P2NO

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

Welcome to the **Edition 17** of **P_2N_0** covering the drive to reduce greenhouse gas (**GHG**) emissions to net-zero (**NZE**). **P_2N_0** identifies significant news items globally, reporting on them in short form, focusing on policy settings and project developments. **P_2N_0** does not cover news items about climate change generally, M&A activity, or news items that are negative.

Edition 18 of **P_2N_0**, covering the first **two weeks** of **October 2024**, will be published in the third week of **October 2024**.

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

Content

Edition 17: covering significant news items arising during September 16, to September 30, 2024.

HEADLINES FROM SEPTEMBER 16 TO 30, 2024

During the second two weeks of **September 2024**, the following significant news items arose globally and seem to us to be the most note-worthy in the context of progress towards net-zero:

- **It is that time of year again!** Each year the second two weeks of **September** tend to mark the lead up to **Conference of Parties of the United Nations Convention on Climate Change** (**COP**), this year COP-29 (the 29th COP, which is to be held in Baku, Azerbaijan). Key events this year were:
  - **Climate Week NYC** (held from September 22 to 26, 2024), is in many ways a fore-runner for each COP. The scale and scope of each **Climate Week NYC** seems to increase each year, with around 900 events reported to have been hosted over five days. The theme for all events this year was **It's Time**. This theme speaks to many sub-themes. While each attendee will take away their own sub-theme or themes from the Climate Week NYC, it would seem that this year one of the key sub-themes that emerged was the convergence of the objectives under the **Paris Agreement** ahead of COP-29 and under the **Kunming-Montreal Global Biodiversity Framework** ahead of COP-16 (the Convention on Biological Diversity). This convergence marks recognition of the extent of the commonality between policy settings at a country level to achieve the objectives of each COP.

    Ahead of Climate Week NYC, **Generation Investment Management** (led by Al Gore) provided some compelling input, with homage to Metallica, Nothing Else Matters as Much as the need to update antiquated electricity transmission networks across the European Union and the US. Al Gore has hit the spot before!
  - On **September 16**, **2024**, the **G7- International Energy Agency (IEA) Conference on Ensuring an Orderly Energy Transition** (in Europe) was hosted by the Bank of Italy in Rome. As reported, the economic implications of the energy transition across Europe were discussed, including affordability, reliability and sustainability, and security of supply chains and support for manufacturing.

    Click **here** to watch a highlight video of the conference.

  Before **COP-29** in Baku, Azerbaijan, comes **COP-16** in Cali, Columbia. **COP-16** is the **Sixteenth meeting of the Conference of Parties to the Convention on Biological Diversity**, to take place between **October 21** and **November 1**, **2024**. In addition to covering key issues to be discussed and progress at **COP-29**, **P_2N_0** will cover key issues for **COP-16**.

BAKER BOTTS

- **Publications and reports galore!** To accompany and to inform discussions in ahead of COP-29 publications and reports arrived thick and fast:
  - **IEA** published:
    - The **2024 Breakthrough Agenda Report**: This report has become one of the key annual reports, covering power, hydrogen, road transport, iron and steel, cement and buildings, and the progress being made or that needs to be made compared to the previous report. As noted in the report, the purpose of the report is to "galvanise public and private action … to make [transition across these priority sectors] quicker, cheaper and easier for all". The report is excellent and will be key ahead of, and at, COP-29.

      The consideration of iron and steel and cement are particularly timely: iron and steel and cement (and the concrete resulting) are required, and as such they need to be decarbonized, with the sourcing of raw material, its transportation to the point of production, production, and transportation of finished product to the point of use of these two industries accounting for up to 20% of GHG emissions.

      Links to the **first** (**2022**) and **second** (**2024**) **Breakthrough Agenda Reports** are attached.

      State of Energy Policy 2024: This publication is a first for the **IEA**. This publication may be regarded as complementary to the **2024 Breakthrough Agenda Report**. The publication provides an overview of the development of policy settings across the energy sector, and as such energy transition between June 2023 and September 2024. The publication provides an overview of over 50 policy settings across 60 countries.

      The publication is tied to the **IEA Energy Policy Inventory**, which, in turn, ties into to the **IEA** report **Tracking Clean Energy Innovation Policies**. For policy wonks and practitioners alike, these are excellent resources. This publication, report and inventory are excellent.

