

## **ENERGY SERVICES AGREEMENT – SOLAR**

### **MOORPARK COLLEGE SITE**

This Energy Services Agreement (“Agreement” or “Contract”) is dated August 13, 2019 for reference purposes only and is made and entered into by and between FFP BTM Solar, LLC, a Delaware limited liability company (“ForeFront Power” or “Provider”), and Ventura County Community College District, a community college district organized and existing under the laws of the State of California (“District” or “Purchaser”); each, a “Party”, and together, the “Parties”. The “Effective Date” of this Agreement is the latest date of a Party’s execution of this Agreement.

### **RECITALS**

- A. The District is authorized under Government Code sections 4217.10 et seq. to develop energy conservation, cogeneration, and alternate energy supply sources at its facilities and may enter into an energy service contract on terms that its governing body determines are in the best interests of the District if the governing body makes a finding that the anticipated cost to the District for electrical energy provided by an energy conservation facility under the contract will be less than the anticipated marginal cost to the District of electrical energy that would have been consumed by the District in the absence of the purchase of such facility;
- B. Purchaser, a community college district, owns and operates three (3) community college campuses referred to as Moorpark College, located in the City of Moorpark, Oxnard College, located in the City of Oxnard, and Ventura College, located in the City of Ventura;
- C. Purchaser wants to reduce its facilities’ energy costs and improve its facilities’ energy quality/reliability by contracting to procure and to implement certain solar energy systems related equipment and materials;
- D. ForeFront Power is a full-service energy services company with the technical capabilities to provide services to Purchaser including, but not limited to, the supply of electrical energy output from the System and any associated reductions in Purchaser’s peak demand from its Local Electric Utility, as well as energy system auditing, engineering, design, procurement, construction management, installation, construction, training, monitoring and verification, maintenance, operation, and repair (collectively, “Energy Services”);
- E. Purchaser desires that ForeFront Power design, install, operate and maintain a solar photovoltaic system (“System”) at each of its campuses (the “Site”) for the purpose of providing solar Energy Services, and ForeFront Power is willing to do the same;
- F. ForeFront Power and Purchaser acknowledged those certain General Terms and Conditions of Energy Services Agreement between Forefront Power, LLC and Purchaser dated as of August 13, 2019 (“General Conditions”), which are incorporated by reference as set forth herein; and
- G. The terms and conditions of this Energy Services Agreement, excluding the General Conditions incorporated herein, constitute the “Special Conditions” referred to in the General Conditions.

In consideration of the mutual promises set forth below, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

1. Incorporation of General Conditions. The General Conditions are incorporated herein as if set forth in their entirety.

2. Initial Term; Renewal Terms. The Initial Term of the Agreement shall commence on the Effective Date and shall continue for Twenty (20) years from the Commercial Operation Date (as defined in the General Conditions), unless and until extended or terminated earlier pursuant to the provisions of the Agreement. After the Initial Term, the Agreement may be renewed at the District's option for two (2) additional five (5) year terms and one final additional term of four and one half (4.5) years (each a "Renewal Term") for a total Term not to exceed thirty-four and a half (34.5) years. At least one hundred and eighty (180) days, but no more than three hundred and sixty five (365) days, prior to the expiration of the Initial Term or of a Renewal Term, ForeFront Power shall give written notice to Purchaser of the availability of the Renewal Term. The Parties shall negotiate in good faith the terms and conditions of the Renewal Term(s) in accordance with then current market conditions. Absent agreement to the Renewal Term this Agreement shall expire on the Expiration Date. The Initial Term and the subsequent Renewal Term(s), if any, are referred to collectively as the "Term".
3. Privacy. Purchaser acknowledges that the System may collect certain information about Purchaser's electricity usage and the System performance. Such information may be stored and processed in the United States or any other country in which ForeFront Power or its third-party service ForeFront Powers, or its or their respective affiliates, subsidiaries, or service ForeFront Powers, maintain facilities. Purchaser consents to any such transfer of information outside of Purchaser's country.
4. Milestone Dates.
  - 4.1 The Construction Start Date for the Site is May 18, 2020.
  - 4.2 The Guaranteed Commercial Operation Date for the Site is November 13, 2020, which date may be extended on account of Force Majeure Events or otherwise pursuant to the Agreement.
5. Purchase Requirement; Energy Services Payment. Purchaser agrees to purchase one hundred percent (100%) of the Energy Services generated by the System and made available by ForeFront Power to Purchaser during each relevant month of the Term, up to a maximum of one hundred and ten percent (110%) of Estimated Annual Production, as defined in Schedule 4. While the Energy Services are calculated and billed on a per kWh basis as set forth in Schedule 2 of these Special Conditions, they represent a package of services and benefits.
6. Time of Use (TOU) and Net Energy Metering (NEM) 2.0 Grandfathering; Liquidated Damages. As of the Effective Date, ForeFront Power represents that it has complied with the Local Electric Utility customer requirements of all applicable interconnection and net metering agreements (the "Purchaser Interconnection Agreements") so as to maintain the effectiveness of such agreements to preserve a) eligible Time-Of-Use (TOU) grandfathering periods until they expire on January 1, 2028 and b) the Net Energy Metering (NEM) 2.0 grandfathering for a full 20 years from the date of Permission to Operate (PTO) from the Local Electric Utility. ForeFront Power shall not perform any action that would cause Purchaser to breach the terms and conditions of such Purchaser Interconnection Agreements. If ForeFront Power's actions cause Purchaser to breach the Purchaser Interconnection Agreements, and such breach leads to the loss of TOU and/or NEM 2.0 grandfathering, ForeFront Power will compensate the Purchaser the lost monetary value by crediting the Purchaser on each monthly billing for the duration of the loss of grandfathering as follows:
  - (a) For loss of TOU grandfathering: 10% of the kWh Rate of the Energy Services Payment;
  - (b) For loss of NEM 2.0 grandfathering: 10% of the kWh Rate of the Energy Services Payment.

*Provided, however,* that in the event of a change in Applicable Law that occurs after the Commercial Operation Date and results in a loss of TOU or NEM 2.0 grandfathering, ForeFront Power shall have no liability with respect to compensating Purchaser as set forth herein.

7. Estimated Annual Production. The annual estimate of electricity generated by the system for each year of the initial term is as set forth in Schedule 4 of the Special Conditions (“Estimated Annual Production”). Within 60 days of each annual anniversary of the Commercial Operation Date, ForeFront Power will provide a statement to Purchaser that shows the actual annual kWh production from the System for the Term Year, the Estimated Annual Production, and the Minimum Guaranteed Output (defined below).
8. Minimum Guaranteed Output. If the System fails to generate at least ninety-five percent (95%) of the Estimated Annual Production for a full Term Year (such amount, the “Minimum Guaranteed Output”), other than as a result of the acts or omissions of Purchaser or the Local Electric Utility (including a Disruption Period), or an Event of Force Majeure, ForeFront Power shall credit Purchaser an amount equal to Purchaser’s Lost Savings on the next invoice or invoices during the following Term Year. Estimated Annual Production shall be based on as-built production modeling for each System developed by Forefront Power and reasonably approved by the Purchaser. The formula for calculating Lost Savings for the applicable Term Year is as follows:

$$\text{Lost Savings} = (\text{MGO} * \text{WPR} - \text{AE}) \times \text{RV}$$

MGO = Minimum Guaranteed Output (shown in Schedule 4), as measured in total kWh, for the System for the applicable Term Year.

WPR = Weather Performance Ratio, measured as the ratio of the actual insolation over typical (pro-forma) insolation. Such Weather Performance Ratio shall only apply if the ratio is less than 1.00. Weather data for each Site shall be based on the following:

Moorpark College: 34\_35\_-118\_85\_SolarAnywhere\_CPR3.2-TMY

AE = Actual Electricity, as measured in total kWh, delivered by the System for the Term Year plus the estimated lost energy production during a Disruption Period.

$$\text{RV} = (\text{ATP} - \text{kWh Rate})$$

ATP = Average tariff price, measured in \$/kWh, for the Term Year paid by Purchaser with respect to the Premises. This price is determined by dividing the total cost for delivered electricity, including all charges associated with such electricity howsoever named, including, without limitation, charges for distribution, transmission, demand, and systems benefits, paid to the Local Electric Utility during the applicable Term Year by the total amount of delivered electricity by the electric utility during such Term Year.

kWh Rate = the kWh Rate in effect for the applicable Term Year(s), measured in \$/kWh.

If the RV is zero or less, then no Lost Savings payment is due to Purchaser. Any Lost Savings payment shall occur no later than sixty (60) days after the end of the Term Year during which such Lost Savings occurred.

9. Allowed Disruption Time. Notwithstanding the provisions in Section 5.9 of the General Conditions to the contrary, during years 4 through 20 (but not years 1 through 3) of the Term, Purchaser shall be afforded a one-time allocation of fifteen (15) days which may be used consecutively or in separate periods of at least forty-eight (48) hours each per year (“Allowed Disruption Time”) during


which the System shall be rendered non-operational. Purchaser shall not be obligated to make payments to Provider for electricity not received during the Allowed Disruption Time, nor shall Purchaser be required to reimburse Provider for any other lost revenue during the Allowed Disruption Time, including any lost revenue associated with any reduced sales of Environmental Attributes, and Provider shall be credited for the estimated lost production the System would have produced during such Allowed Disruption Time toward satisfaction of its Minimum Guaranteed Output, as set forth in Section 8 of the Special Conditions, such estimated lost production to be calculated in the same manner as set forth in Section 5.9 of the General Conditions.

10. Sunlight Easements. Purchaser will take all reasonable actions as necessary to prevent other buildings, structures or flora from overshadowing or otherwise blocking access of sunlight to the System. ForeFront Power shall notify Purchaser in writing in the event that any structures or flora overshadow or block access of sunlight to any of the Systems in order for Purchaser to rectify such conditions.
11. Use of System. Purchaser will not use electrical energy generated by the System for the purposes of heating a swimming pool within the meaning of Section 48 of the Internal Revenue Code.
12. The term "Premises" as used in this Agreement means that Premises described in Schedule 1 and includes the entirety of any structures and underlying real property located at those addresses.
13. This Agreement consists of the following documents which are incorporated herein as if set forth in their entirety:


|            |   |
|------------|---|
| Schedule 1 | Description of the Premises, System and Subsidy |
| Schedule 2 | Energy Services Payments                        |
| Schedule 3 | Early Termination Fees                          |
| Schedule 4 | Estimated Annual Production                     |
| Schedule 5 | Notice Information                              |
| Schedule 6 | Site-Specific Information and Requirements      |
| Schedule 7 | College Curriculum Component                    |
| Schedule 8 | System Layout                                   |
| Schedule 9 | Scope of Work                                   |

IN WITNESS WHEREOF and in confirmation of their consent to the terms and conditions contained in this Agreement and intending to be legally bound hereby, ForeFront Power and Purchaser have executed this Agreement as of the Effective Date.

**FFP BTM SOLAR, LLC**

By:   
 Name: Go Mizoguchi  
 Title: President  
 Date: September 6, 2019

**VENTURA COUNTY COMMUNITY COLLEGE DISTRICT**

By:   
 Dr. David El Fattal, Vice Chancellor, Business and Administrative Services  
 Date: September 6, 2019

**SCHEDULES**

**I. Schedule 1 – Description of the Premises, System and Subsidies**

|  |  |
|--|--|
| <b><u>A. Premises</u></b>                      | <b>Moorpark College<br/>7075 Campus Road, Moorpark, CA 93021</b>   |
| <b><u>B. Description of Solar System</u></b>   | Behind the Meter   |
| <b><u>Solar System Size:</u></b>               | 3,179 kW (DC) (this is an estimate (and not a guarantee) of the System size; ForeFront Power may update the System Size prior to the Commercial Operation Date.) |
| <b><u>C. Anticipated Subsidy or Rebate</u></b> | \$0  |

**II. Schedule 2 – Energy Services Payments**

Purchaser shall pay to ForeFront Power a monthly payment (the “Energy Services Payment”) for the Energy Services provided by the System during each calendar month of the Term equal to the product of (x) Actual Monthly Production for the System for the relevant month multiplied by (y) the kWh Rate.

The “Actual Monthly Production” means the amount of energy recorded by ForeFront Power’s metering equipment during each calendar month of the Term.

Table 1: The kWh Rate with respect to the Moorpark College System under the Agreement shall be in accordance with the following schedule:

| <b>Term Year</b> | <b>kWh Rate (\$/kWh)</b> | <b>Term Year</b> | <b>kWh Rate (\$/kWh)</b> |
|------------------|--------------------------|------------------|--------------------------|
| 1                | \$0.1200                 | 11               | \$0.1200                 |
| 2                | \$0.1200                 | 12               | \$0.1200                 |
| 3                | \$0.1200                 | 13               | \$0.1200                 |
| 4                | \$0.1200                 | 14               | \$0.1200                 |
| 5                | \$0.1200                 | 15               | \$0.1200                 |
| 6                | \$0.1200                 | 16               | \$0.1200                 |
| 7                | \$0.1200                 | 17               | \$0.1200                 |
| 8                | \$0.1200                 | 18               | \$0.1200                 |
| 9                | \$0.1200                 | 19               | \$0.1200                 |
| 10               | \$0.1200                 | 20               | \$0.1200                 |

The Local Electrical Utility will require distribution upgrades for this project estimated to be \$260,000, payment of which will be required to be made by the Purchaser. The parties anticipate that the Purchaser may incur other costs in connection with the project, including ADA upgrades; installation of spare conduit; and unforeseen conditions related to, among other things, adverse geotechnical conditions (singularly, a “Project Expense” and collectively, “Project Expenses”). Purchaser intends to pay for such Project Expenses as they are incurred outside of the Energy Services Payments set forth in Table 1. However, at Purchaser’s option, Purchaser may elect to

pay some or all of the Project Expenses by providing written notice to ForeFront Power of the District's election(s) as follows:

Distribution Upgrades: Within 30 days of receipt of notice from the Local Electric Utility of the distribution upgrade costs, Purchaser will provide written notice to ForeFront Power of Purchaser's election of one of the following options:

1. Purchaser will pay the entire amount of such distribution upgrade costs, and the kWh rate as stated in Table 1 will remain unchanged. Purchaser shall make payments directly to the Local Electric Utility in accordance with the requirements of the Local Electric Utility.
2. For every \$0.01 per watt DC of such distribution upgrade costs, the kWh rate in Table 1 will increase \$0.0006 per kWh, with a maximum kWh rate increase of \$0.0049 per kWh. If distribution upgrades are required and exceed the maximum kWh increase of \$0.0049 per kWh, then ForeFront Power has the option to terminate this Agreement, subject to negotiation of alternative payment options with Purchaser, and neither Party shall have any further liability to the other.

Scope Changes (ITC Eligible): If changes in project scope occur that are eligible for the Federal Investment Tax Credit (such as but not limited to adverse geotechnical conditions or the inclusion of spare conduit) and such additional scope and associated costs go beyond those contemplated as part of the development and implementation of the System in this Agreement, Provider will provide reasonable documentation demonstrating the direct and actual time and materials costs relating to such associated costs with a 10% markup, and, within 30 days of receipt of notice from Provider reasonably substantiating the associated costs, Purchaser will provide written notice to Provider of Purchaser's election of one of the following options:

1. Purchaser will pay the entire amount of such associated costs, and the kWh rate as stated in Table 1 will remain unchanged.
2. For every \$0.01 per watt DC of such associated costs, the kWh rate in Table 1 will increase \$0.00045 per kWh, with an additional maximum kWh rate increase of \$0.0028 per kWh.

Scope Changes (Non-ITC Eligible): If changes in project scope occur that are not eligible for the Federal Investment Tax Credit (such as but not limited to additional required ADA upgrades) and such additional scope and associated costs go beyond those contemplated as part of the development and implementation of the System in this Agreement, Provider will provide reasonable documentation demonstrating the direct and actual time and materials costs relating to such associated costs with a 10% markup, and, within 30 days of receipt of notice from Provider reasonably substantiating the associated costs, Purchaser will provide written notice to Provider of Purchaser's election of one of the following options:

1. Purchaser will pay the entire amount of such associated costs, and the kWh rate as stated in Table 1 will remain unchanged.
2. For every \$0.01 per watt DC of such associated costs, the kWh rate in Table 1 will increase \$0.0006 per kWh, with an additional maximum kWh rate increase of \$0.0028 per kWh.

### **III. Schedule 3 – Early Termination Fees**

The Early Termination Fee with respect to the Moorpark College System under the Agreement shall be calculated in accordance with the following:

| <b>Early Termination Occurs in Year:</b> | <b>Column 1<br/>Early Termination Fee where Purchaser does <u>not</u> take Title to the System (\$/Wdc including costs of removal)</b> | <b>Purchase Date Occurs on the 91<sup>st</sup> day following: (Each “Anniversary” below shall refer to the anniversary of the Commercial Operation Date)</b> | <b>Column 2<br/>Early Termination Fee where Purchaser takes Title to the System (\$/Wdc, does <u>not</u> include costs of removal)</b> |
|--|--|--|--|
| 1*                                       | \$3.95   |  | --   |
| 2  | \$3.27   |  | --   |
| 3  | \$3.08   |  | --   |
| 4  | \$2.89   |  | --   |
| 5  | \$2.69   |  | --   |
| 6  | \$2.50   |  | --   |
| 7  | \$2.47   |  | --   |
| 8  | \$2.44   |  | --   |
| 9  | \$2.42   |  | --   |
| 10                                       | \$2.39   |  | --   |
| 11                                       | \$2.36   |  | --   |
| 12                                       | \$2.33   |  | --   |
| 13                                       | \$2.30   |  | --   |
| 14                                       | \$2.27   |  | --   |
| 15                                       | \$2.23   |  | --   |
| 16                                       | \$2.20   |  | --   |
| 17                                       | \$2.16   |  | --   |
| 18                                       | \$2.12   |  | --   |
| 19                                       | \$2.08   |  | --   |
| 20                                       | \$2.04   |  | --   |
|  |  | 5 <sup>th</sup> Anniversary  | \$2.00   |
|  |  | 6 <sup>th</sup> Anniversary  | \$1.97   |
|  |  | 7 <sup>th</sup> Anniversary  | \$1.94   |
|  |  | 8 <sup>th</sup> Anniversary  | \$1.92   |
|  |  | 9 <sup>th</sup> Anniversary  | \$1.89   |
|  |  | 10 <sup>th</sup> Anniversary   | \$1.86   |
|  |  | 11 <sup>th</sup> Anniversary   | \$1.83   |
|  |  | 12 <sup>th</sup> Anniversary   | \$1.80   |
|  |  | 13 <sup>th</sup> Anniversary   | \$1.77   |
|  |  | 14 <sup>th</sup> Anniversary   | \$1.73   |
|  |  | 15 <sup>th</sup> Anniversary   | \$1.70   |
|  |  | 16 <sup>th</sup> Anniversary   | \$1.66   |
|  |  | 17 <sup>th</sup> Anniversary   | \$1.62   |
|  |  | 18 <sup>th</sup> Anniversary   | \$1.58   |
|  |  | 19 <sup>th</sup> Anniversary   | \$1.54   |

At Expiration (the end of the Initial Term), the amount in Column 1 shall be deemed to be zero (0).

\*Early Termination Fee includes termination prior to the Commercial Operation Date.

**IV. Schedule 4 – Estimated Annual Production**

Estimated Annual Production commencing on the Commercial Operation Date with respect to the Moorpark College System under the Agreement shall be as follows:

| <b>Term Year</b> | <b>Estimated Production (kWh)</b> | <b>Term Year</b> | <b>Estimated Production (kWh)</b> |
|------------------|-----------------------------------|------------------|-----------------------------------|
| 1                | 5,278,210                         | 11               | 5,020,159                         |
| 2                | 5,251,819                         | 12               | 4,995,058                         |
| 3                | 5,225,560                         | 13               | 4,970,083                         |
| 4                | 5,199,432                         | 14               | 4,945,232                         |
| 5                | 5,173,435                         | 15               | 4,920,506                         |
| 6                | 5,147,568                         | 16               | 4,895,904                         |
| 7                | 5,121,830                         | 17               | 4,871,424                         |
| 8                | 5,096,221                         | 18               | 4,847,067                         |
| 9                | 5,070,739                         | 19               | 4,822,832                         |
| 10               | 5,045,386                         | 20               | 4,798,718                         |

The values set forth in the table above are estimates (and not guarantees), of approximately how many kWhs are expected to be generated annually by the System assuming the System size indicated in Schedule 1. ForeFront Power may deliver to Purchaser an updated table upon the Commercial Operation Date based on the actual System size.

**V. Schedule 5 – Notice Information**

**Purchaser:**

Ventura County Community College  
District  
Attn: Vice Chancellor, Business  
and Administrative Services  
761 E. Daily Drive  
Camarillo, CA 93010

*With a copy to*

Orbach Huff Suarez + Henderson LLP  
Attn: Sharon Suarez, Esq.  
1901 Avenue of the Stars, Suite 575  
Los Angeles, CA 90067

**ForeFront Power:**

FFP BTM Solar, LLC  
Attn: Director, Energy Services  
100 Montgomery St., Suite 1400  
San Francisco, CA 94104

*With a copy to*

FFP BTM Solar, LLC  
Legal Department  
100 Montgomery St., Suite 1400  
San Francisco, CA 94104  
Email:  
FPLegal@forefrontpower.com

**Financing Party:**

[To be provided by ForeFront  
Power when known]

**VI. Schedule 6 – Site Specific Information and Requirements**

In accordance with Section 8.2(e) of the General Terms and Conditions of Energy Services Agreement, the following information references any known restrictions on the use of the Premises for the construction, ownership, use and operation of the System, including any land use restrictions, known underground structures or equipment, or limitations arising under permits or applicable law, as well as any additional Environmental Documents, reports or studies in the possession or control of the Purchaser, which shall each have been delivered to ForeFront Power as of the Effective Date:

1. 2003-11-13 Rincon’s Moorpark College Phase I Environmental Site Assessment;
2. 2007-08 Rincon’s Moorpark College Final Environmental Impact Report; and
3. Power Efficiency Agreement between Green Charge Networks Energy Services and Ventura County CCD, dated April 30, 2015.

