City of Key West
Solar Evaluation Form

Per Resolution 19-328, options for solar power components shall be presented to the City Commission for all future City development and redevelopment projects.

Please attach supporting documents, including panel specs for calculations

---

Section 1: Energy Usage

Project Name: Frederick Douglas Gym

Post Disaster Importance
__X_High __Med ___Low

Square Feet of Building(s): 9,587 SF

Estimated Annual Energy Use (Kw): _____

Estimated Daily Emergency Energy Use (Kw): _____

Section 2: Energy Use Related to Water Heating: _____ ___N/A

Section 3: Panel Specs:
Warranty: _____25 years_____ Expected Lifespan: _____40 years_____

Section 4: Estimated Energy Production

Potential Siting	**Space Available for Solar** (sq foot)	**Estimated Energy Output** (KwH/Yr)	**Price Per Kilowatt**	**Estimated Percent Energy Supplanted**
Roof	9,000	111,069	0.17	
Parking Lot				
Other				
Other				
Water Heater				

Section 5: Estimated Energy Production Cost

Potential Siting	**Cost of Net Zero** (supplants all usage)	**ROI** (Years)	**Cost of Supplanting Emergency Use**	**ROI** (Years)
Roof				
Parking Lot				
Other				
Other				
Water Heater				

Section 6: Recommended Installation

Potential Siting	**% of Usage Supplanted**	**Cost**	**ROI** (Years)
Roof			
Parking Lot			
Other			
Other			
Water Heater			

Section 7: Narrative:

A grid tie solar system is most logical type of system for this application. For a system size of 68 KW works out to 320 watts/panel and costs roughly at $4/watt to build. $4 x 68,000 = $272,000.

PVWATTS.NRELGOV calculator shows this system will produce 111,069 KW-hrs/year. Total cost for electricity on the Keys Energy Service system is $0.17/Kw-hr. This system will produce $0.17 x 111,069 = $18,882 worth of electricity every year or roughly $1,573/month.

If we take the full cost of the system and divide by the amount of electricity it will produce annually, we find that $272,000 ÷ $18,882 = 14.4 years for the system to pay for itself. If the cost can be reduced by 25% then the payoff goes down by 25% to 10.8 years. Neither of these factor in cost increases for the electricity. If electricity costs increase each year, then payback is faster depending on the increase in electricity costs.

Using the numbers above, then the system will produce 20 x $18,882 = $377,640 worth of electricity in those 20 years. If energy costs increase 2% each year for 20 years the system will produce $458,783 worth of electricity over the 20 years.

Note that a solar panels general carry 25 year warranties and can last much longer. If this system lasts 40 years it will pay for itself several times over.

Section 8: Attachments