Welcome to **Edition 33** of **P_2N_0** covering the drive to avoid, reduce and remove greenhouse gas (**GHG**) emissions to progress to net-zero GHG emissions (**NZE**).

P_2N_0 covers significant news items globally, reporting on them in short form, focusing on policy settings and legal and project developments and trends. This **Edition 33** covers news items arising during the period **June 1** to **June 30, 2025**.

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

Access previous editions of **P_2N_0** at bakerbotts.com.

Content

News headlines from June 1 to June 30, 2025 (pages 1 to 7)	
News from Around the World	
1. Africa (**p. 7** & **8**)	2. Middle East, Central Asia, & South Asia (**p. 8 &9**)
3. Americas (**p. 9** to **10**)	4. APAC (**p. 10** to **12**)
5. Europe and the UK (**p. 13** to **15**)	Helpful Publications and Data Bases (**p. 15** & **16**)
Current State of Play – Article 6 (**p. 17** to **20**)	Baker Botts Team (**p. 21**)

HEADLINES FROM JUNE 1 TO JUNE 30, 2025

Opening observations:

One of the reasons for changing the cadence of the publication of **P_2N_0** was to anticipate a quieter news cycle during the Northern Hemisphere summer. So far, this reason is holding true.

During **June 2025** the following matters caught the eye:

- **World Economic Forum** (**WEF**): Between **June 24** to **June 26, 2025**, the **Annual Meeting of the New Champions** conference took place in **Tianjin, China** (coined the **Summer Davos**). Among other things, stewarding a just and inclusive energy transition was a key topic.

  Ahead of the **Summer Davos**, the **WEF** published Forests are now contributing to climate change – what can be done? While the title may serve to make you click, there is nothing new: the issues is not that forests are bad, rather the issue is that land degradation, deforestation and unsustainable land use is contributing GHG emissions to the climate system while at the same time increasing the new for carbon removal initiatives and projects.

  While the **Summer Davos** and **SB 62** took place in different locations, they had a common theme – **just energy transition**.

- **June Climate Meetings (SB 62)**: Between **June 16** and **June 26, 2025**, as usual, negotiators from Parties to the Paris Agreement met in **Bonn, Germany** to progress matters ahead of **COP 30** later in the year, this year Belém, Brazil.

  It has been interesting to follow the **Bonn Climate Meetings** this year while progress continues to be made (see **unfccc.int**, under **June UN Climate Meetings 2025 – Updates**).

  UN Climate Change Executive Secretary, Simon Stiell, is reported to have stated:

"I am not going to sugar coat it - we have a lot more to do before we meet again in Belém. There is so much more work to do to keep 1.5 alive, as science demands. We must find a way to get to the hard decision sooner. We all need negotiators to sit together between sessions to find common ground".

Looking forward rather than back, work to be done before **COP-30** include the following:

- The review of new **nationally determined contributions** (**NDCs**) in **September 2025**, having been included in the **NEC Synthesis Report**; and
- Also in **September 2025**, further work to share barriers, and the means to overcome them arising from the first BTR Synthesis Report[1], and a review of the National Adaptation Plans for each country.

After this work is done in **September 2025**.

A key focus of **SB-62** was **Article 6** of the **Paris Agreement**. While a key focus in **Bonn** was **Article 6**, it is understood that will not be any negotiations to progress **Article 6** at **COP-30**. Over the last two months or so, there has been considerable activity towards the operationalization of **Article 6** of the **Paris Agreement**. As readers of **P_2N_0** may recall, the author has been anticipating the operationalization of **Article 6** since well before **COP-28**. To capture progress on Article 6, we provide a summary of the current state of play with **Article 6**.

- **At the London Climate Action Week**: During the **London Climate Action Week**, on **June 24, 2025**, The Coalition to Grow Climate Markets was established. As established, the **Coalition** comprised Kenya, Singapore and the UK. France and Peru soon joined the **Coalition**. It is understood that the objective of the **Coalition** is to support the development of high-integrity carbon credits to enable the development of projects that will give rise to carbon credits.

  In addition, the **Coalition** has noted, holistically, that:

  > "Carbon markets direct finance to project that can cut emissions faster and at lower cost. This helps modernise industries, cut pollution, creates employment opportunities and delivers lasting benefits for local communities and ecosystems.
  >
  > But reputational and legal risks[2], concerns about integrity of supply and lack of consistent guidance have stopped companies from buying credits."

  As noted previously, **Singapore** continues to be in vanguard of the development of an environment in which the integrity of carbon credits reaches a level consistent with the highest of standards to ensure that each carbon credits represents one metric tonne of CO_2-e GHG emissions. For these purposes,

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[1] The Paris Agreement replaced BURs by establishing an Enhanced Transparency Framework (ETF), under which every two years each Party is required to submit Biennial Transparency Reports (BTRs). BTRs should contain: (i) GHG data and information from national inventory reports (NIRs); (ii) progress towards NDCs under Article 4; (iii) climate change impacts under Article 7; and (iv) financial, technology transfer and capacity-building support needed and received under Articles 9 to 11, which captures a wider range of information than BURs previously required. The BTR should also allow for this information to be subject to expert (technical) review processes (TER processes) in respect of data and information submitted for the purposes of Article 13, paragraphs 7 to 9. BURs were not subject to any TER process.

[2] On **June 25, 2025, The Guardian** (at https://www.theguardian.com, under Rise in legal challenges over carbon credit schemes) reported on scrutiny of carbon credit schemes around the world.

Singapore has introduced its Draft Guide for Local Companies planning to use carbon credits voluntarily for public consultation. The **Draft Guide** exalts companies to decarbonize their activities before using carbon credits to allow companies to net off GHG emissions against carbon credits. Also, on **June 30, 2025**, it was reported widely that **Singapore** and the **Maldives** had signed an agreement to provide a framework for them to work together on the environment and sustainability.

Comment: *Without wishing to take issue with that which the Coalition has noted, the key issue with carbon credits created is integrity and price. There has to be a price point for carbon credits of the highest-integrity to ensure that projects and initiatives are developed that provide assurance that each carbon credits represents one metric tonne of CO_2-e GHG emissions. A higher-price for the highest-integrity carbon credits will increase the rate of development of projects and initiatives. If carbon credits of the highest integrity can be used to discharge liability in a market that places a price on carbon (typically in the form a carbon tax or under an emissions trading scheme (**ETS**)), the projects and initiatives will increase, and the number of carbon credits will increase*.

For a point of reference for price of carbon around the world in 2024, please click on the attached **link from Sustainability Infographics.** In this context, it is worth noting that the target price for ITMO stated by many (for the purposes of **Article 6** of the **PACM**) is **USD 40** to **80** per metric tonne of CO_2-e GHG emissions**,** for others (including the Klik Foundation) the price is USD 20 to 30.

For further reading on **Article 6**, the **World Bank** publication Country Guidance for Navigating Carbon Markets is recommended.

