



APAC Renewables Market Update

June 9, 2023

Low Carbon Infrastructure



Energy Technology & Services



Water, Agriculture and Consumer



Renewable Energy Value Chain



Environmental Services & Technology



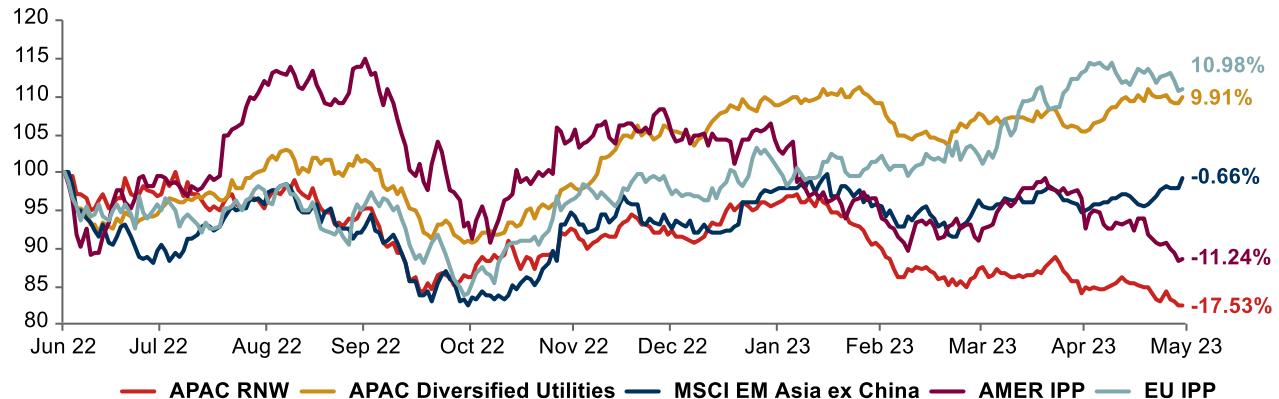
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APAC Renewables Market

Select Companies Share Price Performance

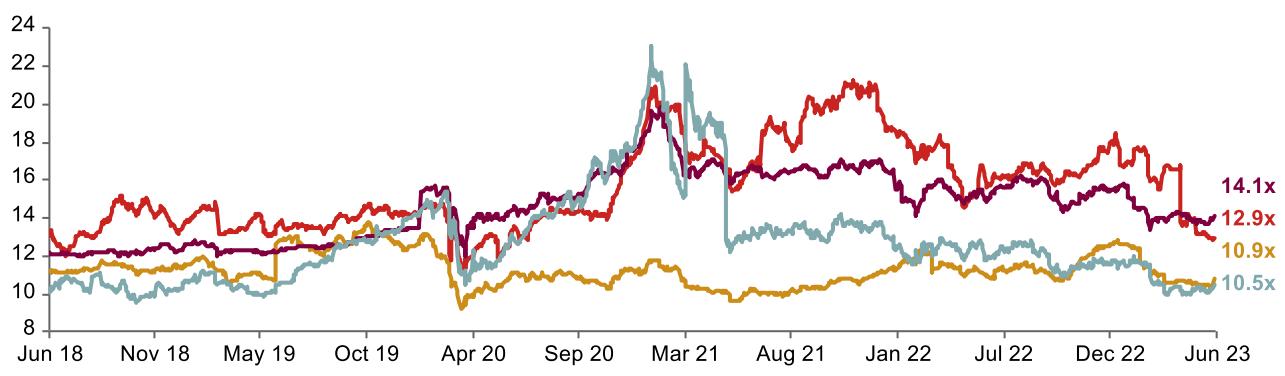
LTM to June 8, 2023

Rebased to 100



Select Companies Multiples

EV/NTM EBITDA Multiple Evolution – L5Y to June 8, 2023



APAC Renewables - Select Companies Trading and Valuation Metrics

Company	Market Cap. (USDbn)	Enterprise Value (USDbn)	Last Share Price (USD)	Last Share Price % vs 52 wks High	LTM Change	L1M Change	EV/EBITDA			EBITDA Margin	Corporate Leverage
							2023E	2024E	NTM 1y Avg.		
adani Renewables	18.7	24.9	11.82	37.5%	(49.0%)	5.5%	26.7x	19.0x	39.0x	78.3%	76.4%
 E.ON	7.0	8.4	1.87	66.4%	(28.0%)	(7.9%)	21.0x	19.7x	27.2x	49.0%	39.9%
 ReNew	2.2	6.5	5.43	72.4%	(25.5%)	5.0%	8.4x	6.9x	6.9x	82.1%	76.9%
 B.GRIMM SINCE 1878	2.8	5.2	1.08	83.7%	7.0%	(9.5%)	12.5x	11.6x	13.7x	45.0%	21.3%
 ACEN	4.2	5.0	0.11	66.5%	(25.1%)	(2.8%)	23.3x	17.9x	24.3x	15.7%	33.9%
 RENOVA	0.9	2.0	11.24	41.7%	(30.2%)	(20.7%)	12.8x	9.5x	14.8x	38.3%	33.6%
 Azure Power	0.1	1.6	2.27	15.6%	(85.1%)	7.6%	6.6x	NA	7.2x	72.1%	85.7%
 CKPower	0.8	1.2	0.10	60.1%	(36.8%)	(11.6%)	10.9x	10.6x	16.8x	53.0%	38.0%
 bcpq	0.8	0.9	0.27	78.0%	(21.2%)	(3.4%)	8.3x	6.8x	9.3x	59.1%	67.5%

Source: FactSet as of June 8, 2023.

Note: **APAC RNW** index includes ACEN, Azure Power Global, BCPG, B.Grimm Power, China Datang Corp. Renewable Power, China Three Gorges Renewables, CKPower, Energy Absolute, Mega First Corp, NHPC, Pertamina Geothermal Energy, ReNew and RENOVA. **APAC Diversified Utilities** index includes AboitizPower, AGL, Electricity Generating Public, Global Power Synergy, Huaneng Power International, Malakoff, Ratch Group, Sembcorp Industries, Tata Power and Tenaga Nasional. **AMER IPP** index includes AES Corporation, Boralex, Brookfield Renewable Partners, Innergex Renewable Energy, NextEra Energy and Northland Power. **EU IPP** index includes Acciona Energías, Aker Horizons, EDP Renovaverais, Encavis, Enel, ENGIE, ERG, Iberdrola, Neoen, Ørsted, PNE, RWE, Scatec, Solaria Energía, Terna Energy and Voltalia.

Note: Next Twelve Months ("NTM"). Last Twelve Months ("LTM"). Last One Month ("L1M"). Last completed Fiscal Year ("LFY") based company's adjusted EBITDA. Current unreported Fiscal Year ("CFY") based on FactSet. "NM" means non-meaningful when EV/EBITDA > 50x. "NA" means not available. Corporate leverage is calculated as the ratio between net debt and enterprise value.

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Recent Company News

Selected Updates

NOMURA
greentech

- On June 1st, it was reported that the Board of Directors of Adani Green Energy is expected to convene in June to approve a proposed share sale to raise USD750-850m
 - The total proposed fundraising of Adani Group's three companies (including Adani Green Energy, Adani Enterprises and Adani Transmission) would amount to c. USD3.4bn
- On May 30th, Adani Green Energy announced that its 130 MW wind farm located in Gujarat, India, has started operations
 - The wind farm has a 25-year PPA with SECI at tariff price of INR2.83/kWh (~USD3.4cents/kWh)
 - Adani Green Energy's total operational capacity has reached 8.2 GW, including 1.1 GW of wind
- On May 30th, four companies of Adani Group received additional USD330-530m of equity infusion from their existing investor, GQG Partners, a US-based asset management company which previously invested USD1.9bn in Adani Group

adani

amp[∞]
ANTAI

中国安储能源集团
China AnChu Energy Storage Group

B
balco

BlueFloat
ENERGY

bp

CanadianSolar

CHINA HUADIAN

CHN ENERGY
国家能源集团
国电长源电力股份有限公司
GUODI CHANGYUAN ELECTRIC POWER CO., LTD.

