Welcome to **Edition 31** 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 31** covers news items arising during the period **May 1** to **May 16, 2025**. **Edition 32**, covering **May 17** to **May 31, 2025**, will be published on **June 4, 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

HEADLINES FROM MAY 1 TO MAY 16, 2025

Opening observations:

During the first two weeks of **May 2025** the following matters caught the eye:

- **COP-30 taking shape**: On **May 8, 2025**, the **President-Designate of COP-30** published the second letter ahead of **COP-30**. **COP-30** is to be held in Belém, Brazil from **November 10** to **November 21, 2025**. The **second letter** outlines the "four fronts of action" to take place ahead of **COP-30**, concentrating on the "first front of action":

  1. **Global Mobilization or Global Mutirão**;
  2. **The Action Agenda**;
  3. **Formal UNFCCC negotiations**; and
  4. **The Leaders Summit**.

  The concept of the **Global Mutirão** is explained at length. To get a sense of the concept, the second letter is worth a read. The **Global Mutirão** is to start at the **UNFCCC Climate Week**, **Panama City**, **May 19** to **May 23, 2025**. We will cover letters as they are published ahead of **COP-30**.

- **AI and energy**: On **May 12, 2025**, the **IEA** published AI has the potential to transform the energy sector, a short form follow up to its publication Energy and AI. This provides a high-level orientation to AI and energy. The publication prompted the author to re-read **Energy and AI** .

  By way of reminder, some of the key facts and stats from **Energy and AI** are:

  - In 2024 data centres accounted for around 1.5% (or 415 TWh) of electrical energy consumption globally;

- The US, China and Europe have the largest electrical energy consumption by data centres, with 45%, 25% and 15% respectively, i.e., they account for 95% of global electrical energy consumption by data centres;
- By 2030 it is estimated that consumption of electrical energy by data centres will increase to 945 TWh annually;
- In the US, data centres will account for around half of the estimated increase in electrical energy demand, and by 2030 data centres will consume more electrical energy that facilities producing aluminium, cement, chemicals and iron and steel; and
- Data centres will source electrical energy from renewable, natural gas and nuclear sources. It is estimated that around half of the electrical energy demand of data centres will be matched by renewable electrical energy sources and electrical energy storage. With natural gas and nuclear to provide the balance of supply to match the balance of demand.

- **Methane is a challenge:** On **7 May 2025**, the **International Energy Agency** (**IEA**) published its Global Methane Tracker 2025. **Methane** (**CH_4**) is one of the **big three greenhouse gases** and one of the three, what are termed, **well-mixed greenhouse gases**.

  The **Global Methane Tracker 2025** lays out the basic facts:

  - **CH_4** is responsible for **30%** of the increase in global average temperatures since the 1850s;
  - The energy sector is responsible for **35%** of GHG emissions arising now. Avoidance and reduction in GHG emissions from the energy sector offers a present and ongoing opportunity to reduce the pace of climate change.

  The key findings stated in the publication are:

  - The energy sector is responsible for around **120 million metric tonnes** of CH_4 emissions annually, and while each of the **AFOLU** sector and the **waste** sector is responsible for material quantities of CH_4 emissions, the avoidance and reduction of CH_4 emissions across the energy sector offers the most immediate means of abatement;
  - The natural gas and oil sectors give rise to 80% of the CH_4 emissions covered by pledges to avoid and to reduce GHG emissions globally. To date, the implementation of pledges has not been as hoped, and there needs to a focus on implementation;
  - CH_4 emissions are under-recorded, with a gap of up to **80%** of actual **CH_4** emissions to recorded emissions. The gap is known: the gap is not a concern in terms of being able to determine CH_4 in the climate system, rather the gap is a concern in identifying source GHG emissions, and abating them; and
  - There is money capturing CH_4 emissions: the **IEA** notes that if the CH_4 emissions are captured rather than emitted this could result in an additional 100 billion m^3 of natural gas for sale.

  The **Global Methane Tracker 2025** is excellent, and well-worth a read.

- **CMM thinking starting to coalesce**: On **May 7, 2025**, the **CSIS** (at https://www.csis.org, under G7 Cooperation to De-Risk Minerals Investments in the Global South) reported that all **G7** member countries regard the security of supply of critical metals and minerals (**CMM**) as a strategic imperative.

