

DRAFT

Recommendation of Allentown Environmental Advisory Council to City of Allentown on Reduction of City's Energy Cost and Carbon Footprint

INTRODUCTION

The City of Allentown has achieved substantial energy savings through a variety of programs including converting to LED lighting for buildings, street lights and traffic lights, installing motion sensors to turn off lighting when not in use, and installing smart traffic lights to reduce idling. The City is also designing solar-powered lighting for the new Jordan Creek trailway. In addition the City is reducing electricity and water consumption at its parks, by developing and implementing a plan to install hand activated motion timers at all City spray parks. Existing spray parks have been retrofitted with the motion timers and a spray park currently under construction and slated for completion in 2022 shall utilize the same technology. The City is also reducing water consumption at its most recent spray park by utilizing a filtration system which recirculates the water, recycling 2,500 gallons of water from a holding tank. The system incorporates a sand filter and water is treated with chlorine similar to management of swimming pools. To address reduction of greenhouse gases, efforts began in 2021 to replace gas-powered hand tools with electric-powered equipment for use in City parks. See the City's 2022 CDP Disclosures for more information these and other programs.

The Allentown EAC recommends that the City continue to invest in reducing its energy costs and associated taxpayer burden through energy efficiency and renewable energy projects that take advantage of [Pennsylvania's Guaranteed Energy Savings Act \(GESA\)](#) as well as state and federal funding and potential public-private type partnerships which could include the following contract structures:

- Energy-as-a-service (EaaS)
- Power Purchase Agreements (PPA)
- Design-Build-Own-Operate-Maintain (DBOOM) Agreements
- Combination of these types of contracts under a Master Services Agreement

Below is a listing of PA municipalities and Commonwealth agency clients that have implemented PA GESA projects. It's a partial listing of those relatable to the City of Allentown however, there are many more that have occurred over the last 20+ years. GESA legislation became effective in 1998, and ever since, hundreds of PA municipalities, K12s, and higher education clients have utilized it to implement guaranteed savings solutions. The Commonwealth routinely implements GESA for State Agency clients through its PA DGS GESA Program, and the Federal Government implements similar Energy Saving Performance Contract (ESPC) solutions through the U.S. DOE Federal Energy Management Program (FEMP).

PA Guaranteed Energy Savings Act (GESA)	
Municipality & State Government GESA Projects	
<i>Partial Listing</i>	
Harristown Development Corporation	Cheltenham Township
PA Convention Center - Phases I & II	Upper Dublin Township
Lehigh County	Steel Rivers Council of Governments
Northampton County	PA DGS - PA State Police HQ
Dauphin County	PA DGS - Keystone Building
Wayne County	PA DGS - PA DHS Selinsgrove Center
Lackawanna County	PA DGS - PA DHS Wernersville Center
Luzerne County	PA DGS - PA DCNR "West" Region Sites
Montgomery County	PA DGS - PA DCNR "Central" Region Sites
Delaware County	PA DGS - PA DCNR "East" Region Sites
Beaver County	PA DGS - Capitol Complex (2017)
City of Bethlehem	PA DGS - Capitol Complex (2022)
City of Philadelphia	PA DGS - PA DOC SCI Dallas
City of Pittsburgh	PA DGS - PA DOC SCI Muncy
City of Lancaster	PA DGS - PA DOC SCI Houtzdale
City of Scranton	PA DGS - PA DOC SCI Fayette
City of Harrisburg	PA DGS - PA DOC SCI Frackville
Borough of Forest Hills	PA DGS - PA DOT District 8
Lower Merion Township	PA DGS - PA Fish & Boat

Below is a step-by-step description of the recommended process. Ideally, the City would initially appoint an energy manager to oversee the program, but in the interest of time, the City could at least go through Step one even before an energy manager has been appointed.

STEP ONE

The first step the City should take is to have a **FREE** comprehensive energy assessment conducted by a qualified Energy Services Company (ESCO). At no cost to the City, the ESCO would analyze relevant data (utility & operational) of City facilities, and with City staff input, would identify and prioritize energy efficiency and renewable energy investments opportunities

for the City. Free assessments of this type are offered by reputable entities such as Siemens, which has already expressed an interest in doing this for the City. This no-cost preliminary analysis is typical within the ESCO industry and is conducted to more cost-effectively evaluate savings and overall project potential for both the ESCO and client.

The initial assessment and prioritization can either be conducted on all City owned/operated facilities, or as a more targeted “pilot project” that focuses on 3-5 of the City’s larger facilities. The City selected facilities would be those having higher energy expenditures, known deferred maintenance issues, and/or known needs to address capital improvements in the near future. It is estimated that this initial assessment would take a few months to complete.

The Allentown EAC recommends that that City proceed with a more targeted “pilot project” approach (outlined above) and identify select City facilities that would be included in a no-cost preliminary assessment. This approach should minimally impact City staff time and overall burden on City resources while furnishing the City with professional analysis and evaluation at no cost. Once sites are identified, the City would need to collect and share the corresponding data and information listed at **Appendix A**.

STEP TWO

Based upon the results of STEP ONE, and provided this initial assessment identifies good savings potential for the City and opportunity to more cost-effectively modernize its existing assets & infrastructure, the City would, in accordance to PA GESA law, issue a public request for proposal to select an ESCO partner¹ that would further develop a guaranteed savings program for the City, based upon City needs and requirements².

