

Vinson&Elkins

# How Private Capital is Shaping the Energy Transition

Danielle Patterson and Michael Joyce

April 19, 2022

A 100-year-old legacy. An  
unstoppable drive toward the future.  
At V&E we are empowering the  
energy evolution.

**Band 1**

Projects: Power & Renewables  
(Transactional)  
*Chambers USA, 2019-2021*

**#1**

V&E ranks No. 1 in the world for the  
highest volume and value of energy  
M&A deals since 2005,  
according to *Mergermarket*

**25**

Individuals Ranked in Energy, Oil & Gas  
and Renewables Categories  
*Chambers USA, 2021*

**~700**

Lawyers in 12 offices

**100 Years**

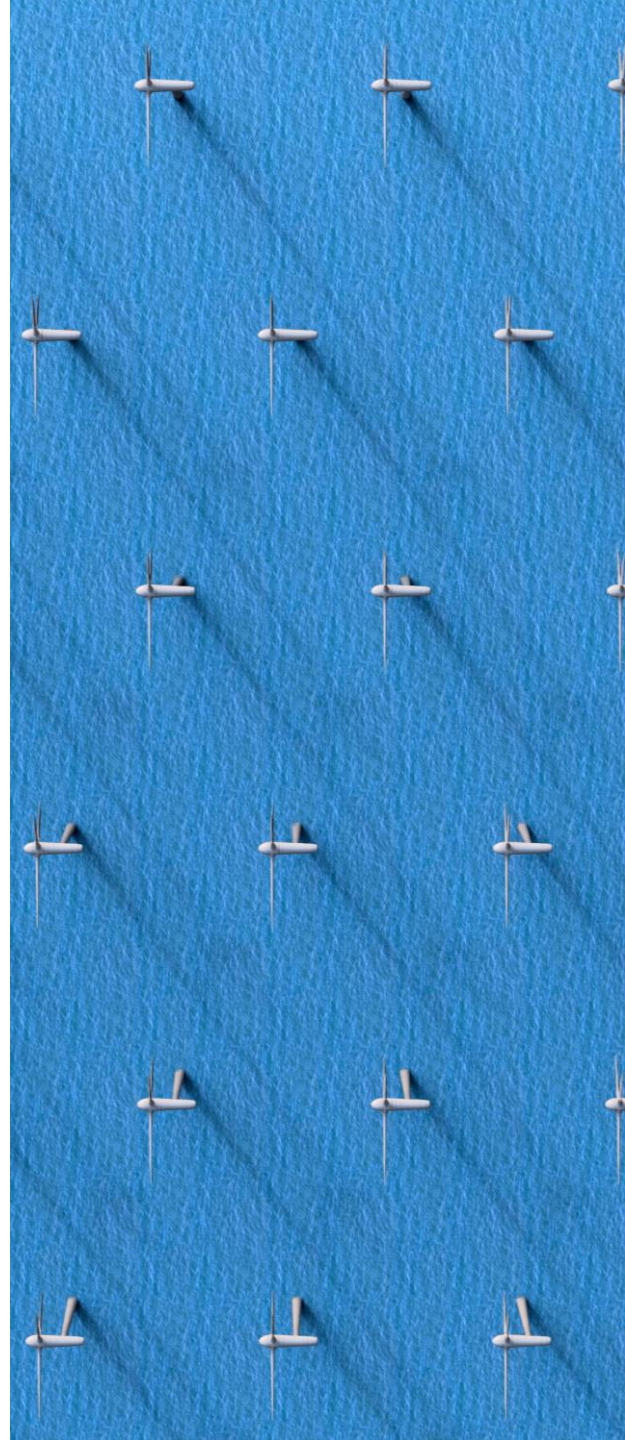
Celebration in 2017 - Founded in  
Houston in 1917

**Energy & Projects Law Firm of the Year**

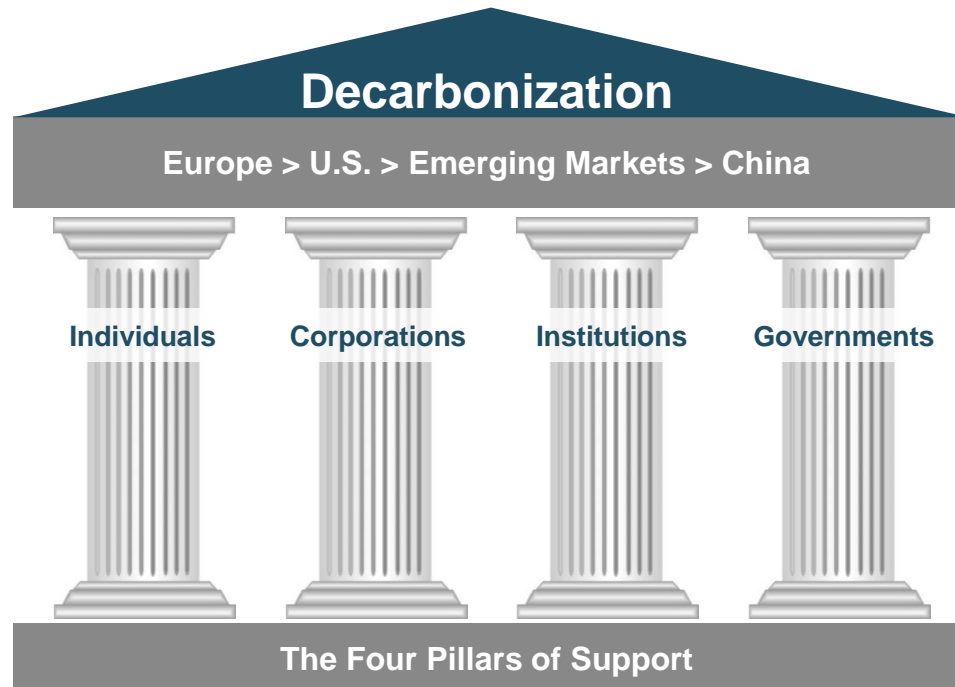
– *Chambers USA, 2021*

## Energy Transition: A Massive Opportunity

- Decarbonization is a Megatrend
- Net-zero carbon emissions by 2050 is necessary to achieve ultimate goals of Paris Climate Agreement and limit global warming to 1.5°C
  - The Paris Climate Agreement set out a global framework to address climate change and was crucial in driving innovation and investment in the transition
- Requires an overhaul of the global energy sector and a cross-industry initiative among all key emitting industries
- The energy evolution will require enormous investment – **funding from private markets will be critical**



