

**GERAB****BULLETIN**

Weekly News

**EXECUTIVE SUMMARY****The Commodity summary**

- Coal prices have shown strength, went up by 12% WTD, and is still trading higher by 151% than a year ago prices.
- Nickel prices are in uptrend and gone up by 22% MTD and is trading higher by 36% than a year ago prices
- Crude Oil prices are in downtrend and trading lower by 27% 6MTD but still trading a notch higher (2%) than a year ago prices. Crude Oil Brent prices went down by 5% WTD and Crude Oil WTI prices dipped by 3% WTD.

**The Currency summary**

- Euro gained strength against dollar by 6% MTD but still Dollar is stronger by more than 7% YTD
- CNY has gained strength over a month but US Dollar is stronger by more than 11% YTD.

**The Rig count summary**

- The Rig counts in Latin America have gone up by 17% 3MTD.

**Project summary**

- Aramco, SABIC eye major crude-to-chemicals project in Saudi Arabia
- CPCL-IOCL sign JV agreement for 9 MMTPA Nagapattinam refinery
- Petronas Carigali green lights Malaysia's giant offshore CCS project
- ACWA Power signs \$7bn MOU for Green Hydrogen facilities in Thailand
- Australian energy giant takes lead in large green hydrogen project in NZ
- Bechtel to build Phase-I of Intel's semiconductor manufacturing facilities in Ohio

**COMMODITY UPDATES**

COMMODITY	UOM	LATEST PRICE	WTD %	MTD %	3MTD %	6MTD %	YTD %
Chromium	USD/MT	9,734.96	1.94	3.26	-5.70	-11.89	-16.06
Coal	USD/MT	429.90	12.34	-0.14	-4.35	0.03	151.08
Cobalt	USD/MT	47,024.60	-2.16	-16.49	-11.47	-45.80	-25.87
Copper	USD/MT	8,057.00	0.87	6.61	1.02	-13.91	-16.04
Crude Oil	USD/BBL	81.26	-1.37	-9.76	-14.08	-27.13	2.14
Crude Oil Brent	USD/BBL	83.73	5.27	-10.15	-14.25	-25.56	4.22
Crude Oil WTI	USD/BBL	78.78	-2.98	-9.35	-13.88	-28.73	0.52
Iron Ore	USD/MT	92.90	1.49	-2.56	-13.47	-30.91	-1.61
Molybdenum	USD/MT	42,777.00	0.10	3.66	31.28	2.59	1.89
Natural Gas	USD/MCF	7.46	-1.18	17.69	-17.56	-12.90	39.12
Nickel	USD/MT	26,940.00	4.62	22.43	21.58	-3.43	35.69
Steel HRC (FOB China)	USD/MT	527.00	0.19	-5.09	-14.19	-30.30	-33.95

Steel HRC (N. America)	USD/MT	711.24	-	-15.68	-20.30	-52.86	-64.57
Steel Rebar	USD/MT	569.24	-0.46	-0.06	-13.14	-29.03	-24.73
Steel Scrap	USD/MT	378.00	6.78	5.97	-1.55	-20.50	-20.42

Source: Investing.com / Trading Economics / London Metal Exchange / MarketIndex.com.au / OilPrice.com

#### CURRENCY EXCHANGE RATE

Code	Description	Country	Units	Latest Exchange Rates	WTD%	MTD%	3MTD%	6MTD%	YTD%
EURUSD	1 EUR to USD	Euro Area	USD	1.0427	0.19	5.57	4.81	-2.11	-7.89
USDCNY	1 USD to CNY	China	CNY	7.0626	1.48	3.35	-2.13	-5.41	-10.85

Source- Trading Economics

#### CRUDE OIL STOCK

Region	Unit	Latest Count	WTD %	MTD %	3MTD %	6MTD %	YTD %
US Stocks of Crude Oil & Petroleum Products	Thousand Barrels	16,00,432.00	-0.63	-1.44	-3.82	-4.81	-12.29

Source: US Energy Information Authority

#### SELECTIVE COMMODITY TRADERS AND PIPE MANUFACTURERS STOCK PRICES

##### STOCK PRICES

Name	Latest Value	Units	WTD%	MTD%	3MTD%	6MTD%	YTD%
ArcelorMittal SA	27.05	USD	2.58	19.37	21.46	-15.20	0.60
Glencore PLC	563.50	GBP	5.13	7.58	27.49	9.06	52.38
NYSE American Steel Index	1,787.37	Index	3.28	14.14	20.79	-2.35	24.62
Rio Tinto PLC	5,585.00	GBP	3.29	17.95	21.22	-1.35	19.05
Tenaris SA	34.47	USD	1.32	8.94	28.05	2.22	75.51
Tubacex SA	2.02	EUR	-1.94	-9.01	-9.42	-18.55	24.69