**VII. Schedule 7 – College Curriculum Component**

Provider shall:

1. Provide a college-level solar energy curriculum to Purchaser such as Schools Power or similar. Provider is only required to provide such a curriculum once, which shall be at the commencement of the Term. The cost for providing such curriculum is included in the kWh Rate, and therefore shall be at no additional cost to Purchaser.
2. Provide a Solar Career Fair in the first year after the Commercial Operation Date, if desired by Purchaser.



3. Furnish and install materials to Purchaser for purposes of Purchaser's creating an educational, stand-alone, ground-mounted solar array for educational purposes. Such an array will not in any way be affiliated with or electrically tied to the System. Such materials shall include:
  - a. Solar FlexRack or equivalent ballasted racking structures;
  - b. 18 solar modules with all associated modules clips and mounting hardware;
  - c. 1 string inverter and all associated racking;
  - d. All associated DC wiring.

**VIII. Schedule 8 – System Layout**

**Moorpark College**



**IX. Schedule 9 – Scope of Work**

**1. SCOPE OF WORK**

The project scope shall include, but not be limited to, the following for each Site:

**1.1 FUNDING**

1. Complete procurement, construction and operational phase funding per the approved and executed Contract

## 1.2 DESIGN PHASE

1. Development and implementation of community outreach plan including fliers and a community meeting for stakeholders and community members during the pre-design phase of the project.
2. Preliminary design of the PV systems to meet production targets or system sizes agreed to with Purchaser. Sizing shall include accurate and detailed modeling of system production for each specific site based on shading, available tariffs and other site constraints using industry standard modeling tools. Preliminary design shall include plans sufficient for presentation and discussion with the Purchaser.
3. Detailed design and complete construction drawings of the PV systems and all ancillary work sufficient for permitting and construction. Drawings must fully describe all aspects of the construction work including fencing, directional boring/trenching, excavations, racking and mounting systems, electrical systems, signage, foundations, lighting, ADA, etc. Provider will provide Electrical, Structural and all other required Engineers of Record and Architect of Record to provide a complete, stamped drawing set bid package as required to permit and construct a complete photovoltaic Project for DSA submittal. The electrical construction drawings shall show and include all conduit below and above finished grade/finish diagrammatically. All plans and specifications must meet the approval of DSA, Purchaser's approval whose approval shall not be unreasonably withheld, the Purchaser's representative's approval whose approval shall not be unreasonably withheld, Local Fire Authority and/or any other agency deemed as having jurisdiction over Project.
4. All permitting and permitting fees required to complete the project, including DSA, with the exception of CEQA. The Purchaser is the lead agency for CEQA permitting. Purchaser has adopted and issued a Notice of Exemption for the Project. Provider shall support the Purchaser in adhering to applicable CEQA requirements.

## 1.3 CONSTRUCTION PHASE

1. Installation of all equipment necessary for a complete, interconnected and operational solar PV system, including, but not limited to:
  - Solar PV modules
  - Inverters
  - All electrical switch gear modification necessary to interconnect the PV system
  - All electrical connectors, cabling & components necessary for a complete solar system
  - All mounting systems, including canopy structures, ground or roof mount as applicable
  - All monitoring equipment necessary to remotely access and download real-time and historical PV energy production, with capability to provide reporting sufficient for WREGIS REC registration, and to remotely access and download real-time and historical site energy consumption data. Historical data on 15-minute interval shall be readily available for the full operating history of the PV system.
  - Any balance of system items for a complete, interconnected and operational solar PV system
  - All lighting, security or other ancillary equipment described in the Contract documents
  - Installation of accessible hardscape (concrete slabs) under canopies not currently hardscaped, where required by the AHJ for equal access to shade.
2. Spare Conduits at each site with canopies. Provider and Purchaser acknowledge that Purchaser may choose to have installed spare conduits to enable future needs such as Electric Vehicle

Charging Stations or security systems. Purchaser and Provider shall coordinate on the location, number and sizing of spare conduits. Provider shall provide Purchaser with reasonable documentation demonstrating the costs associated with the specific time and materials relating to the installation of such spare conduit with a 10% markup. Within 30 days of receipt of notice from Provider reasonably substantiating the associated costs, Purchaser will provide written notice to Provider of its election of one of the options specified in Schedule 2 of the Energy Services Agreement. Utility interconnection applications, including tariff change requests, processing costs and coordination with the local utility(ies) are necessary to achieve interconnect and permission to operate.

3. Identification of all Americans with Disabilities Act (ADA) compliance issues that are directly associated with the PV project. Provider shall be responsible for parking lot restriping, covered parking space ratios, signage, and any other compliance issues.
4. Coordinate and schedule weekly project meetings from Notice to Proceed (NTP) through project closeout with all stakeholders. Provider to maintain formal meeting minutes and a project schedule and distribute to all attendees no later than the next scheduled project meeting. Frequency of meetings are allowed to change upon the stakeholder availability and approval from the Purchaser.
5. Coordination with and support of inspectors, the Purchaser and their consultants during design, construction, commissioning and close-out.
6. Any significant changes to Purchaser property (i.e. re-striping of parking areas, removal of trees, light standard removal, new lighting, parking islands, etc.) that are required as a result of the installation of the PV project are the sole responsibility of the Provider.
7. Project Commissioning, including all associated tasks and documentation related to successfully commissioning the system. Commissioning shall include assisting any third-party commissioning agents/inspectors with their process and providing documentation as requested.
8. Final PV system “as-built” Construction Documents clearly conformed with all changes during construction.
9. Provision of a comprehensive Operations & Maintenance Manuals for each installed system, per requirements listed in Section 3: Submittals and Process Requirements.
10. Conduct a training for Purchaser staff, with orientation to the Operations & Maintenance Manuals, systems and safety procedures.
11. Secure storage facility at job Site for all PV system equipment and supplies, including any required security.
12. Legal toilet and hand wash sink facilities at job Sites.
13. Daily cleanup to “broom clean” conditions.
14. Return disturbed areas to pre-construction conditions including repair of all pavement/concrete, restriping, landscape restoration, irrigation restoration, equipment track marks & scuffs on finished concrete surfaces and removal of USA markings.
15. Installation of Purchaser approved project information signage and removal at completion of project.
16. Project closeout, inclusive of obtaining DSA closed and certified status for all project associated DSA applications.

1. Provide temporary ADA parking stalls during construction, if construction activities make existing facility ADA parking stalls unusable. Quantity and location of temporary stalls shall be coordinated with Purchaser.
17. Provide temporary lighting in place of removed overhead lighting until under-canopy lighting is fully operational except that Provider will not be responsible for providing lighting to areas not accessible to the public.

#### 1.4 OPERATIONAL PHASE

1. Comprehensive operations, maintenance and repair for the entire term of the Contract.
2. All necessary maintenance to maintain system performance and performance guarantee.
3. Monthly billing to the Purchaser with kWh of production, per kWh cost for the period and total cost.
4. An Annual Report that details the following:
  - Annual production in kWh
  - Total energy produced to date in kWh in comparison to pre-solar energy consumption
  - Significant issues encountered and mitigation measures taken
  - Maintenance performed during that year for each individual PV system
  - Actual Performance compared with estimated performance, performance guarantee, and any true-up period accounting
5. Daily system monitoring and response to alarms as-needed to keep the system operational, operating safely, and performing optimally.
6. Annual on-site system inspection, including system testing and routine preventive maintenance, repair and/or replacement of defective parts (equipment and labor) as-needed to meet the Purchaser's 20-year production target.
7. Routine preventative and unexpected maintenance to keep the systems in good working order, including panel washing as-needed and maintaining fencing around any ground-mounted equipment.
8. Maintenance of all ancillary equipment installed as part of the System in working order and good aesthetic condition, including maintaining fencing, canopy structures, canopy lighting, overhead or underground cabling, etc. as applicable. All non-functional light fixtures to be replaced within 30 days from notification from Purchaser.
9. Ongoing vegetation management for safe operation of the facilities and to minimize production losses from shading if deemed necessary. Vegetation management shall follow Purchaser procedures as outlined in the Contract.
10. Maintenance of all meters required by this project, including maintaining the WREGIS compliant meters in working condition and calibration of meters as required by the meter manufacturer. All costs associated with fees for monitoring, including providing web-based access to monitoring data and maintaining monitoring equipment. Detailed monitoring data (minimum hourly timestep) shall be available via internet at all times from COD to present.

## 1.5 CONSTRUCTION MILESTONES

ForeFront Power, together with the District, shall develop a detailed critical path construction schedule for each Site that meets all the following milestone. Reference section 01 32 00.

| <b>MOORPARK CAMPUS</b>  |                    |
|---|--------------------|
| Milestone   | Milestone Date     |
| Award of Contract   | August 13, 2019    |
| Delivery of insurance certificates  | August 20, 2019    |
| Notice to Proceed with Design Target                                      | August 13, 2019    |
| 50% Design Submittal Target   | December 5, 2019   |
| 90% Design Submittal Target   | January 10, 2020   |
| DSA OTC/Approval Target   | February 8, 2020   |
| Delivery of Bonds and Required Forms Target                               | May 11, 2020       |
| Notice to Proceed with Construction Target                                | May 18, 2020       |
| Construction Start Date   | May 18, 2020       |
| Substantial Completion Target   | September 11, 2020 |
| ForeFront Power Requests Permission to Operate Letter from Utility Target | September 14, 2020 |
| Commercial Operation Date Target  | November 13, 2020  |
| Guaranteed Commercial Operation Date                                      | November 13, 2020  |
| Final Completion Target   | November 13, 2020  |
| O&M Services and Performance Guarantee Start Date Target                  | November 13, 2020  |

Completion dates noted in this table apply only to the construction portion of this Contract and not to the operations and maintenance terms or the performance guarantee.

## 2. GENERAL CRITERIA AND CODES

### 2.1 GENERAL CRITERIA

1. Provider shall be responsible for compliance with all applicable laws and regulations applicable to any and all work, operations and sales of electrical energy related to PV system(s). The following details are for informational purposes, only, and are not a comprehensive or limiting list of legal compliance areas or measures.
2. Provider is responsible for acquiring Alta Surveys and/or current Title Reports verifying all potential easements that conflict at each site. Verification of all underground and overhead easements shall be identified with all authorities having jurisdiction and utilities.
3. All Project construction is to be completed by the dates specified in the Contract.
4. Provider is responsible for locating and protecting all underground utilities. Provider shall utilize Ground Penetrating Radar (GPR) or electromagnetic location for all areas with underground construction. GPR shall be used for areas of drilling or open cut. Electromagnetic detection shall be used as a substitution for GPR in drilling/open cut areas only when GPR is not possible.

5. Provider is responsible for ensuring ADA compliance, including all design work necessary for DSA plan check and construction costs directly associated with the PV project. If additional ADA upgrades are required as a result of the premises not being code compliant prior to the start of construction, Purchaser shall be responsible for the costs of such additional upgrades, provided, Provider shall work with Purchaser in good faith to determine a mutually-acceptable solution for Purchaser to pay such additional costs, including potentially an increase in the kWh rate in Schedule 2.
6. Provider shall be responsible for DSA closeout and certification of all project-related DSA applications.
7. Provider shall be responsible for specifying and conducting tree removal and/or trimming as needed to meet production guarantee of PV system arrays. All tree stumps shall be ground or removed to a minimum of 18 inches below grade. Disturbed area shall be repaired to match surrounding area. Areas with trees eligible for removal or trimming will be identified with Purchaser approval. Trees to be removed shall be identified on the Provider's proposal layouts and design drawings. The operations & maintenance agreement must include any ongoing tree trimming as needed to ensure the systems meet the performance guarantees.
8. Provider is responsible for identification and removal of light poles that are in conflict with PV system design. Light poles shall be removed to maintain reusability by the Purchaser and delivered to Purchaser designated location. Light pole foundation shall be chipped to a sufficient depth so as to allow for existing conduit to be contained in a concrete box that is flush with the surface and for resurfacing of areas surrounding any boxes to match existing surface. Chipping shall be a minimum of 6" below grade. Existing conduit that is not reused shall be capped and placed in a concrete box. Existing lighting controls may be reused, if available. Light poles to be removed shall be identified on the Provider's proposal layouts and design drawings. Disturbed area shall be repaired to match surrounding area. Light poles shall be provided in good condition to the Purchaser or disposed of at the Purchaser's option.
9. Provider is responsible for restoring vegetated areas disturbed by construction to its original condition. For restored vegetation provided by Provider, Purchaser shall be responsible for all future irrigation, maintenance, and establishment of vegetation by Purchaser's irrigation system. Vegetation should be planted to match existing. Any irrigation disturbed during construction is to be repaired to original condition by the Provider. Provider shall coordinate all landscaping and irrigation plans with the Purchaser. Provider shall initiate a pre-construction survey with the Purchaser to review the condition of irrigation systems prior to start of construction. Any such survey must be done with a Purchaser representative.
10. Provider is responsible for maintaining fire lane access and clearances at all easements at all times.
11. Provider shall coordinate site access through all phases of the project with key stakeholders and Purchaser identified staff at least 24 hours prior to any personnel arriving on site. Provider shall coordinate with and provide access and support to all inspectors, Purchaser staff or consultants during testing and inspections of all systems. Purchaser shall not restrict access to construction site during standard working hours (7 am – 5 pm, Monday-Friday), unless otherwise dictated by local ordinances. Purchaser and Provider shall provide 24/7 unrestricted access to existing electric utility meter and the utility lockable disconnect location. No new access roads are planned; however, should the need arise, Purchaser and Provider shall agree upon reasonable accommodations and compensation. Purchaser to permit use of on-site water and power as available for construction at no charge to Provider, with the exception of fire hydrants. Purchaser

to permit use of a temporary diesel generator onsite during construction activities, subject to local ordinances.

12. All active work areas must be fenced off from start of work at that area until completion or until area is safe for entry, whichever is longer. Temporary fencing and access control layouts shall be submitted to the Purchaser and approved for each site prior to commencing construction. Temporary fencing shall also be installed to protect trees and vegetation adjacent to work areas from construction damage. Construction fencing shall enclose entire work area.
13. Provider shall coordinate closely with the Purchaser to ensure all construction activities minimize impact on operations and events at the sites. Entrance timing to construction zone and delivery schedules shall be approved by Purchaser prior to mobilization.
14. Access during regular weekday working hours.
15. Provider is responsible for on-site installation supervision throughout the duration of the project.
16. Storm Water Pollution Prevention (SWPPP), if applicable based on disturbance. Provider shall ensure implementation and monitoring of a Storm Water Pollution Prevention Plan (SWPPP) for the purpose of preventing the discharge of pollutants from the construction site as required by the local Authority(s) Having Jurisdiction (AHJs).
17. Provider is to meet applicable codes and specifications with regard to dust during construction and seek to minimize dust migration from the construction site.
18. Provider acknowledges that adjacent facilities may remain in operation during all or a portion of the Work, and it shall take all reasonable precautions to minimize noise as required by applicable laws and the Contract Documents. Notice of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to Purchaser a minimum of forty-eight (48) hours in advance of their performance. Provider shall further prevent any of its employees or its Sub-Provider employees from playing any recorded music devices or radios or wearing any radio headphone devices for entertainment while working on the project.
19. Drugs Tobacco, and Alcohol - Provider shall take such steps as are reasonably necessary to ensure that employees of Provider or any of its Sub-Provider's employees do not use, consume, or work under the influence of any alcohol, tobacco or illegal drugs while on the project. Likewise, Provider shall prevent its employees or Sub-Provider's employees from bringing any animal onto the project. Provider shall not violate any written District policies provided to Provider.
20. Provider is responsible for patching and repairing all building penetrations performed by the Provider during installation. Conduit installed on the exterior of Purchaser structures shall be painted to match.
21. Provider is responsible for all generated trash. Purchaser owned dumpsters and trash bins may not be used for storage or disposal.
22. Provider shall clean all work areas on a daily basis and equipment after project completion. Provider shall ensure that work areas are clear of construction debris, spoils and that all demolition and repair has been completed prior to releasing work areas to public access.
23. All staff are to wear identifying clothing at all times when on-site.
24. All staff or Sub-Providers are to wear identifying clothing and Provider provided badges during construction.

25. Driving on the Premises shall be limited to periods when students and public are not present. If driving or deliveries must be made during the college hours, two (2) or more ground guides shall lead the vehicle across the area of travel. The speed limit on-the Premises shall be five (5) miles per hour (maximum) or less if conditions require. Purchaser shall designate a construction entry point to each site.
26. During the operational phase, all staff or Sub-Providers must check in at the office of the respective college upon arrival at the site. Purchaser shall provide Provider's crews with an expedient check in process.

## 2.2 SOLAR PV GENERAL CRITERIA

(SEE TECHNICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS)

1. Provider is responsible for all interconnection applications and work required to achieve Permission to Operate (PTO) with the local utility.
2. Provider shall provide an FAA Glare Study with an associated determination notice. Provider shall work with the Purchaser as-needed to provide visualizations of proposed systems and assessment of potential glare or reflectivity issues.
3. Warranties - Provider shall be required to provide the following minimum warranties consistent with Net Energy Metering requirements and the California Public Utility Code 387.5(d)(4), the Provider shall provide a warranty of not less than 10 years to protect against defects and more than a 15% degradation of electrical generation output that may occur as a result of faulty installation. Standard warranty coverage should be at least twenty-five (25) years for any PV modules, at least ten (10) years for all inverters, or consistent with current Net Energy Metering Requirements for PV System warranty requirements, whichever is greater. Meters must have a 1-year warranty to ensure against defective workmanship, system or component breakdown, or degradation in electrical output of more than 15% from their originally rated electrical output during the warranty period. For meters that are integrated into the inverter, the meter warranty period must be 10 years.

## 2.3 GENERAL CODES, GUIDELINES AND STANDARDS

Provider shall be required to comply with all applicable California public works and project requirements including, but not limited to:

1. Americans with Disabilities Act (ADA).
2. American National Standards Institute (ANSI).
3. American Society for Testing and Materials (ASTM)
4. California Building Code (CBC).
5. California Electrical Code (most recent).
6. California Environmental Quality Act (CEQA).
7. California Fire (CalFire) Solar Photovoltaic Installation Guidelines.
8. California Geological Survey (CGS).
9. California Labor Code
10. California Title 20 and 24.
11. Federal Communications Commission (FCC).
12. Division of the State Architect (DSA).
13. Local and State Fire Code.
14. Institute of Electrical and Electronics Engineers (IEEE) 1547: Standard for Interconnecting Distributed Resources with Electric Power Systems.
15. International Electrotechnical Commission (IEC) Technical Committee 82 (TC82).



16. National Fire Protection Association (NFPA), National Electric Code (NEC), Including NFPA 70 and NEC Article 690
17. National Electrical Manufacturers Association (NEMA).
18. Occupational Safety and Health Administration (CAL-OSHA).
19. Local Utility requirements including Net Energy Metering Rules, Interconnection Requirements and Tariffs.
20. Storm Water Pollution Prevention Plan (SWPPP).
21. Underwriters Laboratories (UL) Standards, including 1703: Flat-plate Photovoltaic Modules and Panels and 1741: Standard for Inverters, Converters, Controllers, and Interconnection System Equipment for Use with Distributed Energy Resources.
22. Uniform Solar Energy Code – ICC.
23. All applicable State and Local Codes and Ordinances.
24. Purchaser Specifications and Requirements.
25. DSA IR-16-8 (most recent) Guidelines.
26. DSA PL 07-02 (most recent) Guidelines.

Provider shall be solely responsible for any and all tax law compliance, including, without limitation, compliance with the requirements related to any use of the Investment Tax Credit. Purchaser shall not make or cause to be provided any legal guidance or opinions related to taxation matters.

## 2.4 EQUIPMENT AND INSTALLATION STANDARDS

All system design, equipment and installation must conform to the following codes, standards and rating methodologies.

1. All design, equipment and workmanship must comply with the requirements of the local electrical utility. Provider must ensure all proposed equipment is acceptable to the local electrical utility and meets the interconnection and code requirements.
2. If any equipment using hazardous materials (i.e. Cadmium or other hazardous materials) are included in the Project, then the environmental impact of the hazardous material usage must be discussed, including any special maintenance requirements and proper disposal/recycling of the equipment at the end of its useful life. Equipment containing hazardous materials must comply with the EPA Landfill Disposal Requirements. Any additional costs related to equipment containing hazardous materials must be clearly identified.
3. CPUC approved Electric Rule 21 – Generating Facility Interconnections.
4. UL1741 (Inverters, Converters and Controllers for Independent Power Systems).
5. UL1703 (Standard for Flat Plate Photovoltaic Modules and Panels).
6. IEEE 929 (2000) – Recommended Practice for Utility Interface of Photovoltaic (PV) Systems.
7. IEEE 1262 (1995) – Recommended Practice for Qualifications of Photovoltaic (PV) Modules.
8. NEC Article 690.
9. All applicable Utility Guidelines and Standards for PV Systems, electrical utility systems and metering requirements, including net energy metering requirements.
10. Conform to the Utility’s Distribution Interconnection Handbook.
11. Wind uplift requirements per the American Society of Civil Engineers Standard for Minimum Design Loads for Buildings and Other Structures (ASCE 7) and must be able to withstand applicable design wind speeds for that location (at least 85 mph or 105 mph, as applicable (3-second gusts).