# Decarbonization is Past the Tipping Point





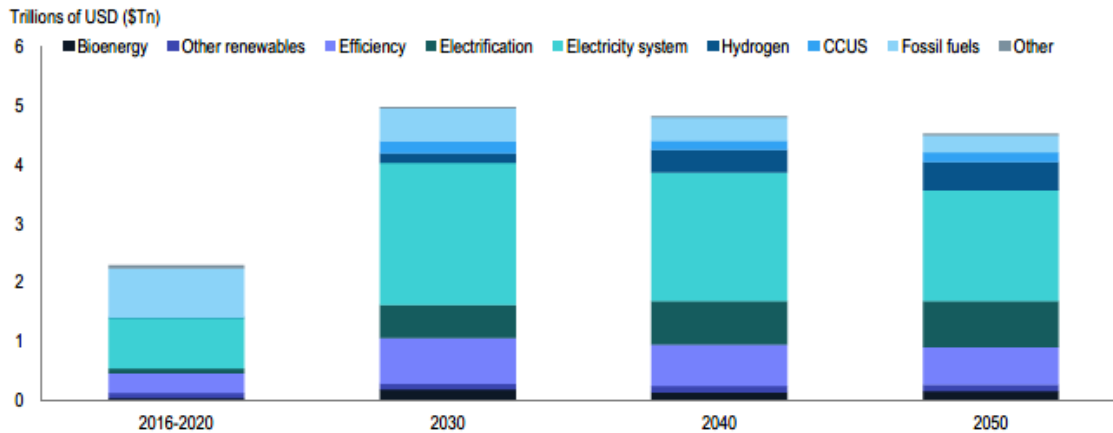


## **Capital Needed and Sources of Capital**

# Capital Needed to Fund the Energy Transition by 2050

- UBS: \$120 - \$160 trillion
- International Renewable Agency: \$130 trillion
- Credit Suisse: \$100 trillion

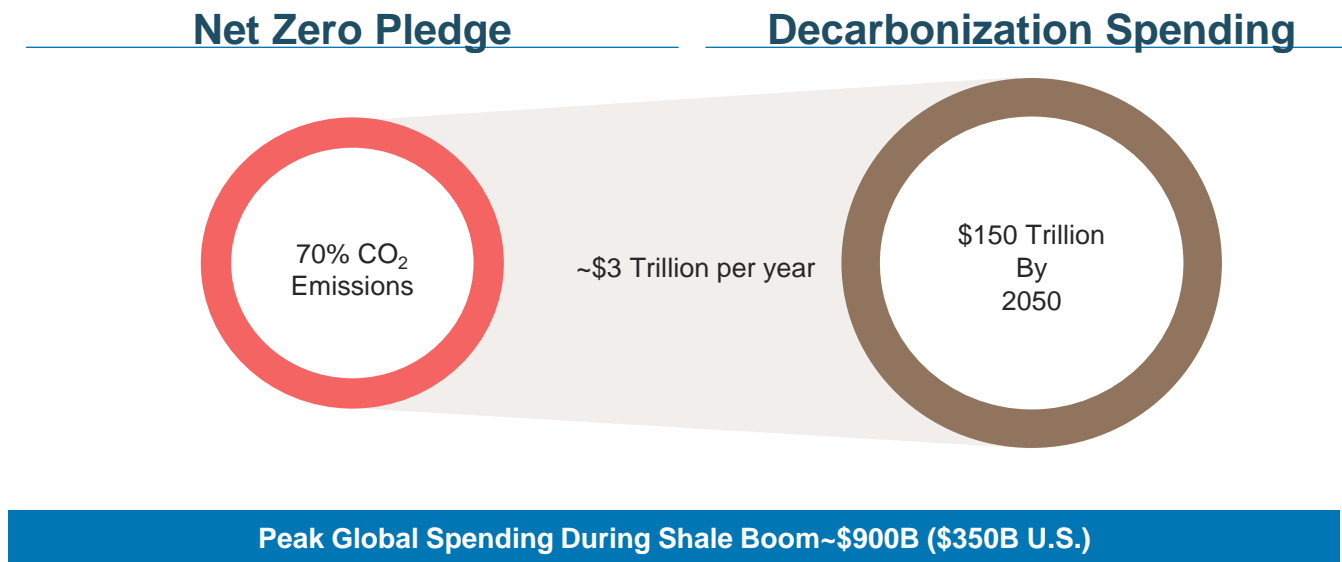
**Exhibit 15: Average Annual Capital Investment in the IEA Net Zero (NZE) Scenario**



Source: International Energy Agency (IEA). Reflects views and estimates presented in the Net Zero by 2050: A Roadmap for the Global Energy Sector report, published in May 2021.



