

The Case for Investing in Solar PV Infrastructure in 2025

In recent years, the world has witnessed a remarkable transformation in the energy sector. Of particular note, 2023 marked a significant milestone, with new investments in renewable energy reaching an unprecedented \$673 billion, a 10% increase from the previous year.

Solar PV accounted for c. 58% of this total, with forecasts indicating an increasing share in the years ahead.¹ This has led solar PV being hailed as the “star of global energy investments”, by the executive director of the International Energy Agency, Fatih Birol.²



Telemark Solar Farm, Spain

NextPower III ESG

[1] Renewable Energy Investment Tracker 1H 2024, Bloomberg BNEF

[2] The Financial Times, 2024

Investors should consider an increase in their exposure to solar PV infrastructure in 2025 for the following reasons:

- 1.** Demand of electricity is expected to grow significantly between now and 2027, with increases of 3.4% globally and increased demand in North America and Europe with the rise of AI data centres and further electrification.³
- 2.** An increase in electricity demand will be principally met by new-build renewable energy plants globally, particularly as energy independence and security have come back into sharp focus. Solar PV infrastructure is the largest component of the renewable energy sector, accounting for 54% of all investments in generation technologies during the period 2023 to June 2024.
- 3.** Yearly increase in installed capacity of solar PV infrastructure is forecast to continue growing exponentially over the next ten years, from 70GW in 2020 to 375GW in 2030.
- 4.** New-build solar PV infrastructure delivers the lowest cost new-build cost of electricity, and, due to the rapidity in construction, grid connection and operating performance, offers investors attractive cash yields earlier than investments in other renewable energy generation sub-sectors.
- 5.** Solar PV infrastructure, compared to other renewable energy assets, can provide significant ESG, community and biodiversity benefits beyond its attractive financial performance.

We elaborate on these five points below.

1 The Great Global Electrification

The International Energy Agency estimates demand for electricity in North America to grow by 1.7% over the period 2025 to 2027, and in Europe to grow by 2.4% over the same period. Drivers of this demand growth include, inter alia, the rise of AI and data centres, increasing electrification of transport and more widespread use of electricity in industry and homes.

In addition to the increase in electricity demand, the installed capacity of power generation will also decline due to the natural retirement of older generation plants, requiring new plants to cover retirements in addition to demand growth.

Moreover, renewable energy will continue to be prioritised legislatively across the globe as countries endeavour to meet their net-zero commitments. Investment in solar now surpasses all other generation technologies combined, and expectations are that the trend will continue as the demand for renewable energy grows around the world.

Specifically, the projected North American annual growth in renewable generation is 7% on average until 2027, outpacing the world average. In Europe, the recovery of the industrial sector alongside electrification of transport and data centres is expected to lead to an expected annual growth of renewable generation of 9%. The rate at which global electricity demand is growing is accelerating, driven by the improving economic outlook in both advanced and emerging economies.

2 Electricity Demand Growth Will Be Met by Increased Renewable Generation

National and regional energy security and independence objectives have been increasing as a result of global tensions between hydrocarbon suppliers and users. In this uncertain geopolitical environment, solar PV and other renewables are seen as a crucial step toward establishing energy independence and security for governments worldwide. Additionally, legally binding decarbonisation targets are forcing countries to accelerate their deployment of renewable energy. Electricity from new-build renewable energy plants comprise the cheapest source of electricity, contributing to lowering energy costs for consumers.

This, coupled with the ever-increasing demand in electricity described in the previous section, has caused investment into renewable energy generation to increase exponentially.

Within the energy transition sector, solar outcompetes other clean and more conventional forms of generation across a host of metrics. Specifically, its low price, reliability as a mature technology and quick construction time have led it to outperform other forms of energy generation. Furthermore, as a proven and mature generation technology, solar PV is one of the most reliable and predictable sources of energy in the world today.

As a result, investment into new-build solar accounted for more than half of all investments in new electricity generation capacity, reaching over \$393 billion. This represents a 12% year-on-year increase, setting yet another annual record.⁴ We expect this trend to continue unabated and for solar PV to play the pivotal role in the global energy transition. Conversely, wind investment totalled \$90 billion, down 11% from the previous year.

