission of the Shell by at least 45% by 2030, compared to 2019 levels.

While the Court of Appeal found that corporations have a duty under the law of the Netherlands to mitigate climate change through a reduction in GHG emissions, the obligation of **Shell** is not an absolute obligation to reduce its GHG emissions globally by 45% by 2030, compared to 2019 levels.

As noted in by the author at the time of the original decision, it is for the legislature to set and to implement policy settings in respect of GHG reductions rather than the courts. While it is not usual for the author to provide editorial comment, the decision of the Court of Appeal represents a clear basis for orderly regulation of GHG emissions.

Attached is a **link** to the decision of the Court of Appeal.

Japan support scheme outlined: On **October 23**, **2024**, the **Japanese Government** released details of its support scheme under the Hydrogen Society Promotion Act.

There are three forms of support, two financial, one administrative: **1.** Contracts for Difference (**CfDs**), with the Government to enter into **CfDs** to cover the delta between the clean hydrogen and clean ammonia and a reference price for grey hydrogen and ammonia; **2.** Support for FEED and EPC costs for share infrastructure; and **3.** Exemptions from approvals and permits that might otherwise be required.

If seeking either or both means of financial support, support must be sought by a consortium that includes both a supplier of clean hydrogen or ammonia, and the end user of the clean hydrogen or ammonia.

COP-29 gets off to a flying start:

While **Edition 21** of **P_2N_0**, covering **COP29**, will be published before the end of **November 2024**, on **November 11**, **2024**, COP-29 get off to a flying start with consensus around **Article 6.4** of the **Paris Agreement**, paving the way for the development of a uniform market in carbon credits, with [emissions units] issued under Article 6.4 to provide the benchmark for carbon credits globally. More of this theme in **Edition 21** of **P_2N_0**.

For those following the agenda for **COP-29**, progress on the development of carbon markets was close to the top of the agenda. Also on the agenda are **Climate Adaptation and Resilience**, **Climate Finance for developing countries** and **Climate Mitigation** (including increased commitments of countries under their NDCs).

The issues on the agenda for **COP-29** are considered in detail in a study commissioned by the European Parliament entitled **Issues at stake at the COP29 UN Climate Change Conference in Baku**. This is one of three studies commissioned by the **European Parliament**, each study relating the each of the **Big Three Climate Conventions**[1].

As noted, **COP-29** is bookended by the other two **Big Three Climate Conventions**, **COP-16** is the **Sixteenth meeting of the Conference of Parties to the Convention on Biological Diversity** and the other **COP-16** being the **Sixteenth session of the Conference of Parties to the UN Convention to Combat Desertification** It is worth reminding ourselves that together the three COPs are part of a coherent and connected framework to combat climate change.

By way of reminder: In 1992, the **Earth Summit** was held in Rio de Janeiro, Brazil. At the **Earth Summit**: the **United Nations Framework Convention on Climate Change** (**UNFCCC**); and the **United Nations Convention on Biological Diversity** (**CBD**), were opened for signature. Also, at the **Earth Summit**, the **United Nations Convention to Combat Desertification** (**UNCCD**) was on the agenda and was opened for signature from 14 October 1994 to 13 October 1995. In 1992, the **Secretariat to the UNFCCC** was established. The **UNFCCC**, **CBD**, and **UNCCD**, are referred to as the **Rio Conventions** (and to many the **Big Three Climate Conventions**). The **Rio Conventions** are intended to work together, and it is recognized that they need to do so. In **2001**, a **Joint Liaison Group** was established to provide for exchange of information and thinking, including working on climate change reports. The **Rio Conventions** reflected increasing concerns about the degradation of the climate system, and the resulting impact on the sustainability of human activities. In addition, the **Rio Conventions** resulted in the **Sustainable Development Goals** (**SDG**). There are 17 SDGs, and the monitoring and achievement of the SDGs is administered by the **United Nations Environmental Program**.

Ahead of **COP-29**:

- **WETO 2024**: On **November 7**, **2024**, the **International Renewable Energy Agency** (**IRENA**) published its **World Energy Transitions Outlook 2024**, as usual just in time for COP. **WETO 2024** presents a pathway to achieve the 1.5OC target. As usual, **WETO 2024** is compulsory reading.

