Why Climate Action Now?

Examining the Recent Selloff and Current Investment Opportunity

LAZARD
ASSET MANAGEMENT

In Focus

Shares of clean tech companies, which make up a large portion of the climate action investable universe,[1] have sold off substantially over the last 24 months, spurred by a confluence of factors, including but not necessarily limited to, rising interest rates, inflationary pressures, geopolitical tensions, and a lack of clarity around the rollout of key government initiatives.

Despite these challenges, following the first anniversary of the passage of the landmark US Inflation Reduction Act (IRA), our fundamental conviction in the climate action theme has become even stronger in the current environment.

The drivers of our heightened conviction in climate action investing are numerous, but are based primarily on our beliefs that:

- Unprecedented government and private investment will transform the industry.
- Nascent technologies are becoming more economically viable.
- Logistical and inflationary headwinds should dissipate.
- Valuation does not reflect the earnings potential of the space, providing an attractive entry point.

In this piece, we provide evidence to support these beliefs and help explain why we think now is an opportune time to invest in climate action.

Trillions of dollars in government policy support is only getting started

For the world to achieve net zero by 2050, the International Energy Agency (IEA), an intergovernmental energy policy organization, estimates that global capital spending in energy will need to reach $5 trillion annually, more than double the average levels seen from 2016 to 2020 (Exhibit 1):

While we are already seeing an acceleration in energy spending (the IEA's 2023 "World Energy Investment" report forecasts $2.8 trillion in spending in 2023), we believe we are still in the early innings of global policy support for this cause. In this section, we highlight the major initiatives announced or in place around the world and explain their potential to drive unprecedented capital flows into the climate action space.

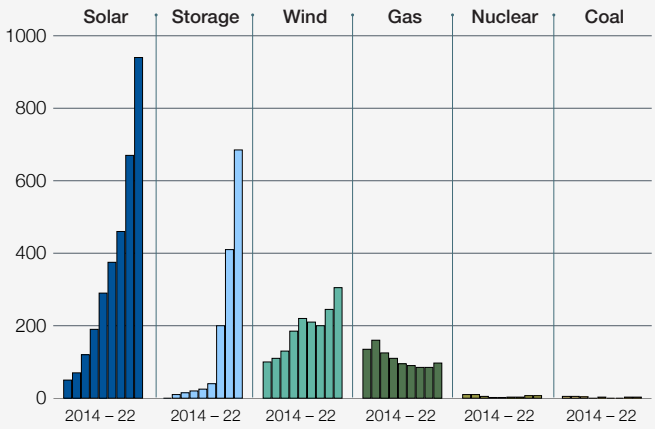
United States

The IRA, signed into law in August 2022, offers significant tax breaks (our internal estimates range from $390 billion to more than $1 trillion), mainly focused on efforts to decarbonize the country's economy. The IRA's passage drove a surge in planned investments in clean energy, a trend that we expect to continue.

According to the Clean Investment Monitor, a joint project between the Rhodium Group and MIT, in the fourth quarter of 2022, more than $31 billion in green energy manufacturing investment was announced. This was the highest total for a single quarter on record, and nearly double the amount announced in the prior quarter. Exhibit 2 shows the rapid increase in renewable projects pending approval to connect to the grid.

Exhibit 2.

