



# CITY OF SANTA BARBARA

## COUNCIL AGENDA REPORT

**AGENDA DATE:** September 9, 2014

**TO:** Mayor and Councilmembers

**FROM:** Airport Administration, Airport Department

**SUBJECT:** Introduction of Ordinance For Airline Terminal Solar Photovoltaic Power Purchase Agreement at 500 Fowler Road

### RECOMMENDATION:

That Council introduce and subsequently adopt, by reading of title only, An Ordinance of the Council of the City of Santa Barbara Approving and Authorizing the Airport Director to Execute a Power Purchase Agreement with SunEdison to Develop, Own, Operate and Maintain a Solar Photovoltaic Generating System at the Airport, and Sell All Power Generated to the Airport.

### EXECUTIVE SUMMARY:

Council directed Airport staff to investigate ways to offset increases in carbon emissions anticipated from the new Airline Terminal. The use of a solar photovoltaic (PV) collection system was selected as the best solution. Due to lack of capital funding to construct the PV project, the use of a Power Purchase Agreement, for construction of the project and subsequent sale of the generated power to the Airport, was approved by the Airport Commission. A request for proposals (RFP) process was used to select a company to design, construct, own, and operate the system. Eight firms submitted proposals, three firms were interviewed, and SunEdison was selected as the firm that best meets the needs of the Airport.

SunEdison has developed, financed, and installed over 1,000 individual photovoltaic projects with a total installed capacity exceeding 1.2 GW. The proposed PV collection system will consist of solar photovoltaic panels located on four canopies over the center section of the Airport's long term parking lot. The facility will consist of over 2,500 solar panels mounted on double cantilever canopies.

The term of the Power Purchase Agreement is 20 years and SunEdison's proposed rate per kilowatt hour in year one is \$0.099. The proposed rate inflates at 2.5% per year over the life of the agreement. When SunEdison's proposed pricing is modeled against anticipated Southern California Edison (SCE) pricing over the term of the agreement, in

present value terms, the SunEdison proposal beats SCE pricing by over \$1 million dollars.

## **DISCUSSION:**

### Background

During the approval process for the Airline Terminal project, City Council asked that Airport staff explore ways to offset anticipated increases in carbon emissions related to the building under design. Additional carbon emissions were expected due to the increased energy consumption when transitioning from the 1942 era terminal to the new, more automated, much larger Terminal building.

Airport staff identified solar PV, where sunlight is converted directly into electricity, as the most likely source of renewable energy available to accomplish the carbon offset goal. Since capital funding was unavailable for the Airport to construct, operate, and own a solar PV collection system, a Power Purchase Agreement (PPA) approach was selected.

The benefits of Solar PV include:

- Renewable energy source,
- Zero carbon emissions are generated by the facility when in operation,
- Proven and reliable technology,
- Provides shade for some Airport parking customers.

On February 5, 2014, Airport Department issued a request for proposals. The scope for the project was developed with input from Community Environmental Council and City staff. Proposals were received on March 27, 2014. Eight firms submitted proposals. Three firms were invited as finalists to present the proposals and respond to staff questions. SunEdison was selected as the best consultant for the project.

SunEdison proposed a project that closely matched the specifications developed by staff. The firm demonstrated an outstanding portfolio of projects that included substantial experience with municipal Power Purchase Agreements and experience with developing PV projects at airports. The proposed schedule reflected some optimism, but was realistic and acknowledged the need to avoid impacts to Airport parking during peak travel times. Further, SunEdison's proposed pricing structure was one of the most favorable for the Airport among those received.

Since its inception in 2003, SunEdison has developed, financed and installed over 1,000 individual photovoltaic projects with a total installed capacity exceeding 1.2 GW. Their expertise encompasses all facets of solar development including site evaluation, financing, procurement, construction management, operation and maintenance. Within their portfolio SunEdison has developed:

- 120 MW of PV under Power Purchase Agreements with municipal customers
- 40 MW of PV at airports
- Systems that have generated over 3,849 GWh

Once the Power Purchase Agreement is executed, SunEdison will begin designing and permitting the proposed solar PV project. It is estimated that it will take approximately 1.5 years from the date the agreement is executed until the project is completed and power is delivered to the Airline Terminal.

#### Proposed Facility

The proposed PV collection system will consist of solar photovoltaic panels located on four canopies over the center section of the Airport's long term parking lot. The facility will consist of over 2,500 solar panels mounted on double cantilever canopies. Canopies will provide shade, but will not be watertight. The array is expected to produce approximately 1,536,000 kilowatt hours per year, which is roughly 80% of the Airline Terminal's annual electrical load. Power generated will be transmitted underground and delivered to the Airline Terminal electrical switchgear.

In anticipation of the project, and to reduce the impact on newly installed infrastructure, conduit was installed from the Moffett and Fowler intersection to the Terminal's electric service point. SunEdison will be responsible for connecting the system to the existing conduit. Energy produced by the proposed system will be metered as it is delivered to the Terminal.

Net metering will allow any excess energy produced during the day to go onto the electrical grid and be used during nighttime hours when the system is not producing. Under the current power tariff structure, the system will produce energy and credits for overproduction at mid-day when energy prices are highest. Credits earned during peak rates will be used to power the facility during less expensive mid-peak and off-peak hours. Said another way, we will be selling excess energy back to SCE during the middle of the day at a high on-peak price and buying the power back during night, morning and evening hours at a much lower off-peak or mid-peak price (keeping in mind that the Public Utilities Commission can change tariffs and tariff rules at any time.)