# Capital To Be Deployed Dwarfs Shale Revolution



Source: International Renewable Energy Agency (IRENA,), PEP Insights, Rystad



## ESG-Focused Investor Base is Rapidly Growing

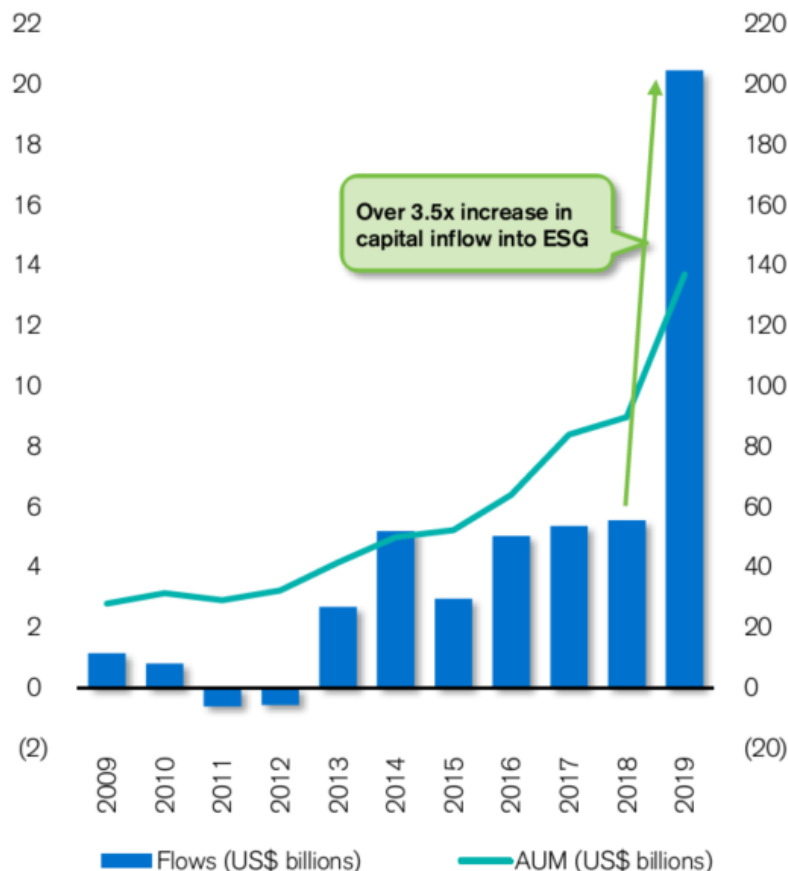
### Commentary

- Total US-domiciled assets under management using Socially Responsible Investing (“SRI”) strategies in their investment analysis and portfolio selection **increased 38%** from \$8.7 trillion to **\$12.0 trillion** from 2016 to 2018
  - 26% of total US assets (\$46.6tn) under professional management
- Global SRI market grew by **34% to \$30.7 trillion** from 2016 to 2018
- UN-backed, Principles for Responsible Investment (PRI) launched in 2006 with a commitment to incorporate ESG factors into investment process
  - By 2019, PRI had **2,500 signatories**, representing **\$81.7tn** in AUM
- In 2019, **US "green tech" companies outperformed every broad measure of equity market**, delivering greater returns than all but two (Russia and Greece) of the world’s 94 leading equity indexes
  - Combined total return (income plus appreciation) of 40%
  - 92 public companies with minimum 10% of revenue from clean energy/technology

*“Millennials, keenly focused on company values and sustainability, are set to inherit \$24trn of wealth in the US alone over the next 15 years and will seek the investment opportunities to match. Already, assets are moving to ESG strategies at 20 per cent annual growth.”*

Mark Carney, Governor of Bank of England

### Significant Capital Inflows in ESG Investing Since 2012



**SRI strategies are one of the few active investing strategies attracting capital in today’s market**

Source: Street research, US SIF Foundation 2018 report on US Sustainable, Responsible and Impact Investing Trends, the Global Sustainable Investment Alliance.



## Key Drivers Behind ESG Growth



### Regulation is forcing ESG on corporate and investor agendas

- EU Agreement on disclosure rules with respect to sustainable investment
- Disclosure requirements in the UK have tightened
- Disclosure in the US is lagging behind Europe, but starting to shift
- Asia lags behind other regions but more stringent disclosure rules to take effect in China in 2020
- In 2018, over 170 new ESG regulations were passed vs fewer than 20 in 2008



### ESG is seen to affect share prices by a growing share of investors

- Half of the largest asset managers intend to migrate 100% of their portfolios to ESG
- The share of investors who believe that a company's Governance, Environmental and Social score affects share prices is rising in all 15 countries surveyed by the PRI
- Risk management (i.e. avoiding negative surprises) is the biggest driver of ESG integration



### Investor engagement is putting increasing pressure on corporates

- Since 2008, the number of ESG related activist campaigns has increased over twenty-fold from just 3 to 63 in 2018
- Growth in initiative such as ClimateAction 100+, now representing 360 institutional investors with over US\$34trn of AUM



### The (young) consumer is driving the long-term outlook

- Consumer concern over climate change is well above 50% globally
- Young consumers are much more worried about climate change
  - Socio Political Movements gaining popularity
  - The relevance of Gen-Z



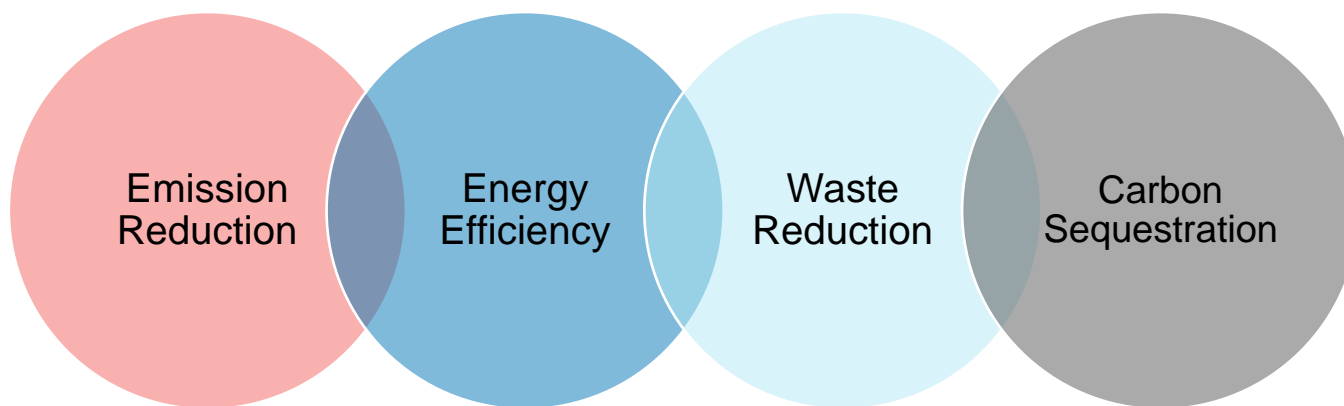
### Alpha credentials of impact and ESG investing gaining traction

- A meta-study demonstrated that 80% of studies linked solid sustainability practices to positive impact on share price performance
- Increasing evidence that ESG engagement can lead to higher returns

Source: Credit Suisse. Global ESG Research: Investing for Impact. November 2019

## Investment Opportunity

Policy and Societal Goals are focused on key drivers of Decarbonization:



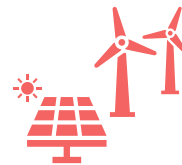
## Investment Opportunity

This creates opportunities across a multitude of investment areas:



### Electrification of Transport

**EV OEMs**  
**EV charging infrastructure**  
**Electric vehicle batteries**  
Specialty transport (marine, aviation, etc.)