In terms of installed capacity, solar grows ten-fold each decade.⁵ As the demand for renewable technology continues to grow, experts predict that by the mid-2030s, solar energy will become the largest source of electricity globally, potentially surpassing all other energy sources by the 2040s.⁶

[4] Renewable Energy Investment Tracker 1H 2024, Bloomberg BNEF

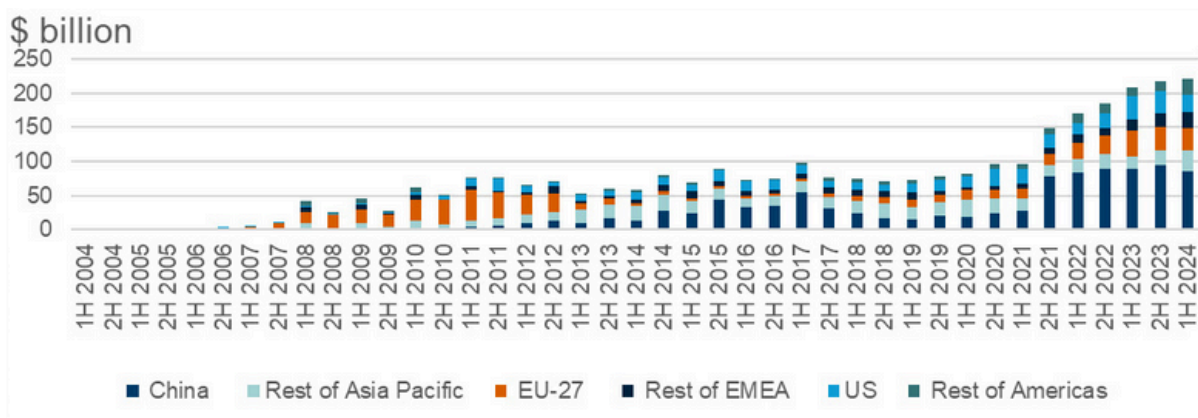
[5] The Economist, 2024

[6] The Economist, 2024

3 The Unstoppable Growth of Solar PV

In 2023, solar investments in Europe, the Middle East, and Africa surged by 22%, reaching \$90.1 billion, the highest total ever recorded. The European Union played a significant role, contributing \$28.9 billion, with Spain leading the charge and achieving a 7% year-on-year growth.

The United States saw a record \$88 billion in new investments in solar and wind energy, a staggering 78% increase from the previous year. Of this, nearly \$51 billion was directed towards solar projects, marking a 41% increase from 2022.⁷



New Solar Investment⁸

[7] Renewable Energy Investment Tracker 1H 2024, Bloomberg BNEF

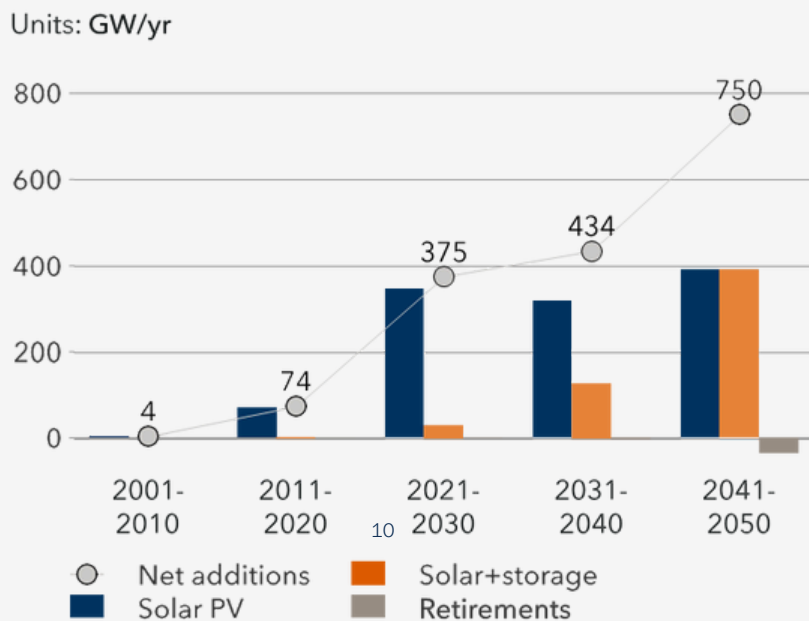
[8] Renewable Energy Investment Tracker 2H 2024, Bloomberg BNEF

In conjunction with solar PV deployment, Battery Energy Storage Systems (BESS) are revolutionizing the energy market by storing electricity generated during times of low demand and discharging it during peak demand periods. This not only provides investors with additional revenue streams, but it also negates the challenge of intermittency often levelled against solar and other renewable energy sources.

