"…meeting community needs…enhancing quality of life."

PARKS, RECREATION & FACILITIES MANAGEMENT
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To: Finance Committee

From: Dean R. Gazza, Director of Parks, Recreation and Facilities Management

Date: August 21, 2023

Re: Action: Accept 2022 Public Service Commission Energy Innovation Grant for Appleton Waste Heat to Power Project.

Action: Accept Focus on Energy Custom Incentive 1784716 for Appleton Waste Heat to Power Project.

Action: Approve balance transfer of $350,000 from the "AWWTP Electrical Distribution Project" to the "Appleton Waste to Heat Project"

The Appleton Waste Heat to Power (AWHP) Project will install two waste heat-to-power generators for utilizing methane gas historically flared to the atmosphere. The AWHP Project will produce clean energy while consuming no additional fossil fuels thus lowering emissions. This project utilizes an otherwise flared methane gas in the existing biogas boilers utilizing that heat in the waste heat-to-power generators, and both creates and utilizes a new renewable electricity resource for the Appleton Wastewater Treatment Plant (AWWTP).

AWWTP currently utilizes 43% of the biogas generated to offset natural gas purchases associated with heating the digestion process and the plant's buildings. The large majority of the digester gas that is not beneficially used coincides with the warm summer months where plant and building heating requirements are significantly reduced. This project will put an idle boiler into operation to divert digester gas from the flare to the boiler that will power two Organic Rankin Cycle Generators to produce electricity.

Implementation of the AWHP Project is guided by the following objectives and metrics:

1. **Reduce Grid Provided Energy Consumption:** This project anticipates to reduce the AWWTP purchases of grid provided electricity by 504,087 kWh per year.

2. **Make Appleton more Sustainable and Resilient:** This will be accomplished by expanding the AWWTP's renewable energy assets while expanding beneficial use of existing assets. Electricity generated by the AWHP will be a renewable energy.

3. **Mitigate Rate Increases:** Generation of renewable electricity will offset electrical purchases and keep the costs of operating the AWWTP down.

4. **Improve Air Quality:** This project anticipates to redirect approximately 1,500,000 cubic feet per year from the waste gas burner to an existing boiler to generate the waste heat required for electrical generation. Boiler burner combustion is tuned finer and more controllable than the AWWTP's candlestick style waste gas burners which will result in significant reduction in CO and NOx emissions from the facility.

The AWHP project is anticipated to reduce electrical purchases by $44,766 per year with an annual maintenance burden of $6,250 per year, resulting in a net annual savings of $38,516 per year. At an installed cost of $875,000 and a grant funding of $555,736.20 this results in a simple payback of 8.2 years with the requested grant funding. This simple payback does not include the cost savings associated with demand reduction. AWWTP's current demand charge calculation should be reduced by 58kW.

The cost savings experienced by implementation of this project will lower operational costs at the AWWTP, passing cost savings to Appleton residents through deferred utility rate increases.

The grant funds include:

- 2022 Public Service Commission Energy Innovation Grant - *$498,000.00, or 57% of total eligible cost.*

- Focus on Energy Custom Incentive 1784716 - *$57,736.20.*

The AWHP Project is expected to cost $875,000 and the Public Service Commission Energy Innovation Grant is awarded to pay 57% of the project cost up to $498,000. The City's cost share would be 43% of the project cost up to $375,000, however the Focus on Energy incentive can be applied to the City's cost share resulting in a net maximum cost of $317,263.80.

The City's cost share of $317,263.80 will be funded with a positive project variance in a current project. The budget transfer request action item will be for $350,000 which will include $317,263.80 for the City's cost share amount of the grant and $32,736.20 for contingency.

Accepting this grant will be contingent on accepting the sole source memo for the two Organic Rankin Cycle Generators purchase and the contract amendment memo for the professional engineering services associated with this project. All memos will be presented at the same time for approval.

The monies are provided on a reimbursement basis, thus upfront funding must pay for the project initially. Upon completion of the work, we would be required to provide proof of eligible expenditures.

We are very excited about this funding as it assists with funding City efforts and commitments to implementation of energy efficiency and renewable energy within the City. Upon your approval we will acknowledge the requirements and accept the funds.

Please feel free to contact me at 832-5572 with any questions, or by email at dean.gazza@appleton.org.