



Vinson & Elkins

# What's Driving Transition Energy IPOs and SPAC Combinations?

How a Combination of Capital Market Developments  
and Regulations Could Supercharge Growth

September 2021



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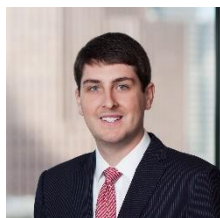
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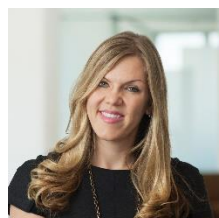
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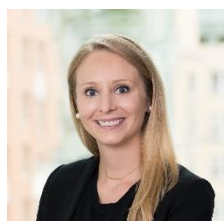
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## I. Introduction

This research updates last year's report entitled, "Clean Energy IPOs and SPAC Combinations" published in August of 2020. While investments in "energy transition," "clean energy" or with an "ESG focus" appear in the financial press almost daily, we are particularly focused on both "macro-themes" and the ways in which those themes may result in the creation of new public companies. Since that research was published in August of 2020, new public companies in the energy transition sector have emerged in two ways: traditional IPOs and DeSPAC business combination transactions, with the latter outpacing the former by a wide margin. In this update we will:

- Summarize current estimates of capital expenditures required to finance this energy transition – in excess of \$100 trillion – as well as current sources to fund those expenditures;
- Recap the most recent "regular way" energy transition initial public offerings ("IPOs") with a focus on business and structure;
- Breakdown, by both business category and capital raised, energy transition DeSPAC business combination transactions, as well as recent challenges to execution; and
- Examine how the Biden administration's multiple legislative and tax proposals as well as other regulatory changes may spur the growth of businesses that will seek to access public equity markets for years to come.

## II. Energy Transition Market Fundamentals: Anticipated Capital Expenditures Continue to Escalate As Do Dedicated Funds

***Projected Capital Expenditures Through 2050.*** Last August we highlighted a Goldman Sachs projection that renewable generation, alone, represented a \$16 trillion investment opportunity through 2030. In March of 2021, both UBS and Credit Suisse published reports of far greater scope – and attempted to estimate total global expenditures, for all forms of energy production and consumption, to be incurred over the next 30 years in order to meet the Paris Accord goals by 2050. *The projected capital needs are stunning.*

In March 2021, UBS published its in depth "Q Series: Energy Transition" and estimates total global expenditures necessary to meet the Paris Accord of between \$120 trillion and \$160 trillion, in the following categories: \$35 trillion to \$70 trillion for clean energy generation, \$20 trillion to \$30 trillion for infrastructure upgrades, \$20 trillion to \$40 trillion for carbon capture, \$10 trillion to \$20 trillion for research and development and \$10 trillion to \$20 trillion for the continued production of oil and gas reserves. In March of this year, the International Renewable Energy Agency provided its own projection that \$130 trillion of investments in clean and transition technologies and equipment were necessary to meet the Paris Accord's goals.

Also in March of 2021, Credit Suisse published “CS Global ESG Research: Decarbonizing Themes and Stocks” which projects global expenditures of approximately \$3.2 trillion per year through 2050, or \$100 trillion in aggregate, are necessary to keep global temperature rise less than 2.0°C. The report breaks total spend into supply expenditures (solar, wind, other renewable power and energy storage) and demand expenditures (transport, industrials, heating and cooling) and evaluates emerging companies in each of these areas.

All three reports are remarkable in two respects. First, the all-encompassing sweep of industries affected by energy transition, including expenditures for new and existing energy generation sources as well as in every material form of energy consumption, impacting essentially every industry in existence. Second, the staggering size of the projected expenditures themselves.

To put these projected expenditures in context, the total value of all publicly traded U.S. equity securities was estimated at approximately \$47 trillion as of June 30, 2021. As of August 6, 2021, total global equity market capitalization was estimated at \$95 trillion. At the low end of both the UBS and Credit Suisse ranges, the anticipated total capital expenditures required over the next 30 years exceed not only the total value of U.S. equities but also either exceed or approximate the total equity market capitalization of the global economy.







These comparisons are not meant to suggest that energy transition expenditures will result in a doubling of global equity market capitalization. But it is safe to predict that expenditures of this magnitude, even if these projections are heavily discounted, will result in the creation of myriad new public companies (and already has, as this update details), the expansion of existing ones, and a tremendous reshuffling of balance sheets and business organizations as existing businesses reorganize, divest assets, create new businesses, sponsor IPOs or complete spin offs.

***Fund Flows to Sustainable Investing Vehicles Continues to Ramp.*** Fund flows to sustainable investing vehicles are dramatically increasing. In the fourth quarter of 2020, Credit Suisse reported that ESG funds received \$152 billion in net inflows, up from \$83 billion in the third quarter of 2020. And this ramp continued into 2021. On April 30, 2021 in an article entitled “Sustainable Fund Inflows Hit Record High In Q1,” Reuters reported that global inflows hit \$185.3 billion in the first quarter of 2021, up 17% from the fourth quarter of 2020. Reuters also reported total global assets in sustainable investment funds reaching a high of nearly \$2 trillion. Morningstar data reflects 215 new ESG targeted funds launched in the fourth quarter of 2020 with 169 funds launched in the first quarter of 2021. *The Financial Times* reported on July 14, 2021 that total fund flows into ESG stocks is “still in its early innings” and that “large ESG flows are still ahead of us.” While these funds are not exclusively focused on energy transition investments, a significant portion of the money they hold will be invested in clean energy and related technologies. Given the projected capital costs over the next 30 years, clean energy investment targets for such funds should be readily available.

***Energy Transition Depends on Massive Additional Private Sector Investment.*** A final and critical observation about these projections: The capital required to achieve global energy transition cannot be funded entirely by U.S. or global governmental expenditures, nor does the aggregate value of currently available green investment dollars come close to total projected capital requirements, even if those investment pools have experienced significant growth recently. Much press has been generated by the \$1.2 trillion bi-partisan Infrastructure Bill recently passed by the Senate. Of the \$1.2 trillion in expenditures to upgrade American infrastructure, approximately 6%, or \$80 billion, would be provided to fund the electrification of the school bus fleet, build out of electric charging stations for electric vehicles (“EVs”) and promote renewable energy access to the country’s electric grid. Also being considered is the \$3.5 trillion Democratic budget reconciliation proposal which includes the Growing Energy and Efficiency Now Act of 2021 (the “GREEN Act”). Approximately 12%, or \$437 billion of a total of \$3.5 trillion in the broader proposal, would be earmarked for energy transition. Taken together these legislative proposals, if passed as proposed, would provide slightly more than \$500 billion to fund the energy transition in the U.S. At the same time, total global funds invested in sustainability amount to \$2 trillion. While U.S. spending proposals combined with globally available ESG funds sum to a very large number in absolute terms, when compared to expenditures of in excess of \$100 trillion, they collectively represent only a small percentage of total projected capital needs. This means that private sector investment together with global governmental expenditures will need to grow exponentially, over a sustained period of time, to provide necessary funds. Private financing will only continue to be available, over this time horizon, if it can achieve reasonable returns for investors.

