

## Big risk, big opportunity: The role of private equity in the energy transition

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**THE ENERGY TRANSITION** presents both massive risks and opportunities in the coming years and decades, and patient, higher-risk capital will be essential to ensuring a smooth transition globally. The biggest challenge is achieving global net-zero emissions by 2050 while also ensuring that energy production remains sufficient to supply vastly increasing global demand.

As the growing population becomes wealthier and more technologically dependent, the myriad difficulties of meeting energy demand — let alone clean energy demand — will become increasingly evident. World population

is expected to increase from 7.9 billion today to around 10.9 billion by 2100. Projections show these gains will come mostly in sub-Saharan Africa, which is expected to more than triple in population by 2100 to 4.3 billion, becoming the second largest population hub in the world.<sup>1</sup>

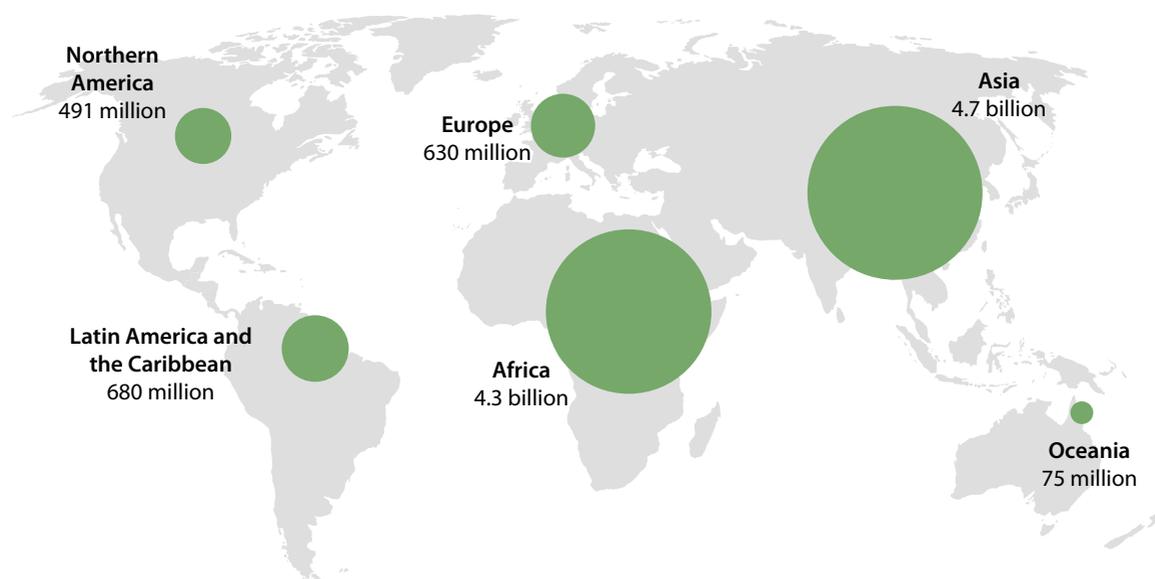
Thus far, every historical energy transition has failed to completely wipe out predecessor fuels. Coal never quite wiped out biomass, petroleum never eliminated coal, natural gas and nuclear have yet to knock out petroleum and renewable energy will likely never entirely replace fossil fuels. In fact, despite

the current renewable energy boom, most projections for oil and gas through 2040 anticipate a fairly stable demand while incremental renewable growth is expected to displace coal and service new global energy demand.<sup>2</sup>

### A FUNDAMENTAL TRANSFORMATION OF THE GLOBAL ECONOMY

This newest energy transition will require the greatest investment of capital in human history. In order to meet the massive scale of investment needed to achieve present climate goals, there must be a radical transformation of the global economy

