P2N0

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

Welcome to **Edition 28** of **P_2N_0** covering the drive to avoid, reduce and remove greenhouse gas (**GHG**) emissions to reach net-zero 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 28** covers news items arising during the period **March 17** to **March 31, 2025**.

Edition 29, covering **April 1** to **April 15 , 2025**, will be published on **April 18, 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.

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HEADLINES FROM MARCH 17 TO 31, 2025

Opening observations:

- **China's CO_2 emissions appear to have plateaued**: The good folk at **Carbon Brief** have reported that "China's CO_2 emissions in 2024 were lower than in the 12 months to February 2024". This news, and the continued development of renewable electrical energy capacity in China, represents sure progress.
- **Critical metals and minerals**: There is increasing activity from governments globally to secure critical metals and minerals. Critical metals and minerals are essential to continued progress of decarbonisation of activities, and the development of mine production capacity, and supply chains are essential to security. The increasing activity from governments, recognises the role of governments in this increasingly essential sector.

  In the **European Union** (**EU**), 47 projects are eligible for funding support to develop projects to produce and to supply critical metals and minerals across the Member States of the EU.

  In the **US**, an **Executive Order** requires the identification of mineral projects and for the acceleration of permitting of those projects to provide for mineral production on an accelerated basis.

  It is apparent that there is a role for governments more broadly.
- **Natural Gas and Nuclear**: As noted in **Edition 27** of **P_2N_0**, it is no longer a matter for debate that natural gas and LNG, and nuclear energy, are essential to affordable, reliable, and sustainable sources of electrical energy globally. Natural Gas accounts for about 25% of global electrical energy generation, nuclear for about 10%, and renewables for about 30%.

News headlines:

- **CSRD Reporting well and truly up and running**: On **March 28, 2025**, the good folk at **PWC** published Insights form the first 100 CSRD reports.

  The publication provides an assessment of the first 100 CSRD reports delivered since the start of 2025. The publication does not contain any surprises, yet it is well-worth a read.

  While the author is not a fan of reporting for reporting's sake, it is fair to say that reporting can provide a framework for compliance and good governance.

- **Methane data base at large**: On **March 28, 2025**, **BloombergNEF** published its **Methane Monitor: Global Super-Emitters**.

  For those interested in the impacts of methane emissions, the Methane Monitor provides a helpful means of diagnosing methane emissions, and how to address them.

- **International Energy Agency** (**IEA**): During the second two weeks of **March 2025**, the **IEA** published:

  - On **March 25, 2025**, Grid congestion is posing challenge for energy security and transitions. The commentary provides examples, by country, of the challenges that are being faced. The challenges are summarised as follows:

    1. Electricity security relies on the smooth flow of electrons;

    2. Grid congestion problems are holding back energy transitions; and

    3. In addition to the augmentation and expansion of grid capacity, existing grid capacity needs to be used more efficiently.

  - On **March 24, 2025**, the Global Energy Review 2025 was published. The publication headlines:

    - the increased demand for energy, with demand for electrical energy increasing by 4.3%, including with increased demand to respond to the increased use of electrical energy for AI, cooling and EVs (EV car sales increased by 25%);
    - the 700 GW of renewable electrical energy capacity installed during 2024 represented 80% of the new generation capacity installed (with 80% of the 700 GW new renewable capacity, solar capacity); and
    - the increased demand for natural gas (including natural gas) was a record high.

    As noted recently, at its core increased demand is in response to the continued development of the economies of China and India.

The author often refers to known dynamics and themes. The **Global Energy Review 2025** notes the dynamics and themes outlined in Edition 22 of P_2N_0 to the extent that it relates to the **Age of Electricity**, **Digital and Energy Infrastructure**, and **Photovoltaic Stepped Changes**[1].

By way of reminder, in **October 2024**, World Energy Outlook 2024 (**WEO2024**). The **World Energy Outlook** publications from the **IEA** are one of a handful of publications each year that may be regarded as flagship reports.

WEO2024 provided a sure-footed assessment of the dynamics as follows:

- Energy security and avoidance, reduction, and removal (**ARR**) of GHG emissions are under stress because of political fragmentation and geopolitical tensions.
- In the context of energy security and ARR of GHG emissions uncertainty, data-driven analysis is required, with increased focus on sensitivity on the deployment of renewables, increased electrical energy efficiency, increased electrical energy because of AI, and increased use of LNG to provide energy security.
- While political fragmentation and geopolitical tensions abound, "underlying market balances are easing, setting the stage for intense competition between fuels and technologies", including because of anticipated overhang of LNG and oil supply.
- As noted in recent editions of P_2N_0, LNG production capacity is increasing.

