Energy Transition Market Update – Q3’24

August 2024

GREENFRONT ENERGY PARTNERS

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Energy Transition | Key Themes

Capital Markets

Continued rotation into larger funds weighs on early-stage developers; tax equity pathways expand rapidly

- Middle market funds struggle to raise LP capital, while $1B+ funds remain in high demand
- The tax credit transfer market, which was largely expected to represent a modest complement to the $20B tax equity market, is expected to hit $25B this year

Stonepeak · EQT · ARES · Schneider Electric · quinbrook infrastructure partners · crux

Solar / Wind

The capital markets have been very active, mostly concentrated with the largest developers and IPPs with shovel-ready projects and late-stage pipeline

- Banks and private credit funds steer clear of interconnection and permitting risk, focusing on construction and long-term operations
- Financial and strategic buyers are generally uninterested in early- or mid-stage development assets, most have plenty of pipeline to work through already

Summit Ridge Energy · aes · eolian · Clearway · Avantus · BrightNight

Battery Storage

It's a buyer's market for BESS projects, given volume of marketed deals, perceived development risk in major markets, and commercial uncertainty outside established markets

- Starting to see more strategic activity outside of CAISO, ERCOT, and the Northeast
- Project and corporate financing markets have been very active keeping up with large volume of new installed capacity

aypa · Mission Clean Energy · Hecate Grid · Plus Power · Intersect Power · SYSO technologies

Renewable Fuels

Pockets of activity tempered by slow-down in financing

- Clean H_2 market stalled in advance of election, regulatory clarity, commercial contract news
- RNG owners' primary focus is on uncovering offtake options in new/different parts of the low carbon fuels supply chain, plus ITC safe-harboring
- CCS projects continue to advance, but slowly

HIF · OCI · Woodside Energy · world energy · LanzaJet · Linde

Services

Growing installed base of renewables, paired with increasingly complex regulation & development environments, is leading to a robust energy transition services sector

- O&M platforms are scaling, as the industry high-grades these functions
- Greatly-improved tech is finally unlocking the value of energy data management & analytics
- Strategic and financial buyers are showing strong interest in knowledge-based consultancies and advisors that specialize in navigating the most difficult hurdles & bolster creditworthiness

Generac · Ascend Analytics · LevelTen Energy · EPE Electric Power Engineers · Bowman · FastGrid

Source(s): Morningstar, Infralogic, Press Releases

Energy Transition | Public Market Overview

						Valuation		Credit		
	Ticker	Price 08/12/24	Market Cap ($mm)	Enterprise Value ($mm)	YTD Total Returns (%)	2024E EV / EBITDA (x)	2025E EV / EBITDA (x)	Debt / Total Cap (%)	2024 Net Debt / EBITDA (x)	S&P Credit Rating
Alternative Energy										
Array Technologies	ARRY	$7.03	$1,068	$1,864	(58.2%)	8.2x	6.1x	54.7%	1.8x	B+
Brookfield Renewable Corporation	BEPC	27.56	10,310	32,975	1.9%	12.3x	11.4x	48.9%	5.1x	BBB+
First Solar	FSLR	219.23	23,468	22,349	27.3%	11.4x	7.3x	7.9%	NA	NA
Hannon Armstrong	HASI	30.21	5,979	10,013	12.8%	38.1x	36.0x	63.9%	15.1x	BB+
Ormat Technologies	ORA	71.71	4,335	6,794	(5.0%)	12.8x	11.4x	48.8%	4.4x	NA
Sunnova Energy International	NOVA	6.62	827	9,535	(56.6%)	14.8x	13.2x	74.9%	12.1x	NA
SunPower Corporation[1]	SPWR	0.20	43	336	(95.9%)	NA	NA	55.3%	NA	NA
Sunrun	RUN	17.33	3,874	17,053	(11.7%)	NA	NA	63.5%	NA	NA
Cleantech										
Bloom Energy Corporation	BE	$11.14	$2,536	$3,700	(24.7%)	27.7x	16.3x	79.4%	8.5x	NA
Enphase Energy	ENPH	109.11	14,776	14,451	(17.4%)	34.1x	18.6x	59.9%	NA	NA
FuelCell Energy	FCEL	0.44	219	183	(72.4%)	NA	NA	17.5%	1.1x	NA
Plug Power	PLUG	1.95	1,715	2,569	(56.7%)	NA	NA	23.5%	NA	NA
SolarEdge Technologies	SEDG	21.44	1,221	1,260	(77.1%)	NA	17.4x	25.7%	NA	NA
Tesla	TSLA	197.49	630,910	613,500	(20.5%)	40.4x	30.9x	15.7%	NA	BBB
Solar / Wind IPP										
Clearway Energy	CWEN.A	$26.18	$3,075	$14,203	6.1%	12.1x	11.4x	57.5%	6.5x	BB
EDP Renováveis	EDPR	15.32	15,930	26,962	(22.3%)	13.2x	11.3x	41.8%	4.6x	BBB
NextEra Energy Partners	NEP	24.15	2,259	18,762	(12.6%)	9.4x	9.3x	30.9%	3.0x	BB
Ørsted	ORSTED	61.19	25,714	33,338	13.3%	8.7x	7.1x	53.4%	1.9x	BBB
Alternative Fuels / RNG										
Ameresco	AMRC	$26.68	$1,398	$3,507	(15.8%)	16.1x	12.7x	69.0%	9.4x	NA
Clean Energy Fuels Corp.	CLNE	2.82	630	758	(26.4%)	11.7x	7.0x	33.7%	1.9x	NA
Darling Ingredients	DAR	35.31	5,615	10,199	(29.2%)	8.1x	6.4x	50.4%	3.6x	BB+
Montauk Renewables	MNTK	4.37	622	644	(51.0%)	10.6x	7.8x	20.1%	0.4x	NA
Neste	NESTE	19.91	15,293	19,549	NA	9.2x	6.7x	38.9%	2.0x	NA
OPAL Fuels	OPAL	3.43	846	1,782	(37.9%)	19.1x	10.8x	34.3%	2.2x	NA
Electric Vehicle Infrastructure										
ChargePoint Holdings	CHPT	$1.64	$697	$741	(29.9%)	NA	NA	52.4%		NA
Evgo, Inc	EVGO	3.50	374	771	(2.2%)	NA	NA	13.9%	2.2x	NA
Blink Charging Co.	BLNK	1.91	193	129	(43.7%)	NA	NA	3.4%	1.6x	NA
Battery Storage										
Enovix Corporation	ENVX	$9.95	$1,754	$1,700	(20.5%)	NA	NA	53.5%	0.5x	NA
Eos Energy Enterprises	EOSE	1.68	364	470	54.1%	NA	NA	NA	NA	NA
Fluence	FLNC	15.77	2,034	1,824	(33.9%)	30.3x	9.1x	10.2%	NA	NA
Li-Cycle	LICY	2.70	61	525	(42.3%)	NA	NA	68.9%	NA	NA
QuantumScape Corporation	QS	5.43	2,748	1,910	(21.9%)	NA	NA	7.6%	2.6x	NA
Stem Inc.	STEM	0.50	82	592	(87.0%)	NA	38.9x	NA	NA	NA