Figure 1. 2100 Total world population (estimate): 10.9 billion

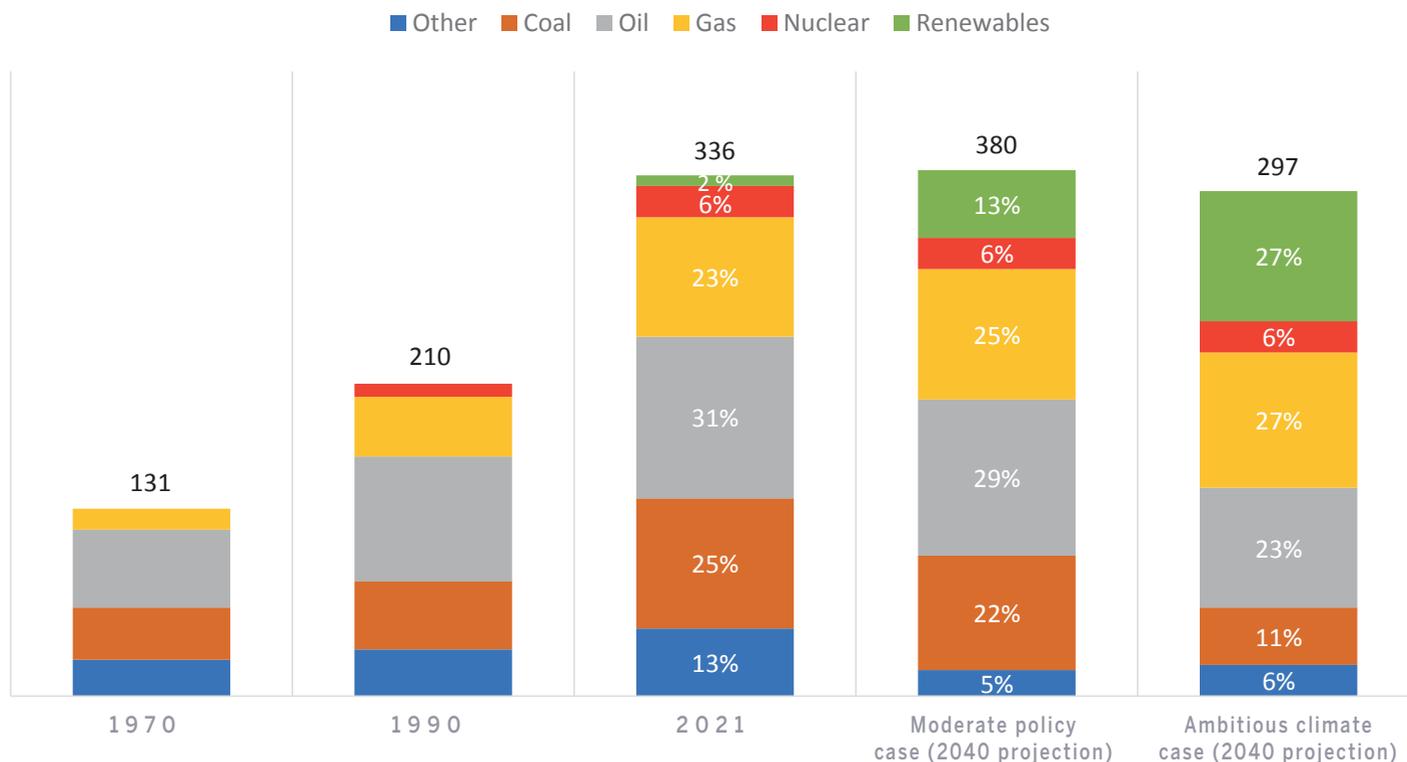


Sources:

“World’s population is projected to nearly stop growing by the end of the century,” Pew Research Center, June 17, 2019. [pewresearch.org/fact-tank/2019/06/17/worlds-population-is-projected-to-nearly-stop-growing-by-the-end-of-the-century/](https://www.pewresearch.org/fact-tank/2019/06/17/worlds-population-is-projected-to-nearly-stop-growing-by-the-end-of-the-century/)

“World Population Prospects 2019,” United Nations Department of Economic and Social Affairs — Population Division, June 2019. [population.un.org/wpp/Publications/Files/WPP2019\\_10KeyFindings.pdf](https://population.un.org/wpp/Publications/Files/WPP2019_10KeyFindings.pdf)

Figure 2. Levels of primary energy consumption by fuel type (MBOE/D)



Sources:

Quantum Energy Partners (by permission). Resources for the Future Global Energy Outlook (RBC Capital Markets). Projection averages based on data from Equinor, BP, ExxonMobil, IEA, OPEC, EIA, Wood Mackenzie and Bloomberg reports.

and the financial market structure.