    - **Towards Common Criteria for Sustainable Fuels**: This publication focuses on how to characterise sustainable fuels (being fuels derived from feedstocks that are sustainable), including liquid biofuels, biogases, hydrogen, and hydrogen-based fuels. The analysis in this publication is built on the foundation provided by the IEA **Net Zero Emissions by 2050 (NZE) Scenario**, contained in **Global Energy and Climate Model**. The characterisation of sustainable fuels will be key to whether they are characterized as clean or renewable applying the same criteria for the purposes of different markets and regions.

      The publication provides a perspective that takes in the current policy settings globally, including in respect of hydrogen and hydrogen based and derived fuels, more than half of which provide for GHG emission intensity of less than 33 gCO_2-eq per MJ.

      As if to illustrate a number of points raised in the publication, on **September 16**, **2024**, **Simply Blue**, announced its intention to develop a 600 MW green hydrogen-to-sustainable aviation fuel **Goldboro SAF project** to be located in the Canadian province of Nova Scotia. No holding back the years here!

    - **From Taking Stock to Taking Action**: This publication provides an analysis of the outcomes around which consensus was reached at COP-28 (**COP-28 Outcomes**), including achieving net-zero emissions in the energy sector by 2050, transitioning away from fossil fuels, tripling global renewable energy capacity by 2030, doubling energy efficiency improvement and accelerating the development and deployment of lower, low, and clean technologies.

      Together with the **2024 Breakthrough Agenda Report**, this publication will form the basis for the focus of discussions ahead of an at **COP-29**, and, it is hoped, an increase in the commitment of governments globally to reflect the **COP-28 Outcomes**, and other outcomes, in their national policy settings and laws and regulations.

      The **COP-28 Outcomes** are outlined in **Edition 6 of P_2N_0** (themselves derived from **Outcome of the First Global Stocktake**).

- **Turning Pledges into Progress**: The publication reports on the progress (including the rate of progress) being made to report the GHG emissions of oil and natural gas corporations and other organisations in the context of emissions avoidance and reduction targets, and now reflected in the **Oil and Gas Decarbonization Charter** (**OGDC**).

  The publication uses as its foundation the initiative of the **IEA**, the UN Environment Programme **International Methane Emissions Observatory** (**IMEO**) and **Environmental Defense Fund** (**EDF**), reflected in the **OGDC**, and is intended to provide guidance and support as to how oil and gas businesses may achieve flaring avoidance and reduction targets, and how policy makers, and more broadly, investors and the public, may develop confidence in the achievement of those targets[1].

  Some facts and stats about methane (CH_4)

  The levels of **CH_4** in the atmosphere are increasing, currently reported at **1929 ppb**. **Sixty per cent** (**60%**) of **CH_4** emissions arise from human activities, with agriculture, forestry, and other land uses (**AFOLU**), extraction and production of fossil fuels, and the decomposition of the organic fraction of waste disposed of to landfill (typically, landfill gas (**LFG**) gives rise to 48% CO_2 and 48% CH_4) being the main contributors. See **Global Methane Budget** for more information.

  While the lifespan of a CH_4 molecule is between seven and twelve years, considerably less than the 100 years of a CO_2 molecule, each molecule of CH_4 absorbs more radiative heat and as such has a greater global warming potential than a molecule of CO_2. It is estimated that CH_4 is responsible for between 20% and 30% of average climate temperature increases since pre-industrial times, with CH_4 emissions having doubled since pre-industrial times.

  Because of these factors, the avoidance and reduction of the emission of CH_4 to the climate system offer a route to near to medium term mitigation of climate change.

  While it is relatively straightforward to track the levels of CH_4 in the climate system, it is necessary to monitor activities from which CH_4 emissions arise (including fugitive emissions along the entire supply / value chain), and then to introduce policy settings and laws and regulations to avoid and to reduce CH_4 emissions arising.

  It is recognised that avoiding and reducing CH_4 emissions from AFOLU is likely to prove most challenging, and why there is a focus through the OGDC and why the capture of LFG from existing landfills, and the separation of CO_2 and CH_4, and the production of H_2 from the CH_4 is now the subject of pilot projects. This is in addition to the long-standing policy setting in many countries of achieving zero waste to landfill.

As has been noted on a number of occasions in **P_2N_0**, what needs to be done is known! And picking up the theme of Climate Week NYC, It's Time. And for those in attendance at Climate Week NYC, the theme might be regarded as It's Time, We At The Tipping Point to Climate Crisis.