#### Proposed Power Purchase Agreement

Under a Power Purchase Agreement (PPA) arrangement, a third party plans, finances, permits, builds, owns, and operates a solar collection system on the Airport. In exchange, the Airport agrees to purchase all power produced by the system and delivered to the Airport's electric meter at a pre-determined price, over the 20 year term of the agreement.

The PPA is based on the agreement entered into successfully by the City with the provider of the solar PV collection facility at the Public Works Department's Corporate Yard. In addition to terms and conditions for development, operation, maintenance of

the system, the proposed agreement describes system output and pricing for the energy produced over the life of the agreement.

A brief outline of the specifics of the agreement include:

- Term of agreement is 20 years;
- SunEdison will plan, permit, construct, own, operate and maintain the facility;
- SunEdison guarantees that system will produce at least 90% of anticipated output annually; and
- At end of the agreement, City will have the option to purchase the facility at fair market value or have SunEdison remove the facility and return the site to original condition.

#### Airport Commission

Airport Commission recommended approval of the Power Purchase Agreement with SunEdison at the regularly scheduled meeting on August 20, 2014.

#### **BUDGET AND FINANCIAL INFORMATION:**

The Airport will purchase all the energy produced by the proposed SunEdison facility, in lieu of purchasing the energy from Southern California Edison (SCE). SunEdison's proposed rate per kilowatt hour in year one is \$0.099. The proposed rate inflates at 2.5% per year over the life of the agreement. When SunEdison's proposed pricing is modeled against anticipated Southern California Edison (SCE) pricing over the term of the agreement, in present value terms, the SunEdison proposal beats SCE pricing by over \$1 million dollars over the 20 year term of the agreement.

#### **SUSTAINABILITY:**

While generating electric energy, solar PV panels produce zero emissions. Up to 80% of the Airline Terminal's annual electrical demand is expected to be powered by the proposed solar PV facility.

**PREPARED BY:** Jeff McKee, Maintenance Superintendent

**SUBMITTED BY:** Hazel Johns, Airport Director

**APPROVED BY:** City Administrator's Office



# Airline Terminal Solar Photovoltaic Power Purchase Agreement

Santa Barbara City Council  
September 9, 2014

# Introduction

- Background
- Proposed System
- SunEdison
- Power Purchase Agreement
- Economics
- Conclusion
- Recommendation

# Background

- Staff directed to explore ways to offset increased carbon emissions associated with the new Airline Terminal
- Solar photovoltaic (PV) on canopies in Long Term Parking lot
- Power purchase agreement
  - No capital cost to Airport
  - Vendors can leverage tax benefits

# Requests For Proposals

- Issued RFP February 2014
  - Plan, build, own and operate a solar PV collection system in Airport long term parking lot
  - Sell all power produced to Airport to power Airline Terminal
  - Use City's Corporate Yard PPA agreement as boilerplate for terms.
  - Size system up to 80% of 2013 demand

# Requests For Proposals

- Received proposals from 8 firms
- Each proposal was evaluated for:
  - Economic value
  - System
  - Experience
  - Schedule
- Top three proposers invited for interview
  - Airport, Public Works, CEC
- SunEdison selected

# Proposed System

- Solar PV collection system
  - Canopies in long term parking lot
  - 1,536,000 kWh per year of renewable energy delivered to Airline Terminal
  - 80% of Airline Terminal demand
- No reduction in parking spaces
- Web-based monitoring system
- Conduit in place from Moffett/Fowler intersection to meter

# SunEdison

- Founded in 2003 (formerly MEMC)
- Experienced in:
  - Site evaluation, Financing, Procurement Construction, Operations and Maintenance
  - PPAs with municipalities
  - Airports

# SunEdison Portfolio

- Completed over 1,300 PV projects
- Installed capacity 1.2 GW
- Generated 3,849 Gwh
- 120 MW PV under PPA with municipalities
- 40 MW PV at Airports

# Power Purchase Agreement (PPA)

- Provider responsible for:
  - Design
  - Permitting
  - Financing
  - Construction
  - Operation, and
  - Maintenance
- Airport purchases all power delivered to Terminal at a predetermined price/kWh over the 20 year term of the agreement

# PPA Terms

- 20 year term
- SunEdison guarantees system will produce at least 90% of expected annual output
- Facility purchased at fair market or removed by SunEdison after agreement expires

# Economics

- SunEdison proposes:
  - To produce about 80% of the Terminal's electricity demand in year 1
    - 1,536,003 kWh/yr
  - At a cost of \$0.09900/kWh in year 1
  - Energy price escalates at 2.5%/year
  - Panel production degrades slightly
- Proposed system output and price are detailed in PPA

# SunEdison vs. SCE Pricing

- Performed present value comparison
  - SunEdison vs. forecast SCE pricing
  - Model assumed:
    - 3% inflation rate for SCE power
    - 5% discount rate
    - 20 year term
- SunEdison pricing is anticipated to beat SCE pricing by more than \$750k over term

# Conclusion

- Identified solar photovoltaics as renewable energy source to offset increased carbon emissions
- Conducted competitive process
- Selected SunEdison
- Negotiated PPA agreement terms