An estimated \$100 trillion to \$150 trillion cumulative investment is anticipated to be injected globally into the energy transition through 2050 to achieve a 1.5° C warming target. On average, this equates to an annual need of \$3 trillion to \$5 trillion, representing nearly 25% of the total capital raised globally in the economy each year.<sup>3</sup>

Governments that are serious about the energy transition will have to motivate the flow of capital to the real economy by establishing global carbon pricing, stronger environmental and industrial policies, and greater fiscal and monetary incentives, as well as deploying more use of public financing and blended capital. There needs to be coordinated financial action between the public sector, the banking and capital markets, and private and institutional investors and asset managers.

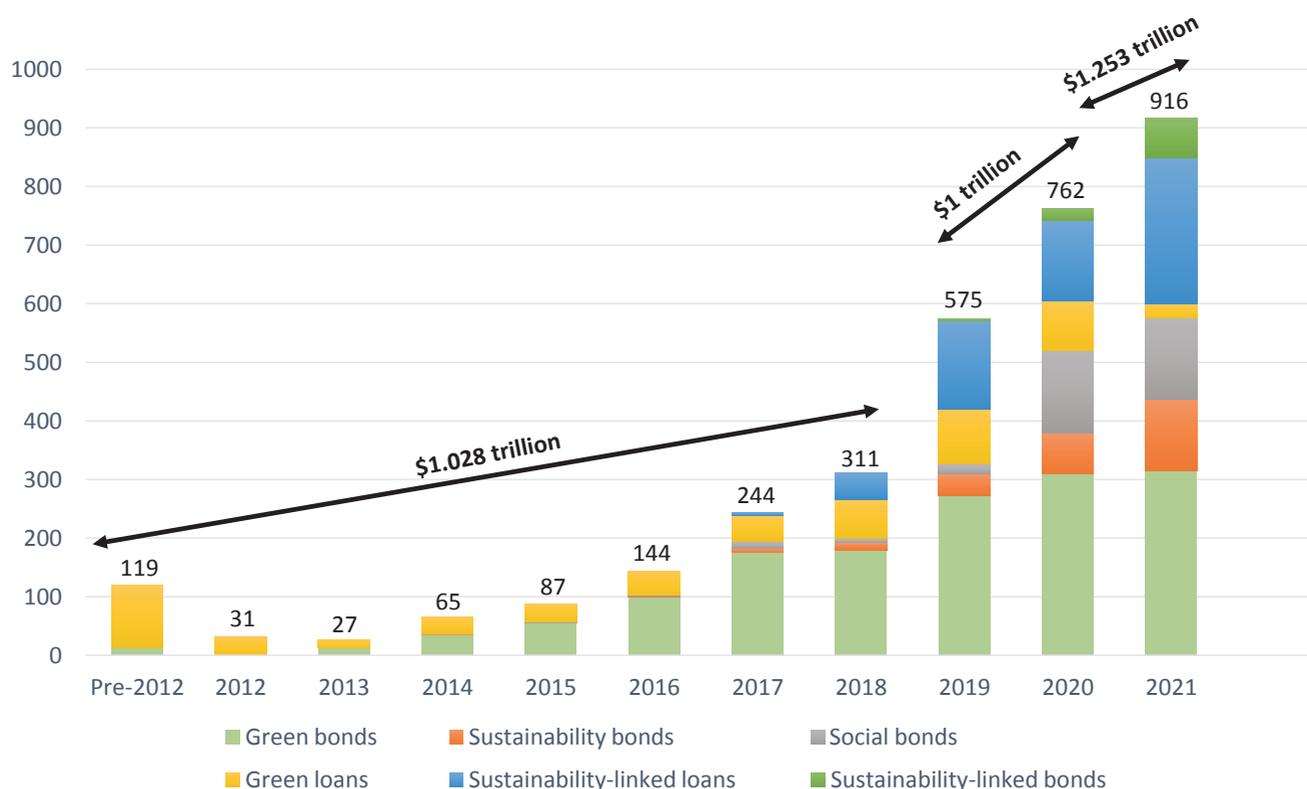
This mixture of aligned, mobilized value — termed blended finance — is necessary to meet the risk factors that face the climate finance market.