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 **CMM** 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**;
- recounts the existing **G7 initiatives**:
  - The Partnership for Global Infrastructure and Investment (**PGI**);
  - The Minerals Security Partnership (**MSG**),

  both 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 a reminder: We include below excellent publications from recent times:

- the Critical Minerals Institute (**CMI**), CMI Critical Minerals List 2025. The publication is well-worth a read, describing **23 CMMs** [1] that are essential to progress in sectors key to defence and environmental security, and the geographical source of them (including the US, Canada, and Australia). Of the **23 CMMs**, **five** are distinguished as **Key Strategic Minerals**: **1**. Cobalt; **2**. Copper; **3**. Gallium; **4**. Rare Earth Elements; and **5**. Uranium; and
- the **US Geological Survey** (**USGS**), the **Geological Survey of Canada**, and **Geoscience Australia**, published the Critical Minerals in Ores – geochemistry database (**CMiO**) as part of a **Critical Minerals Mapping Initiative** (**CMMI**).

[1] The **CMMs** listed 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** stated that there are **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).
To provide some context given the progress that the US is making on promoting the development of CMM and REE production (domestically and internationally), further reading that will be helpful may be found at How to Advance US – Africa Critical Minerals Partnerships in Mining and Geological Sciences, published at https://carnegieendowment.org.

- the **African Minerals Development Centre** (an entity of the **African Union**), Africa's Green Mineral Strategy.

The perspectives provided are well framed by **World Economic Forum** publication Translating Critical Raw Material Trade into Development Benefits (from May 2024) which reminds us of the importance of the need to ensure that developing countries benefit from the development of CMM projects.

- **Pragmatism continues with proposed ISSB updates**: As noted in recent editions of **P_2N_0**, there appears to be a move to reducing the complexity, and as such simplifying, of climate disclosure standards. The **International Sustainability Standards Board** (**ISSB**) has issued its proposed amendments to make clearer the basis and reason for reporting.

  ISSB proposes the amendments in the following areas:

  (a) The measurement and disclosure of Scope 3, Category 15, GHG emissions as they relate to derivatives and financial activities;

  (b) The use of the Global Industry Classification Standard in respect of disclosure of information about financed emissions;

  (c) The use of a method of measuring GHG emissions other than the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004); and

  (d) The use of **Global Warming Potential** (**GWP**) values other than the GWP values based on a 100-year time horizon.

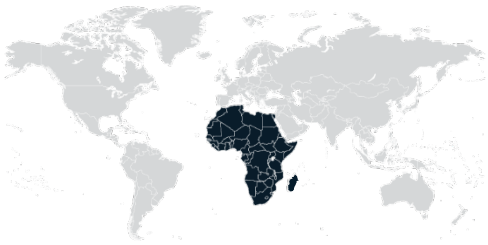
  While the Exposure Draft was issued in **April 2025** it has taken the author a little time to getting around to read it. The **Exposure Draft** invites comments by **June 27, 2025**.

Headlining publications:

During **May 2025,** the good folk at The **International Energy Agency** (**IEA**) published Global EV Outlook 2025. The headlines from the publication are:

1. 17 million EVs were sold in 2024 or 20% of car sales;
2. 11 million EVs were sold in China in 2024, with 1 in 10 of cars in China being EVs;
3. Growth in EV sales is expected to continue, both in absolute and percentage terms;
4. Global trader in EVs is increasing as EV manufacturers develop new markets;
5. As a general statement, competition is increasing and as such EVs are becoming more affordable; and
6. As a general statement, increasing charging coverage capacity supports EV adoption.

The publication is data and information rich, and well-worth a read for both personal and professional interest.