US Interconnection Queues

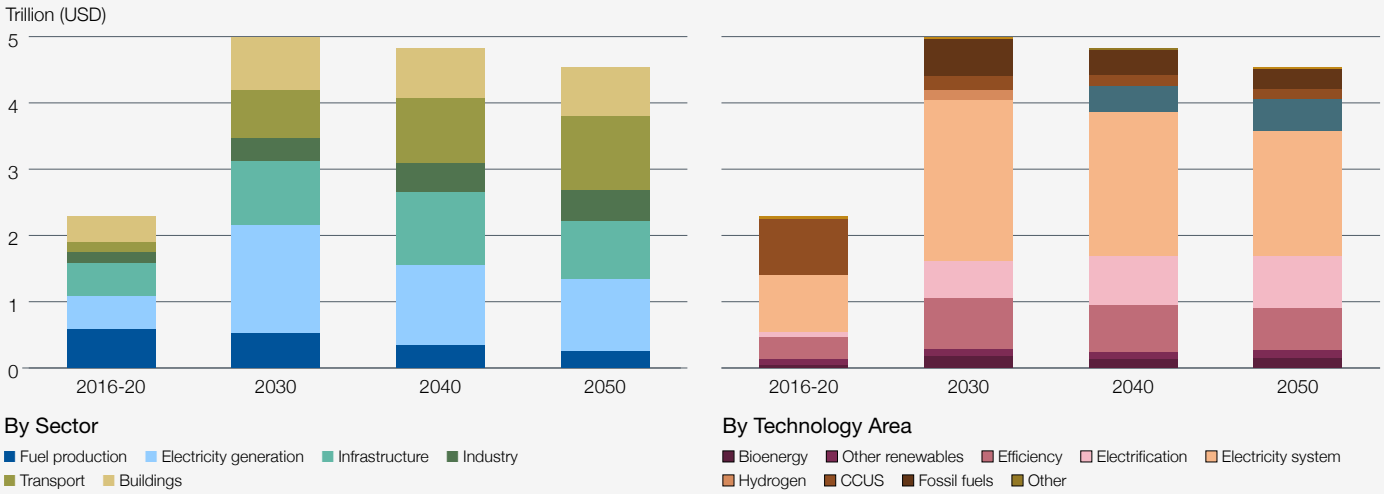


As of 31 December 2022. Source: Electricity Markets and Policy Group at Lawrence Berkeley National Laboratory.

In addition to the IRA, the US's Infrastructure Investment and Jobs Act (which earmarks $550 billion for investment in mobility, clean water, and the electric grid) should provide significant support for investment in infrastructure and the net zero transition. Another catalyst for the clean energy transition includes non-monetary forms

Exhibit 1.

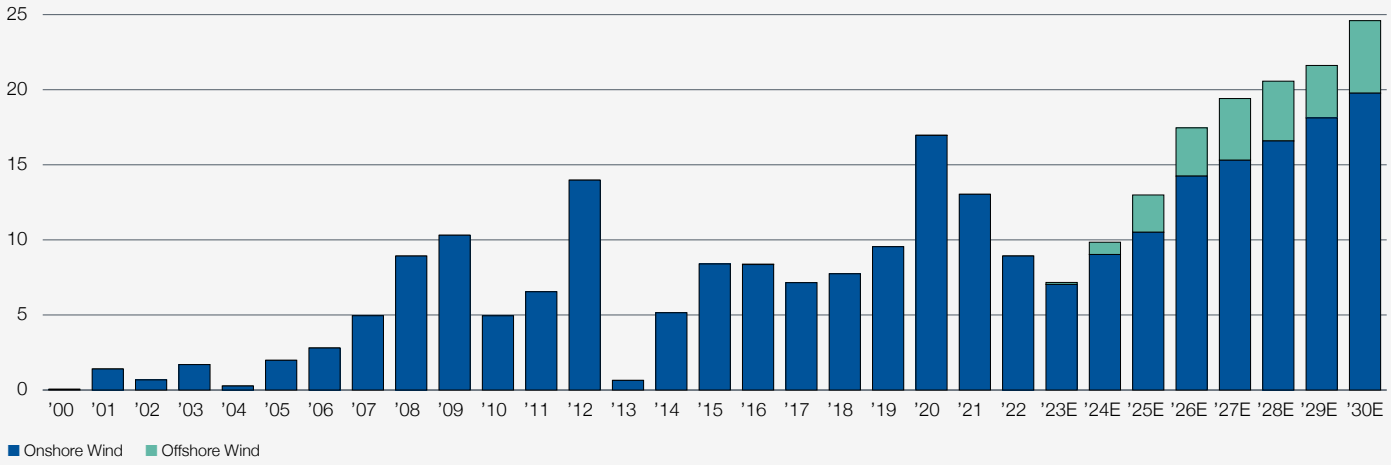
Estimated Annual Average Energy Investment



As of May 2021. Source: International Energy Agency (2021), Net Zero by 2050, IEA, Paris.

Exhibit 3.

Annual US Wind Capacity Additions (GW)



As of 31 December 2022. Source: BloombergNEF.

of regulation, including the Federal Energy Regulatory Commission's recent adoption of rules aimed at accelerating interconnection processes and the Department of the Interior's mandate to expand renewable energy on federal lands by 2025.

