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Renewables Pulse

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Electrical Generation | Ørsted sells down 50% of 4 U.S. wind and solar farms to ECP

Electrical Generation | Equinor eyes more hydrogen & floating wind projects in U.K.

Electrical Generation | Total hits 500 MW of distributed solar, aims for 1 GW next year

Fuel & Heating | Air Products granted C\$475MM for net zero blue hydrogen plant

Energy Storage | Recurrent & CSI start up record battery project in California

Materials & Services | Daqo directors approve \$700MM stock repurchase plan

ESG | CE & Oxy prepare for cookiecutter 2nd direct air capture plant

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Competition for \$8B H2Hubs program continues to heat up

Three more consortiums have thrown their hats into the U.S. Department of Energy's H2Hubs ring. The groups are seeking a piece of the \$8 billion pie the department plans to dole out under the Infrastructure Investment and Jobs Act to catalyze investments to form the foundation of a national clean hydrogen network, with an initial target of six to 10 regional hydrogen hubs.

The Midwest Alliance for Clean Hydrogen, or MachH2, is a multi-state coalition of more than 50 public and private entities from everywhere on the hydrogen value chain. Some participants include Air Liquide, ADL Ventures, Gevo, Exelon, Hydrogen Technologies, Invenergy, and multiple national laboratories and universities. Already proposed hydrogen projects from consortium members, which are now seeking H2Hubs funding, could result in investments of up to \$4 billion.

The Great Lakes Clean Hydrogen Partnership, or GLCH, has 40 members including Linde, Energy Harbor, GE Aerospace, Cleveland-Cliffs and the University of Toledo. *Read more...*

NextEra shells out \$1.1B for more than 30 landfill gas facilities

NextEra Energy Resources is acquiring a portfolio of operational landfill gas-to-electric facilities in the U.S. from two funds owned by Energy Power Partners for \$1.1 billion cash and the assumption of \$37 million of existing project finance debt. The deals were

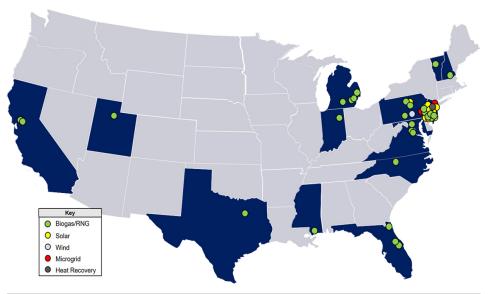
announced in NextEra Energy's Q3 report, and the company said it expects the acquired portfolio of more than 30 projects to deliver over \$220 million of adjusted EBITDA by 2025.

CEO: Portfolio will be platform for both organic & M&A growth.

The acquisition should close in early 2023 and will become a core part of NextEra's renewable fuels and potentially hydrogen strategies, CFO Terrell Crews said during the Oct. 28 earnings call. He added that NextEra plans to invest roughly \$400 million of additional capital into the portfolio, net of the investment tax credit benefit, primarily to enable production of renewable natural gas.

"I would say this is just a large step forward in something we've already been working on with smaller investments and some other co-investments with other folks," CEO Rebecca Kujawa said. **Read more...**

EPP Biogas & RNG Projects Concentrated in Eastern U.S.



Source | Energy Power Partners website accessed 11/11/22

Renewables Pulse

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Electrical Generation

National Grid unit breaks ground at Copperhead; PPA in hand

Minnesota-based renewables developer National Grid Renewables, a non-regulated U.S. venture of U.K. utility National Grid plc, has started construction of its Copperhead solar and storage project in Falls County, Texas. Once completed, the project will have 150 MW

of solar generation capacity and 100 MWh of battery storage capacity.

National Grid Renewables said Copperhead will use next-generation Series 6 thin film solar modules developed and produced by

Will have 150 MW of solar generation & 100 MWh of battery storage capacity.

First Solar and a Fluence Gridstack battery energy storage system from Fluence Energy. Construction services are being provided by EPC contractor The Industrial Co., a subsidiary of Kiewit.

During a groundbreaking event for Copperhead, National Grid Renewables also announced a power purchase agreement with The Hershey Co. for 140 MW of the project's capacity. This is the second PPA between the two companies, following a 50 MW agreement signed last year for the Noble project in Denton County, Texas. That project has 275 MW of solar—also using First Solar's Series 6 modules—and 125 MWh of battery storage.