Africa

- **Scatec breaks ground**: On **May 15, 2025**, it was reported widely that **Scatec** had commenced construction of its **1.1 GW Obelisk** photovoltaic solar project in Egypt, with associated 100 MW / 200 MWh BESS. Once completed, this will be the largest photovoltaic project in Egypt (and Africa).
- **Engie powers up**: On **May 2, 2025**, it was reported widely that **Engie** had commenced commercial operation of its **500 MW Red Sea Wind Farm**, in Egypt. This is the largest wind farm in Africa.
- **Further interconnection**: **Zambia** is to develop a **200 km**, **USD 270 million** interconnector to transmit electrical energy to the **Democratic Republic of Congo** (the **Kalumbila-Kolwezi Interconnector Project** or **KKIP**). The development of the **KKIP** is interesting of itself, and because it follows the **USD 292 million Zambia-Tanzania-Kenya** interconnector project.

Middle East, Central Asia, and South Asia

- **Large REE find in Kazakhstan:** On **May 16, 2025**, the good folk at **earth.com** (at www.earth.com, under Rare earth deposit believed to be the third largest in the world has been discovered) reported that the **Ministry of Industry and Construction in Kazakhstan** had announced: "Four prospective areas have been identified … with total estimated rare earth reservices reaching 935,400" metric tonnes. As reported, the resource is in the **Karagandy region** of Kazakhstan. This news item continues a series of news items from Central Asia around CCM and REE.
- **Investment opportunities in Georgia**: On **May 8, 2025**, the **International Renewable Energy Agency** (**IRENA**) published Investment Opportunities for Utility-Scale Solar and Wind Areas. The publication is part of the IRENA Global Atlas For Renewable Energy series. The publication may be regarded as a mapping and zoning paper – surveying Georgia to provide a guide on the location and scale of development opportunities.

  By way of reminder: Edition 30 of **P_2N_0**, reported that:

  > "On **April 16, 2025**, **IRENA** published its Energy transition assessment: Georgia. The publication provides a helpful appraisal of the energy transition potential of Georgia, it is both thorough and timely. Georgia has considerable bioenergy and hydroelectric capacity, and even greater geothermal, photovoltaic solar and wind capacity development potential.

The publication concludes that the existing and potential resources offer **Georgia** a clear pathway to energy transition.

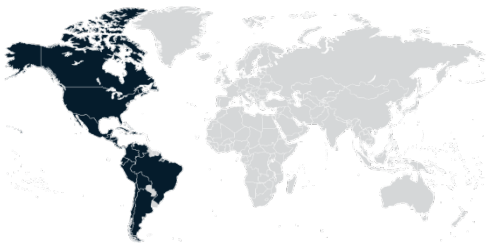
IRENA developed the publication jointly with the **Ministry of Economy and Sustainable Development** (**MoESD**) and will be used "to inform the development of Georgia's forthcoming revised Nationally Determined Contribution to the Paris Agreement (NDC 3.0)".

For complementary reading, see the **IRENA** publication, [Green Hydrogen For Industrial Decarbonisation: Central Asia and the South Caucasus](#).

- **Coal India Limited (CIL) and AM Green aligned**: On **May 9, 2025**, the good folk at **hydrogeninsight** (at [www.hydrogeninsight.com](#), under [Largest green hydrogen deal yet? Coal India agrees to supply 4.5GW of renewables for green hydrogen production](#)) reported that **CIL** and **AM Green** had entered into a memorandum of understanding to provide a framework under which **CIL** will supply **4.5 GW** of renewable electrical energy (**photovoltaic solar**, **2.5** to **3 GW**, and **wind**, **1.5** to **2 GW**) to **AM Green** for the production of green hydrogen and ammonia.

  As reported, the development of the renewable electrical energy capacity will be undertaken over a number of years.

  In passing, it is noted that **ArcelorMittal** recently commenced the supply of renewable electrical energy from its **1 GW Andhra project** to **AM Green**.



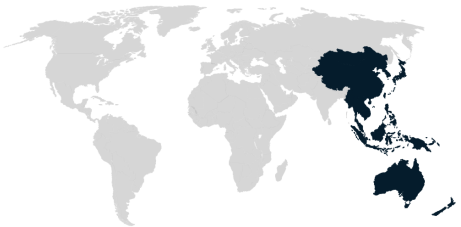
Americas

- **Indiana at pace**: During the second full week of **May 2025**, it was reported widely that Indiana's **1 GW Mammoth Solar Project** is now "a go" following the issue of a full notice to proceed by **Doral Renewables**, project developer, to **Bechtel**, contractor for the design and construction of the project.
- **PJM fast-tracks 11.8 GW to bolster power supplies**: On **May 5, 2025**, the good folk at utility dive (at [https://www.utilitydive.com](#), under [PJM fast-tracks 11.8 GW, mainly gas, to bolster power supplies](#)) reported PJM Interconnection selected **51 projects** to join a fast-track interconnection review process as part of a broad effort to ensure that the grid operator has adequate supplies [of electrical energy to ensure the integrity and stability of the transmission system]".

