SDCL

Investing in Energy Efficiency and the Decentralized Generation of Energy ("EDGE") in the U.S.

PART I. Decentralized Solar: A Resilient Outlook

IMPORTANT NOTICE

This document is for informational and educational purposes only and does not constitute investment advice, a recommendation, or an offer or solicitation to buy or sell any security or investment product. No representation or warranty is made regarding the accuracy, completeness, or reliability of the information contained herein.

Sustainable Development Capital LLP (SDCL) is authorised and regulated by the Financial Conduct Authority (FCA FRN: 471124). This document has not been approved as a financial promotion for communication to retail clients. Past performance is not indicative of future results. The value of investments may fall as well as rise, and investors may not get back the amount invested.

Investing in Energy Efficiency and the Decentralized Generation of Energy ("EDGE") in the U.S.

PART I. Decentralized Solar – A Resilient Outlook

Since taking office in January 2025, the Trump administration has implemented a suite of federal policies that repositioned the U.S.'s approach to and prioritization of the energy transition and climate action. These changes have left global markets uncertain about the direction of U.S. policy, with investors withdrawing a record $8.6 billion from global sustainable funds in the first quarter of 2025.

Notwithstanding the policy changes, Sustainable Development Capital LLP (SDCL) finds the U.S. still offers significant private sector investment opportunities in energy transition infrastructure. SDCL believes that investments in energy efficiency and the decentralized generation of energy ("EDGE") projects, which are critical to energy security, resilience and supply, remain commercially attractive and arguably more critical than ever to sustain momentum in the energy transition.

Over the next few weeks, SDCL will be publishing a series of deep dives on different types of EDGE projects and the sectors they service to evaluate how the political shifts in the U.S. are impacting the investment environment. Part 1 of this series examines decentralized solar photovoltaic (PV) projects[1], and their enduring appeal as an investment opportunity in the US despite recent federal policy changes.

> *"The energy transition isn't just about policy; it's about investing in commercially viable solutions that point to tangible economic returns and sustainability."*
>
> *"That's why we're focused on EDGE projects like decentralized solar. Their enduring appeal lies in their potential to provide cheaper, cleaner, and more resilient energy directly to the end customer. We believe that these projects are delivering the solutions necessary to meet the increasing demand for secure and sustainable energy, ensuring their continued momentum regardless of the evolving policy environment."*
>
> - Jonathan Maxwell, **CEO and founder of SDCL**

A NEW ERA FOR US ENERGY AND CLIMATE POLICY

The Trump administration has embarked on a series of policy shifts to reorient the United States' energy strategy away from the previous administration's climate-focused agenda and towards one focused on deregulation, domestic energy security and economic growth. This was signaled early on with the symbolic withdrawal from the Paris Climate Agreement, the international accord intended to mitigate climate change through coordinated, global action. A more significant move was the executive order "Protecting American Energy from State Overreach," signed on April 8, 2025, which directed the U.S. Attorney General to identify and take action against state and local laws that were deemed to impede domestic energy production, such as those that impose a carbon tax. More recently, the Environmental Protection Agency (EPA) has initiated a formal process to repeal the 2009 Greenhouse Gas Endangerment Finding . The finding states that GHG emissions are harmful to human health and serves as the legal basis for the EPA's ability to regulating emissions, including all policies under the Clean Air Act.

All three of these actions look either to deregulate GHG emissions or reduce US climate commitments, but they do not directly impact[2] many energy transition infrastructure investments, like decentralized solar. Instead, their impact materializes more broadly as a change in the national narrative rather than as a direct and substantial impediment to the investability of specific decentralized solar projects.

That said, the new administration has pursued a few policies that reverse the incentivization of clean energy technologies, particularly in the wind and solar sectors. The most significant of these was the One Big Beautiful Bill Act (OBBBA), which announced an early termination of the solar and wind tax credits that the Inflation Reduction Act (IRA) extended three years earlier.[3]