GESA program development is an iterative, phased process where the City’s selected ESCO partner first conducts a Preliminary Energy Assessment (PEA) to collect & analyze data on all City facilities/operations. PEA findings are then presented to City stakeholders for feedback, which is then incorporated into the program scope. Following the PEA, the more detailed

¹ Upon selection of an ESCO partner through the RFP process, the City and ESCO will execute a Project Development Agreement (PDA) to conduct and jointly undertake the PEA & IGA development process. All development costs incurred by the ESCO through the PEA & IGA processes are rolled-forward to final contract execution, so there is no upfront investment from the City. However, the PDA typically includes a fixed upset fee payable to the ESCO in the event the ESCO outlines a feasible GESA scope-of-work that is projected to generate verifiable guaranteed savings over a City approved repayment term, but for unforeseen reasons, the City declines to move forward with program implementation and execute a contract with the ESCO.

² Cost savings generated under a tailored GESA program can be utilized to fund new salaried positions for the City, such as a Certified Energy Manager (CEM); helping fill any budget shortfalls for such a position. As an option, the City can consider creating this new position as part of a future GESA program

Investment Grade Audit (IGA) phase is then conducted by the ESCO, advancing engineering designs, and finalizing costs, savings and schedules of the GESA scope selected by the City.

Under PA GESA legislation, guarantee energy cost savings can be financed to pay for the identified capital investments implemented under the program. There is no out-of-pocket capital investment needed by the City to develop and implement the GESA scope-of-work. Should the savings not be achieved, the ESCO partner would reimburse the City for the shortfall and/or work to remedy the cause of the shortfall throughout the contract term.

The following timeframes are estimated for GESA procurement, PEA and IGA phases. These projections will depend upon City schedules, its furnishing of required data, and number of facilities included. Note, some steps can be addressed in parallel with other steps, such as PEA & IGA processes and GSA contracting to Program Financing, helping condense overall schedule:

- City Issue GESA RFP to Selecting One (1) ESCO Partner: 1-2 Months
- Preliminary Energy Audit (PEA): 2-4 Months
- Investment Grade Audit (IGA): 3-5 Months
- Guaranteed Savings Act (GSA) Contracting 1-2 Months
- GSA Program Financing 1-2 Months

STEP THREE

The ESCO serves as general contractor to the City, directly contracting with sub-contractor partners to implement the identified work-scope. Typically, subcontractors are local trade and professional services firms (such as mechanicals, electricians, plumbers, roofing, engineering, etc...) that are competitively vetted and selected by the ESCO to implement various portions of the GESA scope, thus creating new job opportunities throughout the City and growing the local economy. Under GESA law and contracting, there are no “change-orders” from the ESCO after contract execution. In addition, the City and ESCO are not required to follow traditional “low-bid” procurement process in procuring equipment or hiring the subcontractors, avoiding the many problems associated with awarding projects to the lowest bidder and the change-order issues typically associated with public bidding. Rather, under GESA legislative provisions, the ESCO and City have the opportunity to select and install equipment, systems and technologies that have proven to perform more efficiently, effectively, and sustainably over the long-term, not based upon initial cost.

GESA construction schedule varies and depends upon the scope-of-work needing to be implemented. However, construction typically takes 12-18 months following GSA contract & Program Finance execution.

STEP FOUR

Following GESA program installations, guaranteed savings are monitored by the ESCO through a Measurement and Verification (M&V) program based upon [International Performance Measurement and Verification Protocols \(IPMVP\) utilized by the U.S. Dept. of Energy, Federal Energy Management Program](#). The ESCO would continue to work with the City, its energy manager, representatives, or its identified advisors over the contract term, helping to identify future projects that enhance efficiency and sustainability for the City, evaluate any needed changes to the program, coordinate on community serving programs, etc.

The attached white paper by Siemens provides more details on these programs. With significant funding becoming available under the Inflation Reduction Act in support of investments in energy efficiency and renewable energy, the time is now for Allentown to position itself to take advantage of this. We request the opportunity to meet with the City to review this recommendation.

Submitted by: Allentown EAC, October 10, 2022

Appendix A
Preliminary Energy Audit & Needs Assessment
Requested Utility & Operational Data, Information

- Listing of all facility/s to be audited with street addresses
- Total square footage area of each facility
- Operational hours of each facility
- Utility Analysis: To account for pre-to-post COVID conditions, utility billing histories (2018-2022) for all utilities (Steam, Electricity, Natural Gas, Fuel Oil, Propane, Water, Sewer, Etc.) serving each facility.
 - For analysis purposes, electronic Excel data works, along with the complete copy (PDF or hard copy) of the most recent bill for each utility account. One complete copy of the most recent bill is needed as it includes the rate tariff structure being applied in billing.
 - Note, the Utility Analysis is conducted first, before performing site inspections. Site inspections will be coordinated after utility usages and demands by facility are better understood by the auditing team.
 - Does City utilize consultant/s or advisor/s in procuring its energy supply (electricity, natural gas, propane, etc.)? If so, please identify consultant/advisor firm.
- Copies of general floorplans (Fire evacuation plan) for each facility being audited,
 - Access to more detailed drawings (Mechanical/Electrical/Plumbing (MEP), HVAC, controls) may be needed at a later date, after the Utility Analysis is completed.
- Listing of any deferred maintenance issues or capital projects the client sees as critical or a priority to address in near future, such as HVAC upgrades, roof replacements, control system upgrades, central plant replacements, etc.
- For any building being evaluated, were any initial energy reports done in the past, and can they be shared?
- Details of any ongoing maintenance programs (steam traps, chillers, etc...)
 - Is operation and maintenance (O&M) performed in-house with City staff or are these services outsourced to local contractors?