LOMBARD ODIER
INVESTMENT MANAGERS

Investment viewpoint

Community solar: unlocking access to clean energy in the US

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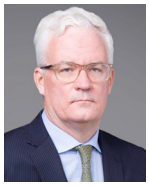
September 2023

The world has experienced the hottest month on record this summer,[1] emphasising the need to transition rapidly from fossil-fuel dominance to combat anthropological climate change. In the US, the world's second-largest CO_2 emitter,[2] we believe community solar projects are vital to expand the nation's renewable energy system while supporting inclusive access to clean energy and managing unintended impacts of renewables on vital ecosystems. Because of the complexity inherent in community solar markets, we believe community solar represents a potentially impactful and attractive opportunity for private markets investors.

Need to know

- Between now and 2050 we will **move from 20% economy-wide electrification to 70%**, driving demand for renewably-generated electricity
- With almost **~80% of US residents lacking an ability to access solar directly**, solutions like community solar will be key for democratising solar access.
- Community solar is the fastest growing segment of US solar industry, anticipated to **continue its nearly 7x growth** over the past 5 years[3]
- Private lenders can provide tailored liquidity required to help innovative models like community solar **achieve greater scale and impact**

LOIM Sustainable Private Credit Strategy



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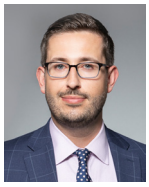

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FIG. 1 EVOLUTION OF ENERGY SOURCES

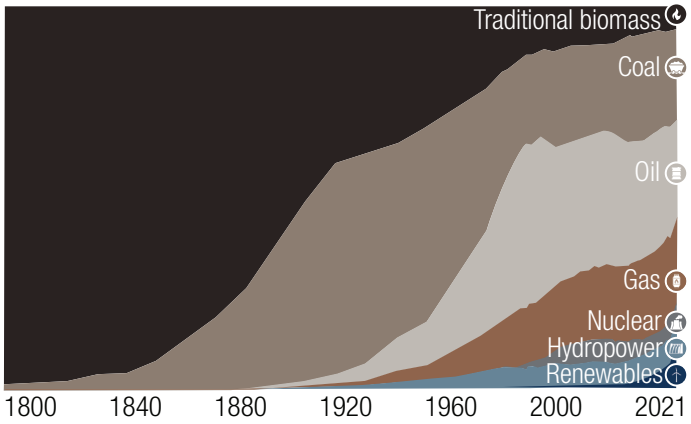
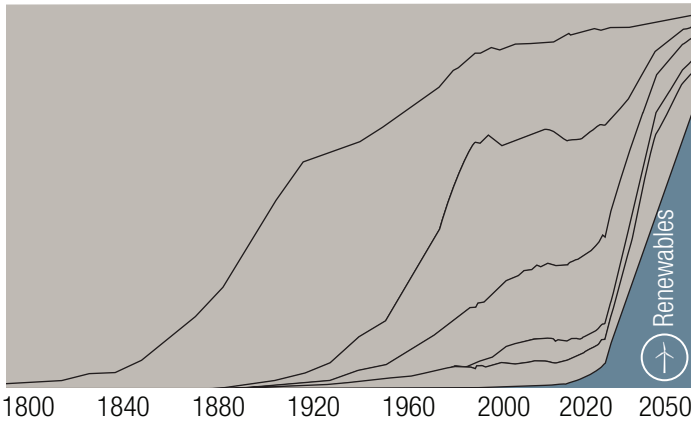


FIG. 2 THE PROJECTED ASCENT OF RENEWABLE ENERGY



Source: LOIM Research based on Our World in Data (2021), Vaclav Smil (2017) and BP Statistical Review of World Energy. For illustrative purposes only.

The growth of renewables

Prices for wind and solar generation have plunged more than 80% over the past decade[4] and solar is now the cheapest form of electricity generation in history. In 2022, 83% of all new electricity generation capacity[5] came from renewables alone. More capital is now going into renewables than into upstream oil and gas for the first time in history.[6] Renewables are on the rise because of economics – with the US becoming a key adopter.[7]

Within the US renewables space, community solar is a fast-growing option for consumers unable to install solar panels on their roofs due to home ownership, cost barriers or physical reasons. Through these projects, subscribing residents receive power from offsite, local arrays of solar panels rather than individually owned panels on home roofs.