### Renewable Power

Wind  
**Solar**  
Geothermal  
Equipment and software



### Grid Flexibility and Resilience

Distributed generation  
**Energy storage** and grid flexibility  
Stranded power monetization  
Energy efficiency



### Next Generation Liquid Fuels

**Hydrogen for transport**  
Aviation/marine biofuels  
**Waste to fuel**  
**Renewable fuels**  
Biotech  
Low carbon fuels



### Carbon Mitigation

Carbon capture, utilization and storage  
Electrification of upstream / downstream  
Carbon monetization

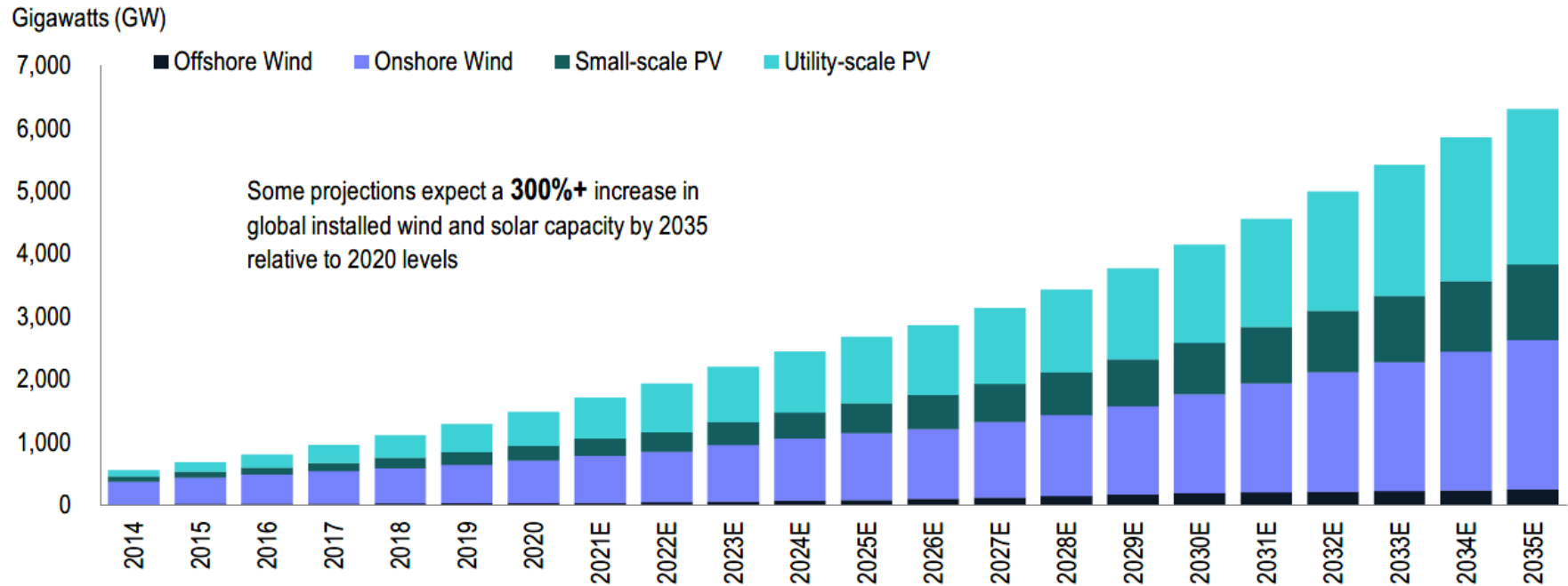


### Industrial Applications

Bio-chemicals  
Industrial technologies  
Plastics/recycling  
Water solutions  
Energy efficiency

## Projected Growth

# Projections for Global Cumulative Wind and Solar Photovoltaic (PV) Installed Capacity Through 2035

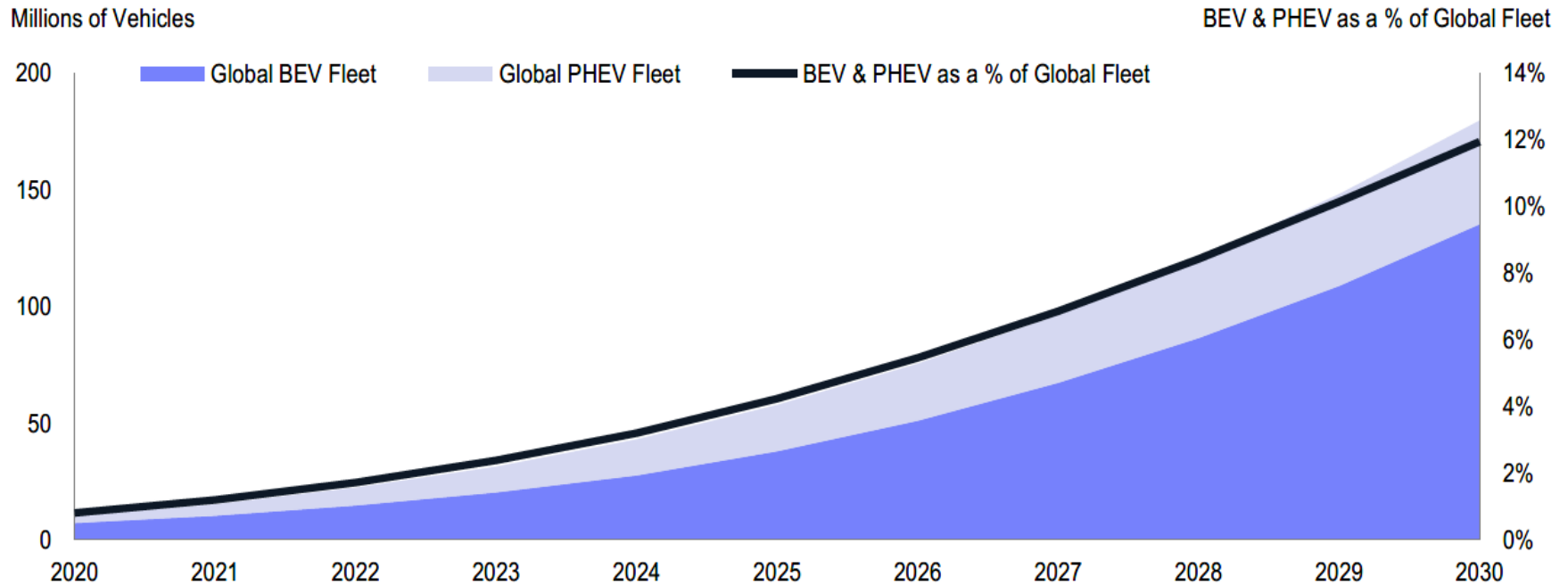


Source: Bloomberg New Energy Finance (BNEF). Reflects views and estimates as of May 2021.