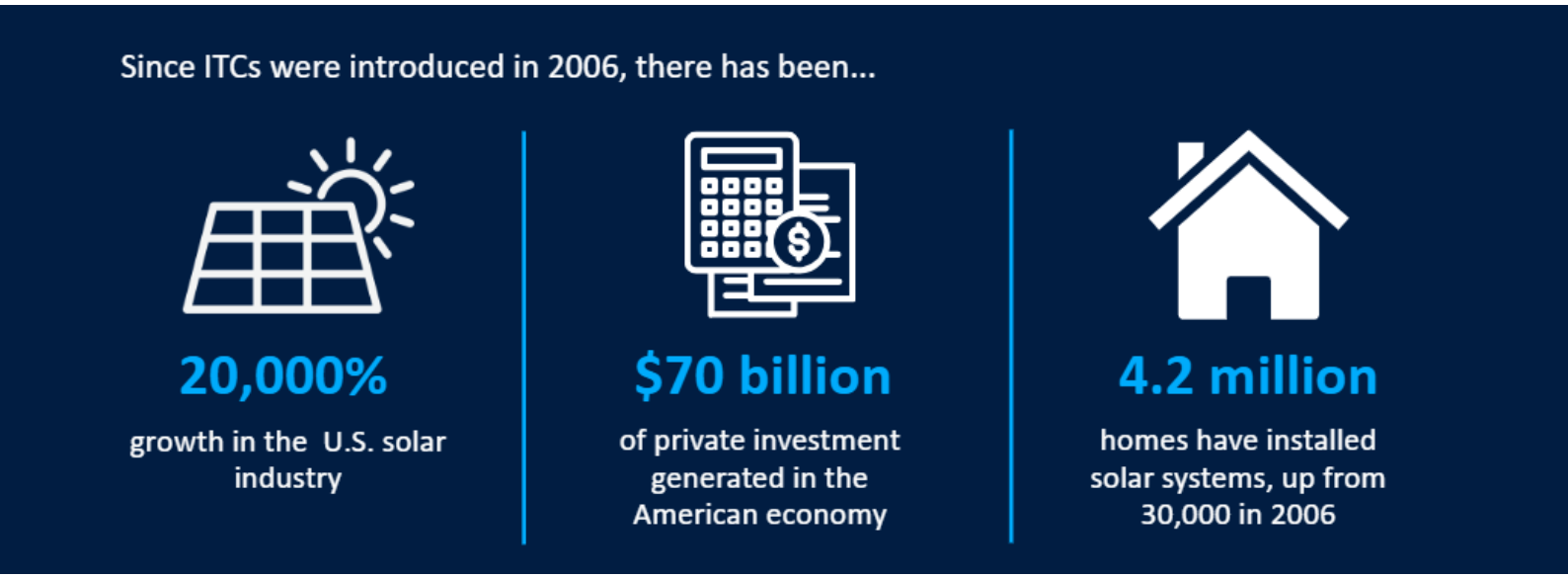
SOLAR PV & TAX CREDITS: A HISTORY OF TUMULT AND TENACITY

U.S. tax credits to incentivize the adoption of solar panels and promote energy security has had a long history, showing up for the first time in the Energy Tax Act of 1978 as a direct response to the energy crisis of the 1970s. Since that act, tax credits for solar have expired, been reintroduced, sunsetted and then extended several times, with varying degrees of bipartisan support and politicalization. These incentives were initially born out of necessity to reduce the nation's

[1] "Decentralized solar pv" within this paper refers to solar systems installed on the consumer's side of the electricity meter, like on a home or business rooftop. By generating and consuming power locally, these systems reduce the transmission and distribution losses associated with large, centralized utility-scale solar farms.
[2] The potential, indirect impact from these three policy changes (withdraw from Paris Climate Agreement, executive order on "Protecting American Energy from State Overreach" and repeal of the endangerment finding) would come from reducing the requirement for fossil fuel generators to pay for cap-and-trade programs or mitigate their emissions, therefore slightly lowering the cost of energy generated by fossil fuels. Individual project economics require site-specific analysis of these factors.
[3] Note: UK-based investors should be aware that U.S. federal tax incentives affect project-level economics and returns, but do not provide UK personal or corporate tax benefits. UK tax treatment of international investments is governed by separate HMRC rules and any applicable double taxation treaties.

dependence on foreign oil and to promote energy conservation but have since proven crucial to driving down the cost of solar energy to the point where it is now a commercially viable option.

One of the modern-day solar tax credits that have been especially successful at this is the Investment Tax Credit (ITC). First introduced in 2006, the ITC provided tax credits on the upfront cost of a solar project, allowing a solar project owner to deduct a percentage of the total project cost from their federal taxes. Since its enactment, the U.S. solar industry has grown by more than 20,000% and been a major contributor of investment and jobs. In 2024, the solar industry generated over $70 billion of private investment in the American economy and, as of 2023, it accounted for nearly 280,000 jobs. The number of homes with solar systems installed rapidly increased from just 30,000 in 2006 to over 4.2 million as of early 2024.