---

[1] **By way of reminder**, **Edition 16** of **P_2N_0** reported that:
"**EU Methane Regulation goes live**: On **August 4**, **2024,** the **EU Methane Regulation** went live. As number of articles and publications have covered the **EU Methane Regulation**. Two articles worthy of recommendation are those penned by:

- Alex Kerr, Partner in the Global Projects Group at Baker Botts, and entitled **EU Methane Regulation: A Problem for the LNG Industry?**; and
- The Oxford Institute for Energy Studies, and entitled **The EU Methane Regulation – What will be the impact on LNG Imports?**

Methane a key focus: The increasing levels of methane in the climate system have been marked, and the policy settings to address them would appear to be emerging recognizing that the concern about increasing methane levels is not new.

- The **International Energy Agency** (**IEA**) has stated consistently that to limit the increase in global average temperatures to 1.5^{O} C, methane emissions from fossil fuel operations must be reduced by 75% by 2030.

In the words of the IEA, further action from countries and corporations is needed.

- The good folk at **Top Science** published **Human activities now fuel two-thirds of global methane emissions** on **September 10**, **2024**, the fourth such publication from the **Global Carbon Project**."

- **Hydrogen Council and McKinsey & Company – Hydrogen Insights 2024**: On **September 17**, **2024**, the good folk at the **Hydrogen Council** published **Hydrogen Insights 2024**. The report is helpful, providing an update on the size and shape of the developing hydrogen industry. The report is well-worth a read[2].
- **McKinsey & Co perspectives**: In addition to working with the Hydrogen Council to author Hydrogen Insights 2024, the good folk at McKinsey & Co have published:
  - **Global Energy Perspective 2024**. Using the 1.5^{O}C degree increase in global average temperatures as the foundation for the publication, the good folk at McKinsey & Co provide an analysis of the energy supply and demand dynamics across 68 sectors and 78 fuel sources. In addition, the report provides analysis in respect of three bottom-up scenarios. The report is excellent.
  - **Global Materials Perspective 2024**. The publication provides a helpful overview of the value globally of the metals and minerals markets. The report is excellent.
- **IRENA and IEA on REE**:
  - During **September 2024**, the good folk at the **International Renewable Energy Agency** (**IRENA**) published:
    - **Solar PV supply chains – Technical and ESG standards for market integration**. The publication provides a helpful analysis of current and projected photovoltaic manufacturing capacity and, as such, the required supply chains; and
    - **Renewable Power Generation Costs in 2023**. The publication is data and information rich and will be compulsory reading for those active or interested in the renewable energy sector, and energy transition more broadly.
  - **IEA integrating Solar and Wind**: On **September 18**, **2024**, the good folk at the **IEA** published **Integrating Solar and Wind – Global experience and emerging challenges**. The publication is timely: while sourcing renewable electrical energy from photovoltaic solar and wind sources is recognised as an imperative for some projects, broader benefits can be achieved.
- **BloombergNEF**: On **September 18**, **2024**, the good folk at **BloombergyNEF** published **Energy Supply Banking Ratios: Implementation Guide**. While short, the publication punches above its weight!

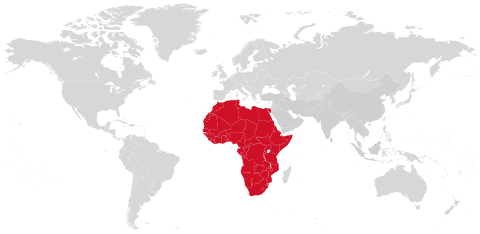
- **Energy Institute – World Energy Statistical Report 2024**: During **September 2024**, the **Energy Institute** published is 73rd **World Energy Statistical Report**.

  Globally and by region, the report provides a broad and helpful overview of progress being made over key areas of the energy transition, including energy developments, carbon emissions, oil, natural gas, coal, electricity, wind and solar, biofuels and key minerals during 2023. The report is excellent.

- We started this section of referring to COP-29. On **September 17**, **2024**, an **Action Agenda** was announced for the purposes of COP-29. The **Action Agenda** is contained in **Annex 1** (**Summary of the COP29 Presidency Initiatives and Outcomes**) the **COP29 Presidency Action Agenda Letter**. One of the matters detailed in the Action Agenda is the need to increase global energy storage capacity six-fold by 2030, and to develop and to replace 80 million kms of electrical energy grids.