Source(s): S&P CapIQ Pro. Note: Prices as of 8/12/2024, [1]SunPower filed for Chapter 11 bankruptcy on 8/5/2024

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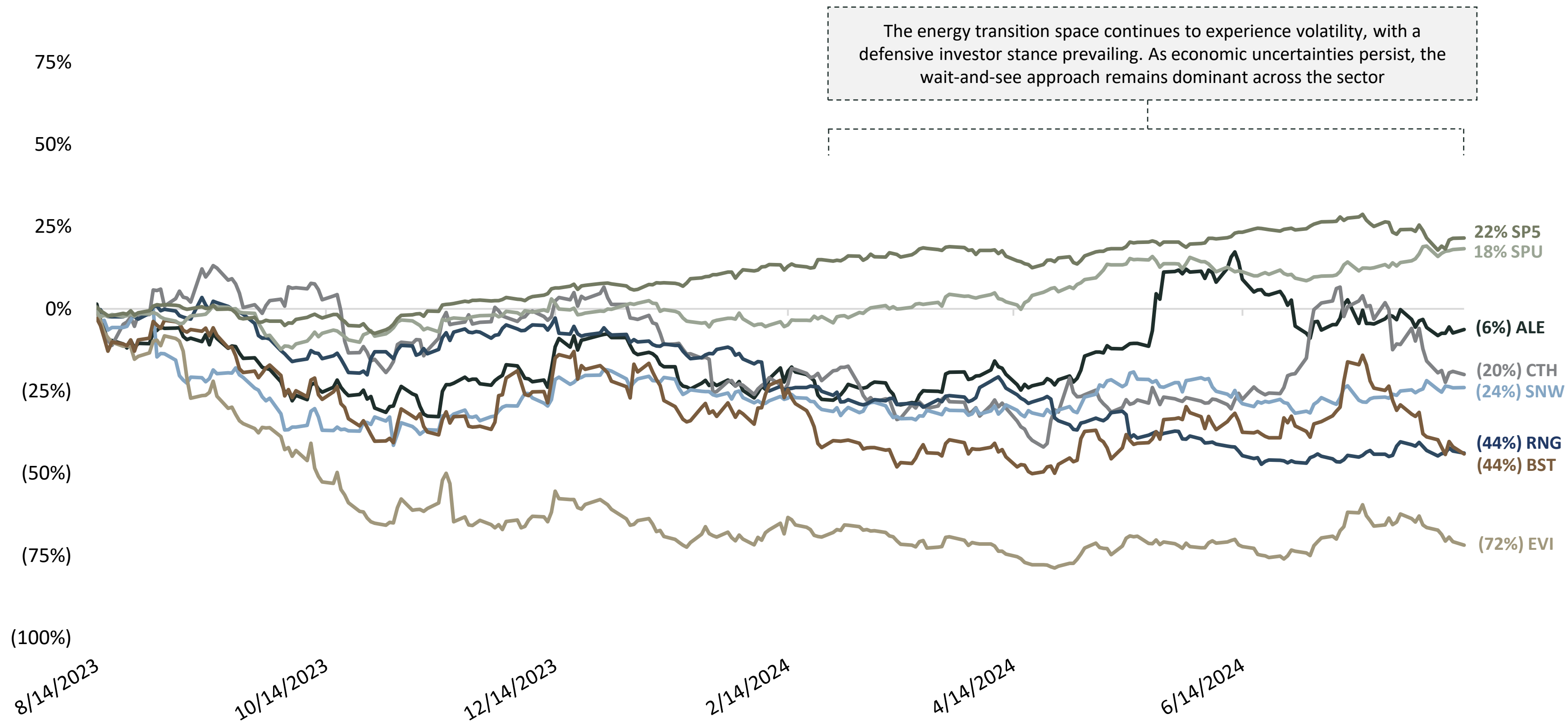
Energy Transition | Stock Market Performance

Alternative Energy (ALE)	Cleantech (CTH)	Solar/Wind (SNW)	Renewable Fuels/ RNG (RNG)	EV Infrastructure (EVI)	Battery Storage (BST)	S&P Utilities Index (SPU)	S&P 500 (SP5)
ARRY ORA	BE PLUG	CWEN.A NEP	AMRC MNTK	CHPT BLNK	ENVX LICY		
BEPC NOVA	ENPH SEDG	EDPR ORSTED	CLNE NESTE	EVGO	EOSE QS		
FSLR SPWR	FCEL TSLA		DAR OPAL		FLNC STEM		
HASI RUN							

Indices Total Return (LTM)



Source(s): S&P CapIQ Pro. Note: Prices as of 8/12/2024

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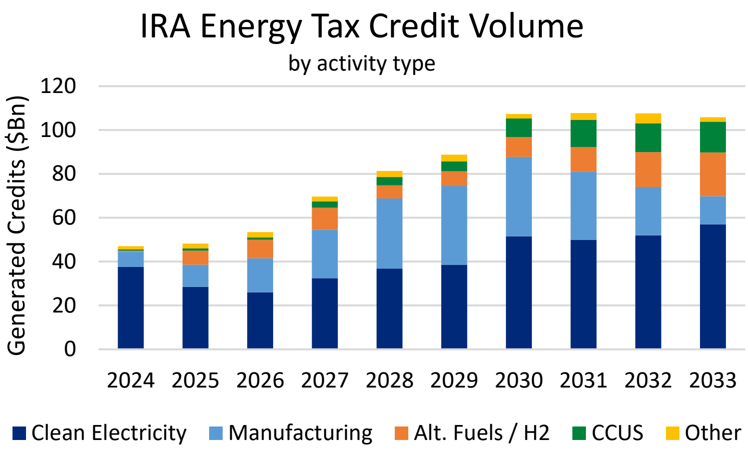
Energy Transition | IRA Update - a mixed bag of improvements, clarifications, and letdowns



Source: Evercore ISI, April 2024

Tax Credit Transferability

- The IRA introduced the concept of transferability, enabling generated credits to be exchanged, thus simplifying monetization and expanding the tax credit buyer universe to include developers and financers with low tax liabilities
- Transferability has bolstered an already rapidly growing tax credit market
  - In 2023, the market produced roughly $7-$9 billion in credits
  - Crux Climate estimates that the first half of 2024 has seen $9-$11 billion in tax credit transactions and according to US Treasury data, as of Mar’24 ~500 companies had requested registration numbers for credit transfers
- Over the next decade, growth is expected to continue
  - By the end of 2024, total tax credit investment is expected to reach ~$45 billion. Of that, transferred credits are expected to account for ~50%
  - By 2030, the market could grow to over $100 billion in tax credits, a large portion of which may be transferred

