

Solving the critical clean energy financing gap :: Environmental Finance

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Small clean tech firms face a potential valley of death because venture capital funding often does not work for them, argues **Greg Kats**



Although climate science warnings and extreme weather are worsening, the clean energy and low-carbon transformation is accelerating.

Which of these trends dominates will shape the quality of life on our planet for a long time.

The cost of renewable energy, especially solar PV and advanced energy efficiency technologies such as LED lights, batteries, sensors and controls have all dropped sharply and are now cost effective in most of the US and in much of the world.

The largest obstacle to scaling these technologies is how to finance them in a way that allows far broader and more rapid adoption.

This article describes a critical financing gap that limits the growth of clean energy, and describes a new financing model that can help solve this gap, and enable a generation of clean energy firms to grow rapidly and help drive the necessary transition to a very low carbon economy.

Consider solar PV. I have an 8.25kW system on my roof that powers my electric car and much of my home's energy needs. But most people rent or are in apartments or have roofs that are shaded – so 80%-85% of Americans cannot put solar PV systems on their roofs.

A new type of clean energy company can solve this problem by organising and providing shared ownership of

PV systems. Instead of 1,000 home owners each with a 5kW PV system on their roofs, 1,000 home owners in effect each buy 5kW, or 1/1000th of a new \$12 million, 5MW PV system, and share the ownership and the clean power.

This model, called community solar, has the potential to double demand for solar PV and to cut electricity prices for most Americans, including for low-income families.

For this transition to happen, many community solar companies need to secure financing to both acquire customers and to construct the solar PV projects. But financing for these small and mid-sized commercial clean energy projects – \$5 million to \$40 million – is very hard to come by.

Banks will happily arrange for equity and debt financing for renewable energy projects of \$50 million and over, but generally will not touch smaller projects – and this financing gap is sharply limiting a rapid transition to a low-carbon economy.

Start-up companies typically begin with funding from founders, friends and families and, if successful, commonly expand with angel funding and/or grant funding. Successful new clean energy companies can in this way secure a few million dollars in funding and can use this to build a strong core team, fund pilot and demonstration projects, demonstrate a profitable business model, secure several enthusiastic early customers and develop a pipeline of commercial projects.

A clean energy company at this stage commonly next wants to build a \$5 or \$15 million commercial project – but where does it get financing to do so? As discussed, many banks will arrange financing – typically a mix of equity and debt – for projects of \$50 million and over ([see figure 1 below](#)) but not for smaller projects, so bank financing is largely closed to these growth-stage clean energy firms.

Venture capital is an obvious source of potential funding, but this is also unlikely for several reasons. Many substantial clean energy VC investors have either stopped investing in clean energy or appear unable to raise a new round of funding. (European, South American, African and Asian VC funding for growth-stage clean energy firms is quite limited).

And many of the remaining US clean energy VC investors, driven by desire to limit risk and achieve relatively rapid liquidity, now commonly prefer to invest in later stages, eg a D round or a pre-IPO round. This leaves a limited pool of growth-stage clean energy venture capital.

But while VC funding is a good source of capital for software firms ([see figure 1](#)) that generally don't build a lot of capital-intensive projects, clean energy growth companies commonly have to finance capital-intensive energy projects to grow – and venture capital funding is not a good funding source for project financing.

To understand why, consider a growth stage firm that has grown initially with funding from company founders then secured angel funding and/or grants and now has a value of \$3 million (see figure 1). This firm would have to give up half of the firm's ownership to raise \$3 million from a VC firm. But some of the raised funds would likely be needed to build out team, development, etc leaving perhaps \$2 million – not enough to finance even a small \$3 million commercial project. Thus VC funding generally does not provide a viable pathway to growth for many growth-stage clean energy firms, such as the community solar companies described above.