- **World Energy Investment Report**: On **June 19, 2025**, the **International Energy Agency** (**IEA**) published World Energy Investment 2025. This is the 10th edition of the **World Energy Investment Report**. As with previous editions of the report, the 2025 report is a treasure trove of facts and stats (255 pages of them).

  A key headline picked up in the reporting of the 2025 report is that "capital flows to the energy sector are set to rise in 2025 to USD 3.3t trillion … [with] Around USD 2.2 trillion … to renewables, nuclear, grids, storage. Low-emissions fuels, efficiency and electrification …". The report provides a balanced assessment of renewable and non-renewable investment globally and is well-worth a read.

- **Energy Asia:** On **June 16** to **18, 2025**, the second **Energy Asia** conference took place in **Kuala Lumpur, Malaysia** curated and sponsored by **PETRONAS**. **Energy Asia** may be regarded as a **CERA Week** for energy within Asia. Energy Asia was attended by a who's who of the energy industry.

  The concepts that were canvassed and the themes that emerged were similar to those that were canvassed and the themes that emerged from **CERA Week** (see **Edition 27** of **P_2N_0**).

  - Natural gas remains central to the energy transition across Asia, not just as a fuel transition on the phase down of coal to renewable electrical energy, rather natural gas will remain key to the energy mix across Asia (and elsewhere in the world) through 2050 and beyond.
  - Recognising the key role of natural gas (and LNG), the need to address the GHG emissions arising in the value chain and on use was mentioned, frequently, critically, the use of CCS.

- Energy demand across Asia will continue to increase as populations and the urbanization of them increases, key to this increase is increased electrification, both to provide electrification to those without electrical energy and as part of the energy transition.

  In addition, AI will increase demand further, and as yet we have no sense of the impact on energy demand.

- AI is upon us, and we are not yet able to understand the scope and size: one concept that stuck with the author is that we can understand less than 1% the potential of AI.
- Electrical energy infrastructure development is required, critically to augment and to expand and to develop new grids in each grid, and to move to increased connectivity between countries across Asia.
- The most frequently mentioned concept was the need for collaboration within countries and across Asia.

For the author, the **Energy Asia** conference continued the expression of a greater pragmatism across the energy industry: the avoidance, reduction and removal of GHG emissions remains front and centre, and progress to net-zero GHG emissions by 2050 was still front and centre, the is a need to ensure affordable and secure supply of energy on an on-going basis, with the aim of sustainability in a way that does not comprise affordability and security.

- **51st G7 Summit**: On **June 16** and **17, 2025**, the **51st G7 Summit** was held in **Kananaskis, Alberta, Canada**. Among other things, the leaders of **G7** countries issued a number of statements, one of which is the G7 critical minerals action plan[3].

  The action plan provides a high-level summary of the key issues, including the role that **G7** countries have to play in providing funding support: "We encourage our export credit agencies and development finance institutions (DFIs) to identify more opportunities for collaboration". This action plan builds on the earlier critical materials, metals and minerals (**CM_3**) initiative of **G7**[4].

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[3] **CM_3** are: **1**. Bauxite, High Purity Alumina, and Aluminum; **2**. Antimony; **3**. Beryllium; **4**. Bismuth; **5**. Cobalt; **6**. Copper; **7**. Gallium; **8**. Germanium; **9**. Graphite; **10**. Indium; **11**. Lithium; **12**. Magnesium; **13**. Manganese; **14**. Nickel; **15**. Niobium; **16**. Platinum metals; **17**. Rare Earths Elements (**REE**s); **18**. Silicon and Silicon metals; **19**. Tantalum; **20**. Titanium and Titanium metal; **21**. Tungsten; **22**. Uranium; and, **23**. Vanadium. **Edition 29** of **P_2N_0** defines **17 REEs** as follows: Cerium (Ce), Dysprosium (Dy), Erbium (Er), Europium (Eu), Gadolinium (Gd), Holmium (Ho), Lanthanum (La), Lutetium (Lu), Neodymium (Nd), Praseodymium (Pr), Promethium (Pm), Samarium (Sm), Scandium (Sc), Terbium (Tb), Thulium (Tm), Ytterbium (Yb) and Yttrium (Y).

[4] **By way of reminder**: **Edition 31** of **P_2N_0** reported on the **CSIS** report as follows:

"**CSIS** reports on the progress that has been made by **China** across the **Global South** (and the means that China has to mitigate risks) and hazards the view that there may be benefit in **G7** countries working together to derisk the level of investment needed to develop secure **CM_3** supply chains.

CSIS states that the level of combined investment for these purposes is **USD 590 billion** to **USD 2 trillion** by **2040**: the actual level of investment provided by **G7 governments** is in the region of **USD 13 billion**. The good folk at **CSIS** suggest that the **G7** should establish a **G7 Critical Minerals Investment Fund**, and recounts the existing **G7 initiatives**: The Partnership for Global Infrastructure and Investment (**PGI**); and The Minerals Security Partnership (**MSG**), both were championed by the Biden-Harris Administration.

Finally, **CSIS** provides some sound thinking (thinking long advocated by a good number of folk): **Pooling of capital** by **G7** member states; **Selection of strategic projects** to allow the development of supply chains to make use of refining and production capacity; and **Offtake agreements** signed by members of **G7** under which **G7** members function as wholesale buyers of **CMM**."

By way of reminder: The [Global Critical Minerals Outlook 2025]. The publication provides a comprehensive assessment of the market for **CM_3** and **rare earth elements** (**REE**)[5], including relatively detailed outlooks for cobalt, copper, graphite, lithium, manganese, nickel, platinum metals, REEs, silicon, silver and uranium. Each outlook is worth a read.

To provide some context, the good folk at **Elements** have produced [Visualizing the Abundance of Elements in the Earth's Crust] which indicates, among other things, that bauxite (aluminium) is the most abundant element found in the earth's crust (at 8.23%), followed by iron (5.6%), calcium (4.15%), sodium (2.36%), magnesium (2.33%), potassium (2.09%) and titanium (0.565%). Other **CM_3** and **REEs** are to be found with other elements comprising 0.48% of the earth's crust.

In addition to outlooks for **CM_3** and **REE**, the publication provides a clear narrative as to the need for **CM_3** and **REE** for the purpose of the **three main** scenarios of the **IEA**.

- [Bright Side of the Mine]**:** During **June 2025**, the good folk at **Global Energy Monitor** (**GEM**) published **Bright Side of the Mine – Solar's opportunity to reclaim coal's footprint** (one of the best titles encountered). The first paragraph of the publication is equally engaging:

  > "Coal was once billed as the "buried sunshine" of a prehistoric past. But the world has now entered an age of solar energy – a time when harnessing the sun has become more accessible, affordable, and environmentally sustainable than diffing it up in fossil fuels. In 2024, the world installed a record breaking 599 gigawatts (GW) of solar capacity, and currently has more than 2,000 GW of utility scale projects in development. But the requires widespread land use, and today's developers often struggle to secure prime locations that aren't already in use, or off limits."