Source- Trading Economics / Wall Street Journal / CNBC

#### INTERNATIONAL RIG COUNTS

##### ACTIVE RIG COUNTS BY REGION

Region	Latest Count	WTD %	MTD %	3MTD %	6MTD %	YTD %
United Arab Emirates	52	*	4.00	8.33	10.64	23.81
GCC	222	*	6.73	8.82	9.90	20.65
Middle East	324	*	5.54	5.54	8.00	17.82
Africa	77	*	4.05	6.94	6.94	5.48
Asia-Pacific	192	*	0.00	3.78	10.34	10.34
Europe	101	*	1.00	27.85	40.28	7.45
Latin America	187	*	4.47	16.88	15.43	23.84
North America	976	-0.51	-0.20	1.24	17.87	31.89
Total	1,857	*	1.48	5.09	15.49	23.22

## NEWS OF THE WEEK

## GULF COOPERATION COUNCIL ( GCC)

UAE	<ul style="list-style-type: none"> <li> <b><u>Gezhouba group and SIDEM named as EPC for Umm Al Quwain IWP</u></b>            The Developer of Umm Al Quwain IWP, ACWA Power selected the EPC contractor for 150 million imperial gallons a day (682,000 m<sup>3</sup>/day) of desalinated water plant. The EPC contract has been awarded to the consortium of China Gezhouba Group Company Ltd. (CGGC) and French company SIDEM. The project is located in Umm Al Quwain, UAE, about 60 kilometers north of Dubai. Chen Xiaohua, Party Secretary and Chairman of CGGC, and Mohammed Abunayyan, Chairman of the Board of ACWA Power, attended the signing ceremony of the project. Once commissioned, Umm Al Quwain IWP is one of the world's top 5 seawater desalination projects. Also, one of the largest seawater desalination projects undertaken by Chinese enterprises in the world, represents an important achievement of CGGC in practising the idea of green development, strengthening international multilateral cooperation and promoting the implementation of "UAE Water Security Strategy 2036" and high-quality development of the "Belt and Road" Initiative. As per the contract, the project will be commissioned in 33 months. As an important people's livelihood project of the UAE government, the project makes full use of local rich seawater resources, adopts advanced Reverse Osmosis seawater desalination technology, and provides 680,000 tons of clean drinking water for millions of residents in UAE. <b>21<sup>st</sup> November 2022</b> </li> </ul>
KUWAIT	<ul style="list-style-type: none"> <li> <b><u>NESR awarded Its First Multi-Year Directional Drilling Services Contract in Kuwait</u></b>            National Energy Services Reunited Corp. (NESR), an international, industry-leading provider of integrated energy services in the Middle East and North Africa (MENA) region, has announced that the company has been awarded a long-term contract for Directional Drilling services in Kuwait. Contract Scope is covering Directional Drilling ("DD"), Measurements while Drilling ("MWD"), Performance Drilling, Well Engineering and Logging While Drilling ("LWD") services for five years, with an option to extend an additional year. Alongside the similar, recently announced Directional Drilling services contract in Saudi Arabia, this award in Kuwait represents another key DD anchor contract, through which the Company will introduce its burgeoning portfolio of high end MWD and LWD technologies as they are commercialized. Overall, these multi-year platform contracts are anticipated to enhance both the growth and margin profile of the Drilling &amp; Evaluation ("D&amp;E") segment, as equipment in these specialized product lines are deployed with the higher anticipated drilling rig increase. <b>28<sup>th</sup> November 2022</b> </li> </ul>
OMAN	<ul style="list-style-type: none"> <li> <b><u>Petrofac secures three engineering services contracts from Shell</u></b>            Petrofac has been awarded three contracts from Shell to undertake new engineering and procurement services (EPS) scopes in Oman. The first is a five-year EPS contract for Shell's Block-10 Mabrouk Phase-2 Project, located in the Al Wusta Governate of Oman. The contract was awarded following a competitive tender and the scope includes well-pads for multiple wells, remote manifold stations and connecting pipeline, including water infrastructure for well development and a field operations base. Two further contracts, to provide residual engineering and procurement services to complete Phase-1B of the Block-10 development, were secured under Petrofac's global enterprise framework agreement with Shell. The three newly awarded contracts will be delivered in-country utilising Petrofac's multi-discipline engineering and project execution office in Muscat. Petrofac has been supporting Oman's energy industries since 1988 to design, build, operate, and maintain facilities, as well as developing local workforce competence and generating in-country value. <b>30<sup>th</sup> November 2022</b> </li> </ul>