Most importantly, in our view, current support schemes in the United States offer multi-year visibility for service providers and investors, setting the stage for a secular acceleration in clean energy investment alongside these government initiatives. This contrasts with the volatile investment patterns the space has experienced in the past. Exhibit 3 illustrates a microcosm of this: the stops and starts in US wind energy adoption over the past two decades.

It is worth highlighting that the decarbonization of the US energy mix is a secular opportunity, as energy infrastructure is progressively shifting to a decentralized mode of generation and distribution. In our view, this implies a fundamental rethink of the grid, representing a decades-long tailwind for companies exposed to renewables, electrification, and grid transformation that is independent of policy support. We believe potential beneficiaries include companies providing distributed solar, battery storage, or electrical equipment for the grid as well as electric vehicle (EV) chargers. The sheer magnitude of funding supplemented by accommodative regulations and a clear roadmap for investors make us extremely bullish on the near- and long-term potential of the US energy transition.

Europe

While the amount of government funds available in the European Union (EU) is similar in magnitude to that in the United States, EU initiatives are comparatively more fragmented. This has resulted in a more complex rollout, but we expect the process to become increasingly streamlined as European governments respond to the IRA.

Key EU-wide policy programs rolled out (or expected) since 2019 include:[2]

- European Green Deal (launched in 2019) mobilizes at least €1 trillion by 2030 to accelerate the energy transition and reduce greenhouse gas (GHG) emissions.
- Fit for 55 (2021) targets climate neutrality by 2050 and a 55% GHG reduction by 2030, and it sets out additional details on the implementation of the European Green Deal.
- REPowerEU (2022) was launched in the aftermath of the Russian invasion of Ukraine, backed by €300 billion of EU funds, with a strong focus on energy savings, clean energy production, and energy supply diversification. The underlying targets were a significant step-up from the Fit for 55.
- EU Energy Efficiency Directive (2023) implies a reduction in energy consumed of 1.3% per year until 2030. Although Europe has had stable absolute energy consumption over the past 10 years as the economy has grown, energy efficiency has increased (e.g., France reduced primary energy consumption per unit of GDP by 27% over the last decade).
- Net Zero Industry Act (expected to be passed in 2023–2024) may drive significant reshoring in line with the EU's objective to meet at least 40% of its annual clean energy deployment needs by 2030.
- EU Innovation Fund (funded by the EU's Emission Trading System) provides an estimated €40 billion for net zero and innovative technologies in Europe, with a focus on energy-intensive industries, renewables, energy storage, carbon capture, and net zero mobility and buildings.

China

As the world's largest GHG emitter, China will have an integral role in the future of clean energy adoption. China provides more than half of the world's steel and cement, and the resulting CO_2 emissions exceed all those produced by the EU, according to the European Commission's Emissions Database for Global Atmospheric Research.

China's government aims to reach peak CO_2 emissions before 2030 and carbon neutrality before 2060 by promoting increased investments in clean energy. The country has driven demand for renewable energy and clean technologies by setting ambitious climate targets and implementing supportive policy measures. We see potential for these targets to be met ahead of schedule, given already-strong renewables deployment and EV penetration. Anecdotal evidence includes Sinopec, China's top oil refiner, now expecting gasoline demand in China to peak this year.

In 2023, we estimate China will install more than 150 GW of solar capacity, up 80% year over year and representing 40% of global installations.[3]

We believe the virtuous circle spurred by technological advancements and increased investment is underappreciated

In our view, the focus on the headwinds facing the clean tech space has obscured the tailwinds of continued investment that should help scale nascent technologies that are not currently economically viable. Production costs for more established sustainable technologies, including solar, wind, and batteries, have declined significantly over the past decade as they have attracted more capital and competition (Exhibit 4).