- the **Yearbook of Global Climate Action 2024** was published by the **Marrakech Partnership for Global Climate Action**.

In addition to **WETO 2024**, **IRENA** published:

- **A Quality Infrastructure Roadmap for green hydrogen** on **November 16**, **2024**;

- **Climate Action Support 2024** on **November 15**, **2024**; and

- **Enabling global trade in renewable hydrogen and derivative commodities** on **November 14**, **2024**.

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[1] Ahead of **COP-16**, the **European Parliament** commissioned a study entitled the **Issues at stake at the COP-16 Convention on Biological Diversity**.

As yet the author has not had a chance to read these publications in detail. The said, from a quick skim online, they look well-worth a read.

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

Energy Demand increasing: On **November 7**, **2024**, **Recharge** (at **https://www.rechargenews.com**, under **Data centre power demand outstripping renewables supply, warns Acciona director**) reported on the implications of "power demand at data centres and artificial intelligence skyrockets". Under the reporting it is stated that:

> "The booming power demands of AI data centres could outstrip that of the entire US by 2050 [i.e., demand for electrical power exceed that of the US] and represent a near-trillion-dollar opportunity for the renewables sector in the US and Europe alone …".

Previous editions of **P_2N_0** have reported on these dynamics. The key theme is that the development of renewable electrical energy capacity is being outpaced by the growth in the demand for electrical energy. Further, renewable electrical energy does not yet provide the necessary security of supply, with the result that natural gas and nuclear energy are likely to become key to matching supply with the demand for electrical energy to power data centres. As now being modelled, some planned data centres will have demand of 1 GW of electrical energy, with 1 GW of data centre development cost equating around USD 15 billion.

These dynamics are likely to become ever more real as capital is deployed (at increasing pace) to develop AI infrastructure, i.e., data centres, electrical energy generation and transmission infrastructure. This will support the development of AI and cloud computing around the world. Most recent estimates place the potential capital deployed for these purposes as likely to reach **USD 1 trillion** in the US by **2030**.

Energy Efficiency 2024: On **November 7**, **2024**, the **International Energy Agency** (**IEA**) published **Energy Efficiency 2024**.

For a number of years, the **IEA** has identified **Energy Efficiency 2024** as one of the six means to address climate change. (The other principal five means are: Renewables (power and direct uses); Electrification of end use (direct); Hydrogen and its derivatives; Carbon capture and storage (CCS), and CCUS in industry; and Bioenergy with bio energy with carbon capture and storage (BECCS) and other carbon removal measures.) At **COP-28** (held in Dubai, UAE in 2023) close to 200 countries agreed to work to double the average rate of energy efficiency by 2030 – see **Edition 6** of **P_2N_0**.

The publication reports on progress on improvements from the agreement at **COP-28**. The publication is well-worth a read in its full form. For those seeking to understand the headlines, the **Executive Summary** is very helpful.

As might have been expected, the rate of progress is behind the target set out **COP-28**. One of the reasons for this is that policy settings at a country-by-country level need to be developed or developed further, and then implemented. One of the themes that has emerged during 2024 is the concept of policy setting and implementation lag.

Another theme that has emerged during 2024 is enact policy settings and implementation at domestic national country levels that impose obligations at a country and enterprise level. In the context of energy efficiency, this may be regarded as key.

As if to illustrate this point, the **Saudi Energy Efficiency Center** (**SEEC**) published the second edition of its **Energy Saving Measurement & Verification (M&V) User Guide for the Kingdom of Saudi Arabia**, providing the basis for the introduction of energy efficiency implementation. The publication is excellent.

Clean Energy – Market Monitor – November 2024 (**CEMM**): On **November 4**, **2024**, the **IEA** published its **CEMM**. The **CEMM** monitors the development and deployment of clean energy technology by region and type of technology. The **CEMM** is well worth a read.

TotalEnergies Energy Outlook 2024: On **November 4**, **2024**, **TotalEnergies** published its Energy Outlook 2024. As with BP and Shell (in their outlooks and reports), **TotalEnergies** provides its perspective on the state of the supply and demand for energy in the context of the energy transition. The publication is excellent and well-worth a read, and a re-read.