12. All other applicable codes.

### 3. SUBMITTALS AND PROJECT ACCEPTANCE

#### 3.1 DESIGN PHASE

- A. Purchaser shall review and approve design documentation based on the requirements specified herein. The design drawings and associated documents shall represent 100% of the intended and agreed upon scope for the PV project. Provider shall be solely responsible for providing complete design and engineering, compliant with all applicable laws and the requirements of the Agreement, by and through appropriately licensed design professionals, including, without limitation, licensed architects and registered professional engineers employed or under direct contract with Provider. The design professionals so engaged shall serve as the Architect or Engineer of Record and the Design Professional in General Responsible Charge of all construction in accordance with the Field Act, Education Code sections 81130 et seq.
- B. Upon Contract Execution, Provider will be given Notice to Proceed (NTP) for the design phase of the project. Upon NTP, Provider may begin due diligence and site discovery in close coordination with Purchaser staff for site access, scheduling and phasing of the work.
- C. Provider shall conduct design review meetings, maintain and distribute formal meeting minutes for each stage of the process, which shall include, at a minimum, the following design stages:

| <u>Design Stage</u> | <u>Time from Effective Date</u> |
|---------------------|---------------------------------|
| 50% Design          | 17 Weeks                        |
| 90% Final Design    | 21 Weeks                        |

- D. Provider shall submit an electronic submittal package for each Design Stage including, but not limited to the items outlined in Table 1 on the following page.
- E. Provider shall submit the design stage package no less than five (5) business days prior to the design review meeting. Purchaser shall provide comments to Provider in writing no more than ten (10) business days from receipt of design package. Provider shall address all Purchaser comments in writing at the next subsequent design iteration. Purchaser comments shall be incorporated into each successive stage of the design review. Comment responses shall be provided for each phase of design review.
- F. Purchaser will formally approve, in writing, each phase of the design upon the Purchaser's determination that the design is progressing at or beyond the percentage completion expected at stage. Provider shall not enter a subsequent design phase without the approval of the Purchaser. Provider is solely responsible for obtaining approvals from the Purchaser and all other Authorities Having Jurisdiction (AHJs).
- G. Drawing sheets to be submitted in one full coordinated plan set document.
- H. Provider shall submit a System Size Spreadsheet showing all system sizes by site, year one production (kWh), and associated yields (kWh/kWp) per item 2 in Table 1. The spreadsheet shall be submitted at each phase of design as noted above and prior to construction. Provider shall notify Purchaser of design modifications that affect output by more than 5%. Along with the

System Size Spreadsheet, the Provider shall submit updated PV modeling and shade analysis prior to construction and post construction phase using approved modeling software and assumptions.

- I. Provider shall conduct an interconnection equipment assessment for each interconnection site. Any issues with existing Purchaser or Utility equipment that may prevent the system from interconnection to the Utility must be identified at the time of the 30% Design submittal.
- J. Provider shall submit complete electronic copies of all Final Approved Permit Set drawings prior to Construction.

**Table 1 – Design Submittal Packages**

| Submittal Requirement   | 50% Design | 90% Final |
|---|------------|-----------|
| 1. Cover Sheet (TOC, project details, designers of record, PV summary table <sup>1</sup> , etc.)        | X          | X         |
| 2. PV System Sizes & Production Estimates (see Item H, below)   | X          | X         |
| 3. Alta Surveys or current Title Reports  | X          |           |
| 4. Overall Site Plan with PV Array Names, Interconnection IDs, Conduit Routes, Tree/Light Removal, etc. | X          | X         |
| 5. Interconnection Equipment Assessment (see Item I, below)   | X          | X         |
| 6. Interconnection Plan   |            | X         |
| 7. Electrical Site Plan Drawings, incl. Balance of System   | X          | X         |
| 8. Electrical Single Line Diagrams  | X          | X         |
| 9. DC String Wiring Plans   |            | X         |
| 10. Demolition Plans  |            | X         |
| 11. Structural Drawings   |            | X         |
| 12. Equipment Pad and Mounting Details  |            | X         |
| 13. Signage, Trenching, Installation, and Grounding Details   |            | X         |
| 14. Monitoring System Details   |            | X         |
| 15. Lighting Plan, Details and Photometric Plans  |            | X         |
| 16. Complete Design Package Sufficient for DSA or AHJ Review  |            | X         |
| 17. All Details/specifications related to the Scope of Work   | X          | X         |
| 18. Geotechnical Reports and Associated Drawings  | X          | X         |
| 19. Equipment Manufacturer’s Cut Sheets and Details   | X          | X         |
| 20. Interconnection Application & Any Utility Correspondence  | X          | X         |
| 21. Complete list of all Subcontractors, incl. specialty  | X          | X         |
| 22. Provider’s Commissioning Protocol (see Section III below)   |            | X         |
| 23. Construction Schedule   |            | Detailed  |

Notes:

1. PV System Summary Table shall include the following with details for each array: Array No/Name, Dimensions, Azimuth, Tilt, Module Model/Count, Inverter Model/Count, Nameplate, No. of Strings, Canopy Column Count.

### 3.2 CONSTRUCTION PHASE

- A. Purchaser shall provide formal NTP for construction upon receipt of acceptable 100% Design Plan Set with all necessary AHJ approvals and all required proof of bonding.
- B. Prior to beginning construction, Provider shall:
  1. Provide a comprehensive onsite Construction Management and Safety Plan for the construction of the Project in accordance with all applicable laws, policies and OSHA compliant safety practices. Plan should include, at a minimum, address of local emergency medical facilities, project directory, information on Sub-Providers, coordination with Purchaser staff during specific construction tasks, and communication protocols.
  2. Provide an updated Detailed Construction Schedule in accordance with Contract requirements and a three week look-ahead.
  3. Obtain all required permits and approvals from the AHJ(s) and the Utility(ies) prior to starting Construction, in coordination with the Purchaser, and shall make copies available to the Purchaser of all permit applications and approvals.
- C. Provider shall provide Manufacturers' Installation Manuals for major project components, including, but not limited to: PV modules, inverters, racking or mounting structure, monitoring systems, BESS systems, EV charging systems, other major electrical equipment, and lighting. When approved by the Purchaser, recommended installation standards shall become the basis for commissioning, inspecting and accepting or rejecting actual installation procedures used on the work.
- D. Prior to ordering equipment and materials, Provider shall verify all measurements at each project site and notify the Purchaser in writing of any discrepancies between the drawings and site measurements.
- E. Any proposed changes to design shall be submitted in writing to the Purchaser for approval before any changes are made. Submittal for changes shall contain all necessary details of the proposed changes and an updated system size and production spreadsheet.
- F. CONSTRUCTION SUBMITTALS: The following documents and schedules shall be provided by the Provider as listed:

**Table 2 – Construction Submittals**

| Construction Submittal                 | Submittal Schedule   |
|--|--|
| 1. Construction Mgt & Safety Plan      | No later than 15 days prior to site mobilization.  |
| 2. Construction Schedule               | - Three week look-ahead schedule updated and submitted weekly prior to the weekly meeting.<br>- Detailed schedule regularly maintained and provided every two weeks or as-requested. |
| 3. Manufacturers' Installation Manuals | No later than 5 days after construction kickoff meeting.   |
| 4. Weekly Meeting minutes              | No later than the day prior to the next scheduled project meeting.   |

| Construction Submittal                            | Submittal Schedule   |
|---|--|
| 5. Test Reports                                   | As available   |
| 6. Factory Tests                                  | As available   |
| 7. Field Tests                                    | As available   |
| 8. Design Deviations/<br>Requests for Information | As-needed. All deviations shall be accurately and legibly detailed by the Provider and approved by Designer of Record, then presented to the Purchaser/Purchaser Reps in the form of an RFI. All changes shall be recorded on as-built drawings at the time of the change. |
| 9. Proposed Change Orders                         | Prior to commencing any changed work, and in the form specified for changes in scope of work in the Agreement, Provider shall submit a proposed change order.  |

### 3.3 COMMISSIONING PHASE

- A. Provider shall notify the Purchaser and Purchaser representatives prior to commencing commissioning and provide a schedule for all commissioning activities.
- B. Provider shall provide electricians and support to Purchaser and Purchaser representative for verification of commissioning and workmanship, including providing reasonable notice prior to conducting commissioning activities so Purchaser representatives may observe.
- C. Provider shall provide a detailed/comprehensive Commissioning Report; submitted 15 days after commissioning has been completed on a site-by-site basis.
- D. Commissioning shall proceed per the approved commissioning plan submitted during the Design Phase. At a minimum, system commissioning protocol shall include:
  1. Conductors
    - 1.1. AC & DC conductor inspection / megger testing
    - 1.2. Wire management check
    - 1.3. DC string Voc/sc testing and recording
    - 1.4. Confirm all conduits & junction boxes are installed properly/watertight
  2. Inspection of DC fusing and disconnects
  3. Inspection of AC components: AC Disconnect, Main Switch Board, AC Combiner Panel Boards, Breakers, Fuses, Terminations, Phasing, OCPD operation, etc.
  4. Grounding & bonding system inspection & continuity testing
  5. Inverters
    - 5.1. Inverter inspections & tests per manufacturer instructions
    - 5.2. Inverter start-up & confirm proper inverter settings
    - 5.3. Inverter output tests - Confirm PV system AC output as expected based on design, insolation and inverter readings
  6. IV Curve Trace, Performance testing and recording
  7. Torque spot check on mechanical and electrical terminations
  8. Inspection of corrosion control measures

9. Confirm signage and placards meet plans
10. Workmanship evaluation
11. Inspection of DAS / CT metering and monitoring equipment
12. Weather station component inspection and performance audit
13. Confirm web-based monitoring interface operations
14. Lighting Controls
  - 14.1. Confirm canopy lighting levels match photometric design
  - 14.2. Verify component installations
15. Commissioning of any other major electrical infrastructure installed on the project per manufacturer requirements.

### 3.4 CLOSEOUT PHASE

- A. Provider shall submit complete digital “as-built” Record Drawings for all sites for review and approval. Final as-built plans shall be provided in both AutoCAD (CAD) and portable document format (PDF) prior to Final Completion. Provider shall submit one set of final compiled Record Drawings for the Purchaser. The Record Drawings shall incorporate all changes from permit plan sets captured on all as-built sketches, details, and clarifications. Locations of work buried under or outside each building, including, without limitation, all utilities, plumbing and electrical lines and conduits. All deviations from the sizes, locations and other features of installations shown in Issue for Construction (IFC) plan sets and Contract Documents must be captured in detail in as-built Record Drawings. All horizontal boring, trench routes and depths to be recorded and transferred from logs to record drawings. All canopy column footing depths shall also be recorded and coordinated into as built drawings.
- A. Provider shall submit documentation of Punch List Completion for items under control of the Provider within 30 days of the Purchaser issuing the Final Punch List. The document must be signed and show proof of completion of each item.
- B. Provider shall submit executed Performance Guarantee (PeGu) Agreement amendment(s), if any, within 30 days of PTO at all Sites. All performance tables and commercial operation dates must be updated with the final as-built statistics.
- C. Provider shall provide DSA closed and certified documentation for all projects.
- D. Provider shall submit to the Purchaser a comprehensive Operations and Maintenance (O&M) Manual for each system, within 30 days of Commercial Operation Date (COD). O&M manuals shall consist of three (3) hard copy and (3) soft copies on USB flash drive in PDF format, provided as a single, bookmarked PDF document. The document shall be a well-organized, comprehensive and custom document created for each site which includes, but is not limited to:
  1. System Description and Overview
  2. Simplified site plan that shows array naming convention, inverter locations, and disconnects
  3. Predicted performance data, including expected production over time
  4. Safety Details, including shut down procedures
  5. Contact information for the system installer and maintenance personnel

6. As-built drawings. During construction, Provider shall incorporate all information on all As-Builts, sketches, details, and clarifications, and prepare one set of final Record Drawings for the Purchaser. The Record Drawings shall incorporate onto one set of electronic drawings, all changes from all As-Builts, sketches, details, and clarifications. Provider shall deliver the Record Drawings to the Purchaser at completion of the construction. Locations of work buried under or outside each building, including, without limitation, all utilities, plumbing and electrical lines and conduits. All deviations from the sizes, locations and other features of installations shown in Issue for Construction (IFC) plan sets and Contract Documents.
7. Complete material list of all items furnished and installed, including but not limited to the following: PV Modules, inverters, wiring, combiner boxes, panelboards, switch gear, optimizers, disconnects, boxes, metering and DAS equipment, etc. PV System operation details
8. System testing and commissioning documentation
9. PTO and any other pertinent Utility documentation
10. Maintenance information, including schedules and responsibilities for ongoing maintenance
11. Troubleshooting and repair, including responses to typical issues
12. All warranties, cut sheets and manuals for major equipment
13. Performance guarantee details, including schedule of performance reporting and example format
14. Monitoring system login and operation details
15. Any other information that may be required for the Purchaser to easily and safely interact with, confirm performance, troubleshoot, maintain and/or service the materials and equipment installed under this Contract.
16. CAD (electronic format) "as-built" files of all drawings, provided as separate files from the Manual PDF.



E. Project Closeout Submittals

Provider shall deliver the following document submittals to Purchaser in order to attain Purchaser approval for the listed project closeout milestone.

**Table 3 – Closeout Document Submittals**

| <b>PTO Ready Status</b>   |  |
|---|--|
| 1   | Documentation from AHJ as needed for interconnection                             |
| 2   | Schedule for Project Closeout  |
| 3   | Commissioning Protocol   |
| 4   | Utility Interconnection Request Submitted  |
| <b>Commercial Operation Date - COD (All PTO Ready Status items plus:)</b> |  |
| 5   | Utility Permission-to-Operate (PTO) Notice                                       |
| 6   | Provider Commissioning Documentation   |
| 7   | AHJ(s) Completion Documentation  |
| 8   | As-Built Plan Sets (w/ Data Sheets for Major Equip.)                             |
| 9   | Record of all trenching/boring routes & depths and canopy column footing depths. |
| 10  | As-Built Performance Modeling & 8760 Data  |
| 11  | Punchlist – Major/Safety Items Signed Off by Purchaser/Inspectors                |
| 12  | O&M Manual Draft   |
| 13  | Major Equipment Cut Sheets/Warranty Documentation                                |
| 14  | DAS Login Access and Credentials & Verification of Function                      |
| 15  | Subcontractor Notices of Completion  |
| 16  | Provider Formal Commercial Operation Notice                                      |
| <b>Final Completion/Acceptance (All COD items plus:)</b>                  |  |
| 17  | Punchlist – All Lists Signed Off   |
| 18  | O&M Manual Final   |
| 19  | Sage Cx/Inspection Completed   |
| 20  | Operation and Safety Training (for Purchaser)                                    |
| 21  | All Change Orders/Payments Finalized   |
| 22  | Final Amended Executed Contracts (PPA & PeGu)                                    |
| 23  | Inverter/Data Logger Serial Numbers, IDs, Locations Provided and Functional      |
| 24  | DSA Closeout Documentation Complete and Submitted                                |
| 25  | Purchaser Notice of Acceptance   |

**[END OF DOCUMENT]**

**GENERAL TERMS AND CONDITIONS OF  
ENERGY SERVICES AGREEMENT**

These General Terms and Conditions (“General Conditions”) are dated as of the 13th day of August, 2019 and are witnessed and acknowledged by ForeFront Power, LLC, a Delaware limited liability company (“ForeFront Power” or “Provider”) and Ventura County Community College District, a California community college district (“District” or “Purchaser”), as evidenced by their respective signatures on the last page of this document. These General Conditions are intended to be incorporated by reference into Energy Services Agreements that may be entered into between ForeFront Power and Purchaser or between their respective affiliates. These General Conditions shall have no binding effect upon ForeFront Power or Purchaser, respectively, except to the extent ForeFront Power or Purchaser becomes a party to an Energy Services Agreement that incorporates these General Conditions.

1. DEFINITIONS.

1.1 In addition to other terms specifically defined elsewhere in the Agreement, where capitalized, the following words and phrases shall be defined as follows:

“Affiliate” means, with respect to any specified Person, any other Person directly or indirectly controlling, controlled by or under common control with such specified Person.

“Agreement” means the Energy Services Agreement, which incorporates these General Conditions and an executed Special Conditions.

“Applicable Law” means, with respect to any Person, any constitutional provision, law, statute, rule, regulation, ordinance, treaty, order, decree, judgment, decision, certificate, holding, injunction, registration, license, franchise, permit, authorization, guideline, Governmental Approval, consent or requirement of any Governmental Authority having jurisdiction over such Person or its property, enforceable at law or in equity, including the interpretation and administration thereof by such Governmental Authority.

“Bankruptcy Event” means with respect to a Party, that either (i) such Party has (A) applied for or consented to the appointment of, or the taking of possession by, a receiver, custodian, trustee or liquidator of itself or of all or a substantial part of its property; (B) admitted in writing its inability, or be generally unable, to pay its debts as such debts become due; (C) made a general assignment for the benefit of its creditors; (D) commenced a voluntary case under any bankruptcy law; (E) filed a petition seeking to take advantage of any other law relating to bankruptcy, insolvency, reorganization, winding up, or composition or readjustment of debts; (F) taken any corporate or other action for the purpose of effecting any of the foregoing; or (ii) has a petition in bankruptcy filed against it, and such petition is not dismissed within ninety (90) days after the filing thereof.

“Business Day” means any day other than Saturday, Sunday, or a federal or State of California legal holiday.

“Early Termination Date” means any date on which the Agreement terminates other than by reason of expiration of the then applicable Term.

“Environmental Attributes” shall mean, without limitation, carbon trading credits, renewable energy credits or certificates, emissions reduction credits, emissions allowances, green tags, tradable renewable credits, or Green-e® products.

“Environmental Law” means any and all federal, state, local, provincial and foreign, civil and criminal laws, statutes, ordinances, orders, common law, codes, rules, regulations, judgments, decrees, injunctions relating to the protection of health and the environment, worker health and safety, and/or governing the handling, use, generation, treatment, storage, transportation, disposal, manufacture, distribution, formulation, packaging, labeling, or release to the environment of or exposure to Hazardous Materials, including any such requirements implemented through Governmental Approvals.

“Expiration Date” means the date on which the Agreement terminates by reason of expiration of the Term.

“Financing Party” means, as applicable (i) any Person (or its agent) from whom ForeFront Power (or an Affiliate of ForeFront Power) leases the System, (ii) any Person (or its agent) who has made or will make a loan to or otherwise provides financing to ForeFront Power (or an Affiliate of ForeFront Power) with respect to the System, or (iii) any Person acquiring a direct or indirect interest in ForeFront Power or in ForeFront Power’s interest in the Agreement or the System as a tax credit investor.

“Governmental Approval” means any approval, consent, franchise, permit, certificate, resolution, concession, license, or authorization issued by or on behalf of any applicable Governmental Authority, including any such approval, consent, order or binding agreements with or involving a governmental authority under Environmental Laws.

“Governmental Authority” means any federal, state, regional, county, town, city, or municipal government, whether domestic or foreign, or any department, agency, bureau, or other administrative, regulatory or judicial body of any such government.

“Hazardous Materials” means any hazardous or toxic material, substance or waste, including petroleum, petroleum hydrocarbons or petroleum products, and any other chemicals, materials, substances or wastes in any amount or concentration which are regulated under or for which liability can be imposed under any Environmental Law.

“Installation Work” means the construction and installation of the System and the start-up, testing and acceptance (but not the operation and maintenance) thereof, all performed by or for ForeFront Power at the Premises.

“Local Electric Utility” means the local electric distribution owner and operator providing electric distribution and interconnection services to Purchaser at the Premises.

“Losses” means all losses, liabilities, claims, demands, suits, causes of action, judgments, awards, damages, cleanup and remedial obligations, interest, fines, fees, penalties, costs and expenses (including all attorneys’ fees and other costs and expenses incurred in defending any such claims or other matters or in asserting or enforcing any indemnity obligation).

“Person” means an individual, partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, joint venture, firm, or other entity, or a Governmental Authority.

“Pre-existing Environmental Conditions” means any: (i) violation of, breach of or non-compliance with any Environmental Laws with respect to the Premises that first existed, arose or occurred on or prior to ForeFront Power’s commencement of construction at the Premises and (ii) the presence or release of, or exposure to, any Hazardous Materials at, to, on, in, under or from the Premises that first existed, arose or occurred on or prior to ForeFront Power’s commencement of construction at the Premises.

“Representative” means a Party’s officers, directors, members, managers, employees, agents, contractors, consultants, Affiliates, lenders (existing or potential), investors (existing or potential) and potential third-party assignees of the Agreement or third-party acquirers of ForeFront Power or its Affiliates.

“System-Based Incentives” means any accelerated depreciation, installation or production-based incentives, investment tax credits and subsidies including, but not limited to, the subsidies in Schedule 1 of the Special Conditions and all other related subsidies and incentives.

“System Operations” means ForeFront Power’s operation, maintenance and repair of the System performed in accordance with the requirements herein.

“Termination Date” means the date on which the Agreement ceases to be effective, including on an Early Termination Date or the Expiration Date.

