

**Submitted By:** Sustainability Office

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**Project Classification:** Environmental Protection

**Project Focus:** Basic Facilities & Infrastructure

**Project Type:** Alternative Energy Systems

**Previously Submitted and Rejected:**

**Continuation Project:** Yes - SPLOST 2011 23-Energy Sustainability Program

**Project Total Cost: \$ 3,535,000**

**Total Operating Cost: \$ (270,000)** in addition to the savings to the operational budget. This project could offset (~\$95,000) of the General Fund Capital Budget; bringing the total General Fund Savings to (~\$365,000).

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**Project Description:** The renewable energy program will increase the amount of renewable energy produced at-or-for government facilities by providing the equipment and facility upgrades needed to construct renewable energy systems. The renewable energy program may include elements such as solar energy systems, geothermal systems, biogas systems, energy storage systems, building energy management systems, and other facility improvements needed to ensure their sustained and reliable use.

At current prices, this level of funding is sufficient to deploy approximately 1 megawatt of solar energy; about 1/3 of the capacity needed to meet Athens-Clarke County's facility demand. The Sustainability Office has worked with ACCGOV Facilities Management to assess the potential of deploying solar energy at more than 70 Athens-Clarke County facilities. This has resulted in a prioritized list that ranks a facility's ability to support solar energy systems based on its energy consumption, cost of energy, frequency of use, roof condition, roof orientation and shading, and visibility to the public. This project would be supported by ACCGOV staff so as to systematically develop new renewable energy installations in a manner that maximizes facility life and return on investment.

**Project Mission Statement/Goals & Objectives:** The mission of the renewable energy program is to decrease ACCGOV's operating costs and environmental impact by facilitating the use of renewable energy at public facilities. This will be implemented using return-on-investment analysis where priority is given to projects that offer the greatest financial savings. Goals for this project include:

- A. Add at least one megawatt of renewable energy production at ACCGOV facilities.
- B. Decrease ACCGOV operating expenses by \$90,000 - \$270,000 per year.
- C. Decrease ACCGOV greenhouse gas emissions by at least 740 tons/year.
- D. Extend facility lifecycles by replacing the outdated building systems needed to support the use of renewable energy.

- E. Support local jobs within the renewable energy market.
- F. Use SPLOST 2020 Renewable Energy Program funding to leverage additional private funding, grants, and rebates to support this project.
- G. Increase public facility resilience by providing community centers with backup power sources that can be used during natural disasters.

**Projected Useful Life of Project:** The design life for these projects is at least 25 years. The warrantied life of many renewable energy components is 25 years. Nationally, there are numerous renewable energy systems that are still producing energy into their fourth decade of operation.

**To meet the Project Goals & Objectives, when should this project be completed?** To be most efficient, we recommend this project be implemented evenly over the SPLOST 2020 tiers.

**The Leadership in Energy and Environmental Design (LEED) Green Building System compliance:** This project will not create any new conditioned structures that require compliance with ACCGOV sustainable building policies. The project will be used to retrofit existing buildings and deploy new ACCGOV facility construction with renewable energy systems. When these systems are paired with new construction they contribute points towards achieving sustainable building certifications. For example, the SPLOST-funded Animal Control, Fire Station 2, and Cooperative Extension projects all were able to receive LEED credits for their renewable energy systems that were funded by the SPLOST-2011 Energy Sustainability Program.

**How will this project help meet the Public Safety, Basic Facilities/Infrastructure, and/or Quality of Life needs in Athens-Clarke County?** This project will support facilities and infrastructure by funding renewable energy systems and the improvements needed to support them. ACCGOV solar suitability analysis uses more than 15 factors to prioritize where to best deploy solar to maximize system function and economic returns. Of these factors, roof condition is the single greatest determining factor as to whether or not solar will be suitable at a given site. By pairing renewable energy with improvements such as roof, electrical system, and/or HVAC rehabilitation we can decrease operating costs and enhance facility longevity.

This project will support quality of life in Athens-Clarke County by supporting local energy markets and improving air quality. Statewide, the renewable energy sector provides for more than 4,300 jobs. The Athens area already hosts two renewable energy installers and has interest from several more. Meanwhile, more than 93% of Georgia's electricity is provided by natural gas, coal, and nuclear energy sources that are not sourced in the state. This results in a majority of energy dollars being exported from the state to the places that provide these fuel sources. By investing in renewable energy, we help to keep our energy dollars local where they can continue to grow the economy. The US Energy Information Administration reports that local annual electricity generation in Georgia results in 60,156,000 metric tons of CO2 emissions, 53,000 metric tons of sulfur dioxide emissions, and 43,000 metric tons of nitrogen oxide emissions. These emissions cause health problems such as bronchitis, emphysema, and asthma while also contributing to global climate change. By converting to renewable energy sources, we will improve community and environmental health.