  As reported, **GEM** has undertaken a survey of open cut / surface coal mines globally that have closed over the last five years, and that are forecast to close by the end of 2030. The survey indicates that in respect of the 300 coal mines closed in the last five years there is scope to install 103 GW of photovoltaic solar capacity, and in respect of the 127 mines forecast for closure there is scope to install 185 GW. One of the headline grabbing narratives to emerge from the report is that coal mines in the Australian State of New South Wales could be used (on their abandonment) to host over 70 GW of photovoltaic solar capacity.

- **Light shed on the Iberian Peninsula power outage:** As will be recalled, on **April 28, 2025**, there was a power outage across the **Iberian Peninsula**. As reported by **Edition 30** of P_2N_0, the issue was an issue of grid management following an extraordinary sequence of events.

  In the medium to long term, to guard against any reoccurrence of the power outage the integrity, stability of the grid needs to be improved by the installation of battery inverters.

  One of the most forward-looking comments has come from Ismael Morales, of Fundación Renewables:

  > "The analysis should service to accelerate the energy transition process and adapt our network infrastructure".

Also, to accompany the CSIS publication is the [IEA Critical Minerals Data Explorer].

In the near term, it is understood that the **Red Eléctrica** is to seek to manage the operation of the gross pool electrical energy market to ensure that more synchronous electrical energy is generated and dispatched to ensure system integrity and stability.

- **Natural Gas and LNG**: During **June 2025**, flagship reports were published by the International Gas Union (**IGU**) and International Group of LNG Importers (**GIIGNL**). The reports provide a helpful analysis of the LNG market.

  The key facts and statistics are:

  - Total natural gas production was circa **4.2 trillion cubic metres** in the calendar year to the end of 2024, equating to 3.044 billion metric tonnes of natural gas, giving rise to around 7.5 billion metric tonnes of CO_2 emissions on combustion; and
  - Total LNG production was circa **406 to 420 million metric tonnes of LNG** in 2024, equating to around 1.165 billion metric tonnes of CO_2 emissions on combustion.

  Of the LNG exported, 69% went to Asia, 24% to Europe, 4% to the Americas and 3% to the Middle East and Africa.

  It is estimated that by 2050, total production globally of natural gas will reach 5.3 trillion cubic metres annually (or 3.841 billion metric tonnes).

- **GHG emissions arising along the LNG value chain**: On **June 20, 2025**, the **IEA** published Assessing emissions from LNG supply and abatement options. The publication is excellent.

  The key facts and statistics are:

  - The **IEA** estimates that extraction and production, processing, refining and treatment and transport of oil and natural gas (and LNG) give rise to around **5.2 Gt CO_2-e a year**, **3.5 Gt CO_2-e from oil**, and **1.6 Gt CO_2-e** from natural gas (and LNG), operations (i.e., from activities within the Scope 1 and Scope 2 emissions across the sectors).
  - It is estimated that **350 million metric tonnes of CO_2-e GHG** emissions arise in the LNG supply chain (from extraction and production to the point of use). The **IEA** estimates that it would take USD 100 billion to reduce these GHG emission by 60%. The means of achieving this reduction are detailed in the **IEA** report.

  It is estimated that **41.6 Gt** CO_2 emissions[6] arose in 2024 from fossil fuel use (**35.8 Gt**), cement production (**1.6 Gt**) and land use (**4.2 Gt**). A further **5.2 Gt CO2-e** emissions arising as Scope 1 and 2 emissions[7] of the oil and natural gas (and LNG) industries.

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[6] 2024 Global Carbon Budget report by Global Carbon Project.

[7] **Greenhouse Gas Protocol** published by the **World Resources Institute** defines **Scope 1** and **Scope 2** emissions as follows: **Scope 1 Direct Emissions**, being emissions that arise from sources owned or controlled by the corporation or other organization whose GHG emissions are being measured and **Scope 2 Electrical Energy** indirect GHG emissions being emissions that arise generation of electrical energy used by the corporation or other organization. Scope 3 Other Indirect Emissions being emissions that arise as a consequence of the activities of the corporation or other organization.

The **IEA**[8] estimates that **37.8 Gt** of CO_2 emissions arose from the combustion of fuel (including CO_2 emissions from fuel combustion, industrial processes and fugitive and flaring emissions).

- **Land-use v. Biodiversity and Net Zero Goals**: On **June 4, 2025**, the **IEA** published Land-use Competition between Biodiversity and Net Zero Goals – A case study of Canada. What is written on the tin in the tin: "Meeting global targets for energy, climate and biodiversity conservation has major implications for land use. To ensure that tripling of renewable energy capacity by 2030 aligns with the goal of protecting 30% of the planet's land and water by the same date, robust mechanisms that direct solar and wind projects away from the most biodiverse areas are needed".

  For purposes of balancing these competing demands, the **IEA** has developed a **Renewable Energy and Land-Use Model** (**REALM**). While Canada is used as the basis for the case study, the study has broader application, including in the context of the operationalization of Article 6 of the Paris Agreement.

Africa

- **Kenya, Singapore and UK allied to restore confidence in voluntary carbon market:** As noted above, on **June 24, 2025**, **The Straits Times** (at https://straitstimes.com, under Singapore, UK and Kenya launch first govt alliance to restore confidence in voluntary carbon market) reported on the **Coalition to Grow Carbon Markets**, a first-of-its-kind government alliance between Singapore, the UK and Kenya aims to spur corporates in those countries to voluntarily buy carbon credits as part of their emissions-cutting efforts. Other nations are invited to join and grow the coalition, which hopes to raise the standards of the unregulated voluntary carbon market globally.
- **Kenya operational:** As noted above, there is considerable coverage of the operationalization of **Article 6** of the **Paris Agreement**. There has been considerable focus on the role of the UNFCCC, and less on that which countries themselves need to do to create the legal framework to allow countries to participate in "the **Article 6** carbon market".

  Critical, operationalization at a country level is the creation of registry in respect of each ITMOS across each sector of reduction, including through agricultural and energy projects and initiatives. Kenya is progressing its Climate Change (Carbon Registry) Regulations, 2025 for this purpose.

  On **June 16, 2025**, **Kenya** and **Sweden** entered into an agreement to provide a framework for their cooperation on mitigation outcomes under **Article 6** of the **Paris Agreement**.

[8] From the **IEA Global Energy Review 2025, CO_2 Emissions**.

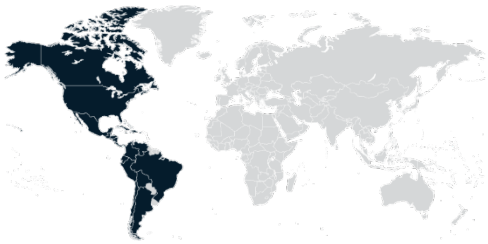
- **Morocco progress OWF**: On **June 10, 2025**, it became apparent at the **Third United Nations Oceans Conference** (**UNOC3**) that **Morocco** is to progress to develop **1 GW** of offshore wind field capacity. As reported, it is understood that the OWF will be developed in the Essaouira region, with development to commence in 2029.
- **EBRD supports private-to-private electrical energy contracts**: On **June 10, 2025**, the **European Bank of Reconstruction and Development** (**ERBD**) reported that it had provided support to allow private corporations to sell electrical energy to other private companies under the P2P scheme in Egypt. It is understood that four projects have been approved for participation in the P2P scheme: among other things, under the P2P scheme private companies generating electrical energy to other private companies can wheel electrical energy across the grid.

