Alternative Energy Market Update

November 2020

GREENFRONT
ENERGY PARTNERS

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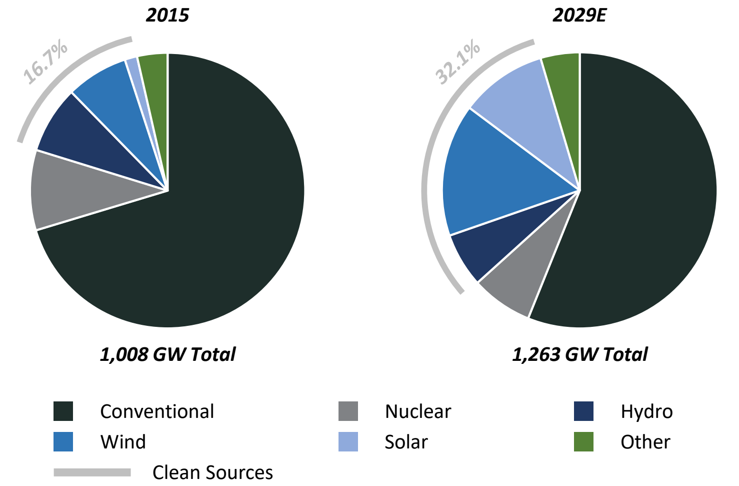
U.S. Alternative Energy Trends

Market themes & fundamentals

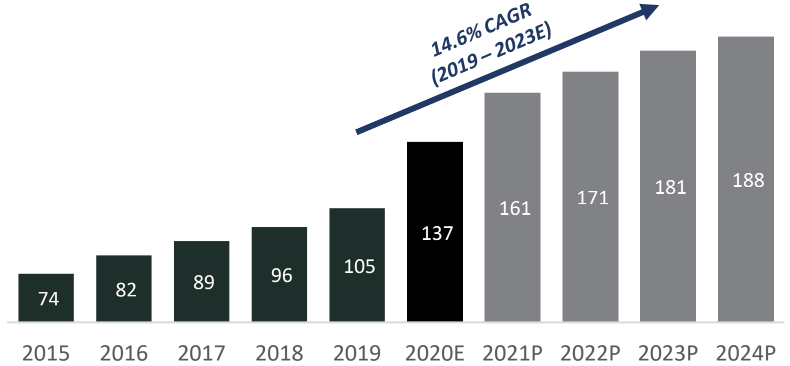
- Despite 2020's macro disruptions, Alternative Energy continues to see dynamic growth, driven by two key factors
  - Continued growth in end user demand for Renewable Power (Corporate ESG, State and Local RPS mandates)
  - Continued decrease in cost of production for Wind, Solar, and Battery Storage energy
- Developers of Renewable Energy assets, and their sponsors, face increasing regulatory and tax equity obstacles as well as continued growth in overall competition
- Battery storage installations becoming more prevalent in conjunction with solar/wind development
- Increased appetite for Renewable Attributes (e.g. REC's, RIN's, LCFS) are supporting growth in Renewable Natural Gas and Carbon Capture development

Renewables mix in the overall U.S. Power installed base



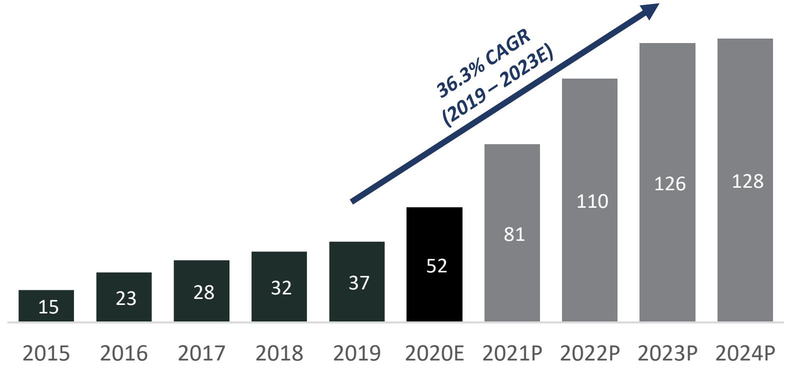
Wind development in the U.S. – Onshore

(Gigawatts of installed base)



Solar development in the U.S.

