TOWN OF HILLSBOROUGH SOLAR FEASIBILITY STUDY REPORT

Date: July 23rd, 2026

Prepared By: Pisgah Energy Inc.



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EXECUTIVE SUMMARY

The Town of Hillsborough engaged Pisgah Energy and NV5 via Orange County to perform Solar Feasibility Studies for (6) buildings across (5) town-owned facilities to assess them for rooftop solar photovoltaic (PV) opportunities. Pisgah Energy performed the Solar PV feasibility analyses and NV5 performed the rooftop structural assessments for the facilities.

Since 2017, when the Town issued a resolution supporting the goal of 100% clean energy by 2050, the Town of Hillsborough has demonstrated a long-term commitment to working with surrounding communities and municipalities, as well as advocating for policies at the state, regional and federal level to achieve a just transition to clean energy. In 2023, with the adoption of a Comprehensive Sustainability Plan, the Town of Hillsborough expanded its vision to build a more resilient community, promote an environmentally sustainable economy, and protect the earth for current and future generations. Among other things, the plan serves as a guide for the Town to transition fossil-fuel powered municipal operations to 100% clean, renewable energy by 2050, in support of a more sustainable Hillsborough. The feasibility study conducted by Pisgah Energy and NV5 supports actions outlined in the Comprehensive Sustainability Plan by assessing town-owned properties for renewable energy generation via solar PV, as well as identifying priority sites for planning and implementation.

This report summarizes the project approach that was used for conducting feasibility studies, solar PV design considerations, structural roof certifications, solar PV capacity and shading reports, project budgets, and 30-year financial analyses including the direct pay incentives from the Inflation Reduction Act (IRA). Supplemental information, along with all feasibility study deliverables, is included in the appendix.

To remain eligible for federal Direct Pay incentives, solar PV projects must be placed in service by December 31st, 2027.

Key Feasibility Study Findings:

- (6) Viable Buildings For Rooftop Solar PV
- (5) Buildings need evaluation of remaining useful life (and potentially partial or full roof replacement) prior to installing Rooftop Solar PV
- The new expansion roof sections at the Adron F. Thompson Facility will be “solar ready”
- The Structural Engineer does not recommend solar be installed on the existing roof at the Adron F. Thompson Facility without remediation efforts.
- Total Solar PV Capacity - 156 kWdc
- Annual Production – 199,980 kWh
- Annual CO2e Avoided – 125 Metric Tons CO2e

While all (6) buildings are viable for solar, only the expansion section of the Adron F. Thompson Facility will be considered ‘solar ready’. (5) of the (6) rooftops will need to be evaluated for remaining useful life and/or replaced prior to the solar projects advancing to engineering and construction upon approval.

This report identifies the next steps for advancing these projects to additional stages of design-development and construction.

Contact for Consulting Team:
Sam Kegley, NABCEP PVDS - Pisgah Energy Inc. – samantha.kegley@pisgahenergy.com

FACILTIES STUDIED

The following chart shows the facilities studied, the roof type at each building, and information that describes what steps need to be taken prior to installing solar PV. Rooftop solar PV installations are considered a 30-year asset and should be coordinated with the remaining useful life of the roof material. To install a solar PV system on a roof that only has 5-10 remaining years of useful life means that the solar PV will have to be removed, the roof replaced, and then the solar PV put back on the roof. This adds significant labor cost and complexity to the system and can be avoided by making informed decisions about roof life prior to considering solar.

Site	Facility Name	Roof Type	Roof Ready For Solar	Replace Roof (Pre-Solar)	Roof Sections to Replace	Viable for Solar
1	Town Hall Annex	Asphalt Shingle	N	Y	Entire Roof	Y
2	Motor Pool/ 86 N Facility	Metal	N	Y	Entire Roof	Y
3	Water Treatment Plant	Rock Ballast	N	Y	Entire Roof	Y
4	Adron F. Thompson Facility	Metal, Membrane	Partially*	Y	NA**	Y
5	Wastewater Treatment Plant	Solids Building = Mod Bit, Filter Building = Membrane	N	Y	Entire Roof	Y

*The sections of the rooftop that are part of the facility expansion will be solar ready.

**The structural engineer does not recommend that solar be installed on the existing rooftop without remediation efforts, making a rooftop replacement unnecessary at this time. Should solar be considered for the existing roof section at Adron the F. Thompson Facility, Pisgah Energy recommends having the existing membrane roof evaluated for remaining useful life or replacing it.