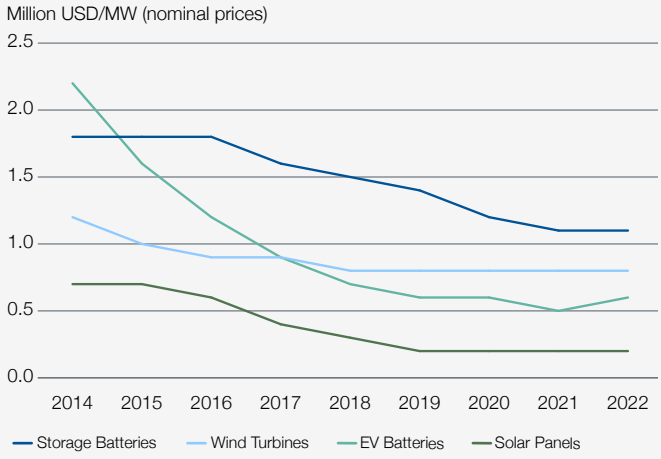
That has coincided with increased adoption by end users. While one could expect additional investment to result in lower costs, the pace and magnitude of price efficiencies for these technologies over the last decade have significantly exceeded most experts' forecasts. To illustrate, a study by the Institute for New Economic Thinking at the University of Oxford found that of nearly 3,000 projections by models designed to forecast declines in solar costs between 2010 and 2020, the mean expected annual cost reduction at the time was 2.6% and the maximum was 6%, while actual costs declined 15% during the period.

Given that the need to decarbonize has grown over that time, we are optimistic that in the future, the capital flowing into other climate solutions that similarly have great potential but also have cost or technological limitations will have an even more profound impact on their future viability in the years ahead. We also expect the EU Emissions Trading System, which sets an upper limit on GHG emissions among European member entities—forcing those exceeding that limit to purchase credits—to increase the demand for climate solutions, as it will cause the costs associated with not decarbonizing to increase over time. The extent to which this dynamic has already played out in wind and solar is illustrated by comparing current prices of various energy sources; despite a multi-year inflationary cycle, new-build plants that use renewables provide the lowest levelized cost of electricity in most developed countries around the world, according to BloombergNEF.

The same scale dynamics experienced by more mature renewable energy sources have the potential to drive higher returns in nascent areas including hydrogen, carbon capture, and carbon storage, all of which are now being adopted and implemented at an unprecedented scale. Examples in 2023 include management of NextEra Energy (the US's largest investor-owned utility) highlighting on their first-quarter earnings call the firm's investment of up to $20 billion in green hydrogen, Occidental Petroleum's August announcement of plans to spend over $1 billion on a buildout of 100 facilities that use carbon capture technology, and Exxon Mobil's July announcement that it would acquire carbon dioxide pipeline operator Denbury for $4.4 billion as part of Exxon's effort to capture, transport, and store carbon emissions. These are just a few examples made public since May that highlight the momentum that has built behind clean technologies.

Exhibit 4.

Average Prices Have Fallen for Established Clean Technologies: 2014–2022



As of 22 May 2022. Source: IEA, Paris www.iea.org/data-and-statistics/charts/average-prices-for-selected-technologies-2014-2022, IEA. Licence: CC BY 4.0

We believe current headwinds are cyclical and are already showing signs of abating

After broad-based multiple expansion in clean energy stocks on the back of net zero policy pledges in 2019 and 2020, valuations have compressed, a dynamic that we attribute first to slow implementation of policy support measures (e.g., a year after IRA, the Internal Revenue Service had yet to issue final guidance on some essential tax credits, most notably around domestic content requirements) and an underlying slowdown in development as industries adapt to the inflationary effects of higher interest rates and supply chain disruptions.

However, it appears that the market is adjusting to the new macro and regulatory environments. Below are several examples of why we believe these headwinds are temporary.