  The **IEA** asks **Who will ride the wave of new LNG?** In exploring the answers to this question, the IEA notes that "Gas importing emerging in developing economies would generally need prices at around USD 3-5/MMBtu to make gas attractive as a large-scale alternative to renewables and coal … ". For what it is worth, the author agrees with this thesis, at least at the lower end of the USD 3 / 5 MMBtu range. This means that renewables and coal will continue to provide a more affordable pathway for developing economy to develop their electrical energy capacity.

  As noted recently, it is likely that oil supply will be greater than demand, and the IEA states that this "new market context may provide some breathing space for fuel-importing countries and

[1] **Dynamics and Themes**:
• **Age of electricity**: Throughout 2024, one of the key themes that emerged as anticipated is the increase in supply and demand of electrical energy with each of the flagship reports making predictions on increased supply and demand.
• **Carbon Dioxide Removal (CDR)** and **Carbon Capture and Storage (CCS)**: In order to achieve net-zero, **CDR** and **CCS** together need to remove and avoid around 15 giga-tonnes of CO2 emissions. In this context, the operationalization of **Article 6** of the **Paris Agreement** and enhanced commitments of government to **CCS** is welcome.
• **Critical materials (metals, minerals, and rare earths) (CM3)**: Alongside the anticipated increase in electrical energy supply and demand sits the need to increase the production and supply of **CM3**.
• **Digital and Energy Infrastructure**: With the development of **Generative AI**, there will be an increase for electrical energy for data centres, and more broadly the need to develop energy infrastructure. In addition, the development and augmentation of transmission capacity remains a focus in some areas of the world.
• **Photovoltaic solar stepped changes**: A more difficult market for offshore wind field development emerged during 2024. To counter this, the development of photovoltaic capacity continued globally, in many countries accelerating.
A constant theme is the need for government fiscal incentives and funding support (including through concessionary funding, CfDs, and grants) to facilitate decarbonization and energy transition.

regions – such as Europe, and South and Southeast Asia – that have been hit hard by higher prices for fossil fuel and electricity in recent years".

- Renewable electrical energy capacity development continues, with China leading the way in the deployment of renewable electrical energy capacity. The **IEA** reminds us that 10,000 GW of renewable electrical energy needs to have been installed by 2030, more than doubling from 4,250 GW. This continues a well-worn theme – more needs to be done to develop renewable electrical energy capacity, to address increased electrification and urbanization in developing countries and to address increased demand for electrical energy in developed countries and developing countries in respect to AI.

Note: This is the author's summary of key themes from **WEO24**. Links to the Executive Summary and WEO204 allow the reader to access them, and the author recommends both. WEO2024 was accompanied by Energy Technology Perspectives 2024.

- On **March 19, 2025**, Demand and Supply Measures for the Steel and Cement Transition – The case for international co-ordination. The publication was developed at the request of the Climate Club.

  As noted in recent editions of **P_2N_0**, the cement and concrete and iron and steel are essential to the continued development of the global economies. Just as these industries are essential to continued development, to progress to net-zero GHG emissions, these industries need to be decarbonised.

  The publication notes that:

  > "The steel and cement sectors accounts for 14% of global energy and process-related emissions on a direct basis, making them central to the decarbonisation challenge".

  The **Executive Summary** of the publication makes the following points:

  1. Acceleration of decarbonisation is needed;

  2. Policy settings are needed to establish demand, internationally, for green iron and steel, and green cement and concrete;

  3. Government has a role to play in establishing demand;

  4. Supply side measures are needed, and must work "hand-in-hand" with demand side measures;

  5. Cross-border collaboration would provide benefits; and

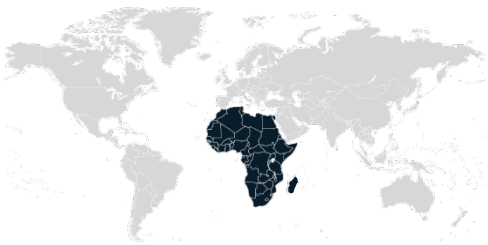
  6. A pledge specific to industrial decarbonisation would send an important signal in the context of the development of supply and demand for green iron and steel and green cement and concrete.