Forecasts predict that BESS will reach approximately 400GW by 2050, up from the current 50GW.⁹ By 2040, most solar PV installations are expected to include storage, reducing costs related to permits and grid connections while boosting revenue. NextEnergy Capital is focused on capturing the additionality and potential upside that BESS will provide to its global portfolios of operating solar projects.



Camilla Energy Storage Asset, NESF



Historical data source: GlobalData (2024), IRENA (2024)

Global installed energy storage capacity by scenario, 2023 and 2030¹⁰

[9] ETO, 2024
 [10] IEA, 2024

4 Low Capex and Opex Makes For an Attractive Income Profile

One of the most compelling arguments for solar energy is its ability to deliver the lowest cost of electricity when compared to any other new-build generation plant technology. Renewable energy generation has become cost-competitive with conventional energy sources, and utility-scale solar PV is now one of the cheapest forms of energy generation.

The levelised cost of energy (LCOE) for solar has reached a record low of \$41/MWh in real terms, \$2/MWh below the previous low in early 2021, with cash operating costs much below that figure.¹¹ The cost of recently financed solar projects has decreased over the past year for most power-generating technologies, with input prices falling enough to offset higher financing costs. This is also true for battery storage projects, where costs have reached record lows. Cheaper energy drives further benefits, such as boosting productivity, powering the skyrocketing AI industry and providing electricity to those who historically did not have access to it.

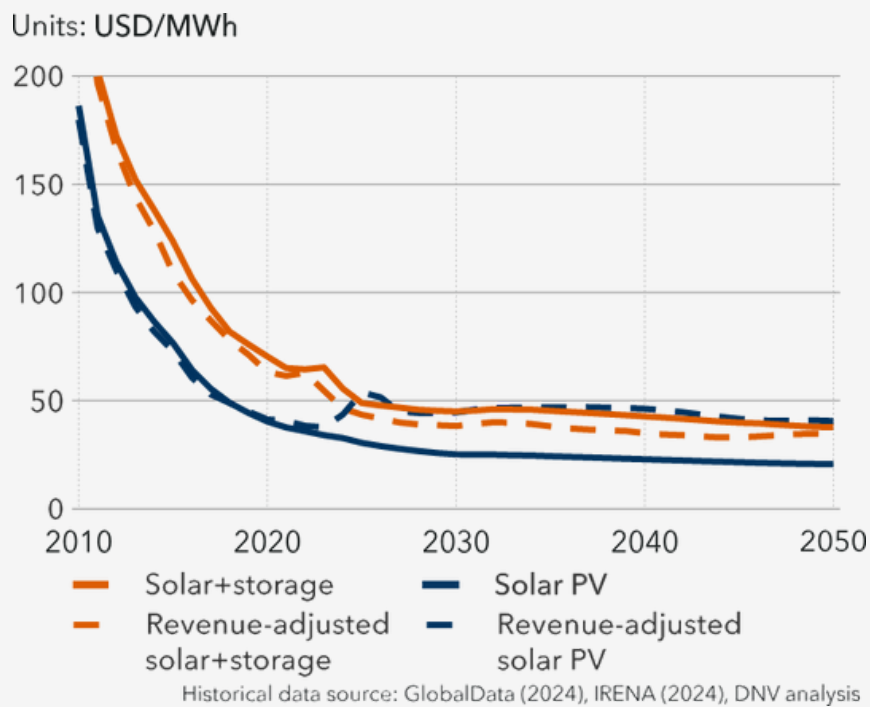
Further deployment of solar will only push costs down further as supply chain efficiencies and other technological innovations catalyse increased and cheaper production.

In addition to the decreasing investment costs per installed MW, operating costs are low relative to revenues, mostly contracted under multi-year contracts and well understood (e.g. O&M, lease, insurance, asset management). The absence of complicated moving parts, boilers and similar engineering components in remote locations means that any replacement or maintenance work can be isolated and rectified quickly.



Bowden Solar Asset, United Kingdom
NextEnergy Solar Fund

[11] 2H 2023 LCOE Update, Bloomberg BNEF




World average levelized cost of solar energy¹²

The appeal of solar energy extends well beyond their positive impacts on lowering power prices, increasing energy independence and decarbonising the power sector. The quick build time of solar projects compared to other infrastructure assets makes solar PV an attractive investment for an investor community that is increasingly focused on early yield and DPI metrics.