1.2 Interpretation. The captions or headings in the General Conditions or otherwise in the Agreement, Exhibits or Schedules are strictly for convenience and shall not be considered in interpreting the Agreement. Words in the Agreement that impart the singular connotation shall be interpreted as plural, and words that impart the plural connotation shall be interpreted as singular, as the identity of the parties or objects referred to may require. The words “include”, “includes”, and “including” mean include, includes, and including “without limitation” and “without limitation by specification.” The words “hereof”, “herein”, and “hereunder” and words of similar import refer to the Agreement as a whole and not to any particular provision of the Agreement. Except as the context otherwise indicates, all references to “Articles” and “Sections” refer to Articles and Sections of the General Conditions. The titles of the various Articles of the General Conditions and elsewhere in the Agreement and its component parts are used for convenience of reference only and are not intended to, and shall in no way, enlarge or diminish the rights or obligations of ForeFront Power or the Purchaser and shall have no effect upon the construction or interpretation of the Agreement. The Agreement and its component parts shall be construed as a whole in accordance with their fair meaning and not strictly for or against the Purchaser or ForeFront Power. The Agreement and its component parts are intended to be complementary and what is required by one shall be as binding as if required by all; performance by the Parties shall be required to the extent consistent with the Agreement and its component parts and reasonably inferable therefrom as being necessary to produce the intended results.

## 2. TERM AND TERMINATION.

### 2.1 Term; Early Termination; Milestone Dates.

(a) Term. The term of the Agreement shall commence on the Effective Date and shall continue for the number of years after the Commercial Operation Date that are specified in the Special Conditions (the “Initial Term”), unless and until extended or terminated earlier pursuant to the provisions of the Agreement.

(b) Early Termination. Purchaser may terminate the Agreement prior to any applicable Expiration Date for any reason upon sixty (60) days’ prior written notice. If Purchaser terminates the Agreement prior to the Expiration Date of the Initial Term, Purchaser shall pay, as liquidated damages, the Early Termination Fee set forth on Schedule 3, Column 1 of the Special Conditions and ForeFront Power shall cause the terminated System to be disconnected and removed from the Premises. Upon Purchaser’s payment to ForeFront Power of the Early Termination Fee, the Agreement shall terminate automatically. Purchaser acknowledges that the Early Termination Fee constitutes liquidated damages, and not penalties, in lieu of ForeFront Power’s actual damages resulting from the early termination of the Agreement. Purchaser further acknowledges that ForeFront Power’s actual damages may be impractical and difficult to

accurately ascertain, and in accordance with Purchaser's rights and obligations under the Agreement, the Early Termination Fee constitutes fair and reasonable damages to be borne by Purchaser in lieu of ForeFront Power's actual damages.

(c) Purchaser may (i) if ForeFront Power fails to commence construction by the Construction Start Date, be entitled (as its sole remedy) to liquidated damages in the amount of \$250/MW-DC per day for each day of delayed Construction Start Date, (ii) terminate this Agreement with no liability whatsoever if ForeFront Power fails to commence construction of the System by the date that is 90 days after the Construction Start Date, or (iii) if ForeFront Power fails to achieve Commercial Operation by the Guaranteed Commercial Operation Date, be entitled (as its sole remedy) to liquidated damages in the amount of \$250/MW-DC per day per Site for each day of delayed Guaranteed Commercial Operation Date, plus (if Installation Work had commenced at the Premises as of the date of termination) any costs reasonably incurred by Purchaser to return its Premises to its condition prior to commencement of the Installation Work. ForeFront Power acknowledges and agrees that Purchaser will suffer damage related to non-production of energy that is not capable of being calculated. Pursuant to Government Code section 53069.85, ForeFront Power shall forfeit to the District, as fixed and liquidated damages for these incalculable damages, the amounts set forth in this Section 2.1(c)(i) or (iii) for each and every calendar day of delay beyond the date of the Construction Start Date or for each and every calendar day of delay beyond the Guaranteed Commercial Operation Date. Further, Purchaser may terminate this Agreement with no liability whatsoever if ForeFront Power fails to commence Commercial Operation by the date that is 60 days after the Guaranteed Commercial Operation Date. The Construction Start Date and Guaranteed Commercial Operation Date shall be extended on a day-for-day basis if, notwithstanding ForeFront Power's commercially-reasonable efforts, interconnection approval is not obtained within 60 days after the Effective Date, provided that interconnection applications are submitted within 45 days of the later of (a) the Effective Date and (b) finalization of the System(s) layout.

2.2 Purchase Option. So long as a Purchaser Default shall not have occurred and be continuing, Purchaser has the option to purchase the System(s) for a purchase price (the "Option Price") equal to the greater of (a) the Fair Market Value of the System as of the purchase date, or (b) the Early Termination Fee as of the purchase date, as specified in Schedule 3, Column 2 of the Special Conditions. "Fair Market Value" as used herein means the price that would be negotiated in an arm's-length, free market transaction, for cash, between an informed, willing seller and an informed, willing buyer, neither of whom is under compulsion to complete the transaction. To exercise its purchase option, Purchaser shall, not less than one hundred and eighty (180) days prior to the proposed purchase date, provide written notice to ForeFront Power of Purchaser's intent to exercise its option to purchase the System on such purchase date. Within thirty (30) days of receipt of Purchaser's notice, ForeFront Power shall specify the Option Price, and Purchaser shall then have a period of thirty (30) days after notification to confirm or retract its decision to exercise the purchase option or, if the Option Price is equal to the Fair Market Value of the System, to dispute the determination of the Fair Market Value of the System. In the event Purchaser confirms its exercise of the purchase option in writing to ForeFront Power (whether before or after any determination of the Fair Market Value determined pursuant to Section 2.3), (i) the Parties shall promptly execute all documents necessary to (A) cause title to the System to pass to Purchaser on the purchase date, free and clear of any Liens, and (B) assign all warranties for the System to Purchaser, including but not limited to those related to the Installation Work, and (ii) Purchaser shall pay the Option Price to ForeFront Power on the purchase date, such payment to be made in accordance with any previous written instructions delivered to Purchaser by ForeFront Power or ForeFront Power's Financing Party, as applicable, for payments under the Agreement. Upon execution of the documents and payment of the Option Price, in each case as described in the preceding sentence, the Agreement shall terminate automatically. Payment of the Option Price shall be in lieu of and instead of any payments as described in Section 2.2 hereof. In the event Purchaser retracts its exercise of, or does not timely confirm, the purchase option, the provisions of the Agreement shall be applicable as if Purchaser had not exercised any option to purchase the System.

2.3 Determination of Fair Market Value. If the Option Price indicated by ForeFront Power in accordance with Section 2.2 is equal to the Fair Market Value (as determined by ForeFront Power) and Purchaser disputes such stated Fair Market Value within thirty (30) days of receipt of such notice from ForeFront Power, then the Parties shall mutually select an independent appraiser with experience and expertise in the Energy Services industry. Such appraiser shall act reasonably and in good faith to determine Fair Market Value and shall set forth such determination in a written opinion delivered to the Parties. The valuation made by the appraiser shall be binding upon the Parties in the absence of fraud or manifest error. The costs of the appraisal shall be borne by Purchaser if such appraisal results in a value equal or greater than the value provided by ForeFront Power pursuant to Section 2.3; otherwise, the Parties shall equally share such cost.

2.4 Removal of System at Expiration. Subject to Purchaser's exercise of its purchase option under Section 2.2, upon the expiration or earlier termination of the Agreement, ForeFront Power shall, at ForeFront Power's expense, remove all of its tangible property comprising the System from the Premises on a mutually convenient date but in no case later than ninety (90) days after the Termination Date. The Premises shall be returned to its original condition, except for System mounting pads and ordinary wear and tear. System mounting pads shall only refer to concrete pads for ground mounted electrical equipment. All canopy columns foundations shall be ground to a minimum of 12-inches below grade and patched back with surface treatment to match existing. Parking lot shall also be restored to pre-project condition. For purposes of ForeFront Power's removal of the System, Purchaser's covenants pursuant to Section 8.2 shall remain in effect until the date of actual removal of the System. ForeFront Power shall leave the Premises in neat and clean order. If ForeFront Power fails to remove or commence substantial efforts to remove the System by such agreed upon date, Purchaser shall have the right, at its option, to remove the System to a public warehouse and restore the Premises to its original condition (other than System mounting pads or other support structures and ordinary wear and tear) at ForeFront Power's cost.

2.5 Conditions of the Agreement Prior to the Commercial Operation Date.

(a) In the event that any of the following events or circumstances occur prior to the Commercial Operation Date, ForeFront Power may (at its sole discretion) provide notice that it is terminating the Agreement, in which case neither Party shall have any liability to the other except for any such liabilities that may have accrued prior to such termination:

(i) ForeFront Power determines that the Premises, as is, is insufficient to accommodate the System or unsuitable for construction or operation of the System.

(ii) There exist site conditions (including environmental conditions) or construction requirements that were not known as of the Effective Date and that could reasonably be expected to materially increase the cost of Installation Work or would adversely affect the electricity production from the System as designed.

(iii) There is a material adverse change in the regulatory environment, incentive program or federal or state tax code (including the expiration of any incentive program or tax incentives in effect as of the Effective Date) that could reasonably be expected to adversely affect the economics of the installation for ForeFront Power and its investors.

(iv) ForeFront Power is unable to obtain financing for the System on terms and conditions reasonably satisfactory to it.

(v) If applicable, ForeFront Power has not received: (1) a fully executed license in the form of Exhibit A of these General Conditions from the owner of the Premises (if the Purchaser is a tenant), (2) a release or acknowledgement from any mortgagee of the Premise, if required by ForeFront Power's

Financing Party, to establish the priority of its Security Interest in the System, and (3) such other documentation as may be reasonably requested by ForeFront Power to evidence Purchaser's ability to meet its obligations under Section 8.2(d)(ii) to ensure that ForeFront Power will have access to the Premises throughout the Term.

(vi) There has been a material adverse change in the rights of Purchaser to occupy the Premises or ForeFront Power to construct the System on the Premises.

(vii) Purchaser has determined that there are easements, CCRs or other land use restrictions, liens or encumbrances that would materially impair or prevent the installation, operation, maintenance or removal of the System.

(viii) There has been a material adverse change in Purchaser's credit-worthiness.

(b) If any of the conditions set forth in Section 2.5(a) are partly or wholly unsatisfied, and ForeFront Power wishes to revise the information in the Special Conditions, then ForeFront Power may propose modifications to the Special Conditions for acceptance by Purchaser. If Purchaser does not accept such modified Special Conditions after reasonable negotiation of the same by the Parties, ForeFront Power may terminate this Agreement as provided in Section 2.5(a). If Purchaser and ForeFront Power agree to such revised Special Conditions, such revised Special Conditions shall be deemed an amendment of the Agreement, and the Agreement shall remain in force and effect upon execution by both Parties.

### 3. CONSTRUCTION, INSTALLATION AND TESTING OF SYSTEM.

3.1 Installation Work. ForeFront Power will cause the System to be designed, engineered, installed and constructed in accordance with the requirements set forth in the Special Conditions, Exhibits B and C hereto and Applicable Law.

3.2 Approvals; Permits. Purchaser shall assist ForeFront Power in obtaining all necessary consents, approvals and permits required to perform Purchaser's obligations under this Agreement, including but not limited to those related to the Local Electric Utility, any Governmental Approval, and any consents, waivers, approvals or releases required pursuant to any applicable contract or CCR.

### 4. COMMERCIAL OPERATION DATE.

4.1 ForeFront Power shall conduct testing of each of the Systems in accordance with such methods, acts, guidelines, standards and criteria reasonably accepted or followed by providers of Energy Services similar to those provided by the System in the United States and per the requirements of Schedule 9 of the Special Conditions. If the results of such testing indicate that the System is capable of providing the Energy Services, using such instruments and meters as have been installed for such purposes, and the System has been approved for interconnected operation by the Local Electric Utility ("Commercial Operation"), and ForeFront Power has satisfied the Commercial Operation Date requirements of Schedule 9 of the Special Conditions, then ForeFront Power shall send a written notice to Purchaser to that effect, and the date of such notice shall be the "Commercial Operation Date".

### 5. SYSTEMS OPERATIONS AND MAINTENANCE.

5.1 ForeFront Power as Owner and Operator. The System will be owned by ForeFront Power or ForeFront Power's Financing Party and will be operated and maintained and, as necessary, repaired by ForeFront Power. During the Term, ForeFront Power will operate and perform all routine and emergency repairs to, and maintenance of, the System at its sole cost and expense, except for any repairs or maintenance resulting from Purchaser's negligence, willful misconduct or breach of this Agreement ("Systems

Operations”). ForeFront Power shall (A) have the appropriate experience and ability to operate and maintain photovoltaic solar systems and the financial capability to do same (as an “Operator”); or (B) enter into a contract with an Operator, pursuant to which (1) such Operator shall be responsible for System operation and maintenance under this Agreement and (2) Operator shall administer all rights (including access rights to the Premises) and obligations of ForeFront Power on behalf of ForeFront Power under this Agreement. ForeFront Power shall provide Purchaser with at least forty-eight (48) hours’ notice (excluding weekends and District holidays) prior to accessing the Premises to make standard repairs. No work or repairs shall be done on weekends or District holidays without the District’s prior written consent. When performing repairs to, and maintenance of, the System, ForeFront Power or ForeFront Power’s contractors shall comply with all Applicable Law and construction terms and conditions of this Agreement set forth in Exhibits B and C, including but not limited to payment of prevailing wage to the extent required by Applicable Law.

5.2 Canopy Lighting Repairs. All canopy lighting maintenance on the System is considered part of ForeFront Power’s standard maintenance obligations as set forth in Section 5.1 above. ForeFront Power (or Operator) shall replace canopy lighting, when fixtures fail, within thirty (30) days of notification from Purchaser.

5.3 Cleaning. ForeFront Power shall clean the System modules at least once a year (on a mutually agreeable date) in order to remove any dust, smoke or debris that has collected on the System.

5.4 Vegetation Removal. ForeFront Power shall be solely responsible for removing and managing all vegetation within the fenced area of a ground mounted System in accordance with the requirements of the Special Conditions. ForeFront Power shall identify during design, and remove during construction (in accordance with the Special Conditions), vegetation that would otherwise require ongoing trimming during the term in order to maintain solar insolation on the System.

5.5 Vandalism. ForeFront Power shall be solely responsible for, and shall have the exclusive right, to remove graffiti and “tagging” of the following components of the System: inverters, combiner boxes, solar modules, purlins and all other electrical equipment having access to live disconnect switches from enclosures or in close proximity to electrical equipment. Knowing that graffiti anywhere on a college campus is detrimental to the teaching and learning environment, ForeFront Power will strive to maintain graffiti-free equipment by removing all graffiti without undue delay upon written notice from the District. Purchaser shall be solely responsible for removing all graffiti and “tagging” of the following components of the System; provided, however, that ForeFront Power shall supply all paint that is reasonably required to remove graffiti from such System components: columns, beams, protection barriers and skirts located underneath solar modules, canopy bollards and other equipment hanging from columns.

5.6 Safety and Security. Purchaser shall continue its standard security measures and insurance for the Premises and the System, which may not be sufficient for protection of damage or Losses to the System caused by criminal acts of third parties. Purchaser shall not be liable for such damage or Losses. ForeFront Power may, at ForeFront Power's cost, obtain insurance coverage to the extent ForeFront Power desires additional protection against such criminal acts.

5.7 Breakdown Notice. ForeFront Power shall notify Purchaser within forty-eight (48) hours following ForeFront Power’s discovery of (i) any material malfunction in the operation of a System or (ii) an interruption in the supply of electrical energy from a System. Purchaser and ForeFront Power shall each designate personnel and establish procedures such that each Party may provide notice of such conditions requiring ForeFront Power’s repair or alteration at all times, twenty-four (24) hours per day, including weekends and holidays. Purchaser shall notify ForeFront Power immediately upon the discovery of an emergency condition affecting the System.



5.8 Metering. ForeFront Power shall install and maintain a utility grade kilowatt-hour (kWh) meter for the measurement of electrical energy provided by the System and may, at its election, install a utility grade kilowatt-hour (kWh) meter for the measurement of electrical energy delivered by the Local Electric Utility and consumed at the Premises. Meter, meter maintenance and data provision shall include the following for the full term(s) of the Agreement:

- i Utility grade accuracy.
- ii 15-minute interval datalogging for lifetime of the System, with all data readily available for term of the contract. Data shall provide sufficient detail for purchaser to verify billing and performance of the System.
- iii Cellular data connection or other data connection maintained by ForeFront Power. The System may not use Purchaser's internet connection(s) without express written consent from Purchaser. In the event ForeFront Power uses Purchaser's internet connection(s), Purchaser shall not be responsible for any loss of ability to transmit data.
- iv Internet-based monitoring and reporting portal with full data access to Purchaser, including weather parameters. Where satellite data is utilized in assessing performance, satellite data shall be readily available.
- v Monitoring platform shall include data API that makes all data readily available for access by the Purchaser and Purchaser's Representatives. Monitoring platform, API setup/provision and data shall be made available to Purchaser and Purchaser's Representatives at no cost over the term(s).
- vi Synchronized clock intervals for all site meters, including production. Clock intervals shall be synchronized with utility meters where feasible.
- vii Regular maintenance and calibration in accordance with manufacturer requirements.
- viii WREGIS compliant reporting sufficient for registration of RECs.
- ix Equipment, monitoring platform and data shall be readily transferrable in the event the Purchaser elects to purchase a System.

5.9 System Disruptions. In the event that (a) the owner or lessee of the Premises, if applicable, repairs the Premises for any reason not directly related to damage caused by the System, and such repair requires the partial or complete temporary disassembly or movement of the System, (b) any act or omission of Purchaser or Purchaser's employees, Affiliates, agents or subcontractors (collectively, a "Purchaser Act") results in a disruption or outage in System production; or (c) Purchaser elects to have a System relocated during the initial or subsequent Term, then, in each case, Purchaser shall (i) pay ForeFront Power for all work required by ForeFront Power to disassemble or move the System and (ii) continue to make all payments for the Energy Services during such period of System disruption (the "Disruption Period"), and (iii) reimburse ForeFront Power for any other lost revenue during the Disruption Period, including any lost revenue associated with any reduced sales of Environmental Attributes and any reduced System-Based Incentives, if applicable, during the Disruption Period. For the purpose of calculating Energy Services Payments and lost revenue for such Disruption Period, Energy Services for each month of said months shall be deemed to have been produced at the average rate over the same month for which data exists (or, if the disruption occurs within the first twelve (12) months of operation, the average over such period of operation). In the event that a relocation is due to the negligence or actions of ForeFront Power or its subcontractors, then in such instance, the Parties shall negotiate in good faith and mutually agree to an allocation of costs for such relocation.

## 6. TITLE TO SYSTEM.

6.1 Title to System. Throughout the duration of the Agreement, ForeFront Power or ForeFront Power's Financing Party shall be the legal and beneficial owner of the System at all times, and the System shall remain the personal property of ForeFront Power or ForeFront Power's Financing Party and shall not attach to or be deemed a part of, or fixture to, the Premises. The System shall at all times retain the legal

status of personal property as defined under Article 9 of the Uniform Commercial Code. Purchaser covenants that it will use reasonable commercial efforts to place all parties having an interest in or lien upon the real property comprising the Premises on notice of the ownership of the System and the legal status or classification of the System as personal property. If there is any mortgage or fixture filing against the Premises which could reasonably be construed as attaching to the System as a fixture of the Premises, Purchaser shall provide, at ForeFront Power's request, a disclaimer or release from such lien holder. If Purchaser is the fee owner of the Premises, Purchaser consents to the filing by ForeFront Power, on behalf of Purchaser, of a disclaimer of the System as a fixture of the Premises in the office where real estate records are customarily filed in the jurisdiction of the Premises. If Purchaser is not the fee owner, Purchaser will, at ForeFront Power's request, use commercially reasonable efforts to obtain such consent from such owner.

6.2 Environmental Attributes And System-Based Incentives. Purchaser's purchase of Energy Services includes Environmental Attributes, but does not include System-Based incentives. System-Based Incentives shall be owned by ForeFront Power or ForeFront Power's financing party for the duration of the System's operating life. Purchaser disclaims any right to System-Based Incentives based upon the installation of the Systems at the Premises, and shall, at the request of ForeFront Power, execute any document or agreement reasonably necessary to fulfill the intent of this Section 6.2.

## 7. PRICE AND PAYMENT.

7.1 Consideration. Purchaser shall pay to ForeFront Power a monthly Energy Services Payment for the Energy Services provided during each calendar month of the Term as set forth in the Special Conditions.

7.2 Invoice. ForeFront Power shall begin recording energy delivered starting from the Commercial Operation Date, and Purchaser shall begin accruing payments owed as of the Commercial Operation Date. ForeFront Power shall invoice Purchaser on or about the first day of each month (each, an "Invoice Date"), commencing on the first Invoice Date to occur after the date of Final Completion, as defined in Section 38.2 of the General Terms and Conditions for Design and Construction of Solar PV Systems, for the Energy Services Payments. ForeFront Power shall make all reasonable efforts to bill on a month-start to month-end basis. The last invoice shall include Energy Services provided only through the Termination Date of this Agreement. ForeFront Power's billing shall include an annual report provided within 30 days of the anniversary of the Commercial Operation Date detailing the actual production of each System, expected production and billings on a monthly and totalized basis for the previous year.

7.3 Time of Payment. Purchaser shall pay all undisputed amounts due hereunder within forty-five (45) days of receipt of an Invoice.

7.4 Method of Payment. Purchaser shall make all payments under the Agreement either (a) by electronic funds transfer in immediately available funds to the account designated by ForeFront Power from time to time or (b) by check timely delivered to the location designated by ForeFront Power from time to time.

7.5 Disputed Payments. If a *bona fide* dispute arises with respect to any invoice, Purchaser shall not be deemed in default under the Agreement and the Parties shall not suspend the performance of their respective obligations hereunder, including payment of undisputed amounts owed hereunder.

## 8. GENERAL COVENANTS.

8.1 ForeFront Power's Covenants. ForeFront Power covenants and agrees to the following:

(a) Notice of Damage or Emergency. ForeFront Power shall (x) promptly (within 48 hours)

notify Purchaser if it becomes aware of any damage to or loss of the use of a System or that could reasonably be expected to adversely affect the System, (y) immediately (within 24 hours) notify Purchaser if it becomes aware of any event or circumstance relating to the System or the Premises that poses a significant risk to human health, the environment, the System or the Premises.