(Gigawatts of installed base)



Source: S&P Market Intelligence

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Alternative Energy Market Backdrop

Capital markets

- Project finance markets for bank debt, private debt, mezz, and sponsor equity remain robust and wide open
- Tax equity capital sources remain scarce due to increased uncertainty around tax appetite
- "Energy Transition" SPAC activity is frenzied; centered around EV Infrastructure, Cleantech, and Battery storage

M&A activity

- M&A activity remains robust, showcasing strong multiples
  - SunRun/Vivent (July 2020) was the largest residential solar deal in history
  - International capital is seeking opportunities in the U.S.; expanding the buyer universe for project sell-downs

Regulatory

- Federal policies create uncertainty (tariffs, executive orders, FERC's PURPA overhaul, Bureau of Labor ESG Treatment)
- Tax equity incentives phasing out. Relief efforts through COVID legislation not fruitful
- Regional issues causing idiosyncratic development risk (e.g. GTC implementation in ERCOT, MOPR in PJM)

ESG & End-user demand

- Corporate interest, driven by ESG, continues to grow dramatically
- Financial investors becoming more environmentally focused (e.g. BoD activism from BlackRock)
- State and Local authorities increasingly committed to Renewable Portfolio Standards

Competition

- Increasingly difficult development environment constraining project supply, pushing PPA market to equilibrium after years of price decline
- Utility scale developers and sponsors now willing to look downstream in the C&I and DG spaces

Cost structure

- Despite slowing cost declines, wind & solar LCOE now lower than natural gas and coal
- Continued cost declines and efficiency improvement in battery storage
- Project insurance costs are ~10% higher due to storm damage risk (i.e. fire, hurricane, hail)

Development

- Increasing regulatory obstacles have led to longer interconnection queues and constrained contract-ready projects
- Significant increase in renewable projects being developed with battery storage component
- High growth Renewable Natural Gas development and Carbon Capture, driven by value of Environmental Attributes

COVID impacts

- Overall power demand was down around 5%, resulting in lower merchant prices
- Spreads on bank debt widened by ~25-50bps; similar increase in tax equity cost of capital; all-in costs still very low
- Accelerated transition: government responses have tied progress on environmental priorities to financial support

U.S. Alternative Energy Landscape

Developers & IPP's	***More headaches than before, but still growing rapidly*** ▪ Most developers continuing to flip projects to fund ongoing development ▪ Numerous smaller development teams entering the market for greenfield & early stage opportunities, seeking attendant equity capital ▪ Increasing volumes of corporate PPA's, with more sophisticated structuring and terms
Noteworthy strategics	***Almost all Investor Owned Utilities have seen the light*** ▪ European Utilities have established formidable platforms in the U.S. (EDF, EDP, Ørsted, ENEL) ▪ U.S. Utilities are moving quickly to respond to State and Local mandates ▪ Traditional fossil fuel companies like BP, Shell, and Total are dramatically pivoting to clean energy, especially offshore wind
Infrastructure & Private Equity	***Moving further out on the risk spectrum*** ▪ Traditional utility-scale projects are failing to meet required rates of return for PE, who are responding by funding earlier stage development and focusing more on C&I and DG ▪ Traditional O&G PE firms focusing on Energy Transition Funds (Encap, NGP, Quantum, etc) ▪ Competition to deploy capital is intense; incumbency advantage more pronounced in 2020
Battery & Cleantech	***First Wind, then Solar, now the Decade of Storage*** ▪ Global energy storage capacity to grow at CAGR of 31% to 2030 according to WoodMac ▪ Renewable facilities beginning to compete with base load power through the combination of solar (day), wind (night), and storage ▪ Expected enterprise value of over 15 Cleantech SPAC's ranges from $350mm to $3.3bn
RNG & CCS	***Large addressable market is barely tapped*** ▪ Economics driven by the increasing value of Renewable Attributes associated with RNG and CCS activity (LCFS, RIN's, REC's) ▪ 45Q tax treatment allows for an Investment Tax Credit (ITC) structure ▪ Significant interest from Natural Gas Utilities