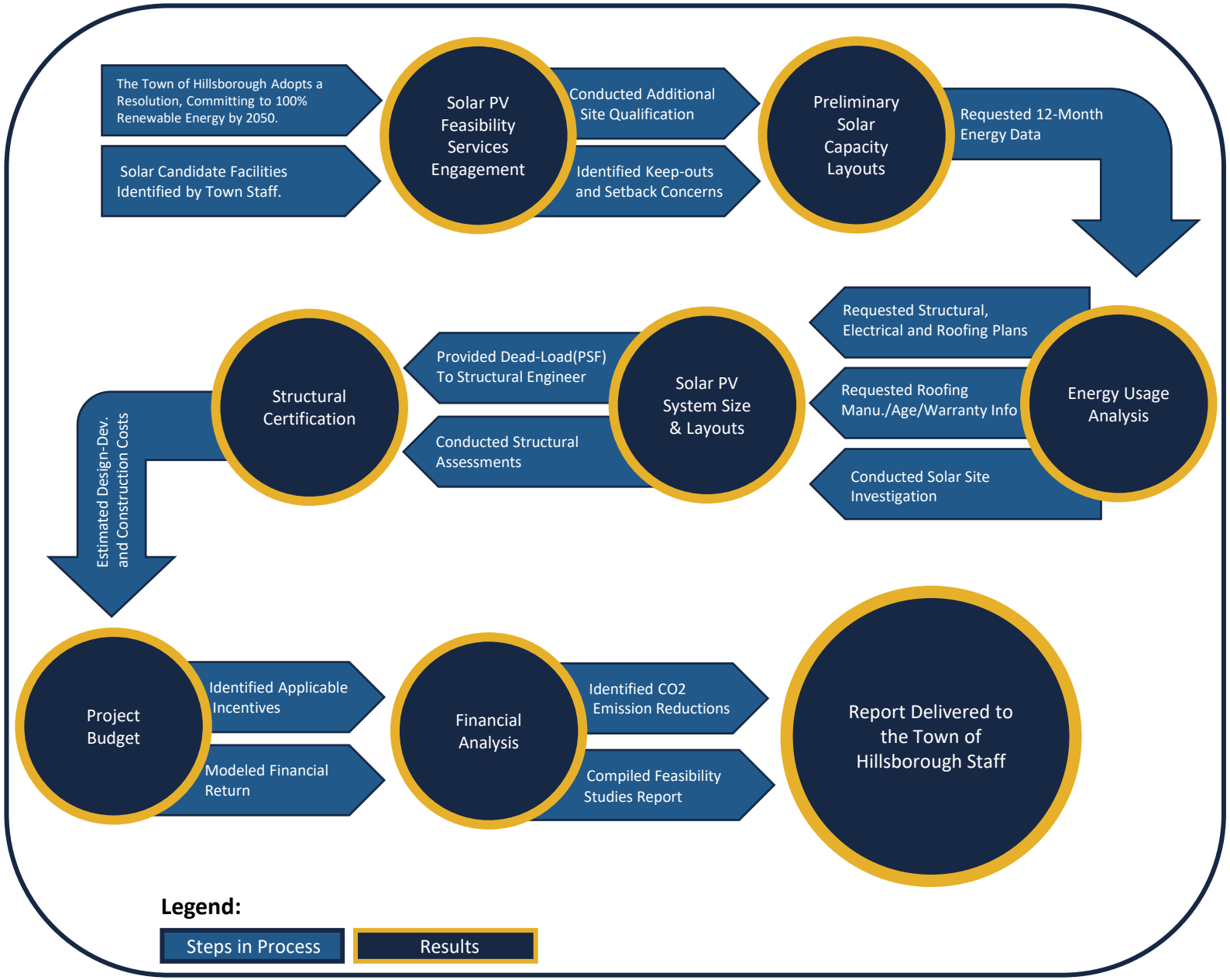
Feasibility Study Project Approach

The facilities included in this study were assessed for rooftop solar opportunities that can be utilized for on-site electricity generation which results in reduced carbon emissions and energy expenses for the facility. Understanding that solar PV systems should not be installed on rooftops that are in poor condition, all (5) of the facilities studied have building rooftops that will need full or partial replacement prior to proceeding with the installations. At the very least, all older rooftops should be evaluated for their remaining useful life before solar is installed. The newly added metal sections of the Adron Thompson building will be "solar-ready" as soon as the renovation/expansion project is complete.

There are several constraints to sizing solar PV systems including available roof area, annual energy consumption, peak demand, and facility electrical distribution infrastructure. Knowing that solar PV systems need to be carefully sized to not exceed the facilities peak demand limits, we have evaluated the energy usage, electrical infrastructure and available real estate for solar opportunities and are presenting solar PV capacities based on the largest allowable solar PV system size. This approach achieves economies of scale in project pricing while also having significant impacts to on-site CO2e emissions reductions.