(b) Governmental Approvals. While providing the Installation Work, Energy Services, and System Operations, ForeFront Power shall obtain and maintain and secure all Governmental Approvals required to be obtained and maintained and secured by ForeFront Power and to enable ForeFront Power to perform such obligations.

(c) Health and Safety. ForeFront Power shall take all necessary and reasonable safety precautions with respect to providing the Installation Work, Energy Services, and System Operations that shall comply with all Applicable Laws pertaining to the health and safety of persons and real and personal property. All work shall be performed by licensed professionals, as may be required by Applicable Law, and in accordance with such methods, acts, guidelines, standards and criteria reasonably accepted or followed by a majority of System integrators in the United States. ForeFront Power shall conduct all actions required under Environmental Laws in connection with any Hazardous Materials released, spilled or deposited at, on above or below the Premises by ForeFront Power and shall take all actions to ensure the health and safety of persons and real and personal property in the event of any release, spill or deposit of any Hazardous Materials.

(d) Liens. Other than a Financing Party's Security Interest in or ownership of the System, ForeFront Power shall not directly or indirectly cause, create, incur, assume or suffer to exist any mortgage, pledge, lien (including mechanics', labor or materialman's lien), charge, security interest, encumbrance or claim of any nature ("Liens") on or with respect to the Premises or any interest therein, in each case to the extent such Lien arises from or is related to ForeFront Power's performance or non-performance of its obligations hereunder. If ForeFront Power breaches its obligations under this Section, it shall (i) immediately notify Purchaser in writing, (ii) promptly cause such Lien to be discharged and released of record without cost to Purchaser, and (iii) defend and indemnify Purchaser against all costs and expenses (including reasonable attorneys' fees and court costs at trial and on appeal) incurred in discharging and releasing such Lien; *provided*, ForeFront Power shall have the right to contest any such Lien, so long as it provides a statutory bond or other reasonable assurances of payment that either remove such Lien from title to the Premises or that assure that any adverse judgment with respect to such Lien will be paid without affecting title to the Premises.

## 8.2 Purchaser's Covenants. Purchaser covenants and agrees as follows:

(a) Notice of Damage or Emergency. Purchaser shall (i) promptly notify ForeFront Power if it becomes aware of any damage to or loss of the use of a System or that could reasonably be expected to adversely affect the System, (ii) immediately notify ForeFront Power it becomes aware of any event or circumstance that poses an imminent risk to human health, the environment, the System or the Premises. In the event of damage to Purchaser's Premises caused by, or as the result of, the System, ForeFront Power shall, at its sole cost, promptly repair said Premises to the condition existing prior to such damage. All repairs must be commenced within 72 hours of notice to ForeFront Power and shall be diligently completed within a commercially reasonable time, not to exceed thirty (30) days, barring any equipment availability issues outside ForeFront Power's control.

(b) Liens. Purchaser shall not directly or indirectly cause, create, incur, assume or suffer to exist any Liens on or with respect to the System or any interest therein. If Purchaser breaches its obligations under this Section, it shall immediately notify ForeFront Power in writing, shall promptly cause such Lien to be discharged and released of record without cost to ForeFront Power, and shall indemnify ForeFront Power against all costs and expenses (including reasonable attorneys' fees and court costs at trial and on

appeal) incurred in discharging and releasing such Lien.

(c) Consents and Approvals. To the extent that only Purchaser is authorized to request, obtain or issue any necessary approvals, Governmental Approvals, rebates or other financial incentives, Purchaser shall cooperate with ForeFront Power to obtain or issue such approvals, Governmental Approvals, rebates or other financial incentives in the name of ForeFront Power. Purchaser shall provide to ForeFront Power copies of all Governmental Approvals and CCRs if applicable to the Premises, other than those obtained by ForeFront Power or to which ForeFront Power is a party.

(d) Access to Premises; Grant of License.

(i) Purchaser hereby grants to ForeFront Power a commercial license coterminous with the Term containing all the rights necessary for ForeFront Power to use and occupy portions of the Premises for the installation, operation, maintenance and removal of the System pursuant to the terms of this Agreement, including ingress and egress rights to the Premises for ForeFront Power and its employees, contractors and subcontractors and access to electrical panels and conduits to interconnect or disconnect the System with the Premises' electrical wiring. ForeFront shall notify Purchaser in writing at least 72 hours in advance (excluding weekends and District holidays) of seeking access to the Premises, except in the case of an emergency, in which event ForeFront Power shall notify Purchaser in writing (excluding weekends and District holidays) prior to accessing the Premises. No work shall be done on weekends or District holidays without the District's prior written consent. If ForeFront Power's financing structure requires that Purchaser enter into a license agreement directly with Financing Party, ForeFront Power shall enter into such an agreement which shall be in a form set forth by ForeFront Power and which contain substantially the same rights as set forth in this Section 8.2(d).

(ii) Purchaser hereby covenants that (x) ForeFront Power shall have access to the Premises and System during the Term of this Agreement and for so long as needed after termination to remove the System pursuant to the applicable provisions herein, and (y) Purchaser will not interfere or handle any ForeFront Power equipment or the System without written authorization from ForeFront Power; *provided*, Purchaser shall at all times have access to and the right to observe the Installation Work or System removal. Purchaser shall provide appropriate staging areas, parking areas and laydown yard(s) at the Site for ForeFront Power's construction and removal of the System.

(e) Environmental Documentation. On or before the Effective Date of the Energy Services Agreement, Purchaser shall identify and set forth in the Special Conditions and unless previously delivered, Purchaser shall, to the extent the same are known and available, deliver to ForeFront Power copies of all reports, agreements, plans, inspections, tests, studies or other materials concerning the presence of Hazardous Materials at, from or on the Premises including, but not limited to, soil reports, design drawings, environmental reports, sampling results or other documents relating to Hazardous Materials that have been identified or may be present on, in or under the Premises (collectively, the "Environmental Documents"). Thereafter, Purchaser agrees to provide copies of any new Environmental Documents within ten (10) days of receipt of same. Purchaser hereby agrees to furnish such other documents in Purchaser's possession or control with respect to Governmental Approvals compliance with Environmental Law or Hazardous Materials with respect to the Premises as may be reasonably requested by ForeFront Power from time to time. Information about existing conditions furnished by Purchaser is obtained from sources believed to be reliable, but Purchaser neither guarantees nor warrants that such information is complete and accurate. ForeFront Power shall independently verify all information as it deems necessary.

(f) Notwithstanding anything to the contrary in the Agreement, Purchaser shall operate and maintain the Premises to comply with the requirements of all applicable Environmental Laws that limit or govern the conditions or uses of the Premises, without impairing or interfering with ForeFront Power's construction, operation and ownership of the System or occupancy of the Premises. In no event shall

ForeFront Power have any liability or obligation with respect to any Pre-existing Environmental Condition on, in or under the Premises, or operations or maintenance of the Premises required to comply with Environmental Laws with respect to Pre-Existing Environmental Conditions.

(g) Purchaser shall indemnify, hold harmless and defend ForeFront Power from and against all claims, pay costs and expenses, and conduct all actions required under Environmental Laws in connection with (i) the existence at, on, above, below or near the Premises of any Pre-existing Environmental Conditions, and (ii) any Hazardous Materials released, spilled or deposited at, on above or below the Premises by the Purchaser.

## 9. REPRESENTATIONS & WARRANTIES.

9.1 Representations and Warranties of Both Parties. In addition to any other representations and warranties contained in the Agreement, each Party represents and warrants to the other as of the Effective Date that:

(a) it is duly organized and validly existing and in good standing in the jurisdiction of its organization;

(b) it has the full right and authority to enter into, execute, deliver, and perform its obligations under the Agreement;

(c) it has taken all requisite corporate or other action to approve the execution, delivery, and performance of the Agreement;

(d) the Agreement constitutes its legal, valid and binding obligation enforceable against such Party in accordance with its terms, except as may be limited by applicable bankruptcy and other similar laws now or hereafter in effect;

(e) there is no litigation, action, proceeding or investigation pending or, to the best of its knowledge, threatened before any court or other Governmental Authority by, against, affecting or involving any of its business or assets that could reasonably be expected to adversely affect its ability to carry out the transactions contemplated herein;

(f) its execution and performance of the Agreement and the transactions contemplated hereby do not and will not constitute a breach of any term or provision of, or a default under, (i) any contract, agreement or Governmental Approval to which it or any of its Affiliates is a party or by which it or any of its Affiliates or its or their property is bound, (ii) its organizational documents, or (iii) any Applicable Laws; and

(g) its execution and performance of the Agreement and the transactions contemplated hereby do not and will not require any consent from a third party, including any Governmental Approvals from any Governmental Authority, that are not identified in the Special Conditions.

9.2 Representations of Purchaser. Purchaser represents and warrants to ForeFront Power as of the Effective Date that:

(a) Purchaser acknowledges that it has been advised that part of the collateral securing the financial arrangements for the System may be the granting of a first priority perfected security interest (the "Security Interest") in the System to a Financing Party;

(b) To Purchaser's knowledge, the granting of the Security Interest will not violate any term or condition of any covenant, restriction, lien, financing agreement, or security agreement affecting the

Premises;

(c) Purchaser is aware of no existing lease, mortgage, security interest or other interest in or lien upon the Premises that could attach to the System as an interest adverse to ForeFront Power's Financing Party's Security Interest therein;

(d) To Purchaser's knowledge, there exists no event or condition which constitutes a default, or would, with the giving of notice or lapse of time, constitute a default under this Agreement;

(e) To Purchaser's knowledge, Purchaser has identified and disclosed to ForeFront Power in the Special Conditions (i) all Environmental Documents, (ii) all CCRs, if applicable, Governmental Approvals or other restrictions imposed under Applicable Laws with respect to the use of the Premises that could affect the construction and operation of the System, and (iii) all environmental reports, studies, data or other information relating to the use of the Premises by ForeFront Power within the Purchaser's possession or control;

(f) The Premises is in compliance with Environmental Laws, and that Purchaser holds and is in compliance with all Governmental Approvals required for the ownership and any current operations or activities conducted at the Premises; and

(g) Purchaser has identified in the Special Conditions and delivered to ForeFront Power all material reports and information concerning the presence or release of Hazardous Materials on, in or under the Premises.

Any Financing Party shall be an intended third-party beneficiary of this Section 9.2.

9.3 EXCLUSION OF WARRANTIES. EXCEPT TO THE EXTENT OTHERWISE EXPRESSLY SET FORTH HEREIN, THE INSTALLATION WORK, SYSTEM OPERATIONS, AND ENERGY SERVICES PROVIDED BY FOREFRONT POWER TO PURCHASER PURSUANT TO THIS AGREEMENT SHALL BE "AS-IS WHERE-IS." EXCEPT TO THE EXTENT OTHERWISE EXPRESSLY SET FORTH HEREIN, NO OTHER WARRANTY TO PURCHASER OR ANY OTHER PERSON, WHETHER EXPRESS, IMPLIED OR STATUTORY, IS MADE AS TO THE INSTALLATION, DESIGN, DESCRIPTION, QUALITY, MERCHANTABILITY, COMPLETENESS, USEFUL LIFE, FUTURE ECONOMIC VIABILITY, OR FITNESS FOR ANY PARTICULAR PURPOSE OF THE SYSTEM, THE ENERGY SERVICES OR ANY OTHER SERVICE PROVIDED HEREUNDER OR DESCRIBED HEREIN, OR AS TO ANY OTHER MATTER, ALL OF WHICH ARE EXPRESSLY DISCLAIMED BY FOREFRONT POWER.

## 10. TAXES AND GOVERNMENTAL FEES.

10.1 Purchaser Obligations. Purchaser shall reimburse and pay for any documented taxes, fees or charges imposed or authorized by any Governmental Authority and paid by ForeFront Power due to ForeFront Power's sale of the Energy Services to Purchaser (other than income taxes imposed upon ForeFront Power). ForeFront Power shall notify Purchaser in writing with a detailed statement of such amounts, which shall be invoiced by ForeFront Power and payable by Purchaser. Purchaser shall timely report, make filings for, and pay any and all sales, use, income, gross receipts or other taxes, and any and all franchise fees or similar fees assessed against it due to its purchase of the Energy Services. This Section 10.1 excludes taxes specified in Section 10.2.

10.2 ForeFront Power Obligations. Subject to Section 10.1 above, ForeFront Power shall be responsible for all income, gross receipts, ad valorem, personal property or real property or other similar taxes and any and all franchise fees or similar fees assessed against it due to its ownership of the Systems.

All taxes related to this Agreement or the System shall be borne by ForeFront Power and incorporated into the Energy Services Payments. Taxes to be borne by ForeFront Power include, without limitation, (i) state or local taxes assessed against the generation, sale, delivery or consumption of energy, (ii) ad valorem or related property tax assessed on ForeFront Power's use of the Sites on which the Systems are located, the Systems or ForeFront Power's ownership, installation or use of the Systems and (iii) possessory interest taxes.

## 11. FORCE MAJEURE.

11.1 Definition. "Force Majeure Event" means any act or event that prevents the affected Party from performing its obligations in accordance with the Agreement, if such act or event is beyond the reasonable control, and not the result of the fault or negligence, of the affected Party and such Party had been unable to overcome such act or event with the exercise of due diligence (including the expenditure of reasonable sums). Subject to the foregoing conditions, "Force Majeure Event" shall include without limitation failure or interruption of the production, delivery or acceptance of electricity due to the following acts or events: (i) natural phenomena, such as storms, hurricanes, floods, lightning, volcanic eruptions and earthquakes; (ii) explosions or fires arising from lightning or other causes unrelated to the acts or omissions of the Party seeking to be excused from performance; (iii) acts of war or public disorders, civil disturbances, riots, insurrection, sabotage, epidemic, terrorist acts, or rebellion; (iv) strikes or labor disputes (except strikes or labor disputes caused solely by employees of ForeFront Power or as a result of such party's failure to comply with a collective bargaining agreement); (v) action or inaction by a Governmental Authority (unless Purchaser is a Governmental Authority and Purchaser is the Party whose performance is affected by such action or inaction). A Force Majeure Event shall not be based on the economic hardship of either Party, or upon the expiration of any lease of the Premises by the Purchaser from the owner of the Premises, if applicable.

11.2 Excused Performance. Except as otherwise specifically provided in the Agreement, neither Party shall be considered in breach of the Agreement or liable for any delay or failure to comply with the Agreement (other than the failure to pay amounts due hereunder), if and to the extent that such delay or failure is attributable to the occurrence of a Force Majeure Event; *provided*, the Party claiming relief under this Article 11 shall as soon as practicable after becoming aware of the circumstances constituting Force Majeure (i) notify the other Party in writing of the existence of the Force Majeure Event, (ii) exercise all reasonable efforts necessary to minimize delay caused by such Force Majeure Event, (iii) notify the other Party in writing of the cessation or termination of said Force Majeure Event and (iv) resume performance of its obligations hereunder as soon as practicable thereafter; *provided*, Purchaser shall not be excused from making any payments and paying any unpaid amounts due in respect of Energy Services delivered to Purchaser prior to the Force Majeure Event performance interruption. Neither Party shall be relieved of its obligation to perform if such failure is due to causes arising out of its own negligence or due to removable or remediable causes which it fails to remove or remedy with the exercise of diligent efforts within a reasonable time period. Notwithstanding a Force Majeure Event, the Party claiming such an event must provide satisfactory evidence that the event caused the delay or lack of performance and was not due to the fault or neglect of the Party claiming a Force Majeure Event.

11.3 Termination in Consequence of Force Majeure Event. If a Force Majeure Event shall have occurred that has affected ForeFront Power's performance of its obligations hereunder and that has continued for a continuous period of one hundred eighty (180) days, then either Party shall be entitled to terminate the Agreement upon ninety (90) days' prior written notice to the other Party. If at the end of such ninety (90) day period such Force Majeure Event shall still continue, the Agreement shall automatically terminate. Upon such termination for a Force Majeure Event, neither Party shall have any liability to the other (other than any such liabilities that have accrued prior to such termination).

## 12. DEFAULT.

## 12.1 ForeFront Power Defaults and Purchaser Remedies.

(a) ForeFront Power Defaults. The following events shall be defaults with respect to ForeFront Power (each, a “ForeFront Power Default”):

- (i) A Bankruptcy Event shall have occurred with respect to ForeFront Power;
- (ii) ForeFront Power fails to pay Purchaser any undisputed amount owed under the Agreement within thirty (30) days from receipt of notice from Purchaser of such past due amount;
- (iii) ForeFront Power breaches any material representation, covenant or other term of the Agreement and (A) if such breach can be cured within thirty (30) days after Purchaser’s written notice of such breach and ForeFront Power fails to so cure, or (B) ForeFront Power fails to commence and pursue a cure within such thirty (30) day period if a longer cure period is needed; and
- (iv) ForeFront Power fails to provide or maintain in full force and effect any required proof of insurance, if such failure is not remedied within ten (10) Business Days after receipt of written notice from the Purchaser.

(b) Purchaser’s Remedies. If a ForeFront Power Default described in Section 12.1(a) has occurred and is continuing, in addition to other remedies expressly provided herein, and subject to Article 13, Purchaser may terminate the Agreement and exercise any other remedy it may have at law or equity or under the Agreement.

## 12.2 Purchaser Defaults and ForeFront Power’s Remedies.

(a) Purchaser Default. The following events shall be defaults with respect to Purchaser (each, a “Purchaser Default”):

- (i) A Bankruptcy Event shall have occurred with respect to Purchaser;
- (ii) Purchaser breaches any material representation, covenant or other term of the Agreement if (A) such breach can be cured within sixty (60) days after ForeFront Power’s notice of such breach and Purchaser fails to so cure, or (B) Purchaser fails to commence and pursue said cure within such sixty (60) day period if a longer cure period is needed; and
- (iii) Purchaser fails to pay ForeFront Power any undisputed amount due ForeFront Power under the Agreement within forty five (45) days from receipt of notice from ForeFront Power of such past due amount.

(b) ForeFront Power’s Remedies. If a Purchaser Default described in Sections 12.2(a) has occurred and is continuing, in addition to other remedies expressly provided herein, and subject to Article 13, ForeFront Power may terminate this Agreement and upon such termination, (A) ForeFront Power shall be entitled to receive from Purchaser the Early Termination Fee; and (B) ForeFront Power may exercise any other remedy it may have at law or equity or under the Agreement.

12.3 Removal of System. Upon any termination of the Agreement pursuant to this Article 12, ForeFront Power will remove the System pursuant to Section 2.4 hereof, absent any purchase of the System(s) by Purchaser pursuant to Section 2.2 hereof.

## 13. LIMITATIONS OF LIABILITY.

13.1 Except as expressly provided herein, neither Party shall be liable to the other Party or its



Indemnified Persons for any special, punitive, exemplary, indirect, or consequential damages, losses or damages for lost revenue or lost profits, whether foreseeable or not, arising out of, or in connection with the Agreement.

13.2 In the event of any ForeFront Power default described in Section 12.1(a), and Purchaser elects to terminate the Agreement and pursue its remedies in accordance with Section 12.1(b), the limit of ForeFront Power's liability shall not exceed Twelve Million Dollars (\$12,000,000); provided, however, the limits of liability under this Section 13.2 shall not apply with respect to, and shall not limit, indemnity obligations hereunder.

#### 14. ASSIGNMENT.

14.1 Assignment by ForeFront Power. ForeFront Power shall not sell, transfer or assign (collectively, an "Assignment") the Agreement or any interest therein, without the prior written consent of Purchaser, which shall not be unreasonably withheld, conditioned or delayed; *provided*, Purchaser agrees that ForeFront Power may assign this Agreement without the consent of the Purchaser to an affiliate of ForeFront Power or any party providing financing for the System. ForeFront Power shall provide written notice of such assignment to Purchaser which includes the assignee's full legal name, address and contact information of the person(s) providing asset management and maintenance of the Systems. In the event that ForeFront Power identifies a secured Financing Party in the Special Conditions, or in a subsequent notice to Purchaser, then Purchaser shall comply with the provisions set forth herein these General Terms and Conditions and agrees to provide such estoppels and acknowledgments as ForeFront Power may reasonably request from time to time. Any Financing Party shall be an intended third-party beneficiary of this Section 14.1. Any Assignment by ForeFront Power without obtaining the prior written consent and release of Purchaser, when such consent is required by this Section 14.1, shall not release ForeFront Power of its obligations hereunder.

14.2 Acknowledgment of Collateral Assignment. In the event that ForeFront Power identifies a secured Financing Party in the Special Conditions, or in a subsequent notice to Purchaser, then Purchaser hereby acknowledges:

(a) The collateral assignment by ForeFront Power to the Financing Party, of ForeFront Power's right, title and interest in, to and under the Agreement, as consented to under Section 14.1 of the Agreement.

(b) That the Financing Party as such collateral assignee shall be entitled to exercise any and all rights of lenders generally with respect to ForeFront Power's interests in this Agreement.

(c) That it has been advised that ForeFront Power has granted a first priority perfected Security Interest in the System to the Financing Party and that the Financing Party has relied upon the characterization of the System as personal property, as agreed in this Agreement in accepting such security interest as collateral for its financing of the System.

Any Financing Party shall be an intended third- party beneficiary of this Section 14.2.

14.3 Assignment by Purchaser. Purchaser shall not assign the Agreement or any interest therein, without ForeFront Power's prior written consent, which consent shall not be unreasonably withheld, conditioned or delayed. Any Assignment by Purchaser without the prior written consent of ForeFront Power shall not release Purchaser of its obligations hereunder.