SAUDI ARABIA

- **SABIC announces its intention to study the establishment of a complex to convert oil and liquids into chemicals**  
Saudi Basic Industries Corporation (SABIC) announces its intention to study the establishment of a complex to convert oil and liquids into chemicals in Ras Al-Khair, in the Kingdom of Saudi Arabia. The complex is expected to convert 400,000 barrels per day of oil into chemicals. This project is part of SABIC's strategic growth plans as well as contributing to the realization of the Kingdom's program to convert oil and its liquids into chemicals.  
SABIC also affirms its commitment to continue developing crude oil to chemicals technologies, which contributes to increasing cost efficiencies and value creation opportunities in the energy and chemical industry on a larger scale. Read Also: SABIC, BASF, Linde starts construction of world's first electrically heated steam cracker furnaces. **27<sup>th</sup> November 2022**
- **SWPC issued Request for Proposals for Al Haer ISTP**  
Saudi Water Partnership Company (SWPC) announced in a statement that Request for Proposals for Al Haer Independent Sewage Treatment Plant (ISTP) Project has been issued to the qualified bidders. (read more) Al Haer ISTP will have a total ultimate treatment capacity of 200,000 m3/day. It will be located in the city of Riyadh in Riyadh Province, Saudi Arabia. SWPC earlier announced that it will conduct a competitive process to select a developer or developer consortium for the development, financing, engineering, procurement, construction, implementation, ownership, operation, maintenance and transfer of the Project, together with associated infrastructure and facilities. Under a 25-year Sewage Treatment Agreement (STA) with SWPC, a project company is to be incorporated to develop the Project and will treat the entire sewage capacity supplied by SWPC. SWPC's obligations under the STA will be supported by a credit support agreement from the Government of Saudi Arabia. **25<sup>th</sup> November 2022**
- **Aramco, SABIC eye major crude-to-chemicals project in Saudi Arabia**  
With a capacity of 400,000 barrels of crude per day, the project will be established in Ras Al-Khair. Saudi oil major Aramco and Saudi Basic Industries Corp (SABIC) will soon launch a project to convert crude into petrochemicals, the Kingdom's Energy Minister Prince Abdulaziz bin Salman said. With a capacity of 400,000 barrels of crude per day, Saudi Arabia's first-of-its-kind project will be established in Ras Al-Khair, a town and port in the Eastern Province of Saudi Arabia, north of Jubail. The minister outlined that oil receives strong demand from the petrochemical sector globally, adding that this growth will accelerate by 60% until 2040. Both Aramco and SABIC has been working to commercialise crude to chemicals technologies as part of the strategy to position itself as a preeminent player in the global petrochemicals industry. Aramco recently announced its biggest-ever investment in South Korea to develop one of the world's largest refinery-integrated petrochemical steam crackers through its S-OIL affiliate, in line with the company's strategy to maximise the crude to chemicals value chain. **25<sup>th</sup> November 2022**
- **Saudi's AlKhorayef Wins \$92mn Water Contracts**  
AlKhorayef Water and Power Technologies Co. (AWPT) has signed three operation and maintenance (O&M) contracts worth 345 million Saudi riyals (\$91.80 million) with state-owned National Water Company (NWC), the company said in separate statements to the Saudi stock exchange. The largest is a 60-month O&M contract worth 228.2 million riyals for water networks in Jeddah. The other two deals were a 36-month contract valued at 60.8 million riyals to operate and maintain Phases 1 and 2 of Madinah sewage treatment plant, and a 36-month O&M contract worth 55.93 million riyals for water networks in the Jazan region. **28<sup>th</sup> November 2022**
- **Saudi Aramco discovers two natural gas fields in Dhahran**  
Saudi Aramco has discovered two unconventional natural gas fields, Awtad and AlDahna, Saudi Arabia's Energy Minister said today. Awtad was discovered south-west of the Ghawar field, 142km south-west from the city of Hofuf, while AlDahna was found 230km south-west of Dhahran. "The

importance of these discoveries lies in strengthening the kingdom's natural gas reserves, which contributes to supporting the kingdom's strategies and achieving the goals of the liquid fuel displacement programme," Energy Minister Prince Abdulaziz bin Salman said. Gas flowed from one well, the Awtad-108001, at a rate of 10 million standard cubic feet per day, along with a daily 740 barrels of condensate, and from the Awtad well at a rate of 16.9 million standard cubic feet daily, along with 165 barrels of condensate a day. Gas flowed from AlDahna-4 well at a rate of 8.1 million standard cubic feet daily, and from AlDahna well at a rate of 17.5 million standard cubic feet daily, along with a daily 362 barrels of condensate. **30<sup>th</sup> November 2022**

**ASIA EXCLUDING GULF COOPERATION COUNCIL (GCC)**

CHINA

- Sinopec discovers shale gas reserve in Sichuan Basin**  
 China Petroleum & Chemical Corporation (Sinopec) has announced that the first phase of the Qijiang shale gas field has a proven geological reserve of 145.968 billion cubic meters. The discovery, delivered by Sinopec Exploration Company, is a major breakthrough in Sinopec's "Project Deep Earth – Natural Gas Base in Sichuan and Chongqing." The Qijiang shale gas field is the first shale gas field discovered in medium-deep and deep strata in a complex tectonic buried at the depth of over 3,500 meters is defined as deep shale, and the burial depth of Qijiang's shale formations a majority being deep shale. With complex overlying strata, the project faced great challenges such as a significantly greater To tackle the question of how a shale gas reservoir was formed in the basin margin with such complex surface and underwent more than 10,000 lab analysis tests on the core at the depth of 1,320 meters. **27<sup>th</sup> November 2022**