Public Market Overview

	Ticker	Price 11/2/20	Market Cap ($mm)	Enterprise Value ($mm)	YTD Total Returns (%)	Valuation: Div. Yield (%)	Valuation: 2021E P/E (x)	Valuation: 2021E EV / EBITDA (x)	Credit: Debt / Total Cap (%)	Credit: 2020E Net Debt / EBITDA (x)	Credit: S&P Credit Rating
Alternative Energy											
Brookfield Renewable Corporation	BEPC	$69.56	$16,776	$28,647	60.4%	2.5%	NA	NA	28.0%	NA	NA
SunRun	RUN	54.18	10,626	14,147	292.3%	NA	61.9x	219.6x	62.5%	NA	NA
First Solar	FSLR	88.89	9,420	8,250	58.8%	NA	23.7x	11.7x	10.6%	NA	NA
Ormat Technologies	ORA	72.08	3,681	5,027	(2.8%)	0.6%	36.0x	11.6x	45.4%	2.9x	NA
Array Technologies	ARRY	36.78	4,671	4,680	67.2%	NA	NA	NA	24.3%	NA	B+
Hannon Armstrong	HASI	43.96	3,257	4,450	42.0%	3.1%	26.9x	NA	59.8%	12.7x	BB+
SunPower Corporation	SPWR	16.85	2,866	3,488	207.9%	NA	NA	27.5x	98.1%	17.0x	NA
Sunnova Energy International	NOVA	26.02	2,435	4,584	133.2%	NA	NA	53.1x	64.4%	31.1x	NA
Cleantech											
Tesla, Incorporated	TSLA	$400.51	$379,644	$381,745	378.7%	NA	97.7x	41.2x	64.4%	NA	BB-
SolarEdge Technologies	SEDG	267.72	13,418	12,872	181.5%	NA	NA	32.4x	6.7%	NA	NA
Enphase Energy	ENPH	103.83	13,117	12,832	297.4%	NA	NA	39.6x	30.3%	NA	NA
Plug Power	PLUG	15.47	5,978	6,480	389.6%	NA	NA	118.2x	75.9%	NA	NA
Bloom Energy Corporation	BE	12.99	1,998	2,772	73.9%	NA	NA	31.9x	117.9%	12.7x	NA
FuelCell Energy	FCEL	2.15	622	811	(14.3%)	NA	NA	NA	47.6%	NA	NA
Switchback Energy Acquisition Corporation	SBE	13.71	538	538	39.4%	NA	NA	NA	NA	NA	NA
Eos Energy	BMRG	10.07	227	226	3.8%	NA	NA	NA	NA	NA	NA
YieldCo											
NextEra Energy Partners	NEP	$65.45	$4,778	$14,143	28.1%	3.6%	35.1x	10.2x	39.4%	2.7x	BB
Northland Power	NPI	32.87	6,628	13,033	65.2%	2.8%	22.7x	13.9x	83.8%	5.9x	BBB
Innergex Renewable Energy	INE	18.43	3,217	6,484	48.9%	2.9%	67.4x	14.6x	88.7%	8.2x	BBB-
Clearway Energy	CWEN.A	27.30	3,305	10,716	47.6%	4.6%	36.9x	9.2x	75.8%	5.9x	BB
Boralex	BLX	29.58	3,034	5,412	63.0%	1.7%	70.1x	13.9x	79.1%	5.4x	NA
TransAlta Corporation	TA	6.14	1,685	5,601	(11.0%)	2.1%	NA	8.0x	46.6%	3.5x	BB+
Noteworthy Investor-Owned Utilities											
NextEra Energy	NEE	$75.13	$147,185	$198,460	26.1%	1.9%	29.3x	16.3x	50.5%	4.5x	A-
Duke Energy Corporation	DUK	93.82	68,998	137,804	6.2%	4.1%	NA	11.6x	56.7%	5.9x	A-
Southern Company	SO	59.01	62,329	115,387	(4.3%)	4.3%	17.3x	12.1x	60.3%	5.7x	A-
Dominion Energy	D	81.66	68,533	112,814	2.0%	4.6%	20.8x	NA	53.4%	5.0x	BBB+
Xcel Energy	XEL	71.78	37,717	59,277	15.3%	2.4%	24.2x	13.0x	60.8%	5.0x	A-
Avangrid	AGR	50.23	15,521	25,000	0.9%	3.5%	21.3x	10.8x	34.3%	4.2x	BBB+
Pinnacle West Capital Corporation	PNW	81.07	9,125	15,891	(6.4%)	4.1%	NA	10.4x	51.1%	4.5x	A-