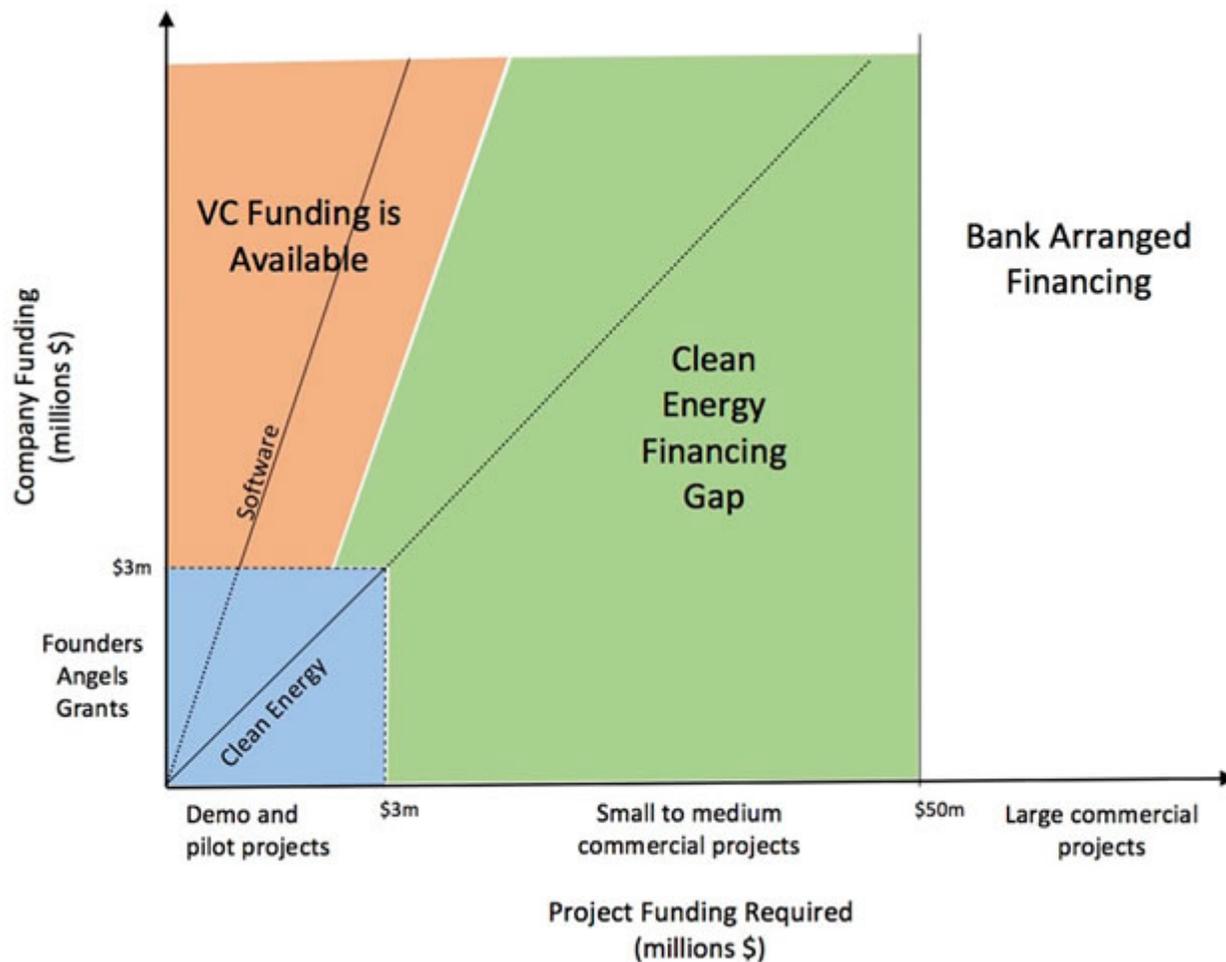


Figure 1

Many firms in areas such as solar development and energy and water efficiency make money as service providers – originating and/or managing project development of commercial-scale projects for other, larger owners, and this experience allows them to earn money while they build and refine their business model and develop prospective commercial clients.

But the shift from being a service provider to owning all or part of commercial projects requires some form of substantial third-party financing, and this is now a critical financing gap.

To understand why smaller scale commercial debt is so critical, think about a firm that has secured \$10 million debt for project financing, whether it be for a single 4MW solar PV project, for three large ground-source heat pump installations or for some other commercial-scale energy efficiency project. These types of deals are often built around long term offtake agreements, commonly called power purchase agreements (PPAs), to buy the energy produced – providing certainty of payment over time.

Growth-stage firms with ownership in such PPA-backed projects demonstrate they can structure commercial-scale projects, enabling them to grow and develop a commercial project pipeline large enough to attract bank financing.

As discussed, banks generally won't finance small to mid-sized commercial projects, and VC capital, even if available, is generally not a viable source for project financing for growth-stage clean energy firms.

The most logical financing source is smaller scale debt – debt financing in the \$5 to \$20 million range. A long standing US programme to make federally backed low-cost debt available via qualified investors is perhaps the best model for delivering this scale of debt financing.

The Small Business Investment Companies (SBIC) programme was established by Congress in 1958 to stimulate long-term investment in US small businesses by providing attractive, low cost debt to privately owned and operated investment funds. SBICs undergo a rigorous and comprehensive licensing process with the US Small Business Administration (SBA). Over the years, this unique public-private partnership has facilitated the investment of \$87 billion into more than 116,000 businesses, including companies such as Apple, FedEx, and Intel.

An SBIC can borrow twice its LP private capital commitments, up to \$150 million, in the form of ten-year, fixed rate SBA debentures, attractively priced at a small spread to US Treasuries. For example, an SBIC with \$50 million in LP capital commitments can borrow up to \$100 million through the programme, thereby leveraging its investment capacity.

The low-cost debt in turn allows SBICs to profitably make smaller loans – typically in the \$5 to \$20 million size to growth-stage companies – perfect for solving the financing gap that critically constrains clean energy growth firms.

In 2011 SBA changed its rules to allow investment firms focused on investing in clean energy to qualify as impact investors eligible to secure SBA debt. The SBA application process is rigorous. The first SBIC to qualify to access low-cost SBA debt to invest solely in clean energy did so only in late 2015, and is called Arena Investments, LLC, of which I am a principal.

It is worth noting that the SBIC programme is self-financing, and is not dependent on annual Congressional appropriations. To accomplish this, the SBA charges each SBIC a nominal "annual charge" (0.67% for FY 2016) to cover both the costs of administering the program as well as covering anticipated losses on SBIC issued debt.

This low fee reflects low loss rates and the strengths of the programme design, primarily (i) a very rigorous SBA licensing process and ongoing monitoring requirements and (ii) requirement for private LP capital commitments subordinate to SBA debt.

SBIC clean energy debt funding provides a very promising and scalable approach to addressing the current critical clean energy financing gap. Rapid expansion of this type of debt financing would help remove a critical financing obstacle to the rapid growth of a generation of clean energy firms, and enable the necessary rapid transition to low-carbon economy.

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