Middle East, Central Asia, and South Asia

- **India has 10,830 GW of solar potential**: On **June 19, 2025**, the findings of The Energy and Resources Institute (**TERI**) study were reported widely. The headline grabbing find was that India has the potential to develop up to 10,830 GW of photovoltaic solar capacity. The study is a recommended read.
- **KSA 30 mt carbon credit deal**: On **June 16, 2025**, the good folk at **Arab News** (at **arabnews-com**, under Saudi Arabia advances net-zero goal with landmark carbon credit deal) reported that Saudia Arabian corporation, ENOWA, has contracted (with to deliver Voluntary Carbon Market Co (within the Public Investment Fund)) for the delivery of up 30 million metric tonnes of "high-integrity carbon credits".
- **Building on success to procure REE and BESS**: On **June 12, 2025**, the **Solar Energy Corporation of India Limited** (**SECI**) continued its procurement initiatives, this time to procure **2 GW** of photovoltaic capacity and **4 GWh** of BESS, using a Build Own Operate model under which the private sector will develop the photovoltaic solar and BESS capacity and provide electrical energy to **SECI**.

  On **June 23, 2025**, **SECI** came to market again to undertake a tender by way of reverse auction for the supply of up to 724,000 metric tonnes of green ammonia under 10-year contracts. As reported, the green ammonia supplied will be used to produce fertilizer. In addition to the use of green ammonia, It is expected that use of biochar (by adding by biochar to soil to provide for slow release of carbon and to facilitate the release of other minerals) will develop.
- **UAE REE**: The **UAE** (at https://renewable.vision/uae-re) makes available in real time information about **Energy Transition** within UAE.
- **Tracking Renewables Progress in the KSA**: With renewable projects progressing rapidly in Saudi Arabia, the King Abdullah Petroleum Studies and Research Center has developed a KSA Renewables Tracker which shows solar and wind energy projects under development or tender and operation stages.

Renewable Vision has also developed a visual representation of renewable energy projects in Saudi Arabia, which can be accessed here.



Americas

- **Renewable Energy in April 2025:** On **June 26, 2025**, the U.S. **Energy Information Administration** (**EIA**), in its Electric Power Monthly, reported that during **April 2025 10.3%** of dispatched electrical energy across the US was generated by renewable electrical energy capacity.
- **USA primary energy at record levels:** On **June 25, 2025** the Monthly Energy Review (published by the **EIA**) reported that the primary energy consumption in the United States of America during 2024 was at record levels.

  As reported, each of the following sources of energy was at record levels (alphabetically): biofuels, crude oil, natural gas and natural gas liquids, and solar and wind. As is the case in other countries, as the use of coal, as a primary energy source, decreases, the role of natural gas increases: 38% of primary energy production in the US was from natural gas. In second place behind natural gas was crude oil, providing 27% of primary energy production.

  Comment: *The increased production and use of natural gas reflects the role of natural gas in the United States and globally. Natural gas is both an energy transition fuel and, increasingly, is shaping up a long-term fuel providing and affordable and secure of energy.*
- **Georgia Power and Mitsubishi co-firing pilot complete**: On **June 17, 2025**, the good folk at **hydrogeninsight** (www.hydrogeninsight.com under World's largest co-firing power plant demo completed in the US) reported that Georgia Power and Mitsubishi has tested a 50% blend (importantly not by mass) of H_2 with natural gas using a 283 MW M501GAC gas turbine. As reported, the use of the blend reduced GHG emissions by 22%.
- **Amazon to invest AUD 20 billion in data centres in Australia**: On **June 16, 2025**, the good folk at **pv magazine** (at https://www.pv-magazine-australia.com, under Amazon's $20 billion support three new solar farms) reported that Amazon is to invest AUD 20 billion over the next five years to expand its data centre network in Australia. As part of this expansion, renewable electrical energy capacity will be developed, as reported photovoltaic solar.
- Meta contracts for geothermal electrical energy in New Mexico: On **June 13, 2025**, it was reported widely that Meta had contracted with **XGS Energy** for the development of a **150 MW geothermal power plant**. This contract is part of the multifaceted approach of Meta to procure electrical energy to underpin its AI initiatives.
- **CCS in the US**: On **June 12, 2025**, the good folk at **CATF** (at https://www.catf.us, under Carbon capture storage: Opportunities for federal action to support domestic energy production and industrial

innovation) published an insightful article describing the current state of play across the US in respect of the development of carbon capture and storage projects. This article is well-worth a read.

- EPA proposed approval of Texas: On **June 9, 2025**, the Environmental Protection Agency (EPA) announced that it is to approve the request from the State of Texas to administer the Safe Drinking Water Act (SDWA) for Class VI wells in Texas.
- **Mapping CM_3 (including in mine waste)**: On **June 9, 2025,** the **USGS** published (at https://www.usgs.gov, under Mapping, Mine Wastes and More Critical Minerals Science) its 2024 **Annual Review**. The **Annual Review** outlines new methods for assessing undiscovered critical materials, metals and minerals, and how to source them from mine waste. The **Annual Review** is well-worth a read.
- **Amazon to invest USD 10 billion in data centres in North Carolina:** On **June 4, 2025**, **CNBC** reported (at https://www.cnbc.com, under Amazon to invest $10 billion in North Carolina data centers in AI push) that Amazon is to develop data centers in Richmond County, North Carolina.

APAC

- **China solar passes 1 TW:** On **June 23**, 2025, the good folk at pv-magazine (at https://www.pv-magazine.com, under China hits 1 TW solar milestone) reported that China had installed 92 GW of photovoltaic capacity in May alone.

  By way of reminder: Edition 32 of **P2N0 (under PV solar installations soaring in China**) reported that "During **May 2025** it [was] apparent that China exceeded **1TW** of installed photovoltaic capacity. The rate of installation of photovoltaic solar capacity appears to be increasing with over 100 GW of capacity installed to the end of April 2025 for the current calendar year, and 45 GW installed during April 2025. While the reason for this rate of installation may be tied to the change in pricing structure from June onwards, the rate of progress leads the progress being made by the rest of the world combined".
- **New renewable electrical energy dispatch record**: The GPE NEMLog shows that at **10.30am** on **June 23, 2025**, 12.563 GW of electrical energy was dispatched across the grid from photovoltaic solar and wind sources, representing 65% of electrical energy dispatched. In terms of the electrical energy dispatched in absolute terms, 12.562 GW, is a record.
- **NSW Government recognizes need for grid augmentation and expansion**: On the context of the planned development and deployment of renewable electrical energy capacity (across five Renewable Energy Zones) in the Australian State of New South Wales, the **NSW Government** is budgeting to around **AUD 2.1 billion**.