  By way of reminder: **Edition 27** of **P_2N_0** (at pages 6 and 7) covers the key findings of **Zenon Research** - Decarbonizing steel production – is hydrogen the only lever, including the means of decarbonising iron and steel.

  The carbon intensive industrial sector is considering carbon capture and storage (**CCS**) to capture CO_2 arising from the activities to produce iron and steel and to produce cement, the use of renewable electrical energy to provide power, and hydrogen to produce high-heat temperatures.

In addition to iron and steel and cement, the aluminium and refining and petrochemical sectors are positioning to decarbonise their activities and have the same challenges as the iron and steel and cement sectors.

- On **March 18, 2025**, the **March 2025** edition of its Energy Snapshot. The **March 2025** edition is entitled **The battery industry's next phase** and provides an excellent summary of the scope and size of the markets for battery capacity.



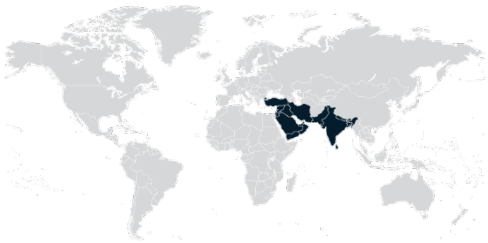
Africa

- **CCS Atlas for Nigeria**: On **March 20, 2025**, the **International Finance Corporation** (**IFC**) published its Nigerian CO_2 Storage Atlas[2]. The headline from the publication is that Nigeria has **10.7 billion metric tonnes** (or **10.7 gigatonnes**) of prospective **CO_2** storage capacity.
- **CWP Global completes H_2 studies in Mauritania**: On **March 14, 2025**, it was reported that **CWP Global** had completed studies in respect of the development of GH_2 production potential in the **Aman** region of **Mauritania**.

  As reported, the studies were undertaken by **Groupe MAGMA** and **RSK Geosciences**, with the initial findings contemplating a 30 GW renewable energy project to produce up to **1.7 million metric tonnes** of GH_2 a year or up to **10 million metric tonnes** of **GNH_3**, and with **hot briquette iron** (**HBI**) production of up to **2.5 million metric tonnes** a year.
- **GH_2 production commences in Namibia**: On **March 17, 2025**, it was reported widely that on **March 12, 2025**, the **12 MW** electrolyser at the **HyIron Oshivela** plant produced GH_2 for the first time.
- **Morocco GH_2 barometer:** During **March 2025,** the publication **Morocco**: **The Place to lead in Green Hydrogen!** was published. The provides a summary of the range of projects across Morocco.

  By way of reminder: Edition 27 of **P_2N_0** (under **Morocco to progress USD 32.5 billion of Green Fuel projects**) reported that: "On **March 7, 2025**, it was reported widely that **Morocco** had identified investors to develop **six green fuel projects** across the south of the country. As reported, each project will produce green hydrogen, and use that hydrogen to produce green ammonia and e-fuels, and as a source of high-temperature heat for use in the production of green iron and steel".

[2] The **IFC** has long recognized the potential of Nigeria to capture and to storage CO_2, with the Nigerian CO_2 Storage Atlas adding to previous publications, including IFC Nigeria Dissemination Workshop on Industrial CCUS and a new Centre for Excellence; Carbon Capture and Storage: A Critical Tool for Fighting Climate Change; and IFC and World to Help Nigeria Pave the Way for Domestic Carbon Storage.



Middle East and South Asia

- **Google buys black gold in India**: On **March 28, 2025, the cooldown** (at www.thecooldown.com, under **Google locks in unprecedented purchase of "black gold" to fuel global solutions: "It has the ability to scale worldwide"**) reported that Google had agreed "a record breaking deal for "black gold" … through the [purchase of] 100,000 [metric tonnes] of carbon dioxide removal credits from Varaha, an Indian startup whose biochar is certified on leading crediting platform Puro . Earth".

  By way of reminder, **Edition 27** of **P_2N_0** under (**Microsoft carbon credit purchase in India**) reported that "On **March 10, 2025**, the **carbonherald** (at **carbonherald.com**, under Microsoft Inks 30-Year Carbon Credit Deal with Afforestation Project in India) reported that Microsoft had contracted with **Climate Impact Partners** to purchase **1.5 million carbon credits** over **30 years**. The carbon credits will arise because of the removal of carbon dioxide from the climate system as an area of 20,000 hectares is afforested in the Panna region of Madhya Pradesh".