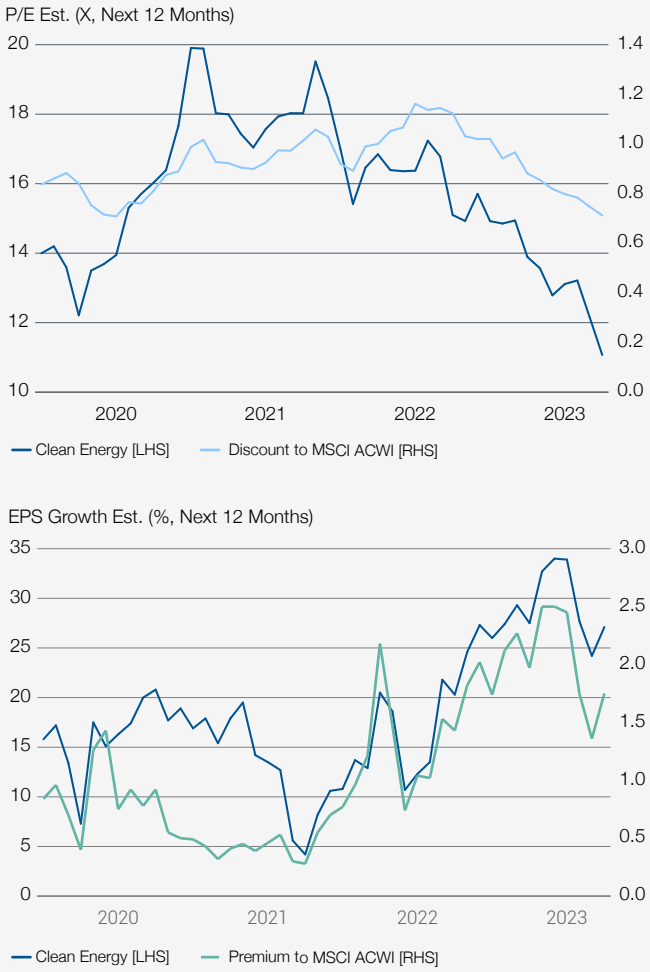
- Prices for long-term electricity purchase agreements, widely used in renewable projects in Europe, have inflected significantly higher, outpacing the effects of inflation and higher interest rates.
- In the wind energy space, supply chains are rationalizing, and component prices are increasingly indexed to inflation, while costs of production have started to come down.
- Solar panel prices have also moderated, driven by supply chain normalization and falling raw materials costs. These panels are the single most expensive input cost for solar electricity providers, and prices for polysilicon (the primary raw input for solar panels) are down more than 60% year to date. We see potential for further tailwinds as installers reprice to adapt to new subsidies and higher interest rates, and high inventories at the distributor level fall.

The selloff spurred by the headwinds we highlighted earlier has led the clean tech opportunity set to trade at a significant discount, while we believe the long-term growth and profitability outlooks have inflected.

As the short-term hurdles facing the climate action space dissipate, we expect the secular growth drivers we've highlighted to augment the earnings and growth potential of the companies in this space. As fundamental investors who are focused on the relationship between returns and valuations, we see a potential opportunity to generate alpha.

Exhibit 5.

A Clean Tech Selloff Presents Potential Valuation Anomalies



As of 30 September 2023. Source: Lazard, FactSet, Standard & Poor's.

"Clean Energy" represents an equally weighted bucket of companies derived from the S&P Global Clean Energy Index, excluding those with negative earnings and those without an operational track record prior to 2020.

In Summary

We believe acceleration in the adoption of clean energy solutions is likely to continue. Despite the challenges faced over the last 24 months, climate-related investments hit all-time highs at $358 billion in the first half of 2023, according to BloombergNEF.

While temporary hurdles have led to a selloff in the space, we believe the potential for growing demand for clean energy solutions, an increasing commitment from governments and customers globally, and the resulting secular decrease in these technologies' cost structures should contribute to higher earnings momentum that is not reflected in today's valuations. Therefore, we believe attractive opportunities exist for investors seeking to capitalize on the long-term potential of clean energy stocks.

Important Information

Notes

1 We define the climate action investable universe as those stocks that have material and/or rapidly growing exposure to positive climate change actions—whether through mitigation or adaptation.

2 See appendix for source materials.

3 Estimates based on China's installation of 115 GW of solar YTD through 31 August 2023, according to Chinese government statistics: https://english.cec.org.cn/#

European Commission

"The European Green Deal"

"REPowerEU"

"Energy Efficiency Directive"

"Internal Market, Industry, Entrepreneurship and SMEs"

"Climate Action: Innovation Fund"

European Council

"Fit for 55"

About the Team

The Lazard Climate Action strategy seeks to capitalize on the opportunities created by the transition to a low-carbon economy through a global, high-quality growth portfolio invested in 50–70 companies across the entire range of climate solutions. The team focuses on leading and innovative companies in both developed and emerging markets that have material and/or rapidly growing exposure to positive climate change actions—whether through mitigation or adaptation—and selects opportunities based on the quality of fundamentals and upside potential. The portfolio management team consists of six investment professionals who average nearly 15 years of industry experience. Their process leverages Lazard's global research platform and is fully supported by more than 300 investment professionals.

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