CERTIFICATION AND FINANCING PROPOSAL

DAVIS-MONTHAN AFB SOLAR PARK IN TUCSON, ARIZONA

Revised: September 30, 2012
CERTIFICATION AND FINANCING PROPOSAL

DAVIS-MONTHAN AFB SOLAR PARK
TUCSON, ARIZONA

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EXECUTIVE SUMMARY

DAVIS-MONTHAN AFB SOLAR PARK IN
TUCSON, ARIZONA

Project: The project consists of the construction and operation of a 12.6 MWac/15.7 MWdc photovoltaic solar park located in Tucson, Arizona (the “Project”). The energy and Renewable Energy Credits (“RECs”) produced will be purchased by Davis-Monthan Air Force Base (“DMAFB” or the “Base”) and Tucson Electric Power (“TEP”), respectively, pursuant to a long-term Power Purchase Agreement (“PPA”) and a Master REC Purchase and Sale Agreement (“MREC”) signed with the Project company.

Project Objective: The Project will increase installed capacity of renewable energy resources, reducing the demand for traditional fossil-fuel-based energy, thus contributing to the displacement of greenhouse gas emissions and other pollutants from power generation associated with fossil fuels.

Expected Project Outcomes: The environmental and human health outcomes anticipated for the Project include 12.6 MWac of new renewable energy generation capacity; >34,000 MWh/year; and an expected displacement of more than 16,964 metric tons/year of carbon dioxide, 11 metric tons/year of sulfur dioxide and 17 metric tons/year of nitrogen oxides.

Population to benefit 980,263 residents of Pima County, Arizona

Sponsor: SunEdison, LLC (“SunEdison”)

Borrower: SunE DM, LLC (“SunEDM”)

Loan Amount: Up to US$45.0 million.
CERTIFICATION AND FINANCING PROPOSAL

DAVIS-MONTHAN AFB SOLAR PARK IN
TUCSON, ARIZONA

1. ELIGIBILITY

*Project Type*
The Project falls in the category of clean and efficient energy. The energy generated will reduce demand on traditional fossil-fuel-based energy production, contributing to the displacement of greenhouse gas emissions and other pollutants from power generation using conventional fossil-fuel technologies.

*Project Location*
The Project site is located completely within 100 kilometers of the U.S.-Mexico border in Tucson, Arizona.

*Project Sponsor and Legal Authority*
The private-sector project sponsor is SunEdison, LLC (“SunEdison” or the “Sponsor”), a wholly-owned subsidiary of MEMC Electronic Materials, Inc. (MEMC). SunEdison created a special-purpose company named SunEDM, LLC (“SunEDM”) for the implementation of the Project. SunEDM is a Delaware Limited Liability Company registered on May 13, 2011. Its contact representative is Ryan Bennett.

2. CERTIFICATION CRITERIA

2.1 TECHNICAL CRITERIA

2.1.1. Project Description

*Geographic Location*
The Project site is located within the boundaries of the Davis-Monthan Air Force Base (DMAFB), which is southeast of the city of Tucson in Pima County, Arizona. The solar park will be constructed on approximately 144 acres composed of two parcels: Chevron and West Airfield. Figure 1, below, shows the approximate geographical location of the Project.
General Community Profile

The Project is expected to directly benefit Pima County in two ways: (i) by generating sufficient energy to supply about 35% of DMAFB’s electrical needs, estimated to be the equivalent of the annual consumption of approximately 2,100 households; (ii) and by creating employment opportunities and additional taxes through the construction and operation of the Project.

According to the 2010 census, Pima County had a population of 980,263 inhabitants and its largest urban area, Tucson, reported a population of 520,116 residents.

Historically, Tucson has benefitted from a dynamic economy that has posted above-average growth rates compared to the rest of Arizona. These growth rates have been a result of: (i) Tucson’s strategic location near the Mexican border, which has enabled it to develop into an international trade and services hub; and (ii) the beneficial economic impact of the area’s various military installations, most notably the Davis-Monthan Air Force Base.

According to the most recent economic data reported in 2010, the gross domestic product (GDP) of Tucson was US$32.3 billion.¹ Government services were the largest single economic activity in 2010, accounting for roughly 20.4% of GDP, followed by real estate rental and leasing (11.4%), health care and social assistance (11.1%), manufacturing (9.0%), retail trade (7.4%), and financial services (5.0%). With regards to median household income (MHI), Tucson reported an annual average MHI of US$37,025 for 2006-2010, which is considerably less that the State MHI (US$50,448) and the U.S. national average (US$50,046).²

¹ Source: Bureau of Economic Analysis, US Department of Commerce.
² Source: U.S. Census Bureau, Tucson County Quick Facts, 2010
According to the U.S. Department of Labor, the unemployment rate in Tucson was 7.2%, below the national average of 8.3% in May 2012.3 The Project is expected to generate approximately 140 direct jobs during construction and two permanent, full-time jobs during operation.