Energia
CHUGOKU ELECTRIC POWER

CORIO

COSMO

- On May 31st, Amp Energy, a renewable energy developer, and Antaisolar, a PV mounting systems supplier, signed a strategic partnership agreement to jointly develop 200 MW of ground-mounted solar projects in Japan
- On May 31st, it was reported that Chinese energy storage battery maker Anchu Energy Storage Group was in talks with investors for a potential fundraising of up to USD300m to further develop and produce zinc-bromine flow batteries

- On June 4th, it was reported that India-based Bharat Aluminum Company ("BALCO"), a subsidiary of Vedanta Resources, is acquiring a 26% stake in a SPV owning a 200 MW PV project with a total investment of up to INR1.1bn (~USD13m)
 - BALCO also entered into a 25-year Power Delivery Agreement ("PDA") to purchase the renewable power generated from the solar plant for its aluminum operations

- On June 5th, Spanish offshore wind developer BlueFloat Energy announced it will build a 7.6 GW portfolio of offshore wind projects in the Philippines
 - BlueFloat Energy secured Wind Energy Services Contracts ("WESC") from the Philippines Department of Energy covering four project sites located in Luzon and Mindoro, each with a capacity between 1.5 GW to 3.5 GW

- On May 26th, BP denied rumors that it was considering an investment in a new renewable platform wholly-owned by the two founders of India-based renewables company, Greenko, Mahesh Kolli and Anil Chalamalasetty
 - It was previously reported that Petronas and BP were competing to invest USD1.5-2bn for a significant minority stake in this platform that is planning to construct a green ammonia and hydrogen project in Andhra Pradesh, which will cost USD10bn

- On June 7th, Canadian Solar confirmed that its subsidiary CSI Solar will be listed on the STAR Board Shanghai on June 9th under stock code 688472
- On May 30th, it was announced that Canadian Solar's majority-owned subsidiary CSI Solar would price its IPO share at CNY11.10/share (~USD1.50), implying a total gross proceeds of ~CNY6bn (~USD850m)

- On June 7th, China Huadian was reportedly considering an investment in a 100 MW greenfield solar power plant, located in Bulacan province, the Philippines
 - The seller Neoenergy North Luzon, a local energy group, indicated that total project cost is estimated to be over USD100m

- On May 30th, CHN Energy's subsidiary CHN Energy Changyuan Electric Power announced it is looking to raise CNY3bn (~USD420m) from up to 35 institutional investors to finance the development of a portfolio of renewable power projects
 - The funds are expected to finance 10 utility-scale PV projects with a combined capacity of 2.4 GW in central China

- On June 1st, Chugoku Electric announced a plan to issue JPY80bn (~USD570m) worth of green bonds as part of its efforts to secure funds for its transition towards decarbonization
 - The proceeds will be used to develop solar and hydroelectric power generating facilities as well as to strengthen the utility's electric power network

- On May 27th, Corio Generation was named Offshore Developer of the Year in the Wind Investment Awards
 - Corio Generation was launched just over a year ago by Macquarie Asset Management's Green Investment Group and has expanded its project pipeline from 15 GW at launch to over 30 GW today

- On May 29th, City Index Eleventh, the largest shareholder of Cosmo Energy Holdings, expressed its objection to the proposed re-election of Cosmo Energy Holdings' President, Shigeru Yamada, as Director at the upcoming 22nd June annual regular shareholders' meeting
- On May 23rd, Cosmo Energy announced that it has decided to seek shareholders' approval to activate the anti-takeover measure, against its largest shareholder City Index Eleventh and co-investors

Recent Company News

Selected Updates (Cont'd)



- On May 31st, Australia-based Edify Energy launched a process to sell its 185 MW Koorangie Battery Energy Storage System in Victoria, Australia
 - The project will be funded with equity provided by the new investor and senior debt financing, with financial closing for both equity and debt expected to happen at the same time



- On May 31st, Australian electricity transmission company ElectraNet proposed a AUD2bn (~USD1.3bn) plan to upgrade electricity transmission network as it looks to keep pace with demand from residential and industrial energy users
 - ~2 GW of additional demand from potential new customers in mining, heavy industry and hydrogen production sectors are expected



- On May 31st, Norwegian IOC Equinor, in cooperation with Petrovietnam announced that they are looking to conduct an offshore wind power survey in the province of Binh Thuan
 - The announcement was made a few days after approval of the Power Development Plan for 2030 (PDP VIII)



- On May 26th, Eurus Energy announced that 127.5 MW of wind farm projects located in Hokkaido, Japan have reached commercial operations
 - The wind farms include the 47.5 MW Hamasato Wind Farm and the 80 MW Kawaminami Wind Farm, comprising a total of 33 Siemens Gamesa wind turbines



- On May 29th, it was reported that First Philippines Holdings, the parent firm of energy company First Gen Corp, is receptive to approaches from ESG-focused investors
 - First Gen is committed to expand its renewable energy portfolio to lead Philippines' clean energy transition targeting up to 13 GW of capacity by 2030
 - KKR is rumored to be looking to increase its existing stake in First Gen from current ~12% to ~18%, as well as targeting a Board seat at First Gen



- On June 2nd, China-based PV wafer manufacturer Gokin Solar filed application for IPO on the Shenzhen Stock Exchange, aiming to raise CNY5bn (~USD710m)
 - The proceeds will be used to produce monocrystalline silicon rod and monocrystalline silicon wafer, construct a R&D center, and working capital funding



- On May 30th, China-based solar power devices maker, Growatt Technology, announced the postponement of its HK IPO due to challenging market conditions
 - Growatt Technology has already passed a listing hearing with the Hong Kong Stock Exchange and was reportedly planning to raised USD300-400m through its IPO



- On June 2nd, Shanghai Hyfun Energy Technology ("Hyfun"), China's fifth-largest refueling company by market share, announced it is looking for project partnerships in Australia
 - Hyfun will first focus on hydrogen transportation and storage before venturing into hydrogen generation. It aims to build local partnerships for refueling stations, while also being open to act as either a contractor, investor, operator or equipment supplier
 - Within China, Hyfun has built over 70 refueling stations as well as solid-state hydrogen storage facilities. Its most recent project is a CNY3bn (~USD425m) hydrogen complex in Qingdao city, featuring hydrogen generation, storage and transportation



- On June 5th, Iberdrola and Abel Energy, an Australia-based green hydrogen developer, announced they have reached an agreement with the state-owned electricity company Hydro Tasmania to acquire the Bell Bay plant, where they plan to build the ~USD1.2bn Bell Bay Powerfuels Project
 - Site selection will accelerate the development of the project, whose engineering and design will commence in a few months while commercial operation is expected to start by 2027
 - The Bell Bay Powerfuels Project is expected to produce 200kt of green methanol per year in its first phase of development, rising to 300kt in its second phase



- On May 31st, China-based manufacturer of solar power batteries and related equipment, JA Solar Technology, received approval from the China Securities Regulatory Commission ("CSRC") regarding its proposed offering of ~CNY9.0bn (~USD1.3bn) six-year convertible bonds ("CBs")
 - Proceeds from the CBs issuance will be used to fund project development as well as boost working capital



- On May 30th, it was reported that Indian conglomerate JSW Group was planning to sell a minority stake in its subsidiary, JSW Neo Energy, to raise up to USD500m
 - The proceeds will be used to expand the company's renewable portfolio

Recent Company News

Selected Updates (Cont'd)

NOMURA
greentech

- On May 26th, Keppel Corporation announced that it will enhance its efforts in the production and use of green hydrogen and ammonia

Keppel
Corporation

- It reached an agreement to join the AUD117m (~USD75m) Central Queensland Hydrogen Project (CQ-H2) Consortium, comprising of Queensland state-owned energy firm Stanwell Corporation, Japan's Iwatani Corporation, Kansai Electric Power Company and Marubeni Corporation. The consortium is currently developing the Gladstone hydrogen production facility which is targeting COD by 2028
- It signed a MoU with Australia's fertilizer manufacturer, Incitec Pivot, to explore the development of an industrial-scale green ammonia production facility in Gladstone for both domestic and overseas consumption



- On May 31st, a group of Australian and global firms, comprising AGL, DIRECT Infrastructure, Mainstream Renewable Power and Reventus Power, submitted a feasibility license application for a 2.5 GW offshore wind project off the Victorian coast in Australia

- The project has the potential to make significant economic benefits to Australia, including over AUD3.7bn (~US\$2.5bn) of economic value added and the creation of more than 8,600 full-time equivalent jobs

MALAKOFF
A Member of MMC Group

- On May 26th, Malakoff released its 1Q23 financial results. Key highlights include:
- 1Q23 Revenues reached MYR2.3bn (~USD495m). Over the same period, the company reported a Net Loss of MYR76m (~USD16m), mainly attributable to the higher fuel costs that resulted in a negative fuel margin

- On May 30th, Marubeni and Pembina Pipeline Corporation announced they will jointly develop a low carbon ammonia supply chain from Western Canada to Japan and other Asian markets

Marubeni
PEMBINA

- The project includes the development of a low-carbon hydrogen and ammonia production facility to be located in Alberta, Canada
- Initial feasibility studies have been completed and the facility is anticipated to have a production capacity of 1 mtpa of low carbon ammonia

