Menasha

Memorandum

Date: August 12, 2009

To: Common Council

From: Adam Alix, Asst. Superintendent of Buildings & Parks AA

Re: Lighting Proposals

Attached is a summary of the lighting proposals received in response to our request looking to take advantage of the financial incentives currently available to upgrade the existing lighting within the City's buildings. You will notice that I have made adjustments to the proposals in an attempt to provide an apples to apples format for comparison. The adjustments are to either equate the same number of fixtures or for type of fixtures to provide the same level of lighting that currently exists. Likewise, adjustments were made to the proposed annual energy savings as well to account for the differences in the proposals.

In the end the two proposals that took into account most all the lighting in the City's buildings, came out fairly close. The adjusted cost difference is approximately $1700, based on conservative cost estimates, and the projected annual savings are only about $300 apart. When factoring in the warranty information and assigning some value, to it I feel that it only brings the overall costs even closer. As for Beck Electric's proposal, they only provided a quote for replacing the Metal Halide fixtures at the Public Works Facility which obviously affords us the greatest energy savings to be realized with the least amount of cost. This does raise the concern as to what type of payback warrants incurring the expense. For example, both proposals that addressed the Pool show an annual energy savings of $85 at a cost of somewhere around $650 after incentives for a simple payback of around 8 years. Does it pay to incur this cost now at a building that is only open for roughly 3 months out of the year or do we look to upgrade when the lights require maintenance?

In discussions with vendors and others, there doesn't seem to be a hard fast rule of thumb as to what kind of payback is most desirable. Some have upgraded with a projected 8 year payback because they felt it was the right thing to do being Green. I'm of the opinion that with the bonus incentives currently available, it may make sense to stretch the paybacks out a bit and complete the work. A point to be made here too is that in calculating the paybacks assumptions have been made regarding the burn hours of the lighting and there is the possibility that the real energy savings may not reach those that have been proposed. However, I am certain that, outside of the Public Works Facility, we have no plans to move out of any of the other buildings and that real savings will be realized over time making this a worth while project.

In addition, the Beck Electric proposal suggests the use of controls to further save energy and has it listed as an option. I believe that at this time we concentrate on base load reduction and continue to research the addition of controls to further reduce energy consumption and bring that forward at a later date. I would like to think there will still be some incentives available in the future, maybe not quite to the extent of this fall.

Having had time to review all of this information I recommend the following:

- The City purchase the Orion six bulb fixture directly and install them ourselves with DPW staff as they require no wiring, hang and plug them in. The modular design of these fixtures will allow us to easily look at adding controls to the lighting system and can be moved to a new facility when that happens.

- Contract with Faith Technologies to retrofit the existing light fixtures for the rest of the Public Works Facility, the Public Protection Facility, the Senior Center and City Hall.

Cost Summary of Recommendation

	Costs	Incentives	Net Cost	Projected Annual Savings	Payback
Public Works Facility					
Metal Halides	$ 7,916.56	$ 6,550.00	$ 1,366.56	$ 3,246.00	0.42 yrs
T12's	$ 5,625.00	$ 2,095.00	$ 3,530.00	$ 1,113.00	3.17 yrs
PPF	$11,287.00	$ 3,754.00	$ 7,533.00	$ 2,585.00	2.91 yrs
Senior Center	$ 3,306.00	$ 1,066.00	$ 2,240.00	$ 587.00	3.82 yrs
City Hall	$ 9,622.00	$ 3,288.00	$ 6,334.00	$ 1,548.00	4.09 yrs
Totals	$37,756.56	$16,753.00	$21,003.56	$ 9,079.00	2.31 yrs

2009 Lighting Proposal Summaries

Faith Technologies

Costs

Proposal	$50,684.00	
less:Station 36 Deduct	$ 3,109.00	
Net Proposed Cost		$47,575.00
less: CFL costs		$ 330.00 -a
Adjusted Proposed Cost		$47,245.00

Incentives

Focus on Energy	$14,643.00	
less: St. 36 deduct	$ (800.00)	
MU Incentive	$ 5,070.00	
less: St. 36 deduct	$ (311.00)	
Proposed Incentives	$18,602.00	
Adjusted Proposed Incentives		$18,602.00
Net Project Cost		$28,643.00

Warranty-Includes labor for full 5 years on ballasts, others are manufacturers warranty

Annual Savings

Energy Savings		$ 9,805.00
less:St. 36 deduct	$ (406.00)	
less:City Hall T8s	$ (805.32)	
Less:CFL not list in other proposal	$ (676.38)	
		$ (1,887.70)
Total Proposed Annual Savings		$ 7,917.30