All the roof structures included in this study, except for the existing roof at the Adron F. Thompson Facility, have been approved for adding the weight associated with rooftop solar.

Figure 1: Feasibility Study Process



DESIGN CONSIDERATIONS



Photo of Solar Array at Asheville-Buncombe Technical Community College in Asheville, NC

SOLAR DESIGN CONSIDERATIONS

Interconnection to Utility and the Grid

Solar photovoltaic (PV) systems can be used for a multitude of applications, varying from on-site electricity generation for lowering energy expenses, to selling solar electricity directly to the utility, to using solar panels and batteries for critical back-up infrastructure and off-grid applications. Selecting the application depends on several factors such as client goals for emissions reductions, the specific utility company and their interconnection policies, and statewide interconnection policies. The Town of Hillsborough desires to offset carbon emissions through solar as cost effectively as possible and, for the facilities included in these studies, it is most cost effective to install solar on-site and use the solar energy for lowering energy expenses versus selling electricity back at wholesale rates.

Duke Energy Carolinas (DEC) is the utility serving the facilities included in these studies and it allows for using solar energy on-site to lower the energy charges. DEC calls this interconnection method Net-Metering and limits the AC size of the solar project to 5,000kW, or the Contract Demand, whichever is less. The highest peak demand over the past 12-month can be used as a substitute if no Contract Demand is available. The Net-Metering Rider requires a facility to be on a time-of-use rate schedule and compensates the customer for solar generated energy at the retail electricity rate if solar produces at or below 100% of the monthly kWh consumed by the facility. If solar produces over 100% of a facility's monthly kWh consumption, the customer is compensated for all solar energy generated in excess of 100% at a reduced rate ($0.044/kWh as of January 1, 2026).

Solar Capacity Methodology

Solar PV panels produce Direct Current (DC) which has to be converted to Alternating Current (AC) through a device called an inverter to use solar energy in grid-tied applications. As noted above, Duke Energy Carolinas (DEC) limits the solar AC Capacity to 5,000kW or the contract demand, whichever is less.

We have sized the AC capacity not to exceed the Contract Demand/highest recorded peak demand for each facility, except for the newly renovated Adron Thompson building where electricity usage is expected to increase substantially. This approach allows for the largest possible AC solar capacity within DEC limits. The DC capacity of solar projects is typically sized at 1.1–1.75x the AC capacity, with the optimal range for maximizing solar performance being 1.25-1.5x the AC capacity. In general, we have sized the solar capacity for each facility as large as possible within utility requirements, inverter sizing limits, and rooftop setback/available area limits. The percentage of the facilities' electricity offset by solar is a function of how much real estate is available for solar deployment, and the amount of energy each facility consumes. For some of these facilities, solar capacity can nearly meet or exceed 100% of the annual energy requirements, and for the most energy intensive facilities with limited real estate, solar capacity will meet <10% of the annual energy requirements.

The helioscope reports detailing the DC and AC capacity for each facility illustrate the layout for solar panel placement, the equipment specifications/quantities, and monthly/annual kWh generation. The helioscope reports have been presented to Town staff and should be used to supplement this report.

Siting Considerations

Optimal solar panel orientation to generate maximum energy annually, is facing due south (azimuth 180) and with a tilt equal to the latitude. Deviations from optimal orientation will reduce the annual production as seen in Figure 3. Roof orientations and tilt that are not optimally aligned generally do not degrade solar production enough to warrant additional framing structures to properly align modules.

Figure 3 indicates that solar arrays as much as 30° off azimuth and 15° tilt still produce energy at 95% of maximum production. Roof mounted solar panels are typically aligned to the building structure.

SOLAR DESIGN CONSIDERATIONS

For pitched rooftops, the solar panels are most commonly designed to be flush mounted at the same angle as the roof pitch. For flat rooftops, the solar panels are typically tilted between 5°-15°.

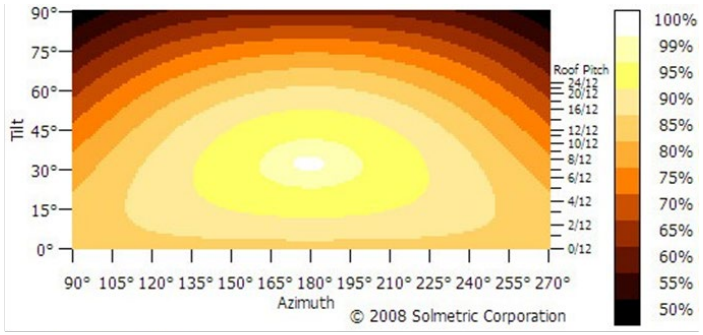


Figure 3: Effect of Orientation and Tilt

Roof Considerations

A roof that is heavily shaded or has a lot of equipment on it is not ideal for solar. For the studies, we have performed detailed shading analysis and not placed solar on roof sections that have less than a 60% solar window. The shading analysis has been provided to Town staff and should be used to supplement this report. Beyond the orientation, the roof age, warranty, and structural capacity are also considered.