Note: Prices as of 11/2/2020

Source: S&P Market Intelligence; Note: ARRY IPO on October 15, 2020; stock priced at $22, above the top of the expected range of $19 to $21, and appreciated 75% within the first week of trading

Stock Market Performance (YTD)

Note: Prices as of 11/2/2020

Source: S&P Market Intelligence; Note: ARRY IPO on October 15, 2020; stock priced at $22, above the top of the expected range of $19 to $21, and appreciated 75% within the first week of trading

Alternative Energy: M&A Overview

Noteworthy Wind, Solar, & Storage Transactions

Date	Buyer / Seller	Size (MW)	Location	Resource	Commentary
Oct. 2020	EDF renewables / Geenex	4,500	PJM	Solar	▪ Transaction will accelerate EDF's growth in PJM ▪ Projects located across 5 states (NC, VA, OH, KY, PA) ▪ Investment helps finance over 20 solar projects in various development stages ▪ Geenex was backed by New Energy Capital
Oct. 2020	FLUENCE A Siemens and AES Company / Advanced Microgrid Solutions	N/A	CA	Storage	▪ Provides Fluence access to the AMS proprietary real-time trading algorithm used to profitably dispatch grid assets in competitive markets ▪ AMS can leverage Fluence's global sales to expand
Sept. 2020	Capital Dynamics / LS Power Innovation and Investment in Energy	316	AZ, CAISO, PJM	Solar	▪ Acquisition of three solar PV projects from LS Power ▪ Projects located in AZ, DE, and CA ▪ Adds to Capital Dynamics' 4.6 GW portfolio
Aug. 2020	Masdar / EDF renewables	1,600	CAISO, ERCOT, NE	Wind, S+S	▪ Masdar, owned by Abu Dhabi's Mudabala Investment Company, acquired 50% stake in EDF's renewables portfolio ▪ Investment strengthens eight separate EDF projects under construction
Jul. 2020	sunrun / vivint.	N/A	UT	Solar	▪ Largest ever deal in the distributed energy market, creating a combined enterprise value over $9 billion ▪ New enterprise will comprise 15-20% of overall residential solar market