- **Queensland continues to approve GW scale wind farms**: On **June 23, 2025**, it was reported that the Queensland Government approved (at the state level) the construction of the **RWE 1 GW Theodore** onshore wind project (with associated BESS) in **Banana Shire**, **Queensland**. (The project is awaiting final Federal Government approval under the **EPBC Act**.) The Theodore project joins Windlab's 1.4 GW **Bungaban** and **Wongalee** wind farms that were approved in March and May 2025.
- **South Australia to boost BESS**: On **June 17, 2025**, the good folk at **reneweconomy** (at **reneweconomy.com.au** under South Australia seeks eight-hour storage solutions as it beefs up support for 100 pct renewable grid) reported that the Australian Stage of South Australia intends to procure up to 30 MW of long duration energy storage (**LDES**) with the capacity to dispatch electrical energy continuously for 8 hours. P_2N_0 (and other publications written by the author) has reported on the progress that South Australia since the introduction of the first BESS installed by Tesla in 2017. The procurement of **LDES** is integral to the plans of the State to progress to 100% renewable electrical energy capacity by 2027.
- **Indonesia and Singapore sign three MoUs**: On **June 13, 2025**, the good folk at **The Business Times** (at https://www.businesstimes.com, under Singapore, Indonesia sign three MOUs for energy trade, decarbonisation, sustainability collaboration) reported that among the MoUs were one to provide a framework for increased energy cooperation and trade and one to provide a basis to study the components of a legally binding government-to-government agreement in respect of the export and import of CO_2 between the two countries.
- **Another natural hydrogen find**: On **June 13, 2025**, **The Manila Times** (at https://www.manilatimes.net, under Vast hydrogen gas found in Zambales) reported that natural hydrogen had been discovered at San Antonio, Zambales, The Philippines. As yet, it is not clear whether the natural hydrogen can be developed.
- **Gurin Energy to develop 2 GWh BESS in Japan**: On **June 13, 2025**, the good folk at **energystorage** (at **https;//www.energy-storage.news**, under Japan: Gurin Energy picks technology provider for first phase of 2GWh battery storage project) reported that **Gurin Energy** has chosen Salt as the technology provider for its BESS to be developed in Soma. Fukushima.
- **Fifth OWF auction for The Philippines**: On **June 12, 2025**. **The Philippines' Department of Energy** (**DOE**) commenced the process for its **Fifth Green Energy Auction (GEA-5)**, inviting bids to develop up to **3.3GW** of fixed-bottom offshore wind field capacity. This follows the continued progress of GEA-4 (with an advisory update on June 11, 2025), and the publication of the **Green Energy Auction Reserve Prices** for GEA-4 (on June 13, 2025) providing caps. As announced by the **DOE**, evaluations of bids will be undertaken June 23 to June 27, 2023, followed by notification to bidders qualified to bid, with the bid process to take place by auction on September 2, 2025.
- **INPEX injects**: On **June 9, 2025**, it was reported widely that **INPEX** had commenced commissioning of its first blue hydrogen and ammonia (**BH_2NH_3**) production facility within the **Niigata prefecture**. As covered previously by the author, the **BH_2NH_3** production facility will produce about 700 metric tonnes of blue hydrogen a year from the steam reform of CH_4, with the CO_2 emissions arising from the reformation of the CH_4 to produced blue hydrogen captured and injected into the **Higashi-Kashiwazaki** depleted natural gas field.

- **Vietnam and Article 6 of the Paris Agreement**: On **June 2, 2025**, the good folk at **thitruongcarbon** (at https://thitruongcarbon.com, under Key steps to develop Article 6 projects in Vietnam) published a helpful piece. The piece provides context to the develop of Article 6 projects and initiatives in Vietnam. Vietnam has arrangements with Japan under its **Joint Crediting Mechanism** (**JCM**)[9] and **Singapore** under a Memorandum of Understanding. In addition to progressing discussions with other countries for the purposes of Article 6.2, Vietnam is close to approving its DNA.

  Particularly helpful is the background provided in respect of the domestic laws of, and policy settings in, Vietnam, including the **Plan for the Carbon Market Development** in Vietnam, the pilot phase for which will start in **June 2025**, and is to run through the end of 2028, with **150 large emitters** to participate in the pilot.

  From the start of 2029, a full **Carbon Trading Exchange** will go live.

  It is understood that is introduce an emissions trading scheme and that GHG emitters (subject to the emissions trading scheme (**ETS**)) will be required to achieve carbon intensity-based benchmarks. Further, it is understood that emitters subject to GHG emission obligations under ETS will be able to under carbon credits to offset up to 30% of their liability.

  As noted in **Edition 29** of P_2N_0, on **March 25, 2025**, the **Ministry of Finance** issued a draft Decree in respect of the **Carbon Trading Exchange**. While it was reported that the ETS was to go live on June 1, 2025, it is understood that it will go live in August 2025.

- **Nippon Steel EAF agenda**: On **May 30, 2025**, **Nippon Steel** announced that it intended to invest in the development of three electric arc furnaces to reduce the GHG emissions arising from its iron and steel making activities: one new EAF at its Kyushu Works, in Yawata, expansion of an existing EAF at its Setouchi Works, Hirohata, and the modification and recommissioning of the EAF at is Yamaguchi Work, Shunan.

  As **Nippon Steel** notes, while the "… conversion from the blast furnace steelmaking process to the electric arc furnace steelmaking process would work to [reduce significantly] CO2, it would require substantial capital investment and lead to considerable increases in production costs, including for raw materials and electricity". It is understood that the considerable cost increases amount to USD 6 billion.

[9] The Japan-Vietnam Joint Crediting Mechanism, is a bilateral framework introduced in July 2013, aimed at promoting the diffusion of low-carbon technologies and contributing to sustainable development in Vietnam, while also helping Japan meet its greenhouse gas emission reduction targets. It involves the implementation of projects in Vietnam that reduce emissions, with Japan using the resulting carbon credits to offset its own emissions.

EUROPE

- **Energy Release 2.0 approved by EC**: On **June 27, 2025**, it was reported widely that the EC had approved **Energy Release 2.0**. Under **Energy Release 2.0** the price of electric energy is fixed (at a lower cost than currently) in return for investment to develop new renewable electrical energy.
- **TES and CPC plan 500 MW H_2 and e-methane facility in Finland**: On **June 26, 2025**, it was reported widely that **Tree Energy Solutions** (**TES**) and **CPC** announced that they are planning (under a joint venture, **Luoto Energia**) to develop a **H_2** and **e-methane** facility at the **Rauma Port**. As reported, the facility will produce **60,000 metric tonnes** of H_2 and **125,000 metric tonnes** of e-methane annually.
- **Clean Industrial State Aid Framework drops**: On **June 25, 2025**, the **European Commission** (**EC**) adopted a new State aid framework accompanying the Clean Industrial Deal (**CISAF**), reflecting the pragmatic view in respect of natural gas (and LNG) that appears to have emerged in the last six to nine months.