#### 15. NOTICES.

15.1 Notice Addresses. Unless otherwise provided in the Agreement, all notices and communications concerning the Agreement shall be in writing and addressed to the other Party (or Financing Party, as the case may be) at the addresses set forth in the Special Conditions, or at such other address as may be designated in writing to the other Party from time to time.

15.2 Notice. Unless otherwise provided herein, any notice provided for in the Agreement shall be hand delivered, sent by registered or certified U.S. Mail, postage prepaid, or by commercial overnight delivery service, and shall be deemed delivered to the addressee or its office when received at the address for notice specified above when hand delivered, upon confirmation of sending when sent by facsimile (if sent during normal business hours or the next Business Day if sent at any other time), on the Business Day after being sent when sent by overnight delivery service (Saturdays, Sundays and legal holidays excluded), or five (5) Business Days after deposit in the mail when sent by U.S. mail.

15.3 Address for Invoices. All invoices under the Agreement shall be sent to the address provided by Purchaser. Invoices shall be sent by regular first class mail postage prepaid.

## 16. CONFIDENTIALITY.

### 16.1 Confidentiality.

16.1.1 “Confidential Information” may only be deemed confidential if it: a) would be deemed a Trade Secret under California law; and b) would not be deemed a public record under California law, including but not limited to the California Public Records Act (Government Code sections 6250 et seq.). If either Party deems any document provided to the other Party to be Confidential Information, such Party shall mark each page of such document “Confidential Information;” however, the marking of a document as “Confidential Information” shall not render it to be Confidential Information if it does not meet the definition of “Confidential Information” set forth herein. The District shall not be liable or responsible for the disclosure of such records, including those exempt from disclosure if disclosure is deemed required by law, by an order of Court, or which occurs through inadvertence, mistake or negligence on the part of the District or its officers, employees or agents. If the District is required to defend or otherwise respond to any action or proceeding wherein request is made for the disclosure of the contents of any of ForeFront Power’s Confidential Information, ForeFront Power shall defend, indemnify and hold harmless the District in any action or proceeding from and against any liability, including without limitation actual attorneys’ fees and costs arising therefrom. ForeFront Power shall be solely responsible for the cost and defense in any action or proceeding seeking to compel disclosure of such Confidential Information; the District’s sole involvement in any such action shall be that of a stakeholder, retaining the requested materials until otherwise ordered by a court of competent jurisdiction.

16.1.2 Notwithstanding Section 16.1.1, a Party may provide such Confidential Information to its Representatives, Affiliates, lenders, and potential assignees of this Agreement (provided and on condition that such potential assignees be bound by a written agreement or legal obligation restricting use and disclosure of Confidential Information as set forth herein), in each case whose access is reasonably necessary for the negotiation and performance of this Agreement. The Parties hereby expressly acknowledge that this Agreement, including all attachments, is a public record subject to disclosure, and neither Party is obligated to undertake any conduct toward avoiding disclosure hereof.

16.1.3 Notwithstanding any other provision in this Agreement, neither Party shall be required to hold confidential any information that (i) becomes publicly available other than through the receiving Party; (ii) is required to be disclosed to a Governmental Authority under applicable law or pursuant to a validly issued subpoena (but a receiving Party subject to any such requirement shall promptly notify the disclosing Party of such requirement to the extent permitted by applicable law); (iii) is independently developed by the receiving Party; or (iv) becomes available to the receiving Party without

restriction from a third party under no obligation of confidentiality. If disclosure of information is required by a Governmental Authority, the disclosing Party shall, to the extent permitted by applicable law, notify the other Party of such required disclosure promptly upon becoming aware of such required disclosure.

16.2 Goodwill and Publicity. Neither Party shall use any name, trade name, service mark or trademark of the other Party in any promotional or advertising material without the prior written consent of such other Party. The Parties shall coordinate and cooperate with each other when making public announcements related to this Agreement, and each Party shall have the right to promptly review, comment upon and approve any publicity materials, press releases or other public statements by the other Party that refer to, or that describe any aspect of, this Agreement. Neither Party shall make any press release or public announcement of the specific terms of this Agreement (except for filings or other statements or releases as may be required by applicable law) without the prior written consent of the other Party. As used in this Section 16.2, the term “Party” with regard to the District shall be limited to the District’s Vice Chancellor, Business and Administrative Services or designee.

## 17. INDEMNITY.

17.1 ForeFront Power Indemnity. To the furthest extent permitted by California law, ForeFront Power shall defend, indemnify, and hold harmless Purchaser, its trustees, members, agents, representatives, officers, consultants, employees, and volunteers (collectively, the “Purchaser’s Indemnified Parties”) from any and all Losses (the “Claims”) of any kind, nature, or description, directly or indirectly arising out of, connected with, or resulting from any act, omission, or breach connected with or arising from the performance of services, including Energy Services, under this Agreement or any failure or alleged failure to comply with any provision of law or this Agreement, *provided*, ForeFront Power shall not be required to reimburse or indemnify any Purchaser Indemnified Party for any Loss to the extent such Loss is due to the negligence or willful misconduct of any Purchaser Indemnified Party. Purchaser shall have the right to accept or reject any legal representation that ForeFront Power proposes to defend the Purchaser. This indemnification, defense, and hold harmless obligation includes any failure or alleged failure by ForeFront Power to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under this Agreement in strict accordance with their terms. In any and all Claims against any of the Purchaser’s Indemnified Parties by any employee of ForeFront Power or anyone directly or indirectly employed by it or anyone whose acts it may be liable, ForeFront Power’s indemnification obligations herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for ForeFront Power under workers’ compensation acts, disability benefit acts, or other employee benefit acts.

17.2 Purchaser Indemnity. Purchaser agrees that it shall indemnify and hold harmless ForeFront Power, its permitted successors and assigns and its directors, officers, members, shareholders and employees (collectively, the “ForeFront Power Indemnified Parties”) from and against any and all Losses incurred by the ForeFront Power Indemnified Parties to the extent arising from or out of any injury to or death of any Person or loss or damage to property of any Person to the extent arising out of the Purchaser’s negligence or willful misconduct; *provided*, Purchaser shall not be required to reimburse or indemnify any ForeFront Power Indemnified Party for any Loss to the extent such Loss is due to the negligence or willful misconduct of any ForeFront Power Indemnified Party. Forefront Power shall have the right to accept or reject any legal representation that Purchaser proposes to defend ForeFront Power. In any and all Claims against any of the Purchaser’s Indemnified Parties by any employee of Purchaser or anyone directly or indirectly employed by it or anyone whose acts it may be liable, Purchaser’s indemnification obligations herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Purchaser under workers’ compensation acts, disability benefit acts, or other employee benefit acts.

## 18. INSURANCE.

18.1 Generally. Purchaser and ForeFront Power shall each maintain the following insurance coverages in full force and effect throughout the Term either through insurance policies or acceptable self-insured retentions: (a) Workers' Compensation Insurance as may be from time to time required under applicable federal and state law, (b) Commercial General Liability Insurance with limits of not less than \$5,000,000 general aggregate, \$2,000,000 per occurrence, and (c) automobile insurance with commercially reasonable coverages and limits. Additionally, ForeFront Power shall carry adequate property loss insurance on the System which need not be covered by Purchaser's property coverage. The amount and terms of insurance coverage will be determined at ForeFront Power's sole discretion.

18.2 Certificates of Insurance. Each Party, upon request, shall furnish current certificates evidencing that the insurance required under Section 18.1 is being maintained. Each Party's insurance policy provided hereunder shall contain a provision whereby the insured agrees to give the other Party thirty (30) days' written notice before the insurance is cancelled or materially altered.

18.3 Additional Insureds. Each Party's insurance policy shall be written on an occurrence basis and shall include the other Party as an additional insured as its interest may appear.

18.4 Insurer Qualifications. All insurance maintained hereunder shall be maintained with companies either rated no less than A- as to Policy Holder's Rating in the current edition of Best's Insurance Guide (or with an association of companies each of the members of which are so rated) or having a parent company's debt to policyholder surplus ratio of 1:1.

## 19. CERTAIN AGREEMENTS FOR THE BENEFIT OF THE FINANCING PARTIES.

19.1 Purchaser acknowledges that ForeFront Power will be receiving financing accommodations from one or more Financing Parties and that ForeFront Power may sell or assign the System or this Agreement and/or may secure ForeFront Power's obligations by, among other collateral, a pledge or collateral assignment of this Agreement and a first security interest in the System. In order to facilitate such necessary sale, conveyance, or financing, and with respect to any such Financing Party, Purchaser agrees as follows:

19.1.1 Consent to Collateral Assignment. Purchaser consents to either the assignment, sale or conveyance to a Financing Party or the collateral assignment by ForeFront Power to a Financing Party, of ForeFront Power's right, title and interest in and to this Agreement.

19.1.2 Notices of Default. Purchaser will deliver to the Financing Party, concurrently with delivery thereof to ForeFront Power, a copy of each notice of default given by Purchaser under the Agreement, inclusive of a reasonable description of ForeFront Power default. No such notice will be effective absent delivery to the Financing Party. Purchaser will not mutually agree with ForeFront Power to cancel, modify or terminate the Agreement without the written consent of the Financing Party.

19.1.3 Rights Upon Event of Default. Notwithstanding any contrary term of this Agreement:

19.1.3.1 The Financing Party, shall be entitled to exercise, in the place and stead of ForeFront Power, any and all rights and remedies of ForeFront Power under this Agreement in accordance with the terms of this Agreement and only in the event of ForeFront Power's or Purchaser's default. The Financing Party shall also be entitled to exercise all rights and remedies of secured parties generally with respect to this Agreement and the System.

19.1.3.2 The Financing Party shall have the right, but not the obligation, to pay all sums due under this Agreement and to perform any other act, duty or obligation required of ForeFront Power thereunder or cause to be cured any default of ForeFront Power thereunder in the time and manner provided

by the terms of this Agreement. Nothing herein requires the Financing Party to cure any default of ForeFront Power under this Agreement or (unless the Financing Party has succeeded to ForeFront Power's interests under this Agreement) to perform any act, duty or obligation of ForeFront Power under this Agreement, but Purchaser hereby gives it the option to do so.

19.1.3.3 Upon the exercise of remedies under its security interest in the System, including any sale thereof by the Financing Party, whether by judicial proceeding or under any power of sale contained therein, or any conveyance from ForeFront Power to the Financing Party (or any assignee of the Financing Party) in lieu thereof, the Financing Party shall give notice to Purchaser of the transferee or assignee of this Agreement. Any such exercise of remedies shall not constitute a default under this Agreement.

19.1.3.4 Upon any default not reasonably susceptible to cure by a Finance Party, including, without limitation, rejection or other termination of this Agreement pursuant to any process undertaken with respect to ForeFront Power under the United States Bankruptcy Code, at the request of the Financing Party made within ninety (90) days of such default, Purchaser shall enter into a new agreement with the Financing Party or its designee having the same terms and conditions as this Agreement.

#### 19.1.4 Right to Cure.

19.1.4.1 Purchaser will not exercise any right to terminate or suspend this Agreement unless it shall have given the Financing Party prior written notice by sending notice to the Financing Party (at the address provided by ForeFront Power) of its intent to terminate or suspend this Agreement, specifying the condition giving rise to such right, and the Financing Party shall not have caused to be cured the condition giving rise to the right of termination or suspension within thirty (30) days after such notice or (if longer) the periods provided for in this Agreement. The Parties agree that the cure rights described herein are in addition to and apply and commence following the expiration of any notice and cure period applicable to ForeFront Power. The Parties' respective obligations will otherwise remain in effect during any cure period; provided, if such ForeFront Power default reasonably cannot be cured by the Financing Party within such period and the Financing Party commences and continuously pursues cure of such default within such period, such period for cure will be extended for a reasonable period of time under the circumstances, such period not to exceed additional sixty (60) days.

19.1.4.2 If the Financing Party (including any purchaser or transferee), pursuant to an exercise of remedies by the Financing Party, shall acquire title to or control of ForeFront Power's assets and shall, within the time periods described in Section 19.1.4.1 above, cure all defaults under this Agreement existing as of the date of such change in title or control in the manner required by this Agreement and which are capable of cure by a third person or entity, then such person or entity shall no longer be in default under this Agreement, and this Agreement shall continue in full force and effect.

## 20. MISCELLANEOUS.

20.1 Integration; Exhibits. The Agreement, together with the Exhibits and Schedules attached thereto or incorporated by reference, constitute the entire agreement and understanding between ForeFront Power and Purchaser with respect to the subject matter thereof and supersedes all prior agreements relating to the subject matter hereof which are of no further force or effect. The Exhibits and Schedules attached to the Agreement, including these General Conditions as incorporated by reference, are integral parts of the Agreement and are an express part of the Agreement. In the event of a conflict between the provisions of these General Conditions and any applicable Special Conditions, the provisions of the Special Conditions shall prevail.

20.2 Amendments. This Agreement may only be amended, modified or supplemented by an

instrument in writing executed by duly authorized representatives of ForeFront Power and Purchaser.

20.3 Industry Standards. Except as otherwise set forth herein, for the purpose of the Agreement the normal standards of performance within the Energy Services industry in the relevant market shall be the measure of whether a Party's performance is reasonable and timely. Unless expressly defined herein, words having well-known technical or trade meanings shall be so construed.

20.4 Cumulative Remedies. Except as set forth to the contrary herein, any right or remedy of ForeFront Power or Purchaser shall be cumulative and without prejudice to any other right or remedy, whether contained herein or not.

20.5 Sovereign Immunity. To the extent permitted by Applicable Law, Purchaser hereby waives any defense of sovereign immunity that Purchaser might otherwise have in connection with any action taken by ForeFront Power to enforce its rights against Purchaser under this Agreement.

20.6 Limited Effect of Waiver. The failure of ForeFront Power or Purchaser to enforce any of the provisions of the Agreement, or the waiver thereof, shall not be construed as a general waiver or relinquishment on its part of any such provision, in any other instance or of any other provision in any instance.

20.7 Survival. The obligations under Section 2.4 (Removal of System), Section 8.1 (ForeFront Power Covenants), Sections 8.2(d), (f), and (g) (Purchaser Covenants), Article 10 (Taxes and Governmental Fees), Article 13 (Limitation of Liability), Article 15 (Notices), Article 16 (Confidentiality), Article 17 (Indemnity), Article 20 (Miscellaneous), all warranty and payment obligations accrued prior to termination of this Agreement, or pursuant to other provisions of this Agreement that, by their sense and context, are intended to survive termination of this Agreement shall survive the expiration or termination of this Agreement for any reason.

20.8 Governing Law; Venue. This Agreement shall be governed by and construed in accordance with the laws of the State of California without reference to any choice of law principles. Except for disputes or claims related to the design and installation of the System that are covered under Article 43 of the General Terms and Conditions for Design and Construction of Solar PV Systems (Exhibit B), the Parties agree that the courts of the State of California shall have jurisdiction over any action or proceeding arising under the Agreement to the fullest extent permitted by Applicable Law with venue in the County of Ventura.

20.9 No Attorneys' Fees. Except as expressly provided for in this Agreement, or authorized by law, neither Purchaser nor ForeFront Power shall recover from the other any attorneys' fees or other costs associated with or arising out of any legal, administrative or other proceedings filed or instituted in connection with or arising out of this Agreement or the performance of either Purchaser or ForeFront Power thereunder.

20.10 Provisions Required By Law Deemed Inserted. Each and every provision of law and clause required by law to be inserted in this Agreement shall be deemed to be inserted herein and this Agreement shall be read and enforced as though it were included therein.

20.11 Severability. If any term, covenant or condition in the Agreement shall, to any extent, be invalid or unenforceable in any respect under Applicable Law, the remainder of the Agreement shall not be affected thereby, and each term, covenant or condition of the Agreement shall be valid and enforceable to the fullest extent permitted by Applicable Law and, if appropriate, such invalid or unenforceable provision shall be modified or replaced to give effect to the underlying intent of the Parties and to the intended economic benefits of the Parties.

20.12 Relation of the Parties. The relationship between ForeFront Power and Purchaser shall not be that of partners, agents, or joint ventures for one another, and nothing contained in the Agreement shall be deemed to constitute a partnership or agency agreement between them for any purposes, including federal income tax purposes. ForeFront Power and Purchaser, in performing any of their obligations hereunder, shall be independent contractors or independent parties and shall discharge their contractual obligations at their own risk.

20.13 Interpretation. Neither of the Parties hereto, nor their respective counsel, shall be deemed the drafters of the Agreement or these General Conditions for purposes of construing the provisions of each. The language in all parts of the Agreement shall in all cases be construed according to its fair meaning, not strictly for or against either of the Parties hereto.

20.14 No Third Party Beneficiaries. This Agreement is by and between the Parties, and, except as provided in Section 9.2 concerning the Financing Party or as otherwise expressly provided in this Agreement, no third parties are intended to be expressly or by implication benefitted thereby.

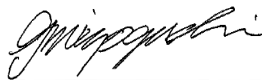
20.15 Successors and Assigns. This Agreement and the rights and obligations under the Agreement shall be binding upon and shall inure to the benefit of ForeFront Power and Purchaser and their respective successors and permitted assigns.

20.16 Counterparts. This Agreement may be executed in one or more counterparts, all of which taken together shall constitute one and the same instrument.

20.17 Electronic Delivery. This Agreement may be duly executed and delivered by a Party by execution and facsimile or electronic, "pdf" delivery of the signature page of a counterpart to the other Party.

IN WITNESS WHEREOF and in confirmation of their consent to the terms and conditions contained herein and intending to be legally bound hereby, ForeFront Power and Purchaser have executed these General Conditions as of the Effective Date.

**FFP BTM SOLAR, LLC**

By:   
Name: Go Mizoguchi  
Title: President  
Date: September 6, 2019

**VENTURA COUNTY COMMUNITY COLLEGE DISTRICT**

By:   
Dr. David El Fattal, Vice Chancellor, Business and Administrative Services  
Date: September 6, 2019

**EXHIBIT A**  
**OF GENERAL CONDITIONS**

[PURCHASER'S LETTERHEAD]

[Landlord's Address]

Attn: Authorized Representative

Re: Proposed Energy System Installation at [Address of Premises]

Lease dated [ ] between [PURCHASER] and [LANDLORD] (the "Lease")

Dear Authorized Representative:

As has been discussed with you, [PURCHASER] ("Purchaser") and [Forefront Power], LLC and an affiliate of Forefront Power, LLC ("ForeFront Power") have entered into an Energy Services Agreement, pursuant to which ForeFront Power will install, finance, operate, and maintain a [solar photovoltaic] [battery storage] system at the above-referenced premises which [PURCHASER] leases from you pursuant to the Lease. By signing below and returning this letter to us, you confirm that:

1. The [solar photovoltaic] [battery storage] system and the renewable energy (including environmental credits and related attributes) produced by the system are personal property, and shall not be considered the property (personal or otherwise) of [LANDLORD] upon installation of the system at the premises. Landlord consents to the filing by ForeFront Power of a disclaimer of the System as a fixture of the Premises in the office where real estate records are customarily filed in the jurisdiction of the Premises.
2. ForeFront Power or its designee (including finance ForeFront Powers) shall have the right without cost to access the premises in order to install, operate, inspect, maintain, and remove the [solar photovoltaic] [battery storage] system. [LANDLORD] will not charge Purchaser or ForeFront Power any rent for such right to access the premises.
3. [LANDLORD] has been advised that the finance ForeFront Powers for the [solar photovoltaic] [battery storage] system have a first priority perfected security interest in the system. ForeFront Power and the finance ForeFront Powers for the [solar photovoltaic] [battery storage] system (including any system lessor or other lender) are intended beneficiaries of [LANDLORD]'s agreements in this letter.
4. [LANDLORD] will not take any action inconsistent with the foregoing.

We thank you for your consideration of this opportunity and we look forward to working with you in our environmental campaign to increase the utilization of clean, renewal energy resources.

Very truly yours,

[PURCHASER]

By: \_\_\_\_\_

Name:

Title: Authorized Representative



Acknowledged and agreed by:

[LANDLORD]

By: \_\_\_\_\_

Name:

Title: Authorized Representative

**EXHIBIT B**

**OF GENERAL CONDITIONS**

**GENERAL TERMS AND CONDITIONS FOR  
DESIGN AND CONSTRUCTION OF SOLAR PV SYSTEMS**

1. **WORK:** The “Work” has the same meaning as “Installation Work” as set forth in the General Terms and Conditions of the Energy Services Agreement between ForeFront Power and the Ventura County Community College District dated August 13, 2019 whether completed or partially completed, and includes all other labor, materials, equipment or services provided or to be provided by ForeFront Power to fulfill ForeFront Power’s obligations to perform and complete the Installation Work. The Work may constitute the whole or a part of the Project.
2. **SITE:** The “Site(s)” is the physical area designated in the Contract Documents for ForeFront Power’s performance, construction and installation of the Work.
3. **FOREFRONT POWER:** “ForeFront Power” refers to **FFP BTM Solar, LLC** aka **FOREFRONT POWER** and includes its authorized representatives. ForeFront Power shall enter into an engineering, procurement and construction contract (the “EPC Contract”) with a contractor (the “EPC Contractor”) who shall be properly licensed pursuant to the Business and Professions Code and shall be licensed in the following classifications for the duration of the Project: EPC Contractor shall have a Class A or B. EPC Contractor and/or its Subcontractor that installs, modifies, maintains or repairs the photovoltaic solar energy systems shall have a Class C-46. The EPC Contractor shall be subject to the approval of the District, which shall not be unreasonably withheld. The EPC Contract and each Subcontract and Sub-Subcontract shall incorporate the Contract by reference and shall bind the EPC Contractor and each Subcontractor and Sub-Subcontractor to the applicable terms and conditions of the Contract, including without limitation, these General Terms and Conditions for Design and Construction of Solar PV Systems and the Schedule 9 Scope of Work included in the Special Conditions, and all indemnification, insurance, bond, and warranty requirements; provided, however, no contractual relationship shall exist, or be deemed to exist, between the EPC Contractor or any Subcontractor or Sub-Subcontractor and the District. ForeFront Power shall provide to the District copies of the EPC Contract upon execution and shall provide to the District copies of all Subcontracts within thirty (30) days after execution of each Subcontract. ForeFront Power shall thereafter provide copies of any and all amendments to the EPC Contract and Subcontracts within thirty (30) days of execution. All obligations and responsibilities of ForeFront Power set forth in these General Terms and Conditions for Design and Construction of Solar PV Systems shall be deemed to be obligations and responsibilities of the EPC Contractor.
4. **DISTRICT:** The “District” refers to **VENTURA COUNTY COMMUNITY COLLEGE DISTRICT** and unless otherwise stated, includes the District's authorized representatives, including the District's Board of Trustees and the District’s officers, employees, agents and representatives.
5. **COLLEGE:** The “College” refers to Moorpark College, Oxnard College or Ventura College, as appropriate.
6. **PROJECT MANAGER:** The “Project Manager” refers to the person designated by the District to be the District’s representative during the construction and close-out phases of the Project. The Project Manager is responsible for overseeing the Work of the Contract and the EPC Contract. The Project Manager for Moorpark College is John Sinutko, Director, Facilities, Maintenance and Operations; the Project Manager for Oxnard College is Bob Sube, Director, Facilities, Maintenance and Operations; the Project Manager for Ventura College is [TBD].
7. **ENERGY CONSULTANT:** ForeFront Power recognizes that the District may obtain the services of

an energy consultant (“Energy Consultant”) for this Project. The Energy Consultant, in consultation with District staff, is authorized to make reviews or approvals, unless that task indicates it shall be performed by the governing Board of the District.