### **III. Recent “Regular Way” IPOs**

With a backdrop of growing capital needs and increased investor appetite, one could easily imagine multiple traditional IPOs by energy transition businesses over the last year. Excluding the significant number of DeSPAC business combinations (discussed in more detail below), this is not the case. Since our report of last summer, there have been six traditional IPOs of energy transition companies. We review each of these IPOs briefly below.

Issuer	IPO Date	IPO Price	Market Capitalization (As of IPO)	Share Price (As of July, 31 2021)	Market Capitalization (As of July, 31 2021)	Structure
 X P E N G	8/26/20	\$23.10	\$31 billion	\$40.53	\$34.53 billion	Cayman Islands Exempted Company
 ARRAY TECHNOLOGIES	10/19/20	\$38.95	\$3.56 billion	\$13.54	\$1.72 billion	C-Corp
 Montauk Renewable	1/26/21	\$8.50	\$1.195 billion	\$6.98	\$992.26 billion	C-Corp
 shoals TECHNOLOGIES GROUP	1/29/21	\$35.25	\$4.164 billion	\$29.09	\$4.847 million	Up-C
 tu simple	4/19/21	\$40.00	\$9 billion	\$36.80	\$7.693 billion	C-Corp
 FTC SOLAR	4/30/21	\$13.00	\$800 billion	\$10.14	\$854.8 billion	C-Corp

***Xpeng Inc. (NYSE: EXPEV)*** Xpeng Inc. (“Xpeng”) is an electric vehicle company based in China that completed its U.S. IPO in the form of American Depositary Shares (“ADS”) on August 26, 2020. The IPO upsized by almost one-third at pricing, raising approximately \$1.5 billion at \$23.10 per ADS. Xpeng focuses on building middle market EVs and had sold over 20,000 vehicles as of the date of its IPO from two factories located in China. On June 23, 2021, Xpeng completed an IPO on the Hong Kong exchange raising \$1.8 billion. Structurally, Xpeng is an exempted company formed in the Cayman Islands. In U.S. trading, Xpeng reached a high of \$72.10 on November 23, 2020 and closed at \$40.53 on July 30, 2021 with a total market capitalization of \$34.53 billion. Xpeng does not expect to pay dividends in the foreseeable future.

***Array Technologies Inc. (NASDAQ: ARRY)*** Array Technologies Inc. (“Array”) provides ground mounting systems which move throughout the day to maximize energy production from solar panels. Array was sponsored by certain funds managed by alternative investment firm Oaktree and the IPO priced on October 16, 2020 at \$38.95 per share, raising slightly over \$1 billion, with most proceeds going to the selling stockholders. Structurally Array is a traditional Delaware corporation with one class of common stock and does not expect to pay dividends in the near term. The stock traded up immediately and reached a high of \$54.78 in January of 2021, enabling selling stockholders to complete additional offerings in December of 2020 (\$1.5 billion) and March of 2021 (\$875 million). Array’s first quarter results were significantly and negatively impacted by higher steel and other logistics costs caused in part by the pandemic. As of the end of July 2021, Array’s stock had declined almost 60% in the first seven months of the year and, on July 30, 2021, closed at \$13.54 per share with a market capitalization of \$1.72 billion. Array announced a new long term steel supply arrangement and anticipates a rebound in performance underpinned by long term solar development expectations.

**Montauk Renewables, Inc. (NASDAQ: MNTK)** Montauk Renewables, Inc. (“Montauk”) specializes in the recovery and processing of natural gas from landfills and other non-fossil fuel sources (“renewable natural gas” or “RNG”) and considers itself one of the largest producers of RNG in the country, with 15 projects across six states. Montauk completed its IPO on January 26, 2021 at \$8.50 per share raising total proceeds of approximately \$29 million, with its stock trading as high as \$13.95 and closing on July 30, 2021 at \$6.98 with a market capitalization of \$992.26 million. Structurally, Montauk is a traditional Delaware corporation and has not paid dividends to date.

**Shoals Technologies Group Inc. (NASDAQ: SHLS)** Shoals Technologies Group Inc. (“Shoals”) provides “electrical balance of systems solutions” to solar power developers. Also backed by Oaktree Capital, Shoals completed its IPO on January 29, 2021 at a price of \$35.25, 58% higher than its \$22 to \$23 indicative range, raising approximately \$2.2 billion, making it the largest ever traditional IPO by a solar-related company in the U.S. Like Array, the substantial majority of the proceeds of the offering went to the selling stockholders. Since completing the IPO, Shoals has traded as high as \$44 and as low as \$20 per share, and on July 15, 2021 announced the pricing of a \$375 million follow on offering, with most proceeds going to the selling stockholders. On July 30, 2021, the stock price closed at \$29.09, substantially below its IPO price with a market capitalization of \$4.847 billion. Structurally, Shoals is an “Up-C” with no expectation of paying dividends in the near term.

**TuSimple Holdings Inc. (NASDAQ: TSP)** TuSimple Holdings Inc. (“TuSimple”) develops advanced self-driving technologies for heavy duty trucks and is developing a point to point network of pre-set routes targeting an international trucking market estimated at in excess of \$4 trillion annually. TuSimple priced its \$257 million IPO on April 19, 2021 at \$39.95 per share. TuSimple is a Delaware corporation, does not anticipate paying dividends and features “dual class” common stock with Class B common stock (held by founders) having ten votes per share and Class A common stock (held by the public) having one vote per share. On July 30, 2021, the stock price closed at \$36.80 and had a market capitalization of \$7.693 billion.

**FTC Solar Inc. (NASDAQ: FTCL)** FTC Solar Inc. (“FTC Solar”) provides solar tracking systems which have been deployed both domestically and internationally, including technology, software and engineering and has outsourced manufacturing capabilities at factories around the world. FTC Solar priced its \$260 million IPO on April 27, 2021 at a price of \$13.61 per share and had a total equity market capitalization of approximately \$800 million. FTC Solar is a Delaware corporation with a single class of common stock and has no current plans to pay dividends. A portion of the IPO proceeds was used to redeem equity held by pre-IPO investors. On July 30, 2021, the stock price closed at \$10.14 with a market capitalization of \$854.8 million.