Simple Payback 3.62 yrs

Orion/Cummings

Costs

Proposal	$32,002.00	
plus:Contingency	$ 1,139.00	
Net Proposed Cost		$33,141.00
Plus: PWF fixtures		$ 975.00 -b
City Hall 147 fixtures @ $45		$ 6,615.00 -c
PPF 15 fixtures @ $45		$ 675.00 -c
Senior Center 8 fixtures @ $45		$ 360.00 -c
Adjusted Proposed Cost		$41,766.00

Incentives

Focus on Energy	$11,622.00	
MU Incentive	$ 3,200.00	
Proposed Incentives	$14,822.00	
Adjusted Proposed Incentives		$14,822.00
Net Project Cost		$26,944.00

Warranty-Manufacturer's warranty with labor included as long as contingency money is available

Annual Savings

Energy Savings		$ 9,923.00
Less:PWF fixtures 14056kwh	$ 1,265.00	
Adj. existing kwh 4769	$ 429.00	$ 1,694.00
Total Proposed Annual Savings		$ 8,229.00

Simple Payback 3.27 yrs

Beck Electric

Costs

Proposal	$14,577.00 -*	
plus:4 fixtures	$ 911.00	
Total Cost		$15,488.00

*64 MH fixtures only

Incentives

Focus on Energy	$ 5,760.00	
plus: 4 fixtures	$ 360.00	
MU Incentive	$ 1,549.00	
Total Incentives		$ 7,669.00
Net Project Cost		$ 7,819.00

Annual Savings

Energy Savings	$ 3,115.00
plus: 4 fixtures	$ 179.00
Total Proposed Annual Savings	$ 3,294.00

Simple Payback 2.37 yrs

a- 66 CFL's at $5.00
b- 30fixtures @$30 15 @ $5
c- estimated T8 retro $21.28 / kit & $23.60/labor/kit

Energy Savings Summary — Total Scope

Annual Usage & Savings (kWh)		Annual Costs & Savings		
Existing Lighting System	227,072	Existing Lighting System	$20,437	
Proposed Lighting System	119,473	Proposed Lighting System	$10,752	
Lighting Energy Saved	107,598			
Total Energy Savings	**47%**	**Total Annual Savings**	**$9,685**	
		***Assumes charges of 0.09*	*per KWh*	
		ROI (return on investment)		**31%**
		Cost of Components & Installation		**$50,684**
		- WFOE Incentive		$14,643
		- Menasha Utilities Incentive		$5,070
		Net Cost		**$30,971**
		Simple Payback (years)		3.12

Energy Savings Summary — City Garage

Annual Usage & Savings (kWh)		Annual Costs & Savings		
Existing Lighting System	96,888	Existing Lighting System	$8,720	
Proposed Lighting System	47,528	Proposed Lighting System	$4,277	
Lighting Energy Saved	49,360			
Total Energy Savings	**51%**	**Total Annual Savings**	**$4,442**	
		***Assumes charges of 0.09*	*per KWh*	
		ROI (return on investment)		**39%**
		Cost of Components & Installation		**$21,047**
		- WFOE Incentive		$7,652
		- Menasha Utilities Incentive		$2,105
		Net Cost		**$11,290**
		Simple Payback (years)		2.54

Energy Savings Summary — Memorial Building

Annual Usage & Savings (kWh)		Annual Costs & Savings		
Existing Lighting System	3,254	Existing Lighting System	$293	
Proposed Lighting System	1,583	Proposed Lighting System	$142	
Lighting Energy Saved	1,671			
Total Energy Savings	**51%**	**Total Annual Savings**	**$150**	
		***Assumes charges of 0.09*	*per KWh*	
		ROI (return on investment)		**17%**
		Cost of Components & Installation		**$1,256**
		- WFOE Incentive		$241
		- Menasha Utilities Incentive		$126
		Net Cost		**$889**
		Simple Payback (years)		5.91

Energy Savings Summary — Police and Fire

Annual Usage & Savings (kWh)		Annual Costs & Savings		
Existing Lighting System	58,823	Existing Lighting System	$5,294	
Proposed Lighting System	30,097	Proposed Lighting System	$2,709	
Lighting Energy Saved	28,725			
Total Energy Savings	**49%**	**Total Annual Savings**	**$2,585**	
		***Assumes charges of 0.09*	*per KWh*	
		ROI (return on investment)		**34%**
		Cost of Components & Installation		**$11,287**
		- WFOE Incentive		$2,625
		- Menasha Utilities Incentive		$1,129
		Net Cost		**$7,533**
		Simple Payback (years)		2.91