INDIA

- EIL bags BDEP, DFR, and pre-project activities for Bio-ATF Plant at MRPL**  
 The bio-ATF plant, having non edible oils and used cooking oil as feedstock, shall be the first of its kind in India and is based on technology developed by CSIR-IIP and EIL Engineers India Limited (EIL) has been awarded the job by Mangalore Refinery & Petrochemicals Limited (MRPL) for pre-activities for Bio-ATF Plant at MRPL. The bio-ATF plant, having non edible oils and used cooking oil as feedstock, shall be the first of its kind in India and is based on EIL. Bio-ATF also known as Sustainable Aviation Fuel (SAF) fuels would not only contribute to India's net zero carbon Prime Minister's vision of reducing crude oil and indirectly providing livelihood to farmers **26<sup>th</sup> November 2022**
- CPCL-IOCL sign JV agreement for 9 MMTPA Nagapattinam refinery**  
 Chennai Petroleum Corporation (CPCL), Indian Oil Corporation Limited (IOCL), and seed equity partners have signed grassroot 9 MMTPA refinery and petrochemicals project at Nagapattinam in Tamilnadu. The joint venture agreement was signed in the presence of S. M. Vaidya, Chairman, IOCL; Arvind Kumar, Managing Director (Marketing); Sukla Mistry, Director (Refineries), IOCL; Rajeev Ailawadi, Director (Finance), CPCL; and senior officials of The Joint Venture agreement was signed by H. Shankar, Director (Technical), CPCL and Rajiv Kacker, Executive Director November, 2022. Representatives from the other Seed Equity Partners including Axis Bank, ICICI Bank, SBI CAPS the occasion. IndianOil and CPCL will together hold 50% of equity stake (25% each) in the joint venture company (JVC) and the financial/strategic investors, to be identified at a later stage. Pending onboarding of the financial/strategic investor, the promoters, IndianOil and CPCL. The Rs. 31,580 crore refinery complex will cater to the petroleum products demand of the southern region of India and the region. The project would result in substantial socio-economic benefits to the country in general, and more specific **26<sup>th</sup> November 2022**
- Maharashtra Wins Mega Oil Refinery Project in Ratnagiri's Barsu**  
 Mega refinery will now come up Barsu in Ratnagiri district. Maharashtra Industry Uday Samant said that of the total 6,200 acres land required, 2,900 acres have been acquired. Uddhav faction Sena MLA