Solar PV investments carry minimized risks due to well-established processes and procedures, with attractive power purchase agreements (PPA) and contracts for difference (CFD) mechanisms on offer. This enables investors in Solar PV to benefit from attractive and stable cash yields much earlier on in their investment than compared to other renewables technologies. These revenue mechanisms also provide investors with explicit inflation protection by hedging against inflation risk through long-term price, inflation-linked contracts.

Solar PV assets can thus provide a reliable source of income with low, controlled ongoing operating expenditures.





5 Significant ESG and Biodiversity Benefits

Solar PV deployment also represents an extremely valuable contribution to the environment through the restoration of often previously degraded agricultural land by boosting pollination, habitats for rare species and improved biodiversity.¹³

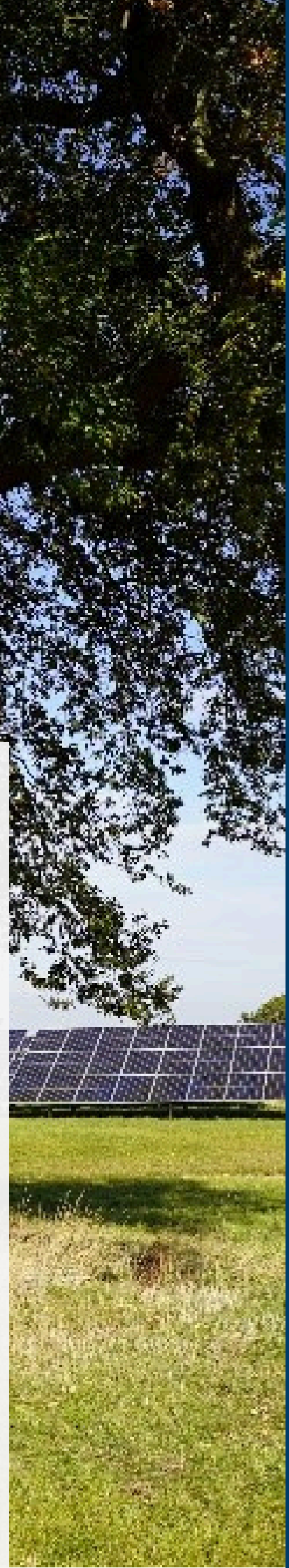
Solar stands out among other renewable technologies due to its minimal environmental impact, multiple installation options, limited noise and sight pollution. Therefore, on a social level, introducing solar energy to a community with access to the energy production and consumption data can lead to socioeconomic empowerment by developing local value-chains and new jobs.¹⁴

Forest Farm Solar Asset, United Kingdom

NextEnergy Solar Fund

[13] University of York, 2019

[14] IEA, 2024



Conclusion

With the world facing a secular change in power demand growth, increased deployment and investment into renewables and in the face of evolving political environments, investors have a unique opportunity to capitalise on this investment opportunity.

The exponential growth of the solar sector has led to increased competition within the space, with many less experienced management teams with limited expertise, market access and capabilities seeking to capitalise on this market opportunity. A specialist solar manager such as NextEnergy Capital is able to strategically navigate the market, leveraging 16 years of dedicated market expertise in order to provide investors with financial outperformance.

To do so requires a sourcing and origination strategy that focuses on small- to medium-sized investments on a bilateral basis where we can find value versus large transactions with many competing bidders. Success in this sector also requires significant investment in dedicated teams such as Construction & Procurement, ESG, Energy Sales and Portfolio Management, to take a hands-on approach to asset construction, maximising portfolio performance and value creation. It requires an in-house asset management platform such as WiseEnergy to ensure the optimisation and performance of the assets over the fund life. And lastly, it requires deep market expertise in bringing portfolios to market to drive outperformance on exit for investors. These characteristics are increasingly challenging to find in a crowded market, let alone undertake due diligence on, but for investors that are able to engage and see the value in a specialist, mid-market manager, the partnership and financial performance can be very rewarding.

NextEnergy Capital's long and proven track record has seen the acquisition of over 450 solar assets since 2007. The firm's most recent fund, NextPower V ESG is targeting a gross IRR of 15% with a portfolio of assets across OECD countries with long-term PPAs already in place, providing highly predictable cash flows and attractive cash yields. With much of the Fund already committed, NextPower V ESG now offers a timely entry point for investors seeking a derisked portfolio of quality projects diversified across developed markets globally.

We hope you found this whitepaper informative and engaging, please do not hesitate to get in contact with the NextEnergy team should you wish to discuss any aspects further.

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