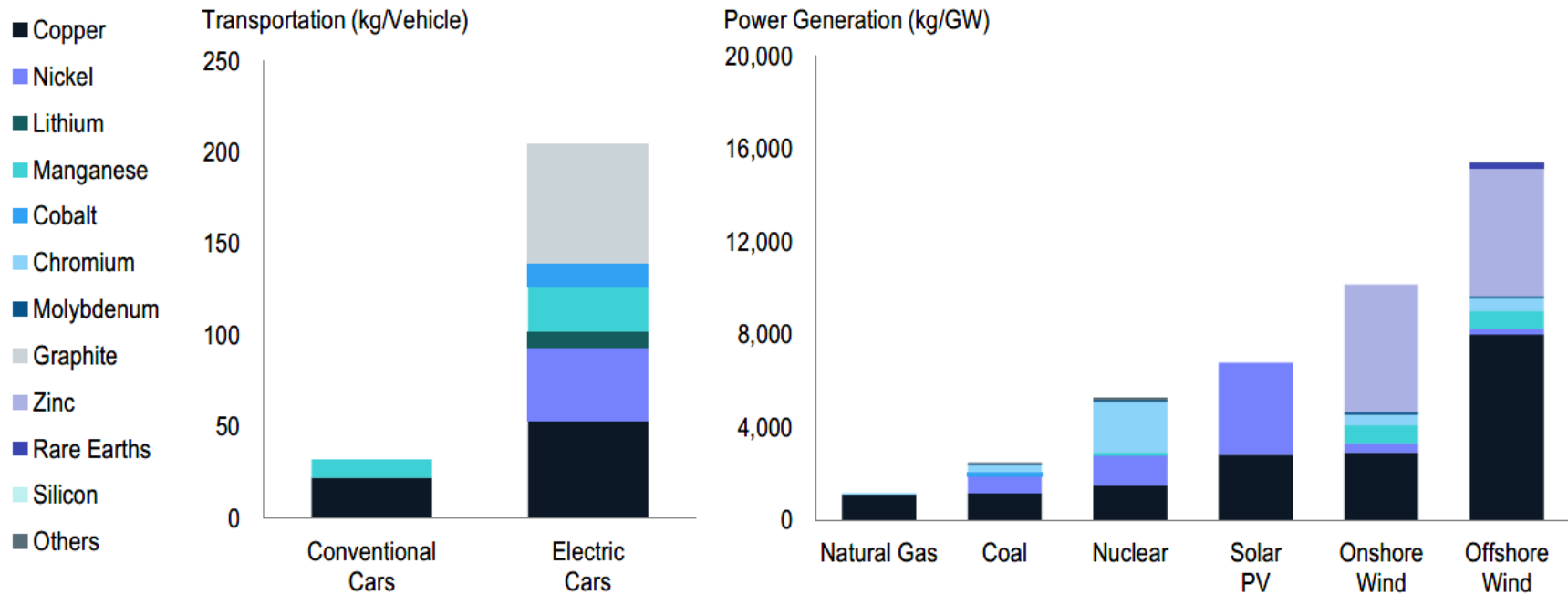
## Projected Growth

# GIR Projections for Global Electric Vehicle (BEV) and Plug-In Hybrid Electric Vehicles (PHEV) Fleet and as a % of Global Fleet



Source: Goldman Sachs Global Investment Research (GIR). Reflects views and estimates presented in the Global: Future of Energy Demand report published in April 2021.

# Minerals used in Select Conventional and Clean Energy Technologies



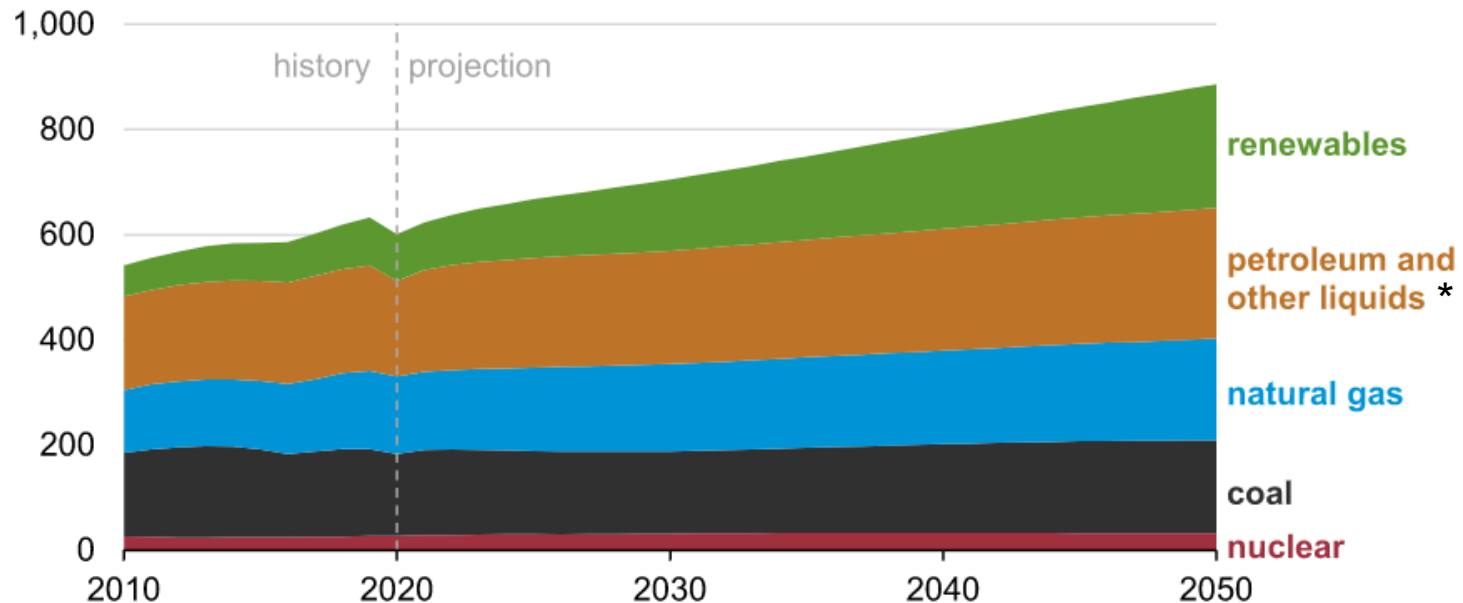
Source: International Energy Agency (IEA). Data as of 2021.