  The **CISAF** builds on the experience with the Temporary Crisis and Transition Framework ('**TCTF**') transition provisions which it replaces. The CISAF applies as of **25 June 2025** and will remains in force until **31 December 2030**.

  The **CISAF** contains provisions for the following types of aid measures:

  - to accelerate the rollout of clean energy;
  - to provide support for electricity costs for energy-intensive users;
  - to facilitate industrial decarbonization;
  - to ensure sufficient manufacturing capacity in clean technologies; and
  - to de-risk private investments.
- **The Crown Estate Celtic Sea awards**: On **June 19, 2025**, **The Crown Estate** announced the results of the bids for the three offshore wind field areas under the **UK Floating Wind Celtic Sea R5 results**. Equinor being successful in its bid, and the **EDF** and **ESB** through their joint venture, **Gwynt Glas**.

  Each of the offshore wind field areas are understood to have been sized to allow the development of 1.5 GW of floating offshore wind field capacity. For more information, see at https://www.thecrownestate.co.uk, under New Frontier for UK offshore wind with leading developers set to deliver new generation of floating windfarms.
- **The Netherlands awards for 1.79 of solar capacity**: On **June 19, 2025**, it was reported widely that the government of **The Netherlands** had awarded funding (under its **2024 SDE+++** funding scheme) in respect of 1.79 GW of photovoltaic solar capacity – 1.237 GW of PV farms, 448 MW of industrial roof top, and 107 of floating photovoltaic solar.

- **TotalEnergies successful in OWF bid**: On **June 18, 2025**, it was reported widely that **TotalEnergies** had been successful in bids for **1.2 GW** of OWF capacity in the most recent Federal German government tender process (for **N-9.4**). **TotalEnergies** was successful on the basis of its bid to pay **€180 million** to entitle it to develop the **OWF**.

  As reported, **TotalEnergies** was one of two bidders who submitted negative bids (i.e., they are not seeking government support) for an area that has not be investigated. The negative bids indicate that the **OWF market** (at least in the German sector of the North Sea) has reached maturity. It will be interesting to follow the bids for N-10.1 and N-10.2 in August 2025, both of which have been investigated.

- **EU seeking plans to phase out natural gas imports from Russia**: On **June 17, 2025**, the **EC** published its Proposal for a Regulation of the European Parliament and of the Council on phasing out Russian natural gas imports, improving monitoring of potential energy discrepancies and amending Regulation (EU) 2017 / 1938. The proposal had been flagged for a while (including via the roadmap published in **May 6, 2025**).

- **Finland warms to sand battery**: On **June 16, 2025**, the good folk at **techcrunch** (at https://techcrunch.com, under Finland warms up the world's largest sand battery, and the economics look appealing) reported on the warm-up of a thermal energy (not electrical energy) storage system that uses sand and soap stone (in crashed form) to store heat. As reported, from storage of the thermal energy to recovery of that energy as heat, there is a loss of between 10 to 15%.

  On **June 18, 2025**, the **European Commission** published the terms and conditions for the Innovation Fund IF 25 Heat Auction. As announced, around **€ 1 billion** in funding support will be available to those successful in heat auctions to take place, with the maximum amount available in funding support realised through a cap of **€1,250 per metric tonne of CO_2** avoided or reduced.

- **Norway continues CCS licensing**: On **June 13, 2025**, it was reported that the **Ministry of Energy** had announced the offer of a new exploration licence in the Norwegian sector of the North Sea. The exploration licence has been offered to **Equinor Low Carbon Solution AS**. It is understood that Norway has awarded 13 licences, 1 for exploitation (Northen Lights, the Equinor, Shell, and Total Energies joint venture) and 12 for exploration.

  By way of update on the North Lights project: on **June 11, 2025,** the first cargo of liquified **CO_2** loaded in **Brevik, Norway**, was transported to **Øygarden**, and unloaded at the onshore facilities at **Øygarden,** ready for send-out for injection and storage in the Norwegian continental shelf. From concept to realisation has taken around 10 years but may be regarded as well worth the wait.

- **UK Government commits to stepped change in nuclear:**

  - On **June 12**, 2025, the UK Government committed to the development of the **£2.5 billion Spherical Takamak For Energy Production** (**STEP**) **facility**. The **STEP facility** will be developed on the site of a shuttered coal-fired power plant at Burton, Nottinghamshire, England.

  - On **June 10, 2025**, the UK Government committed to the development of the **GBP 14 billion** Sizewell C nuclear power facility. **Sizewell C** will be developed in the Ipswich, Suffolk region of the UK.

- **UK Government commits to increased funding for CCS**: On **June 10, 2025**, the **UK government** allocated GBP 9.4 billion (over nine years) to maximize use of the **East Coast Cluster** and **HyNet Cluster**, and to continue to support the development of **Acorn** and **Viking Clusters** to advance their delivery.
- **EC commits to 13 Strategic Projects outside the EU**: On **June 4, 2025**, the **EC** approved a list of **13 Strategic Projects** to develop raw materials outside the EU: details of the 13 projects can be found in at the **EC website** at https://commission.europa.eu/, (Commission selects 13 Strategic Projects in third countries to secure access to raw materials and to support local value creation).

  The list of 13 follows the list of **47 Strategic Projects** within the **EU** announced on **March 25, 2025** (and reported on **Edition 28** of **P_2N_0**). The commitment of to these **60 Strategic Projects** represents the implementation of the Critical Raw Materials Act 2024 (and reported on in **Edition 12** of **P_2N_0** in **May 2024**).
- **Andritz electrolysed**: On **June 4, 2025**, it was reported widely that **Andritz** had completed commissioning of its **1 GW** pressurised alkaline electrolyser factory in Germany.
- **Cementing plans**: On **June 2, 2025**, it was reported widely that **Holcim** is to develop the **Olympus Project** in **Milaki, Greece**. The **Olympus Project** will deploy carbon capture technology to capture **CO_2** arising from the production of cement.

  As reported, by **2029** the **Olympus Project** produce **2 million metric** tonnes of cement a year. If all **CO_2** arising from the production of this mass of cement is captured, compared to a non-capture scenario the emission of around 2 million metric tonnes of CO_2 to the climate system will be avoided.

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 **June 2025** are:

- **Deloitte Report on AI**: On **June 24, 2025**, **Deloitte** asked Can US infrastructure keep up with the AI economy? for the purposes of its **2025 AI Infrastructure Survey**. The publication is well-worth a read.
- Lazard Levelized Cost of Energy+ (LCOE) was published on **June 16, 2025**. This is the 18th edition of the publication, and as with the earlier editions it is excellent.
- DNV Energy Transition Outlook CCS to 2050: On **June 13, 2025**, the good folk at **DNV Energy** published its **Transition Outlook CCS to 2050**. The outlook is well-worth a read. The key findings are: **1.** The turning point for CCS has arrived, with capture and storage expected to quadruple by 2030; **2.** After 2030, strongest growth will be in the hard-to-abate industries; **3.** CCS will capture 6% of global CO_2 emissions by 2050; and 4. CDR will capture 330 million metric tonnes per annum by 2050.