- **Global Cement and Concrete Association** (**GCCA**) **publishes Net Zero Roadmap**: On **March 26, 2025**, the **GCCA**, working with **The Energy and Resources Institute** (**TERI**), published Decarbonisation Roadmap for the Indian Cement Industry: Net zero CO_2 emissions by 2070. The publication aligns the initiatives of the cement and concrete industry with the Government of India's commitment to net-zero. The publication is well-worth a read.

- **SMR deployment in India**: On **March 25, 2025, Rupsha Bhattacharyya** published Approaches for Design and System Readiness Evaluation of SMRs for Near Term Deployment: An Overview of Activities in India. The publication is well worth a read.

- **India concludes second round GH_2 auction**: On **March 20, 2025**, it was reported widely that the **Government of India** had awarded support of **USD 260 million** to be shared among nine corporations under its **Strategic Intervention for Green Hydrogen Transition** (**SIGHT**) **Programme**. The funding will support the production of **450,000 metric tonnes** of GH_2.

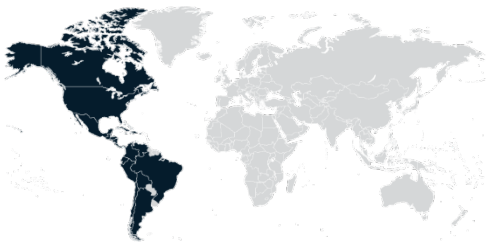
- **India and Africa and Critical Minerals**: During **March 2025**, the good folk at **Centre for Social and Economic Progress** (**CSEP**) published India, Africa and Critical Minerals Towards a Green Energy Partnership. The publication proposes policy settings that India may introduce to address the projected "fall short" in the supply of critical metals and minerals.

- **Advancing Cross-Border Energy Infrastructure between Europe and the MENA region**: During **March 2025, Guidehouse Germany GmbH** published Advancing Cross-Border Energy Infrastructure between Europe and the MENA region. The publication was prepared for the **German Federal Ministry for Economic Affairs and Climate Action** (**BMWK**).

  The publication pushes up the often-discussed concept of the development of the development of pipelines from the **MENA** region to Europe.

This continues the recognition of the role that the **MENA** region can play in the production of green hydrogen, whether for combination with nitrogen or for use to provide high-temperature heat to produce green hydrogen, or both.

The development of infrastructure to realise the concepts (combined with the generation of green energy in **MENA** and its transmission to Europe) is challenging, and these challenges are known. The publication is well-worth a read.



Americas

- **SEC ceases to defend climate disclosure rules**: Edition 10 of P_2N_0 (page 3) outlined the climate disclosure rules proposed by the US **Securities and Exchange Commission** (**SEC**). At that time, it was noted that the climate disclosure rules were subject to challenge. On **March 28, 2025**, the **SEC** ceased to defend the regulation containing the climate disclosure rules but have not rescinded them.
- **Amazon, Google and Meta to go nuclear**: On **March 21, 2025**, **ecoportal** (at www.ecoportal.net, under It's the largest deployment in history – Meta, Amazon and Google team up to produce 1 million MW) reported that: Amazon, Meta, and Google … as well as … Occidental … and IHI Corp have all pledged to their support for a plan to triple the total global capacity for nuclear energy by 2050".

  While the article is "clickbaity" (in that it pulls together several strands from news items, rather than reporting on a single new news item), it reminds us that nuclear energy needs to be an important part of the renewable energy mix as we progress to 2050.
- **US introduces Immediate Measures**: On **March 20, 2025**, **The White House** (at https://www.whitehouse.gov, published an **Executive Order**, Immediate Measures to Increase Mineral Production. The purpose of the **Executive Order** is to identify, quickly, mineral projects that can be permitted, quickly, to facilitate the development of mineral projects to produce, and to provide clarity on "the treatment of waste rock, tailings, and mine waste disposal under the Mining Act of 1872".