---

[2] **By way of reminder**, **Edition 16** of **P_2N_0** reported that: "**Shaping Sustainable International Hydrogen Value Chains**: On **September 9, 2024**, the **International Renewable Energy Agency** (**IRENA**) published **Shaping Sustainable International Hydrogen Value Chains**. The publication provides an up to the minute and helpful overview of the anticipated role of hydrogen in the decarbonization of activities, and impact of incentives available around the world on the location of the development of hydrogen production capacity. It is well-worth a read."



Africa

Hydrogen Production Pathways: The good folk at **African Hydrogen Hub** have published a high-level summary of Hydrogen Production Pathways, including water electrolysis and biomass gasification. Directionally, the analysis is helpful.

EU to invest in Namibia and South Africa: On **September 6**, **2024**, the **European Commission** (**EC**) announced that the EU would provide around **€54 million** (from three EU funding initiatives) to help to support the development of the green hydrogen production industry in Namibia and South Africa.

APRA activity: In early **September 2024**, ahead of the **APRA Investment Forum 2024** (to take placed on October 12 to 16, 2024), the good folk at the **IRENA** reminded us of the Accelerated Partnership for Renewables in Africa (**APRA**).

APRA was launched on December 2, 2023, at COP-28.

In the words of IRENA, APRA "is rooted in the Nairobi Declaration on Climate Change and Call for Action, which targets at least 300 GW of renewable energy [across Africa] by 2030".

APRA comprises seven (of the 54) African countries, Ethiopia, Ghana, Kenya, Namibia, Rwanda, Sierra Leone, and Zimbabwe. Between these seven countries, the intention is to install 9.5 GW and renewable electrical energy in 2023, then 4 GW each year to reach 37 GW by 2030.

Middle East and South Asia

2.5 GW of pumped storage capacity to be developed in State of Maharashtra: On **September 23**, **2024**, the Central Electricity Authority approved the development of two pumped hydro storage projects in the State of Maharashtra in India. **JSW Energy** is to develop the **1.5 GW Bhavali project** and **Tata Power** is to develop the **1 GW Bhivpuri project**.

Kingdom of Saudi Arabia (KSA) overview: During the third week of **September 2024** the author came across interactive maps at https://renewable.vision among other things depicting that **30 GW** of renewable electrical energy capacity being developed within **KSA**, and many other initiatives and projects to decarbonize activities within the KSA. The interactive maps are excellent[3].

[3] **By way of reminder**: Edition 16 of **P_2N_0** under "**KSA to procure 2.5 GW of BESS** reported that: "In late August, it was reported widely that, during **September 2024**, the Kingdom of Saudi Arabia National Grid (a wholly owned subsidiary of Saudi Electricity Company) is undertaking a procurement exercise to procure up to **2.5 GW** of **BESS** capacity".

PDG group to expand data centre capacity: On **September 19**, **2024**, **Princeton Digital Group** (**PDG**) announced plans to expand its data storage capacity at data centres in the Indian cities Chennai and Mumbai at a cost of USD 1 billion[4].

Oman pre-qualifies applicants for wind power projects: On **September 16**, **2024**, it was reported widely that **Nama Power and Water Procurement Company** (**PWP**) has released a **list** of pre-qualified applicants for the purposes of the participation in the five wind power projects: **1**. Dohor II Wind IPP, **2**. Duqm Wind IPP, **3**. Jaalan Bani Bu Ali Wind IPP, **4**. Mahoot I Wind IPP, and **5**. Sadah Wind IPP. As will be noted for those who click on the link, the names of the pre-qualified applicants speak volumes from the process being run by PWP.

India opens OWF tender: On **September 14**, **2024**, the **Solar Energy Corporation of India Limited** (**SECI**) opened a **tender** for the procurement of **500 MW** of offshore wind field (**OWF**) capacity off the coast of the Indian State of Gujarat. The development of OWF capacity offers India considerable scope to decarbonize the generation of electrical energy capacity.

BESS continues apace in India: On **September 12**, **2024**, the **Solar Energy Corporation of India Limited** (**SECI**) issued a tender in respect of 2,000 MW / 8,000 MWh of BESS. This continues the high levels of activity during 2024[5].