This project will support public safety by creating opportunities for backup power for use during emergencies. These enables ACCGOV to keep facilities operational during emergencies, thus expanding ACCGOV's ability to support the community during natural disasters. For example, Fort Lauderdale Florida is

currently deploying solar energy systems with battery backups at local community centers. This technology enables these centers to provide hot water, air conditioning, refrigeration, and communication equipment to the residents who utilize these shelters during storm events.

**How is this Project recommended/included in any approved ACCGOV Land Use Plan, Master Plan, Study, Service Delivery Plan, Envision Athens, etc.?** This project is recommended in the Envision Athens actions to "increase energy efficiency, sources, and use of renewables" (Action E3) and to "Establish incentives for new development to incorporate environmentally sustainable standards" (Action LU9). These goals are reiterated in the Land Use and Environment sections of the 2018 Comprehensive Plan. This project is also supported by a 2016 Mayor and Commission resolution calling for ACCGOV to increase its use of renewable energy.

### Triple Bottom Line Impacts

**Positive Benefits for the Prosperity of Athens-Clarke County:** This will enhance the economic prosperity of the community by keeping energy dollars within the community. Doing so provides the opportunity to create local jobs, as renewable energy jobs are one of the fastest growing sectors in the state. Based on information provided by the Michigan State University Center for Community and Economic Development investing money in locally sourced renewable energy will increase the amount of energy dollars retained in the community from ~\$40 per \$100 spent to ~\$75 per \$100 spent.

This program is one of the few SPLOST 2020 proposals to decrease ACCGOV operating costs. Based on other existing ACCGOV renewable energy projects and tools provided by the Department of Energy, we estimate implementing this project will decrease operating cost by \$90,000 to \$270,000 per year, and that these savings will grow over time as utility energy prices continue to inflate. This builds upon the existing \$200,000 in documented annual energy savings that have been achieved by the SPLOST 2011 Energy Sustainability Program and other ACCGOV energy conservation efforts. These savings decrease the amount of funding we require from the community to provide for government services.

Finally, this program will offset a \$45,000 annual program from the ACCGOV capital budget and will provide resources needed to upgrade the roofing, HVAC, and electrical systems needed to support renewable energy systems (estimated at ~\$50,000 per year). These facility maintenance programs are often underfunded and deferred. By addressing these items with SPLOST funding, we decrease the ACCGOV general fund budgeting needed to pay for facility maintenance and utility bills.

**Detrimental Impacts to the Prosperity of Athens-Clarke County:** We are not aware of any detrimental impacts.

**Positive Benefits for our Citizens and Visitors:** Studies have demonstrated that the single greatest determination for whether or not a homeowner or business will have renewable energy is whether or not

they know someone who already uses renewable energy. Recently, the University of Alberta published a study that found that public investments in renewable energy build citizen awareness for the products and increase the rate of adoption in the private sector. These technologies work and the economics are viable. By rapidly increasing the use of renewable energy in the community, we provide an opportunity to "main-stream" renewable energy, where citizens and visitors can interact with the technologies and learn more about them.

Increasing the amount of renewable energy used by ACCGOV decrease the air pollution associated with energy use. This improves health-related outcomes associated with poor air quality in the region.

By pairing renewable energy with battery storage systems, we can provide energy even when the utility grid is not operational. This creates opportunities for ACCGOV to create resilience centers at libraries, community centers, and other public facilities that can be a source of refuge during heat waves, storms, and other major events, and for us to increase the operational capacity of our first responders.

**Detrimental Impacts for our Citizens and Visitors:** We are not aware of any detrimental impacts.

**Environmental Benefits, including but not limited to Positive impacts on existing Infrastructure/Systems:**

The implementation of this program will decrease ACCGOV greenhouse gas emissions by at least 740 tons/year. It will also decrease the ground-level ozone, Sulphur dioxide, and small particulate matter emissions associated with current grid energy production. This then enhances water quality by creating less particulate matter that is available to wash into our local waterways.

**Detrimental Impacts for the Environment, including but not limited to Negative impacts on existing Infrastructure/Systems:** If solar energy systems are extensively used, they may create a waste product that needs to be processed sometime between 2045 and 2070. Currently, several organizations are looking to processing solar PV panels as e-waste, where the panels are stripped to their basic components and recycled for reuse in the manufacturing process. The Department of Energy anticipates that solar PV recycling will be economically viable and available nationwide by 2030.

**Positive/Negative Impacts on ACCGOV Departments, Agencies, or other Organizations, if not covered in one of the above questions:** We feel these are already covered in responses above.