#### IV. Energy Transition SPAC IPOs and DeSPAC Business Combination Transactions

**Overall SPAC Market Activity.** Since August 2020, there has been a tremendous increase in SPAC activity, both in the number of IPOs that have been publicly filed or completed as well as in the number of completed DeSPAC business combination transactions. According to Citi's "Clean Energy Transition Monthly" July publication, in the first seven months of 2021, there were 368 completed SPAC IPOs resulting in \$115 billion in funds held in trust across all industry targets. This compares to 231 completed SPAC IPOs with \$82 billion held in trust in all of 2020 and 54 completed SPAC IPOs with \$13 billion held in trust in all of 2019. Including all SPACs that are either searching for a target or have announced a target but have not yet closed a DeSPAC business combination transaction, a total of \$170 billion of SPAC trust funds are awaiting deployment in the equity markets.

According to Citi, in the first seven months of 2021, 88 DeSPAC business combination transactions have closed and 133 have been announced with closing pending. All but 15 of these DeSPAC business combination transactions include a concurrent private placement or PIPE. There have been 206 priced or announced PIPEs in connection with those DeSPAC transactions for a total of \$65 billion of capital.

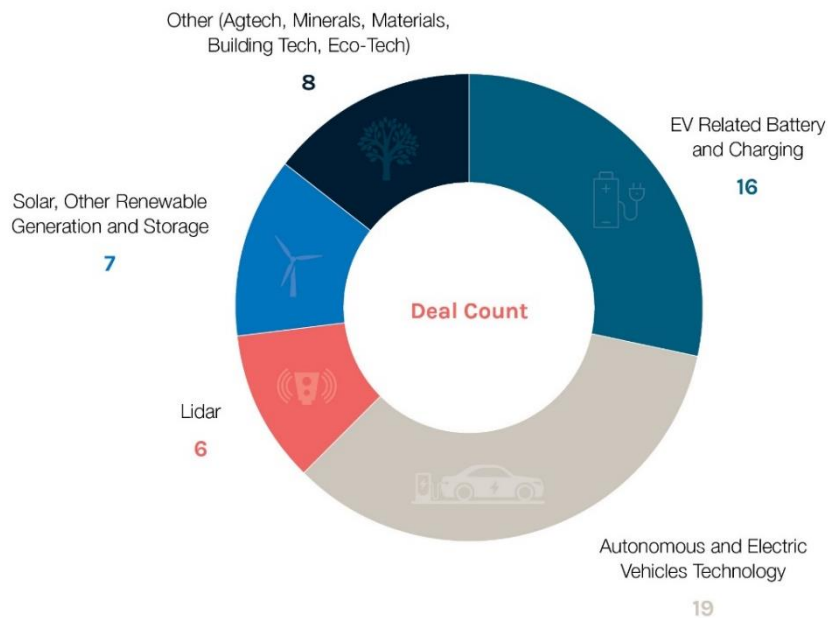
**Energy Transition DeSPAC Market Activity.** For the twelve months ended July 31, 2021, 56 DeSPAC transactions in energy transition sectors have been completed or announced. Of those 56 transactions, 32 have been completed as of July 31, 2021. These 56 transactions included \$19 billion held in trust and \$18 billion of PIPE proceeds for a total of \$37 billion of cash available to target companies (assuming there are no redemptions). Assuming all announced transactions are completed and there are no redemptions, these 56 transactions represent \$155 billion in implied equity market capitalization based on a \$10 per share price. In terms of redemptions at close, 9 of the 32 DeSPAC closings were accompanied by redemptions in excess of 25% by public SPAC investors, seven of which occurred in the summer of 2021, with one transaction in which redemptions represented 76% of the public shares.

For the purposes of this update, we have broadly categorized energy transition DeSPACs into the following industry subsectors: (i) electric vehicles and autonomous driving, (ii) EV related battery and charging, (iii) solar, other renewable generation and storage, (iv) light detection and ranging (pulsed laser measurement technology employed in autonomous driving technologies and referred to as LIDAR) and (v) a variety of other businesses including agricultural, materials, building efficiency and other technologies being deployed to increase energy efficiency or reduce carbon emissions. In terms of the maturity of the businesses being funded in these DeSPAC transactions, 75% involve companies with less than \$50 million in revenue in the most recently reported year and on average the implied valuations upon execution of the business combination agreement was between \$2 billion and \$3 billion. Stated more generally, these are relatively early stage companies with significant growth prospects.

The chart below illustrates the industries to which each of the 56 energy transition DeSPAC transactions have been categorized (assuming all pending transactions close).