Key IRA Developments and Implications

- On March 22, 2024, the IRS issued a notice that expands on certain rules for determining what an energy community is for Investment Tax Credits (ITCs) and Production Tax Credits (PTCs). Currently, there are three categories of energy communities: brownfield sites, certain metropolitan statistical areas (MSAs) based on unemployment rates for both MSAs and non-MSAs, and census tracts where a coal mine closed after 1999 or where a coal-fired electric generating unit was retired after 2009. The IRS also released Appendix 1, identifying a list of additional MSAs and non-MSAs that met the Fossil Fuel Employment Threshold, and Appendix 2, identifying additional MSAs and non-MSAs that qualify as energy communities in 2023 by meeting the Fossil Fuel Employment threshold and the unemployment rate requirement for calendar year 2022. If prevailing wage and apprenticeship requirements are met, an additional 10% incentive exists for both the PTC and ITC.
- New separate rules for calculating a proper GHG emissions rate also came into play for technologies using combustion or gasification (“C&G”; e.g. biofuels). The rate for these facilities is calculated using lifecycle analysis (LCA), the specifics of which are evolving as the IRA awaits public commentary on the matter. Prospectively, these updated rules to come will likely be less favorable than credits with respect to C&G projects. Major accounting firm Grant Thornton advises taxpayers developing C&G facilities to begin construction prior to 2025 after certain facilities may no longer qualify for tax-based incentives.
- On July 24, 2024, the IRS issued Notice 2024-60 to provide initial guidance on the credit for the sequestration of carbon oxide. The notice describes information that must be included in a written life cycle analysis report and provides the procedures a taxpayer must follow to submit the report along with required supporting information to the IRS and DOE for review for any carbon capture property placed in service on or after Feb. 18, 2018. The IRS must approve the taxpayer’s life cycle analysis before the taxpayer may claim the utilization of carbon oxide credits.

Source(s): IRS, Grant Thornton, Akin, Crux Climate, Standard & Poor’s

Notable Transactions | Utility-Scale Solar & Wind

Date	Counterparties		Deal Type	Commentary
Aug'24	LS Power	Algonquin	M&A	LS Power is acquiring Algonquin Power & Utilities Corp's renewable energy business for up to $2.5 billion, including $2.28 billion in cash and $220 million in an earn-out agreement. The transaction implies a next twelve months (NTM) EBITDA multiple of approximately 12.5x with the earn-out or 11.4x without. The acquisition includes 44 operating assets with over 3,000 MW of capacity, and an 8,000 MW pipeline of wind, solar, BESS, and RNG projects. The deal is expected to close by Q1 2025
Aug'24	Goldman Sachs	BrightNight	Capital Raise	BrightNight announced a $440 million strategic investment from Goldman Sachs Alternatives to fund its five-year business plan and advance its 31 GW renewable power project portfolio. The transaction, expected to close in September 2024, will also see continued support from Global Infrastructure Partners
Jul'24	Arclight	SkyVest	Capital Raise	Arclight Capital Partners announced the launch of operating focused renewables investment initiative SkyVest Renewables and the concurrent acquisition of 160 MW operating wind farm in the Midland Basin in Texas that reached COD in 2020. Arclight is providing an initial $500 million capital commitment for new investments and brownfield development
Jul'24	Ørsted	Eversource Energy	M&A	Orsted announced it acquired Eversource's 50% share of Sunrise Wind, a 924 MW offshore wind project located off the coast of New York. The purchase price at closing to acquire Eversource's share was $152mm, revised from the initially contemplated $230mm in January 2024 due to lower actual versus forecast capex spend between signing and closing. Orsted has assumed full ownership of the project and recently signed an OREC (offshore wind renewable energy certificates) contract with NYSERDA at $146/MWh for 25 years
Jun'24	apg	Doral LLC	Capital Raise	APG has invested $400 million in Doral Renewables, a prominent U.S. renewable energy and storage project developer. This investment, made on behalf of APG's largest pension fund client ABP, aims to accelerate the development of Doral's renewable energy projects. APG's support includes corporate credit and an option for an additional $185 million investment. Doral's project pipeline includes over 12 GW, with 1.35 GW under construction and 2 GW set to start construction within 12 months
Jun'24	Octopus Energy	Vesper Energy	M&A	Vesper Energy has completed the sale of its Gaucho and Nestlewood solar projects to Octopus Energy Generation. The projects, located in Texas and Ohio, respectively, have a combined capacity of 400 MW. This transaction supports Octopus Energy's expansion into the U.S. renewable energy market and contributes to its goal of developing and operating green energy projects globally
Jun'24	Pine Gate Renewables	Redeux Energy	M&A	Redeux Energy Partners sold a 450 MWdc solar project portfolio in the MISO South market to Pine Gate Renewables. This portfolio, consisting of three projects, is part of a 1.7 GWdc multi-state pipeline that Redeux brought to market in late 2023

Source(s): Company Press Releases

Notable Transactions | Utility-Scale Battery Storage

Date	Counterparties	Deal Type	Commentary
Aug'24	Orsted, Mission Clean Energy	Joint Venture	Orsted has partnered with Mission Clean Energy to develop four standalone battery energy storage systems (BESS) across the Midwest, totaling 1GW in the MISO Central and North regions. Orsted will utilize its capital to secure and maintain interconnection queue positions for the four storage projects owned by Mission, while Mission will continue to lead development of the projects
Jul'24	Repsol, Hecate Energy	M&A	Spanish multi-energy group Repsol SA is considering acquiring the remaining 60% stake in Hecate Energy Group LLC (HEG), a solar and storage project development company in the United States. Repsol currently owns 40% of HEG, having acquired the stake three years ago to enter the US renewables market. The agreement included an option for Repsol to purchase the remaining shares in HEG three years after the initial deal closed, which happened on June 25, 2021. Hecate Holdings LLC, the current majority owner of HEG, has exercised its put option to sell its 60% stake to Repsol
Jul'24	aypa	Corporate Financing	Renewables and storage developer Aypa Power has successfully closed a $650mm corporate credit facility, which includes access to letters of credit, a revolver and a term loan, replacing the company's existing $320mm facility. The refinanced and upsized facilities now include a $350mm LC facility, a $100mm revolver, and a $200mm term loan, bringing the total to $650mm
Jul'24	Intersect Power	Project Financing	Intersect Power has secured $837mm in project financing for its battery energy storage system (BESS) projects in Texas. The funding will support the construction and operation of the Radian and Oberon II projects, with a combined capacity of 485 MW/970 MWh. This investment aims to enhance grid reliability in the ERCOT market
Jun'24	Recurrent Energy	Project Financing	Recurrent Energy has closed $513 million in financing for its 1,200 MWh energy storage project in Arizona. The Crimson Storage project, located in Riverside County, will consist of a large-scale battery energy storage system (BESS) and is expected to enhance grid reliability and integrate renewable energy. The financing includes both construction debt and tax equity investments from a group of lenders and investors
Jun'24	Plus Power	Project Financing	Plus Power announced the close of construction and term financing for its Cranberry Point Energy Storage facility (150 MW / 300 MWh) in Carver, Massachusetts. The project marks Plus Power's first major utility-scale standalone BESS in construction in ISO-NE. First Citizens Bank and Nord LB acted as coordinating lead arrangers while Investec and Siemens Financial Services acted as joint lead arrangers
May'24	Apex Clean Energy	Project Financing	Apex Clean Energy secured $150 million in financing from First Citizens Bank for two battery energy storage system (BESS) projects in Texas' ERCOT market. The projects, Great Kiskadee Storage in Hidalgo County and Angelo Storage in Tom Green County, will each have a capacity of 100 MW/200 MWh. Both projects are expected to achieve commercial operation in Q3'24