Maynilad
Higit sa tubig ang aming serbisyo

- On June 5th, Maynilad Water Services announced it is planning to expand its solar portfolio as well as secure renewable energy supply as part of its goal of reaching carbon neutrality by 2027
- By 2027, Maynilad is targeting to source 35-50% of its electricity power from renewable sources

metis
ENERGY

- On May 26th, Metis Energy secured a USD45m green loan from DBS Bank and United Overseas Bank
- The funds will be used to finance the development of C&I rooftop solar projects in Indonesia and Vietnam
- Metis Energy currently operates 30 MW of rooftop solar projects in Vietnam

MITSUBISHI
POWER
JEL

- On May 24th, a consortium comprising Mitsubishi Power and Jurong Engineering Limited ("JEL") has been awarded an Engineering, Procurement and Construction ("EPC") contract to develop a new 600 MW hydrogen-ready combined cycle power plant ("CCPP") for Sembcorp Industries' fully owned subsidiary Sembcorp Cogen
- The plant is expected to be operational by 2026

NPS National Pension Service

- On June 2nd, South Korea's National Pension Service ("NPS") which manages KRW953trn (~USD730bn) of assets announced to increase its investments in overseas and alternatives assets for the 2024-2028 period, targeting an allocation of 15% of its fund into alternative assets by end of 2028 compared to a 2023 target of 13.8%

एनटीपीसी
NTPC

- On June 5th, India's largest utility company NTPC announced it is targeting to develop 16 GW of additional renewables capacity to be built through its subsidiaries NTPC Green Energy and National Renewable Energy over the next 3 years
- On June 2nd, NTPC Green Energy signed an agreement with the power utility company of the state of Uttar Pradesh to jointly develop renewables projects

octopusenergy

- On June 6th, Octopus Group announced it will construct the 175 MW Ardandra Solar Power Plant, located in Queensland, in proximity to its 180 MW Dulacca Wind Farm which reached COD in April 2023
- The Ardandra Solar Plant is expected to be installed by 2025 and will incorporate a 400 MWh BESS
- Once completed, the complex will become the largest hybrid renewable site in Queensland

ओएनजीसी
ONGC

- On May 30th, India's state-run Oil and Natural Gas Corporation ("ONGC") announced it will participate in the Country's first tender for offshore wind seabed leases to be launched shortly
- The Indian Government is planning to launch offshore wind seabed lease tenders, with projects in the first phase located off the coasts of Gujarat and Tamil Nadu with potential cumulative capacity of approximately 70 GW
- ONGC is looking to expand its renewables portfolio to 10 GW by 2030 from 189 MW as of Q1-2023



Recent Company News

Selected Updates (Cont'd)



- On June 7th, the Australian Competition and Consumer Commission ("ACCC") launched a public consultation on an application and a draft undertaking submitted by Brookfield and EIG Partners for their proposed acquisition of Origin Energy. ACCC has 90 days from the date that the application was lodged, June 5th, to make its decision
 - The key concern is that the proposed acquisition could be detrimental to fair competition given Brookfield's ownership of Victoria's state network operator, AusNet, and its 50% stake in smart meter company Intellihub



EIG

Brookfield

- On June 2nd, Petrovietnam Technical Services Corporation ("PTSC") announced it is bidding for offshore wind projects in Japan, South Korea and Europe, it is also eyeing projects in Australia
 - PTSC is targeting to invest VND1.8tn (~USD75m) in 2023



SUS

SUPER ENERGY
CORPORATION PUBLIC CO., LTD.

- On June 5th, PowerChina announced it has signed agreements to develop two renewable projects in Southeast Asia
 - A 609 MW PV project in Sekong province, Laos, co-developed with Thai renewables company Super Energy
 - An EfW project in Thailand with estimate cost of ~USD110m, co-developed with Super Energy and Chinese company SUS Environment



PSPCL

PUNJAB STATE POWER CORPORATION LTD.

- On May 30th, the Punjab State Power Corporation ("PSPC") issued a Request for Selection ("RfS") to procure 1 GW of solar power through a competitive bidding process
 - The RfS is open to grid-connected solar power projects with a capacity of 5 MW and above, located in Punjab
 - Interested bidders are required to submit their responses by July 10th



- On June 7th, Renova and Mitsubishi Materials announced they are planning to develop a 113.4 MW onshore wind farm in Imakane town in Hokkaido, Japan
 - An environmental impact report was submitted to the METI detailing their plan to install up to 27 turbines each with a size of 4.2 - 6.1 MW
 - The two companies are planning to start construction in May 2028 with COD scheduled from November 2031



HESTA

- On June 7th, ReNu Energy, the Australian energy equipment firm, announced it has signed a Platform Agreement with Australian superannuation fund HESTA for potential co-investment in green hydrogen projects
 - Under the agreement, ReNu Energy will be responsible for the development and operation of the projects
 - The Tasmanian hydrogen projects being developed by Countrywide Hydrogen, a wholly-owned subsidiary of ReNu Energy, will be one of the first projects presented to HESTA for potential co-investment in 2023



risen
solar technology

- On May 31st, Chinese solar developer Risen Energy announced it is targeting expansion in Southeast Asia, including in Indonesia, Malaysia and the Philippines
 - In Malaysia, Risen Energy is looking to participate in the large scale solar competitive bidding scheme
 - Risen Energy will engage with local landowners to secure lands for its planned development



SQUADRON ENERGY

- On June 6th, Squadron Energy, an Australia renewable company, was reportedly considering a potential stake sale
 - Squadron Energy previously indicated it would seek an investment partner and was rumored to be in talks with Brookfield, CDPQ and Tilt Renewables amongst other investors
 - Squadron Energy has ~AUD10bn (~USD6.7bn) of pipeline projects and is looking for a partner for co-development
- On May 31st, Squadron Energy was reported to be looking to invest AUD180m (~USD120m) in the construction and development of 400 MW Jeremiah Wind Project in Australia. The project will also host a 150 MW BESS



quinbrook
INFRASTRUCTURE
PARTNERS

- On June 5th, Sun Cable's new backers Mr. Cannon-Brookes and Quinbrook Infrastructure Partners announced they are in talks with investors to add wind energy to the existing solar projects being developed in Australia's Northern Territory
- On June 4th, it was reported that Sun Cable founders, David Griffin, Mac Thompson, and his brother Fraser Thompson, are set to exit the company following the sale to Mr. Cannon-Brookes and Quinbrook Infrastructure Partners



TATA POWER

- On June 5th, Tata Power Renewable Energy announced it has commissioned a 110 MW PV plant in Rajasthan, India
 - The solar power plant will supply electricity to Kerala State Electricity Board
 - With this installation, Tata Power's operational renewable capacity reached ~4 GW, comprising 3 GW of solar and 1 GW of wind assets



gigawatt

- On June 2nd, it was reported that Vivant Energy, a wholly owned subsidiary of listed Philippines-based energy group, Vivant Corporation, was set to acquire Gigawatt Power's shares in several energy companies in the Philippines which own power plants primarily in off-grid areas
 - The acquisition would increase Vivant Energy's holding in Small Power Utilities Group from 35 MW to 63 MW



- On June 7th, Thailand-based public utility and power company, WHA Utilities and Power, announced its plan to acquire wind and solar projects in Vietnam with combined capacity totaling 50-100 MW
 - WHA currently owns 133 MW of PV plants, of which 94 MW are operational and 39 MW are under construction
 - WHA Utilities and Power is targeting to increase its portfolio to 300 MW by end of 2023