Opportunity in revolution

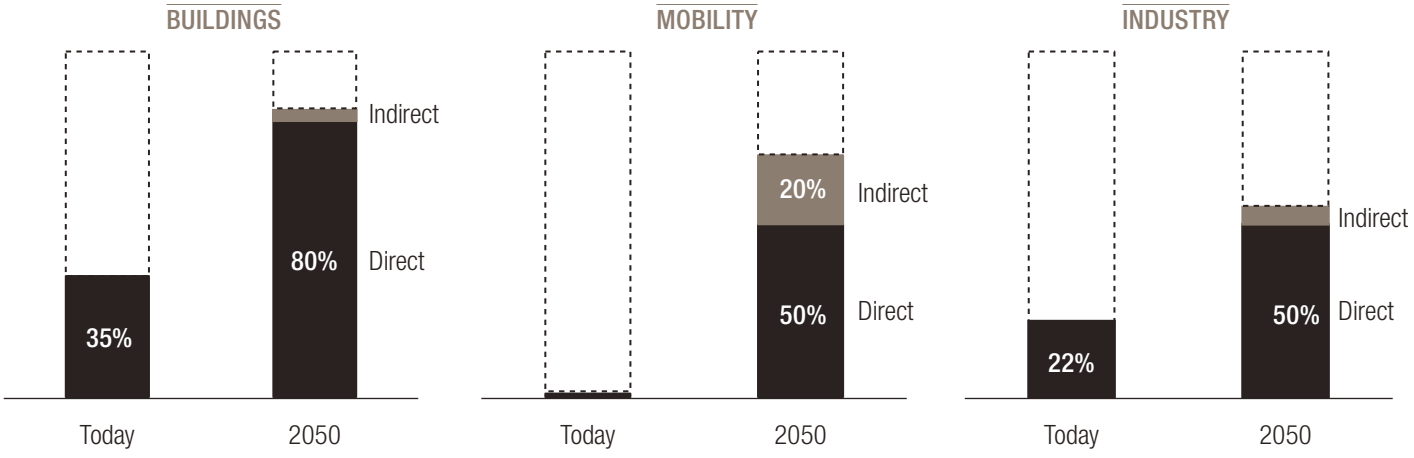
A series of powerful factors, including unprecendented policy support in the US[8] and Europe,[9] falling costs, and consumer demand, has driven renewables into the mainstream. Coal, oil and gas usage has plateaued as renewables become more economically viable and essential to facilitating the sustainability transition (see Figure 1).

The growth in renewable energy has mainly taken place in the last 20 years, indicating that we are still in the early stages of renewable energy proliferation. Looking forward, the scale and speed at which renewable energy is projected to rise is clear (see Figure 2).

All of this supports one of our core investment convictions – that electricity will soon become the dominant mode of energy consumption. We foresee a trend of electrification underpinned by the greening of energy supply and demand, the emergence of new storage and distribution networks and increased energy efficiency. From the current centralised, unidirectional, dirty and wasteful energy system, we anticipate a shift to a distributed, decentralised, bi-directional, clean and efficient one.

As such, mass electrification will drive a new industrial revolution that rewires the energy system and transforms many key sectors, in our view (see Figure 3).

FIG. 3 BEYOND ENERGY: THE FAR-REACHING IMPACT OF ELECTRIFICATION



Source: LOIM research as at August 2023. Direct energy is purchased by the firm making and selling the product; indirect energy is used in the manufacture of supplies and in the services purchased by the company.

Meeting demand

Greater renewable capacity is needed to meet the dual aims of meeting rising energy demand while phasing out of fossil fuels. For example, the buildings and construction sector accounts for about 35% of global energy consumption and this demand is expected to grow by 2.3 times in the future.[10]

Is current US infrastructure up to the task? With 70% of power transformers more than 25 years old, 60% of circuit breakers exceeding 30 years of age and 70% of transmission lines over 25 years,[11] the shift to electrification provides an opportunity to modernise aging infrastructure.

US consumers excluded?

Plugging renewable energy into US properties is more difficult. It is estimated that 80% of households and more than 90% of businesses are unable to install solar power directly on-site. This is because approximately 90 million American households rent, live in multi-tenant buildings, have roofs that cannot host a solar array, or experience other excluding factors.[12] While many major utilities have installed significant renewable energy capacity, few offer a direct way to purchase carbon-free power or participate in the savings that can be generated.

To overcome these obstacles, innovative approaches like community solar, which can serve single-family, multifamily, institutional and commercial and industrial customers, are needed to unlock direct access to clean electricity, meet growing demand and support the energy transition regardless of the physical attributes or ownership of their home or business.

Community Solar – Democratising access to clean energy

Community solar refers to smaller-scale off-site solar arrays each shared by dozens to hundreds of local community members through a subscription agreement with no upfront capital required from subscribers. Customers receive a direct credit on their utility bills for their share of the power produced, saving money while purchasing carbon-free power. Beyond the cost savings, there are a number of considerations from a social and environmental perspective that make community solar one of the fastest growing segments.

We believe it is a more inclusive model which can provide for increased access to the environmental and economic benefits of solar within low-to-moderate income communities while furthering social justice goals. By focusing on delivering value and benefits within communities, community solar has generally been able to attract long wait lists, with most projects oversubscribed before they are even built.

