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CITY OF APPLETON

TO: Finance Committee

FROM: Tom Flick

DATE: 06/08/2026

RE: **Action: Request to approve a budget transfer of $350,000 from the remaining Library Inflation Reduction Act elective pay proceeds to the Library solar project, increasing the total project budget from $350,000 to $700,000.**

BACKGROUND

The City received an Inflation Reduction Act (IRA) elective pay reimbursement of $2,454,306 for the geothermal system installed as part of the Appleton Public Library project. This reimbursement was received through the federal Investment Tax Credit provisions of the Inflation Reduction Act, which allow eligible local governments to receive direct payment for qualifying clean energy investments.

As part of the approved 2026 Capital Improvement Plan, $350,000 of the IRA funds received for the Library geothermal system was allocated for the Library solar project. At the time the 2026 CIP request was developed, the City only had limited utility data available from the newly renovated Library. The original solar budget was based on preliminary assumptions and only a few months of utility information.

As part of our standard facility management practices, Facilities routinely reviews building utility data to monitor performance and identify opportunities to reduce operating costs. With 12 months of utility data now available for the reopened Library, we now have a clearer picture of the building's annual electric use, demand profile, and utility costs. The utility review supported a more detailed energy analysis by Facilities staff to evaluate practical cost reduction measures. Based on that analysis, Facilities is proposing a combined approach that includes expanding the planned solar photovoltaic system and completing targeted energy efficiency improvements.

The solar expansion would reduce electricity purchased from the utility and help lower demand charges when solar production coincides with the building's peak demand. The efficiency upgrades would improve mechanical system operation by adjusting ventilation controls while maintaining code required rates, aligning HVAC occupancy schedules with actual building use, reducing unnecessary pump operation during unoccupied periods, and refining heat pump operation.

UTILITY COST BASELINE

Staff reviewed 12 months of electric bills for the Library. The billing summary shows annual electric use of 1,764,989 kWh and total annual electric charges of $230,580.44. This results in an average blended electric cost of approximately $0.1306 per kWh.

For financial modeling, staff used a conservative planning value of $0.126 per kWh, which is slightly below the recent blended billing average.

The Library's electric account includes both energy charges and demand charges. The monthly billing shows demand charges for both on peak demand and customer demand. This confirms that project

savings should include both reduced electric consumption and reduced demand charges where solar production coincides with building peak demand.

ENERGY EFFICIENCY UPGRADES

Facilities staff is recommending $25,000 for targeted energy efficiency upgrades at the Library. These measures focus on improving how the building's mechanical systems operate and reducing unnecessary energy use while maintaining code required ventilation and occupant comfort.

The proposed work includes:

- Outside air ventilation control adjustments while maintaining code required ventilation rates.
- Occupancy based HVAC scheduling that better aligns with actual building use.
- Programming pumps and selected heat pump stages to shut down or reduce operation during unoccupied periods where appropriate.
- Heating hot water reset and geothermal system operating adjustments.
- Additional controls modifications to improve fan and system operation.

The energy reduction recommendations estimate that full implementation of these measures will conservatively save approximately 115,500 kWh per year. Based on the Library's current electric cost profile, this equates to approximately $15,000 per year in energy savings. When additional demand reduction from improved pump, ventilation, and heat pump controls is included, staff estimates total utility savings of approximately $17,000 per year.

This is a high return investment with an estimated simple payback of approximately 1.5 years.

SOLAR PV SYSTEM COMPARISON

Staff evaluated the currently funded solar system and a larger system using an installed cost assumption of **$2.40 per watt DC**.

Item	Currently Funded Solar Only Project	Recommended Solar and Efficiency Project
Solar system size	146 kW DC	280 kW DC
Solar installed cost	$350,000	$675,000
Energy efficiency upgrades	$0	$25,000
Total project budget	$350,000	$700,000
Estimated annual solar production	190,000 kWh	364,000 kWh
Annual solar energy savings	$23,900	$45,900
Annual solar demand savings	$7,600	$9,200
Annual energy efficiency savings	$0	$17,000
Total estimated annual savings	$31,500	**$72,100**
Estimated IRA elective pay reimbursement on solar	$105,000	$201,600
Net project cost after IRA r reimbursement	$245,000	$498,400
Simple payback after IRA reimbursement	7.8 years	**6.9 years**

RECOMMENDED PROJECT SIZE

Facilities staff is recommending an approximate 280 kW DC solar photovoltaic system. This size was selected to substantially reduce annual utility costs while keeping the system below 300 kW, which preserves the benefits of net metering.

The larger system provides significantly greater annual savings than the currently funded solar only project. The recommended project is estimated to save approximately $72,100 per year, compared to approximately $31,500 per year for the currently funded solar only project.

Although the recommended project requires additional upfront funding, it provides a stronger overall return because it combines expanded solar production with energy efficiency upgrades that have a very short payback.

FUNDING SUMMARY

Item	Amount
Original Library geothermal IRA elective pay reimbursement received	$2,454,306
Amount already approved in 2026 CIP for Library solar	$350,000
Recommended total project budget	$700,000
Additional transfer requested	**$350,000**

RECOMMENDATION

Staff recommends approval of a budget transfer in the amount of $350,000 from the remaining Library IRA elective pay proceeds to expand the Library solar photovoltaic project and fund targeted energy efficiency upgrades.

This transfer would increase the total project budget from $350,000 to $700,000. The additional funding would allow the City to install an approximate 280 kW DC solar photovoltaic system and complete approximately $25,000 in high return energy efficiency upgrades.

The combined improvements are estimated to reduce Library utility costs by approximately $72,100 per year, with an estimated simple payback of approximately 6.9 years.

Please feel free to contact me at (920) 832-3915 with any questions, or by email at tom.flick@appletonwi.gov.