Local Energy Profile

The Energy Information Administration (EIA) of the U.S. Department of Energy (DOE) provides a state-by-state reference for information and data covering energy production and demand. Figure 2 from the EIA website shows the location of Arizona’s power plants, its renewable energy potential, and energy sources.4

Figure 2
ARIZONA’S ENERGY SOURCES

In 2006, Arizona passed a Renewable Portfolio Standard (RPS) for in-state utilities, known as the Renewable Energy Standard (RES). Initially, the RES required utilities to obtain 1.1% of their energy sales from renewable sources, of which 60% had to be solar. In November 2006, the state regulatory body for utilities, the Arizona Corporation Commission (ACC), expanded the RES by approving the current Renewable Energy Standard and Tariff (REST). The REST requires that regulated electric utilities in Arizona generate 15% of their energy from renewable resources by

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2025. Each year, utilities operating in the state are required to file annual implementation plans detailing how they are coming into compliance with REST requirements.

The electricity generated by the Project will be used within the DMAFB, displacing its consumption off the Tucson Electric Power (TEP) grid that currently serves the Base. TEP will also make use of the Renewable Energy Credits (RECs) for compliance under the RES.

TEP is the second largest investor-owned utility in Arizona, providing electricity to approximately 403,000 customers in southern Arizona and serving a population of nearly one million people, including the Tucson metropolitan area (see Figure 3). It was founded in 1982 and manages more than 2,245 MW of power plant capacity. TEP is the largest subsidiary of Unisource Energy (NYSE: UNS), a provider of natural gas and electricity services to customers throughout Arizona.6

![Figure 3](https://www.tep.com/About/Overview/)

Figure 3

TEP SERVICE MAP

TEP’s energy comes from a variety of fuel sources. Coal represents 69.6% (1562 MW) of its current generation capacity, from ten active coal-fired power plants located in Springerville, Page and Tucson, Arizona and Farmington, New Mexico. Natural gas is the second largest source of generation, currently accounting for 30.2% (678 MW) of capacity. TEP's natural gas generation is provided through seven plants also located in Tucson, Arizona and Deming, New Mexico.

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5 Source: Arizona Corporation Commission.
6 Source: https://www.tep.com/About/Overview/
Mexico. Solar makes up the remaining 0.22% (5 MW) of generation capacity. Table 1 shows the energy mix for generation capacity for TEP compared to the state energy mix:

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>69.58%</td>
<td>23.6%</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>30.19%</td>
<td>49.3%</td>
</tr>
<tr>
<td>Other Renewables</td>
<td>0.22%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Hydroelectric</td>
<td>-</td>
<td>10.3%</td>
</tr>
<tr>
<td>Nuclear</td>
<td>-</td>
<td>14.9%</td>
</tr>
<tr>
<td>Petroleum</td>
<td>-</td>
<td>0.4%</td>
</tr>
<tr>
<td>Pumped storage</td>
<td>-</td>
<td>0.8%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.00%</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

* Source: Tucson Electric Power Company.
** Source: U.S. Energy Information Administration.

**Project Scope and Design**

The scope of the Project is to design, build and operate a 12.6 MWAC/15.7 MWDC solar park consisting of traditional polycrystalline silicon (“c-si”) photovoltaic solar panels mounted on single-axis trackers. DMAFB will purchase all the electricity produced under a 25-year PPA, and the RECs produced by the Project will be sold to TEP to meet Arizona’s Renewable Energy Standard under a 20-year agreement. The Project will be constructed within the boundaries of the Base on approximately 144 acres composed of two parcels: Chevron and West Airfield (see Figure 4). The Project will interconnect to DMAFB onsite through TEP’s existing interconnecting point.
The Project is expected to begin construction by September 2012 with commercial operation (COD) achieved in December 2012. Table 2 presents a non-exhaustive list of key tasks.