  By way of reminder: During **January 2025**, the **US Department of the Interior**, **US Geological Survey**, published Mineral Commodity Summaries 2025. The publication is excellent, providing an excellent overview of each commodity, from A to Z.
- **Panama developing GH_2 regulations**: On **March 19, 2025**, **hydrogeninsight** (at https://www.hydrogeninsight.com, under Panama develops draft green hydrogen regulations with eye on clean shipping fuels and exports) reported that Panama is preparing to commence consulted on draft GH_2 regulations. The draft GH_2 regulations have been developed with the **European Union** (**EU**).
- **Canary in the Data Center**: On **March 18, 2025**, the good folk at **Canary Media** (at www.canarymedia, under A new way to power data centers to pair clean energy and peaker plants) reported on the findings of an **RMI** report entitled Powering the Data-Center Boom with Low-Carbon Solutions. The

headline is that renewable electrical energy (photovoltaic solar and wind) can be used in combination with "rarely used gas plants" to match the load of data centers while at the same time spilling electrical energy into grids.

As reported by **Canary Media**, the **RMI** report outlines what is calls "power couples", coupling new build renewables with existing peaking gas-fired power capacity. As outlined, data centers would not draw power from grids, rather data centers would have a "point of interconnection" between peaking plants and the grid. The author understands the theory. The challenge is likely to be the practicality.

- **DAC powered by wind**: On **March 17, 2025**, it was reported widely that **Return Carbon**, **Skytree** and a subsidiary of **EDF**, plan to develop a **Direct Air Capture** (**DAC**) project, powered by renewable electrical energy sourced from wind. As planned, the **DAC** project would remove **500,000** metric tonnes of CO_2 from the climate system annually. The CO_2 captured would be injected and stored by Verified Carbon.

APAC

- **China proposes draft disclosure standards**: On **March 28, 2025**, the **Ministry of Finance** published draft **Sustainability Disclosure Standards** for China. It is understood that the draft **Standards** have been developed by refence to **CSRD** and **ISSB**. The draft **Standards** are to continue to be developed so that they will be published during 2027 and finalized by 2030.
- **Singapore carbon credits tender**: On **March 29, 2025**, **The Straits Times** (at www.straitstimes.com, under Singapore looking to buy nature-based carbon offsets to meet 2030 climate target) reported that Singapore undertook its first request for proposal process during February 2025, seeking the supply of carbon credits from projects giving rise to at least 500,000 carbon credits.

  As reported, for Singapore to achieve its GHG emissions target for 2030, it is estimated that Singapore needs to acquire carbon credits annually through 2030 to offset 2.51 million metric tonnes of CO_2-e emissions each year.

  By way of reminder Edition 27 of **P_2N_0** (under **Singapore progresses carbon credit initiatives**) reported that: "On **March 7, 2025**, **The Straits Times** (at https://www.straitstimes.com, under S'pore could buy is first tranche of carbon credits in 2025; MTI to call for proposals) reported that the **Ministry of Trade and Industry** (**MTI**) is to issue a "request for proposals to procure carbon credits later in 2025".
- **South Korea to increase critical metal and mineral recycling initiatives**: On **March 25, 2025**, it was reported widely that South Korea is continuing to increase its critical metal and mineral recycling initiatives, the **Ministry of Trade, Industry and Energy** announcing the Key Mineral Recycling Activation Promotion Plan. The implementation of the Plan is intended to increase recycling rates to 20% in respect of 10 strategic metals and minerals critical to the battery, EV, and semi-conductor industries.

- **Australia Federal Government provides head-start**: On **March 20, 2025**, the Australian Federal Government awarded support of **AUD 814 million** for the **Murchison Green Hydrogen** project to be located in the vicinity of **Kalbarri** in the **Mid-West Region**, of **Western Australia**. This is the first award under the Hydrogen Headstart program, which is to make up to **AUD 2 billion** available. The **Murchison Green Hydrogen** project is being developed by **Copenhagen Infrastructure Partners** and will be powered by 3GW of renewable electrical energy (1.2 GW of photovoltaic solar and 1.7GW of wind) and 600 MW / 1.2 MWh. The GH2 to be produced by the **Murchison Green Hydrogen** project will be combined with nitrogen to produce **1.3 million metric tonnes** of ammonia (**NH3**) annually.

  Attached is a link to the **Media Release** from the **Australian Renewable Energy Agency** (**ARENA**) on **March 20, 2025**, headed **Murchison Green Hydrogen Project given a headstart**.

- **Hammer down on Hamersley**: On **March 18, 2025**, it was reported widely that in the Hamersley region of Western Australia the largest deposit of iron ore had been discovered: this discovery was reported at the tail-end of 2024 but appears to have captured attention again. As reported, the deposit is estimated to comprise **55 billion metric tonnes** of iron ore. While iron ore is not a critical metal or mineral (as commonly understood), iron ore is required to produce iron and steel.