Sustainable development

Community solar may also be a more sustainable solution when compared to utility-scale solar. As science increasingly recognises the scale of ecosystem services provided by mature biomes – including active carbon sequestration and massive stored carbon reserves even in seemingly inhospitable places such as scrubland and deserts – the potential drawbacks to permanent disruption across hundreds or thousands of acres are magnified.

While utility-scale development will continue to play a role in global decarbonisation, selecting contiguous sites extending for hundreds or thousands of acres while avoiding externalities is challenging. Community solar facilities tend to be less than twenty acres in size, allowing for more careful site selection with smaller-scale impact. We seek to work with companies intensely focused on understanding and mitigating ecosystem impacts of their development – and, where possible, enhancing previously disturbed land with concepts such as agrovoltaics (Figure 4).

Private Credit's role

We believe investors looking to access the growth in community solar stand to find unrivalled opportunity via private markets. Our experience is that tailored, opportunistic direct lending aligns well to the specific needs of founder-led community solar projects seeking to deliver scaled solutions. While there is considerable institutional investment demand for solar assets and a new wave of capital seeking to support beneficiaries of the Inflation Reduction Act, bespoke solutions are needed to address the fragmented community solar opportunity set that often remains below the scale requirements of many investors. A focused private credit approach can provide the efficient, flexible capital needed to scale this important market.

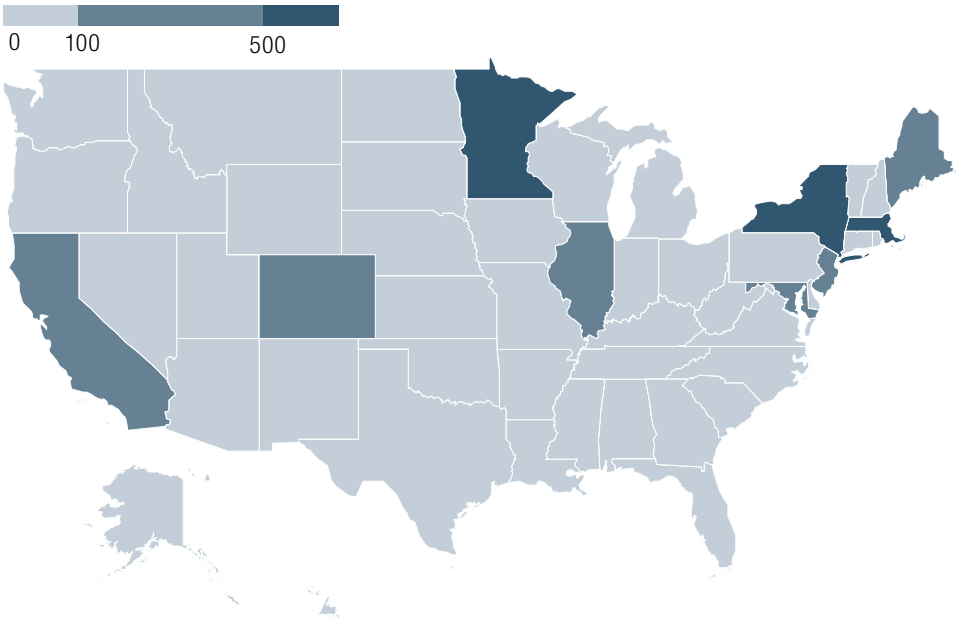
FIG. 4 EMBRACING AGROVOLTAIC COMMUNITY SOLAR VERSUS LARGE UTILITY INSTALLATIONS

Greenfield for community solar

Although community solar represents a relatively small share of overall US solar capacity, it is one of the fastest growing segments which we believe has the potential to considerably outpace expectations. The community solar industry has seen nearly 7x growth in energy generation over the past five years, representing 5.8 gigawatts of US capacity through Q1, 2023.[13] While we note wide ranges of growth projections and aggressive targets by the Department of Energy (700% increase by 2025), perhaps the simplest illustration of the potential opportunity set is the capacity by state relative to recent sweeping adoption.

As shown in Figure 5, the vast majority of community solar installations to date have come from just three states: New York, Minnesota, and Massachusetts. While historically concentrated, there has been considerable expansion over the last 12 months as 41 states (and counting) now have at least one community solar project online and at least 19 states that have encouraged community solar growth through policy and programs.[14] With its footprint expanding rapidly, community solar appears to be approaching an inflection point in scale from local proof of concept to nationwide adoption, and the need for financing has never been greater.

FIG. 5 CUMULATIVE INSTALLED COMMUNITY SOLAR CAPACITY (IN MWDC AS AT Q1 2023)



Source: SEIA/Wood Mackenzie Power & Renewables U.S. Solar Market Insight Q2 2023.

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IMPORTANT INFORMATION

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