<table>
<thead>
<tr>
<th>Key Milestones</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solar resource assessment</td>
<td>Completed</td>
</tr>
<tr>
<td>EPC contract</td>
<td>In progress</td>
</tr>
<tr>
<td>Project site lease</td>
<td>Completed</td>
</tr>
<tr>
<td>Environmental Assessment/NEPA process*</td>
<td>Completed</td>
</tr>
<tr>
<td>PPAs with DMAFB and TEP</td>
<td>Signed</td>
</tr>
<tr>
<td>Interconnection Agreement with TEP</td>
<td>In progress</td>
</tr>
<tr>
<td>MREC Agreement with TEP</td>
<td>Completed</td>
</tr>
<tr>
<td>Construction permits**</td>
<td>In progress</td>
</tr>
<tr>
<td>Independent engineer report</td>
<td>In progress</td>
</tr>
<tr>
<td>Commercial Operation Date (COD)</td>
<td>December 2012</td>
</tr>
</tbody>
</table>

* National Environmental Policy Act
**Described in detail in Section 2.2.
2.1.2. Technical Feasibility

Selected Technology

The Project will consist of MEMC polycrystalline photovoltaic solar modules mounted on a series of single-axis trackers from Array Technologies and will utilize Toshiba-Mitsubishi (TMEIC) Inverters. The Sponsor evaluated different technologies in the solar market, taking into consideration the site characteristics, solar resource, total energy costs, equipment performance and market standard guaranty requirements.

All equipment providers and models have been selected on the merits of price and quality. An optimization analysis was performed to assess the best technologies for the site from the standpoint of financial profitability. In addition, SunEdison has worked to establish economies of scale by utilizing similar technologies and technical services, thus providing opportunities to further improve the cost-benefit for several projects in its pipeline. Below is a description of the main components of the Project:

- **Modules**: The modules chosen for the Project are the MEMC 285W Polycrystalline Solar Module, with a reliable and robust design. A first-class industry warranty is provided, consisting of a 10-year limited warranty on materials and workmanship, a 97.5% minimum peak power warranty at standard test conditions (STC) in the first year, and 0.7% power output loss per year for the remaining 24 years. MEMC modules are comprised of components with a proven track record. MEMC implements rigorous quality controls in accordance with industry practices.

- **Trackers**: The selected horizontal single-axis trackers for the Project are manufactured by Array Technologies (ATI), which has 15 years of experience in the production of solar trackers. The modules are mounted on a structure that is aligned into north-south rows. The tracking mechanism rotates the modules from east to west in the course of each day to keep the modules facing the sun. ATI has installed their trackers in more than 30 sites that all together account for more than 40 MW of capacity. A GPS based system is used to control the tracking operation.

- **Inverters**: The inverters selected for the Project are manufactured by Toshiba-Mitsubishi (TMEIC), which are certified by the Underwriters Laboratories (UL) and meet the criteria set forth by the Institute of Electrical and Electronics Engineering (IEEE) standard IEEE 1547. Direct current power output from the solar panels will be conducted through these inverters and converted into alternating current in a form compliant with the grid and useful consumption. The models that will be used are rated at a 630 kW of AC output.

- **Interconnection**: The interconnection point is onsite at or below 13.8 kV. The interconnection will be into the DMAFB side of the TEP electric metering point. Like many large bases, DMAFB has multiple electric meters onsite. In the case of DMAFB each of them is tied into a single point of interconnection, to which the Project will also connect, thereby offsetting a percentage of the load of the entire Base, not any specific meter. The Project shall incorporate safety and protection devices as needed to comply
with Good Utility Practices for an interconnected generator and as further specified in TEP’s distribution system.

- **Monitoring and control system**: An Energy Resource Management (ERM) system will be used to remotely monitor, track, and document the performance of the PV system relative to its predicted output.

In accordance with NADB’s procurement policies, private sector borrowers are required to use appropriate procurement methods to ensure a sound selection of goods and services, works and consulting services at fair market prices and that their capital investments are made in a cost effective manner. As part of its due diligence process, NADB will review the Project’s compliance with this policy.

**Solar Resource Assessment**

DMAFB is located in Tucson, Pima County, Arizona, which boasts some of the best solar resources in the world. According to the National Renewable Energy Laboratory (NREL), the Photovoltaic Solar Resource in Tucson ranges from 7 to 7.5 kWh/m²/day (see Figure 5).

![PHOTOVOLTAIC SOLAR RESOURCE](image)

A performance study has been performed and concludes that the Project will produce over 34,000 MWh of electricity in the first year of operation with natural solar degradation
thereafter. The Project’s energy production was calculated utilizing PVsyst software, as published by the University of Geneva, Switzerland. Performance losses due to DC to AC conversion, dust, inverter losses and shading will result in a Performance Ratio of approximately 80%. This energy generation will be vetted by an independent engineer consultant.

2.1.3. Land Acquisition and Right-of-way Requirements

DMAFB is located approximately five miles southeast of downtown Tucson, Arizona. The land occupied by DMAFB is owned by a combination of the U.S. Air Force, the State of Arizona, the City of Tucson, and several private owners. The Base occupies 10,613 acres of land, of which approximately 5,700 acres are developed or semi-improved, 4,700 acres are underdeveloped, and 300 acres are under easement to and maintained by Pima County. The Project site will be located on U.S. Air Force property, which was identified by DMAFB as being available for development, compatible for the use of a solar facility, and located near the Base’s existing electrical distribution system.