- **Data Centre investment continues in Thailand**: On **March 17, 2025**, it was reported widely that Thailand has approved **USD 2.7 billion** of investment to allow the development of data centres and cloud services.

  As reported, the investments are as follows: the investment from **Beijing Haoyang** to include the development of a new 300 MW data centre, **Empyrion Digital** to include investment in a new 12 MW data centre, and **GSA Data Center O2** to include investment in a new 35 MW data centre.

  On **March 27, 2025**, the good folk at **w.media** (at https://w.media/thailand, under Thailand aims to cut electricity costs by 25% in bid to be data centre hub) reported that in the near term the intention is to bring down the price of electrical energy from 4.15 baht to 2.70 baht / kWh by the end of 2026.

- **Data Centre funding sought**: On **March 17, 2025**, **The Business Times** (at https://www.businesstimes.com, under Chinese data centre firm GDS seeks record USD 3.4 billion loan), reported that **GDS Holdings** is seeking a **USD 3.4 billion** loan to develop and to operate data centres in **Malaysia**.

  The Business Times reported that: "The southern state of Johor [in Malaysia] – which sits across from the city-state of Singapore – has about 30 projects completed or under construction, plus 20 more awaiting approvals".

  By way of reminder: in addition to the supply of electrical energy, data centres require water. Back in **February 2025**, it was reported widely that the **National Water Services Commission** for Malaysia (**Span**) was preparing guidelines for the sources and uses of water, with potable water to be replaced by recycled wastewater.

- **Harvesting Carbon in ASEAN**: During **March 2025**, the good folk at the **ASEAN Centre for Energy** (**ACE**) published Harvesting Carbon: Exploring BECCS as a Climate Solution for ASEAN. The publication considers the possible use of biomass resources across **ASEAN** as a source of feedstock for **BECCS**.

The publication ties back to the Eighth ASEAN Energy Outlook (**AEO8**): under the **Carbon Neutral Scenario**, the capacity of new electrical energy within the **ASEAN** could reach **100 GW**. The publication is excellent and is well-worth a read.

What this means at a country level, is identifying biomass waste that arises within the country from existing activities. Within **ASEAN**, there are a few sources of biomass waste. For example, palm oil production gives rise to biomass waste in the form of palm oil mill effluent (**POME**). **POME** can be used to produce biomethane. Biomethane can be used to produce bio-LNG. Existing infrastructure can be used to transport biomethane, by pipeline, and bio-LNG, by ship.

What this means at a regional level, is identifying regional cooperation and interconnection.

- On **March 29. 2025**, **Felicity Bradstock** published The Rise of Intercontinental Energy Grids, which provides a helpful snap-shop of international interconnection projects of various scopes and sizes. The publication is well-worth a read.
- On **March 25, 2025**, **ACE** published An Energy Sector Roadmap for Net Zero Emissions for Lao PDR.

- **China continues renewable energy deployment at pace**: During **March 2025,** the **China National Bureau of Statistics** reported that during **January** and **February 2025**, China has deployed a further **50 GW** of renewable electrical energy capacity.

Europe and the UK

- **Northern Lights Ever Brighter**: On **March 27, 2025**, **Equinor**, **Shell** and **TotalEnergies** announced that they had taken a positive final investment decision (**FID**) to develop phase 2 of the **Northern Lights CO_2, transport, and storage project**. Phase 2 will increase the capacity of the project from **1.5 million metric tonnes** a year, to **5 million metric tonnes** a year by 2028. As reported, the positive FID to develop phase 2 was taken in the context of the **Stockholm Exergi** contracting for storage services for 800,000 metric tonnes of **biogenic CO_2** annually.
- **Stockholm Exergi Bio-CCS project lit**: On **March 27, 2025**, **Stockholm Exergi** announced that it had taken a positive **FID** to develop its **BECCS Stockholm facility** within the precincts of **Värtaverket Port**, **Stockholm**. CO2 arising from the **BECCS Stockholm facility** will be captured by **Stockholm Exergi**, and then transported and stored. The **BECCS Stockholm facility** has been made possible because of funding support from the **EU Innovation Fund** and the **Government of Sweden**, and revenue from the sale of heat and electrical energy.
- **The Netherlands set to proceed with EDF and Westinghouse nuclear technologies**: Towards the end of March 2025, ANVS confirmed that EDF and Westinghouse nuclear technologies satisfied safety regulations. This opens the pathway to develop two new nuclear power station developments.