- On June 5th, the Queensland Government announced it will invest AUD500m (~USD330m) in a portfolio of renewable energy projects across the State
 - The funds will be provided to publicly owned energy company CleanCo to develop up to 2.3 GW of new large-scale solar and wind projects in Central Queensland
- On June 3rd, Queensland State Government released the Draft Energy (Renewable Transformation and Jobs) Bill 2023:
 - Queensland plans to maintain a majority stake in share of electricity generation, currently averaging 54%
 - 22 GW of new wind and solar projects are planned to be installed by 2035, supported by grid-scale batteries and pumped hydro storage
 - Over AUD62bn (~USD41bn) of investment will be required
 - The private sector is expected to play a strong role in delivering the projects
- On May 27th, the Government of Victoria announced the approval of the new VNI-West electricity transmission project in the Western region of Victoria to connect new renewable energy projects
 - The VNI-West project is a 500kV transmission line connecting the Victoria and New South Wales energy grids which would allow ~3.4 GW of additional renewable projects to be built across the solar-rich Murray River Renewable Energy Zone ("REZ") and wind-rich Western Victoria REZ
- On June 1st, the Guangdong Province in China launched bidding process for 23 GW of offshore wind projects, comprising 7 GW of projects in provincial waters and 16 GW in national waters
 - Allocations will be granted in August
 - Winning bidders on the 7 GW provincial projects will be allowed to begin preliminary work once the projects are awarded and are expected to reach COD at the earliest in 2026
 - Winning bidders on the 16 GW national projects will need to obtain approvals from other government agencies and are expected to start construction in early 2024
- On May 26th, the Jiangsu Province in China has set a target to develop 10 GW of offshore solar by 2027
 - 43 offshore project sites have been identified with project size expected to be between 50 MW and 550 MW
- On May 31st, the Indian Government announced a plan to settle ongoing disputes tied to government contracts which will take effect from July 15th, 2023
 - Contractors will have until October 31st, 2023, to submit claims
- On May 30th, the Indian Government announced waiving inter-state transmission system ("ISTS") charges on offshore wind, green hydrogen and ammonia projects for 25 years
 - The waiver will apply to projects commissioned until December 31st, 2032
- On May 26th, India's Minister of Power and Renewables warned developers against missing project completion deadlines
 - No extension to commissioning timelines would be granted if developers had not taken the necessary steps to launch projects won through auctions
 - Developers missing deadlines would be barred from bidding for projects for 1 year, and a second instance would lead to a five-year ban
- On June 7th, the Japanese Government released its basic hydrogen strategy which set a target to cut the cost of hydrogen to one third of the current level by 2030 as part of efforts to promote the use of the clean energy source
 - The Government set a new goal of 15 GW of water electrolysis devices built by the private sector in Japan by 2030
 - Hydrogen prices will be lowered to JPY30 (~USD0.21) per cubic meter by 2030 from the current JPY100 (~USD0.72)
- On May 31st, the Japanese Parliament passed a law extending the lifetime of nuclear reactors beyond 60 years with the aim of improving the country's electricity supply and helping it to achieve its climate targets
 - The law was passed as part of a package of measures aimed at boosting investment in renewable energy and increasing the eastern country's energy self-sufficiency
- On May 30th, the Japanese Government unveiled a plan to lower thermal power output in order to maximize utilization of surplus electricity produced from renewable power plants, with new rules to become effective starting from April 2024
 - In regions where existing power capacity is exceeding grid capacity, renewable power operators are often required to reduce their output in order to avoid damages to the grid network due to over-supply
 - The plan is specifically lowering upper limit of thermal power output to 30% from the current 50% to maximize the use of renewable power electricity
- On May 30th, the Japan Wind Power Association ("JWPA") announced the association has set a target of developing a total 140 GW of wind power by 2050, comprising 40 GW of onshore wind, 40 GW of bottom-fixed and 60 GW of floating offshore wind
 - Upon completion, wind power would then account for 33% of Japan's total energy demand by 2050, higher than 31% from solar and 10% from nuclear

Recent APAC Regulatory News

Selected Updates (Cont'd)

NOMURA
greentech

- On May 30th, the Malaysian Government announced that it will roll out the roadmap for energy transition in phases
 - The 1st phase will identify crucial strategic initiatives and projects, including solar and hydrogen as well as renewable energy special zone
 - The 2nd phase will cover legislative changes and incentive financing available to expedite the transition process
 - The energy transition will require an estimated investment of MYR637bn (~USD150bn)
- On June 2nd, the Philippines Department of Energy published the list of eligible bidders for participation in the country's second green energy auction round ("GEA-2"), which is scheduled for June 19th and will be offering 11.6 GW of total capacity, comprising of 3.6 GW for 2024, 3.6 GW for 2025 and 4.4 GW for 2026
 - Among the 118 eligible bidders are names of subsidiaries and associates of AboitizPower, Enfinity and Solar Philippines
 - A pre-bid conference for qualified bidders will take place on June 6th while the winning bidders will be announced on June 28th
- On May 29th, the Department of Energy ("DoE") announced that it could offer up to 9 GW of geothermal and hydroelectric projects in the third round of the green energy auction ("GEA-3")
 - The GEA-3 is scheduled for Q4-2023 as the department still needs to develop specific auction policy and guidelines for geothermal and hydro
- On May 31st, the Singaporean Central Bank announced to include the phase-out of coal-fired power plants in the Singapore Asia Taxonomy, aiming to provide guidelines for lenders and other financial institutions to categorize activities qualified as green or transitioning towards green
- On June 5th, South Korea's National Assembly passed a Special Bill on Distributed Energy, opening up new opportunity for virtual power plants ("VPP") and battery storage systems
 - The bill serves as a legal foundation to operate VPP, which aggregates small-scale, distributed energy resources such as solar and energy storage systems, and also allows such resources to sell power directly to consumers, bypassing the country's sole power retailer, Korea Electric Power Corp. Through the bill, the government aims to alleviate financial and social challenges in building new transmission lines
 - The Ministry of Trade, Industry and Energy also plans to inject KRW26bn (~USD20m) by 2026 to support VPP businesses. Local players active in VPP include Hanwha Convergence, LG Energy Solution, and Gridwiz
 - The government will select special districts in 2024 to test diverse distributed technologies and pilot direct power trading. Jeju Special Province has already announced a bid for the special district
- On May 29th, the Taiwanese Government is reported to announce rules for its first floating wind demonstration projects in Q3-2023
 - It is expected that the cap for a single power plant would be lifted to 90-180 MW from the earlier 50 MW
 - The demonstration program aims to select projects that will help the bureau fine-tune its regulatory framework
- On May 29th, the Taiwanese Government re-affirmed that it is planning to phase out Taiwan's nuclear plants in line with the original plans and are not considering extending their lifespan
 - The comment was made in response of concern over reactivation of Taiwan's nuclear power plant in an emergency situation (i.e. power shortage)
 - Taiwan currently has one nuclear power plant still in operations which is scheduled to be shut down by 2025
- On May 29th, Taiwanese legislators passed an amendment to the Renewable Energy Development Act. Key amendments include:
 - All newly built, expanded, or altered structures that meet specific conditions are required to have rooftop solar panels incorporated into the building's design and installation
 - The building owners will be allowed to use the electricity generated themselves or sell it to state-run utility or private entities
 - Previous provision stating that offshore wind installations could "not go beyond territorial waters" to expand their range of deployment was removed
- On June 6th, National Assembly Deputy Nguyen Van Hien expressed its concerns over the bankruptcy of wind and solar power enterprises because of sudden policy changes and asked the Ministry of Industry and Trade to reconsider the policies and make suitable adjustments. His concerns include:
 - The abolition of the application of the power purchase price for a 20-year period
 - The abolition of the provision for converting electricity purchases to USD
 - The abolition of the clause forcing the buyers to purchase the entire electricity output from grid-connected wind power projects at the price at the time of delivery
 - The inconsistency in electricity price bracket for transitional wind and solar power plants (i.e. projects that missed the deadline for preferential feed-in tariffs)
 - Power transmission investment's failure to meet operational needs of renewable energy projects
- On May 28th, the Ministry of Industry and Trade reported that out of the 85 transitional renewable energy projects (i.e. projects that missed the deadline for preferential feed-in tariffs), only 18 projects have been granted electricity operation licenses
 - According to the Electricity Law, electricity projects are required to obtain electricity operation licenses before commencing operations

Taiwan



Recent APAC Investment News

Selected Transactions

NOMURA
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Date Announced	Acquirer / Investor	Target / Seller	Deal Type	Description
June 8 th		403 MW Peak Power Project 	Asset Deal	<ul style="list-style-type: none"> Petronas' subsidiary Gentari acquired 49% stake in Indian renewable energy company ReNew Energy Global's 403 MW Peak Power Project for an undisclosed sum The Peak Power Project has a 25-year PPA with peak tariff of INR6.85/kWh (~USD8.3 cents/kWh) and off-peak tariff of INR2.88/kWh (~USD3.5 cents/kWh)
June 6 th		Meizhou Dabu Agricultural Composite Solar Project Guangdong Xianeng Power Generation	Asset Deal	<ul style="list-style-type: none"> SP Group purchased the right to develop a 78 MW solar power plant in southern Guangdong province from Guangdong Xianeng Power Generation The project is named Meizhou Dabu Agricultural Composite Solar Project and is estimated to cost CNY700m (~USD100m) It has a 25-year power purchase agreement with Southern Grid
June 5 th		3.4 MW Rooftop Solar Portfolio 	Asset Deal	<ul style="list-style-type: none"> TotalEnergies ENEOS acquired a 3.4 MW rooftop solar portfolio in Vietnam for an undisclosed sum The seller is Sao Mai Solar Company, a subsidiary of Vietnamese conglomerate Sao Mai Group The target projects have been installed on the roofs of Asia Fish Oil factory and IDI International Development and Investment factory in the Vam Cong Industrial Cluster of Vietnam's Dong Thap Province The parties also signed an MoU to jointly develop renewable energy projects, starting with the construction of an additional rooftop solar system for Sao Mai Group's production units
June 5 th		Formosa 3 Offshore Wind Project 	Asset Deal	<ul style="list-style-type: none"> JERA completed the transfer of its entire 44% stake in Formosa 3 Offshore Wind Project to Corio Generation JERA will continue to focus on operating both Formosa 1 and Formosa 2 Wind Farms
June 3 rd		3.1 GW Offshore Wind Projects	Asset Deal	<ul style="list-style-type: none"> China Energy Engineering Corporation ("CEEC") signed an agreement with Philippines-based renewables developer Energy Oasis Generation Corporation to co-invest in 3.1GW of offshore wind projects off the southern coast of Luzon Island CEEC also announced it is looking for opportunities to develop offshore wind projects in other Southeast Asian countries
June 2 nd			Stake Acquisition	<ul style="list-style-type: none"> Brookfield Renewable through the Brookfield Global Transition Fund acquired a controlling stake in Mumbai-based CleanMax Enviro Energy Solutions ("CleanMax") for ~USD360m The investment will be used to fund CleanMax's growth plans In August 2021, US-based fund manager Augment Infrastructure invested USD222m in CleanMax acquiring a majority stake
June 1 st		Three Power Companies Huaihe Energy Power Group	Stake Acquisition	<ul style="list-style-type: none"> Chinese coal company Huaihe Energy Group announced the acquisition of majority stakes in three power companies from Huaihe Energy Power Group via cash payment The target companies comprise 100% stake in Huaihe Energy Huainan Panji Power Generation, 50.43% stake in Huazhe Coal Power, and 49% stake in Huazhe Electric Power