Source(s): Company Press Releases

Notable Transactions | Distributed Energy Resources

Date	Counterparties		Deal Type	Classification	Commentary
Aug'24	Aurora Capital Partners	GenServe	M&A	Backup Services	Aurora Capital Partners has acquired GenServe, a leading provider of backup power solutions for commercial and industrial sectors. GenServe, founded in 1990, offers maintenance, repair, rental, and sales services for generators, serving over 10,000 customers across healthcare, data centers, utilities, government, and education sectors
Jul'24	Generac	wallbox	Capital Raising	EV Charging	Wallbox announced a $45 million strategic investment led by Generac Power Systems, which contributed $35 million. This investment will bolster Wallbox's balance sheet and accelerate manufacturing and sales of its EV chargers, particularly in North America. The deal highlights the ongoing commercial relationship between Wallbox and Generac
Jul'24	aggreko	infiniti	M&A	DG Solar	Aggreko Energy Transition Solutions (ETS) has acquired Infiniti Energy from Upper Bay Infrastructure Partners. This acquisition includes 12 MW of contracted operating solar assets, 22 MW of construction-ready solar projects, and additional pipeline projects. The transaction enhances Aggreko's presence in several East Coast markets
Jun'24	eSG energy systems group	Yearout Energy	M&A	EaaS	Energy Systems Group (ESG) has acquired Yearout Energy Services to expand its operations in Texas, Colorado, Arizona, and New Mexico. ESG specializes in energy efficiency, distributed generation, and sustainability solutions. Yearout focuses on designing and implementing energy projects that improve efficiency and reduce costs
Jun'24	Tiger Infrastructure Partners	Unison Energy	M&A	EaaS	Tiger Infrastructure Partners has acquired Unison Energy LLC, a fully-integrated Energy-as-a-Service microgrid platform. This acquisition is the final investment from Tiger's third fund, which raised $1.25 billion in 2022. Unison Energy, based in Greenwich, CT, designs, builds, owns, and operates microgrids providing power, heating, and cooling solutions
Jun'24	edp Renewables	Renewable Properties	M&A	DG Solar	EDPR NA Distributed Generation acquired a 71 MW community solar portfolio from Renewable Properties. The portfolio includes 16 projects located in New York, California, Illinois, and Maine. Renewable Properties specializes in the development and finance of small-scale utility and community solar projects
Jun'24	Adventist Health	Bernhard	Noteworthy Announcement	EaaS	Adventist Health has partnered with Bernhard in a 30-year Energy-as-a-Service (EaaS) agreement valued at $457 million. This project guarantees a 20% reduction in annual utility costs for Adventist Health, along with significant advancements in decarbonization and infrastructure reliability
May'24	Apricus Generation	Nexus Renewables	M&A	DG Solar	Apricus Generation has acquired a controlling interest in Nexus Renewables, a Canadian solar and storage developer. This strategic acquisition marks Apricus' first since its launch earlier this year. Nexus Renewables, with a project portfolio exceeding 500 MW, will benefit from Apricus' capital and expertise, allowing it to scale its operations

Source(s): Company Press Releases

Notable Transactions | Service Providers

Date	Counterparties		Deal Type	Classification	Commentary
Aug'24	WSP	Power Engineers	M&A	Energy Transition Strategic Consulting	WSP, a global professional services firm, announced it will acquire Power Engineers, a U.S. consulting firm with a focus in the Power & Energy sector. The proposed purchase price for the transaction is $1.78bn. This reflects Power's estimated 2024 pre-IFRS adjusted EBITDA at a multiple of 15.2x. WSP plans to use the net proceeds from a $1bn equity financing to fund, in part, the purchase price payable and reduce amounts to be drawn on the closing of the acquisition under New Term Loans
Aug'24	Kimmeridge	SYSO	Capital Raising	Physical Infrastructure Service Providers	SYSO, a market operator of renewable energy and battery storage assets, announced it raised $14.5mm in a Series B round led by Kimmeridge Carbon Solutions strategy ("KCS") with participation from existing investor Lacuna Sustainable investments. SYSO plans to use the investment to expand its offerings into new markets, while continuing to drive operational and financial outcomes for developers and IPPs of renewable assets across the U.S.
Jul'24	Blackstone	Westwood	M&A	Physical Infrastructure Service Providers	Blackstone has agreed to acquire a majority stake in Westwood Professional Services, a leading engineering firm focused on renewables, power, real estate, and infrastructure, from Endurance Partners. This investment is part of Blackstone's broader energy transition strategy, with approximately $1.3 billion committed since June. The terms of the deal were not disclosed
Jul'24	I Squared	Priority Power	M&A	Energy Transition Strategic Consulting	ARA Partners has announced the sale of Priority Power to I Squared Capital. Priority Power, a provider of energy management services, has a focus on delivering lower-cost energy and reducing emissions for its clients. Ara Partners invested in Priority Power in 2019, helping expand key business lines such as renewable development and energy curtailment services
Jul'24	Bowman	Element Engineering Group	M&A	Physical Infrastructure Service Providers	Bowman Consulting Group acquired Element Engineering LLC. Element, based in Colorado, specializes in civil, water, and wastewater engineering services, primarily serving rural communities and municipalities. The acquisition is expected to enhance Bowman's water-wastewater practice in Colorado
Jul'24	B Capital	LevelTen Energy	Capital Raising	Market Intermediaries	LevelTen Energy recently closed a $65 million Series D funding round led by B Capital. The funding will be used to scale their renewable energy transaction platform, which includes the Energy Marketplace, Asset Marketplace, and Performance Monitoring software. LevelTen Energy connects renewable energy buyers and sellers, facilitating transactions and market intelligence
Apr'24	Pilot	Worthington Energy Consultants	M&A	Measurement, Reporting, and Verification	Pilot Energy has acquired Worthington Energy Consultants to expand its reach and strengthen its expertise in key markets such as CAISO and PJM. This acquisition aims to enhance Pilot Energy's capabilities in energy procurement, offering clients more options and flexibility
Apr'24	Lime Rock New Energy	GroundWork	M&A	Energy Optimization Tech	Lime Rock New Energy acquired a controlling interest in GroundWork Renewables, a Monterey-based company providing meteorological services to the utility-scale solar industry. This investment aims to accelerate GroundWork's growth and build on its leadership in the sector, enhancing data accuracy and reliability for solar project development

