Agenda Item Summary

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Submitted By
Mindy Agnew, Sustainability Coordinator

Agenda Item Title
Economic Analysis of Renewable Energy Projects

Overview
As a follow up to the March 12, 2018 presentation of staff recommendations, an economic analysis has been done based on the plan for the use of the Community Choice Electricity Aggregation (CCA) sustainability funds. The Village continues its work with Mark Pruitt, Principal of the Illinois Community Choice Aggregation Network (ICCAN) and staff to provide an analysis of the suggested renewable energy options to optimize the leverage and use of the CCA funds, and to maximize the available Federal, State and Utility incentives available in order to provide returns for the broadest population of Village residents.

Anticipated Future Actions/Commitments
Subject to consensus of the Board, staff will perform the research and analysis for implementation as early as August 2018 of the renewable energy options selected.

Report
The 2016 Illinois Future Energy Jobs Act (FEJA) increased the scope of energy efficiency incentives and renewable energy funding resources including a requirement that 10% of energy efficiency spending go to public buildings that include municipalities. The incentives through FEJA are structured to provide the highest incentives for renewable energy projects deployed in the near-term. Similarly, the federal incentives decline over time.

Federal Investment Tax Credit Incentive Schedule:
30% through 2019
26% through 2020
22% through 2021
10% through 2022

Staff used a metrics model presented by the Environment and Energy Commission (EEC) on February 5, 2018, to make recommendations on community-led options for renewable energy project considerations presented in a report to the Board on March 12, 2018. The Board asked that seven recommended options be analyzed for consideration for the use of the CCA funds.

A. Rooftop Solar Array for Village Hall (to support Village consumption)

B. Rooftop Solar Array for Village Hall (to support Community Solar for resident subscriptions)
C-1. Offsite Community Solar Subscriptions for Village Electricity accounts
C-2. Offsite Community Solar Subscription options for Village CCA Program
D. Credit Enhancements for Residential Rooftop Solar Installations (not rated)
E. LED Streetlight Program Updates
F. Promotion of energy efficiency programs for all residents including Low to Moderate Income families.
G. Utility Scale Solar Array

Key operational metric characteristics were considered for all recommended options based on a scale from poor to superior optimal performance. Each category was rated on a 1-5 scale (1-poor, 5-superior).

Category	Description
Sustainability	What Volume of energy efficiency or renewable energy generation can be delivered?
Economics	What is the balance between economic value delivered vs. program cost?
Resources	What level of Village resources will be required to implement and manage the program?
Unknowns	How much experience exists in the market to support the program/related technologies?
Longevity	What is the life-cycle duration of the assets supported by the program?
Complexity	What is the level of complexity related to the management of the program?
Scalability	What level of funding flexibility can the program accommodate?
Calendar	What is the likelihood that the program can commence in calendar year 2018?

The Village can choose more than one of the renewable energy program options to reduce peak demand and provide a positive impact for all.

The top recommended options that rated highest returns in both operational assessment and economic benchmarking are:

Score	Program	
38	F.	Promotion of energy efficiency programs
38	C-2.	Offsite Community Solar Subscription options for Village CCA Program
37	E.	LED Streetlight Program Updates
36	C-1.	Offsite Community Solar Subscription for Village Electricity Accounts
28	B.	Rooftop solar Array for Village Hall (Community Solar subscriptions for residents)
26	A.	Rooftop Solar Array for Village Hall electricity consumption

The Utility-Scale Solar Array option rated lowest based on the high level of implementation complexity, negative economic benefits and funding required beyond the capacity of the Village's CCA funds.

Score	Program
20	Utility-Scale Solar Array

Utility scale solar arrays larger than 2 MW are being proposed in Illinois due to new utility incentives that aim to reduce the cost of utility scale solar in the long-term. The short-term benefits remain complex. The Village could potentially purchase a volume of electricity generated from a utility-scale solar provider to match the volume consumed by all residential, municipal and commercial accounts located in Oak Park. This would potentially require 175 MW of utility-scale solar capacity located on an average of 2,000 acres. Due to physical and legal intricacies, a utility scale array cannot directly support the needs of all accounts.

As an alternative, the Village could offset Village consumption with the output of a utility-scale provider through a long-term contract with a developer, and then immediately sell that electricity into the wholesale market. The Village would bear the risk of economic loss whenever the hourly energy price in the wholesale market was less than the contract. Development of a utility-scale solar array to offset Village consumption would require estimated capital costs of $82,473,846, beyond the current resources of the CCA fund. Staff recommends that the Village table consideration of a utility-scale option based on the substantial short-term negative economic benefits for all residents and businesses, a high level of program complexity, and a prolonged planning, financing and negotiation process to establish the contract or direct purchase and construction of a utility-scale solar array.

Recommendations

Energy efficiency is one of the top rated renewable energy options. Staff recommends allocating a 3% fixed amount of the fund balance annually to promote outreach costs and local incentives for smart thermostats, residential LED lights, an updated Greenhouse Gas (GHG) inventory using at least 2015 data in order to set and maintain GHG reduction goals, and rolling out the industry standard Energy Star Portfolio Manager for Village facilities. This is supported by the high levels of economic benefits for residents, low technology risks, and management levels of program complexity.

LED technologies available for municipal street lighting provide high-quality residential lighting for safety while consuming less energy than traditional lighting used by the Village. Allocating funding resources to reduce energy consumption and costs for the Village's street lighting is also recommended, supported by the high level of economic benefits for residents, low technology risks and management levels of program complexity.

Taking advantage of renewable energy incentives by negotiating Solar Subscriptions for both the Village Community Choice Aggregation and all of the Village facility accounts is also recommended by staff supported by the potential cost savings of the project, and the relatively low level of management required to facilitate and manage the subscriptions.

Rooftop solar array options have enough incentives to be considered for the Village with relatively low project costs with high value visibility to residents and businesses, and possible subscription options for those who don't have a solar installation option.

The attached report includes the detailed analysis that led to the above recommendations. Each option presents advantages and challenges that can be reviewed and discussed as part of the meeting. The Village

CCA Fund is anticipated to reach $1 Million by August 1, 2018. Some of the options consider use of these funds collected via the $0.3/kWh local fee for project costs.

Alternatives

The Village Board can delay action and seek additional information.