Source: Company data, S&P Market Intelligence, GTM/WoodMac

Alternative Energy: Solar/Wind Project Development Overview

GreenFront tracks over 100 independent developers across the United States

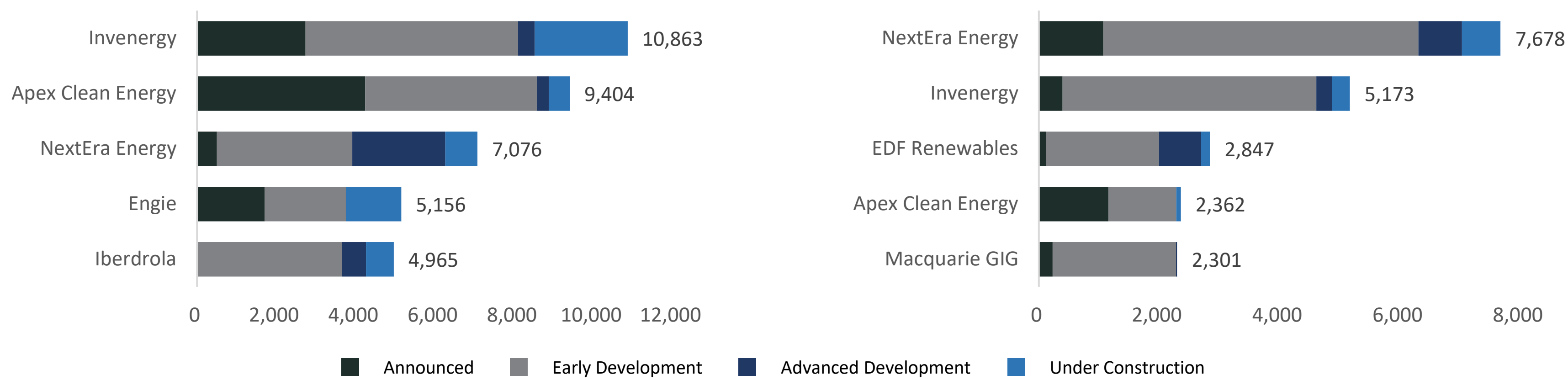
Market commentary

- Project cost structures continue to improve, enabling developers with scale to maintain margins while tightening PPA prices
- Capital Markets
  - Project Debt: markets are wide open; even non-standard deals receive attractive pricing. Typical pricing for utility scale project is 10T+200-300bps
  - Equity: public market appears healthy; private capital is in ample supply, but investors are maintaining ROC discipline
  - Tax Equity: lower corporate tax appetite is causing a real bottleneck; only the best projects from the best sponsors
- End user demand remains strong (State RPS & Corporate ESG)
- Increasing interest in smaller utility scale, C&I, and DG
  - Smaller sized projects can be better priced, with lower regulatory hurdles
  - Tax equity for smaller deals still in short supply
- Regulatory obstacles creating more uncertainty
  - Tariffs
  - PJM MOPR
  - ERCOT GTC
  - Bulk Power Executive Order
  - Tax Equity legislation
  - Interconnection queues
  - NIMBY

Largest utility-scale renewable developers[1]

Largest Wind Project Owners (Aug. 2020)
MW of projects

Largest Solar Project Owners (Aug. 2020)
MW of projects



Source: Company data, S&P Market Intelligence, GTM/WoodMac; [1]Figures are limited to projects with reported in-service years

Alternative Energy: ESG & PPA Market Overview

Corporates are responding to stakeholders' demands for greater sustainability commitments

BlackRock punishes 53 companies over climate inaction

"[BlackRock] said it had placed 244 companies 'on watch' for insufficient progress on climate issues. It said it took voting action at the annual meetings of 53 companies (22%) over climate issues so far this year, largely through voting against the re-elections of directors."