NextEra building 140 MW wind farm for Pioneer in Texas

A subsidiary of NextEra Energy Resources plans to build a 140 MW wind farm in Midland County, Texas, on acreage owned by Pioneer Natural Resources. The E&P firm has a power purchase agreement in place for the project, which will provide part of the power needed to operate Pioneer and Targa Resources' jointly owned Midland Basin natural gas processing infrastructure, as well as Pioneer's field operations. The wind farm is expected to begin commercial operations in 2024.

Pioneer and Targa are also now receiving electricity from Merit Sl's 160 MW Concho Valley solar project in Tom Green County.

Signed PPA for solar farm in 2021; began operations this October.

Targa signed a PPA for the solar farm last

year, and it began commercial operations this October. Pioneer said it will continue to evaluate wind and solar developments on its extensive acreage in the Permian Basin as a means of offsetting its Scope 2 emissions.

2,345 MW of New Renewables & Storage Origination

Energy Resources Development Program (1)

Includes ~1,215 MW of wind, ~965 MW of solar, and ~165 MW of battery storage

	2022 - 2023 COD	2022 - 2023 Expectations	2024 - 2025 COD	2024 - 2025 Expectations	2022 - 2025 Expectations
Wind	4,802	4,300 - 5,200	2,854	4,000 - 5,500	8,300 - 10,700
Solar	4,066	3,300 - 5,000	6,500	11,000 - 13,500	14,300 - 18,500
Energy Storage	2,141	1,700 - 2,200	1,194	3,200 - 4,700	4,900 - 6,900
Wind Repowering	247	200 - 500	-	0 - 300	200 - 800
Total	11,259	9,500 - 12,900	10,548	18,200 - 24,000	27,700 - 36,900
Build-Own-Transfer	_		690		

Energy Resources now has roughly 20,000 MW⁽²⁾ in its backlog of signed contracts, supporting our industry-leading long-term growth expectations

Source | NextEra Energy Resources 10/28/22 presentation via Enverus docFinder

Energy Spectrum commits up to \$200MM to Nightpeak

Dallas energy infrastructure investor Energy Spectrum Capital has committed up to \$200 million in equity financing to Nightpeak Energy, which plans to develop renewable energy projects in the Western U.S. and Texas. On its website, Oakland, California-based Nightpeak says it is developing a "flexible generation portfolio focused on long-term value for utilities, the grid and consumers." Nightpeak also said it secured a letter of credit from "a major U.S.-based lender."

Energy Spectrum Capital is making the investment through its Fund VIII, which has attracted total commitments of nearly \$1 billion. Formed in 1995, Energy Spectrum Capital specializes in middlemarket companies that acquire, develop and operate energy infrastructure assets in North America. It has raised more than \$4.5 billion of equity capital and has sponsored 64 portfolio companies to date.

Lightsource turns on Black Bear solar, targets 4 GW of BESS

Lightsource BP has substantially completed its Black Bear solar project in Alabama. Currently in commissioning and generating electricity to the grid, the facility is expected to be fully operational in November.

The 130 MWdc/100 MWac project began construction in February and consists of more than 280,000 ultra-low carbon solar panels manufactured by First Solar. Black Bear will generate enough electricity to power about 20,000 homes and has a 20-year power purchase agreement in place with the Alabama Municipal Electric Authority.

In an interview with Reuters, CEO Nick Boyle said Lightsource BP plans to install 4 GW of battery energy storage system capacity by 2025, mostly siting the energy storage alongside its solar farms. The company, which is 50% owned by BP, aims to develop and build 25 GW of solar projects by 2025, compared to its current portfolio of 5.7 GW.

MW capacity expected to be owned and/or operated by Energy Resources; includes assets with long-term power purchase agreements build-own-transfer projects with long-term O&M agreements and assets with expected long-term agreements for power hedging and/or the sale of environmental attributes.

²⁾ As of October 28, 2022; net of ~1,315 MW placed in service and ~680 MW of projects removed from backlog; includes ~270 MW of solar for post-2025 delivery

Electrical Generation -

Ørsted sells down 50% of 4 U.S. wind and solar farms to ECP

In its first farm-down of onshore assets, Ørsted sold 50% stakes in three wind farms and one solar farm in the U.S. to Energy Capital Partners for \$410 million, the renewable energy developer announced Oct. 21. It has sold stakes in a number of its offshore wind farms in recent years, such as Hornsea 1, Hornsea 2, Borkum Riffgrund 1 and 2 and Borssele.

The assets involved in the deal, the Lincoln Land, Plum Creek and Willow Creek wind farms and Muscle Shoals solar farm, have combined gross installed capacity of 862 MW. Located in Illinois, Nebraska, South Dakota and Alabama, the projects are all operational and have power purchase agreements covering some or all of their installed capacity. Ørsted will be the managing member of the partnership and will continue to provide asset management services to the projects.