SunEdison and DMAFB have fully negotiated the terms of a 25 year lease agreement for the Project, which was recently executed. The Sponsor is granted access to the leased land through routes designated by the Federal Government on the Base for operation and maintenance of the Project. No other right-of-way is required for the Project.

2.1.4. Management and Operations

SunEdison has built, financed, or currently operates approximately 700 MW of solar power plants, and has installed over 750 MW of 100% renewable electricity projects. Project design will be finalized once the interconnection study process with TEP is completed and the interconnection agreement can be executed. SunEdison will ensure that the installation of the solar array and related infrastructure will be standard for the industry. It will provide onsite project management and will coordinate between the Base and all contractors through an Engineering, Procurement, and Construction (EPC) contract signed with the Project company.

Solar photovoltaic systems are highly reliable and require minimal maintenance. The Project Company will enter into a long-term, fixed price contract with a subsidiary of SunEdison (the “O&M Provider”) to provide a comprehensive O&M program for the Project. The O&M Provider will operate the solar facility in accordance with an Operations and Maintenance Agreement that shall provide for, at a minimum, the following services:

- Operating the solar facility;
- Performing routine and non-routine maintenance on the solar facility during and after the EPC warranty period;
- Providing all materials and services necessary for solar facility maintenance;
- Monitoring the operations of the Project via the computer monitoring system;
- Performing all duties to the standard mandated by the PPA;
• Complying with all regulatory obligations;
• Developing operating and safety plans; and
• Maintaining all Project information and facility data, including providing reports to their stakeholders.

The Project will be designed to operate automatically with minimal human intervention. Built-in telemetry will be incorporated to allow monitoring, control, and problem diagnosis, maximizing system availability and power output over the Project’s expected life. The ERM system will be used on a continuous basis. The system includes hardware and software that record and visualize inverter and PV string-level diagnostics. This information helps to troubleshoot problems remotely, so that issues can be corrected on the first site visit.

2.2 ENVIRONMENTAL CRITERIA

2.2.1. Compliance with Applicable Environmental Laws and Regulations

Applicable Laws and Regulations

Given that the Project will be constructed on federal property, the formal environmental clearance process for this Project follows the federal National Environmental Policy Act (NEPA), which requires federal agencies to take into consideration the potential environmental consequences of proposed actions in their decision-making process. The intent of NEPA is to protect, restore, and enhance the environment through well-informed federal decisions. The United States Air Force has completed its NEPA process and already has the environmental assessment and baseline surveys required for the site lease. The Project is in the process of obtaining the necessary permits and approvals. DMAFB will act as the Authority Having Jurisdiction (AHJ) for other permitting. Additional permits will be required from the Arizona Department of Environmental Quality (ADEQ) related to storm water and air quality during the construction period. Some of the required permits and approvals include:

• Excavation approvals from DMAFB’s internal permitting office
• Storm water management plan approval from ADEQ
• Hazardous materials approvals from the DMAFB permitting office
• Dust control and mitigation approvals from ADEQ and Pima County

Environmental Studies and Compliance Activities

DMAFB has developed an Environmental Assessment (EA) for the solar power system. The EA identifies, describes, and evaluates the potential environmental effects associated with the proposed action and alternatives. Resources assessed include earth resources, water resources, biological resources, air quality, noise, land use and visual resources, socioeconomics and environmental justice, cultural resources, safety, solid and hazardous materials and wastes, infrastructure, and cumulative impacts.
Based on the findings of the NEPA process, the Council on Environmental Quality (CEQ), and the Environmental Impact Analysis Process (formerly known as Air Force Instruction [AFI] 32-7061), and after careful review of the potential impacts, the EA concluded that the implementation of the Project would not result in significant impacts to the quality of the human or the natural environment. A Finding of No Significant Impact (FONSI) was signed in September 2009.

An Environmental Baseline Survey was also developed. The purpose of this survey is to determine and state the condition of real property controlled by DMAFB to be issued as a lease to the sponsor. This report documents the nature, magnitude, and extent of any environmental contamination of property considered for this Project. All potential environmental contamination liabilities associated with the real property transaction were discussed.

The study describes the Chevron site as an area that has been heavily disturbed, contains old asphalt taxiways and is located near a main electrical distribution line. The West Airfield site is located directly west of the flightline and extends south with the southern boundary parallel to East Irvington Road. This area is adjacent to a capped Base landfill and contains piles of construction debris such as asphalt and concrete. Under another action, the Base leveled the ground adjacent to the taxiway and added approximately 140,000 cubic yards of fill to this parcel.