  As reported (and as may be expected), **gas-fired power generation** accounts for **69%** of the capacity selected, **BESS 19 %,** and **nuclear 12%** (with 0.1% coal), with 90% of the projects to be operating by 2030. The article is well-worth a read. While the article goes to the integrity and stability of the **PJM grid**, the underlying need that is explained is relevant for most transmission systems.

- **Time in the sun**: On **May 5, 2025**, it was reported widely that **Filo del Sol**, in which **BHP** and **Lundin Mining** are in joint venture, ore body is estimated to have a mineral resource of up to **13 million tonnes** of copper and gold (and silver). This is a world scale mineral resource.
- **Meta provides a sense of the scale of digital infrastructure development**: On **May 2, 2025**, the good folk at **datacenterdynamics** (at https://www.datacenterdynamics.com, under Meta raises AI data center capex forecast to up to $72 bn) reported that **Meta** expects its **2025** capital expenditure to increase to between **USD 64 billion** and **USD 72 billion**. In the first **quarter of 2025**, **Meta** spent **USD 13.7 billion**, primarily on servers, data centers, and network infrastructure.
- **TotalEnergies progresses green hydrogen project in Chile**: On **May 5, 2025**, it was reported widely that **TotalEnergies** had submitted an environmental impact assessment in respect of its proposed **USD 16 billion green hydrogen and green ammonia** project in the **south of Chile**, in the vicinity of Tierra del Fuego (having some of the best onshore wind resources in the world).

  As reported, the project will encompass **4,000 hectares** of on shore wind turbines to generate renewable electrical energy to power electrolysers to produce green hydrogen then combined with nitrogen to produce **1.9 million metric tonnes** of green ammonia a year. Connecting news items from 2022 and 2025, the green ammonia will be shipped to northern Europe, with the green ammonia then cracked to derive green hydrogen to be transported across the hydrogen pipeline network being developed.



APAC

- **China's Q1 GHG emissions fall**: On **May 15, 2025**, it was reported widely that during the first quarter of 2025 GHG emissions declined by **1.6%** across China, and **5.5%** across the power sector in China, year-on-year (compared to Q1 of 2024). This decline is notable of itself and because year-on-year electrical energy consumption across China increased by 2.5%. Among other things, what this indicates is that the rate of development of renewable electrical energy capacity is such that it is exceeding the rate of increase in electrical energy consumption.
- **Key to unlock grid**: On **May 15, 2025**, the good folk at **Ember** published Wired for profit: Grid is the key to unlock ASEAN energy investment. The publication provides a punchy assessment of the benefits that could be realised across the 10 ASEAN nations through the development interconnectors to transport electrical energy cross-borders. The publication is well-worth a read.
- **South Korea announces new tenders for hydrogen**: On **May 9, 2025**, **the Government of South Korea** came to market with two new tenders for the supply of hydrogen for use to generate electrical energy.

As reported, one tender is for "**clean hydrogen**" [2]and the second for "**general hydrogen**", with both clean and general hydrogen (and hydrogen-derived fuels from either of them) eligible to participate in the tender.

By way of reminder: **Edition 22** of **P_2N_0** reported on the first tender process (under **KOSPO left at lone bidder**) as follows: "On **November 22, 2025, Korean Southern Power Co., Ltd** (**KOSPO**) announced that it was the only corporation selected to participate in the bidding process for electrical energy using clean hydrogen to be undertaken by the **Korean Power Exchange** for the **Clean Hydrogen Energy Portfolio Standards** (**CHPS**). As reported, the reason that **KOSPO** is the only corporation is that it is the only corporation that was able to satisfy the confidential price cap".