Source(s): Company Press Releases

Notable Transactions | Low Carbon Fuels

Date	Counterparties	Deal Type	Classification	Commentary
Jul'24	CF, ExxonMobil	Noteworthy Announcement	CCS	CF Industries announced a carbon capture and sequestration (CCS) project at its Yazoo City, Mississippi, facility, expected to reduce CO2 emissions by up to 500,000 metric tons annually. The project, in partnership with ExxonMobil, will begin sequestration in 2028. CF Industries will invest $100 million to build the necessary infrastructure
Jul'24	1PointFive, Microsoft	Noteworthy Announcement	DAC	1PointFive and Microsoft have entered into an agreement for the sale of 500,000 metric tons of carbon dioxide removal (CDR) credits over six years. The credits will be provided by 1PointFive's Direct Air Capture (DAC) facility, STRATOS, currently under construction in Texas. This deal aims to help the company become carbon negative by 2030
Jun'24	LanzaJet, MUFG	Capital Raise	SAF	LanzaJet has announced a strategic investment from MUFG, Japan's leading financial group. This funding will accelerate LanzaJet's production of sustainable aviation fuel (SAF) and support its global expansion plans. The partnership with MUFG underscores a shared commitment to reducing carbon emissions in the aviation sector and advancing clean energy solutions
May'24	CEMEX, Clean Energy	Offtake Agreement	RNG	CEMEX USA has signed a renewable natural gas (RNG) fuel agreement with Clean Energy to power its fleet in Southern California. Clean Energy will provide RNG, produced from organic waste, to fuel CEMEX's trucks, aligning with both companies' commitments to environmental responsibility and sustainable practices
May'24	WM Waste Management	M&A	RNG	Waste Management (WM) is considering the sale of its renewable natural gas (RNG) unit in a deal that could be valued at approximately $3 billion. This strategic move is part of WM's effort to focus on its core business and maximize shareholder value. The sale could involve the rights to develop RNG operations on 115 landfills owned by WM
May'24	NW Natural, Modern Hydrogen	Noteworthy Announcement	H2	NW Natural and Modern Hydrogen have unveiled a clean hydrogen production and carbon capture project in Portland. The project utilizes methane pyrolysis to produce hydrogen and capture solid carbon, which is then used in asphalt products
May'24	CapturePoint, Energy Transfer	Offtake Agreement	CCS	CapturePoint signed a revised LOI and CO2 Offtake Agreement to enhance carbon capture and storage in Louisiana. The deal allocates CO2 from Energy Transfer's Haynesville facilities to the CENLA hub, allows Energy Transfer to join a JV operating the hub, and sets a framework for capturing CO2 from other Energy Transfer sites in Louisiana
Apr'24	TotalEnergies, Vanguard Renewables	Combination	RNG	TotalEnergies, a global integrated energy company, and Vanguard Renewables, an organics-to-renewable natural gas production and portfolio company of Blackrock, signed an agreement to create an equally owned joint venture to develop, build, and operate RNG projects in the U.S. The JV will advance 10 RNG projects into construction over the next 12 months

Source(s): Company Press Releases

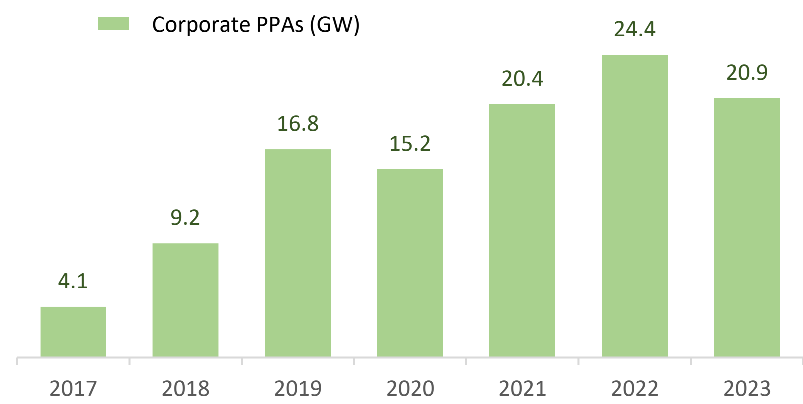
Corporate Sustainability | Corporate PPA Market Overview

Big Tech returns to the market, dominating announcements to feed AI data center growth

PPA Market Dynamics

- Corporate PPA announcements over the past few months have slowed a bit and, after more than a year of broad-based participation, have trended back toward the usual hyperscaler data center buyers
- PPA prices continue to trend upward, albeit at a slow pace, in most parts of the country. The two exceptions appear to be in ERCOT and PJM
  - Both wind and solar PPA prices in ERCOT have been flat-to-down for almost a year, as it proves to be the only market where developers can deliver the volume of projects necessary to meet corporate demand. Further, the proliferation of renewables in ERCOT (first with wind and now in solar as well) is leading most market forecasters to predict lower average wholesale prices in the outyears, punctuated by higher average spikes during scarcity events
  - PPA prices in PJM, already the highest among active U.S. markets, continue to rise at a rate well-above the rest of the country. Concentrated data center load growth and a lag in interconnection queue thawing as agreed-upon reforms are being implemented
- Big announcements from the tech giants continue, sometimes crowding-out new corporate offtakers, especially in grids with a scarcity of mature renewable supply
  - Google announced a 100 MW PPA with EDPR, building upon an earlier agreement between the firms regarding environmental attribute offtake from distributed solar in low-to-moderate income areas
  - Google signed a landmark PPA with NV Energy, which sleeves through baseload power from Fervo Energy's 115 MW Corsac Station Enhanced Geothermal project

Americas Corporate PPA Volume (2017 – 2023)



Noteworthy Recent PPA Announcements

Corporate	Seller	Size (MW)	Resource	Location
Microsoft	RWE	446	Wind	ERCOT
	nexamp	40	Solar	PJM, MISO
Google	edp Renewables	100	Solar	MISO
amazon	EDF renewables	150	Solar	PJM
Meta	AREVON	349	Solar	MISO
Google	NVEnergy FERVO	115	Geothermal	WECC

Source(s): American Clean Power, Infralogic, S&P Clean Energy Procurement, BNEF, Company press releases & filings