The **TotalEnergies** perspective is broad, including considering the need for increased access to energy to meet development needs, and the need to increase the pace at which the energy transition is progressing. The publication considers three scenarios: **Trends**, **Momentum**, and **Rupture**.

Africa

ACWA Power and Envision winding up: On **November 7**, **2024**, **Recharge** (at https://www.rechargenews.com, under China's Envision to supply giga-scale wind farm in Egypt) reported that China's **Envision** is to supply wind-turbines for the development by **ACWA Power**, **Hassam Allam Utilities** and **Meridiam**, working together with the **European Bank for Reconstruction and Development**, to develop their **1.1 GW** wind project in the **Gulf of Suez**, **Egypt**.

Middle East and South Asia

India making considerable progress in renewables: On **November 13**, **2024**, **The Economic Times of India** (at https://m-economictimes-com.cdn, under Renewables share at 46 pc in total 453 GW power generation capacity: MNRE) reported that India's installed renewable energy capacity had reached **203.18 GW** at the end of **October 2024**.

As reported, **24.2 GW** of renewable electrical energy capacity has been installed since the end of October 2023.

While not wishing to rain on the parade of the headline writer, it is important to understand that 1 GW of installed renewable electrical energy does not equate to 1 GW of dispatchable energy, rather (in ideal conditions) it gives rise to around 250 MW of dispatchable electrical energy.

Masdar to develop 2 GW of wind farms:

On the sidelines of **COP-29**:

- On **November 12**, **2024**, Masdar announced that it had signed a **Project Investment Agreement** in respect of the development of a **1 GW** wind farm in the **Jambyl region** of **Kazakhstan**;

- On **November 13**, **2024**, Masdar announced that it had signed a **Joint Study Agreement** with the Ministry of Energy for the development of a **1 GW** wind farm in **Mingbulak, Uzbekistan**.

KSA renewable energy procurements continue:

On **November 5**, **2024**, it was reported widely that the **Saudi Power Procurement Company** (**SPPC**) is in the process of pre-qualifying bidders for the auction of **four grid-scale battery electrical energy storage** (**BESS**) projects, each of **500 MW** / **2 GWh**.

As reported, in aggregate, the four **BESS** projects will provide **2 GW** / **8 GWh** of electrical energy storage capacity.

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

> "On **September 24**, **2024**, the **Saudi Power Procurement Company** (**SPPC**) released a **request for qualification** (**RfQ**). The **RfQ** is the **sixth procurement undertaken** by the **SPPC**, as part of the **National Renewable Energy Programme** (**NREP**).
>
> As reported, five projects are contemplated: **1**. the **1.5 GW Dawandi Wind IPP**, to be located in Riyadh; **2**. the **1.4 GW Najran Photovoltaic Solar IPP**, to be located in Najran; **3**. the **600 MW Samtah Photovoltaic Solar IPP**, to be located in Jizan; **4**. the **600 MW Ad Darb Photovoltaic Solar IPP**, to be located in Jizan; and **5**. the **400 MW As Sufun Photovoltaic Solar IPP**, to be located at Hail."

Edition 19 of **P_2N_0** reported that:

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

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

> To provide some perspective on the roll-out of **KSA** Future Investment Initiative, at the end of **October 2024**, **31.2 GW** of renewable electrical energy projects had been tendered for development, of which **6.16 GW** of installed capacity has been developed and deployed and grid-connected, **12.74 GW** of renewable electrical energy capacity is under development, and a further **12.3 GW** of planned renewable electrical energy capacity is under tender.
>
> It is understood that by the end of 2024, **44.4 GW** of renewable energy projects will have been tendered, and that around **20 GW** of new renewable electrical energy capacity development will be tendered year on year, with the plan to have **130 GW** of installed capacity by 2030.

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

Prioritizing Sustainability in the Middle East and North Africa (**PSMENA**): The **World Economic Forum** published **PSMENA** during the first part of **November 2024**.

The publication helps frame sustainability and its importance within the region and is worth a read.

Americas

During the first two weeks or so of November 2024, there was limited news items that may have been regarded as significant.

Edition 23 of **P_2N_0** will cover significant news items arising from the start of December 1, 2024, to January 15, 2025, including in respect of the new policy settings that are likely to emerge in the US.