By way of background, the **IEA** publication **Netherlands 2024: Energy Policy Review** provides a comprehensive assessment of the dynamics within the Netherlands, with considerable progress in the installation of renewable electrical energy capacity on the one hand, with less progress in the augmentation and expansion of the grid network in the Netherlands, and absence of the benefits of base load. This is consistent with the plans to develop two new nuclear power stations.

UK Climate Change Levy consultation: On **March 26, 2025**, the **UK Government** (**HM Treasury**) published Consultation on Climate Change Levy: electrolytic hydrogen and energy context. The consultation period closes on **May 7, 2025**.

By way of background: In the **Spring Statement**, the UK Government committed to remove Climate Change Levy … costs from the electricity used in electrolysis to produce hydrogen.

The purpose of the consultation is to seek "views to determine the best legislative route to remove [Climate Change Levy] costs and [to] ensure the commitment is delivered in a way that achieves [the objectives of the government while avoiding unintended consequences".

By way of background, the Climate Change Levy is a charge on each user of electrical energy, whatever its source, including renewable electrical energy used to produce GH_2. In contrast, blue hydrogen is not subject to the Climate Change Levy because the natural gas used to produce blue hydrogen is not used to generate electrical energy.

- **European Commission** (**EC**) **approves 47 Strategic Projects for raw material extraction, processing, recycling, and substation across the EU**: On **March 25, 2025**, the **EC** published Commission Decision of 25.3.2025 recognising certain critical raw material projects as Strategic Projects under Regulation (EU) 2024/1252 of the European Parliament and the Council. The **EC Decision** recognizes **47** projects as Strategic Projects across 13 Member States, Belgium, France, Italy, Germany, Spain, Estonia, Czechia, Greece, Sweden, Finland, Portugal, Poland, and Romania.

  The Strategic Projects cover 14 of the 17 raw materials listed as critical under the Critical Raw Materials Act, including cobalt (10 projects), graphite (11 projects), lithium (22 projects), manganese (1 project), and nickel (12 projects).

  As reported, to progress the **47 Strategic Projects** to operation, around **€22.5 billion** in capital investment will be required.

  For further reading, see the UNEP International Resource Panel report.

- **Critical metals and minerals perspective**: On **March 24, 2025**, **Simon Strickland**, **Cabinet Office UK**, published a seven-page paper entitled Perspectives on critical minerals markets data. The paper packs a fair punch and is well-worth reading.

- **German Climate Protection Contract CfDs approved by the European Commission** (**EC**): On **March 24, 2025**, it was reported widely that the EC has approved the **€5 billion initiative** of the Federal

Government of Germany to encourage German industry to decarbonize activities by the adoption of carbon capture, electrification, and renewable hydrogen technologies[3].

Each industry participant must be subject to the **EU Emissions Trading Scheme** (**ETS**) and avoid or reduce GHG emissions by 60% within three years, and 90% by the end of, the 15-year CfDs. Each CfD will fund the additional cost and expense incurred by each industry participant is decarbonization.

- **France a Natural**: On **March 22, 2025**, it was reported widely that the in the **Moselle** region **of France**, up to **46 million metric tonnes** of natural (or white) hydrogen had been discovered. The discovery was made by the **CNRS** and **GeoSources**, the two organisations working together to discover methane. As reported, at a depth of around **1,250 metres**, the natural hydrogen was discovered[4].
- **Big BESS news**: On **March 20, 2025**, it was reported widely that **The National Energy System Operator** (**NESO**) had been awarded by contracts for BESS capacity for one year ahead (**T-1**) and for four years ahead (**T-4**) under **T-1** and **T-4** auctions, together having combined capacity of 2.5 GW.
- **BASF commissions GH_2 electrolyser**: On **March 18, 2025**, it was reported widely that **BASF** has commissioned its **54MW PEM** electrolyser (comprising 72 electrolyser stacks) at its chemical production complex located in **Ludwigshafen**, **Germany**. The electrolyser was supplied by **Siemens Energy**.