OCED to provide up to USD 1.3 billion for Transformational Emissions Technologies: On **September 27**, **2024**, the **Office of Clean Energy Demonstration** (**OCED**) (part of the US Department of Energy) issued a Notice of Intent to fund investment in carbon capture, utilization and storage (CCUS) technologies. The funding is to be provided under the **Carbon Capture Demonstration Projects Program** (providing for up to **USD 750 million**) and the **Carbon Capture Large Scale Pilot Projects Program** (providing for up to **USD 450 million**), each of which arises under the Bipartisan Infrastructure Law.

ECL to use BESS and fuel cells: On **September 25**, **2024**, it was reported widely that **ECL** intends to incorporate BESS and fuel cell technology into its data centres to provide assurance as to electrical energy supply. This approach is foreshadowing the development of power islands to supply electrical energy.

---

[4] **By way of reminder**, **Edition 16** of **P_2N_0** reported that: "On **September 7**, **2024**, it was reported widely that **STT Telemedia** intends to invest **USD 3.2 billion** to expand its data centres across India. Among other things, this is in response to generative AI applications.

[5] **By way of reminder:** **Edition 15** of **P_2N_0** reported as follows "**Love me tender suite**: India intends to have installed 500 GW of renewable electrical energy capacity by 2030. Throughout **August 2024**, there was a good deal of activity, providing a positive indication that progress is being made to achieve this target.

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

HIF Global and Port of Açu develop thinking around e-methanol: On **September 25**, **2024**, **hydrogeninsight** (at **www.hydrogeninsight.com**, under **E-fuels pioneer announces giant e-methanol project in Brazil requiring about 1.6 GW of green hydrogen**) reported that **HIF Global** plans to develop a **160,000 metric tonnes** a year e-methanol facility to combine green hydrogen and 1.12 million metric tonnes of captured CO_2.

US Wind in Sails: On **September 17**, **2024**, it was reported widely that on **October 29**, **2024**, US **Department of Interior** (**DOI**) intends to undertake an auction in respect of **eight offshore wind field areas** in the **Gulf of Maine** (with estimated installed capacity of over **13 GW**). Each of the **eight OWF** areas has an estimated installed capacity of **1.5 GW** or more. It will be interesting to see how the auction progresses – it may be regarded as something of a bell-weather auction, with each OWF area providing appropriate scale, indeed seem to have been sized for sale.[6]

Climate Change Challenges and Opportunities: During **September 2024**, the **International Monetary Fund** (**IMF**) published **Climate Change Challenges and Opportunities in Latin America and the Caribbean**. The publication provides a broad and helpful overview of climate change mitigation and adaptation needs of the region, and the policy settings currently in place that are in place to address those needs, and the policy settings that are required to address those needs in a timely way. The publication is excellent.

APAC

Google to invest USD 1 billion in new data centre: On **September 30**, **2024**, it was reported widely that **Google** intends to invest **USD 1 billion** in the development of a new data centre (and related infrastructure) in Thailand.

Malaysian National Climate Change Policy 2.0: On **September 30**, **2024**, Malaysia published its updated **National Climate Change Policy**. The policy is aligned with the commitment of Malaysia to reduce GHG emissions by 45% by 2030 (compared to 2030) and to achieve net-zero GHG emissions by 2030. The policy brings together the policy settings to achieve these outcomes.

Asian Energy Outlook published: On **September 26**, **2024**, the **ASEAN Centre for Energy** (**ACE**) published the flagship **ASEAN Energy Outlook** (**AEO8**) report at the **42nd ASEAN Ministers of Energy Meeting** held at the same time as the **ASEAN Energy Business Forum** in Vientiane, Lao PDR. The AEO8 should be read with the **ASEAN Plan of**

---

[6] **By way of reminder**: **Edition 15** of **P_2N_0** reported that "**BOEM goes live on:**

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

OWF lease areas awarded provisionally: On **August 14**, **2024**, **Equinor** was awarded **OCS-A 0557** lease area (covering 101,443 acres, around 48 km from Delaware Bay), and **Virginia Electric and Power Co** (a Dominion subsidiary company) was awarded **OCS-A 0558 lease area** (covering 176,505 acres, around 65 kms from Chesapeake Bay). As announced by **BOEM**, the leases areas have capacity for up to 6.3 GW of OWF [6]. This concluded **Central Atlantic 1**."

By way of reminder, **Edition 16** of **P_2N_0** reported that: "**US Wind good to go**: On **September 6**, **2024**, it was reported widely that **US Wind** had been granted approval for its **Construction and Operations Plan** (**COP**) for its **Maryland Offshore Wind Project**: the Record of Decision (ROD) from the Bureau of Ocean Management (**BOEM**) approved the COP."