APAC

A bullet train for power: On **November 15**, **2024**, the **BBC** published a piece by **Xiaoying You** under the **title** **A bullet train for power"; China's ultra-high-voltage electricity grid**. The piece is excellent.

The piece provides a clear narrative as to the progress that China has made (producing more clean energy than any other country, and then some) and is continuing to make, including in the development and deployment of high voltage direct current (**HVDC**) and ultra-high voltage direct current (**U-HVDC**) transmission to transmit electrical energy over distance from the point of generation to the point of use.

For China with world class hydro and radiative heat resources located at distance (sometimes at considerable distance) from the point of load, the use of **HVDC** and **U-HVDC** is essential.

Indonesia shares plans for renewable energy roll-out: On **November 11**, **2024**, **Climate Envoy for Indonesia**, **Hashim Djojohadikusumo** announced that Indonesia intends:

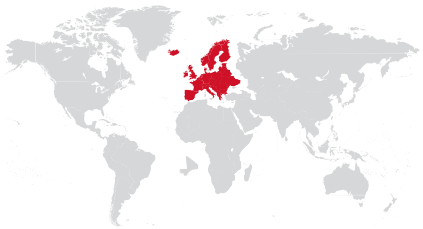
- to develop **100 GW** of electrical energy capacity through 2040, of which **75 GW will be renewable electrical energy**, representing a little more than the current installed electrical energy capacity of Indonesia at **90 GW**;
- to roll-out **75,000 kms** of new transmission line capacity with PLN (the state-owned integrated energy company to develop this capacity); and
- to reforest **12.7 million hectares** of degraded forest areas.

China classes hydrogen as an energy source: On **November 11**, **2024**, **Hydrogeninsight** (at **www.hydrogeninsight.com** under **Major boost for hydrogen in China as new law classes it as energy resource, rather than hazardous chemical**). As reported by **hydrogeninsight**, on **November 8**, **2024**, hydrogen has been

officially classed as an energy resource for the first time in a new Energy Law passed. The new Energy Law, among other things, regulating planning, development, storage, and use, and emergency response in relation to hydrogen as an energy resource. This is expected to result in defined development plans at the national, provincial, and municipal levels, leading to more orderly growth and development of hydrogen projects.

Global Wind Energy Council (**GWEC**): On **November 8**, **2024**, the **GWEC** presented its **Vietnam Offshore Wind Competitive Investor Selection Study** to the **Ministry of Industry and Trade** in **Vietnam**. The publication provides a helpful overview of the offshore market, and the reasoning of GWEC to promote a competitive process. The publication is helpful both generally and specifically for Vietnam.

Hexa Renewables commissions world's largest floating offshore solar project: On **November 6**, **2024**, **PV-Magazine** (at **https://www.pv-magazine.com**, under **Hexa Renewables commissions world's largest offshore solar plant**) reported that **Hexa Renewables** had commissioned its **440 MW photovoltaic solar array**, located within four areas. The array is located offshore of the west coast of Taiwan (in Changhua County) and covers 347 hectares.



Europe and the UK

UK NDC 81% by 2035: On **November 12**, **2024**, **UK Prime Minister**, Sir Keir Starmer, announced that the UK will increase its NDC from **78%** to **81%** by **2035**.

UK CCUS Supply Chain – Initial Forecast 2024 – Main Report (**UK CCUS Report**). During the first week of **November 2024**, the author returned to the **UK CCUS Report** published by **CCSA** (Carbon Capture & Storage Association) in preparing to moderate at a conference. The report provides a timely assessment of the UK market, with final investment decisions being contemplated for CCS projects in the UK. The report is well-worth a read.

Germany PV and wind power breaking records: On **November 7**, **2024**, **Evwind** (at **https://www.evwind.es**, under **Germany sets new record for photovoltaic and wind power**) reported that from the start of **January** to the end of **September 2024** the electrical energy dispatched from photovoltaic solar and wind sources (at 45% of electrical energy dispatched) exceeded that dispatched from fossil fuel sources. Also, from **January** to **September**, **11 GW** of new photovoltaic capacity was installed. These facts and stats may be regarded as marking positive progress.