Roof Age

Solar should not be installed on an old roof that is in poor condition. Solar arrays are designed to last for 30+ years, and the useful life of the roof should be closely aligned with the useful life of solar. Installing solar on an older roof may require removal and reinstallation of the solar array when it's time for a new roof to be installed. This has significant impacts to the cost recovery period.

Roof Warranty

Solar installations must comply with roofing manufacturers' requirements for keeping the warranties intact. Mounting methods for rooftop solar are standardized, however roofing manufacturers have slightly different requirements for installing solar to maintain the existing warranty. Under most circumstances, prior to projects being installed, documentation of the solar racking system is submitted to the roofing manufacturer of record to verify the installation complies with the recommended installation methods. Some roofing manufacturers require inspections (by the roofing manufacturer) to ensure the solar installations followed their guidelines. Based on information received from Hillsborough during feasibility studies, there may not be existing roof warranties at the (5) facilities studied. However, the solar mounting systems used in these designs comply with the general requirements for maintaining roof warranties.

Structural Capacity

Roof framing structures need to be properly evaluated for the additional loading capacity associated with adding solar. The added weight from solar on pitched rooftops is <3psf and between 5-12psf on flat rooftops. All (6) roof framing structures included in these studies have been structurally evaluated and (5) were certified by the structural engineer for adding solar without requirements for improving the roof framing structure. The structural engineer does not recommend adding solar to the existing roof at the Adron F. Thompson Facility without structural remediation efforts and subsequent inspection prior to a planned rooftop solar installation. However, based on a review of the building plans for the expansion at the Adron F. Thompson Facility, the structural engineer has approved the new roof sections for solar. Additionally, the structural evaluations performed at the Adron F. Thompson Facility will need to be confirmed by the structural engineer of record for the expansion since the current evaluation is based only on building plans. If there are changes during construction, the current evaluation for this facility is voided. The structural certification letters have been provided to Town Staff and should be used as supplemental information to this report.

SOLAR DESIGN CONSIDERATIONS

Product Selection Methodology

Understanding that not all solar projects are created equal, we have used manufacturers in the designs based on their company bankability, reliability, quality, warranty, and product availability. Solar contractors have experience sourcing and installing these manufacturers. The following makes/models were used for the basis of design during the studies:

- SEG Solar 485W and 595W Panels
- SolarEdge Inverters and DC-DC Optimizers
- Iron-Ridge - Flush-Mounted Racking (For Pitched Rooftops)
- PanelClaw – FR10 Ballasted Racking (For Flat Rooftops)

Should the solar projects advance to the engineering and construction phase, Pisgah Energy will specify 3-4 solar panel manufacturers and rooftop racking systems for bidding contractors to choose from.

Viability for Solar

The sites identified as viable for solar on the **Facilities Studied** slide are based on the following criteria:

- Roof Structure approved for adding solar
- Existing electrical distribution system can accommodate proposed solar capacity
- Solar Access Window >60%



Pitched Roof Solar Array at Asheville's Fire Station 1



Flat Roof Solar Array at Buncombe County PSTC Training Facility

ENERGY USAGE SUMMARY ALL SITES

The following chart shows the 12-month energy consumption (kWh), contract demand (kW), peak demand (kW), and current rate schedule for each meter. Duke Energy Carolinas (DEC) requires that customers seeking service under the Non-Residential Solar Choice Rider operate on a Time of Use (TOU) rate schedule. The TOU rate schedules available to DEC customers are OPT-V and SGS-TC. A rate schedule switch is required for the facilities below that are not currently on a TOU rate schedule (Town Hall Annex and the Adron F. Thompson Facility). The OPT SS rate schedule listed below is "OPT-V with Secondary Service," meaning the OPT SS facilities are already on a TOU rate schedule.

Facility Name	Account #	Meter #	12 Month Energy Consumption (kWh)	Contract Demand (kW)	12-Month Peak Demand (kW)	Current Rate Schedule
Town Hall Annex	910035309490	77505665	53,783	55	21.6	SGS
Motor Pool/86 N Facility	910035309713	328898139	40,009	30	18.88	OPT SS
Water Treatment Plant	910035309391	77693685	918,247	270	220.8	OPT SS
Adron F. Thompson Facility	910035309812	77521773	25,560	15	14.5	SGS
Wastewater Treatment Plant	910035309557	77614749	2,022,932	390	376.8	OPT SS

Both the Town Hall Annex and the Adron F. Thompson Facility will be required to switch from their current Small General Service (SGS) rate schedule to a new Time of Use (TOU) rate schedule as part of a solar installation.