  As the author has noted at recent speaking engagements (and as DNV states), capturing 6% of global CO2 emission by 2050 and 330 mmtpa by CDR will not be enough (nowhere near enough) for the purposes of any model relating to achieving net-zero GHG emission.
- **Gaining an Edge with Energy Efficiency**: On **June 11, 2025**, the **IEA** published Gaining an Edge, The Role of Energy Efficiency in Industrial Competitiveness. As usual with **IEA** publications, what is written on the tin, is in the tin. While Energy Efficiency does not tend to grab the headlines or capture enough attention, this publication should go some way to redressing this.

On **June 12, 2025**, the good folk at **Euractiv** published an article entitled [The key to energy security and affordability is hiding in plain sight] – energy efficiency remains on the table. The Euractiv article may be regarded as a companion piece to the **IEA Gaining and Edge** publication.

- **Global LNG Capacity Tracker**: On **June 10, 2025**, the **IEA** published its [Global LNG Capacity Tracker]. The Tracker reports on final investment decisions for the development of new LNG export projects and proposed additional liquefaction capacity through 2030. The Tracker is data and information rich.
- **Ember on fire**: In late May and early June 2025, the good folk at Ember published:
  - [Solar electricity every hour of every day is here, and it changes everything] **(June 21, 2025)**. The publication provides a forward-looking assessment of the potential to progress towards zero GHG emission grids by stepping up development and deployment of BESS capacity and grid augmentation. The report is well-worth a read.
  - [From AI to emissions: Aligning ASEANS's digital growth with energy transition goals] **(May 27, 2025).** The publication recognises the need for 100% reliable electrical energy supply 24/7. The publication covers the dynamics in the current and near term, and the mix of electrical energy supply required to ensure the need for 100% reliable electrical energy.
- **Assessment of cost competitiveness of green hydrogen production in Africa**: On **June 2, 2025, nature energy** published [Mapping the cost competitiveness of green hydrogen imports to Europe]. The publication assesses that, without EU policy settings to assist, the cost of production will remain within a €4.2kgH_2 to €4.9kgH_2 range. The publication identifies 214 locations in six African countries that may be competitive if they can achieve €3.2kgH_2. The publication is well-worth a read.
- [Microsoft Environmental Sustainability Report 2025]: During **June 2025** (at [https://www.microsoft.com]) **Microsoft** published its [Environmental Sustainability Report 2025]. The report is well worth a read, in particular because of the commitment of Microsoft to achieve negative carbon emissions.

  On **June 27, 2025**, the good folk at **Carbon Credits** (at [https://carboncredits.com], under [Microsoft Inks a 4.8M Tons of Forest Carbon Credit Deal with Anew Climate]) reported on another transaction on **Microsoft's** pathway to negative carbon emissions. This followed earlier reporting by **Carbon Credits** on a **2.6 million carbon removal credit** transaction **Agoro Carbon**.

  Also, on **June 27, 2027, The Guardian** reported that AI is increasing the carbon emissions of the tech majors (at [https://www.theguardian.com], under [Google's emissions up 51% as AI electricity demand derails efforts to go green]).
- [Ember monthly wind and solar capacity data]: The good folk at **EMBER** publish data and information each month in respect of the development and deployment of photovoltaic solar and wind installations.
- **IEA podcasts**: after taking a break for a few years, the IEA's [Everything Energy podcast] restarted in April. The podcast discusses the biggest global energy topics. The most recent episode reports on "where money is going in the global energy sector."

  Global AI Law and Policy Tracker: the IAAP updated its [Global AI Law and Policy Tracker], providing an excellent overview of how 25 jurisdictions are approaching AI regulation and policy.

CURRENT STATE OF PLAY – ARTICLE 6

Introduction: Given the monthly cadence of **P_2N_0**, we have decided to include a schedule to provide more detail in relation to a topic of current interest and that is in the news. In this Edition 33, we have included detail in respect of Article 6 of the Paris Agreement.

- **Background**:

  For those familiar with facts and statistics in respect of total GHG emissions arising globally, you will no doubt recount that GHG emissions arising from the energy sector (extraction, production, transportation and use of energy) represent around **75%** of **CO_2-e GHG emissions** arising each year.

  The best estimate is that around **44 Gt** of **CO_2-e** emissions arose from the energy sector in 2024. On the basis that energy sector gives rise to **75%** of GHG emissions that means that a further **14.5 Gt** of **CO_2-e GHG emissions** arise each year from:

  - **Agriculture Forestry and Other Land Use** (**AFOLU**)[10] – 18.1% of GHG emissions (comprising each of the three well mixed GHG emissions, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O));
  - **cement** (3%) and **chemical** (2.2%) **production**; and
  - **organic waste** (landfills, 1.9 %, (landfill gas comprising CO_2 and CH_4) and **wastewater** (1.3%), giving rise to both CH_4 and CO_2).

  Each year, at the current rate, around **58.5 Gt** of **CO_2-e** GHG emissions are emitted to the climate system from the activities of human beings (i.e., anthropogenic emissions).

  While policy settings to achieve energy efficiency, electrification and adoption of renewable electrical energy (across all sectors), bioenergy (and BECCS), hydrogen and hydrogen based / derived fuels and CCS (being the principal means of decarbonization (through the avoidance, reduction and removal of GHG emission) of the energy and industrial sectors), also **carbon dioxide removal** (**CDR**) is needed. **CDR** is achieved using nature-based solutions (**NBS**) and engineering -based solutions (**EBS**).

- **Basis for policy setting in Article 6**:

  It is clear that some countries have the means to achieve their NDCs more effectively than other countries, including at a cost that is lower than other countries. If countries were limited to undertaking means of achieving their NDCs, an opportunity would be missed, mitigating the impact of climate change would be addressed more slowly, and the cost of doing so increased.

  To allow countries to undertake activities that will achieve mitigation outcomes within one country to be transferred to another country will serve the cause of mitigation of climate change.

  - **Article 6.1** states as follows:

    > "Parties recognize that some Parties choose to pursue voluntary cooperation in the implementation of their nationally determined contributions to allow higher ambition in

[10] Comprising 5.8% of global GHG emissions arising from livestock and manure, 4.1% from agricultural soils, 3.3% from crop burning, 1.3% from rice cultivation (10% of global CH4 emissions), 2.2% from deforestation and 1.4% from cropland.

their mitigation and adaptation actions and to promote sustainable development and environmental integrity."

For example, if country P has considerable capacity to achieve CDR outcomes that will lead to mitigation outcomes, country P will undertake more initiatives and projects to achieve those outcomes if country P is able to transfer those mitigation outcomes to another country.