Renewable Power Fund Plus, a fund-of-one partnership between ECP and Teachers Insurance & Annuity Association of America, funded the transaction in conjunction with debt financing from Mitsubishi UFJ Financial Group. The fund now owns 50% of a newly established holding company for the four projects.

TIAA also owns global asset manager Nuveen and its subsidiary Glennmont Partners, which acquired a 50% stake in the planned 900 MW Borkum Riffgrund 3 wind farm off Germany from Ørsted earlier this year. Ørsted said the latest sale is the first time it has divested multiple assets in one transaction as part of its farm-down program. It added that the deal recycled a material amount of capital that will support its objective to reach 50 GW of installed capacity by 2030.

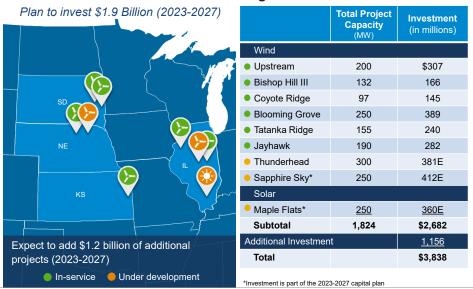
WEC Energy paying \$360MM for 80% stake in Illinois solar farm

Milwaukee-based utility company WEC Energy Group agreed to pay about \$360 million for an 80% stake in the Maple Flats Solar Energy Center, a 250 MW solar project being built by Invenergy in Clay County, Illinois. The 1,500-acre site will accommodate 800,000 solar panels, and commercial operation is expected to start in early 2024. The capacity generated from the site will be sold under a long-term power purchase agreement.

Maple Flats is WEC's first solar investment. The utility had been focusing on wind until now, with stakes in eight major wind farms totaling more than 1.5 GW of capacity.

"The Maple Flats project demonstrates the growing opportunities for our Infrastructure business as we continue to invest in the production of affordable, reliable and clean energy," WEC executive chairman Gale Klappa said. "This project will help meet the energy needs of one of the largest companies in the world and further diversify our portfolio of renewable assets."

WEC's Portfolio is Green and Growing



Source | WEC Energy Group 11/11/22 presentation via Enverus docFinder

Ørsted & CIP team up for 5.2 GW of 'open-door' wind in Denmark

Ørsted and Copenhagen Infrastructure Partners are forming a new 50:50 JV to develop four offshore wind projects under Denmark's "open-door" scheme. Together, the four projects could add up to 5.2 GW of generation capacity in Danish waters, which the partners said is more than double the country's existing installed offshore wind capacity. Their proposed Vikinge Banke and Jyske Banke Nord wind farms in the North Sea would each have 1.1 GW of capacity, while their Bornholm Bassin Syd and Bornholm Basin Øst wind farms in the Baltic Sea would generate 1.5 GW each.

Open-door lets developers bypass calls for tenders, with caveats & conditions.

Ørsted and CIP said the open-door projects could create a Danish "powerto-X" stronghold by delivering large-scale renewable electricity with a target date, if feasible, of 2027-2028. The power-to-X concept refers to converting surplus renewable electricity into other energy carriers. Ørsted and CIP believe there is a large potential for power from the four projects to be used directly for powerto-X, enabling regional centers for largescale production of green hydrogen and sustainable fuels. The companies noted that the partnership is subject to merger clearance, and they expect to receive a decision by YE22.

Denmark's so-called open-door procedure is separate from government calls for offshore wind tenders and allows project developers to take the initiative by choosing the size and location of wind farms and submitting unsolicited applications. The initial application serves as a request for permission to carry out feasibility studies.

Developers of open-door projects must pay for grid connections to land. Electricity from these offshore projects receive the same price premium as onshore wind turbines, DKK 0.25/kWh (\$0.03/kWh) over market price. However, if the market price added to the subsidy exceeds DKK 0.58/kWh, the subsidy is reduced accordingly.

Electrical Generation

Now-Complete Solaria awaits SPAC combo & \$376MM payday

It's a sunshine day as California solar companies Complete Solar and The Solaria Co. announced Nov. 7 the closing of their combination into Complete Solaria, a month after the pair initially said they would come together. Complete Solaria's next step will be to combine with SPAC Freedom Acquisition I

Corp. sometime during 1H23.