- **Green Hydrogen Surge in China**: On **May 8, 2025**, the good folk at **fuelcellworks** (at https://fuelcellworks.com, under China's Green Hydrogen Surge: 2025 Electrolyser Orders Already Outpace Entire 2024) reported that in the **first four months of 2025** (**2.4 GW**) electrolyser orders in **China** had exceeded the number of orders for the whole of 2024 (**2.37 GW**). This is good news and provides a contrast with the slow-down and the cancellation of green hydrogen projects elsewhere.
- **ExxonMobil and Marubeni sign BH_2 offtake**: On **May 8, 2025**, it was reported widely that **ExxonMobil** and **Marubeni Corporation** had entered into an offtake agreement under which **ExxonMobil** is to supply and **Marubeni** is to offtake **250,000 metric tonnes** of **blue hydrogen** (**BH_2**). The **BH_2** will be supplied from **ExxonMobil's Baytown Project**, on the **Gulf Coast**.

  As reported, **Marubeni** will supply the **BH_2** to **Kobe Steel**, with **Kobe Steel** to use the BH_2 to co-fire with coal at its coal-fired power station in the vicinity of **Osaka, Japan**.

  By way of reminder:

  > **Edition 10** of **P_2N_0** reported that on **March 25, 2024**, "**ExxonMobil** and **JERA** had agreed to assess jointly the development of a low-carbon hydrogen and ammonia production project. As reported, **JERA** may contract to offtake up to **500,000 metric tonnes** a year of low-carbon ammonia from the **ExxonMobil Baytown Complex**. As noted, below **JERA** is testing the use of blue ammonia to co-fire with coal to reduce the CO_2 arising from its **Hekinan** coal-fired power generation".
- **Indonesia includes 10 GW of nuclear capacity by 2040**: On **May 1, 2025**, it was reported widely that Indonesia expects to develop **10 GW** of nuclear generating capacity, and to start to award contracts for the development of this capacity by 2030. The installation of **10 GW** of nuclear generating capacity would be part of the plan to increase installed electrical energy capacity across Indonesia from 90GW to 195 to 200 GW by 2040.

  By way of reminder, in Edition 20 of P_2N_0, on **November 11, 2024, Climate Envoy for Indonesia**, Hashim Djojohadikusumo, announced that Indonesia intends to develop 100 GW of electrical energy capacity

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[2] The **Government of Korea** defines **clean hydrogen** as hydrogen with **4 kg of GHG emissions** (or less) **per kg**. The **Clean Hydrogen Certification System** measures GHG emissions from production of hydrogen, and if the GHG emissions equal of less than the prescribed threshold, the hydrogen will be certified. The implication of being certified is that it allows participation in the clean hydrogen power generation bidding process (under the KPX). The CHPS mandates the purchase of electrical energy generated from clean hydrogen.

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**.

Europe and the UK

- **CCS project selected for funding in Denmark**: On **May 16, 2025**, the **Danish Energy Agency** announced that **10 CCS** projects were to receive up to **DKK 28.4 billion** (around **€3.7 billion**) in government funding support. The **10 CCS** projects comprise 1 cement plant, 2 biomass combined and heat and power projects, and 7 waste-to-energy projects. If all projects are developed up to **5.3 million tonnes** of **CO_2** will be sequestered from them.
- **Interatec produces e-fuels from green hydrogen and bio-genic CO_2**: On **May 16, 2025**, it was reported that German corporation **Interatec** had produced **e-diesel** and **e-SAF** from green hydrogen and biogenic CO_2. As **drop-in fuels**, the **e-diesel** and **e-SAF** can be used with fossil fuel equivalents.

  It is anticipated that the production of **drop-in fuels** will increase as **EU Member States** move to meet their **renewable fuel of non-biological origin** (**RFNBO**) targets.
- **First CO_2 captured at Brevik**: On **May 12, 2025**, **SLB Capturi** announced that the first **1,000 metric tonnes** of **CO_2** had been captured and liquified and were in intermediate storage at the **Heidelberg Materials** cement facility in **Brevik, Norway**. The carbon capture facility reached mechanical completion in **December 2024** and is now capturing **CO_2** to progress to the design capacity of **400,000 metric tonnes** a year.

