The design of the on-site solar PV system will be the responsibility of the Licensee; however, the system must be compliant with applicable University design guidelines. This Exhibit delineates the minimum technical and installation specifications required by the University for this Project. It is the intent of these specifications to insure that the PV systems installed are consistent with and adhere to any and all California Building Codes and standards, the California Solar Initiative program, applicable utility rules and tariffs, and any and all CEC technical and installation specifications and guidelines as may developed and established. Bidders are advised to be familiar with these rules, requirements and specifications as they pertain to the installation of solar PV systems on the UCSD campus. In addition to the requirements set out in this Exhibit B, the **project requirements for design, construction and operation and maintenance** are set out in Exhibit “V” to the Solar License Agreement.

**Modules**

- PV modules must be listed on the California Energy Commission’s PTC list and must qualify for eligibility under the California Solar Initiative (CSI) Program.

- **System must comply with IEEE 1262** “Recommended Practice for Qualifications of Photovoltaic Modules”.

**Electric Power Requirements:**

- Power provided must be compatible with the onsite distribution system.

- Power capacity should be measured at the inverter AC output using the PVUSA Test Conditions (PTC), i.e. 1,000 Watts/m220 degree C ambient temperature and wind speed of 1 m/s.

- The System must include all the hardware needed for the solar PV.

- All systems must be installed in accordance with all applicable requirements of local electrical codes and the National Electrical Code (NEC), including but not limited to Article 690, “Solar Photovoltaic Systems” and Article 705 – “Interconnected Electrical Power Production Sources”.

- Systems must be designed and installed using UL or ETL listed components, including mounting systems.

- Modules must be certified to UL 1703 – “Flat-Plate Photovoltaic Modules and Panels”.

- Inverters must comply with the following requirements:
  - Listed on the CEC list of eligible inverters
• Other technical codes that will apply include:
  o AMSE PTC 50 (solar PV performance)
  o ANSI Z21.83 (solar PV performance and safety)
  o NFPA 853 (solar PVs near buildings)
  o NEPA 70 (electrical components)
  o IEEE 1547 (interconnections)
  o All applicable State Building Codes and requirements

• All Balance of Systems (wiring, component, wiring, conduits, and connections) must be suited
  for conditions for which they are to be installed. It is the preference of the University that when
  possible, inverters are located inside out of the weather in a minimum NEMA 12 enclosure. If
  inverters are in exterior locations, they shall be installed in all-weather NEMA 4X enclosures. An
  interval data meter must be installed to measure the AC output of the inverter. This meter should
  be located in a location accessible to University facilities personnel.

• Interconnection must comply with San Diego Gas & Electric’s (SDG&E) “Rule 21,
  Interconnection Standards for non-Utility Generation”. Licensee will assist the University in
  preparing and submitting appropriate interconnection agreements with SDG&E. This shall be
  done at no cost or liability to the University.

Meters

• Licensee will provide revenue grade Interval Data Recording (IDR) meters complete with
  industry standard telemetry for communication with Ethernet, cellular or other common output
  capabilities.

• Licensee will provide connection to the University’s Energy Management System (EMS) for the
  purposes of metering, monitoring and data collection of solar production.

• Meters must connect to a monitoring/data collection recording solar production through Time of
  Use (TOU) increments applicable to the local utility standards, with a minimum 15 minute
  intervals.

Structural Requirements

• All structures and structural elements, including array structures, shall be designed in accordance
  with all applicable California Building Codes and standards pertaining to the erection of such
  structures.

• The licensee shall provide structural calculations, stamped by a licensed professional structural
  engineer in good standing with the State of California.

• All structural components, including array structures, shall be designed in a manner
  commensurate with attaining a minimum 30 year design life. Particular attention shall be given
  to the prevention of corrosion at the connections between dissimilar metals.

• The structural design should provide for easy and cost effective repair or replacement of the roof.
  Licensee shall expect to remove and replace roof mounted solar systems no more than one time
during the contract period at no expense to the University, to allow for major roofing maintenance, including installing a new roof.

- Any roof penetrations must be designed and constructed in collaboration with the roofing professional or manufacturer responsible for the roof and roofing material warranty for the specific site, to ensure that the existing roof warranty is not invalidated by the installation of the PV system.

- For rooftop installations where there is no parapet or the parapet is less than 42”, a 6’ safety zone from the roof edge to the PV system must be maintained. A 3’ clear path of travel must be maintained to and around all rooftop equipment.

Lighting Requirements

The Licensee will be responsible to carefully remove and return to UCSD Facilities Management any light standards that conflict with PV parking canopy / trellis systems. During the term of the agreement, the Licensee must install and maintain a lighting system that provides a minimum of 5 foot-candles on the pavement under the canopy / trellis and a minimum of 1 foot-candle on pavement outside the canopy / trellis footprint.

Operation and Maintenance

The Licensee will be responsible for the operation and all maintenance of the solar PV system at the Licensee’s own cost. The Licensee shall operate and maintain the solar system so as not to disrupt the operation of the facility per the Solar License Agreement.

The Licensee shall provide notification to the University as early as practical, but in no event less than five days, prior to any planned maintenance and repairs. The Licensee will provide a minimum of ten days notification to the University if any planned repairs or maintenance that will result in any disruption to campus electrical load.

The University will use reasonable efforts to maintain the facilities in good condition and repair so as to be able to receive and utilize the solar electricity supplied by the proposed project.

All parking canopy PV systems shall include night lighting as part of the design. The amount of lighting required will be in accordance with the University design guidelines.

Because the solar PV system will be privately-owned, the University will not provide any maintenance. All system warranties and workmanship guarantees will be in effect during the Solar License Agreement period and the Solar Power Purchase Agreement period.

As part of the acceptance of the solar PV system the licensee shall instruct and provide operations manuals on how to shut down the solar PV system in the event of an emergency. The Licensee shall insure that campus emergency first responders can easily identify what to do in the event of an emergency and able to perform these tasks quickly and safely.