# “Energy Transition” As a Term Masks Complex Multi-Source Future

OCTOBER 7, 2021

## EIA projects nearly 50% increase in world energy use by 2050, led by growth in renewables

**Global primary energy consumption by energy source (2010–2050)**  
quadrillion British thermal units

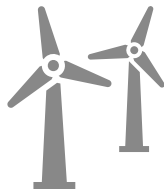
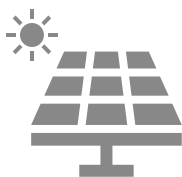


Source: U.S. Energy Information Administration, *International Energy Outlook 2021* Reference case

\*Note: Petroleum and other liquids includes biofuels

## Overview of Biden Administration Legislative, Tax and Regulatory Initiatives

- Bi-Partisan Infrastructure Bill
- Subtitle G – “Green Act”
- Taken Together Include:
  - Extension PTC for Wind Energy Through 2027
  - Extension ITC for Solar Energy Through 2027
  - Expansion ITC for Energy Storage and Linear Generators
  - Credits for Carbon Sequestration – Section 45Q
  - Credits for Green Manufacturing
  - EV Credits (including Heavy EVs, Electric Buses, Charging)
  - Credits for Renewable Fuels
  - **Direct Pay**
- Expansion of Qualifying Income – f.k.a. “MLP Parity Act”
  - Solar, wind, hydro, marine, fuel cells, storage, biomass, renewables, carbon capture, advance nuclear)
  - MLP 2.0 – Traditional Governance, Simplified Capital Structure
- FERC Initiatives
  - Opening Market Access for Distributed Generation
  - Changes in Transmission Incentives
  - Transmission Siting Authority and Eminent Domain







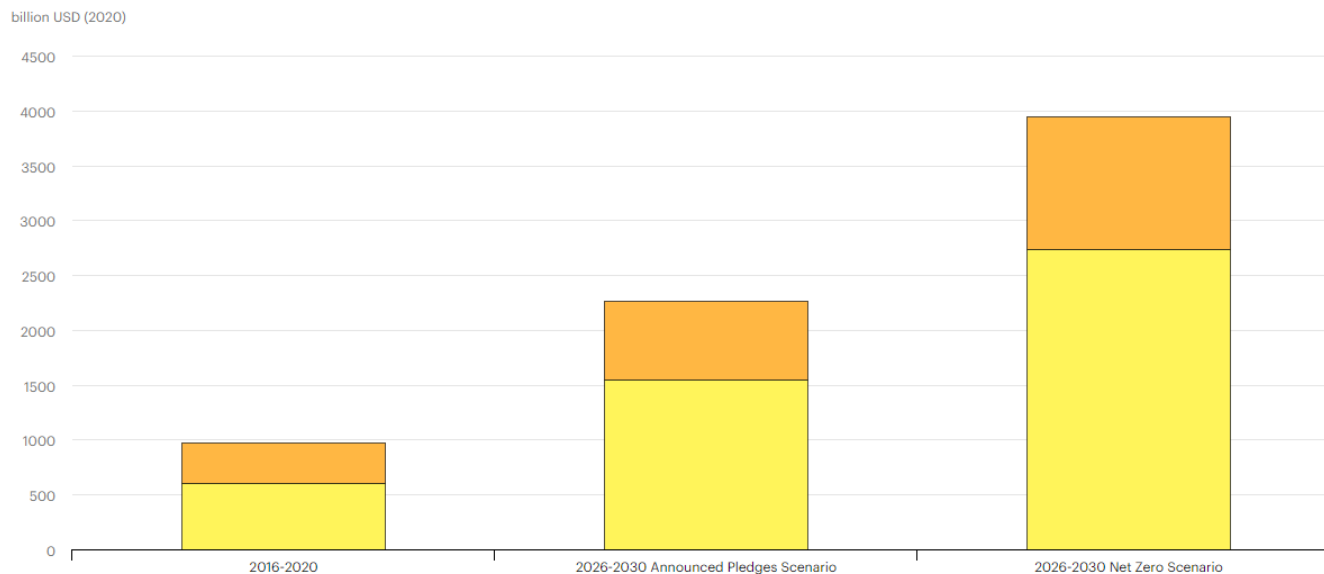
## Key Players in Capital Deployment

## Private Capital

- IEA estimates that around 70% of clean energy investment over the next decade will need to be carried out by private developers, consumers and financiers

Annual average clean energy financing by source in the Announced Pledges and Net Zero Scenarios, 2016-2050

Open 



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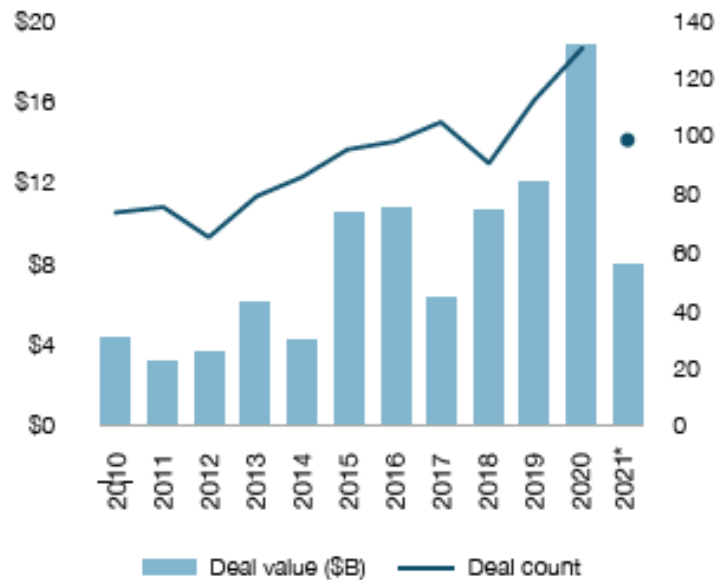
● Private ● Public

Source: IEA, Annual average clean energy financing by source in the Announced Pledges and Net Zero Scenarios, 2016-2050, IEA, Paris  
<https://www.iea.org/data-and-statistics/charts/annual-average-clean-energy-financing-by-source-in-the-announced-pledges-and-net-zero-scenarios-2016-2030>

## Private Equity

- From 2010 to 2020 private equity fundraising for renewables reached over \$90 billion
- Uptick in fund raising dedicated to emission reductions and decarbonization
- Projected consolidation among PE firms focusing on energy