- 8. PROJECT INSPECTOR:** ForeFront Power hereby acknowledges that the Work is to be performed under the auspices of the Division of the State Architect (“DSA”). In addition to the authority and rights of the Inspector as provided for elsewhere in the Contract, all of the Work shall be performed under the observation of the Project Inspector (“Inspector” or “IOR”). The performance of the duties of the Inspector under the Contract shall not relieve or limit ForeFront Power’s performance of its obligations under the Contract. The Inspector does not have authority to interpret the Contract or to modify the Work depicted in the Contract. No Work inconsistent with the Contract shall be performed solely on the basis of the direction of the Inspector, and ForeFront Power shall be liable to the District for the consequences of all Work performed on such basis. DSA and the Inspector have authority to approve and/or stop Work if ForeFront Power’s Work does not comply with the requirements of the Contract, Title 24 of the California Code of Regulations, and all applicable laws. ForeFront Power shall be liable for any delay caused and extra work required by non-compliant Work. Inspection and acceptance of the Work shall be performed by the District’s Inspector, with whom the District will contract, and the Project Manager and/or Energy Consultant.
- 9. SUBCONTRACTORS; SUB-SUBCONTRACTORS.** A Subcontractor, as used herein, is a person or entity who has a direct contract with the EPC Contractor to perform a portion of the Work. "Subcontractor" does not include a separate contractor to the District or subcontractors of any separate contractor. A Sub-Subcontractor is a person or entity of any tier, who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the Site.
- 10. DAYS:** Unless otherwise expressly stated, references to “days” in the Contract shall be deemed to be calendar days.
- 11. STANDARD OF CARE:** ForeFront Power shall perform and shall cause its EPC Contractor to perform all Work related to its design to the standard of care of architects and engineers performing similar work for California school and community college districts in or around the same geographic area of the District, and all Work related to its installation and construction to the standard of care of contractors performing similar work for California school and community college districts in or around the same geographic area of the District.
- 12. INDEPENDENT CONTRACTOR STATUS:** While engaged in carrying out the Work of this Contract, ForeFront Power and the EPC Contractor are independent contractors, and not officers, employees, agents, partners, or joint ventures of the District. ForeFront Power and the EPC Contractor shall be solely responsible for their own Worker's Compensation insurance, taxes, and other similar charges or obligations. ForeFront Power and the EPC Contractor shall be liable for their own actions, including their negligence or gross negligence, and shall be liable for the acts, omissions, or errors of their agents or employees.
- 13. NOTICE(S) TO PROCEED:** District shall provide Notice(s) to Proceed (“NTP”) to ForeFront Power pursuant to the Contract at which time ForeFront Power shall proceed with the Work. The District reserves the right to issue multiple Notices to Proceed related to the Project, either by scope and/or by Site.
- 14. SITE EXAMINATION:** ForeFront Power shall carefully examine the Site and take all steps it deems reasonably necessary to ascertain all conditions which may affect the Work, or the cost thereof, including, without limitation, conditions bearing upon transportation, disposal, handling or storage of materials; availability of labor and materials; access to the Site; and the physical conditions and the character of equipment, materials, labor and services necessary to perform the Work. Any failure of ForeFront Power to do so will not relieve it from the responsibility for fully and completely performing all Work without adjustment to the Contract cost or time. The District assumes no responsibility to ForeFront Power for any understandings or representations concerning conditions or characteristics of

the Site, or the Work, made by any of its officers, employees or agents prior to the commencement of construction, unless such understandings or representations are expressly set forth in the Contract. Any information about existing Site conditions furnished by the District is obtained from sources believed to be reliable, but the District neither guarantees nor warrants that such information is complete and accurate. ForeFront Power shall verify all information provided by the District.

- 15. EQUIPMENT AND LABOR:** The EPC Contractor shall furnish all tools, equipment, apparatus, facilities, transportation, labor, and material necessary to furnish the Work of the Contract.
- 16. SITE SUPERVISION:** The EPC Contractor shall provide competent supervision of personnel employed on the job Site, use of equipment, and quality of workmanship.
- 17. SUBCONTRACTORS:** Subcontractors, if any, engaged by the EPC Contractor for any Work under this Contract shall be subject to the approval of the District, which shall not be unreasonably withheld. The EPC Contractor shall be fully responsible to the District for acts and omissions of its Subcontractor(s) and of persons either directly or indirectly employed or retained by them.
- 18. WORKERS:** The EPC Contractor shall at all times enforce strict discipline and good order among its employees and the employees of its Subcontractors and shall not employ or work any unfit person or anyone not skilled in work assigned to him or her.
- 19. PERMITS, LICENSES AND APPROVALS:**
  - 19.1. ForeFront Power and all of its employees, agents, and subcontractors shall secure and maintain in force, at ForeFront Power's sole cost and expense, all permits, licenses and approvals as are required by law, in connection with the furnishing of materials, supplies, or Work herein listed with the exception of any mitigation measures required to obtain or maintain CEQA compliance.
  - 19.2. ForeFront Power is responsible for obtaining on behalf of the District and at ForeFront Power's expense, all permits and approvals (including DSA approval), required for the building, installation, and start-up of the Work hereunder which are required to complete the Project.
  - 19.3. ForeFront Power is responsible for obtaining all permits, licenses and approvals required for the installation, operation, and maintenance of the Systems, and costs associated with applying for all rebates and incentives. ForeFront Power shall be solely responsible for effecting the required interconnection and net metering approvals and agreements.
  - 19.4. District will cooperate fully with and assist ForeFront Power's obtaining all permits and approvals required under this Contract.
- 20. PAYMENT BOND AND PERFORMANCE BOND:** The EPC Contractor shall not commence the Work until it has provided to the District, in a form acceptable to the District, a Payment (Labor and Material) Bond and a Performance Bond, each in an amount equivalent to one hundred percent (100%) of the total cost of the Installation Work issued by a surety admitted to issue bonds in the State of California and otherwise acceptable to the District. All performance bond liability will cease one (1) year from Final Completion of the Work of this Contract. The balance of any warranty or guarantee beyond one year required by District shall continue to be guaranteed solely by ForeFront Power. The payment bond liability will cease at the termination of any time required by law.
- 21. ACCESS TO WORK:** District shall provide to ForeFront Power uninterrupted access to the Premises and to a reasonably sufficient staging area for each Site. District representatives shall at all times have access to the Work wherever it is in preparation or in progress. ForeFront Power shall provide safe and proper facilities for such access.
- 22. STAGING; LAYDOWN YARD:** The District will provide appropriate staging areas and laydown yard(s) at the Site(s) for the EPC Contractor's temporary storage and staging of materials, equipment and tools and for the parking of construction crew vehicles and temporary construction trailers and facilities reasonably necessary for the Work.

- 23. SAFETY AND SECURITY:** ForeFront Power is responsible for maintaining safety in the performance of this Contract. ForeFront Power shall be responsible to ascertain from the District the rules and regulations pertaining to safety, security, and driving on campus grounds. In the event that the aforementioned rules conflict with the terms of this Contract, the terms of this Contract shall prevail.
- 24. PROTECTION OF WORK AND PROPERTY:** The EPC Contractor shall erect and properly maintain at all times, as required by conditions and progress of the Work, all necessary safeguards, signs, barriers, lights, and security persons for protection of workers and the public, and shall post danger signs warning against hazards created by the Work. In an emergency affecting life and safety of life or of Work or of adjoining property, the EPC Contractor, without special instruction or authorization from District, is permitted to act at its discretion to prevent such threatened loss or injury.
- 25. TRENCH SHORING:** If this Contract is in excess of Twenty Five Thousand Dollars (\$25,000) and is for the excavation of any trench deeper than five (5) feet, the EPC Contractor must submit and obtain District acceptance and approval, in advance of excavation, of a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If the plan varies from the shoring system standards, the plan shall be prepared by a registered civil or structural engineer.
- 26. EXCAVATIONS OVER FOUR FEET:** If this Contract includes excavations over four (4) feet, the EPC Contractor shall promptly, and before the following conditions are disturbed, notify the District, in writing, of any: (1) Material that the EPC Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with provisions of existing law; (2) Subsurface or latent physical conditions at the site differing from those indicated; or (3) Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract. The District shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the EPC Contractor's cost of, and/or the time required for, performance of any part of the Work, shall issue a change order under the procedures described in the Contract. In the event that a dispute arises between the District and ForeFront Power whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in ForeFront Power's cost of, or time required for, performance of any part of the Work, ForeFront Power shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all Work to be performed under the Contract. ForeFront Power shall retain any and all rights provided either by Contract or by law which pertain to the resolution of disputes and protests between the Parties.
- 27. LEAD-BASED PAINT:** Pursuant to the Lead-Safe Schools Protection Act (Education Code Section 32240 et seq.) and other applicable law, no lead-based paint, lead plumbing and solders, or other potential sources of lead contamination shall be utilized on this Project, and only trained and state-certified contractors, inspectors and workers shall undertake any action to abate existing risk factors for lead. The EPC Contractor must execute the Lead-Based Paint Certification, if applicable.
- 28. LABOR FIRST AID:** The EPC Contractor shall maintain emergency first aid treatment for the EPC Contractor's workers on the Project which complies with the Federal Occupational Safety and Health Act of 1970 (29 U.S.C. § 651 et seq.) the California Occupational Safety and Health Act of 1973, and all related regulations, including without limitation section 330 et seq. of Title 8 of the California Code of Regulations.
- 29. CUTTING AND PATCHING:** The EPC Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make the component parts thereof fit together properly. The EPC Contractor shall not damage or endanger any portion of the Work, or the fully or partially completed construction of the District or separate contractors by cutting, patching, excavation or other alteration. When modifying new Work or when installing Work adjacent to an existing

structure/facility, the EPC Contractor shall match, as closely as conditions of the Site and materials will allow, the finishes, textures and colors of the existing structure/facility and refinish elements of the existing structure/facility. Section 01 73 29 of the Contract Specifications sets forth the District's requirements for cutting and patching of concrete and asphalt paving. The EPC Contractor shall not cut, patch or otherwise alter the construction by the District or separate contractor without the prior written consent of the District or separate contractor thereto, which consent shall not be unreasonably withheld.

- 30. NOISE/DUST CONTROL:** If the EPC Contractor fails to comply with the requirements for dust control, noise control, or any other maintenance or clean up requirement of the Contract Documents, the Inspector and/or Project Manager shall notify the EPC Contractor in writing and the EPC Contractor shall take immediate action. Should the EPC Contractor fail to respond with immediate and responsive action and not later than twenty-four (24) hours from such notification, the District shall have the absolute right to proceed as it may deem necessary to remedy such matter. Any and all costs incurred by the District in connection with such actions shall be the sole responsibility of, and be borne by, ForeFront Power and promptly reimbursed to the District.
- 31. TREE/VEGETATION REMOVAL:** Any trees or vegetation that are in the footprint of Systems to be installed by ForeFront Power shall be removed by ForeFront Power at its expense, subject to the approval of the District. A tree shall be considered to be in the footprint of a System if its canopy would extend over any part of the System, including structural components or modules. ForeFront Power shall be responsible for any required tree remediation efforts resulting from tree removal, including compliance with all applicable tree removal ordinances, laws and regulations.
- 32. SUBSTITUTIONS:** No substitutions of material from those specified in the approved final design shall be made without the prior written approval of the District, which the District shall complete as diligently as possible and which the District shall not reasonably withhold.
- 33. CONFLICT IN CONTRACT DOCUMENTS:** If there are any conflicts, inconsistencies or ambiguities in the Contract, ForeFront Power shall provide the item, product, equipment or material of the highest or more stringent quality or quantity.
- 34. CORRECTION OF ERRORS:** ForeFront Power shall perform, at its own cost and expense and without reimbursement from the District, any work necessary to correct errors or omissions which are caused by ForeFront Power's failure to comply with the Contract requirements and the standard of care required herein.
- 35. OTHER CONTRACTS/CONTRACTORS:** District reserves the right to let other contracts, and/or to perform work with its own forces, in connection with other work at the Sites. ForeFront Power shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work and shall properly coordinate ForeFront Power's Work with the work of other contractors. Nothing herein contained shall be interpreted as granting to ForeFront Power exclusive occupancy of the Sites, the Premises, or of the Project. ForeFront Power shall be responsible for damage to the work of any other contractor that ForeFront Power encounters while working on the Project to the extent that such damage is caused by ForeFront Power or by others under ForeFront Power's control. ForeFront Power shall not cause any unnecessary hindrance or delay to the use and/or campus operations of the Premises and/or to District or any other contractor working on the Project.
- 36. BENEFICIAL USE:** District reserves the right to receive beneficial use of the Work or the Site before formal Contract completion and upon receipt of Permission to Operate Letter and/or Permission to Interconnect from the Utility. Beneficial use shall not constitute final acceptance or approval of any part of the Work covered by this Contract, nor shall beneficial use extend the date specified for Final Completion of the Work.
- 37. CHANGE IN SCOPE OF WORK:**
  - 37.1. As between District and ForeFront Power, any changes in the scope of Work related to the

Contract shall be addressed in the Special Conditions specific to each Site. As between ForeFront Power and its EPC Contractor or any Subcontractor, any changes in the scope of Work shall be addressed as between the respective parties. The provisions of the Contract Documents shall apply to all such changes, additions, and omissions with the same effect as if originally embodied in the Work.

37.2. **Change Orders.** A Change Order is a written instrument prepared and issued by the District and signed by the District (as authorized by the District's governing board) and ForeFront Power, and approved by the Project Inspector (if necessary) and DSA (if necessary), stating their agreement regarding all of the following:

37.2.1. A description of a change in the Work;

37.2.2. The amount of the adjustment in the contract price, if any; and

37.2.3. The extent of the adjustment in the contract time or milestones, if any.

37.3. **Proposed Change Order.** A Proposed Change Order (“PCO”) is a written request prepared by ForeFront Power requesting that the District issue a Change Order based upon a proposed change to the Work. A PCO shall include cost breakdowns to validate any change in the contract price. A PCO shall also include any changes in time required to complete the Project. Any additional time requested shall not be the number of days to make the proposed change, but must be based upon the impact to the project schedule. If ForeFront Power fails to request a time extension in a PCO, then ForeFront Power is thereafter precluded from requesting time and/or claiming a delay, except as otherwise provided in this Contract.

37.4. **Disputed Changes.** In the event of any dispute or disagreement between ForeFront Power and the District regarding the characterization of any item as a Change to the Work or as to the appropriate cost or time impact on account thereof, ForeFront Power shall promptly proceed with the performance of such item of the Work, subject to a subsequent resolution of such dispute or disagreement in accordance with the terms of the Contract. ForeFront Power’s failure or refusal to so proceed with such Work may be deemed to be ForeFront Power’s default of a material obligation under the Contract.

**38. COMPLETION:** The following definitions shall be used for completion and establish milestones as set forth in the Contract Documents. ForeFront Power shall prepare and submit to the District a Construction Schedule prepared in accordance with Section 01 32 00 of the Contract Specifications clearly identifying each of these milestones for each of the Sites.

38.1. **Substantial Completion.** The point in time when the solar photovoltaic (PV) system is wholly installed and operational such that a complete utility interconnection request has been prepared and submitted by ForeFront Power with the Local Electric Utility.

38.2. **Final Completion.** The point in time when all of the following has occurred with respect to the PV system at a Site:

38.2.1. Substantial Completion and COD has been achieved;

38.2.2. All punch lists have been completed to ForeFront Power’s and the District’s satisfaction;

38.2.3. All documentation required by the Contract Documents has been delivered to the District;

38.2.4. All other Work required by the Contract Documents has been completed and delivered;

38.2.5. The Inspector of Record files a Project Inspector Verified Report with DSA and DSA closes and certifies the project; and

38.2.6. The District’s Board of Trustees deems the project complete.

38.3. **Walk-Through as Prerequisite to Determination of Final Completion.** When ForeFront Power believes that the Work at a Site is complete except for minor corrective items, it shall

so notify the District. Promptly thereafter, the District shall schedule a final walk-through of the Project by ForeFront Power, the EPC Contractor, the Energy Consultant, the Inspector and the Project Manager to determine whether and to what extent the Work is complete. Any erroneous claims of completion by ForeFront Power resulting in a premature walk-through shall be at ForeFront Power's sole cost and expense, and ForeFront Power shall reimburse the District those costs incurred by the District due to the erroneous claims by ForeFront Power that the Project is complete. Minor corrective (or "punch-list") items shall be identified in the final walk-through of the Project.

38.4. **Time Is of The Essence:** Time is of the essence in the performance of and compliance with each of the provisions and conditions of this Contract.

**39. WARRANTY/QUALITY:** ForeFront Power shall require that its EPC Contract include the following warranties set forth in this Article 39. To the extent that ForeFront Power fails to include these warranties set forth in this Article 39 in the EPC Contract, ForeFront Power shall provide these warranties to the District. ForeFront Power shall ensure that the EPC Contract contains no exclusions of implied or statutory warranties, including but not limited to those set forth in Section 9.3 of the General Terms and Conditions of Energy Services Agreement. To the extent that the EPC Contract contains any exclusions of such implied or statutory warranties, ForeFront Power shall provide those warranties to the District notwithstanding Section 9.3 of the General Terms and Conditions of Energy Services Agreement.

39.1. For a period of ten (10) years after Final Completion of the Work, the EPC Contractor warrants to ForeFront Power and the District that workmanship, materials and equipment furnished under the Contract will be of good quality, new and unused, and, pursuant to California Public Utility Code section 2854(d), have not previously been placed in service in any other location or for any other application. The EPC Contractor further warrants that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. The EPC Contractor's warranty shall meet all requirements of the interconnected Utility's Net Energy Metering tariff. Work, materials, or equipment not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The EPC Contractor's warranty does not cover damage or defect caused by abuse, modifications not executed by the EPC Contractor, or normal wear and tear under normal usage. If required by ForeFront Power or the District, the EPC Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

39.2. The warranties provided in this Article 39 shall be in addition to and not in limitation of any other warranty required by the Contract Documents.

39.3. The EPC Contractor shall procure and deliver to ForeFront Power no later than the date of Final Completion, all manufacturers' warranties required by the Contract Documents, and such warranties shall permit further assignment without the payment of a fee. Delivery by the EPC Contractor shall constitute the EPC Contractor's guarantee to ForeFront Power and the District that all materials, products, systems, equipment and items were installed per manufacturer's terms and conditions and in compliance with all electrical and building code standards so no warranties would be void as a result of installation.

39.4. The warranties provided in this Article 39 shall not be construed to modify or limit, in any way, any rights or actions which ForeFront Power or the District may otherwise have against the EPC Contractor by law or statute, or in equity. All warranties, including all equipment warranties, will inure to the benefit of ForeFront Power and its successors and assigns, including any assignment to the District.

39.5. If within ten (10) years after Final Completion of the Work or within a longer time period for an applicable guarantee required by the Contract Documents or the Utility's Net Energy Metering Tariff requirements, any of the Work does not comply with the Contract Documents,



the EPC Contractor shall correct it after receipt of ForeFront Power's or the District's written notice to do so, unless ForeFront Power or the District has previously waived in writing such right to demand correction. The EPC Contractor shall correct the Work promptly, and passage of the applicable warranty period shall not release the EPC Contractor its obligation to correct the Work if ForeFront Power or the District provides the written notice within the applicable warranty period. The EPC Contractor's obligation to correct the Work item continues until the correction is made. After the correction is made to ForeFront Power's or the District's satisfaction, a new warranty period of the same length as the original warranty period shall run on the corrected Work. The obligations under this Section 39.5 shall survive acceptance of the Work under the Contract or termination of the Contract.

**40. INSURANCE:** Forefront Power shall require that the EPC Contractor has in force, and during the term of this Contract shall maintain in force with the minimum indicated limits, the following insurance. All policies shall contain waivers of subrogation against the District. All of the EPC Contractor's insurance shall be with **admitted** insurance companies with an A.M. Best rating of no less than **A: VII**.