  In due course, the CO_2 in intermediate storage will be transported to the **North Lights CCS Project** for injection and storage permanently. The capture, transportation and storage comprise the CO_2 value chain that is termed the **Longship Project**.

  The carbon capture plant uses **Big Catch** technology and is the result of a long-standing collaboration between **Heidelberg Materials** and **SLB Capturi**.
- **France consults on the transposition of Renewable Energy Directive III** (**RED III**, i.e., **EU Directive 2023/2413**) **into French law**: On **May 14, 2025**, the good folk at **hydrogeninsight** (at www.hydrogeninsight.com, under France sets out aggressive targets and penalties for green hydrogen use transport by 2030) reported that is proposing that green hydrogen and derivatives of green hydrogen should fuel **1.5%** of consumption in across the transport sector by 2030.

  If this proposal is accepted, it will exceed the **RED III** requirement of **1%** of all transport fuels (including aviation, rail, road, and shipping) to be **RFNBO**.
- **A timely reminder**: On **May 8, 2025**, the good folk at **peterson solutions** (at https://www.petersonindonesia.com under European Commission Recognises Updates ISCC EU under RED III) reported that on **May 5, 2025**, the **European Commission** issued a positive technical

assessments for the updated ISCC EU System Documents. The updated documents are consistent with the requirements under **RED III** and provide a transparent basis for certification. From **May 21, 2025**, all **ISCC EU** audits must comply with these requirements.

- **Phosphate discovery in Norway**: On **May 6, 2025**, the good folk at **dailygalaxy.com** (at www.dailygalaxy.com, under Geologists Uncover World's Largest Phosphate Deposit Worth $12 trillion in Totally Unexpected Location) reported that Norge Mining had reported the discovery of a mineral resource of up to **70 billion metric tonnes of phosphate**. The discovery is not new (2018), but its implications continue to develop. While phosphate is best known as a feedstock for fertilizer, it is a **CMM** used in batteries, EVs and solar panels,
- **Stegra steel resolve**: On **May 5, 2025**, it was reported widely that **Stegra** had taken delivery of **740 MW** of electrolyser capacity (**37 20** MW alkaline electrolyser modules) to produce green hydrogen to provide high-heat temperature for its **€6.5 billion green iron and steel mill** in **Boden, Sweden**.
- **OCDE – What to expect from the EU CBAM?** The good folk at OCDE have published a punchy paper to provider headlines to foreshadow the impact of the **Carbon Border Adjustment Mechanism** by the European Union – What to expect from the EU Carbon Border Adjustment Mechanism? The publication is a helpful aide memoire, that includes details of further reading.

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 (and a bit) of **May 2025** are:

- IEA podcasts: In its own words, the **IEA** "has launched a new podcast series! It's a great way to get quick insights into our latest publications and energy analysis – perfect for podcast lovers". The first podcast is based on the **IEA Global Energy Review**.
- **Less smoke, more mirrors! Experience from JETP initiatives**: During the first part of **May 2025** the good folk at the **International Network of Just Transition Think Tanks** (**INETT**) published Just energy transitions in developing countries – Experience from JETP countries.

  The frame of the publication is that which is just and the concept of what is required for a just energy transition. Without wishing to devalue this frame, for the author the key issues for Indonesia, Senegal, South Africa, and Vietnam (as countries that have entered into **JETP Agreements**), are:

  - Ever-greater levels of communication and transparency are required among the parties to JETP Agreements, with clear and consistent definitions of the development of specific renewable electrical energy projects in the developing countries, under rolling three programs, that have clear lines of sight to funding, domestic and international to financial close;
  - Ever-greater levels of communication and transparency are required once projects achieve financial close, with the provision, publicly, of data and information that reports on the objective of each project, project milestones and the achievement of them, what is being done to mitigate any delay, and reporting on the outcomes achieved against the objectives planned; and
  - Ever-greater levels of standardisation and transparency to report data and information through the life cycle of each project, and standardised documentation to increase speed of deployment of capital for, and development of projects, and in so doing to reduce transaction costs.

The **JETP** initiative has yet to realise its potential, and the publication underlines this. The three points made above are not directly from executive summary of the publication, rather they pick-up on some of the themes arising from the publication, and from personal experience.