Further details regarding the impact of rate schedule changes and increased energy usage are included on Page 19 – Solar Project Budgets & Financial Analyses.

SOLAR PROJECT LAYOUTS



Photo of Solar Array at Asheville-Buncombe Technical Community College in Asheville, NC

Solar Array Details

- System Size: 30.07kWdc / 22.8kWac
- Annual Production: 39,452kWh
- Electricity Offset by Solar: 73.4%
- CO2e Offset in Metric Tons: 24.7
- Number of Solar Panels: 62
- Racking Type: Flush Mount
- Design Constraints: Available Roof Area, Shading From Trees to the South

Roofing Overview

- Roofing Material: Asphalt Shingle
- Roof Condition: Recommend Conducting Roof Assessment to Determine Remaining Useful Life Prior to Installing Solar
- Dead Load Limit for Solar: 3psf
- Structurally Approved for Solar: Yes



TOWN HALL ANNEX
105 East Corbin Street, Hillsborough, NC 27278

Solar Array Details

- System Size: 29.75kWdc / 17.3kWac
- Annual Production: 38,077kWh
- Electricity Offset by Solar: 95.2% (Percentage based on current energy usage. This percentage will decrease with expected usage increase.)
- CO2e Offset in Metric Tons: 23.8
- Number of Solar Panels: 50
- Racking Type: Flush Mount
- Design Constraints: Available Roof Area

Roofing Overview

- Roofing Material: Metal
- Roof Condition: Recommend Conducting Roof Assessment to Determine Remaining Useful Life Prior to Installing Solar
- Dead Load Limit for Solar: 3psf
- Structurally Approved for Solar: Yes



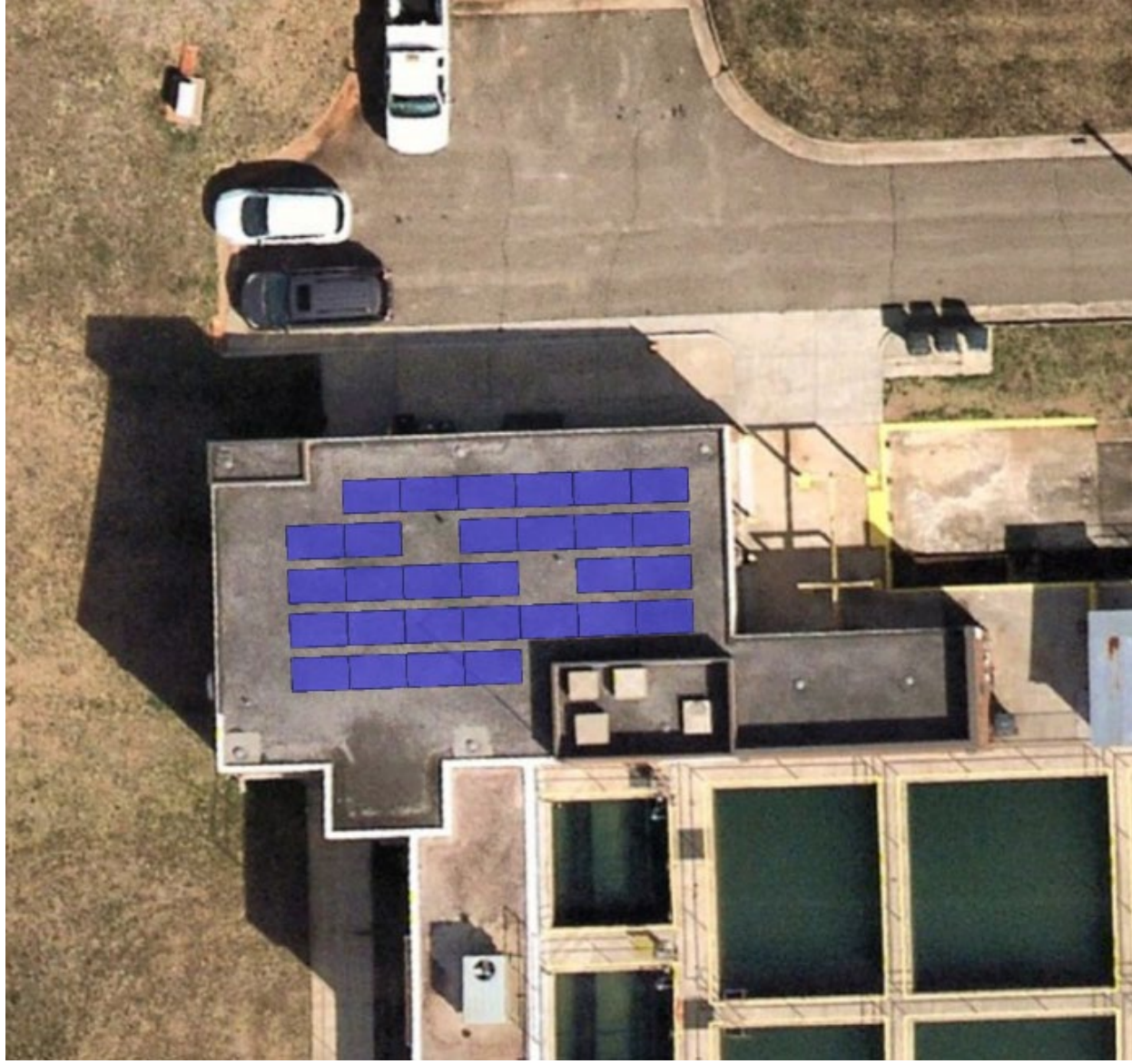
MOTOR POOL / 86 N FACILITY
890 NC 86 N., Hillsborough, NC 27278