Before the Inflation Reduction Act (IRA) was passed in 2022, the ITC was scheduled to phase down from the initial rate of 30% to 10% for commercial and utility-scale projects and to 0% for residential uses after 2024. The IRA restored the full 30% ITC for all solar projects that begin construction before 2033, providing an unprecedented level of long-term certainty for the solar industry.

Just three years later in 2025, OBBBA accelerated the termination of those credits, requiring solar projects to either commence construction no later than July 4, 2026, or be placed in service by December 31, 2027. OBBBA also established Foreign Entities of Concern (FEOC) requirements, which are restrictions on the involvement of companies from designated foreign countries in the supply chain or ownership of clean energy projects in America.

While the IRA's passage spurred investment and optimism in the energy transition, the subsequent enactment of OBBBA has introduced significant uncertainty, accelerating a rush to complete eligible projects while prompting investors to more broadly re-evaluate the long-term role of solar in the U.S. energy landscape. While it is true that the new administration's policies as they currently stand will impact the solar industry post-2027, SDCL believes that decentralized solar will remain resilient in the U.S. as it can provide necessary services to meet rising energy demand and security needs, it has shorter development and installation timelines, and it should remain cost-competitive given expected price increases for electricity.

SDCL

THE CONTINUED ROLE OF DECENTRALIZED SOLAR POST-OBBBA

The gap between U.S. energy supply and demand had already been widening, and the recent policy shifts are likely to accelerate this trend. Meeting rising energy needs while enhancing electrical grid security will remain top priorities regardless of political views on sustainability, and decentralized solar is well-positioned to serve as a solution to both challenges. This resilience is further reinforced by its shorter development timelines, its cost-competitiveness, and the industry's historical track record of adapting to fluctuating policy environments.

With that said, SDCL finds that decentralized solar will remain resilient post-OBBBA as it:

1. Addresses the massive **energy demand** growth from data centers and electrification, helping to fill the looming supply-demand gap.
2. Enhances **energy security** and grid resilience by providing site-specific power and protection against grid outages.
3. Follows shorter **development timelines**, allowing it to be deployed quickly in the short-term before the federal tax credits expire.
4. Should remain **cost-competitive** with conventional power sources, serving as a long-term hedge against rising utility costs even without incentives.
5. Has a **history of industry adaptation** to political volatility, positioning it for long-term commercial viability beyond federal policy shifts.

> *" As one of the larger providers and owners of distributed solar and storage assets in the U.S., we are continuing to build cost effective, localized grid solutions that will thrive despite political and policy shift*
>
> *The old paradigm of a fragile, centralized electric grid system is being replaced by a network of distributed energy sources that help optimize the flow of electricity and provide for energy resiliency and security. Our work is focused on meeting the needs of a growing economy and manufacturing base in the U.S. with localized power to help reduce operating costs for businesses."*
>
> - **Mary Beth Mandanas**, Chief Executive Officer of Onyx Renewable Partner.

1. **Energy Demand:** The Looming Gap Between Supply and Demand

U.S. electricity demand is projected to surge in the coming years, driven by the expansion of datacenters for artificial intelligence, the electrification of vehicles, and the reshoring of manufacturing. According to recent analysis, U.S. electricity demand is expected to grow by up to 78% by 2050, with datacenter energy consumption alone projected to rise by 300% over the next decade and account for up to 9% of total U.S. electricity demand by 2030. Although this growth creates substantial opportunities for new energy generation, the new administration's accelerated phase-out of tax credits and introduction of additional restrictions are expected to disproportionately affect the rollout of large-scale utility projects, creating a widening gap between energy supply and demand.

In recent years, solar and wind have dominated new grid connections, accounting for over 80% of new generating capacity and projects in the interconnection queue. The change in policy will likely lead to potential price volatility and energy resilience issues, which is where decentralized solar can step in as a viable and fast solution for meeting immediate power demands.

2. **Energy Security**: Decentralized Power for National Security

As previously discussed, the first federal tax credits for solar were created to accelerate U.S. energy independence during the 1970s energy crisis. The current Trump administration has similarly centered its energy policy on these concepts, emphasizing domestic energy production and grid reliability. In this context, decentralized solar is poised to become an even more critical component of the nation's energy infrastructure. Decentralized solar installations, often paired with battery storage, offer a powerful solution by providing a source of energy that introduces utility cost savings, is resilient to grid outages and provides site-specific energy independence.