Energy Savings Summary — Pool

Annual Usage & Savings (kWh)		Annual Costs & Savings		
Existing Lighting System	1,841	Existing Lighting System	$166	
Proposed Lighting System	887	Proposed Lighting System	$80	
Lighting Energy Saved	954			
Total Energy Savings	**52%**	**Total Annual Savings**	**$86**	
		***Assumes charges of 0.09*	*per KWh*	
		ROI (return on investment)		**12%**
		Cost of Components & Installation		**$1,057**
		- WFOE Incentive		$264
		- Menasha Utilities Incentive		$106
		Net Cost		**$687**
		Simple Payback (years)		8.00

Energy Savings Summary — Senior Center

Annual Usage & Savings (kWh)		Annual Costs & Savings		
Existing Lighting System	13,291	Existing Lighting System	$1,196	
Proposed Lighting System	6,767	Proposed Lighting System	$609	
Lighting Energy Saved	6,524			
Total Energy Savings	**49%**	**Total Annual Savings**	**$587**	
		***Assumes charges of 0.09*	*per KWh*	
		ROI (return on investment)		**26%**
		Cost of Components & Installation		**$3,306**
		-WFOE Incentive		$735
		- Menasha Utilities Incentive		$331
		Net Cost		**$2,241**
		Simple Payback (years)		3.82

Energy Savings Summary — City Hall

Annual Usage & Savings (kWh)		Annual Costs & Savings		
Existing Lighting System	40,193	Existing Lighting System	$3,617	
Proposed Lighting System	22,996	Proposed Lighting System	$2,070	
Lighting Energy Saved	17,197			
Total Energy Savings	**43%**	**Total Annual Savings**	**$1,548**	
		***Assumes charges of 0.09*	*per KWh*	
		ROI (return on investment)		**24%**
		Cost of Components & Installation		**$9,622**
		- WFOE Incentive		$2,326
		- Menasha Utilities Incentive		$962
		Net Cost		**$6,334**
		Simple Payback (years)		4.09

Energy Savings Summary — Fire Station

Annual Usage & Savings (kWh)		Annual Costs & Savings		
Existing Lighting System	14,579	Existing Lighting System	$1,312	
Proposed Lighting System	10,064	Proposed Lighting System	$906	
Lighting Energy Saved	4,515			
Total Energy Savings	**31%**	**Total Annual Savings**	**$406**	
		***Assumes charges of 0.09*	*per KWh*	
		ROI (return on investment)		**20%**
		Cost of Components & Installation		**$3,109**
		-WFOE Incentive		$800
		- Menasha Utilities Incentive		$311
		Net Cost		**$1,998**
		Simple Payback (years)		4.92

Energy Saving Summary

Annual Usage & Savings (kWh)		Annual Costs & Savings	
Existing Lighting System	70,444	Existing Lighting System	$6,340
Proposed Lighting System	33,458	Proposed Lighting System	$3,011
Lighting Energy Saved	36,987		
Estimated Cooling Load Savings	0	Estimated Cooling Savings	$0
Total Energy Savings	**53%**	**Total Annual Savings**	**$3,329**

***Assumes charges of 0.09 per KWh*

ROI (return on investment)	**43%**
Cost of Components & Installation	**$15,422**
- WFOE Incentive	$6,120
- Menasha Utilities Incentive	$1,542
Net Cost	**$7,760**
Simple Payback (years)	2.33

Cooling Calculation		
Geographic Location	0	None
Fraction of year of Cooling Season	0.00	
Lighting load met by Cooling	0.90	
System coefficient of performance	2.7	
kWh of air cooling energy saved per kWh of lighting savings	0.00	

Calculation derived from research conducted for the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE,) and validated by DOE-2 computer runs.

LONG TERM PROJECTION OF SAVINGS

1 Year	$	3,329
3 Years	$	9,986
5 Years	$	16,644
10 Years	$	33,288

None	0
Milwaukee	20.9
Green Bay	17.5
Madison	20.2

City of Menasha • Office of the Mayor
Donald Merkes, Mayor
dmerkes@ci.menasha.wi.us

Menasha

Memorandum

TO: Common Council

FROM: Mayor Merkes DM

SUBJECT: Lighting Proposal

DATE: 13 August 2009

WPPI is offering 0% interest loans to member communities up to $500,000 per community to finance energy efficiency projects. The lighting upgrade proposal attached meets the criteria for this program and I would recommend that we fund it over 10 years.

Annual cost to the city through debt service is estimated at $2,100 with annual energy savings estimated at $9,079 for a net budgetary savings of $6,979 annually.

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WPPI energy

The way energy should be

Member Energy Efficiency and Renewable Energy Loan Application

This Member Energy Efficiency and Renewable Energy Loan Program is offered by WPPI Energy to encourage investment by its members in energy efficiency improvements. The program is designed to help members overcome the "first-cost" barriers associated with implementing energy efficiency and renewable energy projects, and to encourage members to lead by example within their communities.