Solar Array Details

- System Size: 14.07kWdc / 10kWac
- Annual Production: 19,203kWh
- Electricity Offset by Solar: 2.1%
- CO2e Offset in Metric Tons: 12
- Number of Solar Panels: 29
- Racking Type: Ballasted
- Design Constraints: Available Roof Space

Roofing Overview

- Roofing Material: Rock Ballast
- Roof Condition: Recommend Replacement Prior to Installing Solar
- Dead Load Limit for Solar: 6.97psf
- Structurally Approved for Solar: Yes



Water Treatment Plant
711 Dimmocks Mill Road, Hillsborough, NC 27278

Solar Array Details

- System Size: 42.68kWdc / 34.6kWac
- Annual Production: 53,053kWh
- Electricity Offset by Solar: 207.6% (based on current energy usage at facility, this percentage will decrease with expected usage increase)
- CO2e Offset in Metric Tons: 33.2
- Number of Solar Panels: 88
- Racking Type: Flush Mount, Ballasted
- Design Constraints: Available Roof Space, Current Peak Demand of Facility

Roofing Overview

- Roofing Material: Metal, membrane
- Roof Condition: Condition of Existing Membrane NA (see structural note below), New Metal Section will be “Solar-Ready”
- Dead Load Limit for Solar: 3psf flush mounted, 7.5 ballasted
- Structurally Approved for Solar: Existing Rooftop - Not Approved, New Metal Section - Approved



Adron F. Thompson Facility
715 Dimmocks Mill Road, Hillsborough, NC 27278

Solar Array Details

- System Size: 39.29kWdc / 27.3kWac
- Annual Production: 50,195kWh
- Electricity Offset by Solar: 2.5%
- CO2e Offset in Metric Tons: 31.4
- Number of Solar Panels: 81
- Racking Type: Ballasted
- Design Constraints: Available Roof Area

Roofing Overview

- Roofing Material: Solids Building = Mod Bit, Filter Building = Membrane
- Roof Condition: Recommend Replacement Prior to Installing Solar
- Dead Load Limit for Solar: 5.95psf (Filter Building), 8.14psf (Solids Building)
- Structurally Approved for Solar: Yes



Wastewater Treatment Plant
355 Elizabeth Brady Road, Hillsborough, NC 27278

PROJECT BUDGETS, FINANCIAL ANALYSES & CURRENT INCENTIVES



Photo of Solar Array at Asheville-Buncombe Technical Community College in Asheville, NC

SOLAR PROJECT BUDGETS & FINANCIAL ANALYSES

The project budgets on the following page represent the costs for Engineering, Interconnection, Construction, and Construction Administration. The financial analysis includes the Direct Pay Incentive that applies to each project. None of the facilities are located in areas eligible to receive the Low-Income or Energy Community Bonus Credits. Additionally, a Domestic Content Bonus Credit (10%) option was not included in the financial analysis; selecting a Domestic Content compliant route will limit construction component vendor options for the Town. The RFP can be designed to have installers bid on the specified equipment and propose an alternate Domestic Content compliant option. All solar projects must comply with Foreign Entity of Concern (FEOC) restrictions to be eligible for the Direct Pay Incentive. (See page 20 for more information.)