Uncertainty of SBTi Guidance

- The Science Based Targets Initiative (SBTi) was founded in 2015 with the goal to establish science-based environmental target setting as a standard corporate practice. The organization's key functions include defining and promoting best practices in emissions reductions and net-zero targets in line with climate science and providing technical assistance to companies who set science-based targets. In 2021, the SBTi launched its flagship Corporate Net-Zero Standard, used to assess and certify companies' decarbonization commitments and to act as a blueprint for companies' goal setting.
- In April of 2024, following a call for evidence issued by SBTi, the SBTi board announced plans to extend the use of environmental attribute certificates (EACs), such as carbon credits, to tackle Scope 3 value chain emissions in the new standard.
    - Following the announcement, SBTi staff, some corporate participants, and a group of 80 climate charities issued statements condemning the policy reversal and calling for changes to SBTi's executive leadership and board. Managerial change did occur, with former CEO Luiz Amaral resigning, replaced in the interim by Sue Jenny, past CLO for the group.
- In a synthesis report released in July of 2024 as part of new research papers, SBTi highlighted studies that suggested that "various types of carbon credits are ineffective in delivering their intended mitigation outcomes. Carbon Credits could have the potential unintended effect of hindering the net-zero transformation and/or reducing climate finance." SBTi did however add on to this commentary suggesting that more evidence is needed to reach more conclusive results. As of now, EACs will likely not be included in updated SBTi policy drafts.

Noteworthy Carbon Credit Transaction Activity

Microsoft strikes 2 record-breaking carbon credit deals

Microsoft has entered into a groundbreaking agreement with BTG Pactual Timberland Investment Group (TIG), committing to buy up to 8 million nature-based carbon removal credits by 2043. Data from MSCI Carbon Markets confirms this as the largest transaction of its kind. In a separate deal, Microsoft also agreed to buy 40 thousand agricultural soil carbon credits from Indigo Ag, the largest-ever purchase of an individual buyer from the ag company.

Red Trail Energy becomes 1st ethanol plant to enter voluntary carbon markets (VCM)

Red Trail Energy (RTE) announced issuance of CO_2 removal credits (CORC) on the Puro registry, making it the first ethanol production facility to generate CORCs in the VCM space and the largest durable carbon removal project registered to date. RTE underwent independent verification and met all requirements for feedstock sustainability, CCS performance, and financial additionality. RTE was issued 150k+ credits from the first 14 months of BECCS operation.

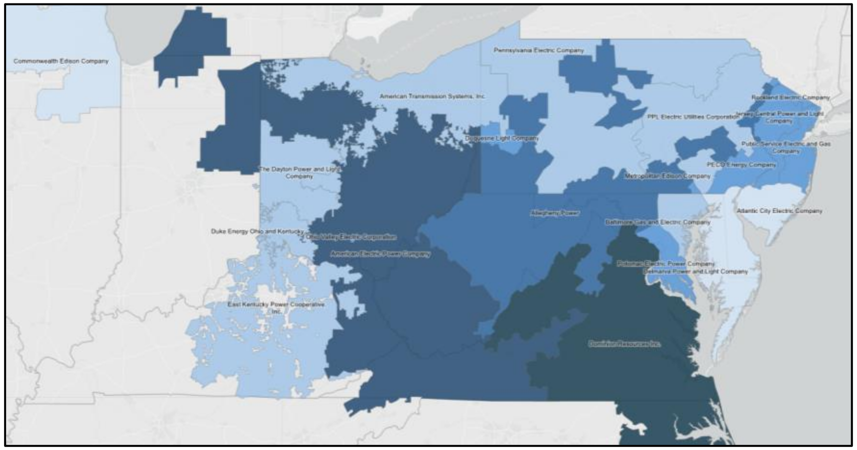
Xpansiv launches first ICVCM CCP-approved carbon credit exchange

Xpansiv launched trading of the Integrity Council for the Voluntary Carbon Markets (ICVCM) Core Carbon Principles (CCP) standardized carbon credits on its CBL spot exchange. The first-day of trading saw participation from major players such as Mercuria Energy America, ClimeCo, ElectroRoute, Valitera, South Pole, and Cross Stone Capital. More than 37 thousand metric tons of credits were traded via new CCP GEO contracts, indicating strong interest from global market participants.

Source(s): American Clean Power, Infralogic, S&P Clean Energy Procurement, BNEF, Company press releases & filings

PJM is experiencing drastic changes due to generation supply reductions, rapid demand growth from data centers, and new regulatory changes

PJM Load Growth

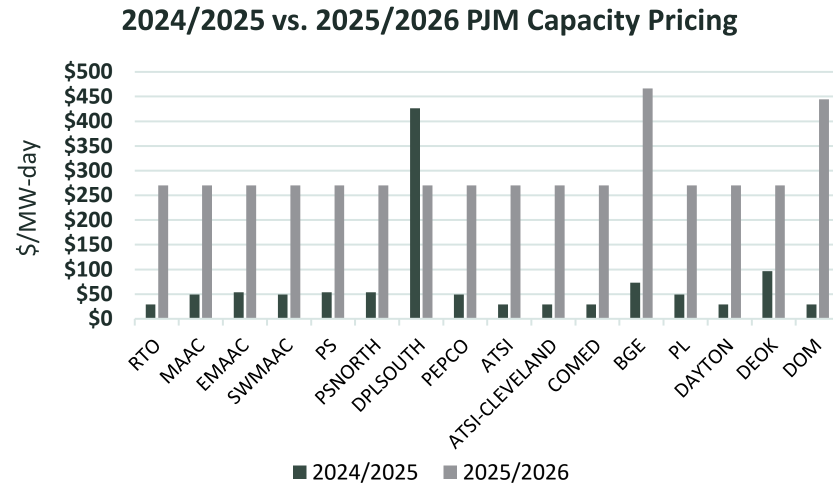


PJM Annual Load Growth %²

(2.0%)-(0.2%) | 0.6%-0.9% | 1.0%-2.0% | 2.3%-2.5% | 3.6% | 6.3%

- PJM coordinates electricity transmission across 13 states and Washington D.C. and became the U.S.'s first fully functioning RTO in 2002
- PJM is broadly expected to grow between 1.0-1.5% annually over the next five years, but that growth is being felt unevenly
- PJM's Dominion Zone is expected to show the strongest growth of any grid region in the country, due largely to power-hungry AI data center additions
- The AEP-Dayton hub, covering most of Ohio and the Southwest portion of West Virginia, is also seeing strong growth from re-industrialization, data centers, and re-shoring activities

Capacity Price Growth by PJM Territory



- The PJM Interconnection capacity market auction for the 2025/2026 delivery year cleared record high prices of $269/MW-day for much of the PJM footprint compared to $29/MW-day for the 2024/2025 auction
- The increase in prices reflect tighter supply, higher demand, and market rule changes. On the supply side, there was a reduction of 6,600 MW of generation that was offered into the base residual auction from resources that had retired or signaling their intent to retire. Meanwhile, PJM's peak load forecast increase from ~150.6 GW in the last auction to ~153.8 GW in this auction. New FERC approved market reforms including improved reliability risk modeling for extreme weather and capacity accreditation that biases toward more dispatchable generation sources