Financial Times, 7/15/20

Noteworthy corporate PPA announcements

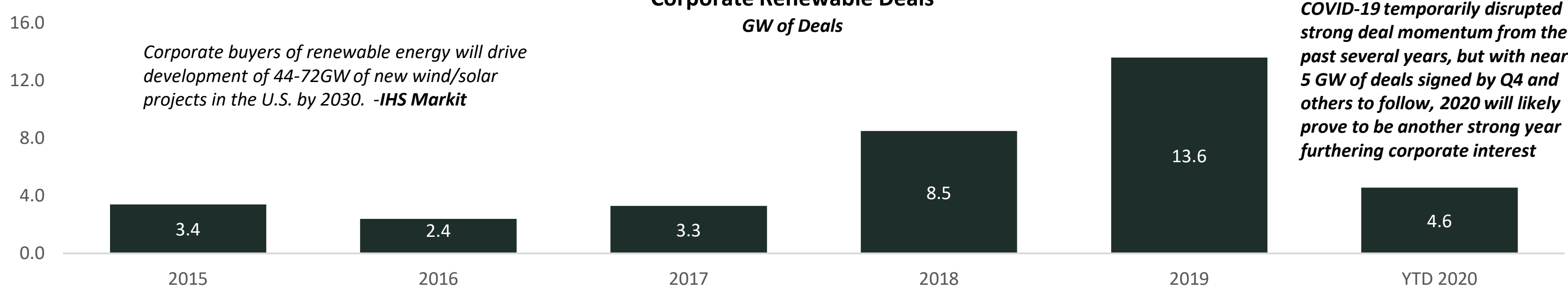
The Home Depot / enel Green Power	***75 MW***	***ERCOT***	***Oct. 2020***
GM / First Solar	***180 MW***	***AK***	***Sept. 2020***

Market commentary

- Corporate interest remains very high despite some COVID-related slow-down – buyer-friendly pricing has flattened
- Change In Law Provisions receiving more focus in contract negotiations
- Big Tech continues to lead the market with ambitious goals
  - **Google** announced plans to operate carbon free (not just carbon neutral), around the clock, by 2030
  - **Microsoft** announced intentions to offset all historical as well as current emissions
  - **Amazon** announced a $2bn Climate Pledge Fund to support the development of sustainable technologies
- Heavy Industrial Corporates are getting more involved
- New products allow Corporates to match energy buying with actual load: Proxy Revenue Swaps, GTECH's, Volume Firming Agreements, Settlement Guarantee Agreements, etc

Corporate Renewable Deals

GW of Deals

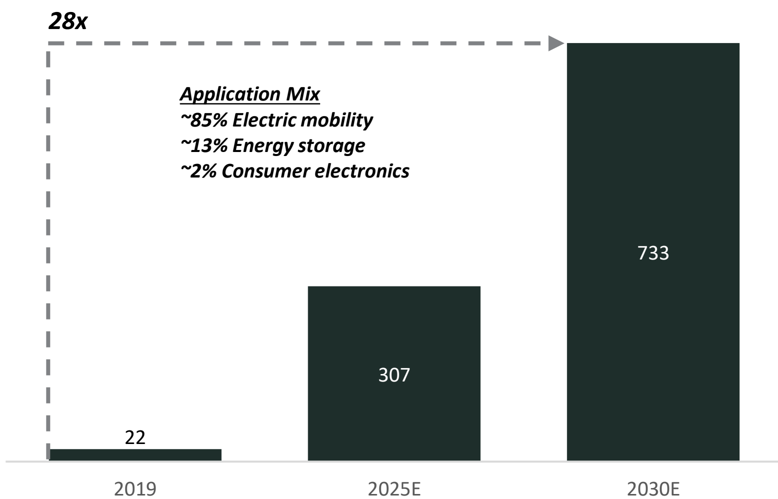


Source: BloombergNEF, REBA (Corporate Deals as of 10/1/20), Company data, S&P Market Intelligence, GTM/WoodMac

Alternative Energy: Storage Overview

Batteries are a core technology to realizing the energy transition

U.S. Battery Demand (GWh)



Market commentary

- Seven states now have dedicated storage procurement targets: California, Massachusetts, Nevada, New Jersey, New York, Oregon, and Virginia
- Some utilities are releasing requests for storage proposals in the megawatt and even gigawatt range
  - Duke's recent IRP puts forth scenarios where installed storage ranges from 1,050 to 7,400MW
- Solar and Wind developers are responding to the above market signals, with increasing capabilities around storage integrations
- Stand-alone storage developers are negotiating as many as 4 revenue streams for their projects (in addition to merchant)
  - Capacity sales agreement
  - Ancillary services financial hedge
  - Demand response grid services agreement
  - Demand-charge management agreement

