



Department of Administration
Budget and Management Division

Tom Barrett
Mayor

Sharon Robinson
Administration Director

Dennis Yaccarino
Budget and Management Director

February 8, 2019

Ref: SF, Common Council
Committees- Correspondence

Public Works Committee
City Hall, Room 205

Subject: Financing of City owned solar system

Dear Honorable Members:

I am providing the cost/benefit analysis of the financing of a City-owned one megawatt solar system as requested at the January 23rd Public Works Committee.

The installation costs are assumed to be the same as the cost included in the current Eagle Point contract. That cost is \$1.87 million. Financing would be regular city 15 year general obligation borrowing. Annual debt service at a 4% interest rate would be \$168,063.

Energy saving were provided by the Environmental Collaboration Office which engaged a consultant to estimate the savings. The actual energy production of the system is dependent on the weather conditions and the condition of the equipment. Information provided indicated the energy savings could be up to 14% less than predicted. This creates a level of risk to the City on the project's ability to pay for itself. I am providing two estimates on the cost/benefit of the project given these varying possibilities. Savings ranges from \$131,728 to \$113,286 in the first year and increases by 2.5% per annually.

Maintenance costs were found to vary dramatically in the solar literature. The maintenance cost ranged from \$6,000 to \$40,000 per year. Most literature estimated about 1.5% of construction cost. Further complicating the issue will be a warranty on the equipment that the City will have. That should lower the overall maintenance cost risk but does not remove all of the risk. Maintenance costs would only be fully determined when the City gains some experience with the actual maintenance. A conservative maintenance cost estimate of 1.5% of construction cost is used in the first year which would be \$28,029. The maintenance costs are estimated to increase 2.5% annually. To go along with the lower energy savings scenario, a maintenance cost that was 10% higher was used to see how variations in maintenance costs impact the analysis.



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The cost/benefit analysis was done over a 20 year period and was analyzed in present value terms. The discount rate used in the present value analysis was 3.5%.

With the exception of the first year when the City expects a Focus on Energy credit of \$211,000, there will be annual loss to the City until year 16. In years 16 to 20 is where the City sees a positive or negative return on investment. The results showed the City would save \$339,013 or \$101,814 in present value terms using the higher energy savings and lower maintenance cost. Under the lower energy savings and higher maintenance cost the City would lose \$203,768 or \$286,252 in present value terms. It is very concerning when small fluctuations in energy savings and maintenance costs drastically change the results. The City will be taking on a high level of risk.

If you have further questions, please feel free to contact me at ext. 8552.

Sincerely,

A handwritten signature in cursive script that reads "Dennis Yaccarino".

Dennis Yaccarino
Budget and Management Director

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