Recent APAC Investment News

Selected Transactions (Cont'd)

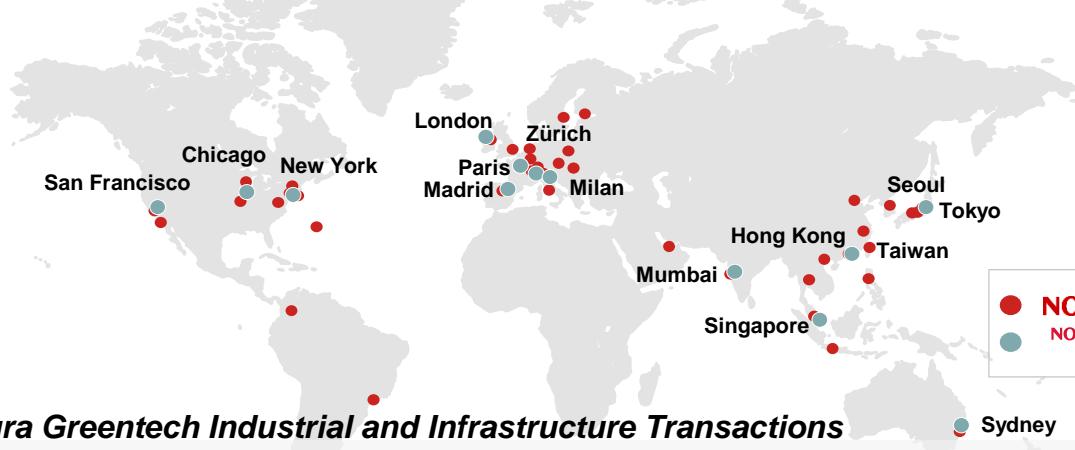
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Date Announced	Acquirer / Investor	Target / Seller	Deal Type	Description
June 1 st			Stake Acquisition	<ul style="list-style-type: none"> UK-based SPAC Net Zero Infrastructure signed a non-binding letter of intent to acquire LINE Hydrogen, an Australian-based energy company focused on hydrogen development, without disclosing financial details of the deal In May 2022, LINE Hydrogen was reported to prepare for listing on the ASX expecting to raise AUD25m (~USD16m), at a valuation of AUD80-100m (~USD52-65m)
May 31 st			Stake Acquisition	<ul style="list-style-type: none"> ICG, the global alternative asset manager, invested USD50m in renewable energy platform Amp Energy India with an option to commit an additional USD50m Proceeds will be used to support Amp Energy India's growth plan Founded in 2016, Amp Energy India has a renewable portfolio of 2.7 GW at different stages of development
May 31 st		21 MW Hitoyoshi Solar Plant  <small>FUYO GENERAL LEASE CO.,LTD.</small>	Asset Deal	<ul style="list-style-type: none"> Renova purchased an additional 62% stake in 21 MW Hitoyoshi Solar Plant in Western Japan for an undisclosed amount, becoming its sole owner The seller was Renova's business partner, Fuyo General Lease
May 31 st	Japanese Investors	100 MW Azuma Kofuji Solar Plant  <small>A subsidiary of Canadian Solar</small>	Asset Deal	<ul style="list-style-type: none"> Canadian Solar's Recurrent Energy sold 100 MW Azuma Kofuji Solar Plant, located in Fukushima Prefecture to local investors for an undisclosed amount The power plant started operations in Q3-2022 and is selling electricity power to Tohoku Electric Power Company at FIT price of JPY36/kWh (~USD0.26/kWh)
May 26 th	 		Stake Acquisition	<ul style="list-style-type: none"> A consortium comprising Grok Ventures, billionaire Mike Cannon-Brookes' investment vehicle, and Quinbrook Infrastructure Partners, signed an agreement to acquire Sun Cable, Australia-based renewable energy operator Sale price was not disclosed but it was rumored to be less than AUD100m (~USD65m)

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Nomura Greentech Industrial and Infrastructure Offices



Nomura Greentech Industrial and Infrastructure Transactions

Mergers & Acquisitions

- Corporate sales
- Acquisitions
- Minority investments
- Joint ventures
- Fairness opinions

Asset Transactions

- Acquisitions
- Divestitures
- Passive equity
- Development capital formation

USD135bn

Operating
28 GW

Development
196 GW

Capital Raising

- Equity private placements
- Debt private placements
- Project finance advisory
- Bookrun public equity offerings

>USD12bn

Strategic Advisory

- Strategic consulting
- IPO preparation
- Financial restructuring
- Specialized opinions
- Independent capital markets advice

>240 completed transactions

Note: As of June 2023.

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APAC Renewables Market Update

June 23, 2023

Low Carbon Infrastructure



Energy Technology & Services



Water, Agriculture and Consumer



Renewable Energy Value Chain



Environmental Services & Technology



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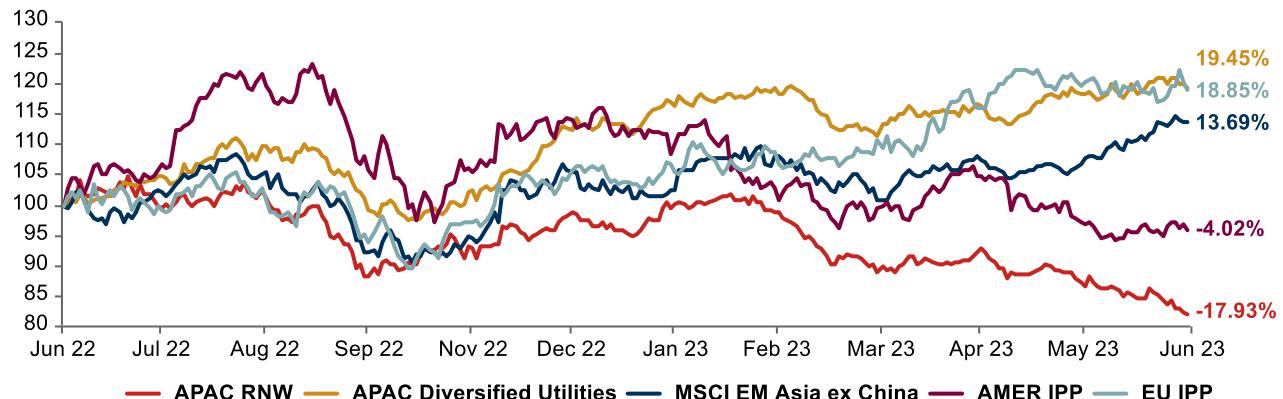
APAC Renewables Market

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Select Companies Share Price Performance

