

THE CITY OF THE VILLAGE OF INDIAN HILL COUNCIL
WORK SESSION
SOLAR PANEL INSTALLATION
MAY 17, 2021

BACKGROUND

- November 2020, Councilmember Krehbiel asked Council and staff to consider idea of installing solar panels on the property adjacent to the Public Works/Water Works facility. Idea stemmed from an OKI presentation and an OKI map which highlights solar hot spots throughout Hamilton County
- OKI suggested to Councilman Krehbiel that the Village speak with Melink Solar Power as this company had worked with OKI in the past
- After the Village provided various years of electric invoices for the Public Works/ Water Works facility, Melink distributed an **INITIAL** financial and logistical analysis of the installation, including graphs highlighting production vs demand levels over a period of time, and how all would be impacted by the replacement of electric with solar
 - Over 3,300 solar panels & eight (8) inverters placed on five (5) acres of Village owned land
 - Panel lifespan is 30 years while inverters lifespan in 15 year
 - Fencing and prairie grass required around system – trees would need to be removed for installation purposes
 - Initial estimate of \$115,720 in annual electric savings
 - The system size is not estimated to produce more than usage during any given month
 - **Per Melink** -- “The net demand with solar is lower than the current demand during the month. Thus, power that you pull from the grid and the excess solar generation is exchanged 1:1. If the solar system were to overproduce during the billing period (month), then the Village would not be credited at the full retail rate for each kWh produced.

The meter is bidirectional. It will spin forward when you pull power from the grid at night, and spin backwards when the system generates more electricity than what’s needed during a few hours of the day. Duke will look at your total kWh used at the beginning and end of each month. The net result for the Village is that solar cannot produce your full month’s load”

- Financing options:
 - Cash purchase - \$1.7 million plus maintenance of approximately \$10,000/year & replacement of inverters in 15 years (\$67,000)
 - 20 Year Power Purchase Agreement - \$3.0 million (includes maintenance & buyout of equipment)
 - Other factors in calculations:
 - Degradation of solar panels – 0.68% per year
 - Estimated electricity rate escalation – 3% per year
 - No tax credits/refunds/rebates available to government entities

- Equipment is 80-90% recyclable – approximate cost of disposal in 30 years is \$60,000 (Net Present Value)
- All financials are general estimates – after full design, engineering and feasibility, could increase costs
 - E.g. - clarification needed on how system ties into the grid, the separation of power and how transfer to generator/Duke energy
- These estimates do not include any escalation in Duke’s rate for when Village utilizes the grid due to eliminating the Village from the current “bulk rate”
 - In talking with Duke, they suggested a meter be placed on the panels to monitor actual solar output
- Does the Village need to bid this process?
 - If cash purchase – yes -- for the construction/installation of panels & inverters
 - for the design, engineering portion of the project, we can have Council approve a Professional Service Agreement with consultant
 - If PPA – Charter only allows up to five years for a professional service contract – this does not allow for PPA agreement as it would last at least 20 years

DISCUSSIONS WITH OTHER SOLAR PANEL USERS

- Sycamore Township – adjacent to fire station and baseball field (2009)
 - 289 panels adjacent to Fire Station (\$347,561)
 - Why pursued -utilized federal grant opportunity at the time, a revenue enhancement opportunity as they sold off energy credits
- Silverton – top of administration building (2020)
 - Why pursued - become net neutral with its electric bills (not there yet, will take time) become community leader, reduce carbon footprint
 - 45 kWh system (\$100,000 maximum)
- Lakewood – placed on four facility rooftops (2020-2021)
 - \$1.3 million up front costs – worked under Cuyahoga County contract for 20-year PPA
 - Why pursued – Resiliency, need to diversity so not to be 100% dependent on grid, governmental responsibility to be leader
- University of Dayton – located on purchased NCR property at front entrance and rooftops on Brown Street (2020)
 - 30-year PPA – was not a financial gain
 - Why pursued – environmentally conscious, reduce carbon footprint, work in coordination with engineering students
- Cedarville University – utilize throughout campus (2012)
 - 1,700 panels on 11 acres – \$ 7 million with grants
 - Why pursued – budget neutral but estimated savings coming in less than anticipated, received very good PR from it