Go-to-market strategies are multiple

- Utility scale development
- C&I, DG, Microgrid development
- Residential installations
- Storage as a Transmission Only Asset (SATOA)
- Virtual Power Plant networking software
- Non-lithium battery technology development
  - Zinc air
  - Cryogenic
  - Flow
  - Fuel cell
  - Kinetic
  - Compressed air

The number of North American battery players is large and growing

Bloomenergy · DELOREAN POWER · Demand Power · EAST POINT ENERGY · electrovaya · esVOLTA · EVERSOURCE · FLUENCE A Siemens and AES Company · form energy · FREEWIRE · GLIDEPATH · Highview Power · KEY CAPTURE ENERGY · LOOP · MAP · NANT · NRSTOR · BROAD REACH POWER · ORMAT · PLUG POWER · stem · USGRDCO

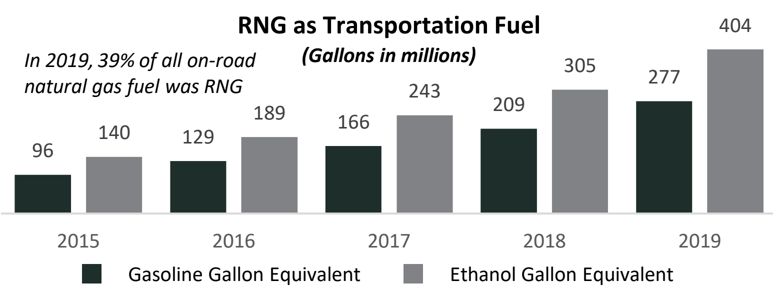
Source: Global Battery Alliance, World Economic Forum, Norton Rose Fulbright

Alternative Energy: RNG & CCS Overview

Renewable Natural Gas (RNG) is an alternative to natural gas that makes use of resources that are already in our environment (typically landfill gas and agricultural waste). RNG is either sold into natural gas pipeline infrastructure, used to fuel turbines for electricity production, or processed into liquids like diesel.

Market commentary

- **Renewable Natural Gas (RNG)** project economics continue to be driven by the value of environmental attributes
  - RIN's, REC's, LCFS
- Additional carbon offset credits could be created to account for avoided emissions
- Corporates are increasingly interested
  - Natural Gas Utility LDC's are attracted to the vertical integration benefits from RNG, as well as the environmental attributes – (e.g. Chesapeake (CPK), Southwest Gas (SWG))
- **Carbon Capture and Sequestration (CCS)** projects continue to garner interest for similar reasons outlined above
- Section 45Q, as amended in May 2020 by the Bipartisan Budget Act of 2018, provides a substantial tax credit for CCS projects, creating a new sector within the tax equity market that functions similarly to Solar ITC's



Noteworthy news & transactions

RNG's attractive cost and generation profile continue to interest a variety of businesses aiming to leverage this profile for their environmental initiatives

CenterPoint Energy

- *Moving ahead with a regulator-approved plan to connect RNG developers and producers to its gas transmission systems*

nationalgrid

- *Committing to achieving net zero by 2050*
- *Approaching this challenge from multiple angles, including heat decarbonization through renewable natural gas solutions*

Chevron | BME (Brightmark Energy)

Chevron Allies with Brightmark for Dairy Biomethane Project

"Chevron CVX announced a partnership with… Brightmark Energy, to manufacture and market dairy biomethane, which is a type of a renewable natural gas ("RNG"), containing methane emissions."

