

With a population just over 207,000, Gaston County, North Carolina is in many respects an appealing commuter community for its sprawling neighbor to the east - Charlotte. In 2011, Gaston County expanded upon its customary reputation for small town festivals and main streets lined with quaint shops by creating a name for itself in the realm of solar energy development. This case study follows Gaston County's efforts to install solar energy on a local government facility and details the lessons learned from the experience. It also provides guidance for other local governments looking to install solar energy on municipal property.

"We knew we wanted some type of solar project and we had already installed solar thermal hot water heating on four of our facilities. We also knew that with a county budget that couldn't support purchasing a solar photovoltaic system outright, we would need to find a way to involve a third party developer that could take advantage of the federal and state tax incentives." – Dan Ziehm, Assistant Director, Gaston County Public Works

Initial Stages

When the National Gypsum Plant in Mount Holly, NC installed a rooftop solar array, the leadership in the Gaston County Public Works Department began contemplating a comparable installation that would benefit the municipal government.

Gaston County commenced the process by releasing a request for qualifications (RFQ) and began vetting statement packages from interested solar companies for the installation of a rooftop PV system on the county's York Chester Plaza Building.

Qualifying companies were then asked to provide a formal proposal to the county for a roof-mounted solar installation. The proposals were required to provide detailed system specifications, and the amount of roof rent the vendor would pay annually to Gaston County for an initial 10-year lease term, and a further 10-year extension agreement.

Developers vying for the project were drawn to the RFQ by the prospect of a large roof space at a reasonable lease rate. Of the qualified submissions, Gaston County ultimately selected Charlotte based National Renewable Energy Corporation (NARENCO) for the project.

Project Development

Gaston County's lease agreement with NARENCO, signed in November 2011, had a December 31st deadline for system completion so that NARENCO and its financing partner, Wells Fargo, could take advantage of bonus depreciation deductions that were set to expire at the end of 2011. Under the partnership, Wells Fargo takes the tax credits and depreciation on the system, then leases the equipment back to NARENCO in what is commonly known as a sale-leaseback arrangement.

Currently, NARENCO leases 100,000 square feet of roof on the York Chester Plaza building roof from Gaston County through a long-term lease agreement. The initial term of the lease is set to expire December 31, 2021.ⁱ The contract will automatically extend for an additional 10 years after this date, unless NARENCO notifies the county by fall 2021 that the company does not intend to renew the lease.ⁱⁱ

Under the general terms of the lease agreement, NARENCO owns and operates the solar installation. Electricity generated by the solar array will be sold to Duke Energy Carolinas under a separate Power Purchase Agreement (PPA). The solar renewable energy credits (REC) are then sold to Energy United of Statesville, NC.ⁱⁱⁱ



Figure 1 - NARENCO crew members work over the holidays and through inclement weather to ensure installation is completed by the end of the year. Photo courtesy of NARENCO.

Meeting the December 31st deadline required for the bonus depreciation deductions proved challenging. A system of 3,122 panels that would normally need at least 12 weeks to install was now limited to an 11 week timetable littered with several major holidays and inclement weather.^{iv} According to Gaston County's project management "...the project superintendent pretty much lived on the roof for 40 days and nights. They couldn't miss a day of work due to rain. If it was raining, NARENCO put tents on the roof so the electricians could work in a dry area. In the end, the schedule was met. Our system went live on December 27th."

The 740 kilowatt solar energy system is projected to generate just shy of one million



Figure 2- Completed rooftop solar installation on York Chester Plaza building. Photo courtesy of NARENCO.

kilowatt hours of electricity per year for Gaston County.^v

Looking Back

Medium-sized communities working to successfully enable and encourage solar development without the assistance of a municipal utility should look to Gaston County as a successful, real-world example. Dan Ziehm, assistant director, Gaston County Public Works, shares this advice with other local governments interested in similar projects:

- Start with a feasibility study. Use an engineering firm experienced with solar installations to determine if a system is even possible for the site under consideration. Use the findings to either advance or table the project.
- Issue a request for qualifications (RFQ) or request for proposals (RFP) to begin vetting interested and qualified vendors.
- Understand what deadlines may exist for project construction (e.g., expiring incentives) and allow ample time to accommodate them.

When reflecting upon the project, Ziehm says there isn't much he would change. "I don't know if I would do anything differently, but possibly in a different order."

Local governments should also understand the evolving needs and goals of project developers. For example, what drew NARENCO to the project two years ago is different than what would drive the company to a project in today's solar market. "Two years ago, every community wanted to lease a rooftop and solar developers in North Carolina were responding to every RFP" states NARENCO President Dennis Richter. "Now, with no shortage of rooftops available for lease, the primary focus of projects has shifted to making the financing work and lining up utility cooperation."

Richter offers this advice to local governments looking to lease rooftop space to solar developers in today's market:

- Package together rooftops that could be leased and offer them to local developers. Projects need to be large enough to attract developers. Single rooftops may not meet this requirement
- Understand the package a developer is looking for and make it easy for them to find the opportunity
- Do preliminary homework on project feasibility, including making sure rooftops are new enough and can support the weight of a solar installation

Looking Ahead

Ultimately, the York Chester Plaza project was completed without the need for any county funds. NARENCO pays the county an annual rent that increases over the term of the lease, beginning at \$8,000 in the first year and escalating to \$11,654 by the 20th year.^{vi} The County is currently receiving this annual revenue from the solar installation and will be able to purchase the system within 15 or 16 years at its depreciated cost.^{vii}

Following the success of the York Chester Plaza building's installation, the county started investigating opportunities for other solar energy projects. In the fall of 2012, the County Commission reached an agreement with Calor Energy to conduct a feasibility study on using a vacant County landfill for a solar farm, though if the project moves forward, the deal will likely vary in some respects from the County's current lease agreement with NARENCO.

Initial details of the feasibility study have the county sharing roughly 25% of the revenue generated from the solar installation for an initial 15-year term, with an optional 10-year renewal term. The abandoned landfill site could realistically support a project of two to six megawatts, resulting in projected county revenue of \$20,000 to \$100,000 annually.^{viii}

Despite the differences in the lease agreement, the potential landfill solar project is comparable to the current project in two important ways. If the landfill project goes forward, the county will carry none of the responsibility for financing, construction or maintenance of the installation, and it will receive significant annual revenues from

rental payments. All things considered, the York Chester Plaza project was a victory for Gaston County both as a learning experience and a means of generating additional revenue. Judging by current plans, it looks like another one could be on the way.

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state or reflect those of the United States Government or any agency thereof.

ⁱ Gaston County, North Carolina. “Roof Lease Agreement between Gaston County, North Carolina and National Renewable Energy Corporation”.

ⁱⁱ Ibid.

ⁱⁱⁱ Bushong, Steven. “Racking and Mounting: With Little Space and Less Time”. Solar Power World Online, August 22, 2012.

<http://www.solarpowerworldonline.com/2012/08/racking-and-mounting-with-little-space-and-less-time/>

^{iv} Ibid

^v Ibid.

^{vi} Gaston County, North Carolina.

^{vii} Bushong.

^{viii} Barrett, Michael. “County Set to Make Deal on Solar Panels”. Gaston Gazette, November 9, 2012. <http://www.gastongazette.com/county-set-to-make-deal-on-solar-panels-1.46804>