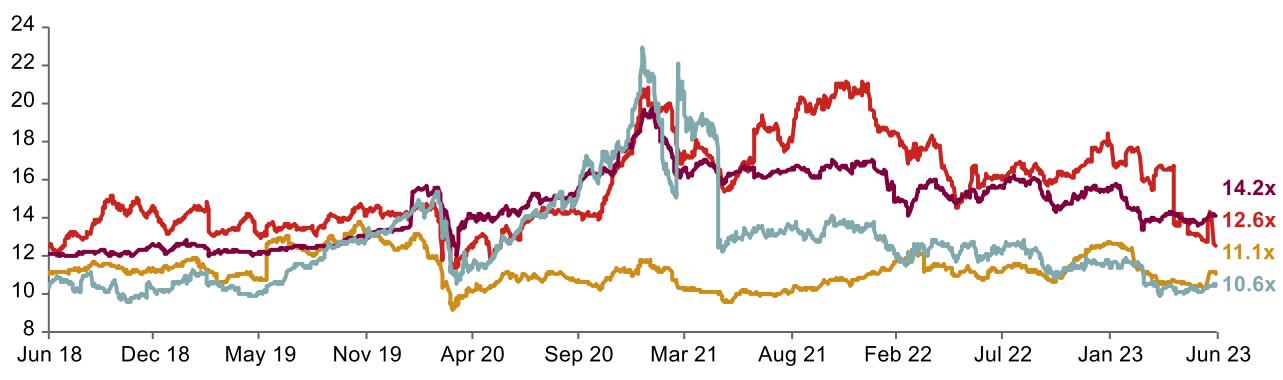
LTM to June 22, 2023

Rebased to 100



Select Companies Multiples

EV/NTM EBITDA Multiple Evolution – L5Y to June 22, 2023



APAC Renewables - Select Companies Trading and Valuation Metrics

Company	Market Cap. (USDbn)	Enterprise Value (USDbn)	Last Share Price (USD)	Last Share Price % vs 52 wks High	LTM Change	L1M Change	EV/EBITDA			EBITDA Margin	Corporate Leverage
							2023E	2024E	NTM 1y Avg.		
adani Renewables	18.8	25.1	11.89	37.7%	(46.4%)	4.5%	26.7x	19.0x	38.2x	78.3%	76.4%
E@	6.1	7.5	1.63	57.8%	(30.1%)	(15.4%)	18.7x	17.7x	26.9x	49.0%	39.9%
ReNew	2.2	6.6	5.61	74.8%	(7.3%)	(2.8%)	8.6x	6.9x	6.9x	82.1%	71.1%
B.GRIMM SINCE 1878	2.6	5.0	1.01	78.7%	1.9%	(6.3%)	11.9x	11.0x	13.6x	45.0%	22.0%
ACEN	3.6	4.5	0.09	57.2%	(32.2%)	(17.4%)	24.6x	17.1x	24.0x	15.7%	26.9%
RENOVA	1.0	2.1	12.16	45.1%	(18.7%)	0.2%	13.4x	9.9x	14.6x	38.3%	52.7%
Azure Power	0.1	1.6	1.61	11.6%	(84.9%)	(30.0%)	6.5x	NA	7.2x	72.1%	85.7%
CKPower	0.8	1.2	0.09	58.0%	(42.1%)	(4.6%)	10.1x	9.8x	16.7x	53.0%	40.4%
bcpq	0.7	0.8	0.26	79.9%	(17.2%)	(2.8%)	7.1x	6.0x	9.1x	59.1%	16.5%

Source: FactSet as of June 22, 2023.

Note: **APAC RNW** index includes ACEN, Azure Power Global, BCPQ, B.Grimm Power, China Datang Corp. Renewable Power, China Three Gorges Renewables, CKPower, Energy Absolute, Mega First Corp, NHPC, Pertamina Geothermal Energy, ReNew and RENOVA. **APAC Diversified Utilities** index includes AboitizPower, AGL, Electricity Generating Public, Global Power Synergy, Huaneng Power International, Malakoff, Ratch Group, Sembcorp Industries, Tata Power and Tenaga Nasional. **AMER IPP** index includes AES Corporation, Boralex, Brookfield Renewable Partners, Innergex Renewable Energy, NextEra Energy and Northland Power. **EU IPP** index includes Acciona Energías, Aker Horizons, EDP Renovaverais, Encavis, ENGIE, ERG, Iberdrola, Neoen, Ørsted, PNE, RWE, Scatec, Solaria Energía, Terna Energy and Voltalia.

Note: Next Twelve Months ("NTM"). Last Twelve Months ("LTM"). Last One Month ("L1M"). Last completed Fiscal Year ("LFY") based company's adjusted EBITDA. Current unreported Fiscal Year ("CFY") based on FactSet. "NM" means non-meaningful when EV/EBITDA > 50x. "NA" means not available. Corporate leverage is calculated as the ratio between net debt and enterprise value.

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Recent Company News

Selected Updates

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- On June 15th, AGL Energy signed a 15-year PPA with Tilt Renewables, whereby AGL will offtake 45% of the Rye Park wind farm's 396 MW output
 - The wind farm is expected to be operational by mid-2024



- On June 16th, Air Liquide China signed a long-term PPA with China Three Gorges' subsidiaries China Three Gorges Renewables and China Three Gorges Corporation Jiangsu Branch, to purchase 200 MW of renewable energy annually
 - The PPA will start in January 2024



- On June 8th, Chinese solar tracker manufacturer Arctech announced that it will provide 662 MW SkyLine II solar tracking solution for two projects in India with Sterling & Wilson and Torrent Power



- On June 15th, Avaada Energy received an LoI from state-owned GUNVL to develop a 400 MW solar project
 - The project consists of 200 MW under base capacity at a tariff of INR2.75/kWh (~USD3.4cent/kWh) and another 200 MW under greenshoe option at INR2.71/kWh (~USD3.3cent/kWh) as part of a tariff-based competitive tendering process followed by an e-reverse auction



- On June 16th, it was rumored that Actis and Keppel Corporation were among the remaining interested parties to acquire a stake in Vietnamese renewable power developer BCG Energy's 500 MW solar power portfolio
- On June 8th, BCG Gaia, a solar JV between BCG Energy and Sembcorp Energy Vietnam, secured a loan of VND1.8tn (~USD77.5m) from DBS
 - The JV currently owns 2 solar power plants, BCG Long An 1 and BCG Long An 2, with a total capacity of 141 MW
 - Proceeds will be used to develop solar power generating facilities and strengthen the JV's financial structure



- On June 13th, BrightNight announced its plan to develop 2 GW of renewable energy capacity in India within the next 4-5 years
 - The investment is expected to be USD1bn, with BrightNight looking to inject USD250m in equity
 - Optima, the first 100 MW wind-solar hybrid project, will require an investment of INR8bn (~USD100m)
 - Hybrid renewable projects are also planned in Gujarat and Rajasthan States, and an additional 100 MW project is being developed in the Maharashtra State
 - BrightNight's pipeline comprises of 23 GW globally, including 3 GW in APAC



- On June 9th, Canadian Solar announced that its majority-owned subsidiary, CSI Solar, has completed its STAR market IPO, raising CNY6bn (~USD850m) in proceeds
 - Assuming the over-allotment option is fully exercised, Canadian Solar will own 62% of CSI Solar post-IPO



- On Jun 16th, China General Nuclear-backed Edra Energy and Genco, a subsidiary of the TNB, entered into partnership agreement to study opportunities to develop gas-fired power plants and solar farms
 - Parties will primarily look at South and Southeast Asia and the Middle East for greenfield projects, focusing on Laos, Saudi Arabia and the Philippines
 - Edra Energy has a portfolio of 10 power and desalination plants in 5 countries, for a total capacity of 5.9 GW, with a focus in Malaysia, Egypt, Bangladesh, the U.A.E. and Pakistan, as well as the emerging markets in Southeast Asia, the Middle East and North Africa



- On June 18th, China Resources Power announced that it has received HKEX's approval for the spin-off of China Resources New Energy (CRNE) on the Shenzhen Stock Exchange
 - ~70% of the proceeds will be used to fund the development of over 30 wind farms and PV plants in China in the next 3-5 years, while the remaining 30% will be used for general working capital purposes
 - As of December 2022, CRNE had a portfolio of over 150 wind farms with an operational capacity of over 15 GW and over 30 solar PV facilities with an operational capacity of over 1.1 GW



- On Jun 19th, Queensland Government-owned CleanCo has abandoned its plan to develop the 103 MW Karara wind farm, citing delays over connection agreements and rising costs
 - The project is part of the 1 GW MacIntyre Precinct, currently being developed by Acciona Energía
 - The 923 MW MacIntyre wind farm, which is also part of the 1 GW MacIntyre Precinct, is still being developed, and Acciona Energía intends to add the 1 GW Herries Range wind farm to the project

Recent Company News

Selected Updates (Cont'd)



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- On June 22nd, Japanese oil refiner Cosmo Energy successfully thwarted a hostile takeover by a group of activist investors led by Yoshiaki Murakami
 - A special shareholder meeting was held where Cosmo sought approval for a poison pill defense
 - The Company used a majority of minority vote to ensure the process was fair and transparent; 62% of the votes cast supported the proposition



Energy Absolute

- On June 17th, Energy Absolute announced its intention to develop its EV business in partnership with auto parts manufacturers
 - The Company is in discussions with motor and transmission manufacturers on co-investment opportunities to develop EV components
 - Additionally, Energy Absolute also plans to increase its battery production capacity to 7 GWh, up from current 3 GWh, with the additional 4 GWh coming from lithium iron phosphate batteries production