	<p>Rajan Salvi has also extended his support to the project. The Shinde-Fadnavis government had earlier indicated at the revival of the controversial project which was scrapped in March, 2019 owing to opposition from Shiv Sena and villagers in Ratnagiri. The oil refinery was pitched as Asia’s biggest and was to come up at Nanar village in Ratnagiri. It was meant to be a joint venture between Indian Oil Corporation (IOC), Bharat Petroleum Corporation Limited (BPCL), Hindustan Petroleum Corporation Limited (HPCL) and Aramco from Saudi Arabia, which exhibited resistance owing to unprecedented delay. After losing Vedanta Foxconn, Samant had claimed that the Rs 3000 billion mega refinery project at Barsu in Ratnagiri district will come up in Maharashtra. The industry minister claimed that the mega refinery project would not go outside the state. <b>28<sup>th</sup> November 2022</b></p>
INDONESIA	<ul style="list-style-type: none"> <li>• <b><u>Medco Energi hits the streets with EPIC tender for next Indonesian offshore project</u></b>  Indonesian independent Medco Energi is forging ahead with the development of the next field on its flagship producing South Natuna Sea Block B offshore Indonesia. Medco has started the tender ball rolling for the engineering, procurement, construction and installation contract for its West Belut project. The operator in November prequalified interested contractors and is expected to soon hit the streets with the tender documentation. Jakarta-headquartered Medco almost two years ago to the day completed the West Belut-1 appraisal well on South Natuna Sea Block B, on which it performed drill stem testing that confirmed hydrocarbon resources. <b>1<sup>st</sup> December 2022</b></li> </ul>
SOUTH KOREA	<ul style="list-style-type: none"> <li>• <b><u>LG Chem to build plant for dry reforming of methane in South Korea</u></b>  LG Chem will construct an innovative carbon mitigation facility that will produce raw materials for plastics using carbon Net Zero. LG Chem announced on the 17th that it will construct a DRM (Dry Reforming of Methane) facility which can produce plant and the byproduct gas, methane. DRM is a type of CCU (carbon dioxide, capture, and utilization) technology and an innovative carbon mitigation facility than 50% while producing polycarbonates, etc., which are primary plastic materials. The Company will build this DRM plant using proprietary technologies instead of externally licensed technologies, even dioxide conversion using its own technologies.LG Chem is the first in Korea to commercialize DRM facilities using proprietary technology-based processes and cataly It was challenging to commercialize DRM due to issues with catalyst performance dropping quickly during operation un developed processes and catalyst technologies to address this issue, thereby significantly strengthening the durability The DRM facility will be constructed as a 1,000-ton pilot plant at the Daesan Plant in Chungcheongnam-do by 2023. <b>25<sup>th</sup> November 2022</b></li> </ul>
MALAYSIA	<ul style="list-style-type: none"> <li>• <b><u>Petronas Carigali green lights Malaysia’s giant offshore CCS project</u></b>  Malaysia’s national upstream company Petronas Carigali has taken the final investment decision on its Kasawari carbon capture and storage (CCS) Kasawari phase two development offshore Sarawak, East Malaysia. The CCS project, located in Block SK 316 about 200 kilometres offshore Bintulu, is expected to reduce carbon dioxide volume emitted via flaring by 3.3 million tonnes of CO<sub>2</sub> equivalent annually, making it one of the largest offshore CCS projects in the world. Petronas Carigali’s chief executive Hasliza Othman said: “The FID marks a crucial stage in the progress of CCS solutions. This project is expected to become the catalyst in achieving end-to-end CCS capability development within Petronas and the first step in unlocking Malaysia’s potential as a regional CCS solutions hub.” The operator also confirmed the award of the prize Kasawari CCS engineering, procurement, construction, installation and commissioning (EPCIC) contract to Malaysia Marine and Heavy Engineering (MMHE). MMHE and its engineering partner Perunding Ranhill Worley are expected to move into the detailed design phase in early 2023. "As this contract was won based on a FEED competition, it is also a testament to our cost competitiveness in delivering integrated EPCIC solutions to our customers." The main Kasawari project is expected to start-up in 2023. Phase two, with the related CCS scheme, is scheduled to be operational in late 2025. <b>29<sup>th</sup> November 2022</b></li> </ul>



	<ul style="list-style-type: none"> <li>• <b><u>The new methanol plant in Sarawak will almost double Petronas Chemical Group’s current production in Malaysia</u></b> The new Sarawak Petchem Methanol Project, located in the coastal city of Bintulu, in the Sarawak region of Malaysia, will represent an important step forward in the methanol production capacity of Petronas Chemical Group, which is already the main producer in Asia-Pacific and the fourth in the world, processing an additional 1.75 million tons per year to the 2.4 million tons it’s already capable of producing. This new plant will provide a major economic boost to the Sarawak region, where 60% of Malaysia’s gas reserves are located, thanks to the generation of direct and indirect employment, both for this new facility and for the Bintulu Additional Gas Sales Facility 2, which will provide up to 168 standard cubic ft of natural gas per day for methanol production. For the plant’s construction operation, which will last until March 2023, Samsung Engineering decided to call on the joint work of Harbour-Link and Sarens, taking advantage of the international experience of the world leader in heavy lifting, engineered transport and crane rental for the onshore heavy transport, installation of modules, jacking operations and heavy lifting of modules. <b>24<sup>th</sup> November 2022</b></li> </ul>
THAILAND	<ul style="list-style-type: none"> <li>• <b><u>ACWA Power signs \$7bn MOU for Green Hydrogen facilities in Thailand</u></b> ACWA Power, a leading Saudi developer, investor, and operator of power generation, water desalination and green hydrogen plants worldwide; PTT Public Company Limited (PTT), Thailand’s national integrated energy company; and Electricity Generating Authority of Thailand (EGAT), an electric power related state-owned enterprise which aims to secure the power reliability under the supervision of Thai Ministry of Energy and Ministry of Finance, signed a landmark memorandum of understanding with a view to embarking on green hydrogen and derivatives projects that meet the Southeast Asian country’s domestic energy demand and enable valuable export opportunities. The target of hydrogen production is estimated to be around 225,000 tons per year, equivalent to around 1.2 million tons of green ammonia per year, at an estimated investment value of US\$7 billion. <b>28<sup>th</sup> November 2022</b></li> </ul>
EAST TIMOR	<ul style="list-style-type: none"> <li>• <b><u>Australia’s Woodside mulling both Sunrise gas options</u></b> Australian independent Woodside Energy is considering both development options for the Sunrise gas project in the Timor Sea, which are to pipe the gas to East Timor’s southern coastline or to Australia’s Darwin. Sunrise is located in a maritime jurisdiction jointly administered by Australia and East Timor. Dili views Sunrise, which is the largest undeveloped gas resource within East Timor’s jurisdiction, as a nation-building project that it will utilise to build downstream gas production infrastructure. Woodside has traditionally preferred piping the Sunrise gas to Darwin in Australia’s Northern Territory, where two existing LNG projects exist. But a number of political developments this year have changed the prospects for Sunrise, from one that was consigned to a perennial deferred status to one that has some possibility if certain political and commercial agreements are made between the project partners and the two national governments. "Sunrise has the potential to supply the long-term demand needs of the Asia Pacific region," Woodside executive vice-president of projects Matthew Ridolfi said. "We are looking at a pipeline to East Timor where a new LNG plant would have to be built, and we are looking at a pipeline to Darwin." Woodside chief executive officer Meg O’Neill elaborated further about the Perth-based firm’s change of mind over the prospect of piping the gas to East Timor. <b>1<sup>st</sup> December 2022</b></li> </ul>
VIETNAM	<ul style="list-style-type: none"> <li>• <b><u>JOGMEC, PetroVietnam eye hydrogen, CCS projects in Vietnam</u></b> They have renewed the memorandum of understanding first signed in 2007 for five more years. Japan Organization for Metals and Energy Security (JOGMEC) and state-owned PetroVietnam have renewed the memorandum of understanding for five years to pursue oil and natural gas, hydrogen and ammonia production and CCS/CCUS projects, JOGMEC said on November 24. Based on the extended MoU, JOGMEC plans to conduct a geological evaluation of the target area, CO<sub>2</sub> emission source survey,</li> </ul>