- **Article 6.2**:
  - **Article 6.2** states as follows:

    "Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes [ITMOS] towards nationally determined contributions, *promote sustainable development and ensure environmental integrity and transparency*, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties as the meeting of the Parties to this Agreement**."**
  - As of **June 30, 2025**, it understood that 98 cooperation agreements had been signed. As reported in earlier editions of **P_2N_0** a number of countries are leading the way in signing cooperation agreements with other countries. This is reflected in the fact that while there are 98 signed cooperation agreements, the countries that are party to those cooperations agreements number 60.
  - The concept of transferring ITMOS is easy in principle, but if that transfer is to *promote sustainable development and ensure environmental integrity and transparency,* processes are needed to support the *cooperation agreements* and *authorisations* required to operationalize the transfer of ITMOS.

    The UN and the World Bank have developed authorization templates[11] for these purposes. Before there is a basis to transfer any ITMOS, that ITMOS needs to be registered. The registry will register the ITMOS. In addition, there is an **Agreed Electronic Format** to allow reporting of transfers of IMTOS, thereby achieving transparency.
- **Article 6.4**:
  - **Article 6.4** states as follows:

    "A mechanism to contribute to the mitigation of greenhouse gas emissions and support of sustainable development is hereby established under the authority and guidance of the Conference of the Partes serving as the meeting of the Parties to this Agreement for use by the Parties on a *voluntary basis*. It shall be *supervised by a body* designated by the

[11] In passing, **Article 6.3** states: "The use of [ITMOS] to achieve nationally determined contributions under this Agreement shall be *voluntary* and *authorized* by participating Parties."

Conference of the Parties serving as the meeting of the Parties to this Agreement, and shall aim :

(a) To promote the mitigation of greenhouse gas emissions while fostering sustainable development;
(b) To incentivize and facilitate participating in the mitigation of greenhouse gas emission by public and private entities authorized by a Party;
(c) To contribute to the reduction of emission levels in the host Party which will benefit from mitigation activities resulting in emission reductions that can also be used by another Party to fulfill its nationally determined contribution; and
(d) To deliver an overall mitigation in global emissions."

- **Article 6.4 (Paris Agreement Crediting Mechanism (PACM)) continues to progress to full operationalisation**:

  As reported in **Edition 21** of P_2N_0, on the first day of **COP-29** standards for removals and methodologies were endorsed for the purposes of the **PACM**. Given the endorsement of these standards, the Supervisory Body has guidelines that will allow it to consider and, if appropriate, to approve methodologies for the purpose of the **PACM**.

  Given the progress towards the operationalization of the **PACM**, we thought that it would help to provide an update (with all of the information readily available on the UNFCCC website):

  - The methodology for recognition of projects giving rise to mitigation outcomes includes a requirement to submit a **notification for prior consideration**, providing information to allow assessment and recognition of benefit of the mitigation outcomes.

    As at **June 30, 2025**, the **UNFCCC** had published 1041 notifications, 824 for projects and 217 for programmes of activities (**PoAs**). All notifications for prior consideration has to be submitted in accordance with the Section 4.2 of the Article 6.4 activity cycle procedures for projects and Sections 4.2 & 6.1 of the Article 6.4 activity cycle procedures for PoAs.

    As understood, most of the PoAs relate to renewable energy. This link provides a sense of the projects seeking recognition under the **PACM**.

  - **Transition of CDMs**: As noted in previous editions of P_2N_0, the **PACM** provides for the transfer **Clean Development Mechanism** (**CDM**) activities. To transfer from the CDM to PACM status, a transition request had to be made. The date of the submission of transition requests has closed. It is understood that transition requests were received in respect of 1,388 projects activities (PAs), 119 PoAs and 954 Component Project Activities (CPAs). As at June 12, 2025, it is understood that approval has been given in respect of 17 PAs, 18 PoAs and 218 CPAs.

  - **DNA becoming clearer**: As of **June 30, 2025**, 106 countries have notified the UNFCCC of their **Designated National Authorities**.

- **South Asian countries submit activity types and positive lists for ITMOS**: Bangladesh, Bhutan, India, Nepal, and Sri Lanka have submitted lists of the sectors and some instances the technologies that they intend to use to achieve ITMOS for the purpose of Article 6 of the Paris Agreement.

The author makes no comment on whether the sectors and technologies will yield prices which are anticipated will be derived from high integrity ITMOS that are authorised for the purposes of Article 6.4.

Article 6.2 and 6.4 ITMOS South Asia						
Bangladesh	GHG Mitigation Activities		Removal Activities		Technology Transfer Activities	
Bhutan	Positive List			Additional Eligibility		
India	GHG Mitigation Activities		Alternate Materials		Removal Activities	
Nepal	Renewable Energy	Energy Efficiency	Sustainable LU&F	Agriculture and Waste	Transport Sector	Mitigation and Adaptation
Sri Lanka	Electricity Sector	Industry Sector	Forestry Sector	Agriculture and Livestock	Transport Sector	Waste Sector

- **African countries submit activity types and positive lists for ITMOS**: As with countries in South Asia, seven countries in Africa, Ghana, Madagascar, Mali, Morocco, Rwanda, Togo, and Uganda have submitted lists of activity types and sectors and in some instance the technologies that they intend to achieve IMTOS.

Article 6.2 and 6.4 Africa	
Ghana	CO_2 removal, EVs, Energy (efficiency & renewable) Low carbon H_2, stoves, and waste management
Madagascar	CO_2 removal, CCS, Energy (efficiency & renewable), AFOLU, Clean H_2, EVs, stoves, livestock and waste
Mali	Energy efficiency, renewable energy, and waste management
Morocco	Biogas from wastewater, Biomass, LFG capture and use, heat recovery, and renewable energy,
Rwanda	CO_2 removal, Climate Smart AFOLU, EVs, PV solar in AFOLU, stoves and waste management
Togo	CCS, CO_2 removal, electrification, EVs, AFOLU (including REDD+), stoves and waste management
Uganda	Energy efficiency, renewable energy, CO_2, removal, Climate Smart AFOLU, wetland and peat restoration

- **ETS World Map**: In the context of progress in the operationalization of **Article 6** of the **Paris Agreement** the impact of prices on carbon are front and centre, in particular in the context of any debate around whether emissions units created under **PACM** may be used to discharge any liability to acquit emissions permits under any **ETS** (or for that matter under any carbon tax).

  By way of a reminder, there are 36 ETSs in operation globally, 14 expected, and 12 being considered. Attached is a link to the International Carbon Action Partnership (**ICAP**) ETS World Map.

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* Michael Harrison is the primary author of P_2N_0, and editor. Any errors are Michael's. P_2N_0 is written early each Saturday morning. In writing P_2N_0, Michael sources from original material. If a news item is covered broadly, the words **reported widely** connote that at least three sources have covered that news item, and **reported** connotes at least two sources. If there is only one source that is not the original material, that source is named.

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