A joint report published in 2020 by the Boston Consulting Group and the Global Financial Markets Association Alliance titled “Climate Finance Markets and the Real Economy” identifies three sources of risk that disproportionately limit the scale of the climate finance market. First, across several sectors, decarbonization solutions are subscale and/or are not cost competitive with conventional technologies absent a carbon price. Second, several projects are not yet at scale and are small in number, leading to a lower overall volume of capital flow and need. This introduces barriers to attracting investors, particularly institutional investors that have certain liquidity thresholds. Third, financing climate action in emerging markets

is further constrained by sovereign, currency and political risk factors.

To overcome these risks in climate finance, blended finance must be sufficient to de-risk the necessary capital outlay across all the aforementioned financial sectors. To do this, the financial markets need to considerably scale up the supply of catalytic capital — namely flexible capital (in the form of debt, equity, guarantees and other investments) that can accept disproportionate risk and/or concessionary returns relative to a conventional investment — in order to generate an overall positive impact and enable third-party investment that otherwise would likely not be possible. It’s not just the public sector that is willing to ramp up available catalytic capital: More and more new private sources of patient, higher-risk capital are emerging from family offices, wealth management clients, venture

Figure 3. Global sustainable debt annual issuance 2013-2021 (\$ billion USD)



Source: BloombergNEF, Bloomberg LP

capital and private equity — which are generally seeking to invest capital that aligns with their values.

### TRANSFORMING SUSTAINABLE DEBT ISSUANCE

The combination of capital will come in the form of sustainable debt issuances, which includes green loans and bonds, sustainability bonds, social bonds and sustainability-linked loans and bonds.

These have had explosive growth since the inception of sustainable debt labeling. As investors initially hesitated to pivot into ESG investments, it took 12 years (2006-2018) to reach the first trillion dollar investment. Then as investor appetite increased, it took only two years (2018-2020) to reach the second trillion dollars of investments and then only eight months (2020-2021) to hit the third trillion dollars of investments.<sup>4</sup>

### THE OIL AND GAS SECTOR IN THE ENERGY TRANSITION

Pure-play low carbon businesses have experienced much higher valuations over the past several years as capital markets have yet to begin truly rewarding transitioning players in the oil and gas business. Data comparisons between 2017 and 2021 demonstrate that the ratio of enterprise value to earnings before interest, taxes, depreciation and amortization for the next 12 months has increased significantly for renewables and biofuels companies, as investors look to these businesses for cash flow certainty and growth.

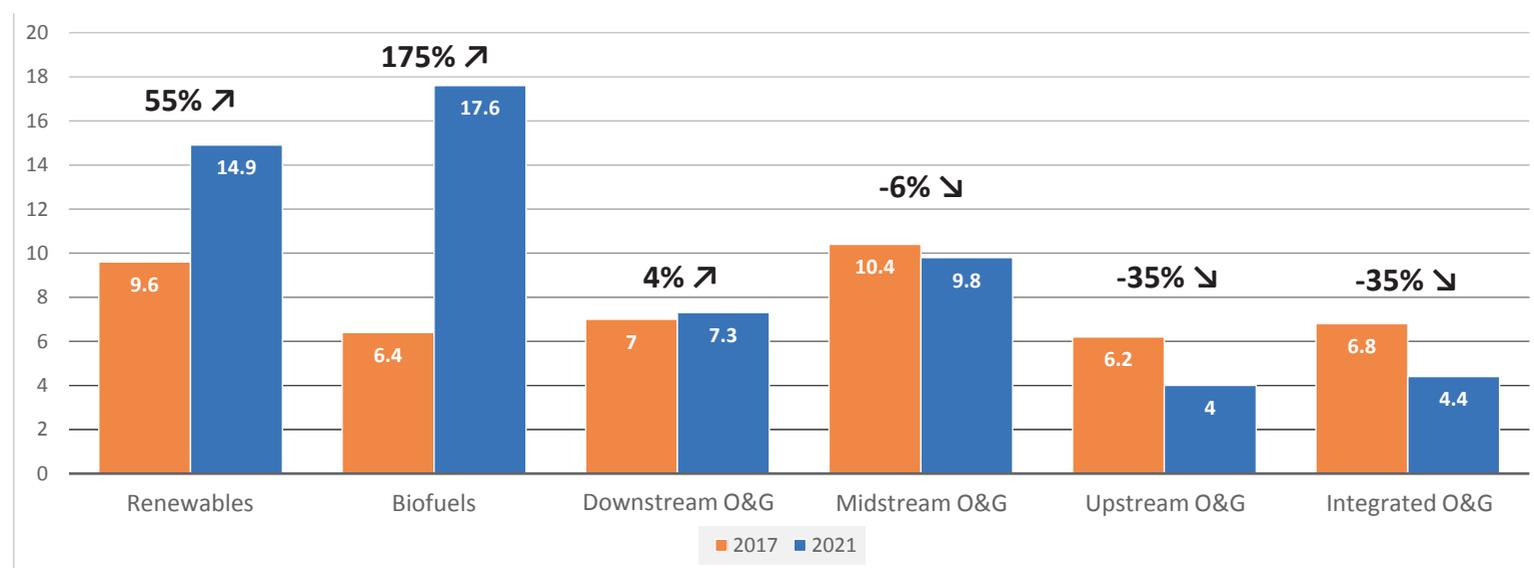
As a result, investments in hydrocarbon exploration and production are down about 50% globally from 2014. However, as the global supply of hydrocarbons decreases, it is essential to bring on the supply of renewables at the same