and business environment survey with PetroVietnam and its subsidiary, Vietnam Petroleum Institute, to investigate the feasibility of possible CCS/CCUS projects in Vietnam. These projects are eligible for support under the revised JOGMEC's law enacted earlier this month. As per the revised law, JOGMEC can now invest in hydrogen and fuel ammonia production and storage projects as well as CCS/CCUS projects. JOGMEC's official name has been changed from Japan Oil, Gas and Metals National Corporation to Japan Organization for Metals and Energy Security. JOGMEC and PetroVietnam concluded the original MoU covering upstream development of oil and natural gas in 2007, and have since conducted pilot tests of CO<sub>2</sub> enhanced oil recovery in the offshore Rang Dong oil field in Vietnam. **24<sup>th</sup> November 2022**

**AFRICA**

CONGO

- Equatorial Guinea, Democratic Republic of the Congo (DRC) to Develop Joint Oil Refinery and Storage Facilities**  
 Equatorial Guinea's Ministry of Mines and Hydrocarbons and the Democratic Republic of the Congo's Ministry of Hydrocarbons signed a Memorandum of Understanding (MoU) on Tuesday at the Angola Oil&Gas (AOG) 2022 Conference & Exhibition develop existing synergies across their respective upstream, downstream, energy infrastructure and logistics sectors. Signed by Equatorial Guinea's Minister H.E. Gabriel Mbagha Obiang Lima and his Congolese counterpart, H.E. Minister Didier Budimbu Ntubuanga, the agreement provides for the establishment of a working group to achieve shared energy objectives and the implementation of specific projects. **30<sup>th</sup> November 2022**
- Perenco discovers oil at PNGF Sud licence offshore Congo Brazzaville**  
 Independent hydrocarbons producer Perenco has discovered oil in the shallow water Pointe Noire Grand Fond (PNGF) Sud license in Congo Brazzaville. The company encountered oil with the exploratory well Tchinem 1-01, which targeted a deeper zone beneath the Tchibeli North East (NE) field. It was drilled using the Dagda mobile offshore drilling and production unit (MODPU) that was moved onto the Tchibeli NE field at the end of August this year. The new discovery in the pre-salt Vandji play potentially unlocked a new geological play. It is underlain by a layer of salt, which obstructed the seismic imaging and drilling, said the company. The well encountered the top reservoir at 3,420m and a 205m gross section of Vandji. It was drilled to a total measured depth of 3,630m. Perenco said that good oil and gas shows were recorded on entry into the reservoir and a 75m oil column was interpreted on logs. It ran a 7-inch liner and selected two intervals totalling 62m, for perforation. The company has conducted a comingled test, where the zones produced 2,000bopd on natural flow, prior to a 24hr pressure build up (PBU) test to confirm connected volumes. **30<sup>th</sup> November 2022**