The research team that prepared this report assembled and analyzed sufficient information to assess the health and safety risks and determined that the proposed action will ensure adequate protection of human health and the environment related to the real property transaction. The study recommends that the planned lease transaction should proceed.

Pending Environmental Tasks and Authorizations

Formal environmental authorization was issued for the Project in September 2009. There are no pending environmental tasks or authorizations.

Compliance Documentation

The following formal authorizations were obtained:

- Finding of No Significant Impact and Environmental Assessment
- Environmental Baseline Survey Report and Certification

2.2.2. Environmental Effects/Impacts

There is a need for affordable and environmentally beneficial alternatives to conventional fossil-fuel-derived energy sources. Renewable energy projects create an opportunity to generate electricity without the atmospheric emissions generated by fossil-fuel-based plants. Sunlight is a source of renewable energy, which means it can be produced without depletion of natural resources. It is a clean form of renewable energy and is currently used in many developed and developing nations to meet their demand for electricity. Solar power does not produce waste byproducts that require disposal or gas emissions that contribute to air pollution. It does not consume or pollute water. Water may be used in small amounts for the cleaning of panels from
time to time. Any water used for cleaning purposes will be disposed of at appropriate facilities and in accordance with environmental regulations. Solar energy projects provide an opportunity to displace greenhouse gases (GHG) and other pollutants produced by traditional fossil-fuel-based energy generation, while providing local residents with a safe and reliable energy alternative.

**Existing Conditions and Project Impact – Environment**

Historically, the United States has depended to a great extent on fossil fuels for the generation of energy. This conventional energy development can affect the natural environment due to the harmful emissions related to the generation process, including the release of GHG, as well as other pollutants, such as sulfur dioxide (SO₂) and nitrogen oxides (NOx).

Current electricity generation for Arizona relies on a mix of energy production technologies including: coal (39.1%), natural gas (26.6%), nuclear (27.9%), hydroelectric (5.9%), petroleum (0.1%), other renewables (0.3%) and pumped storage (0.2%). Based on nearly 111.75 million MWh of net power generation in Arizona in 2010, 55.68 million metric tons of CO₂, 33,000 metric tons of SO₂, and 57,000 metric tons of NOx were emitted.

<table>
<thead>
<tr>
<th>Energy source</th>
<th>Total Generation 2010 (MWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>43,643,807</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>29,675,942</td>
</tr>
<tr>
<td>Nuclear</td>
<td>31,199,935</td>
</tr>
<tr>
<td>Hydroelectric</td>
<td>6,622,160</td>
</tr>
<tr>
<td>Petroleum</td>
<td>66,434</td>
</tr>
<tr>
<td>Other Renewables¹</td>
<td>318,907</td>
</tr>
<tr>
<td>Pumped Storage</td>
<td>209,030</td>
</tr>
<tr>
<td>Other²</td>
<td>14,742</td>
</tr>
</tbody>
</table>

¹Other Renewables includes biogenic municipal solid waste, wood, black liquor, other wood waste, landfill gas, sludge waste, agriculture byproducts, other biomass, geothermal, solar thermal, photovoltaic energy, and wind.

²Other includes non-biogenic municipal solid waste, batteries, chemicals, hydrogen, pitch, purchased steam, sulfur, tire-derived fuels and miscellaneous technologies.

Note: Totals may not equal sum of components because of independent rounding.


The Project will help reduce the demand for fossil-fuel-fired electricity, and since solar power generation has zero fuel cost, zero emissions and zero water use, it will displace related harmful emissions. For the next 25 years, the production of approximately 825,000 MWh of zero-carbon generation will help avoid the emission of more than 410,000 metric tons of CO₂ into the atmosphere. The anticipated environmental outcomes include new renewable energy generation capacity (12.6 MWAC >34,000 MWh in year 1) and an expected displacement of more than 16,964 metric tons/year of carbon dioxide, 11 metric tons/year of sulfur dioxide and 17 metric tons/year of nitrogen oxides.
Mitigation of Risks

Based on the environmental assessment performed for the Project, including agency consultations, the following mitigation measures are applicable:

- **Soil:** Soil erosion and sediment transport could occur during initial grading in the construction process given that over half of the soils have moderate potential for wind and water erosion and approximately 22% has a medium to rapid runoff potential. The ADEQ reviewed the Project and issued the following recommendations in order to reduce disturbance of particulate matter:
  - Minimize land disturbance.
  - Suppress dust on traveled paths that are not paved through wetting, use of watering trucks, chemical dust suppressants, or other reasonable precautions to prevent dust entering ambient air.
  - Cover trucks when hauling soil.
  - Minimize soil track-out by washing or cleaning truck wheels before leaving construction site.
  - Stabilize the surface of soil piles.
  - Create windbreaks.
  - Re-vegetate any disturbed land not used.
  - Remove unused material.
  - Remove soil piles via covered trucks.