pace, which has not been done yet.

As the oil and gas sector faces the energy transition, companies are taking on wildly divergent decarbonization strategies. Some companies are choosing to double down on low cost, low carbon intensity oil and gas. Others are developing leading positions in biofuels, renewable natural gas and zero-carbon products. Several companies are focusing on becoming carbon-management businesses, while many others are entirely divesting from high carbon intensity assets or are transitioning their portfolios through M&A activity and select divestments or through nonoperating joint ventures.

As oil and gas companies shift their ESG-based investing strategies, the industry loses its capacity to fundraise further fossil fuel activity, which as Figure 2 demonstrates,

Figure 4. 2017 vs. 2021 EV/EBITDA NTM (median) projections



Note: EV/EBITDA NTM: Ratio of enterprise value to the earnings before interest, taxes, depreciation and amortization for the next 12 months

Source: Capital IQ & Energy and resources quarterly updates, Deloitte Corporate Finance

is expected to stay fairly stable worldwide through at least 2040. In March 2021, JPMorgan’s head of oil and gas research said the bank had identified a \$600 billion shortfall of upstream investment needed by 2030 to meet a “muted” outlook of global oil demand.<sup>5</sup>

Addressing this outlook, Wil VanLoh, CEO of private equity fund Quantum Energy Partners, said: “It’s very important that we acknowledge the incredible good that fossil fuels have done for the world — affordable and abundant energy has made the modern world possible, and fossil fuels play a key role in bringing countries out of energy poverty. We have both an obligation to maintain access to cheap and abundant fossil fuels so living standards can be maintained in the West and improved in developing countries, and at the same time we have an opportunity to help transform the world by proactively investing in renewable energy and decarbonizing fossil fuels.”

### PRIVATE EQUITY AND FOSSIL FUELS

Today’s private equity firms are pouring billions of dollars of capital into renewable and decarbonization technologies, yet there is also a strong incentive for private equity firms to take on profit-generating businesses that have poor environmental metrics. As oil and gas companies transition their strategies and portfolios and large banks reduce their fossil fuel investments, many private equity firms are standing by, ready to buy up bargain, heavy carbon-emitting assets and move them away from the scrutiny of courts, shareholders and environmental groups.

As the 2017 versus 2021 EV/EBITDA comparison data shows, investing capital in pure-play renewable energy is much easier than quickly transitioning fossil fuel behemoths into ESG winners. Given the size of most publicly traded fossil fuel companies and their shareholder demand for quarterly growth and increasingly better ESG metrics, these transitions are sometimes better

suited for the private sector, where investors and limited partners have greater maneuverability.