Renewables PE deal activity



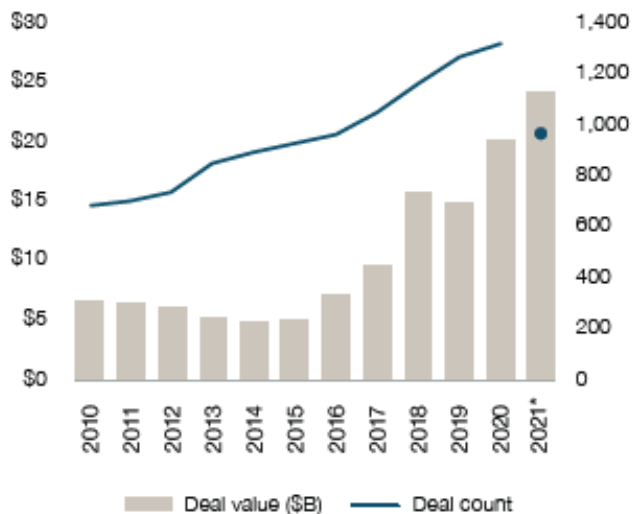
Source: Pitchbook | Geography: Global  
\*As of September 9, 2021



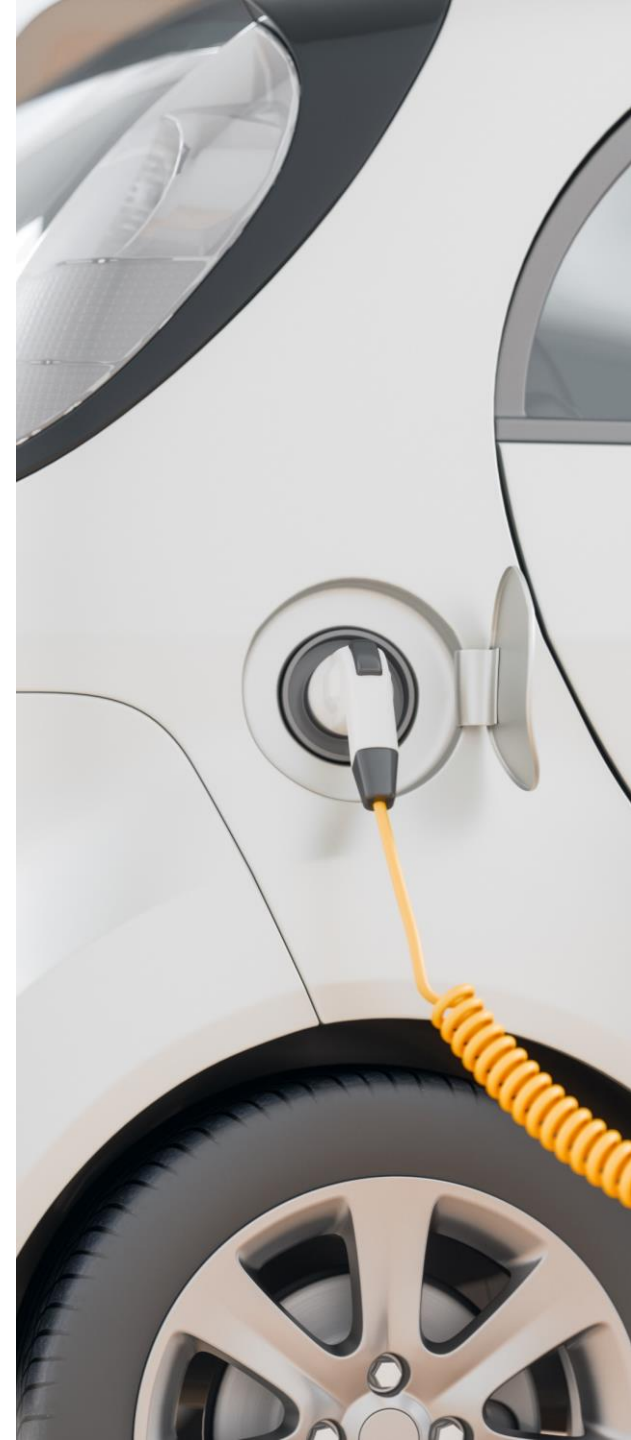
## Venture Capital

- U.S. has led clean tech venture capital investments, raising over \$48 billion over the last five years
- Prior to the close of the 4<sup>th</sup> quarter, venture capital investments in clean energy had already set a record in 2021, reaching an aggregate value of \$24.1 billion
- Many of the largest venture funding rounds and capital raises in clean tech are driven by the automotive category but diversity in technology in clean tech continues

VC activity in clean tech by year



Source: Pitchbook | Geography: Global  
\*As of September 9, 2021





## Institutional Investors

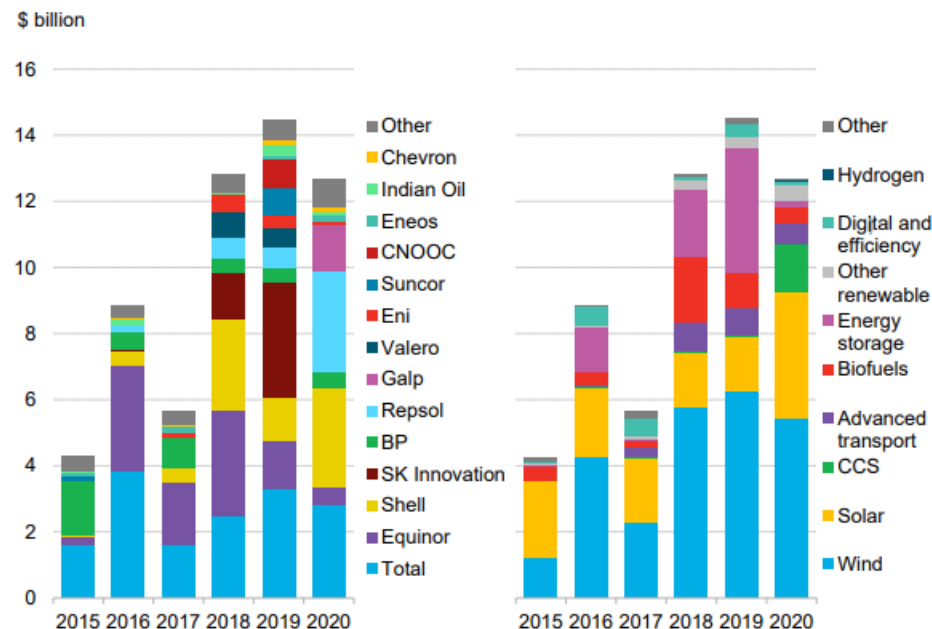
- Increasing numbers of institutional investors have pledged to incorporate climate risk concerns into their investment decision-making
- Approximately 20% of institutional investors have invested indirectly through funds in renewables in the past two decades, but only 1% directly in projects
- Public pension funds:
  - NY State Common Retirement Fund (the country's 3<sup>rd</sup> largest public pension fund) pledged to reach net-zero across the fund's investments by 2040; other U.S. pension plans are instituting similar goals
  - Axa S.A., a global insurer, has pledged to double its green investments to €23 billion by 2023
- Sovereign wealth funds traditionally have invested more in oil and gas but annual investments in renewables are rising – SWFs have generally been slower to embrace ESG
  - In 2021, Norway's \$1.3 trillion sovereign wealth fund made its first renewable investment, buying a piece of a large Dutch offshore wind farm