EGYPT

- BP wins two oil exploration blocks offshore Egypt**  
 British oil major BP has received two oil exploration blocks offshore Nile Delta, Egypt, in the Mediterranean Sea. The blocks, called the Northwest Abu Qir Offshore Area and Bellatrix-Seti East block, have been awarded by Egyptian state-owned company Egyptian Natural Gas Holding Company (Egas). BP owns an 82.75% operatorship stake in Northwest Abu Qir Offshore Area while Wintershall-Dea owns the remaining 17.25% stake. Located west of the BP-owned North King Mariout block, the Northwest Abu Qir Offshore Area covers an area of approximately 1038km<sup>2</sup>. BP holds a 50% stake in the 3440km<sup>2</sup> Bellatrix-Seti East block, located west of the Atoll field and North Tabya blocks. The remaining stake is held by Italian firm Eni. BP gas and low carbon energy executive vice-president Anja-Isabel Dotzenrath said: "Egypt has long been important for BP, with almost 60 years of successful partnership and more than \$35bn invested. "We now look forward to an even more successful future, continuing to help meet Egypt's growing energy needs by providing cost-competitive supplies of gas and supporting Egypt through the energy transition by exploring growth opportunities in hydrogen, for example." In 2022, BP was awarded the North El Fayrouz offshore area, King Mariout Offshore Area, and the North El Tabya area extension. **29<sup>th</sup> November 2022**



**AUSTRALIA**

AUSTRALIA

- **Duo moves on what could become Australia's first offshore CCS project**

Australia's Triangle Energy and Pilot Energy the Cliff Head joint venture are preparing to start front-end engineering and design work for what could become Australia's first offshore carbon capture and storage (CCS) project. The Cliff Head CCS project is being touted as having 2C contingent CO2 storage potential of 9.7 million tonnes, which would facilitate the injection of 665,000 tonnes per annum of carbon dioxide over 15 years. Start-up of the CCS scheme at the mature shallow-water oilfield offshore Western Australia is being targeted by 2025, Upstream earlier reported. Over the past six months, the JV's technical teams, along with CO2Tech – its carbon storage subsurface advisor - have undertaken a full technical assessment of the storage potential across the WA-31-L tenement area. This work expanded key technical models to cover the entire WA-31-L and contiguous area - expanding into Pilot's 100%-held WA-481-P exploration licence. Revised development plan The expanded technical data set resulted in a 50% increase in the CCS project's 2C contingent storage to 9.7 million tonnes. This upgraded resource has resulted in a revised CCS development plan with a new CO2 injection well to be drilled downdip from the Cliff Head oilfield instead of converting five existing wells, with the existing wells being retained for pressure maintenance and monitoring. While the capital cost of the simplified development plan is under review, it is expected to fall within the previous guidance of A\$110 million (US\$73.46 million) for 665,000 tpa injection capacity with up to a further A\$60 million to expand injection capacity to 1.1 million tpa. **30<sup>th</sup> November 2022**

NEW ZEALAND

- **Australian energy giant takes lead in large green hydrogen project in NZ**

New Zealand power company Meridian Energy has selected Woodside Energy as its preferred partner to move into the development stage of the large Southern Green Hydrogen (SGH) project. Woodside and Fortescue Future Industries were in final negotiations to become the project's lead developer. Meridian said Woodside was selected based on its capability and experience in operations, process safety and liquids marketing. The proposed project is aiming to produce 500,000 tonnes per annum of ammonia using electrolysis from renewable power. Technical work on the facility is continuing in parallel with the design of the commercial structure for the project. The project is to be located in the the far south of New Zealand's South Island and options for the domestic supply of hydrogen and ammonia, as well as the export of ammonia to Asia and Europe, will be assessed. The Japanese conglomerate Mitsui & Co is also in discussions to join the project and develop the potential market for ammonia offtake. Meridian, Woodside and Mitsui, subject to finalising commercial arrangements, will work toward starting front-end engineering design on the project. "We believe a large-scale hydrogen and ammonia facility in Southland, focused on the export market, will accelerate the development of a domestic hydrogen economy and strengthen New Zealand's platform to contributing to decarbonising our transport and industrial sectors," said Meridian chief executive Neal Barclay. **29<sup>th</sup> November 2022**

**EUROPE**

DENMARK

- **Kent to undertake CCS contract for INEOS Energy**

Project Greensand works to reduce CO<sub>2</sub> emissions into the atmosphere. This is done by capturing CO<sub>2</sub> from the emitters and transporting and storing the CO<sub>2</sub> in the subsurface of the North Sea in depleted hydrocarbon fields. Kent has been selected to conduct screening studies covering the CCS Value Chain from the onshore capture sites, liquefaction, onshore storage, transportation, and offshore sequestration. The scope includes studies to investigate the transportation of CO<sub>2</sub> and its storage potential in the depleted Nini Field in the Danish North Sea, which is expected to provide a storage capacity between 0.45 to 1.45 mta million tons per annum (mta). The project will look at further expansion and use of other depleted fields and adjacent aquifers in the Siri Area, which may have a storage potential of up to 8 mta. This significant project adds to Kent's portfolio of carbon

capture and decarbonisation expertise. It combines its multi-disciplinary capability in process and facilities, subsea and pipelines, flow assurance, naval architecture, and materials and corrosion. Neil Taylor, Operations Director of UK Consulting at Kent, said: “We are delighted to be part of this ground-breaking project and believe we have the expertise and technological skills to deliver the right solutions for our client. “Project Greensand is amongst the frontrunners of CO<sub>2</sub> storage projects in Europe and has the potential to support Denmark’s and Europe’s wider CO<sub>2</sub> emission reduction targets. We are delighted to continue supporting INEOS Energy’s net-zero ambitions. **29<sup>th</sup> November 2022**

