Case Study: The Tower Companies' Commercial Office Solar PV

BETTER BUILDINGS ALLIANCE

Overview

The Tower Companies started investing in on-site renewable energy in 2014 and since then, has continued to expand on-site solar photovoltaics (PV) across the portfolio of commercial office and multi-family buildings (including Blair House and The Pearl). Blair Office Building is Tower's fourth completed PV project and by the end of 2021, they will have installed a total of 1MW. In addition to generating on-site clean energy, Tower has purchased renewable energy credits and carbon offsets since 2008 to maintain carbon neutral operations. This effort has helped support Green-e Certified and Verified Carbon Standard (VCS) renewable energy projects.

Solar PV installation at Blair Office Building

Process

1. **Ran competitive request for proposal (RFP) to engineering/procurement/construction (EPC) providers or partner with trusted EPC:** PV on the Blair Office Building was the fourth on-site solar PV installation completed by Tower. Based on their experience working with various contractors in the local market, they decided to partner with a trusted EPC from a previous project. Based on project experience, peer research, and general market knowledge, the team evaluated the proposed system size and cost.
2. **Developed project details and financial model in coordination with internal departments:** Once Tower decided on the EPC partner and received a preliminary design with associated pricing, the next step was to put together the financial investment analysis to determine if there was a business case. This involved confirming information with several departments including tax, accounting, leasing, legal, construction, property management, and engineering. For example, tax calculations needed to be reviewed and approved by the tax department as every property has a different entity make-up in terms of ownership and tax appetite. It is also important to understand the leasing structure at the building, including how operating costs are passed along to tenants, as that impacts the electricity avoidance year to year.
3. **Executed contract with selected EPC company:** Since Tower selected an EPC they had worked with before they did not need to vet the company again. They reviewed all project details to confirm turn-key scope of work and system size, system layout, panel specification, racking specification, inverter specification, electrical run, etc. so that all this information was understood and included as part of the contract package.
4. **Secured Solar Renewable Energy Credits (SRECs):** Tower received offers from a few different SREC brokerage companies and compared term options, pricing, etc. After vetting the options and updating the financial model, the team decided to partner with a local company that had already worked with them on previous projects. To optimize financial return, Tower decided to sell the SRECs generated by the on-site system and so these SRECs are not used towards the carbon neutral claim. Instead, Tower purchases unbundled RECS from a competitive marketplace. This strategy allows Tower to make the financial case for on-site solar systems. It also aligns with their ULI Climate Commitment and general reporting protocol for their GHG inventory with The Climate Registry.

Keys to Success

- **Lease Structure and Utility Costs:** When pursuing PV at an office building, it is important to understand the tenant lease structure and how operating costs are handled – specifically electricity costs. Blair Office Building operates under a gross modified lease where tenants only pay operating costs when there is an increase from their base year. Based on the current tenant leases, associated base years, and operating budgets, the landlord (Tower) estimated that they will be responsible for 95% of the utility costs. Therefore, any improvements in energy efficiency should directly benefit the building owner.
- **Electrical Run:** Tower had to run the electrical conduit from the roof down to the main electrical room in the basement due to lack of electrical infrastructure available on the top floor. Doing this inside the building was unrealistic because of high cost and disruption to building tenants and operations, so the conduit was installed down the exterior of the building. This required additional equipment, coordination with neighboring properties, and review of the aesthetics by ownership.
- **SRECs:** The Blair Office Building is in Maryland but borders Washington, D.C. The District has a more vibrant SREC market than Maryland, and some Maryland properties can qualify to receive Washington SRECs if they are located on the D.C. feeder line (e.g. Blair House). Unfortunately, this project is just outside of the D.C. feeder line. As a result, the project payback was not as strong as Tower had hoped, but still made financial sense.
- **Federal Tax Credit:** The Federal Solar Investment Tax Credit (ITC) is one of the most important components of the financial analysis, and a driver for completing solar under the direct ownership model. The ITC changed from 30% in 2019 to 26% in 2020. Therefore, Tower moved quickly to execute the contract and procure materials in 2019 to lock in 30%.
- **Operations & Maintenance (O&M):** Tower sought to understand O&M options with the EPC so potential costs could be built into the financial model and a contract could be ready once the project was complete. O&M costs are an additional expense paid to a third-party partner, typically the same EPC that completed the original project. O&M scope will include work such as annual inspections, preventive maintenance, remote monitoring, and support to resolve issues with generation.

SOLAR PROJECT HIGHLIGHTS	FINANCIAL HIGHLIGHTS
▶ **Location:** 1960s Class B/C Office Building; <100,000 sq. ft. ▶ **Date installed:** August 2020 ▶ **Location:** Silver Spring, MD ▶ **Installation type:** Rooftop ▶ **Specifications:** REC 320W modules; Sollega FastRack Mounting System; SolarEdge inverter/monitoring system ▶ **Size:** 17.28 kW; 54 panels ▶ **Annual production:** 2% building demand offset ▶ **Key support:** Ownership, Sustainability & Solar Consultant and Owner's Rep, Solar EPC, Montgomery County DPS, Pepco (Utility), MEA, SREC Broker	▶ **Strategy:** Direct Ownership Model, No Loan ▶ Upfront Hard Costs: ~ $65,000 ▶ Electricity Avoidance: ~20,000+ kwh/year (~$2,500 annual average) ▶ **SRECs Revenue:** ~$5000+ over 6 years ▶ **MEA Grant:** $2,395 thru Maryland Clean Energy Grant Program ▶ Federal Tax Credit: 30% ITC ▶ **Depreciation:** 100% in Year 1 ▶ **Payback:** 90% return in Year 1, < 4-year payback

Considering the Value of Solar

The solar PV system at Blair Office Building is considered an additional piece of equipment that is part of the property, like new or upgraded energy efficiency lighting or HVAC equipment. Because Tower is an owner/operator and has a long-term ownership perspective on assets, they can consider both short and longer-term incentives. Short term, there are significant tax incentives and rebates. Long term, the solar system adds to the value of the property through reduced operating expenses that come from direct and guaranteed electricity savings on the monthly utility invoices. This raises the property's net operating income (NOI) and therefore, increases the asset's value. The solar system (and other energy efficiency measures) add value to the building and that value is recognized by both lenders and buyers who transact in commercial real estate.

Next Steps

Tower has additional PV projects under construction and more in development. By the end of 2021, Tower will be generating almost 2 million kWh of on-site solar energy across its portfolio using approximately 4,000 solar panels; 5% of their total annual electricity demand will come directly from the sun. Through energy efficiency efforts, including on-site renewable energy projects like this one, Tower has reduced energy consumption by more than 25% across the portfolio since 2010. Tower will continue to expand on-site renewable energy where possible and implement other innovative energy efficiency solutions to meet climate change goals and lead by example.

This case study is part of a series from Better Buildings focused on PV Valuation.
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