## Oil & Gas Companies

- Oil and gas companies are responding to the push to build low-carbon portfolios
- Total investment in renewables by oil and gas companies has been almost \$60 billion, majority of which were in wind, solar and battery storage
- European oil companies have taken a more aggressive approach in funding renewables and energy transition technologies

Clean energy investment by oil and gas companies, 2015-2020

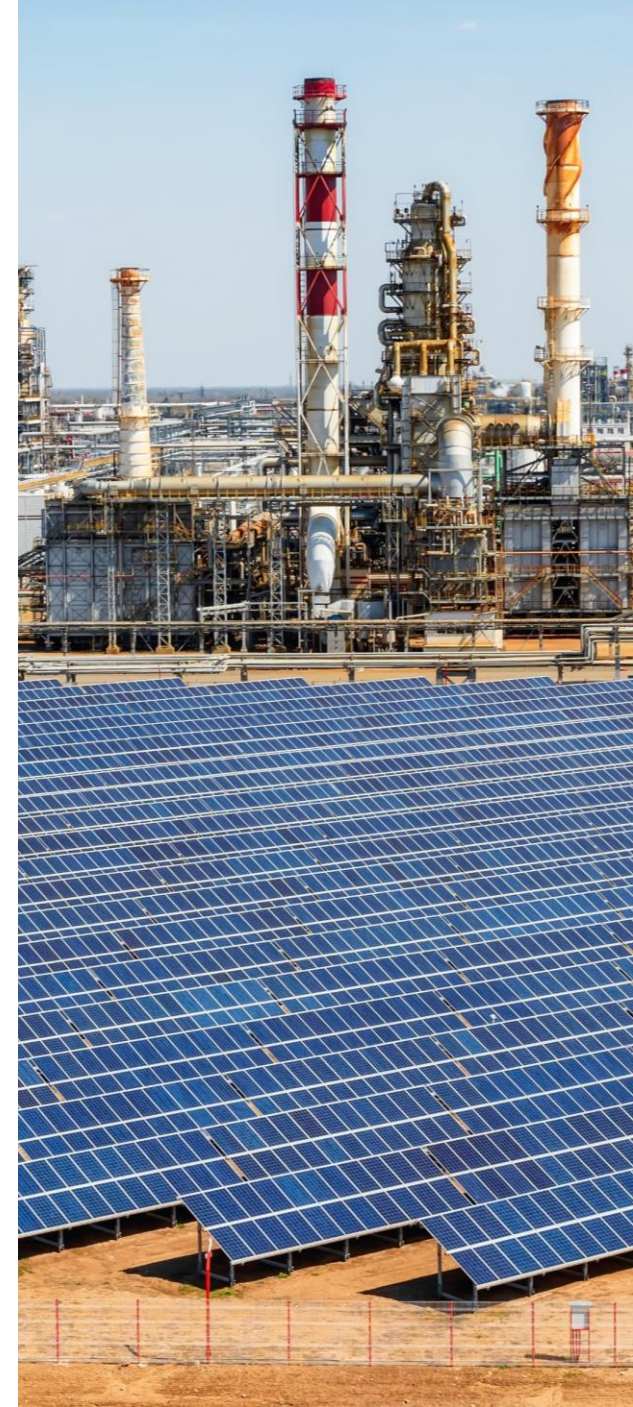


Source: BloombergNEF, company disclosures.

Note: analysis includes all completed deals and estimated values for undisclosed deals. CCS data excludes non-commercial projects that have not disclosed investment values. Asset finance data may overstate investment by each company where project equity shares have not been disclosed.

## Competition for Capital and Clean Energy Investment Trends

- Opportunity has attracted capital from a wide range of investors, pushing up prices for green assets and potentially cutting future returns
- Yield compression for operating platforms and premiums for pipelines
- Strategics and financial players with different approaches competing for assets and opportunities
- Trend toward buying projects earlier – increases risk (capex, completion, opex)
- Some investors focusing on ancillary infrastructure versus core generation



## Today's Speakers



**Michael P. Joyce**

**Partner – Energy Transactions & Projects**

Los Angeles

+1.213.527.6407

[mjoyce@velaw.com](mailto:mjoyce@velaw.com)

Michael's practice focuses on energy and infrastructure finance.

Michael has represented clients in numerous cutting-edge transactions in the energy and infrastructure field, with a particular emphasis on renewable energy sectors such as solar, wind, and storage. He also has considerable experience with geothermal, biomass, coal, gas-fired, and nuclear projects, as well as with joint ventures and the disposition and acquisition of energy and infrastructure assets.

Michael is ranked nationally by *Chambers USA* in Projects: Renewables and Alternative Energy.



**Danielle Patterson**

**Partner – Energy Transactions & Projects**

Houston

+1.713.758.3637

[dpatterson@velaw.com](mailto:dpatterson@velaw.com)

Danielle's practice focuses exclusively in the energy and infrastructure industries, but across a broad spectrum of sectors, including the renewable power sector. In particular, she represents clients in mergers and acquisitions, private equity investments, joint ventures and project development transactions. Danielle has advised all players in the energy industry, including strategic companies, institutional investors, private equity funds and other financial institutions.

In 2020, Danielle was selected by *Legal 500* as a Next Generation Lawyer in Energy – Renewable/Alternative Power. Danielle was also selected to the "Texas Rising Stars List: *Super Lawyers*" by Thomson Reuters in 2019 and 2020.

**Austin**  
T +1.512.542.8400

**Dallas**  
T +1.214.220.7700

**Dubai**  
T +971.4.330.1800

**Houston**  
T +1.713.758.2222

**London**  
T +44.20.7065.6000

**Los Angeles**  
T +1.213.527.6400

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**Richmond**  
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**Washington**  
T +1.202.639.6500

