



THE CITY OF KEY WEST

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EXECUTIVE SUMMARY

Date: November 11, 2022

To: Patti McLauchlin, City Manager
Todd Stoughton, Assistant City Manager

From: Gary Volenec, Interim Engineering Director
Albiona Balliu, Sr. Project Manager

Subject: **Solar System decision for the proposed new Homeless Shelter (KOTS)**

ACTION STATEMENT

Staff is requesting approval to include in the Contract Bid Documents for the proposed Keys Overnight Temporary Shelter (KOTS) facility an “Add/Alternate” line item for the Design and Construction of a roof mounted solar power system to provide electric service the facility.

BACKGROUND

Resolution 19-328 requires that options for solar power components be presented to the City Commission for all future city development and redevelopment projects. Building solar infrastructure limits reliance on fossil fuels, adds resiliency, and provides life-cycle energy cost savings. Drawbacks to solar infrastructure include increased up-front costs and ongoing maintenance expenses.

A review/cost analysis has been conducted to evaluate the impacts associated with implementing solar infrastructure at the new KOTS Shelter.

PURPOSE AND JUSTIFICATION

The consideration of Solar energy for City Facilities follows the City’s Strategic Plan, *Key West Forward*, Priority 4, Environmental Protection, Protect the Health and Longevity of the Island and its Inhabitants; Goal 1- Energy Efficiency and Resilience – Action Item 5. All Development and Redevelopment include the option for Solar Energy.

FINANCIAL IMPACT

In order to consider the option of placing a solar system at KOTS, a preliminary solar system review/cost analysis was prepared which incorporated solar panels being installed on top of the roof on engineered mounting stands. The overall costs of the solar system and life cycle were then evaluated by comparing associated costs with system income/energy production.

Proposed Building	Solar System Design	Structural/Roof Modification	Mounting Stands	System Cost 125 kW*	Estimated Construction Costs
KOTS	\$ 30,000	\$ 10,000	\$ 12,000	\$ 500,000	\$ 552,000

* \$4,000 per kW

Annual Production Estimated kWh**	Income per kWh	Est. Annual Income	Annual Maintenance	Net Annual Income	Payback in Years
205,313	\$ 0.19	\$ 39,009	\$ 6,000	\$ 33,009	16.72

** 125 kW X 365 days/year X 4.5 avg. sunlight hours/day

Based on the preliminary cost analysis, the pay back on the initial capital investment could take approximately 17 years.

There has been a response from the solar power industry that these numbers are too high for the necessary system to provide solar electrical service for KOTS, and that there may also be Federal Funding sources which could offset the overall system cost.

To address these opinions, staff has determined that a possible option would be to include an “Add/Alternate line item to the Contract Bid Documents for the Design and Construction of a roof mounted solar power system to provide electric service to the facility. We propose to include language that will address the following intent:

- Design and construct a roof mounted solar power system to provide full electrical service for all loads necessary for daily operation of the facility. A battery system will be included as an integral part of the solar power system to store sufficient electrical capacity to maintain the operation of the facility when insufficient sunlight is available, including cloudy days and overnight. The system shall be designed to address electrical loads and demand as identified on the Construction Plans and Specifications and meet all applicable building codes and wind load requirements for the proposed KOTS location. The KOTS facility will be connected to the KEYS Energy grid to ensure continued electrical service.

RECOMMENDATION

In order to address the concerns raised by the solar power industry, Staff recommends approval to include in the Contract Bid Documents for the proposed Keys Overnight Temporary Shelter (KOTS) facility an “Add/Alternate” line item for the Design and Construction of a roof mounted solar power system to provide electric service the facility. The bids will be presented to the City Commission at which time the decision to implement solar power can be best determined.