**FINLAND**

- Sibanye-Stillwater begins construction of the Kokkola lithium hydroxide refinery**  
 Sibanye-Stillwater is pleased to announce that, subsequent to securing an effective controlling interest of approximately 3 October 2022, the Board of Sibanye-Stillwater has approved capital expenditure of €588m for the Keliber lithium hydroxide the construction of the Kokkola lithium hydroxide refinery (the Kokkola refinery). The Kokkola refinery will be located at the Kokkola industrial park in Finland, a world-class industrial and logistics hub, European battery sector. The construction of the Kokkola refinery marks the first phase in the development of Keliber’s wholly owned, advanced Ostrobothnia region of Finland, one of the most significant lithium-bearing areas in Europe. Neal Froneman, CEO of Sibanye-Stillwater said “We are delighted to advance and grow our presence in the European we expect will be the first fully integrated European lithium hydroxide producer supplying the European market and is e emission footprints in the industry. We look forward to working with all stakeholders to deliver this exceptional project w ecosystem as well as to the growth of our unique portfolio of green metals that reverse climate change **29<sup>th</sup> November 2022**

**NORTH & SOUTH AMERICA**

**CANADA**

- Canada's TC Energy gets approval to expand NGTL gas pipeline system**  
 The Canadian government on Wednesday approved an expansion to TC Energy's NOVA Gas Transmission Ltd (NGTL) pipeline system in Alberta, which will help improve market access for western Canadian natural gas. The West Path Delivery 2023 (WP2023) project will add about 40 kilometres (25 miles) of new natural gas pipeline to the existing 25,000-kilometre NGTL system, which ships gas across Canada and to U.S. markets. It is part of a C\$1.2 billion (\$893.3 million) expansion program first announced by TC in 2019 and underpinned by approximately 258 million cubic feet per day (mcf/d) of new long-term firm service contracts. TC said it was pleased with the decision and construction was scheduled to begin in the first quarter of 2023, with an anticipated in-service date of Nov. 1, 2023. Federal natural resources minister Jonathan Wilkinson approved the project with 34 conditions related to environmental protections and the involvement of Indigenous people through employment and training . **1<sup>st</sup> December 2022**

**USA**

- Bechtel to build Phase-I of Intel’s semiconductor manufacturing facilities in Ohio**  
 Bechtel has been selected by Intel to build Intel’s new semiconductor manufacturing facilities in New Albany, Licking Co revitalize chipmaking in the U.S. and help restore dependability and resilience to the global semiconductor supply chain Bechtel will design and build Phase 1 of the Intel Ohio project, a total of 2.5 million square feet of facility, including 600 Construction will require as much steel as eight Eiffel Towers and as much concrete as the tallest skyscrapers. Bechtel technology and deploy best-in-class construction innovation will help Intel realize its ambitions in the next generation of Intel’s investment will strengthen future economic development in the region and transform it into the “Silicon Heartland deliver these facilities, including engineers, construction leadership, and craft professionals. Bechtel will partner with th suppliers to create new construction jobs, and work with local education organizations to implement training programs. “Bechtel is proud to work with Intel and the people of Ohio to reclaim U.S. semiconductor manufacturing,” said Catherin Manufacturing and Technology business. **30<sup>th</sup> November 2022**

- **Australia's Woodside sees first H2OK output in 2026**

Australian independent Woodside Energy is targeting first liquid hydrogen production from its proposed 60 t/d H2OK hydrogen project in the US state of Oklahoma in 2026. A final investment decision (FID) on the project is on schedule for next year. Woodside has completed geotechnical investigations for the project and is currently undertaking initial engineering activities. It awarded a contract for producing alkaline electrolyser equipment to Norway-based Nel Hydrogen Electrolysers in October. Woodside is currently in customer offtake discussions and is progressing regulatory and environmental approvals, Woodside executive vice-president of new energy Shaun Gregory said on 1 December. H2OK is one of four hydrogen projects that Woodside is participating in. It was selected as the preferred bidder for the development of the Southern Green Hydrogen project in New Zealand this week. Woodside also has interests in the hydrogen refueller H2Perth venture in Western Australia and proposed H2TAS hydrogen plant at Bell Bay on the island state of Tasmania. Woodside gave no FID guidance for the other three hydrogen projects even though it said in November 2021 that it was looking at an FID for H2TAS in 2023. **1<sup>st</sup> December 2022**

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