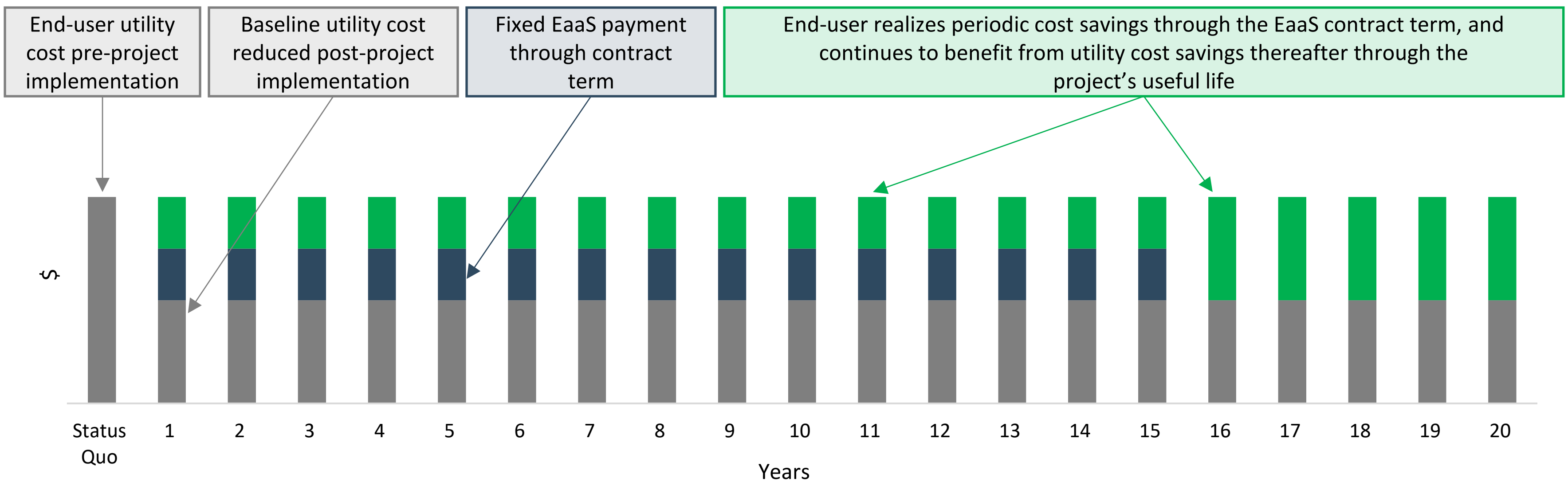
Source(s): PJM, S&P Global Commodity Insights

A well-established model enjoying a newfound sense of momentum

What is Energy-as-a-Service?

- Energy-as-a-Service (EaaS) generally refers to an underlying project-level contract structure whereby a Developer or ESCO implements, operates, and owns (either through third-party capital or self-funded) a DER project for an end-user at a fixed price and term
- Through an EaaS construct, end-users avoid upfront capital costs related to project installation
- Depending on the type and application of DERs installed, Developers/ESCOs will often wear project performance risk through guaranteed savings or production mechanisms
- Because different solution types with varying payback periods may be implemented under one project, EaaS contract terms can range from ~3 – 5 years (e.g., a simple LED lighting retrofit), to 20+ years (e.g., HVAC/boiler, building envelope, onsite generation, and controls)

Illustrative End-user EaaS Pro-Forma



Distributed Energy Resources | Bernhard / Hackensack Meridian Health Case Study

EaaS models are increasingly employed to finance distributed energy projects at scale

Transaction Overview

Bernhard | Hackensack Meridian *Health*

April 2024: Bernhard, one of the nation's largest privately-owned energy infrastructure firms, signed an EaaS partnership with Hackensack Meridian Health (HMH), a New Jersey-based healthcare institution, to implement a comprehensive facility-sited energy solutions project enabling end-user cost savings, resiliency, and emissions reductions over a 30-year term. The project represents the largest solar + storage system installed for a non-profit healthcare provider to-date.

Project Overview

$134 million in infrastructure improvements, which includes 27 MW of solar and 20 MWh of storage capacity

10% estimated reduction to HMH facilities' carbon emissions

25% estimated reduction in purchased electricity across HMH facilities and **33%** guaranteed energy savings through the EaaS contract

Key Structural Highlights

- Previously unavailable to transaction structures of this type for non-profit and municipal end-users, HMH will benefit from the investment tax credits attributable to the project's solar and storage components, estimated at ~$50 million
- Financing for the project was arranged such that HMH bears no upfront payment or incremental debt on its balance sheet and retains book and title ownership
- Bernhard will contractually guarantee a reduction to HMH's utility consumption and operating expense savings over the 30-year term

Hackensack Meridian Health Hospital Footprint

Hackensack operates hospitals across eight counties in New Jersey with 4,000 licensed beds, 35,000 employees, and 6,500 physicians

Source(s): PJM, S&P Global Commodity Insights

	Then (2022)	Now (2024)
Regulatory	**IRA euphoria** ▪ Market practitioners very excited over 45Q increase, \$3.00/kg clean hydrogen 45V, RNG Section 48 ITC + 45Z ▪ Tax credit transferability widely applauded	**Frustration** ▪ 45Q (CCU/S) has enabled project advancement, but actual tax investment has been sparse due to concerns over recapture ▪ 45V (hydrogen) impact muted by Treasury guidance around three pillars ▪ 48E (RNG) guidance still unclear; RNG owners rushing to pursue safe-harbor strategies for Sec. 48 eligibility before 12/31/24
Fund Flows	**Healthy** ▪ Sustainable fund inflows experienced slight declines in 2022, but LPs still focused on increasing exposure to energy transition	**Have's & Have Not's** ▪ Blue chip PE & Infrastructure funds still attracting LP capital ▪ Middle market funds having a tougher time ▪ Renewable fuels investment focused on highest quality players
Economic Case	**Constructive** ▪ Investors willing to underwrite early-stage dev risk	**Show-me** ▪ Investors scrutinize forecast assumptions more closely ▪ Investors account for significant capex overruns, which damages expected project economics and makes fundraising more difficult
Project Finance	**Nascent** ▪ No tax credits/equity for clean Hydrogen or RNG ▪ Very small bank appetite outside of RNG (USDA program)	**Maturing** ▪ RNG already monetizing tax attributes through transfer market, and attracting interest from institutional lenders ▪ Project Finance & tax credits/equity for CCUS and clean Hydrogen still early
End Customer Adoption	**Optimistic** ▪ Corporate ESG announcements suggested a willingness to pay a green premium for low carbon fuels	**Mixed** ▪ Voluntary offtake markets for RNG are improving, and some CCS offtake contracts are getting signed (e.g. Exxon), but evolution is slow ▪ Offtake market for clean hydrogen slower to mature