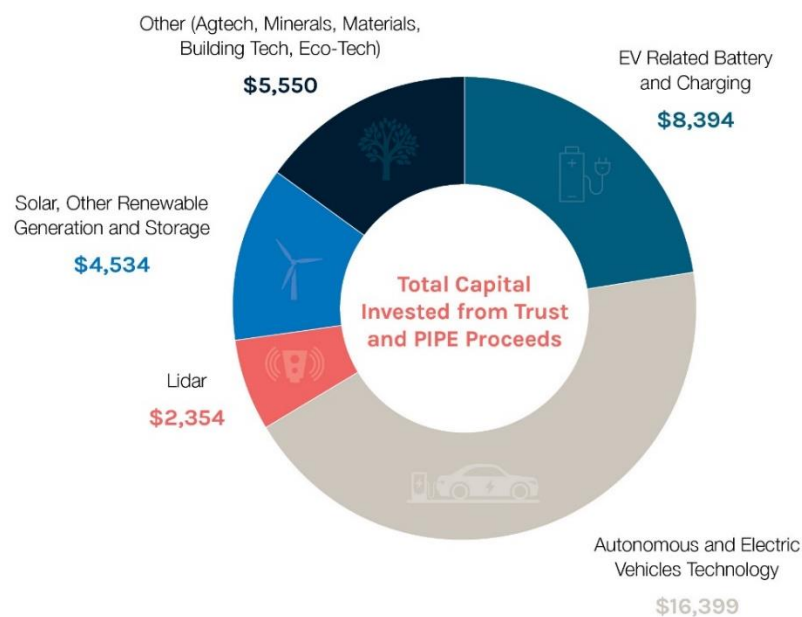


## Energy Transition DeSPACs By Deal Count



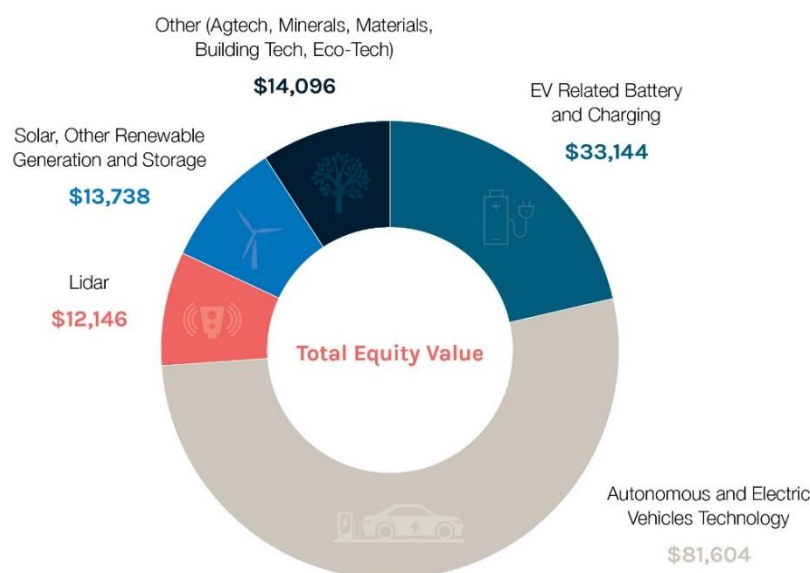
The chart below reflects total capital in millions invested in these 56 energy transition DeSPAC transactions combining proceeds from SPAC trusts (assuming no redemptions for closed deals and all pending transactions close without redemptions) as well as PIPE proceeds by industry.

## Energy Transition DeSPACs By Total Capital Invested from Trust and PIPE Proceeds



The chart below reflects the total implied equity market capitalization in millions, based on a \$10 per share price and assuming no redemptions for both closed deals and pending deals, of the 56 resulting companies, by industry, combining SPAC trust proceeds, PIPE proceeds and the value of the equity retained by the owners of the target of the DeSPAC transaction. As discussed in our prior article, it is very common for earlier stage target companies to roll over 100% of their equity into a SPAC business combination and utilize the cash received from the SPAC trust and PIPE proceeds to fund growth. The high percentage of seller equity rollover, combined with full valuations for most of the target companies, has resulted in multiple multi-billion dollar valuations as of the execution of the business combination agreement. Of the 32 completed transition energy DeSPAC transactions, the equity market capitalizations based on their trading price on September 2, 2021 has increased approximately 17% over their total implied equity market capitalization.

### Energy Transition DeSPACs By Total Equity Value



**Energy Transition SPAC IPO Market Activity.** As of July 31, 2021, there were 52 SPAC IPOs either completed and hunting for a target (23) or with publicly filed registration statements (29) targeting sustainability or energy transition businesses. Assuming all of the IPOs are completed, they would represent a combined \$13 billion held in trust available to target companies. Given the significantly slower pace of execution in recent months whether that \$13 billion held in trust will ultimately materialize depends entirely on continued and sufficient SPAC IPO investor interest.

**Recent SPAC IPO Challenges.** Despite tremendous activity in the SPAC IPO market in the first quarter of 2021, a number of headwinds have resulted in both a significantly slower pace as

well as a number of changes to IPO terms that typically make SPAC sponsor economics less attractive than they were at the beginning of the year. Both the traditional SPAC IPO structure and more recent deviations are described in some detail below:

- ***Traditional Structure.*** From August of 2020 through the first quarter of 2021, SPAC IPOs typically offered a unit consisting of a share of Class A common stock and a fraction of a warrant to purchase additional shares. The sponsor would hold founder shares equal to 20% of the post IPO company and would purchase private warrants or shares in order to have \$10 per unit in the trust account after deducting the initial underwriting discount and to cover working capital needs and expenses. These SPACs also typically featured a 24-month term in which to complete a DeSPAC business combination.
- ***Recent Developments.***
  - ***Anchor Investors.*** As a result of more limited investor demand for SPAC IPO shares, a number of SPACs are now securing anchor orders from affiliates of the sponsor or unaffiliated institutional investors to ensure a successful IPO pricing. These anchor investors typically execute a non-binding indication of interest, usually for less than 10% of the IPO offering size. In exchange for this anchor indication of interest, the SPAC sponsor may agree to transfer some portion of its founder shares to the anchor investor (usually at the sponsor's cost), effectively, and at times materially, reducing the sponsor's original 20% promote.
  - ***Over-Funding the Trust Account.*** Several sponsors have "over funded" the trust account through the purchase of additional private placement warrants or shares.
  - ***Shorter Terms.*** Multiple SPAC IPOs have decreased the amount of time to complete a DeSPAC business combination from 24 months to 18 months or less.

***Recent DeSPAC Developments.*** In addition to changes to IPO terms, DeSPAC business combinations also reflect the changes resulting from more challenging market dynamics.

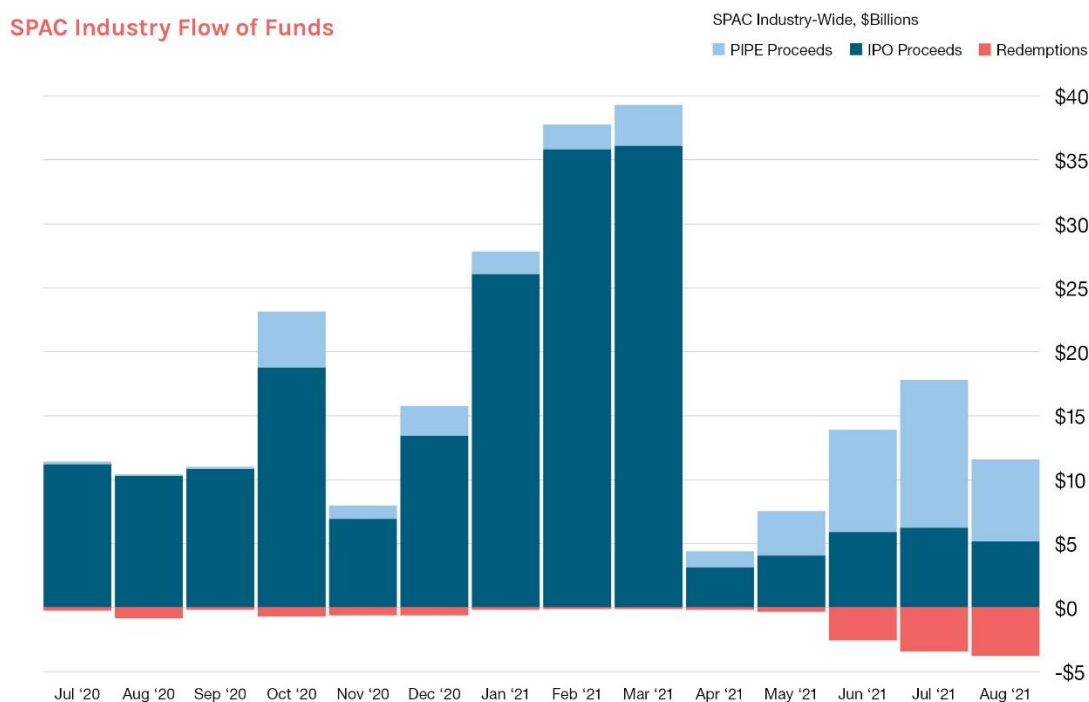
- ***Founder Share Forfeitures.*** An increasing number of DeSPAC transactions have involved the sponsor either forfeiting a material percentage of its founder shares or subjecting some portion of those shares to an earnout requiring significant price appreciation to trigger vesting.
- ***PIPE Market Challenges and Alternative Financings.*** Particularly over the last couple of years, it has become common in SPAC business combinations to raise capital with institutional investors in a private placement to serve as a backstop against shareholder redemptions and provide more certainty to the target company and its shareholders that the transaction will be able to close with a certain amount of cash on the balance sheet. Starting in the second quarter of 2021 and continuing in the third quarter of 2021, PIPE financings have become increasingly difficult to secure as multiple potential deals compete for more limited PIPE investors and market reaction to many combination