The chart on the following page includes a column for the Levelized Cost of Energy (LCOE) for each solar project. LCOE is a metric that represents the average cost to build, operate and maintain an electricity-generating asset (solar, wind, nuclear, natural gas, etc.) over its lifetime, divided by the total electricity it will produce. It is expressed in cost per kilowatt-hour (kWh) and is used to compare the cost-effectiveness of different energy generation sources.

$$\frac{\textbf{Capital Cost (- Incentives) + Operating Cost}}{\textbf{Lifetime kWh Production}} = \textbf{LCOE}$$

This metric allows the Town to compare the cost of buying a solar generation asset to what it pays to purchase energy from the utility. In most cases, owning a solar generation asset proves to be the most cost-effective option.

Projects have been ranked in order of shortest to longest return on investment period. A detailed estimate and financial analysis for each project has been provided to Town staff, and those documents should be used as supplemental information to this report. The detailed financial analysis assumes current utility Time-Of-Use rates and a 3% annual escalator for electricity costs. Estimated costs for annual Operation and Maintenance and inverter replacement (at Year 16) are included in the detailed analysis.

SOLAR PROJECT BUDGETS & FINANCIAL ANALYSES

Facility Name	Project Size (kWdc)	Direct Pay Base Incentive	Project Budget	30 YR Energy Savings	Payback Period (YR)	30 YR IRR %	30 YR Levelized Cost of Energy/kWh
Town Hall Annex	30.07	$40,352	$134,508	$191,453	18.5	4.00%	$0.095
Adron F. Thompson Building	42.68	$47,309	$157,695	$221,133	19.7	3.70%	$0.089
Motor Pool / 86N Facility	29.75	$34,149	$113,831	$95,206	29.7	0.10%	$0.087
Water Treatment Plant	14.07	$27,240	$90,801	$47,776	> 30	2.50%	$0.133
Wastewater Treatment Plant	39.29	$48,539	$161,796	$133,745	> 30	0.00%	$0.095
Totals	**155.86**	**$197,589**	**$658,631**	**$689,313**	NA	NA	NA

1. It is important to note that the SGS-TC rate that Hillsborough would be forced to switch to after adding solar includes “Critical Peak Pricing” days, which are days that the utility experiences higher than normal peak load on the grid. During these times, the utility will charge a significantly higher rate for energy. The SGS-TC rate schedule notes that up to 20 CPP days may be called in a year. There is no historical data available to suggest when these days may occur, so we have not included Critical Peak Pricing in our financial analysis to be conservative. Should Critical Peak Pricing days and times occur during peak sun hours while solar is producing, there will be additional savings from solar that are not reflected in the financial analysis.

2. Additionally, energy usage is expected to increase somewhat at the Motor Pool/86N Facility after the renovation is complete. Energy usage at the Adron F. Thompson Facility is expected to increase significantly after the renovation and expansion is complete as the building is currently unoccupied. Increasing the energy usage at each of these facilities will make a better business case for the solar project. When net-metering with Duke Energy, energy that is used onsite is offset at the retail rate per kWh. Energy that is exported to the grid, or not used on site, is offset at the wholesale rate per kWh. When both the Motor Pool/86N Facility and the Adron F. Thompson Facility are operational and have higher energy usage, grid exports from solar will be much lower, resulting in a greater dollar value of energy savings.

3. At the Water Treatment Plant and Wastewater Treatment Plant, since the roof area available for solar is so small, the solar systems themselves are very small. The low production at these sites due to small system size mean that the energy savings are low, and therefore the systems do not perform well in the simple payback calculation.

SOLAR PROJECT BUDGETS & FINANCIAL ANALYSES – NO INCENTIVES

The project budgets on this page represent the costs for Engineering, Interconnection, Construction, and Construction Administration. The financial analysis below excludes any known incentives for the solar projects. The chart on this page includes a column for the Levelized Cost of Energy (LCOE) for each solar project.

The chart on the following page includes a column for the Levelized Cost of Energy (LCOE) for each solar project. LCOE is a metric that represents the average cost to build, operate and maintain an electricity-generating asset (solar, wind, nuclear, natural gas, etc.) over its lifetime, divided by the total electricity it will produce. It is expressed in cost per kilowatt-hour (kWh) and is used to compare the cost-effectiveness of different energy generation sources.

$$\frac{\textbf{Capital Cost (- Incentives) + Operating Cost}}{\textbf{Lifetime kWh Production}} = \textbf{LCOE}$$

This metric allows the Town to compare the cost of buying a solar generation asset to what it pays to purchase energy from the utility. In most cases, owning a solar generation asset proves to be the most cost-effective option.