- On June 19th, it was reported that CLP is exploring options for EnergyAustralia and is seeking a long-term partner to invest in opportunities arising from Australia's energy transition
 - It was also reported that Macquarie is one of the likely candidates for up to a 50% stake in EnergyAustralia



- On June 15th, Engie, Eku Energy and Fluence commissioned the 150 MW Hazelwood utility-scale BESS in Australia, representing the 1st BESS project in the country that did not receive any Government funding
 - The project has the option to increase MWh without re-opening GPS
 - Once additional capacity is deployed, the revenue strategy will transition from transmission services to arbitrage
 - Fluence will be responsible for the project's maintenance services



- On June 8th, BOWE project owners' Equinor and Australian renewables developer Nexsphere signed an MoU with the Tasmanian Government to supply Northern Tasmania with offshore wind energy
 - The BOWE project is a 1 GW bottom-fixed offshore wind farm development, providing a large-scale and renewable energy source for future green industry such as hydrogen and aluminum at Bell Bay, as well as supplying excess renewable energy to National Electricity Market



- On June 20th, the Australian renewable energy developer Greenleaf Renewables and the Spanish wind and solar energy developer Enerfin partnered to develop the 166 MW Stony Creek wind farm in Australia
 - The project is expected to begin operations in 2025



- On June 9th, it was reported that EverSource Capital-backed Radiance Renewables is seeking to raise over USD100m for a minority stake in the business
 - Proceeds will be used to finance a pipeline of solar rooftop and BESS projects
 - The Company has ~450 MW of renewables capacity in India, of which 250 MW is operational and the remainder is under construction, and intends to build a portfolio of over 1.5 GW



- On Jun 20th, it was reported that Fortescue Metals Group intends to bid on 80% of Alinta Energy's Western Australian assets, including a power station and BESS assets



- On June 15th, China Huadian's energy subsidiary Huadian New Energy Group received approvals from Shanghai Stock Exchange for its CNY30bn (~USD4.2bn) IPO
 - Proceeds will fund new energy production and replenish working capital
 - In FY22, the Company recorded revenues of CNY24.5bn (~USD3.4bn) and net profits of CNY9.0bn (~USD1.3bn)



- On Jun 15th, it was reported that the Australian renewable energy technology startup Hysata is seeking to raise AUD100m (~USD70m) in Series B funding
 - Proceeds will be used to fund to expand an 8,000 sqm manufacturing line at the Company's Wollongong headquarters in order to fulfill LoI and conditional orders for 9.4 GW of electrolyzer conversion capacity by 2030
 - The Company intends to produce 100 MW of electrolyzers annually and is close to signing a joint development agreement with a major wind technology manufacturer

Recent Company News

Selected Updates (Cont'd)

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JA SOLAR

- On June 9th, Chinese solar PV module manufacturer JA Solar announced that it will develop a CNY6bn (~USD870m) facility in the Ordos High-Tech Zone with an annual production capacity of 30 GW ingots, 10 GW silicon wafers, and 10 GW modules

 Leader Energy

- On June 19th, it was reported that Leader Energy is considering to IPO by the end of the year, looking to raise between MYR1-2bn (~USD220-440m) in proceeds
 - The Company may file its draft prospectus in June and begin trading in December this year

LONGi 

- On June 16th, Chinese solar PV manufacturer LONGi and Austrian PV and BESS energy provider Energy3000 Solar signed a supply agreement for 1.5 GW of solar capacity, with LONGi supplying solar modules for Energy3000's projects across Europe

 NHDC Madhya Pradesh

- On June 9th, NHDC announced its plan to develop a 525 MW pumped storage project in Madhya Pradesh, India
 - Project is estimated to cost INR42bn (~USD510m)
 - NHDC operates 2 power plants in the Khandwa district, the 1 GW Indira Sagar power plant and 520 MW Omkareshwar power plant, which exclusively supply to the State of Madhya Pradesh

NEOEN

- On June 20th, Neoen announced that it was awarded a 197 MW service contract by the AEMO in a competitive tender
 - Service will be delivered by Stage 1 of the 219 MW / 877 MWh Collie Battery, consisting of 224 Tesla megapack units
 - Project is expected to be operational in 4Q 2024

 Nexif Ratch Energy

 中国电建 POWERCHINA

- On June 19th, Nexif Ratch Energy announced that its 74 MW Calabanga solar power project in the Philippines reached financial close
 - 85% of the energy will be sold through PPAs to AboitizPower, while the remaining 15% will be sold through the WESM or direct short-term contracts with commercial and contestable customers
 - The EPC of the project will be a consortium of PowerChina Huadong Engineering and PowerChina Philippines, with construction expected to be completed in 2024

 NOVAWIND ROSATOM

 Zeya & Associates

 RGK+Z&A Group

- On June 15th, Russian nuclear fuel producer Rosatom Group's wind power subsidiary NovaWind signed an MoU to study the development of 372 MW of wind farms in Myanmar, including the 172 MW Magway wind farm and the 200 MW Mandalay wind farm
 - Myanmar's Ministry of Electricity and Energy, along with Burmese engineering firm Zeya & Associates, will collaborate on the construction of the 200 MW wind farm

 ORIX

 YGGDRASIL

- On June 20th, Orix announced that it will supply solar power from 3 of its plants in Central Japan with a total capacity of 1.4 MW to Valhall, a unit of Denmark's Yggdrasil Commodities, under a feed-in premium (FiP) arrangement
 - The Company is currently selling the electricity under a FiT program

 PAG

- On June 13th, PAG Renewables announced the commencement of 10 solar power projects with a combined capacity of 309 MW in Japan
 - Toshiba Energy Systems & Solutions Corporation led the EPC for 7 projects, while Toshiba Plant Systems & Services Corporation led the EPC for 1 project
 - PAG Renewables' renewable portfolio has a power generation capacity of over 640 MW

 REPOWER ENERGY DEVELOPMENT CORPORATION

 PURE ENERGY

- On June 15th, Pure Energy's renewable arm Repower Energy Development announced that it will develop a 200 MW wind power project in Quezon, the Philippines
 - The project includes the Silang Maragondon and Pandan Labayat wind farms and will be connected to the national grid through the Biga Switchyard Station

 REC

- On June 19th, the National University of Singapore and REC Solar launched a SGD77m (~USD60m) solar cell research initiative to develop and commercialize disruptive PV technologies based on perovskite-silicon tandem solar cells

 CityEnergy
Senoko

- On June 6th, Senoko Energy and City Energy signed an MoU to explore hydrogen-related opportunities, including green hydrogen

 YONDEN

- On June 14th, Shikoku Electric Power has partnered with CHC Japan to develop a 36 MWh grid-scale battery energy project in western Japan
 - Construction is expected to commence in August 2022 and to become operational by 2025

Recent Company News

Selected Updates (Cont'd)

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- On June 14th, Marubeni-backed British renewable energy company SmartestEnergy signed a PPA with Greek firm Mytilineos for the latter's Kingaroy solar farm in Queensland, Australia
 - The farm is a 40 MW project is currently under construction and is expected to begin operations in late 2023



- On June 20th, Dutch-Norwegian offshore floating solar developer SolarDuck announced it plans to install a 780 kW offshore floating solar research facility in Malaysia
 - The Company signed an MoU with TNB Renewables and TNB Research, subsidiaries of TNB and Hydro Extrusion Norway to partner on the project
 - The floating solar system will be installed off the coast of Tioman island, with completion targeted by 2025



- On June 12th, Solar Philippines Neva Ecija Corporation announced that it will begin the development of a 3.5 GW Nueva Ecija solar expansion project in the Philippines this year
 - The solar farm will begin commercial operation in 2026



- On June 16th, SUSI Partners announced the final close for its SUSI Asia Energy Transition Fund (SAETF) of USD120m
 - SAETF will focus on energy transition investments in SEA including clean power generation, energy efficiency and solutions enabling clean power use, such as storage and micro grids
 - The fund aims to focus on markets such as Indonesia, Thailand, Vietnam and the Philippines, followed by Malaysia, Cambodia and Laos
- On June 19th, TagEnergy announced that it has closed a dual currency (AUD and EUR) green bond totaling EUR570m (~USD625m)
 - The proceeds will be used to fund its global pipeline of more than 4 GW of renewable energy portfolio across the U.K., Europe and Australia
 - The first EUR270m (~USD300m) will fund the first 756 MW stage of Golden Plains Wind Farm in Australia, with the remaining EUR300m is dedicated to TagEnergy's other global renewable assets
 - CIP and GIC were amongst the investors of the bond

tagenergy



- On June 20th, Tata Power announced that it is seeking to acquire Government-owned electricity distribution companies
 - The Company plans to double CapEx to INR120bn (~USD1.5bn) this fiscal year, with a portion of it to develop a 4 GW solar energy plant in the State of Tamil Nadu, India
- On June 8th, Tata Power Renewables (TPREL), through its subsidiary TP Vardhaman, announced that it will develop a 966 MW solar-wind hybrid project for Tata Steel
 - The project will include 379 MW of solar and 587 MW of wind
 - This brings TPREL's renewable portfolio to ~7.8 GW, with ~4.1 GW in operation (~3.1 GW of solar and ~1 GW of wind) and ~3.7 GW at various stages of implementation
 - The project is expected to be commissioned in June 2025