announcements has been tepid. Due to difficulties in the PIPE market, a number of DeSPAC transactions have featured alternative capital raises, which include the issuing of convertible debt or preferred stock by the SPAC, providing investors with fixed returns with equity upside on conversion or supplementing the traditional PIPE with warrants. Some transactions have featured equity and debt financings at the target level rather than the SPAC level. Additionally, in some instances the SPAC's sponsor has provided backstop financing or arranged for other backstop financing typically in exchange for some portion of the sponsor's founders shares or warrants. And, in some cases, there has been no PIPE or other financing at all.

- **Redemptions.** In recent months we have also seen an increase in redemptions requested immediately prior to closing. In extreme cases redemptions can result in the SPAC failing to satisfy the minimum cash closing condition (if such a condition is present and not otherwise waived).

The below chart generated by SPAC Research is an illustration of the flow of funds on a monthly basis: The blue bars represent IPO investments, the light blue bars represent PIPE investments at closing and the red bars represent redemption from trust accounts at closing.



Data: SPAC Research, August 31, 2021



Despite market challenges and increased regulatory scrutiny and litigation with respect to SPAC business combinations, a number of energy transition DeSPAC business combinations have been announced in the last several months, and we expect that deals will continue to be signed, albeit at a more modest pace than the first half of 2021. SPAC business combinations offer a distinct advantage to early stage companies as compared to a traditional IPO in that the proxy statement for the business combination requires the disclosure of multi-year projections upon which its board relied in arriving at a valuation for the private company. These projections provide significantly more forward-looking transparency than is typically included in a traditional IPO prospectus.

## V. Biden Administration Legislative and Tax Proposals and Other Regulatory Developments

**UPDATE:** After the drafting of this article, the House Ways and Means Committee released a draft of “[Subtitle G-Green Energy](#)” for inclusion in the budget reconciliation legislation. As compared to the GREEN Act, the draft budget reconciliation legislation includes an expanded version of direct pay at 100% (instead of 85%), generally provides for longer extensions of the credits discussed below, and adds both an investment tax credit for certain electric transmission property and a zero emissions facility credit. With respect to certain credits, the legislation would also incorporate wage and apprenticeship requirements and a domestic content bonus credit. The House Ways and Means Committee’s markup of Subtitle G is scheduled to begin on September 14, 2021 and it remains unclear what the Democrats will be able to push through the Senate.

**Overview.** A key component of the capital necessary for the energy transition is funding provided by the U.S. federal government. President Biden has repeatedly announced ambitious energy and environmental goals in an effort to combat the effects of climate change and Congress has responded with a myriad of legislative proposals and regulatory orders and approvals.

Untangling the various green, clean and energy transition legislative proposals and regulatory orders can be both daunting and confusing. They include the \$1.2 trillion bipartisan Infrastructure Bill which was approved by the Senate in August of this year as well as the Clean Energy for America Act proposed in the Senate and the GREEN Act proposed in the House. The latter two pieces of legislation will be approved, if approved, through the budget reconciliation process and the outcome of that process remains uncertain. These proposals, as well as certain orders or actions before the FERC, could have a significant impact on the economics, funding and speed of the energy transition. We will address what we believe to be the most material of these proposals – *i.e.*, those proposals that would have the biggest impact on the growth (and financing needs) of energy transition businesses. We will discuss tax policy proposals (including direct pay proposals included in the GREEN Act) as well as certain FERC actions impacting renewable generation’s ability to access transmission and obtain favorable pricing in local and regional power market jurisdiction and approval authority.

***Tax Policy Proposals.*** The tax laws that are most likely to have a significant impact on the financing of the energy transition include those that (i) incentivize investment in clean energy generation and storage, carbon sequestration, green manufacturing, electric vehicles, renewable fuels, and energy transmission infrastructure or (ii) would permit renewable energy companies to qualify as publicly traded partnerships. While it is unclear which, if any, of the legislative proposals will be enacted in the budget reconciliation process, President Biden's support, combined with the Democrats' narrow majority in Congress, makes it reasonably likely that existing tax incentives for investment in clean energy will be amended, extended or expanded.

The Clean Energy for America Act would consolidate over 40 tax provisions into a small group of "technology-neutral" incentives based on defined metrics for emissions reductions and climate outcomes. Any power facility of any technology would be able to qualify for tax credits if the facility's carbon emissions were at or below zero. Systems in excess of one MW would have to meet certain prevailing wage and apprenticeship requirements. Notwithstanding that the Clean Energy for America Act's simplicity is appealing, the proposal has been met with significant resistance from Republicans in Congress as the legislation would also repeal multiple tax provisions that benefit fossil fuel producers, including deductions for intangible drilling costs, percentage depletion and the "qualifying income" exception for publicly traded partnerships.