Projects have been ranked in order of shortest to longest return on investment period. A detailed estimate and financial analysis for each project has been provided to Town staff, and those documents should be used as supplemental information to this report. The detailed financial analysis assumes current utility Time-Of-Use rates and a 3% annual escalator for electricity costs. Estimated costs for annual Operation and Maintenance and inverter replacement (at Year 16) are included in the detailed analysis.

SOLAR PROJECT BUDGETS & FINANCIAL ANALYSES – NO INCENTIVES

Facility Name	Project Size (kWdc)	Project Budget	30 YR Energy Savings	Payback Period (YR)	30 YR IRR %	30 YR Levelized Cost of Energy/kWh
Town Hall Annex	30.07	$134,508	$191,453	24.4	1.70%	$0.132
Adron F. Thompson Building	42.68	$157,695	$221,133	25.5	1.40%	$0.121
Motor Pool / 86N Facility	29.75	$113,831	$95,206	>30	1.90%	$0.119
Water Treatment Plant	14.07	$90,801	$47,776	> 30	4.30%	$0.183
Wastewater Treatment Plant	39.29	$161,796	$133,745	> 30	2.00%	$0.129
Totals	**155.86**	**$658,631**	**$689,313**	NA	NA	NA

1. It is important to note that the SGS-TC rate that Hillsborough would be forced to switch to after adding solar includes “Critical Peak Pricing” days, which are days that the utility experiences higher than normal peak load on the grid. During these times, the utility will charge a significantly higher rate for energy. The SGS-TC rate schedule notes that up to 20 CPP days may be called in a year. There is no historical data available to suggest when these days may occur, so we have not included Critical Peak Pricing in our financial analysis to be conservative. Should Critical Peak Pricing days and times occur during peak sun hours while solar is producing, there will be additional savings from solar that are not reflected in the financial analysis.

2. Additionally, energy usage is expected to increase somewhat at the Motor Pool/86N Facility after the renovation is complete. Energy usage at the Adron F. Thompson Facility is expected to increase significantly after the renovation and expansion is complete as the building is currently unoccupied. Increasing the energy usage at each of these facilities will make a better business case for the solar project. When net-metering with Duke Energy, energy that is used onsite is offset at the retail rate per kWh. Energy that is exported to the grid, or not used on site, is offset at the wholesale rate per kWh. When both the Motor Pool/86N Facility and the Adron F. Thompson Facility are operational and have higher energy usage, grid exports from solar will be much lower, resulting in a greater dollar value of energy savings.

3. At the Water Treatment Plant and Wastewater Treatment Plant, since the roof area available for solar is so small, the solar systems themselves are very small. The low production at these sites due to small system size mean that the energy savings are low, and therefore the systems do not perform well in the simple payback calculation.

CURRENT FEDERAL INCENTIVES

Federal Direct Pay Incentive

Currently, solar PV projects for local governments are eligible for the 30% federal direct pay incentive + applicable bonus credits. However, notable changes have been made to this policy that the Town of Hillsborough needs to be aware of.

- **Solar** projects installed after July 4th, 2026 must be placed in service by December 31st, 2027, to be eligible for Direct Pay.

- **Foreign Entities of Concern (FEOC)** restrictions are now in effect for all solar PV projects. To remain eligible for the Direct Pay Incentive, project materials from Foreign Entities of Concern must not exceed a certain threshold. We are awaiting final guidance from the Treasury regarding FEOC compliance and have done research on the manufacturers that are offering FEOC compliant products. Pisgah Energy has compliance documentation on file from some of the manufacturers offering FEOC compliant products based on the current domestic content rules. Other manufacturers will only provide documentation closer to placing final purchase orders.

Resource Links

- Federal Investment Tax Credit
- Direct Pay Program Information
- Direct Pay Fact Sheet

NEXT STEPS
&
APPENDIX



Photo of Solar Array at Asheville-Buncombe Technical Community College in Asheville, NC

NEXT STEPS

- Review report with Town Staff to determine which projects should advance to design-development and construction. Solar PV projects must be placed in service by December 31st, 2027 to qualify for the Direct Pay Incentive.
- For the facilities that need roof replacement, replace roofs prior to installing solar.
- Aggregation is the key for economies of scale. We recommend the engineering and construction of a number of projects at one time if possible.
- After projects are approved to advance to the next stages of design-development, the engineering and interconnection phases of work will commence.
- RFP for construction is assumed to be issued after 100% plan sets are issued.
- Issue RFP for construction bids.

APPENDIX

1. Site Investigation Forms
2. Site Photos
3. Helioscope Reports - – Layouts, Production Reports and Shade Analysis Reports
4. Project Budgets
5. Financial Analysis Reports
6. Structural Analysis Reports
7. Net Meter Rider - DEC

*All Appendix Documents have been sent to Town of Hillsborough Staff in a separate folder.