- On June 17th, TEPCO announced its plan to invest JPY1tn (~USD7bn) in 6-7 GW of new renewable energy projects by 2030
 - The Company intends to develop 2-3 GW of offshore wind projects domestically and internationally
 - Currently, TEPCO has over 10 GW of hydroelectric capacity and plans to add renewable capacity across Asia



- On June 8th, Torrent Power signed an agreement with the Maharashtra Government to develop 3 pumped storage hydro projects
 - The 5-year INR270bn (~USD3.3bn) project will have a combined capacity of 5.7 GW at sites such as Karjat (3 GW) in Raigarh District, Maval (1.2 GW) and Junnar (1.5 GW) in Pune District, India
 - Torrent Power has a total installed capacity of 4.1 GW, the majority of which is from clean generation sources such as natural gas (2.7 GW) and renewables (1.1 GW)



- On Jun 12th, it was rumored that Toyota Tsusho will issue JPY40bn (~USD290m) in green bonds to finance its clean energy projects
 - The issuance will include 5-year JPY20bn bonds of 0.355% coupon and 10-year JPY20bn bonds of 0.8% coupon



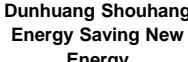
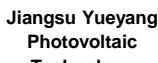
- On June 13th, Vena Energy secured JPY16.9bn (~USD120m) in green financing from MUFG Bank and Joyo Bank for its 53 MW Kasama solar project in Japan

- On Jun 22nd, the Australian Government announced a new capital allocation of USD19bn to the Government-owned green bank Clean Energy Finance Corporation to fund new transmission, long duration storage and distribution network infrastructure
 - The green bank will prioritize projects identified as priorities in AEMO's Integrated System Plan as a key focus
 - The plan forecasts the need for 10,000 km of new transmission lines and 9x the amount of the large-scale renewable generation. Energy storage capacity is projected to require a 30x increase by 2050, from 2 GW today to 15 GW by 2030
 - 5 major projects, including HumeLink, VNI West, Marinus Link, Sydney Ring and New England REZ Transmission Link, have been identified as immediate executable and will cost a total of AUD12.7bn (~USD8.6bn)
- On Jun 15th, the Western Australian Treasury Corporation issued AUD1.9bn (~USD1.3bn) in green bonds, maturing in July 2033
 - The issue was more than 3 times oversubscribed, with over 60 investors placing bids totaling over AUD6bn (~USD4bn)
 - Proceeds will support the State's push to decarbonize the main electricity grid, as well as investments into batteries, wind farms, EV charging infrastructure and rebates, and standalone power systems
- On Jun 15th, it was rumored that the Yunnan Government is seeking to award 16 GW of renewables capacity in the 1st batch of projects to be launched this year
 - The Energy Bureau has requested local administrations to shortlist developers for 154 solar projects planned across 15 cities and prefectures
 - ~2.3 GW of solar projects will be located in Kunming city consisting of ground-mounted facilities between 20-300 MW, the largest being the 300 MW Zhyuangou project
 - ~2 GW of facilities to be developed in Honghe city-level prefecture, with projects ranging from 20-400 MW, the largest being the 400 MW Laozhaiping solar power plant
 - The Government also allocated 1.3 GW of solar capacity each to Zhaotong and Qujing cities, with the largest solar farm to be the Mananping plant in Yongshan county. Approximately 500 MW of projects will be developed in Shangri La city
- On June 13th, Fujian and Yangjiang Provincial Government launched tenders for 5 GW of offshore wind projects
 - The Fujian Government is seeking developers to develop 2 GW of offshore wind, which comprises the following:
 - 100 MW in Changle B Zone
 - 300 MW in Changle Outer Sea I (South) Zone
 - 650 MW in Changle Outer Sea J Zone
 - 550 MW in Changle Outer Sea K Zone
 - 400 MW in Putian Meizhou Bay Outer Sea
 - Yangjiang Provincial Government issued a tender to bid for 6 offshore wind farms with a combined capacity of 3 GW, with each project to have a capacity of 500 MW
 - All power generated will be sold to the local grid at the benchmark tariffs for coal fired power plants
- On June 20th, the DOE announced that it has recorded USD122m of energy efficiency investments in the Philippines in 2022
 - These investments pertain to projects that use energy-efficient technologies and practices such as lighting retrofit, automated lighting control system or smart control system, and HVAC upgrades
 - Several technologies, including solar PVs, variable frequency motors, district cooling system, HVAC system, and compressed air systems, saw an increase in investments

Recent APAC Investment News

Selected Transactions

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Date Announced	Acquirer / Investor	Target / Seller	Deal Type	Description
June 19 th	 Copenhagen Infrastructure Partners	 CWP GLOBAL	Asset Deal	<ul style="list-style-type: none"> CIP acquired a 26.7% stake in CWP Global's portfolio of green hydrogen and ammonia projects in Africa, Australia and the Americas for an undisclosed amount
June 19 th	 雲豹能源	Greenhealth Water Resources	Stake Acquisition	<ul style="list-style-type: none"> J&V Energy Technology acquired a 20% stake in Taiwan-based sewage treatment company Greenhealth Water Resources; deal size of TWD334.4m (~USD11m)
June 16 th	 coro energy	 Kimy Trading and Service	Asset Deal	<ul style="list-style-type: none"> Coro Energy acquired a 2.4 MW rooftop solar portfolio in Vietnam for USD1.3m from Kimy Trading and Service The portfolio is composed of 3 facilities and has an 18-year PPA with state-owned Electricity Vietnam The deal is expected to be completed in the fourth quarter of 2023
June 16 th	 ITOCHU Enex Infrastructure Investment Corporation	 SHINKO	Asset Deal	<ul style="list-style-type: none"> ITOCHU-backed Enex Infrastructure Investment Corporation (EIIC) acquired the 53.6 MW Takasaki solar power plant for JPY25.2bn (~USD180m) from Japanese pump and turbine manufacturer Shinko The operating solar farm began has been selling the electricity for JPY32/kWh (USD23cent/kWh) under the Nation's FiT program This brings EIIC renewable portfolio to ~241 MW including 12 renewable energy plants
June 15 th	 国银租赁 CHINA DEVELOPMENT BANK LEASING	 Dunhuang Shouhang Energy Saving New Energy	Asset Deal	<ul style="list-style-type: none"> China Development Bank Financial Leasing acquired solar thermal power generation equipment and ancillary facilities from Dunhuang Shouhang Energy Saving New Energy for CNY1.4bn (~USD195m)
June 14 th	 建信基金 CIC Principal Asset Management	 中国太平 CHINA TAIPING + other investors	Capital Raise	<ul style="list-style-type: none"> On June 14th, China-based renewable energy generation company PowerChina Renewable Energy raised CNY7.6bn (~USD1.1bn) from new investors through a 20% minority stake sale
June 13 th	 Solargiga Energy	 Jiangsu Yueyang Photovoltaic Technology	Stake Acquisition	<ul style="list-style-type: none"> Hong Kong-based photovoltaic manufacturer Solargiga Energy acquired a 22% stake in Chinese PV manufacturer Jiangsu Yueyang Photovoltaic Technology for CNY95.0m (~USD13m)
June 12 th	 emeren Empowering Renewables	 中核集团 CNPC	Asset Deal	<ul style="list-style-type: none"> Chinese solar project developer and operator Emeren Group sold a portfolio of 6 rooftop distributed generation projects of 29 MW to Chinese renewable energy developer CNNP Rich Energy
June 12 th	 amp [∞] India	 ICG  SMBC  AIIB	Capital Raise	<ul style="list-style-type: none"> Indian renewable energy IPP Amp Energy India raised USD250m from ICG, SMBC, AIIB to finance growth

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Asset Transactions

- Acquisitions
- Divestitures
- Passive equity
- Development capital formation

USD135bn

Operating
28 GW

Development
196 GW

Capital Raising

- Equity private placements
- Debt private placements
- Project finance advisory
- Bookrun public equity offerings

>USD12bn

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- Strategic consulting
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- Financial restructuring
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>240 completed transactions

Note: As of June 2023.

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