The GREEN Act would extend and expand credits for clean energy, add direct pay options for certain credits and expand the scope of qualifying income for publicly traded partnerships to include income derived from green and renewable energy. While the budget reconciliation legislation may include provisions from both the Clean Energy for America Act and the GREEN Act, a variety of extensions and expansions of tax credits similar to those in the GREEN Act appear to be more likely as that approach would be more consistent with President Biden's proposals in the Green Book. As a result, we will focus on the tax policy proposals in the GREEN Act. If enacted, these provisions would significantly assist in financing the energy transition by enhancing returns to investors in the sector. Emerging companies could benefit directly (likely as a result of direct pay options discussed below) or indirectly (from increased demand for their services or products or cheaper cost of capital) if these legislative changes are adopted.

It is also worth noting that, while the GREEN Act does not include credits for energy transmission infrastructure, the Electric Power Infrastructure Improvement Act introduced earlier this year by Reps. Steven Horsford (D-Nev.) and Susie Lee (D-Nev.) and Sen. Martin Heinrich (D-N.M.) would provide a 30% investment tax credit for high voltage transmission lines (overhead, underground or offshore) and a similar concept may be included in the budget reconciliation legislation.

***Introduction of Direct Pay.*** Historically, most renewable energy projects have been financed in part through tax equity financing, primarily provided by financial institutions and corporations with sufficient taxable income to take advantage of the tax credits generated by such projects ("tax equity" investors). If corporate tax rates are increased (an increase from 21% to 28% has been proposed by President Biden), tax equity investors will have higher tax costs which should fuel additional investment in renewable energy projects.



Companies that have recently gone public, either through a traditional IPO or a DeSPAC transaction, are unlikely to have sufficient taxable income to efficiently utilize tax credits. However, the GREEN Act includes a “direct pay” provision for certain credits. Under this option, a taxpayer without tax capacity would be treated as having made a payment of tax equal to 85% of the available credit, so that instead of carrying forward credits to a future tax year when the taxpayer may or may not be able to use the credit to offset tax, the taxpayer could request a refund of any resulting overpayment of tax in the year the credit arises. While the GREEN Act haircuts the credit if direct pay is elected, other proposals provide a 100% direct pay provision, and it is possible that the budget reconciliation legislation may fall somewhere between 85% and 100%. Even if the credit is reduced, a direct pay provision would allow entities with little or no expected tax liability to utilize the applicable credits without having to secure tax equity financing. While direct pay is unlikely to eliminate the tax equity market, it is a “game changer” for projects that have been tax equity constrained (e.g., projects that have historically struggled to obtain tax equity financing – including carbon sequestration projects which must compete for tax equity financing with solar and wind projects with well known, lower-risk technologies and structures – may be able to obtain capital through direct pay). Direct pay would also encourage the development of new technologies and generally promote competition.

**Extensions and Expansions of Tax Credits.** We summarize below the tax credits included in the GREEN Act that we believe will be most likely to spur investment in renewable energy (i.e., those related to clean energy generation and storage, carbon sequestration, electric vehicles, and renewable fuels). We indicate with an asterisk those tax credits that would be eligible for direct pay.

**Credits for Clean Energy Generation and Storage.** Two tax credits have historically been instrumental to the growth of renewable energy generation: (i) the production tax credit (“PTC”) and (ii) the investment tax credit (“ITC”). As their names suggest, the PTC is a tax credit based on the amount of energy produced by a renewable energy facility and the ITC is a tax credit based on a percentage of the amount invested in renewable energy property. The GREEN Act would extend and expand the ITC and PTC provisions currently in effect.

- **Extension of the PTC\* – Section 45** – The GREEN Act would extend the PTC for wind energy – 1.5 cents per kilowatt hour of electricity (adjusted annually for inflation) sold to an unrelated person – at the current phaseout level (i.e., a 40% reduction to the credit amount) for wind facilities that begin construction before 2027. Under current law, the PTC for wind energy would not be available to projects that begin construction after 2021.
- **Extension of the Investment Tax Credit for Solar\* – Section 48** – The GREEN Act would reinstate the ITC to a 30% level for solar energy property that begins construction after 2020 but before 2027. The ITC then would phase down to (i) 26% for projects that begin construction in 2027, (ii) 22% for projects that begin construction in 2028 and (iii) 10% for projects that begin construction after 2028.

Currently, the ITC for solar energy is 26% and would phase down to 22% for projects that begin construction in 2023 and 10% thereafter.

- ***Extension of the ITC for Offshore Wind and Other ITC Eligible Property\* – Section 48*** – The GREEN Act would extend the 30% ITC for offshore wind facilities one year and facilities that begin construction before 2027 would be eligible for the full ITC. The GREEN Act would also reinstate and extend the 30% ITC for other renewable energy property, including fiber-optic solar equipment, fuel cell property, microturbine property, combined heat and power property and small wind energy property that begin construction after 2021 but before 2027. The ITC would then phase down to 26% in 2027 and 22% in 2028. Currently, the ITC for other ITC eligible property is 26% and would phase down to 22% for projects that begin construction in 2023 and expire thereafter.
- ***Expansion of the ITC for Energy Storage and Linear Generators\* – Section 48*** – The GREEN Act would create a 30% ITC for energy storage technology and linear generators through the end of 2026. Energy storage technology is equipment (other than equipment used in transportation) that uses batteries or other technology to store energy for conversion to electricity. Linear generators convert fuel into electricity through electromechanical means using a linear generator assembly without the use of rotating parts. The ITC for energy storage technology and linear generators would phase down to 26% in 2027 and 22% in 2028.

***Credits for Carbon Sequestration\* – Section 45Q.*** The GREEN Act would extend the period in which carbon capture equipment must begin construction to be eligible for credits under Section 45Q by one year (from 2026 to 2027).

***Credits for Green Manufacturing.*** The GREEN Act would also revive the 30% investment tax credit for green manufacturing by allowing the Secretary to allocate \$2.5 billion in credits each year from 2022 through 2026 to advanced energy projects (*i.e.*, projects that re-equip, expand, or establish a manufacturing facility for the production of specified green energy property) under Section 48C. Like the prevailing wage requirements included in the Clean Energy for America Act, applicants would have to certify that they will pay prevailing wages. While changes to Section 48C were not included in the bipartisan infrastructure bill passed by the Senate as originally planned, Democrats are pushing for their inclusion in the budget reconciliation package.

***EV Credits.*** As previously discussed, several recent DeSPAC transactions have been in the EV space. The tax credits associated with EVs may directly or indirectly promote growth for the business in this area (for example, the expansion of the Section 30C credit may substantially increase the value of that credit to businesses that install charging stations and the new vehicle credits may stimulate sales for businesses in the EV production chain).