Action for Energy Cooperation (**APAEC**). Together the **AEO8** and the **APAEC** provide guidance in respect of the regional targets for ASEAN which will inform policy settings for 2026 to 2030.

Wind development in Indonesia: On **September 23**, **2024**, the good folk at **Pondera** published Wind Energy Development in Indonesia: Investment Plan. The publication is well-worth a read, providing a helpful summary of potential onshore wind potential and regulation, and framework to allow the development of the potential capacity, including how the development of that potential capacity may be undertaken.

Malaysia seeds CRESS: On **September 20**, **2024**, the Guidelines for the Corporate Renewable Energy Supply Scheme became effective. This effectiveness marks a key change, allowing for the participation of the private sector in the power generation sector.

Singapore to increase current REE imports to 200 MW: On **September 20**, **2024**, the **Energy Market Authority** (**EMA**) announced that current imports of renewable electrical energy will increase by 100 MW (to 200 MW), with the additional renewable electrical energy to be delivered through the **Laos-Thailand-Malaysia-Singapore** (**LTMS**) power integration project. The additional renewable electrical energy will be supplied under a power purchase agreement between **Keppel Electric Pte Ltd** and **Tenaga Nasional Bhd**.

This announcement follows the news on **September 5**, **2024**, that **Shell Eastern Trading** (**400MW**) and **Singa Renewables** (**1 GW**) had been given "conditional approval" by the **EMA** in respect of the proposal to import up to **1.4 GW** renewable electrical energy. This continues the grant of conditional approvals, intended to facilitate engagement with regulators to obtain approvals and licences that would allow the import of renewable electrical energy into Singapore. For more detail, see the **EMA** announcement at https://www.ema.gov, under Singapore and Indonesia Make Substantive Progress on Electricity Imports), which provides coverage of five other Indonesian-based projects, and previously covered by **P_2N_0**.

South-East Asia Climate Outlook Survey: On **September 19**, **2024**, there was considerable reporting around the publication of the fifth edition of the South-East Asia Climate Outlook Survey. The publication provides some interesting perspectives of which those developing and implementing policy settings should be aware.

Foshan Hydrogen Project – H_2 from domestic waste: On **September 16**, **2024**, it was reported by **chinagreenhydrogennews** that the **Foshan Nanhai Waste Resource Utilization Project** with the project to derive hydrogen from the processing of municipal solid waste (**MSW**). As reported, the project will process **500 metric tonnes** of MSW a day, to produce **73 million standard m^3** of H_2 a year. In addition, the project will capture **80,000 m3** of CO_2 and produce **133.3 metric tonnes of sulphuric acid** a year.

DNV AiPs:

- On **September 20**, **2024**, it was reported widely that **DNV** had awarded an **approval-in-principle** (**AiP**) to **HD Hyundai Mipo Dockyard** (**HMD**) for the classification for its **60,000 m_3** LPG / NH_3 / VCM carrier design.

- On **September 19**, **2024**, it was reported widely that **DNV** had awarded an **AiP** to **CB&I** and **Hanwha Ocean** in respect of liquid hydrogen (**LH_2**) carrier and containment system able to carry up to **80,000 m^3** of **LH_2**. As reported, the design will result in a boil-off rate of 0.05% a day. If this is realised it marks a key development on the development of **LH_2 carrier** technology.

- On **September 16**, **2024**, it was reported widely that **DNV** had awarded an **AiP** to **HD Korea Shipbuilding & Offshore Engineering** (**HD KSOE**) in respect of an electrical energy powered and propelled **LH_2** carrier, again having a containment system able to carry up to **80,000 m^3** of **LH_2**. The grant of the **AiP** to **HD KSOE** is part of a broader collaboration initiative involving HD KSOE, Hyundai Glovis, Mitsui O.S.K. Lines, and Woodside Energy, with the aim of the collaboration to develop a LH_2 supply / value chain with transportation by LH_2 carrier being an integral part of that chain.

By way of background:

A 160,000 m^3 **LH_2 carrier** equates to around **11,200 metric tonnes of LH_2** (one m^3 of **LH_2** has a mass of 70 kg). Each metric tonne of **LH_2** has a useable energy content of around 33 MWh or 113 MMBtu, and as such each LH_2 cargo comprises around **372,960 MWh** (372.96 GWh) or around 1.270 TBtu.