- **Water:** The primary effects on water resources associated with the Project include effects on water quality during construction and operation of the Project, impacts on surface waters, changes to surface water drainage, and ground water recharge. Grading and trenching associated with the Proposed Action could potentially affect storm water runoff. Prior to construction, the contractor is required to obtain coverage under an Arizona Pollutant Discharge Elimination System (AZPDES) Construction General Permit AZG2008-001 by filing a Notice of Intent for the construction activity and preparing a Storm Water Pollution Prevention Plan (SWPPP) to manage storm water associated with the construction activity. Additionally, the contractor will need to file an air activity permit from Pima County Department of Environmental Quality.

- **Vegetation:** All parcels were evaluated for impacts as a result of the implementation of the Project, however much of the ground surface in the proposed sites is already disturbed. For all of the parcels used for the Project, the contractor will be required to implement dust control measures which may include revegetation, gravel, or other dust suppressants as determined by ADEQ or Pima County. The Arizona Department of Agriculture reviewed the project and recommended avoiding or transplanting any protected native plants if they are found in the site.
• **Wildlife:** Most of the species found at the Base are fairly common, non-native, and well-adapted to rural or semi-urban settings. It is expected that these species would continue to utilize the project area following project construction; therefore, implementation of the Project is not expected to cause significant impacts to wildlife species or their associated habitat.

• **Migratory birds:** Migratory bird species identified by the Arizona Partners in Flight Bird Conservation Plan as indicators of Sonoran Desert scrub habitat health and that have been documented on Davis-Monthan AFB, include the rufous-winged sparrow and Costa’s hummingbird. Other species may be transient or migratory through the area. Impacts to migratory bird communities or populations as a result of implementation of the construction activities associated with the Project would not be expected to occur.

• **Special status species:** No federally listed threatened or endangered species are known to occur on the Base. There are two U.S. Fish and Wildlife Service (USFWS) species of concern that have been identified on the Base and other sensitive species have the potential to occur as suitable habitat is present. Measures taken include scheduling ground disturbance or noisy events to avoid breeding/nesting season. Individuals of sensitive species may be physically relocated to new suitable habitat; however, relocation is not typically conducted during breeding/nesting season. Six special status species were identified as occurring or having the potential to occur on the Base.

<table>
<thead>
<tr>
<th>Special Status Species</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Western Burrowing Owl</strong></td>
</tr>
<tr>
<td>Western burrowing owls are known to occur on the Base. The Arizona Game and Fish Department (AZGFD) would be able to relocate the western burrowing owl to an artificial burrow. The AZGFD currently has USFWS permits to relocate the owls and additional permits would not be required. Impacts to the western burrowing owl would be expected to be minimal.</td>
</tr>
<tr>
<td><strong>American Peregrine Falcon</strong></td>
</tr>
<tr>
<td>The American Peregrine Falcon is known to occur on the Base, although the falcon’s preferred nesting habitat does not occur on the Base. Due to the lack of preferential habitat for this species, the known occurrences of the falcon are likely transient; therefore, the Project would not be likely to impact the American Peregrine Falcon.</td>
</tr>
<tr>
<td><strong>Cactus Ferruginous Pygmy-owl</strong></td>
</tr>
<tr>
<td>This species has not been documented on the Base; therefore, the Project would not be expected to impact the cactus ferruginous pygmy-owl.</td>
</tr>
<tr>
<td><strong>Lesser Long-nosed Bat</strong></td>
</tr>
<tr>
<td>The lesser long-nosed bat has not been documented on the Base; however, this species is known to occur in the Rincon Mountains, just east of the Base. The proposed sites do not support saguaros or other suitable roosting or foraging habitats for the lesser long-nosed bat. Construction activities would not occur during these foraging hours; therefore, the Project is unlikely to impact the lesser long-nosed bat or its activities if this species should forage on Base.</td>
</tr>
<tr>
<td>Special Status Species</td>
</tr>
<tr>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Cave Myotis Bat</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Pima Pineapple Cactus</td>
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- **Wetlands**: There are no delineated wetlands on the base. Based on the historical data, it is unlikely that any of the proposed construction projects would be sited on newly formed wetlands. Should any wetland indicators be observed during construction activities, work would stop and the Base Environmental Manager would be contacted immediately. There would be no impacts to wetlands with implementation of the Project.