- ***EV Credits – Section 30B and Section 30D*** – The GREEN Act would expand the existing tax credits available to new qualified plug-in electric drive motor vehicles. Under current law, the tax credit available for such vehicles is between \$2,500-\$7,500 and begins phasing out once the number of vehicles manufactured by the manufacturer in the United States is at least 200,000. The GREEN Act would increase the phase-out threshold to 600,000 vehicles. The GREEN Act would also include a transition rule for manufacturers who have already passed the 200,000 threshold to allow them to benefit from the increased threshold. The GREEN Act would also extend the 2-wheeled and 3-wheeled plug-in electric vehicle tax credits to vehicles acquired before 2027 and extend the tax credit for the purchase of a qualified fuel cell motor vehicle through 2026.
- ***Used EV Credit – Section 36B*** – The GREEN Act would create a new tax credit for used EVs. The amount of the tax credit is based on a statutory formula and would be limited to the lesser of \$2,500 and 30% of the sale price of the vehicle. The credit is subject to eligibility requirements based on the EV's sale price, the EV's model year and the buyer's adjusted gross income.
- ***Credit for Heavy EVs & Electric Buses – Section 45U*** – The GREEN Act would create a new tax credit for any vehicle weighing at least seven tons which does not include an internal combustion engine and is propelled solely by an electric motor powered by a battery or fuel cell. The credit is equal to 10% of the sales price (up to \$1 million) of such vehicle.
- ***EV Charging Infrastructure Credit – Section 30C*** – The GREEN Act would expand and extend the alternative fuel refueling property credit. The credit is currently equal to 30% of the cost of any qualified refueling property but is capped at \$30,000 per location per year and is set to expire at the end of 2021. Beginning in 2022, the credit for zero-emissions charging infrastructure would be expanded by allowing a 20% credit for expenses in excess of \$100,000. To qualify for this uncapped credit, the property would have to: (i) be intended for general public use and either accept credit cards as a form of payment or not charge a fee, or (ii) be intended for exclusive use by government or commercial vehicle fleets. The GREEN Act would also extend the Section 30C credit through 2026.

**Credits for Renewable Fuels.** The GREEN Act would also extend tax credits for biomass-based and other alternative fuels.

- ***Biodiesel and Biodiesel Mixtures – Section 40A and Section 6426*** – The income and excise tax credits for biodiesel and biodiesel mixtures (including renewable diesel) would be extended through the end of 2025. Beginning in 2023, the credit would phase down to \$0.75 in 2023, \$0.50 in 2024, and \$0.33 in 2025. Under current law, those credits expire at the end of 2022. The \$0.10-per-gallon small agri-biodiesel producer credit would also be extended through the end of 2025.



- ***Alternative Fuels and Alternative Fuel Mixtures – Section 6426*** – The excise tax credits for alternative fuels and alternative fuel mixtures would be extended at the pre-expiration level of \$0.50 per gallon through 2022 and would phase down to \$0.38 in 2023, \$0.25 in 2024 and \$0.17 in 2025. The credit would expire at the end of 2025. Alternative fuels include, for example, liquefied hydrogen, compressed or liquefied natural gas and liquid fuels derived from biomass. Under current law, credits for alternative fuel and alternative fuel mixtures expire at the end of 2021.
- ***Second Generation Biofuel and Second-Generation Biofuel Mixtures – Section 40*** – The credit for second generation biofuel and second-generation biofuel mixtures, currently set to expire at the end of 2021, would be extended through the end of 2026. Second generation biofuels include liquid biofuels derived from lignocellulosic or hemicellulosic material (dry plant residues from woody crops, waste biomass or energy grasses) available on a recurring basis, cultivated algae, cyanobacteria or lemna (duckweed).

***Expansion of Qualifying Income Standard.*** Included in the \$3.5 trillion budget proposal is Senate Bill 1034, introduced on March 26, 2021 and sponsored by Senator Coons (D-Del.) and Senator Moran (R-Kan.), and titled the Financing Our Energy Future Act or “FOEFA.” FOEFA would expand what is considered “qualifying income” for publicly traded partnerships (“PTPs” or “MLPs”) to include income from various renewable energy sources. Publicly traded partnerships are generally taxed as corporations, but PTPs whose “qualifying income” exceeds 90% of gross income are treated as partnerships. Allowing renewable energy providers to utilize the tax-efficient MLP structure could provide them enhanced access to the retail markets to raise capital. FOEFA would expand the definition of “qualifying income” to include the following business activities:

- |                           |  |
|---------------------------|--|
| • Solar power             | • Biomass  |
| • Wind power              | • Waste heat to power                              |
| • Hydropower              | • Renewable fuels                                  |
| • Marine energy           | • Biorefineries                                    |
| • Fuel cells              | • Carbon capture, utilization and storage (“CCUS”) |
| • Energy storage          | • Advanced nuclear                                 |
| • Combined heat and power | • Renewable chemicals                              |

In 2020, a substantially identical bill was passed by the House of Representatives and sponsorship is continued in 2021 by Congressman Thompson (D-Calif.) and Congressman Estes (R-Kan.). The GREEN Act incorporates FOEFA for all activities except for advanced nuclear and renewable chemicals. The Clean Energy for America Act does not include a similar provision, and further, proposes the elimination of existing tax benefits for fossil fuels as mentioned above.

While it is difficult to predict FOEFA's likelihood of passage, as detailed in our August 2020 article, the "YieldCos" of 2013-2015 were structured to resemble MLPs, primarily through the use of the "UP-C" structure. As also detailed in that article, it is likely that any future use of an MLP structure is likely to depart materially from its historical form in terms of governance and capitalization (more traditional C-Corp type governance and elimination of incentive distribution rights). Because renewable generation assets, once in operation, should produce relatively stable cash flow streams, a tax advantaged yielding equity could prove to be an attractive alternative for long term equity capital for these businesses.

***FERC Regulatory Developments.*** FERC has the potential to significantly impact the direction and financing of the energy transition and has recently initiated a number of proceedings which might do just that. Recently issued orders and announced proposals focus on renewable generation's access to and cost of electric transmission service, improved access to wholesale power markets, and changes to financial incentives for development of transmission facilities. By including in the Infrastructure Bill language that could grant FERC new authority over the siting of certain interstate transmission facilities, Congress has proposed providing FERC with a powerful tool that could significantly shape the build-out of the energy transition.