Low Carbon Fuels | OCI / Woodside Case Study

Transaction Overview

August 6, 2024: Woodside Energy, a company that engages in the exploration, evaluation, development, production, and marketing of hydrocarbons in Asia, Africa, the Americas, and Europe, announced it entered a binding agreement to acquire OCI's Clean Ammonia Project in Beaumont, Texas for $2.35bn in cash. The purchase price of $2.35bn is inclusive of the capital expenditure to complete Phase 1 of the project. 80% of the purchase price is due at closing and 20% is due at provisional acceptance of the facility

Parties Involved

Woodside
- Woodside to market ammonia volumes into the global ammonia market

Linde
- Linde has agreed to provide the feedstock of nitrogen and carbon-abated hydrogen to the facility. The hydrogen will be derived from natural gas paired with CCS

ExxonMobil
- Exxon Mobil will provide CCS services to Linde under a contract of arrangement and is expected to come online in 2026

TOPSOE
- Topsoe will provide licensed auto-thermal reformers to Linde for the production of Hydrogen (paired with Exxon CCS)

Project Overview

1.1 MMTPA Ammonia Prod. for Phase 1	**2026 Phase 2 FID Target Expected CapEx $1.2-1.4bn**
Additional 1.1 MMTPA Ammonia Prod. for Phase 2	**Phase 2 Feedstock to be Competitively bid in future**
70% Completion Phase 1	**95%+ CO2 Captured**
H2'2025 Ammonia production begins	**3.2 MMTPA CO2 Abated 60% of Woodside Scope III**

GreenFront's Take

- Blue-chip players with large balance sheets, advantaged land positions, and large infrastructure networks are continuing to lead progress in the low carbon fuels market
- ExxonMobil's acquisition of Denbury in July of 2023 has led to an advantaged position to offtake CO_2 from Linde for this project through an addition to its existing CCS pipeline network
- In April 2023, Exxon agreed to transport and store 2.2mmtpa from Linde's H_2 production facility in Beaumont, TX likely leading to significant synergies when structuring this transaction

Source(s): Company Press Releases

GreenFront Energy Partners - Overview

Extensive track record of execution for developers, investors, and corporate clients

Deep and complimentary insights into the Energy Transition sector

Robert Birdsey – Managing Director

- Head of GFEP renewable fuels
- Head of BB&T Energy IB 2013-2020
- J.P. Morgan Energy IB 2007-2013
- MBA, University of Virginia; BA, Sewanee
- Board Member, Virginia Solar Energy Development & Battery Storage Authority
- FINRA Series 7, 63

Adam Hahn – Managing Director

- Head of corporate renewable advisory
- Led BB&T's Utility Investment Banking coverage 2015-2020
- Prior to BB&T, worked in the CFO's group at Dominion Energy
- MBA, University of Richmond; BBA, James Madison University
- FINRA Series 24, 63, 79

Whit Wall – Managing Director

- Head of GFEP traditional renewables
- Led BB&T's Infrastructure Investment Banking coverage 2015-2020
- Environmental consultant for JJ Blake & Associates prior to BB&T
- MBA, University of Virginia; BS, James Madison University
- FINRA Series 63, 79

Service Offering – Exclusively Focused on Renewable Energy

Capital Formation

Raising capital for projects and platform growth initiatives

M&A Advisory

Advising on purchase/sale of alternative energy assets + equity

Corporate Renewable Advisory

Representing corporates in renewable energy procurement efforts

GreenFront Energy Partners | Coverage Universe

GreenFront's go-to market strategy enables significant synergies

Investment Banking: M&A and Capital Raising

Corporate Renewable Advisory/Execution

Traditional Renewables

Solar, Wind, Storage, Energy Services

Renewable Fuels

Renewable Natural Gas, Carbon Capture, Hydrogen

Corporate Advisory

Corporate procurement of renewable energy & products

GreenFront Differentiation

- *<u>Regional Market Intelligence:</u> Our experience negotiating PPAs gives us on-the-ground information specific to different RTO/ISOs across the country*
- *<u>Corporate Finance</u>: As solar/wind/storage move from alternatives to incumbent resources, financing structures are evolving. GreenFront's deep experience in traditional corporate finance helps our clients evolve beyond project financing strategies*

GreenFront Differentiation

- *<u>Experience</u>: Prior O&G background has enabled GreenFront to already transact in very early-stage markets (RNG, CCUS, H_2, LFG, GTL)*
- *<u>Environmental Attributes</u>: Deep knowledge around revenue pathways for LCFS, 45Q, voluntary CO_2 credits*
- *<u>Corporate Network</u>: PPA advisory assignments keep us in regular dialogue with corporate sustainability decision-makers*

GreenFront Differentiation

- *<u>Risk Management</u>: GreenFront has a partnership with Sunairio®, enabling us to provide clients with proprietary analytics around correlation/covariance between weather, resource production, and market pricing*
- *<u>Negotiating Edge</u>: GreenFront builds project models to understand seller economics, identifying leverage points that benefit our corporate clients. We know where developers can bend on certain terms and where they can't*

GreenFront Energy Partners | Credentials

Deal execution spanning multiple segments across the Alternative Energy value chain

Volta
Has contracted for offtake from on-site solar projects developed by
Pivot Energy
PPA Advisor
2024

Universal
Has signed a PPA for offtake from a solar project with
Clearway
PPA Advisor
2024

GreenSpark Solar
Has received development and growth capital from
KSI Kendall Sustainable Infrastructure
Placement Agent
2023

Novo Hydrogen
Has closed on a private placement to advance its green H2 dev portfolio
Modern Energy
Financial Advisor
2023

Nucor
Has signed an exclusive solar PPA totaling 250 MW of procurement with
NextEra Energy
PPA Advisor
2023

Loci
The leader in automated landfill gas collection
Has closed on a private placement to advance its biogas monitoring technology
Undisclosed
Financial Advisor
2022

Nu:Ionic Technologies
Has closed an equity investment to support its low-carbon hydrogen production technology
Undisclosed
Financial Advisor
2022

Dairy BC
Has closed on a JV and funding commitment from
igsenergy
Financial Advisor
2022

Energy Assurance
Has been acquired by
element materials technology
Sell-side M&A Advisor
2022

CEP Solar
Commonwealth Energy Partners
Has secured a structured equity private placement from
Greenbacker Capital
Financial Advisor
2021

Secure Futures
Resilient Solar Solutions
Has secured a $50 million equity commitment from
Hartz Capital
Financial Advisor
2021

Nucor
Has signed a wind PPA totaling 100 MW of procurement with
Ørsted
PPA Advisor
2021