By contrast, a 160,000 m^3 **LNG carrier** equates to around 74,450 metric tonnes of **LNG** (one m^3 of LNG has a mass of around 465 kg), each metric tonne of LNG has a useable energy content of 15.23 MWh or 52 MMBtu, and as such each LNG cargo comprises around **1,133,873.50 MWh** (or 1133.87 GWh) or around 3.870 TBtu.

Because of the differing **energy density** of **LH_2** and **LNG**, an **LH_2 carrier** of 480,000 m^3 would be required to carry an equivalent heating value of **LH_2** to a 160,000 m^3 **LNG carrier**.

Europe and the UK

UK retires last of its coal-fired electrical energy: On **September 27**, **2024**, after 142 years, the UK ceased to generate electrical energy from coal-fired power stations. The UK is the first of the G7 countries to achieve this outcome. The UK is now aiming progress to phase out the use of natural gas.

Terms and conditions for second auction by European Hydrogen Bank published: On **September 27**, **2024**, the European Commission published **Invitation Fund IF24 Auction, Terms and Conditions**. Under the terms and conditions of the second auction, up to **€1.2 billion** of funding support will be provided, with successful bidders awarded fixed amount for each kg of renewable hydrogen to be produced and supplied into the European Union from the European Economic Area, with that funding support to be provided under contracts that will have terms of up to 10 years. The second auction will open on December 3, 2024[7].

Draft rules to determine GHG emission avoidance and reduction: On **September 26**, **2024**, the European Commission published **draft delegated implementing acts** containing the proposed methodology to determine the GHG emission avoidance and reduction arising from the use of low carbon fuels on a life cycle basis. The draft delegated implementing acts open for feedback from **September 27**, **2024**, to **October 25**, **2024**.

Lubmin green hydrogen project on foot: On **September 25**, **2024**, it was reported widely that **KGAL GmBH** and **PtX Development** are progressing with the development of a **1 GW green hydrogen project** at Lubmin, with renewable electrical energy for the project to be sourced from the Baltic Sea, with **2.8 GW** of offshore wind capacity required.

Green Hydrogen blended with natural gas: On **September 20**, **2024**, it was reported widely that **Redexis** had commenced blending green hydrogen produced at the **2.5 MW** green hydrogen production facility of **Acciona Energia** and **Enagás**. This is a first for Spain.

Green light for Greensand: On **September 19**, **2024**, it was reported widely that **DNV** had certified that **CO_2 storage site** for **Project Greensand**, **Denmark** is in compliance with **ISO 27914**.

EU Calls for Applications – Energy Infrastructure Projects of Common (PCI) and Projects of Mutual Interest (PMI) – Hydrogen: On **September 19**, **2024**, the European Commission **announced** that it was seeking applications for Energy Infrastructure Projects under the **Trans-European Network for Energy (TEN-E) Regulation**.

[7] By way of reminder, **Editions** 1, 2, 5, 9 and 11 of **P_2N_0** reported on the development of the auction process by the European Hydrogen Bank.

Applications are due by **November 18**, **2024**, in respect of electrical energy storage and transmission projects and hydrogen and electrolyser projects and are due by **December 18**, **2024**, in respect of CO_2 storage and transport projects, and smart electrical energy and smart gas grids.

HELPFUL PUBLICATIONS AND DATA BASES

The most noteworthy publications read by the author during the second two weeks of **September 2024** are as follows:

- **Hydrogen Storage**: The good folk **HyUSPRe** have published Roadmap for successful deployment of underground hydrogen storage in porous reservoirs in Europe. The publication is well-worth a read.

Primary Author:

MICHAEL HARRISON*
Partner
michael.harrison@bakerbotts.com

Other Contacts:

JASON BENNETT
Partner
jason.bennett@bakerbotts.com

RICHARD GUIT
Partner
richard.guit@bakerbotts.com

LEWIS JONES
Partner
lewis.jones@bakerbotts.com

STUART JORDAN
Partner
stuart.jordan@bakerbotts.com

DANIEL REINBOTT
Partner
daniel.reinbott@bakerbotts.com

ANDREW ROCHE
Partner
andrew.roche@bakerbotts.com

MARK ROWLEY
Partner
mark.rowley@bakerbotts.com

SHAILESH SAHAY
Partner
shailesh.sahay@bakerbotts.com

SHANE WILSON
Partner
shane.wilson@bakerbotts.com

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

Learn more about Baker Botts' Energy Transition Practice