Solaria, the older of the two energy companies, started in 2000 and sells premium solar panels in the U.S. and Europe. Complete

Freedom combo backed by original Solaria investors The Carlyle Group & T.J. Rodgers.

Solar was formed in 2010 to offer a platform that helps coordinate the sales, financing and construction processes involved in installing a solar energy system. Together, as a full system operator, the company said it will be able to sell more products in more places in the U.S. and Europe and it expects to generate strong organic growth. Pro forma for the combination, the company would have generated \$80 million in revenue in 2020. It expects \$120 million this year and \$285 million in 2023, breaking even in 2H23 and achieving profitability in 2024.

Complete Solaria will now focus on combining with Freedom, which raised \$345 million in a March 2021 IPO and accompanying private placement. The company said the combination will provide gross proceeds of \$376 million to Complete Solaria, barring any prior redemptions. The deal includes backing from The Carlyle Group and tech entrepreneur T.J. Rodgers, both investors in the original Solaria.

BOEM nails down final shape of wind lease areas in GOM

The U.S. Bureau of Ocean Energy Management has finalized two new wind energy areas in the Gulf of Mexico, which together have potential to power nearly 3 million homes. One WEA is located 24 nautical miles off Galveston, Texas, and covers 508,265 acres. The other, 56 nautical miles off Lake Charles, Louisiana, covers 174,275 acres.

The agency announced in January that it was preparing a draft environmental assessment to consider impacts of offshore wind leasing in the GOM. The area it reviewed covered almost 30 million acres from west of the Mississippi River to the Texas-Mexico border, and it began a 30-day public comment period—later extended to 45 days—on the two draft WEAs in July.

The final size of the WEAs was reduced slightly from the draft versions to address concerns from the Department of Defense and U.S. Coast Guard related to shipping, marine navigation and military operations. The BOEM said its next steps in the leasing process will be to issue a proposed sale notice with a 60-day public comment period later this year or in early 2023.

ISun agrees to issue up to \$25MM in convertible notes

ISun Inc. may receive up to \$23.5 million in proceeds from convertible debt financing, the 50-year-old Vermont-based solar contractor announced Nov. 8. The company said it issued its first tranche of \$12.5 million principal amount of 5% senior secured convertible notes due 2025 to an institutional investor on Nov. 4 at a 6% discount and that it would do the same in a subsequent funding, subject to certain conditions. At 6% discounts for each tranche, iSun would gross a total of \$23.5 million in proceeds from the notes issuance.

The notes are convertible into iSun's Nasdaq-traded common stock at \$2.66 a share. The conversion price is subject to adjustments for stock dividends, stock splits, reclassifications and price-based adjustments if stock or securities underlying the stock are issued. Also, starting March 1, the company will begin making monthly payments to redeem 1/26th of the original principal amount of the notes plus accrued and unpaid interest through the May 4, 2025, maturity.

"We continue to see significant interest and enthusiasm for the products and services that iSun provides to our growing customer base," chairman and CEO Jeffrey Peck said. The company will use proceeds for debt repayment, satisfaction of certain financial obligations, working capital and general corporate purposes.

Fengate acquires 160 MW ready-to-build wind farm in TX

Fengate Asset Management is acquiring the Prairie Switch wind project in southeast Texas from developer Triple Oak Power for an undisclosed price. The ready-to-build project will consist of 48 of GE Renewable Energy's 3.4 MW wind turbines, for a total installed capacity of 163.2 MW. Prairie Switch is expected to be fully operational by YE23.

The project will be built near El Campo in Wharton County. As part of the transaction, Fengate signed a long-term power purchase agreement to supply 100% of the project's power to Meta Platforms. Fengate said it will manage the investment as part of its renewable energy strategy on behalf of its investors, including an investment fund owned by the Laborers' International Union of North America's Pension Fund of Central and Eastern Canada.

US Solar Fund begins reviewing strategic alternatives

US Solar Fund plc, which operates 42 solar parks in the U.S. totaling 543 MW of capacity, has engaged Jefferies International Ltd. and KeyBanc Capital Markets to conduct a strategic review of the business. Its assets are in four states, and all of its output is sold under offtake agreements with a weighted average remaining life of over 14 years.

The London-listed fund said in a filing that structural changes in the U.S. solar market and its performance on the exchange has hurt its ability to grow its asset base.

The fund's board of directors will consider all potential strategic options to maximize shareholder value, it said. Among the alternatives would be a sale of the entire portfolio and returning the funds to shareholders. US Solar Fund is managed by New Energy Solar Ltd., the fund manager of Australian company E&P Financial Group Ltd.



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