To participate, submit to WPPI Energy a completed Loan Application with all required documentation. Additional terms and conditions are listed on the next page.

APPLICANT INFORMATION

Name of Member Organization

Member Utility

Utility Account Number

Name and Title of Contact Person

Date

PROPOSED PROJECT INFORMATION

Summarize the estimated project impacts in the table below, and attach to this Loan Application the following:

1. Written description detailing each of the proposed energy efficiency or renewable energy projects.
2. Identify any providers of technical assistance, including engineers, energy auditors, contractors, trade allies, or vendors. Include proposals listing equipment descriptions, technical details and project costs, payback, and ROI.
3. Estimates of savings showing all equations and assumptions used to determine the estimated project impacts below.
4. Project timelines stating all milestone dates such as budget approvals, design, equipment purchase, installation, etc.

		Estimated Project Impacts				
Description of Project	Total Project Cost [$]	Peak Demand Reduction [kW]	On-Peak Energy Reduction [kWh/year]	Off-Peak Energy Reduction [kWh/year]	Other Energy Reduction [Btu/year]	Annual Cost Savings [$/year]

Proposed Start Date

Proposed Completion Date

X

Signature of Utility Manager or WPPI Energy Board Director

FOR OFFICIAL USE ONLY

Total incentive amount for projects:

Requested Loan Amount:

Total Loan Amount (Requested Loan Amount - Incentives):

Origination Fee:

Monthly Loan Repayment Amount:

Loan Repayment Start Date:

Loan Repayment Method:

☐ Member will be invoiced monthly.

☐ Payment will be included on member's monthly wholesale power bill.

TERMS AND CONDITIONS

Eligibility

- All Proposed Projects must be planned for property owned by a WPPI Energy member utility or member municipality.
- Only energy efficiency (electric and natural gas) and renewable energy projects are eligible for funding under this program. It is possible that some distribution efficiency projects could qualify as energy efficiency projects.
- Distribution system efficiency projects will only qualify if the primary reason for the project is to achieve energy efficiency and the project has a payback based on energy savings of 10 years or less.
- Each WPPI Energy member is eligible for multiple 0% interest loans up to a total of $500,000. Each loan issued must be for a minimum of $5,000. Eligibility is subject to availability of loan funds.
- Energy efficiency projects must meet all minimum efficiency requirements and any other eligibility criteria as defined under the Efficiency Improvement Incentive Program (for electric efficiency) or by Focus on Energy (for natural gas efficiency).

Application Process

- Applicants must complete the Loan Application form and submit all requested documentation to be considered for funding through the Member Energy Efficiency and Renewable Energy Loan Program. The application materials should be submitted in hard copy format directly to a WPPI Energy Services Representative, or sent to:

  By U.S. Mail: WPPI Energy
  Member Energy Efficiency and Renewable Energy Loan Program
  1425 Corporate Center Drive
  Sun Prairie, WI 53590-9109

  Fax or electronic submittals are acceptable.
- Projects may not be started until an acceptance letter from WPPI Energy has been issued and all necessary loan documents (loan agreement and note) have been fully executed.
- To maintain eligibility for an incentive award, Proposed Project(s) may not be started and equipment may not be purchased until written approval is received in the form of an acceptance letter from WPPI Energy.
- Members may be asked to provide additional financial information as part of the review and approval process.
- Each loan will have a term of 10 years, with members making 120 equal payments over the 10-year term.
- All financing approved will include an origination fee equal to one percent of the loan amount.
- Loan payments for member utilities receiving loans will be included on the member's monthly wholesale power bill. Member municipal departments other than the utility will be invoiced by WPPI Energy on a monthly basis.
- If an application is approved for a loan, the member will have the lesser of 90 days or until the completion of the project to begin repayment.
- Depending on the scope and cost of the proposed project(s), WPPI Energy may conduct an inspection of the facility after the project completion date.
- Once a project is completed, the participating member must prepare and submit a one-page Certificate of Completion form documenting all invoicing and receipts.

Disclaimers

- WPPI Energy does not endorse any particular manufacturer, product or system design within this program.
- WPPI Energy does not expressly or implicitly warrant the performance of equipment purchased and/or installed for this program.
- WPPI Energy is not responsible for the proper disposal or recycling of any waste generated as a result of a Proposed Project.
- WPPI Energy is not liable for any damage caused by the installation of proposed equipment, nor for any damage caused by the malfunction of such equipment.
- WPPI Energy staff and the WPPI Energy Executive Committee reserve the right to modify or withdraw this loan program or to reject any application for any reason in their sole discretion.