- **By way of reminder: Edition 30 of P2N0 (under Vietnam approves Amended PDP8)** reported that:

  "On **April 15, 2025, Vietnam** published its amended PDP8 – **the Revised National Power Development Plan for 2021-2030**, with a forward-looking perspective to 2050 (**PDP8**). In the context of the purpose of P_2N_0, the key takeaway is: GHG emissions from electrical energy generation are to be capped at 197 – 199 million metric tonnes of CO_2 by 2030, representing a reduction of 27 million metric tonnes from current business as usual, and 170 million metric tonnes of CO by 2030 if JETP is utilized in full.

  In the context of **PDP8**, it would seem that the aim is to phase out use of coal by 2050: by 2050, the power mix will comprise approximately 74 to 76% of renewable energy. Under the forward-looking perspective is Total Capacity of 490,529 MV to 573,129 MW, comprising:

  - photovoltaic solar of 168,594 MW to 89,294 MW (33% to 34.4%);
  - offshore wind 70,000 MW 91,500 MW (14.3% to 16%); and
  - offshore wind 60,050 MW to 77,050 MW (12.2% - 13.4%),

  With the balance comprising, among others, storage power sources, thermal power using biomass and ammonia, hydro, biomass, waste to energy, geothermal or new energy, LNG, and hydrogen.

  By way of background: A number of countries, with developing economies, have signed **Just Energy Transition Partnership** (**JETP**) agreements[3] with countries and blocs, with developed economies. At **COP-28** in 2023, Vietnam presented a 200-page implementation plan for the purposes of the **Vietnam JETP**. Among other things, under the Vietnam JETP, USD 7.75 billion in funding was pledged for energy transition projects."

- **Unlocking Opportunities in Emerging Markets**: During the first two weeks of **May 2025**, the **Energy Sector Management Assistance Program** and the **International Finance Corporation** published Unlocking Opportunities: A Framework for Assessing Green Hydrogen Potential in Emerging Markets.

  The publications develop thinking from **World Bank** publications, Green Hydrogen in Developing Countries, and Scaling Hydrogen Financing for Development. While the publication conveys a sense of the potential of green hydrogen, the potential is not overstated. The publication is worth a read.

- **Pipelines for hydrogen transport**: A continuing theme since mid-2020 has been how will hydrogen be transported. Initially, thinking involved the use of ocean-going carriers. As the mathematics and physics of this became apparent, thinking has settled on the production and use of hydrogen domestically in the first instance, and the import of hydrogen using pipelines. In this context, two fundamental issues arise:

  - First, the impact of the prices to transport hydrogen on the cost of the development of hydrogen transportation infrastructure; and

[3] In addition to Vietnam, countries, with developing economies that have signed JETPs are Indonesia, Senegal and South Africa.

- Secondly, the integrity and safety of hydrogen transportation infrastructure.

During the first two weeks of **May 2025**, the author read a number of publications, each touching on these two fundamental issues:

1. The **Dutch Authority for Consumers and Markets** (**ACM**) has pointed out that the prices to transport hydrogen will be high in the absent continuing government support – see H2 View: ACM warns Dutch hydrogen tariffs could rise without urgent support or Fuel Cell Works: Dutch Regulator Warns Hydrogen Transport Costs to Spike Without Immediate Government Action.

2. The **European Commission** publication, Pipelines for hydrogen transport: A review of integrity and safety challenges. This publication guides the reader through the key issues. There is nothing new in the subject matter, rather it provides a relatively deep dive into the issues that are specific to pipelines.

- **Pipelines for CO_2 transportation**: The good folk at the Carbon Capture & Storage Association published a position paper entitled **An EU regulatory package on CO_2 transport infrastructure**. The publication is well-worth a read. It will not be a surprise that issues similar to those that arise in respect of the hydrogen transportation arise in respect of CO_2, noting that the issue of safety is a lesser issue with CO_2 than with H_2.
- The author had cause to use the Carbon Market Regulations Tracker during the first part of **May 2025**. The tracker is a user-friendly means of reminding the user of the regulatory frameworks in respect of carbon credits and carbon offsets. The tracker is funded by the German Federal Ministry for Economic Affairs and Energy (**BMWK**).

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