- **Air quality**: Potential impacts to air quality are identified as the total emissions of any pollutant that equals 10% or more of the Region of Influence’s (ROI) emissions for that specific pollutant. The 10% criterion approach is used in the United States Environmental Protection Agency’s (EPA) General Conformity Rule as an indicator for impact analysis for nonattainment and maintenance areas. Grading activities would cause an increase in particulate matter emissions (276 ton/yr.) but would not exceed the 10% General Conformity threshold. This can be minimized with the implementation of control measures in accordance with standard construction practices. For instance, frequent spraying of water on exposed soil during construction, proper soil stockpiling methods, and prompt replacement of ground cover or pavement are standard landscaping procedures that could be used to minimize the amount of dust generated during construction. Using efficient practices and avoiding long periods where engines are running at idle may reduce combustion emissions from construction equipment. CO emissions are expected to remain below the 100 ton/yr. *de minimis* threshold; therefore, a conformity determination is not required.

- **Noise**: Vehicles and equipment involved in facility construction and finishing work would generate the primary noise from the Project. The typical noise levels generated by these activities range from 75 to 89 dBA at distances of 50 feet from the source. Construction noise would be intermittent while the project is underway and would cease.

- **Cultural resources**: Impacts to cultural resources are not expected under the Proposed Action as these parcels have either been surveyed or disturbed by previous Base activities. Archaeological surveys of the Base, including the Valencia Road parcel and
portions of the West Airfield parcel, have identified eight archaeological resources considered ineligible for the National Register of Historic Places (NRHP). None of these resources is within, or near, the present project area. Impacts to architectural or traditional resources are also not expected in the Project site.

- **Solid and hazardous materials and wastes:**
  - Construction of the proposed Project would generate minimal solid wastes. The construction comprises ground disturbance and digging for concrete footings, possible transmission lines, and fencing. Contractors will be directed to recycle materials to the maximum extent possible, thereby reducing the amount of debris disposed of in landfills. Materials not suitable for recycling would be taken to a landfill permitted to handle construction debris wastes, such as the City of Tucson’s Speedway Landfill.
  - All hazardous materials and construction debris generated by the construction will be handled, stored, and disposed of in accordance with federal, state, and local regulations and laws. Permits for handling and disposal of hazardous materials are the responsibility of the contractor conducting the work.
  - Asbestos Removal and Disposal. Upon classification as friable or non-friable, all waste will be disposed of in accordance with the Arizona Solid Waste Management Regulations (CAA of 1970, Title 40 NESHAP Regulation) and transported in accordance with USEPA regulations that govern transportation of hazardous materials (EPA 530-F-96-032 et seq.).
  - Lead-based paint (LBP) Removal and Disposal. The proposed activities will comply with the United States Department of Labor (DOL), Occupational Safety and Health Administration regulations, and with the USEPA regulations addressing Lead Management and Disposal of Lead-Based Paint Debris (40 CFR Part 257, 258, and 745).

*Natural Resource Conservation*

The Project will help displace the atmospheric emissions generated by fossil-fuel-fired electrical plants since solar energy is generated without the emissions of CO₂, SO₂ and NOx. In addition, clean technologies such as solar energy require no water for electricity production, whereas fossil-fuel-fired generation is generally water intensive.

*No Action Alternative*

The no action alternative to the development of renewable energy sources would result in greater demand for conventional fossil-fuel-based energy production, further depleting natural resources for purposes of meeting an ever-growing demand for energy, as well as a lost opportunity to generate emission-free energy, such as that derived from solar energy.

*Existing Conditions and Project Impact – Health*

Epidemiological research has shown that both chronic and acute exposure to harmful emissions associated with fossil-fuel-based energy production can lead to serious respiratory problems. It
is estimated that, at the very least, prolonged exposure to excessive levels of pollutants can deteriorate the respiratory capacity of humans and greatly contribute to the increased incidence of cardiopulmonary diseases, such as asthma, heart ailments and lung cancer.

By using clean renewable resources instead of conventional fossil-fuel sources in electrical power generation, the Project will positively impact the region by reducing pollutants and thus help to contain the severity of respiratory and other diseases aggravated or caused by air pollution. In addition, the reduction of GHG emissions is expected to mitigate climate effects that create more vulnerable conditions for human health.

**Transboundary Effects**

No negative transboundary impacts are anticipated as a result of the development of the Project; on the contrary, a beneficial effect is anticipated on the air quality due to the decreased demand on fossil-fuel-fired electrical plants in the region. Furthermore, the Project will aid in addressing the larger environmental concerns related to greenhouse gases and global warming targeted by international agendas.