## Project Costs

**Detailed project capital budget costs (to be funded from SPLOST 2020 only):**

Project Costs (round to thousand)	Amount
1. Land Acquisition / ROW / Easement:	\$ -
2. Design Fees: (Min.12% of New Const.; 14% of reno,; 16% for LEED proj.)	\$ 350,000
3. Miscellaneous Fees: (Min. Minimum of 3% of Construction Costs – used for permitting, etc. Utilize minimum of 10% if land acquisition if necessary.)	\$ 75,000
4. Fixtures, Furniture, and Equipment (for a facility): A detailed estimate is preferred – but dependent upon the specific project, utilize at a minimum \$15 to \$20 per square foot.	\$
5. Construction:	\$ -
6. Construction Contingency: (10% of the Construction line item)	\$ -
7. Acquisition of Capital Equipment:	\$ 2,500,000
8. Testing:	\$ 75,000
9. Project Management: (4% of the total budget line items above)	\$ 120,000
10. Project Contingency: (10% of the total budget line items above)	\$ 312,000
11. Public Art: Calculated at 1% of the Construction line item.	\$ -
12. Other 1:	\$ -
13. Other 2:	\$ -
<b>Project Subtotal:</b>	<b>\$ 3,432,000</b>
14. Program Management (3% of Project Subtotal):	\$ 103,000
<b>SPLOST 2020 Project Total:</b>	<b>\$ 3,535,000</b>

## Operating Cost

### Total Annual Net Operating Costs when Project is complete:

Only identify additional or net operating costs to be paid by ACCGOV. Identify the additional or net costs needed above ACCGOV's current operating budget to operate the requested project and any additional project related revenues that would be generated. Provide budget costs for each identified category below.

Operating Costs (round to thousand)	Estimated Impact for Annual Operating Expenditures
<b>TOTAL PROJECTED REVENUES FROM PROJECT</b>	-
<b>PROJECTED EXPENDITURES</b>	
1. Personnel Costs: from Appendix A	-
2. Annual Utilities:	
• Gas:	-
• Electrical: SAVINGS	(270,000)
• Water:	-
• Sewer:	-
• Phone:	-
• Solid Waste Collection:	-
• Other:	-
3. Operating Supplies:	-
4. Equipment Maintenance:	-
5. Facility Maintenance:	-
6. Fuel:	-
7. Other:	
8. Other:	
9. Other:	-
<b>TOTAL EXPENDITURES</b>	(270,000)
<b>NET OPERATING COSTS OF PROJECT:</b>	<b>\$ (270,000)</b>

## Project Financing

Is the proposed Project to receive funding from source(s) other than SPLOST 2020? No

## Project Site

**Will the proposed Project require any land, whether existing sites, new site, easements, or Rights of Way? No**

## **RESOLUTION**

BE IT RESOLVED BY THE MAYOR AND COMMISSION OF ATHENS-CLARKE COUNTY:

WHEREAS, the Unified Government of Athens-Clarke County strives to be a leader in environmental stewardship while fostering a positive climate for economic development and a vibrant community for personal growth; and

WHEREAS, displacement in the use of fossil fuels in the region with renewable fuels will improve air quality and help Athens-Clarke County remain in compliance with the ambient air quality standards set by the U.S. Environmental Protection Agency; and

WHEREAS, water is an increasingly valuable resource in Georgia, and producing one kilowatt-hour of energy via renewable systems can require approximately one-seventeenth as much water as producing one kilowatt-hour from a coal-fired plant; and

WHEREAS, Georgia generates approximately 88% of its power using non-renewable sources, thereby sending more than 30 billion dollars out of the state to purchase these fuels; and

WHEREAS, other large scale renewable energy technologies such as food waste digesters and combined heat and power plants are successfully used across the country; and

WHEREAS, in 2014, the Unified Government of Athens-Clarke County spent \$4.4 million for electricity and natural gas; and

WHEREAS, the Unified Government of Athens-Clarke County has demonstrated the viability of renewable energy sources such as landfill gas, solar thermal, solar photovoltaic, and geothermal conditioning, thus being able to produce an average of 8,400,000 kilowatt hours per year; and

WHEREAS, the citizens of Athens-Clarke County have approved the SPLOST 2011 referendum, which includes money to support energy efficiency and renewable energy deployment; and

WHEREAS, on November 3, 2015, the Athens-Clarke County Mayor and Commission approved the update to the Public Utilities Service Delivery Plan, which calls for a large solar installation to support the Cedar Creek Water Reclamation Facility; and

WHEREAS, the Unified Government of Athens-Clarke County can use tools such as power purchase agreements, government-backed low interest financing, community supported installations, revolving funds, and renewable energy credit offsets to deploy renewable energy sources in an economically sound manner.

**NOW, THEREFORE, BE IT RESOLVED** by the Mayor and Commission of Athens-Clarke County, Georgia:

**Section 1:** That the Unified Government of Athens-Clarke County will continue to use environmentally and economically sound practices to increase the percentage of our municipal energy needs which is generated from renewable resources; and

**Section 2:** That the Unified Government will foster an environment that encourages the use of renewable energy by others in the community; and

**Section 3:** That the Mayor and Commission hereby direct the Manager to support this resolution.

SO RESOLVED, this 5 day of April, 2016.

By: Nancy B. Densa  
Mayor

Attest: S. J. Smith  
Clerk of Commission