Private equity has long pumped billions of dollars into fossil fuel projects, and investors have long been focused on one single metric — profit maximization. The Private Equity Stakeholder Project estimates that since 2010, the private equity industry has invested more than \$1.1 trillion into the energy sector. This amount is 25% greater than the combined market capitalization of the three largest energy companies in the world — ExxonMobil, Shell and Chevron. The overwhelming majority of those investments went into fossil fuels. About 12% of investment in the energy sector by private equity firms went into renewable power in that same time frame; however, those investments have grown at a much faster rate.

“We believe that private equity investors must hold their portfolio companies to the same high ESG standards that public shareholders

are holding public companies, and if we do so, private oil and gas companies will not only have a terminal value, but they will be a very attractive place to invest capital,” VanLoh said. “At Quantum, we have demonstrated that we can maintain ESG excellence and generate great returns by investing in companies that embrace the highest ESG standards while lowering costs, increasing production volume and accelerating extraction. In doing so, we have consistently outperformed both commodity indexes and public market equivalent indexes.”

In many cases, private equity buyers are enabling the longevity of heavy carbon dioxide-emitting assets. David McNeil, director of sustainable finance at Fitch Ratings, wrote in a May 2021 memo titled “Shifting Ownership Patterns of Fossil Fuel Assets and Decarbonisation” that there is a growing trend of increased shareholder and investor activism in recent years that has put pressure on public companies and financial institutions to divest fossil fuel assets that contribute to climate change, but “comparatively little focus is on who purchases these assets.”<sup>6</sup> According to the report, private equity firms, which are less exposed to these trends, “will generally have fewer incentives to reduce emissions than their public counterparts.”

In the third quarter, Ernst & Young released a report detailing transactions in the power and utilities space showing that utilities were putting significant financial support behind their ESG initiatives by divesting their fossil fuel generation assets to private equity investors seeking to snatch up discounted assets. In one example from August, the Public Service Enterprise Group sold its 13 gas-fired power plants to a private equity investor for \$1.92 billion against the assets’ book value of \$4.5 billion, representing nearly a 57% discount.<sup>7</sup>

### PRIVATE EQUITY IS GREENING UP ITS ACT

Since 2010, private equity investment in renewable energy technologies grew at about three times the pace of investment in fossil fuels. The slump in oil demand triggered by the COVID-19 pandemic resulted in the fewest number of fossil fuel deals among the top private equity firms since 2011, while the number of investments in renewable technologies rose steadily.

Rising oil and gas prices will likely help renewable energy become even more cost competitive with fossil fuel projects. By year-end 2021, gas prices had surged to a seven-year high nationally, and many major banks were predicting \$120/barrel oil prices by June 2022 — about a 45% increase from December 2021.

In the last few years, private equity firms such as industry giant Blackstone have abstained completely from deploying any capital into oil exploration or production, while committing billions to clean energy projects in an effort to reduce emissions across all new investments. Other firms, such as EnCap Investments, have pivoted to address the energy transition with dedicated funds, such as the firm’s Energy Transition Fund I LP, which closed in May 2021 with capital commitments of approximately \$1.2 billion. Quantum Energy Partners has gone from financing entrepreneurs in the upstream oil and gas sector to pursuing a disciplined approach to investing across what it terms the “Sustainable Energy Ecosystem” as the global market for ESG assets races past \$35 trillion.<sup>8</sup>

Describing the spectrum of demand across Quantum’s limited partners, VanLoh said: “ESG is clearly at the forefront of some of our investors’ minds, while other investors think it is a passing fad; what we know for certain is that we can generate

better risk-adjusted returns by having balance in our approach.”

Seeking to expand its market share of sustainable energy investments, Quantum recently started multiple renewable energy platforms in the U.S., Europe and Asia through its 547 Energy platform and is targeting to more than double its allocation to venture capital investments in energy transitions and decarbonization from \$250 million in its current fund to at least \$600 million in its new fund, splitting that between its main fund and a sidecar fund called Quantum Innovation Fund II. Thus far, the Quantum Innovation Fund has generated more than a 5x return on investment and has had three “unicorns.” Clearly the market is rewarding sustainable investing.

