

Ample Opportunities: Financing Options and Ownership Models for Microgrids and Energy Efficiency Projects

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Microgrids have been gaining attention with increased frequency in recent years, and it is expected that the microgrid industry will expand quickly in the years to come. However, financing microgrids can present unique challenges due to the upfront costs of development and the overall complexity of a microgrid's interwoven components. Nonetheless, several options exist that can help finance microgrids depending on the unique circumstances of the particular project. Additionally, when energy efficiency measures are included in a microgrid's development, the cost savings from these measures can help to finance the upfront costs of the project.

If microgrids are owned by governmental entities or certain nonprofit organizations, government bonds and state energy efficiency fund programs can often be used to provide some or all of the needed financing. When microgrids are privately owned, private financing options will likely be needed; however, certain governmental programs also exist to help finance privately owned projects. Finally, there are various third-party ownership structures, such as energy savings performance contracts (ESPCs), power purchase agreements (PPAs), and leases, that can facilitate financing and development of microgrid projects and shift risk and responsibility between the parties to these contracts.

Publicly Backed Projects **Government Bonds**

When projects are owned or backed by governmental entities, government bonds offer one avenue to finance their development. Bonds may be issued on a tax-exempt or taxable basis, depending on the degree and type of private use of the financed assets. Generally, bonds issued for government-owned assets (such as those used in public schools or government buildings) and certain qualified 501(c)(3)s (such as hospitals or private schools) may be issued on a tax-exempt basis. Bonds issued for projects with excessive private use under the Internal Revenue Code may only be issued on a taxable basis. All things being equal, interest on taxable bonds will be higher than that of tax-exempt bonds, because investors are willing to accept a lower return on investment from tax-exempt bonds because that income is not taxed. Regardless of the tax-exempt status, the rate on a bond will often be lower than private financing due to the backing of a governmental entity, which will likely have better creditworthiness than a private borrower.

Energy Efficiency Fund Programs

Many states have also established energy efficiency fund programs that offer financing for governmental entities for energy efficiency or green projects with subsidized interest rates. Financings through these programs are generally structured to be revenue neutral, such that the energy savings that result from the efficiency measures in each budget year are sufficient to pay the total debt service on the loan. Therefore, these projects essentially pay for themselves. Many states also provide funding through grant programs that are administered in conjunction with these energy efficiency funds by the same or similar agencies.

Privately-Owned Projects

Commercial Property Assisted Clean Energy (C-PACE) Programs

C-PACE programs, which are available in many states, are an option for financing efficiency measures for privately-owned buildings or infrastructure assets. Through C-PACE programs, property owners voluntarily permit an additional tax assessment on property where energy efficiency projects will be developed. This assessment is used to repay the funds that are borrowed to finance the project. This type of financing can result in reduced borrowing costs due to the added security for the lender of having a tax lien for the principal and interest payments, which is senior to a traditional mortgage lien. Additionally, this lien attaches to the

property and runs to subsequent owners of the project, thereby incentivizing lenders to charge lower rates and offer longer repayment periods, because lenders can collect from subsequent owners if the original owner sells the property.

When C-PACE financing is used for energy efficiency measures, the savings can even result in positive cash flow if the savings exceed the assessments. This positive cash flow can be retained by the property owner, or in the context of microgrids, used to offset other development costs, which on their own do not result in energy savings.

Private Financing

Traditional loans, mezzanine loans, and venture capital may also be used on their own or in conjunction with other financing options to fill any financing gaps. Without government incentives, some lenders may be less willing to lend for microgrid development given the uniqueness and complexity of these projects. Nonetheless, private financing is still a viable option on its own or as part of an overall financing plan.

Third-Party Arrangements

Energy Savings Performance Contracts (ESPCs)

ESPCs are agreements between project owners and energy service companies (ESCOs) to design, develop, and fund energy efficiency projects. Many times, ESCOs will guarantee savings, which are used to help fund the energy conservation measures, and they will remain contractually obligated to reimburse the project owner if the savings do not meet the ESCO's projections. These performance-based contracts vary depending on the size and scope of the project, the unique features of the underlying assets, and the potential savings that may be attained; however, most ESPCs require little to no upfront capital investment by the project owner. ESPCs are most often entered into by governmental entities, school districts, colleges, and universities.

Power Purchase Agreements (PPAs)

PPAs are contracts between utility customers and a developer pursuant to which the developer is responsible for the design, permitting, financing, and development of an energy project or microgrid. The developer agrees to operate and maintain the project, and in exchange, the customer is obligated to purchase the power that is produced by the project for an agreed-upon price. The customer will remain connected to the macrogrid and be able to purchase additional power if needed. A PPA may also be structured so that the customer may sell any excess power from the project to the larger grid. Generally, the developer will take advantage of any government incentives and tax credits that may be available. PPAs are often used for standalone solar projects, but are also options for the development of full-scale microgrids.

Lease Arrangements

Finally, various lease arrangements exist under which a customer will lease microgrid or energy-producing assets from a third-party owner. The customer will have the right to utilize any power that is produced in exchange for the lease payments. These agreements can be structured as capital leases or operating leases. Depending on the structure that is chosen, benefits (such as tax credits, depreciation deductions, and other incentives), and burdens (including operation and maintenance responsibilities and performance risk) will be assigned to either the third-party owner or the customer.

Conclusion

Despite the upfront costs associated with microgrid development, there are many financing options available to property owners or governmental entities that wish to pursue these types of projects, many of which are not mutually exclusive. These options can help facilitate microgrid projects while using energy savings to pay, in whole or in part, for the upfront costs of their development.

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