3. **Development Timelines**: Avoiding the Backlog

One of the most compelling advantages of decentralized solar is its speed to market compared to utility-scale renewable projects. While a large-scale solar farm can take an average of 4 to 5 years from initial development to commercial operation (of which up to 3 may be spent on negotiating permitting and interconnection), smaller-scale decentralized projects, such as those on commercial rooftops, can benefit from shorter timelines, typically ranging from 3 to 12 months.

Decentralized solar projects can be developed and installed faster than utility-scale grid connected projects[4], allowing them to bypass many of these delays and be installed and operational before the credits' expiration deadline.

4. **Cost-Competitiveness**: Solar Beyond Incentives

Even before the IRA, the unsubsidized cost of electricity for new-build solar projects had become competitive with or cheaper than new-build natural gas plants. According to Lazard's 2025 report, the unsubsidized LCOE for utility-scale solar is in the range of $38/MWh to $78/MWh and the unsubsidized LCOE for a new natural gas combined cycle plant is estimated to be between $48/MWh to $109/MWh[5].

The new administration's deregulatory policies and focus on conventional energy sources are expected to cause an increase in the price of grid power[6] [7]. While the removal of the ITC will eventually increase the upfront cost and payback period for new solar installations, the rising cost of

[4] Smaller scale decentralised projects usually tie into the local distribution network; applying to the local utility for a 'distribution' interconnection (rather than through a large scale 'transmission' interconnection). Review timeframes for local connections of this nature are generally shorter, though utilities may still require technical studies, protection settings, or feeder/substation upgrades.
[5] Note: the core assumptions for these figures (including WACC and fuel price assumptions) may be found in Lazard's original report which is linked for reference
[6] The Brattle Group (for ConservAmerica), Feb 25, 2025: Without the clean-electricity tax credits, average customer rates +0.5 ¢/kWh (2030) and +0.8 ¢/kWh (2035) (≈ +$83/yr for a typical residential customer by 2035) as system costs rise +$51bn/yr by 2035.
[7] CEBA / NERA Economic Consulting, Feb–May 2025: Repealing §§45Y/48E raises delivered electricity prices ~6.7% (residential) by 2026 and ~7.3% by 2029 (national average), with C&I +10.6% by 2029; state-level results show larger increases in wind-rich region.

conventional grid electricity is likely to make solar more cost competitive. In this new market reality, decentralized solar could plausibly serve as a long-term hedge against increasing utility bills, remaining commercially viable and attractive even without the use of federal tax credits.

5. **History of Industry Adaptation:** Precedence & Future Resilience

The solar industry has a long history of adapting to changing incentives and political volatility[8]. This constant flux has made the industry more accustomed to navigating changing political winds, which may continue to shift during and after the Trump administration. It also provides the decentralized solar industry with the opportunity to pursue its commercial viability without the use of incentives, to benefit from creative yet effective modes of finance and eventually separate itself from the policy whiplash in the US.

IN CONCLUSION…

While recent federal policy shifts in the US have deprioritized climate action and introduced market uncertainty around the energy transition, SDCL believes that the outlook for decentralized energy and, in this case, solar, is strong. The confluence of rising electricity demand, costs and a fragile centralized grid highlight the benefits of EDGE projects. Further, we believe that decentralized solar is specifically well placed to address challenges within the US energy transition as it has shorter development timelines and is one of the most established and reliable renewable technologies.

The next installment in this series will explore the critical role of EDGE projects in meeting increasing energy demand requirements from datacenters and AI.

***

This paper has been written by Sustainable Development Capital LLP (SDCL) with contribution from Onyx Renewable Partners.

SDCL is an investment firm established in 2007, with a proven track record of investment in energy efficiency and decentralised generation projects in the UK, Continental Europe, North America and Asia.

Onyx Renewable Partners is a leading US solar provider for commercial and industrial sectors. Onyx is owned by a SDCL managed FTSE-250 Investment Trust that is listed on the London Stock Exchange.

---

[8] Historically, PV deployment has adjusted to shifting incentive regimes at a global level, supported by steep technology cost declines (~23–26% learning rate) and evolving procurement/financing. However outcomes vary by market design and policy stability. Analysis of historical data also indicates that abrupt or retroactive cuts can depress installations for years before new frameworks and lower costs restore growth: Barbose, G.L. (2024) One year in: Tracking the impacts of NEM 3.0 on California's residential solar market. Berkeley, CA: Lawrence Berkeley National Laboratory.