**Other Local Project Benefits**

It is estimated that the Project will be delivering 35% of the Base’s load of energy. The dependence on fossil fuels will be reduced and long-term savings on electricity costs will be achieved.

The Project is expected to generate approximately 140 direct jobs during construction, as well as approximately 2 (two) permanent, full-time jobs during operation.

### 2.3 FINANCIAL CRITERIA

The Project Sponsor has requested a loan from the North American Development Bank (NADB) for up to US$45.0 million to complete the financing of the Project. The proposed payment mechanism is consistent with the project structure normally seen in the U.S. renewable energy industry. The sources of payment will be 1) the revenue generated by the Project in accordance with the pricing established under the Power Purchase Agreement (PPA) signed with DMAFB for a term of 25 years, and 2) the revenue generated by the sale of the Renewable Energy Credits (RECs) to TEP under a 20-year Master REC Purchase and Sale Agreement (MREC). NADB loan will have no recourse beyond the Project Company, SunEDM.

NADB performed a financial analysis of the sources of payment, DMAFB and TEP; the proposed payment structure; and the Project’s cash flow projections over the terms of the DMAFB PPA and TEP MREC. Its financial ratios show that both DMAFB and TEP have the revenue capacity to meet its financial obligations under the PPA and MREC, respectively.

The Project’s expected revenue from the sale of electricity is estimated to be sufficient to: a) cover scheduled O&M expenses, b) fund any Debt Service Reserve, c) pay the debt service on proposed loan, and d) comply with debt service coverage requirements.
In addition, NADB’s analysis verified that DMAFB and TEP have the legal authority to contract financing and pledge their respective revenue for the payment of financial obligations. DMAFB also has the legal and financial capacity to operate and maintain the Project, and will contract the Project’s O&M services with an affiliate of SunEdison, which has ample experience and expertise in these types of projects. NADB has verified that the projected O&M costs are in accordance with industry standards.

Considering the Project’s characteristics and based on the financial and risk analyses performed, the proposed Project is considered to be financially feasible and presents an acceptable level of risk. Therefore, NADB proposes providing a market-rate loan of up to US$45.0 million to SunE DM, LLC for the construction of the Project described herein.

3. PUBLIC ACCESS TO INFORMATION

3.1. PUBLIC CONSULTATION

BECC released the Draft Project Certification and Financing Proposal for a 30-day public comment period beginning August 30, 2012. The following list of Project documentation is available upon request:

- Finding of No Significant Impact and Final Environmental Assessment for a Solar Power System, September 2009, which includes the Interagency and Intergovernmental Coordination for Environmental Planning.
- Environmental Baseline Survey Report and Certification, October 2010
- Phase I Environmental Site Assessments – Chevron Site and West Airfield Site

The 30-day public comment period ended on September 29, 2012 with no comments received.
3.2. OUTREACH ACTIVITIES

In accordance with NEPA requirements for interagency and intergovernmental consultation, information related to the Project was distributed to 26 entities for review, including:

- U.S. Environmental Protection Agency, Region 9
- The Honorable Janet Napolitano, Governor of Arizona
- Arizona Department of Water Resources, Tucson Active Management Area (AMA)
- Water Protection Fund, U.S. Bureau of Reclamation

- Arizona Department of Agriculture
- Arizona Department of Environmental Quality Southern Regional Office
- Natural Resources Conservation Service, Tucson Service Center
- Arizona Game and Fish Department, Non-Game Species and Bats
- Arizona Game and Fish Department, Non-Game Wildlife
- City of Tucson Department of Urban Planning and Design

- Arizona Water Protection Fund, c/o Department of Water Resources
- Tohono O’odham Nation
- Pascua Yaqui Tribe
- Town of Oro Valley Planning and Zoning
- Town of Marana Planning
- City of South Tucson Planning
- University of Arizona
- Pima County Planning
- Town of Sahuarita Planning
- Pima Department of Environmental Quality
- Arizona State Parks

Additionally, to invite public review and comment on the project, a Notice of Availability of the Draft Environmental Assessment was published in the Arizona Daily Star, The Tucson Citizen, and the DMAFB’s Desert Lightning News in November 2008.

The Project also received attention from newspapers and media, such as Arizona Daily Star, The Tucson Citizen, Desert Lightning News, PV Magazine and several articles on the Internet, including the DMAFB’s website. Some of the information highlights the Air Force’s commitment to using emission-free solar power and the benefits to the DMAFB by delivering approximately 35% of the Base’s load of energy. The articles also promote the idea that the dependence on fossil fuels will be reduced and long-term savings on electricity costs will be achieved. No opposing opinions were identified as part of the media search or formal consultations for the project.