  As reported, this is the largest GH_2 production project in Europe. The GH_2 produced will displace grey hydrogen.
- **France and Japan combine for rare earths**: On **March 17, 2025**, it was reported widely that **Caremag** is to develop a **recycling and refining** (**RaR**) facility in the **Pyrenees-Atlantiques** region of **France**. As

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[3] **By way of reminder**: Edition 10 of P2N0 reported that on **March 14**, 2024, the **Federal German Government** launched the first round of bids to incentivize German industry to transition to lower, low or no GHG emission processes. The **CCfDs** or **climate protection contracts** are intended to accelerate the transition (by providing a positive incentive), with a clear recognition that the price on carbon under the **EU ETS** not sufficient (as a negative incentive).

[4] **By way of reminder**: French researchers have discovered a massive, naturally occurring hydrogen reserve, dubbed "white hydrogen," in the Moselle region, potentially revolutionizing clean energy, and positioning France as a global leader in the hydrogen energy sector. Edition 2 of P2N0 reported that during July and August 2023 a narrative arose around Natural Hydrogen (or native hydrogen or white hydrogen) including in a number of news items:

- In France, La Francaise d'Energie and GeoResources reported a large find of natural hydrogen in the Lorraine region of France at a depth of 1,000 metres.
- On July 17, 2023, Jorgo Chatzimarkakis, CEO of Hydrogen Europe, penned a piece outlining the potential of natural hydrogen, noting the resources that exist around Europe.
- On July 18, 2023, the good folk at The Business Times (under Could 'white hydrogen' change everything for shipping – and everybody else?) provided a helpful analysis.

Also, in July 2023, a number of news items reported on natural hydrogen, including on the plans of Kolonia to drill for natural hydrogen. Among others, Kolonia is backed by Bill Gates' Breakthrough Energy. For further reading, Science published an article entitled Hidden Hydrogen Does Earth hold vast stores of a renewable, carbon free fuel? back on February 16, 2023. Also in July 2023, Ryze Hydrogen provided a further perspective under Are we sitting on the clean energy of the future? And more recently, on August 12, 2023, The Guardian (under Prospectors hit the gas in the hunt for 'white hydrogen') published an article, with the key narrative being: "The size of the prize could be enormous: the US Geological Survey has said that even if only a small fraction of hydrogen under the Earth's surface could be recovered, there would probably be enough to last for hundreds of years".

reported, the French Government is to provide **€106 million** of funding support for the RaR facility, with a further **€110 million** of funding support to be provide by **JOGMEC** and **Iwatani Corporation**.

The **RaR** facility will be able to produce **600 metric tonnes** of dysprosium (used for magnets) and terbium oxide (used for lamps and lights), and up to **800 metric tonnes** of neodymium (used for magnets) and praseodymium oxide (used as a pigment for ceramics and glass), annually.

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 second two weeks of **March 2025** are:

- **Delphi Data** has published a series of publications which are worth reading. The ones which have captured our attention are: Hydrogen News, Hydrocarbon Reforming, Green or Blue: The Hydrogen Debate Heats up, and Hydrogen Project Updates. These are published on a regular basis and is a publication worth following.
- March 10 to 16, March 17 to 23 and March 24 to 30: The good folk at Subsurface Innovation continue to publish news items under the badge of **Connecting the Subsurface to the Energy Transition**.
- **Unmined Potential**: During **March 2025**, the good folk at the **Global Development Policy Center published** Unmined Potential – Opportunities for Development Finance to Support Sustainability and Inclusion in Transition Mineral Supply Chains. The publication is a timely and welcome reminder of the role that public financial institutions can play in the development of energy transition mineral monetisation.

Primary Author:

MICHAEL HARRISON*
Partner
michael.harrison@bakerbotts.com

Other Contacts:

JASON BENNETT
Partner
jason.bennett@bakerbotts.com

MARK BISCH
Partner
mark.bisch@bakerbotts.com

JULIE CRESS
Partner
julie.cress@bakerbotts.com

MONA DAJANI
Partner
mona.dajani@bakerbotts.com

RICHARD GUIT
Partner
richard.guit@bakerbotts.com

STUART JORDAN
Partner
stuart.jordan@bakerbotts.com

DANIEL REINBOTT
Partner
daniel.reinbott@bakerbotts.com

ANDREW ROCHE
Partner
andrew.roche@bakerbotts.com

MARK ROWLEY
Partner
mark.rowley@bakerbotts.com

SHAILESH SAHAY
Partner
shailesh.sahay@bakerbotts.com

REBECCA SEIDL
Partner
rebecca.seidl@bakerbotts.com

ELAINE WALSH
Partner
elaine.walsh@bakerbotts.com

SHANE WILSON
Partner
shane.wilson@bakerbotts.com

* 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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