### SHADES OF GREEN INVESTING

Financing hard-to-abate sectors such as green-steel production and power plant/refinery retrofits, innovative technologies like direct air capture and emerging markets will be a limiting factor for the energy transition. Many legacy lender frameworks have little ability or adequate sophistication to evaluate “shades of green” investments. Furthermore, many capital providers are hesitant to finance scaling new groundbreaking technologies. And in areas where the emissions challenge is the highest — emerging economies, which account for approximately two-thirds of total emissions — managing investment risks is very difficult when considering the cost of capital and less developed financial systems.

As a result, the global energy transition must involve an all-hands-on-deck approach in order to meet the estimated \$100 trillion to \$150 trillion cumulative investment spend through 2050. Blended finance will be the core element to this transition, and private equity will no doubt play a front-and-center role. 

**ENDNOTES**

- 1 “World Population Prospects 2019,” United Nations Department of Economic and Social Affairs — Population Division, June 2019. [population.un.org/wpp/Publications/Files/WPP2019\\_10KeyFindings.pdf](http://population.un.org/wpp/Publications/Files/WPP2019_10KeyFindings.pdf)
- 2 Presentation by Wil VanLoh, founder and CEO, Quantum Energy Partners (2021 Hart Energy – Energy Transition Capital Conference).
- 3 “Climate Finance Markets and the Real Economy,” Boston Consulting Group & Global Financial Markets Association Alliance, Dec. 2020. [sifma.org/wp-content/uploads/2020/12/Climate-Finance-Markets-and-the-Real-Economy.pdf](http://sifma.org/wp-content/uploads/2020/12/Climate-Finance-Markets-and-the-Real-Economy.pdf)
- 4 Presentation by Nick Woodruff, managing director, RBC Capital Markets (2021 Hart Energy – Energy Transition Capital Conference); “Sustainable Debt Breaks Annual Record Despite Covid-19 Challenges,” Bloomberg NEF, Jan. 11, 2021. [about.bnef.com/blog/sustainable-debt-breaks-annual-record-despite-covid-19-challenges](http://about.bnef.com/blog/sustainable-debt-breaks-annual-record-despite-covid-19-challenges)
- 5 Nick Coleman, “Risk of Majors Underinvesting in Oil and Gas Is Real: Analysts,” S&P Global, June 15, 2021. [spglobal.com/platts/en/market-insights/latest-news/natural-gas/061521-risk-of-majors-underinvesting-in-oil-and-gas-is-real-analysts](http://spglobal.com/platts/en/market-insights/latest-news/natural-gas/061521-risk-of-majors-underinvesting-in-oil-and-gas-is-real-analysts)
- 6 “Private Equity to Play a Key Role in Low-Carbon Investment,” Fitch Ratings — Non-Rating Action Commentary; “Shifting Ownership Patterns of Fossil Fuel Assets and Decarbonisation,” Fitch Ratings — Sustainable Insight, May 25, 2021. [fitchratings.com/site/pr/10163957](http://fitchratings.com/site/pr/10163957)
- 7 Power and Utilities Transactions and Trends, Ernst & Young, Oct. 2021 [assets.ey.com/content/dam/ey-sites/ey-com/en\\_us/topics/power-utilities/ey-final-2110-3894836-putt-q3-v3.pdf](http://assets.ey.com/content/dam/ey-sites/ey-com/en_us/topics/power-utilities/ey-final-2110-3894836-putt-q3-v3.pdf)
- 8 William Patrick Geor Louch & Alastair Marsh, “Private Equity Propels Top ESG Hires Into 7-Digit Pay League,” Bloomberg Green, Nov. 24, 2021. [bloomberg.com/news/articles/2021-11-24/pe-firms-boost-pay-for-esg-jobs-dangle-carried-interest-offers](http://bloomberg.com/news/articles/2021-11-24/pe-firms-boost-pay-for-esg-jobs-dangle-carried-interest-offers)

**ABOUT THE AUTHOR**



Neil Segel is the owner of Houston-based NES Consulting LLC, which provides international business strategy and support in the energy sector. NES Consulting also conducts domestic and global business development for NAPE. Segel’s prior experience includes working for the Israeli government’s Ministry of National Infrastructures, Energy & Water Resources and Ministry of Economy & Industry, as well for a leading global risk consulting firm. He completed his undergraduate degree at the University of Arizona and his master’s degree at Tel Aviv University. He is currently in his final year of pursuing his J.D. at the University of Houston Law Center.



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