Zachs Equity Research, 10/12/2020

WM Waste Management

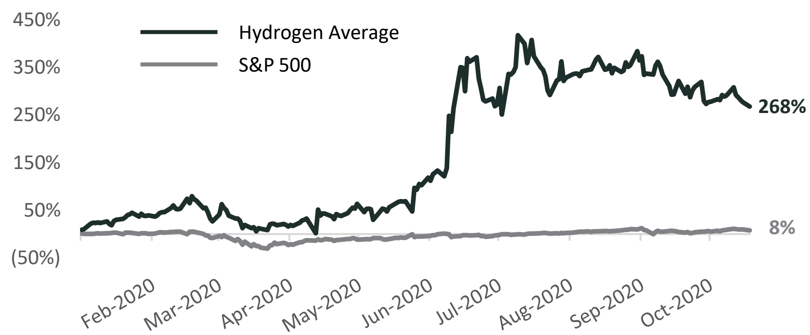
- *Driving ahead with 2019 goal to "run 70% of its collection fleet on non-diesel alternatives and power 50% of those trucks with renewable natural gas (RNG) by 2025"*
- *80% of the way to that target by the end of 2019*

Sources: RNG Coalition, S&P Market Intelligence, National Grid Responsible Business Charter, Company Data

Alternative Energy: Cleantech & Early-Stage Overview

Green Hydrogen (H_2)

- Hype around green H_2 has reached fever pitch – AlphaSense measured a 177% increase in the use of "hydrogen" in public company filings between Q3'18 and Q3'20
- Bullish demand forecasts rely on government support
- Industrial applications appear more promising than transport



Hydrogen Companies: CMI, ENR-DE, HYSR, ITM-GB, MCPHY-FR, NEL-CO

Electric vehicle infrastructure buildout

- In September 2020, California governor announced a phase out of gasoline-powered cars by 2035
- Majority of Energy Transition SPAC activity surrounds Electric Vehicles
  - NGP-backed Switchback Energy announced in September 2020 the acquisition of ChargePoint, the largest EV Infrastructure firm in the United States

Distributed Energy Resource (DER's) strategies

FERC Order 2222 was adopted Sept. 17, ordering RTO's & ISO's to allow DER's to compete in organized capacity & energy markets, removing obstacles for microgrid, demand response, etc. Investors were already pursuing different strategies within the space:

1 **Smart monitoring, reporting, and control of Home energy usage**: Tech companies attempting to position themselves as the central hub for homeowners to visualize their energy use, followed by predictive capabilities that will control devices/appliances to be more energy efficient

2 **Residential storage & backup power**: Multiple companies trying to capture the increased market for home resiliency and ancillary Demand Response opportunities

Recent M&A focused on DER Management (DERM):

- Generac acquires Embala Power, Pika Energy, Neurio Technology
- Wartsila acquires Greensmith Energy
- Aggreko acquires Younicos

3 **C&I Distributed Generation – "Energy as a Service"**: Very large sponsors are showing renewed interest

- **Macquarie** & **Seimens** formed Calibrant JV in October 2020
- $2bn 50-yr contract for **ENGIE** to provide Comprehensive Energy Management services for Ohio State University
- Generate Capital (Alturus), CarVal (Redaptive), Schneider (Huck), Carlyle (Alphastruxure), Warburg Pincus (Scale Microgrids)

GreenFront Energy Partners

GreenFront offers a comprehensive suite of investment banking and advisory services

Service offering

Capital Formation

Raising capital for projects and platform growth initiatives

M&A Advisory

Advising on purchase/sale of alternative energy assets + equity

PPA Advisory

Representing corporates in renewable energy procurement efforts

Our team

Robert Birdsey - Partner

- *Head of BB&T Energy Investment Banking 2013-2020*
- *VP in J.P. Morgan's Energy Investment Banking group prior to joining BB&T*
- *MBA, University of Virginia; BA, Sewanee*

Adam Hahn - Partner

- *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*

Whit Wall - Partner

- *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*