***Opening Market Access for Distributed Energy Resources.*** On September 17, 2020, FERC issued Order No. 2222, entitled "Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators." The stated purpose of Order No. 2222 was to remove barriers to the participation of distributed energy resources ("DERs") in wholesale electricity markets throughout the U.S. DERs refer to resources located on a distribution system or subsystem or behind a customer meter, including electric storage resources (e.g., residential batteries to store power generated by solar panels), distributed generation (e.g., residential solar panels), demand response, energy efficiency, thermal storage and electric vehicles and their supply equipment. DERs often are unable to meet minimum size or other operating characteristics necessary to participate in wholesale energy markets. Order No. 2222 requires operators of electricity markets to amend their market rules to allow these resources to participate in the market through an aggregator as if the DERs were a single, larger resource. The minimum aggregate amount to participate in the market will be no larger than 100kW, opening the markets to a wide variety of resources previously prevented from market participation. Access to the markets in turn opens up the potential for new revenue streams for DERs and their sponsors. The details of the market rules applicable to aggregated DERs are still being worked out through individual filings by the various market operators. But the overall effect of Order No. 2222 may be a positive one for DERs and their sponsors, which collectively can play a significant role in energy transition, as well as an opportunity for investors interested in providing financing for DERs.

***FERC Changes in Transmission Incentives, Planning and Cost Allocation.*** FERC has in recent years exercised increased regulatory authority over electricity transmission facilities connecting larger generation resources to the grid, and that authority may soon be expanded by Congress. A number of legislative and regulatory developments are underway to attempt to relieve significant barriers to further development of transmission infrastructure in the U.S.,

including pending FERC regulatory proceedings and the bipartisan Infrastructure Bill recently passed by the Senate.

In March of 2020 FERC initiated a rulemaking proceeding to evaluate and receive comments on whether and how to revise its existing policy on incentives for the development of electricity transmission, including modifications allowing enhanced equity returns for transmission projects. While some of the proposals may encourage investment, other proposals could actually limit transmission investment by limiting returns. For example, the proposals include:

- up to a 100 basis point addition to return on equity for projects that achieve certain pre-construction benefit-to-cost ratios;
- a 100 basis point incentive for transmission technologies that enhance reliability, efficiency and capacity as well as improve the operation of new or existing transmission facilities;
- a 250 basis point cap on return on equity incentives;
- elimination of the current incentive for stand-alone transmission companies; and
- a phase-out after three years of the current return on equity adder for joining and remaining a member of a FERC-approved transmission organization.

More generally, FERC is proposing to evaluate proposed incentives based not on the risks and challenges of a proposed transmission project, but on the benefits the project would bring to consumers, namely reliability and cost benefits. The effect of this change in approach to transmission incentives could depend on the specific project, and project sponsors will need to factor in this new approach when examining potential investments in transmission infrastructure.

In July of 2021, FERC initiated another proposed rulemaking proceeding to consider large-scale changes to the regional transmission planning and cost allocation and generation interconnection processes. This effort is another step toward addressing concerns that the current transmission planning and generator interconnection regime may be insufficient to facilitate, or in fact block the development of, the new transmission infrastructure essential for energy transition.

FERC has asked that proceeding for comment on a number of approaches to improve the current planning and interconnection process and to incentivize regional transmission projects, including proposals to:

- require that transmission planning model anticipated generation sources and geographic zones with the potential to develop high amounts of renewable resources, similar to the Competitive Renewable Energy Zones established by the Texas Public Utility Commission;
- allow a return on equity adder for regional, as opposed to local, transmission facilities;



- identify and allocate the costs of transmission facilities to all beneficiaries of the facilities based on their estimated benefit; and
- eliminate the current “participant funding model” used in Regional Transmission Organizations in favor of a crediting policy.

With respect to the last point, FERC explained that the current participant funding model for transmission development puts a substantial portion of the cost of transmission facilities on generators and creates a free-rider problem with regard to future interconnection customers. A crediting policy would aim to relieve some of the downside of up-front cost allocation through transmission service credits to the funding generators or by shifting the allocation of up-front costs between transmission providers and generators.

**New FERC Transmission Siting Authority.** While a number of the proposals pending at FERC are geared toward incentivizing additional transmission infrastructure development, FERC currently has very little control over one of the most critical obstacles to such development: siting of transmission facilities. Siting of electric transmission facilities currently is subject to state regulation and control, and a number of transmission projects have been thwarted by state regulators opposed to the project. The problem is particularly acute for transmission projects like those bringing renewable energy across multiple states to reach high-load areas. While these projects are designed to provide greater regional benefits than local benefits, siting authority lies in part with local jurisdictions that might not be incentivized to support that transmission, or, in fact, incentivized to actively oppose it. In the Energy Policy Act of 2005, Congress granted FERC authority to issue permits to construct transmission facilities, including the right of eminent domain, in areas designated by the Department of Energy as national interest electric transmission corridors, or “NIETCs” when states withhold siting approval. FERC took steps toward fleshing out this siting backstop authority, but its own requirements for transmission siting applications and a subsequent decision by the Fourth Circuit Court of Appeals effectively gutted FERC’s authority to site transmission facilities opposed by a state.

The bipartisan Infrastructure Bill recently passed by the Senate includes provisions intended to resurrect FERC’s siting backstop authority. FERC would be given new authority to issue permits for construction or modification of certain interstate transmission facilities if a state denies an application for approval for siting of the facilities, whereas the current authority allows FERC to act only where a state fails to act or unreasonably conditions a permit. The provisions fail, however, to address the largest flaw in the current law. Namely, the eminent domain authority that comes with a FERC permit does not apply to state-owned land. Because states own the bottom of all navigable waters, the gap in eminent domain authority is a significant obstacle to any proposed transmission line that crosses a river or other state land or state conservation easement.

## VI. Conclusion

This update has touched on the most visible aspects of the intersection of the energy transition with the U.S. capital markets over the last twelve months – a half dozen traditionally executed IPO transactions and 56 DeSPAC business combinations – 62 new public companies with a common story of providing attractive investment returns through technologies and equipment which may prove essential in enabling the energy transition. With total capital expenditures necessary to meet the Paris Accord estimated to be materially in excess of \$100 trillion, it would be a mistake to consider the \$1 trillion in total capitalization represented by these 62 companies as demarking the end of the beginning. Perhaps it would be more apt to describe them as the beginning of the beginning. But begin we have, and capital invested to date is tremendous if you were to consider where we were as little as five years ago – as opposed to where we want to be by 2050. The path forward is less than certain – but that path is being paved by investor appetite, governmental action and pressing societal demand. If one could but glimpse at 2050 – did the energy transition happen? How? Which anticipated leaders faded away? And what businesses unknown to us today became dominant? The economics of realizing this goal may ultimately make the industrial revolution seem not so very big at all. And therein lies the opportunity.

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