EIB approves financing for Baltic offshore wind farm (OWF) projects: On **November 6**, **2024**, the **European Investment Bank** (**EIB**) approved the financing for the Baltic 2 and 3 OWF projects.

It is apparent that the role of the **EIB** is key:

- **Edition 19** of **P_2N_0** reported that the:

  > "EBI had agreed to provide €650 million to Elia Transmission Belgium for the development of the first energy island, which will consolidate renewable electrical energy from 3.5 GW of OWF installed capacity and transmit that electrical energy to Belgium"; and

- **Edition 13** of **P_2N_0** reported that the:

  > "EBI was to provide a €1.2 billion loan to allow RWE to fund the development of the 1.1 GW Thor offshore wind field on the Danish sector of the North Sea".

Second auction under ORESS in Republic of Ireland: On **November 1**, **2024**, the terms for the second auction of offshore wind field areas under the Republic of Ireland **Offshore Renewable Electricity Support Scheme** (**ORESS**) were approved. At the moment, only one site is contemplated to be subject the auction – **Tonn Nua**, offshore of the coast of

County Waterford. As reported, **Tonn Nua** will cover **306 km²**with capacity for **900 MW** of installed OWF capacity. The auction is expected to be undertaken during Q2 of 2025.

UK backs Green H_2: On **November 1**, **2024**, it was reported widely that the UK Government had announced that it is to fund 11 green hydrogen projects with up to **£3.9 billion** of support: this reporting reflected the announcement in the UK budget. As reported, the funding of the green hydrogen projects will enable them to be developed as commercial-scale projects.

HELPFUL PUBLICATIONS AND DATA BASES

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

- **2024 Green Hydrogen Handbook**: In **November 2024**, the **2024 Handbook of the Green Hydrogen Accelerator Training Course** was published by International Solar Alliance in collaboration with the Green Hydrogen Organisation. What is written on the tin, is in the tin. The publication is helpful.
- **Thought Leadership – CCS Policy, Legal and Regulatory Review**: On **November 8**, **2024**, the good folk at the **Global CCS Institute** published **Thought Leadership – CCS Policy, Legal and Regulatory Review**.

  The publication provides an overview of legal and regulatory regimes across the **Americas**, **Asia Pacific** (or **APAC**), **Europe** (and the UK) and **Middle East and Africa**. The publication provides a helpful starting point for those seeking to understand the legislation and regulation in place to support the development of CCS.
- **European Clean Hydrogen Association** (**ECHA**) **publishes another Learnbook**: On **November 7**, **2024**, the **ECHA** published a **Learnbook: Implementation of Supply Corridors**.

  The publication is worth a read, and follows the publication on **September 25**, **2024**, of **Learnbook on financing of H2 infrastructure**.
- **Attracting CCS finance to ASEAN**: On **November 6**, **2024**, the **ASEAN Centre for Energy** published **What would be preparatory actions to attract the potential additional CCS finance in ASEAN?**

  The publication provides a timely perspective on a whole of **ASEAN** basis of the scale of the avoid, reduction and removal of GHG emissions, and the role of CCS in avoiding the emission of CO_2 to the climate system. Also, the publication notes some of the underlying dynamics that may hinder the development of CCS projects.
- **High-Quality Blue Carbon – Practitioners Guide 2024**: During the first week of **November 2024** the good folk at **ORRAA** (Ocean Risk and Resilience Action Alliance) published **High-Quality Blue Carbon: Practitioners Guide 2024**.

  The publication is excellent, providing clarity through the **Principles of High-Quality Blue Carbon**.

  With agreement at **COP-29** in respect of **Article 6.4** of the **Paris Agreement**, it is expected that there will be an increased number of blue carbon project development under the auspices of **Article 6.2** giving rise to ITMOS under **Article 6.2** and emissions units under **Article 6.4**.
- **Green Hydrogen Guidebook, 2nd Edition**: During the first week of **November 2024** the good folk at the **Green Hydrogen Coalition** published their **Green Hydrogen Guidebook**. The publication provides an update on the 1st Edition, defining hydrogen by colour, the technologies to produce, store, and transmit and distribute hydrogen, and the uses of hydrogen across any economy. The publication provides a helpful overview.

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