40.1. **Commercial General Liability Insurance.** Coverage to be written on an occurrence form. Coverage to be at least as broad as ISO form CG 002 (07/98), without endorsements that limit the policy terms with respect to: (1) the definition of an Insured Contract, (2) provisions for severability of interest, (3) explosion, collapse, underground hazard:

- \$2,000,000 per occurrence for Bodily Injury and Property Damage
- \$4,000,000 General Aggregate - other than Products/Completed Operations
- \$4,000,000 Products/Completed Operations Aggregate
- \$1,000,000 Personal & Advertising Injury
- \$500,000 Fire Damage

40.2. **Automobile Liability.** Coverage to be written on an occurrence form. Coverage for any auto, including all owned, hired and non-owned vehicles: combined single limit of \$1,000,000;

40.3. **Excess Liability Insurance.** Coverage to be written on an occurrence form. Coverage terms and limits to apply excess of the per occurrence and/or aggregate limits provided for Commercial General Liability, Auto Liability and Professional Liability. Coverage terms and limits to also apply in excess of those required for Employers Liability:

- \$10,000,000 each occurrence
- \$10,000,000 aggregate

40.4. **Professional Liability insurance.** Coverage to be written on an occurrence-made form:

- \$1,000,000 per occurrence
- \$2,000,000 aggregate

40.5. **Workers Compensation:** Statutory limits; and

40.6. **Employers' Liability:** \$1,000,000.

- Bodily Injury by accident \$1,000,000 each accident
- Bodily Injury by disease \$1,000,000 each employee
- Bodily Injury by disease \$1,000,000 policy limit

Commercial General Liability, Automobile Liability, Workers Compensation, and Employer's Liability limits may be reached through a combination of primary and umbrella/excess policies. The EPC Contractor shall provide to the District certificate(s) of insurance and endorsements satisfactory to the District. The policy(ies) shall not be amended or modified and the coverage amounts shall not be reduced without thirty (30) days written notice to the District prior to cancellation. Except for worker's compensation insurance and professional liability insurance,

the District, shall be named as an additional insured on all policies. The EPC Contractor's policy(ies) shall be primary; any insurance carried by the District shall only be secondary and supplemental. The EPC Contractor shall not allow any subcontractor, employee, or agent to commence work on this Contract or any subcontract until the insurance required of the EPC Contractor of the subcontractor, or agent has been obtained.

- 40.7. **Builder's Risk Insurance: Builder's Risk "All Risk" Insurance.** The EPC Contractor shall procure and maintain, during the life of this Contract, Builder's Risk (Course of Construction), or similar first party property coverage acceptable to the District, issued on a replacement cost value basis. The cost shall be consistent with the total replacement cost of all insurable Work included within the Contract Documents. Coverage is to insure against all risks of accidental physical loss and shall include without limitation the perils of vandalism and/or malicious mischief (both without any limitation regarding vacancy or occupancy), sprinkler leakage, civil authority, theft, sonic disturbance, earthquake, flood, collapse, wind, fire, war, terrorism, lightning, smoke, and rioting. Coverage shall include debris removal, demolition, increased costs due to enforcement of all applicable ordinances and/or laws in the repair and replacement of damaged and undamaged portions of the property, and reasonable costs for the design and engineering services and expenses required as a result of any insured loss upon the Work and Project, including completed Work and Work in progress, to the full insurable value thereof.

**41. INDEMNIFICATION / HOLD HARMLESS:** ForeFront Power agrees that the following provisions shall apply to all construction related claims. Additionally, ForeFront Power shall include the following indemnity language in the EPC Contract, substituting "ForeFront Power" for "EPC Contractor":

To the furthest extent permitted by California law, ForeFront Power shall defend, indemnify, and hold harmless the District, its trustees, members, agents, representatives, officers, employees, consultants, inspectors, and volunteers (the "indemnified parties") from any and all Losses (the "claims") of any kind, nature, and description, directly or indirectly arising from personal or bodily injuries, death, property damage, or other cause, arising out of, connected with, or resulting from any act, omission, or breach connected with or arising from the performance of the Work. The District shall have the right to accept or reject any legal representation that ForeFront Power proposes to defend the District. This indemnification, defense, and hold harmless obligation includes any failure or alleged failure by ForeFront Power to comply with any provision of law, any failure or alleged failure to timely and properly fulfill all of its obligations under the Contract in strict accordance with their terms, and without limitation, any stop payment notice actions or liens, including liens by the California Department of Labor Standards Enforcement. ForeFront Power's obligations hereunder are binding upon ForeFront Power's Performance Bond surety and these obligations shall survive notwithstanding completion of the Work or the termination of the Contract. In any and all claims against any of the indemnified parties by any employee of ForeFront Power, the EPC Contractor or any Subcontractor or Sub-Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, ForeFront Power's indemnification obligations herein shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for ForeFront Power, the EPC Contractor or any Subcontractor or Sub-Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

**42. LABOR, WAGE & HOUR, APPRENTICE AND RELATED PROVISIONS:**

- 42.1. **Public Works Project.** This is a public works project as defined in Labor Code §1720, and must be performed in accordance with all applicable requirements of the Labor Code, including §§1720 to 1815, 1860 and 1861, and Title 8 of the California Code of Regulations, §§16000 to 17270, which govern the requirements to register with the Department of Industrial Relations ("DIR") and the payment of prevailing wage rates on public works projects. ForeFront Power shall ensure the provisions of this Article 42 are incorporated in the EPC Contract, substituting "ForeFront Power" for "EPC Contractor." Contractor and Subcontractors, of any tier, shall comply with the registration and compliance monitoring provisions of the Labor Code for

public works projects, including but not limited to furnishing Certified Payroll Records to the California Labor Commissioner and complying with any applicable enforcement by DIR.

42.2. **ForeFront Power & Subcontractor Registration**

42.2.1. ForeFront Power shall comply with the registration and compliance monitoring provisions of Labor Code section 1771.4, including furnishing its CPRs to the Labor Commissioner of California and complying with any applicable enforcement by the Department of Industrial Relations. Labor Code section 1771.1(a) states the following:

“A contractor or subcontractor shall not be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of any contract for public work, as defined in this chapter, unless currently registered and qualified to perform public work pursuant to Section 1725.5. It is not a violation of this section for an unregistered contractor to submit a bid that is authorized by Section 7029.1 of the Business and Professions Code or by Section 10164 or 20103.5 of the Public Contract Code, provided the contractor is registered to perform public work pursuant to Section 1725.5 at the time the contract is awarded.”

42.2.2. ForeFront Power acknowledges that, for purposes of Labor Code section 1725.5, all or some of the Work is a public work to which Labor Code section 1771 applies. ForeFront Power shall comply with Labor Code section 1725.5, including without limitation the registration requirements. Additionally, all Contractor’s Subcontractors shall comply with Labor Code section 1725.5 to be qualified to bid on, be listed in a bid proposal, subject to the requirements of Section 4104 of the Public Contract Code, or engage in the performance of the Contract. ForeFront Power represents that all of its Subcontractors are registered pursuant to Labor Code section 1725.5.

42.2.3. The Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations. ForeFront Power shall post job site notices, as prescribed by regulation. ForeFront Power shall comply with all requirements of Labor Code section 1771.4, except the requirements that are exempted by the Labor Commissioner for the Project.

42.3. **Wage Rates, Travel and Subsistence**

42.3.1. Pursuant to the provisions of article 2 (commencing at section 1770), chapter 1, part 7, division 2, of the Labor Code of California, the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this public work is to be performed for each craft, classification, or type of worker needed to execute this Contract are on file at the District’s principal office and copies will be made available to any interested party on request. ForeFront Power shall obtain and post a copy of these wage rates at the job site.

42.3.2. Holiday and overtime work, when permitted by law, shall be paid for at a rate of at least one and one-half times the above specified rate of per diem wages, unless otherwise specified. The holidays upon which those rates shall be paid need not be specified by the District, but shall be all holidays recognized in the applicable collective bargaining agreement. If the prevailing rate is not based on a collectively bargained rate, the holidays upon which the prevailing rate shall be paid shall be as provided in Section 6700 of the Government Code.

42.3.3. ForeFront Power shall pay and shall cause to be paid each worker engaged in Work on the Project not less than the general prevailing rate of per diem wages determined by the Director of the Department of Industrial Relations (“DIR”) (“Director”), regardless of any contractual relationship which may be alleged to exist between ForeFront Power or any Subcontractor and such workers.

- 42.3.4. If during the period this bid is required to remain open, the Director determines that there has been a change in any prevailing rate of per diem wages in the locality in which the Work under the Contract is to be performed, such change shall not alter the wage rates in the Notice to Bidders or the Contract subsequently awarded.
- 42.3.5. Pursuant to Labor Code section 1775, ForeFront Power shall, as a penalty to District, forfeit the statutory amount, (currently not to exceed two hundred dollars (\$200) for each calendar day, or portion thereof), for each worker paid less than the prevailing rates, as determined by the District and/or the Director, for the work or craft in which that worker is employed for any public work done under Contract by ForeFront Power or by any Subcontractor under it.
- 42.3.5.1. The amount of the penalty shall not be less than forty dollars (\$40) for each calendar day, or portion thereof, unless the failure of ForeFront Power was a good faith mistake and, if so, the error was promptly and voluntarily corrected when brought to the attention of ForeFront Power.
- 42.3.5.2. The amount of the penalty shall not be less than eighty dollars (\$80) for each calendar day or portion thereof, if ForeFront Power has been assessed penalties within the previous three (3) years for failing to meet ForeFront Power's prevailing wage obligations on a separate contract, unless those penalties were subsequently withdrawn or overturned.
- 42.3.5.3. The amount of the penalty may not be less than one hundred twenty dollars (\$120) for each calendar day, or portion thereof, if the Labor Commissioner determines ForeFront Power willfully violated Labor Code section 1775.
- 42.3.5.4. The difference between such prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate, shall be paid to each worker by ForeFront Power.
- 42.3.6. Any worker employed to perform Work on the Project, which Work is not covered by any classification listed in the general prevailing wage rate of per diem wages determined by the Director, shall be paid not less than the minimum rate of wages specified therein for the classification which most nearly corresponds to Work to be performed by him, and such minimum wage rate shall be retroactive to time of initial employment of such person in such classification.
- 42.3.7. Pursuant to Labor Code section 1773.1, per diem wages are deemed to include employer payments for health and welfare, pension, vacation, travel time, subsistence pay, and apprenticeship or other training programs authorized by section 3093, and similar purposes.
- 42.3.8. ForeFront Power shall post at appropriate conspicuous points on the Site of Project, a schedule showing all determined minimum wage rates and all authorized deductions, if any, from unpaid wages actually earned. In addition, ForeFront Power shall post a sign-in log for all workers and visitors to the Site, a list of all subcontractors of any tier on the Site, and the required Equal Employment Opportunity poster(s).
- 42.4. **Hours of Work**
- 42.4.1. As provided in article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code, eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by ForeFront Power or by any Subcontractor on any subcontract under this Contract upon the Work or upon any part of the Work contemplated by this Contract shall be limited and restricted by ForeFront Power to eight (8) hours per day, and forty (40) hours during any one week, except as hereinafter provided. Notwithstanding the provisions hereinabove set forth, Work

performed by employees of ForeFront Power in excess of eight (8) hours per day and forty (40) hours during any one week, shall be permitted upon this public work upon compensation for all hours worked in excess of eight (8) hours per day at not less than one and one-half times the basic rate of pay.

42.4.2. ForeFront Power shall keep and shall cause each Subcontractor to keep an accurate record showing the name of and actual hours worked each calendar day and each calendar week by each worker employed by ForeFront Power in connection with the Work or any part of the Work contemplated by this Contract. The record shall be kept open at all reasonable hours to the inspection of District and to the Division of Labor Standards Enforcement of the DIR.

42.4.3. Pursuant to Labor Code section 1813, ForeFront Power shall as a penalty to the District forfeit the statutory amount (believed by the District to be currently twenty five dollars (\$25)) for each worker employed in the execution of this Contract by ForeFront Power or by any Subcontractor for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and forty (40) hours in any one calendar week in violation of the provisions of article 3 (commencing at section 1810), chapter 1, part 7, division 2, of the Labor Code.

42.4.4. Any Work necessary to be performed after regular working hours, or on Sundays or other holidays shall be performed without additional expense to the District.

42.5. **Payroll Records**

42.5.1. If requested by the District, ForeFront Power shall provide to the District and shall cause each Subcontractor performing any portion of the Work to provide the District and an accurate and certified payroll record (“CPR(s)”), showing the name, address, social security number, work classification, straight time, and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by ForeFront Power and/or each Subcontractor in connection with the Work.

42.5.1.1. In addition to any other requirements pursuant to Labor Code sections 1770, et seq., the CPRs enumerated hereunder shall be certified.

42.5.2. All CPRs shall be available for inspection at all reasonable hours at the principal office of ForeFront Power on the following basis:

42.5.2.1. A certified copy of an employee’s CPR shall be made available for inspection or furnished to the employee or his/her authorized representative on request.

42.5.2.2. CPRs shall be made available for inspection or furnished upon request to a representative of District, Division of Labor Standards Enforcement, Division of Apprenticeship Standards, and/or the Department of Industrial Relations.

42.5.2.3. CPRs shall be made available upon request by the public for inspection or copies thereof made; provided, however, that a request by the public shall be made through either the District, Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested CPRs have not been provided pursuant to the provisions herein, the requesting party shall, prior to being provided the records reimburse the costs of preparation by ForeFront Power, Subcontractors, and the entity through which the request was made. The public shall not be given access to the records at the principal office of ForeFront Power.

42.5.3. The form of certification for the CPRs shall be as follows:

I, \_\_\_\_\_ (Name-Print), the undersigned, am the \_\_\_\_\_  
\_\_\_\_\_ (Position in business) with the authority to act for and on behalf of \_\_\_\_\_

\_\_\_\_\_ (Name of business and/or ForeFront Power), certify under penalty of perjury that the records or copies thereof submitted and consisting of \_\_\_\_\_ (Description, number of pages) are the originals or true, full, and correct copies of the originals which depict the payroll record(s) of actual disbursements by way of cash, check, or whatever form to the individual or individual named, and (b) we have complied with the requirements of sections 1771, 1811, and 1815 of the Labor Code for any work performed by our employees on the Project.

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

(Section 16401 of Title 8 of the California Code of Regulations)

- 42.5.4. ForeFront Power and all Subcontractors shall file a certified copy of the CPRs with the entity that requested the records within ten (10) days after receipt of a written request.
  - 42.5.5. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by District, Division of Apprenticeship Standards, or Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address, and social security number. The name and address of ForeFront Power awarded Contract or performing Contract shall not be marked or obliterated.
  - 42.5.6. ForeFront Power shall inform District of the location of the records enumerated hereunder, including the street address, city, and county, and shall, within five (5) working days, provide a notice of change of location and address.
  - 42.5.7. In the event of noncompliance with the requirements of this section, ForeFront Power shall have ten (10) days in which to comply subsequent to receipt of written notice specifying in what respects ForeFront Power must comply with this section. Should noncompliance still be evident after the ten (10) day period, ForeFront Power shall, as a penalty to District, forfeit one hundred dollars (\$100) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of Division of Apprenticeship Standards or Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.
  - 42.5.8. It shall be the responsibility of ForeFront Power to ensure compliance with the provisions of Labor Code section 1776.
- 42.6. **Apprentices**
- 42.6.1. ForeFront Power acknowledges and agrees that, if this Contract involves a dollar amount greater than or a number of working days greater than that specified in Labor Code section 1777.5, then this Contract is governed by the provisions of Labor Code Section 1777.5. It shall be the responsibility of ForeFront Power to ensure compliance with this Article and with Labor Code section 1777.5 for all apprenticeship occupations.
  - 42.6.2. Apprentices of any crafts or trades may be employed and, when required by Labor Code section 1777.5, shall be employed provided they are properly registered in full compliance with the provisions of the Labor Code.
  - 42.6.3. Every such apprentice shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at which he/she is employed, and shall be employed only at the work of the craft or trade to which she/he is registered.
  - 42.6.4. Only apprentices, as defined in section 3077 of the Labor Code, who are in training under apprenticeship standards and written apprentice agreements under chapter 4 (commencing at section 3070), division 3, of the Labor Code, are eligible to be employed. The employment and training of each apprentice shall be in accordance with the provisions of the apprenticeship standards and apprentice agreements under

which he/she is training.

- 42.6.5. Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, ForeFront Power and any Subcontractors employing workers in any apprenticeable craft or trade in performing any Work under this Contract shall apply to the applicable joint apprenticeship committee for a certificate approving ForeFront Power or Subcontractor under the applicable apprenticeship standards and fixing the ratio of apprentices to journeymen employed in performing the Work.
- 42.6.6. Pursuant to Labor Code section 1777.5, if that section applies to this Contract as indicated above, ForeFront Power and any Subcontractor may be required to make contributions to the apprenticeship program.
- 42.6.7. If ForeFront Power or Subcontractor willfully fails to comply with Labor Code section 1777.5, then, upon a determination of noncompliance by the Administrator of Apprenticeship, it shall:
  - 42.6.7.1. Be denied the right to bid on any subsequent project for one (1) year from the date of such determination;
  - 42.6.7.2. Forfeit as a penalty to District the full amount as stated in Labor Code section 1777.7. Interpretation and enforcement of these provisions shall be in accordance with the rules and procedures of the California Apprenticeship Council and under the authority of the Chief of the Division of Apprenticeship Standards.
- 42.6.8. ForeFront Power and all Subcontractors shall comply with Labor Code section 1777.6, which section forbids certain discriminatory practices in the employment of apprentices.
- 42.6.9. ForeFront Power shall become fully acquainted with the law regarding apprentices prior to commencement of the Work. Special attention is directed to sections 1777.5, 1777.6, and 1777.7 of the Labor Code, and title 8, California Code of Regulations, section 200 et seq. Questions may be directed to the State Division of Apprenticeship Standards, 455 Golden Gate Avenue, San Francisco, California 94102.
- 42.6.10. ForeFront Power shall ensure compliance with all certification requirements for all workers on the Project including, without limitation, the requirements for electrician certification in Labor Code sections 108, et seq.
- 42.7. **Non-Discrimination**
  - 42.7.1. It is the policy of the District that in connection with all work performed under contracts there be no discrimination against any employee engaged in the work because of race, national origin, ancestry, religion, age, physical or mental disability, sex, or sexual orientation of such person, and therefore ForeFront Power agrees to comply with applicable Federal and California laws including, but not limited to the California Fair Employment Practice Act beginning with Government Code Section 12900 and Labor Code Section 1735. In addition, ForeFront Power agrees to require like compliance by all its subcontractor(s).
  - 42.7.2. Special requirements for Federally Assisted Construction Contracts: During the performance of this Contract, ForeFront Power agrees to incorporate in all subcontracts the provisions set forth in Chapter 60-1.4(b) of Title 41 published in Volume 33 No. 104 of the Federal Register dated May 28, 1968.

**43. DISPUTES/CLAIMS (CONSTRUCTION WORK ONLY):** ForeFront Power agrees that from NTP until Final Completion, the following provisions shall apply to all construction related claims. Additionally, ForeFront Power shall ensure the provisions of this Article 43 are incorporated in the EPC Contract, substituting “ForeFront Power” for “EPC Contractor”:

- 43.1. **Claim.** The term “Claim” means a written demand by ForeFront Power sent by registered mail

or certified mail with return receipt requested for:

- 43.1.1. An extension of the contract time, including relief from damages or penalties assessed by the District for delay;
  - 43.1.2. Payment of money or damages arising from work done by, or on behalf of, ForeFront Power pursuant to the Contract and payment that is not otherwise expressly provided for in the Contract Documents or to which ForeFront Power is not otherwise entitled; or
  - 43.1.3. Payment of an amount that is disputed by the District.
- 43.2. **Submission of Claim.** A Claim arises upon the District's rejection of a request by ForeFront Power for a Change Order. ForeFront Power shall submit the Claim by registered mail or certified mail with return receipt requested to the District's Vice Chancellor, Business and Administrative Services, with a copy to the Project Manager, if any. ForeFront Power shall submit its Claim in writing, together with all Supporting Documentation no later than the earlier of either: (1) thirty (30) days after the date the Claim arises; or (2) sixty (60) days after the date of Substantial Completion. It is the intent of the District to evaluate and resolve Claims with ForeFront Power as close to the events giving rise to such Claims as possible and to avoid stale or late Claims, including late notice and documenting of Claims, and to timely mitigate the issue, event, condition, circumstance and/or cause of the Claim and any adverse impacts or damages related thereto. Should ForeFront Power fail to submit a Claim by the deadline set forth in this Article, ForeFront Power waives and releases such Claim, including all rights and remedies in connection therewith.
- 43.3. **Contents of Claim.** A Claim must include all Supporting Documentation and a statement identifying it as a Claim signed by an authorized agent or officer of ForeFront Power under penalty of perjury and including the following language immediately above or before ForeFront Power's signature: "I declare under penalty of perjury under the laws of the State of California that the information provided and statements made in this Claim are true and correct, substantiated and of merit." ForeFront Power recognizes and acknowledges that this requirement is not a mere formality but is intended to ensure that ForeFront Power only submits Claims that it believes are true and correct, substantiated and have merit. Should ForeFront Power fail to submit the foregoing written statement signed under penalty of perjury, ForeFront Power waives and releases its Claim, including all rights and remedies in connection thereto.
- 43.4. **Subcontractor Claims.** Pursuant to Public Contract Code § 9204(d)(5), a Subcontractor may request in writing, either on its own behalf or on behalf of a lower tier Subcontractor, that ForeFront Power submit to the District a claim for work which was performed by the Subcontractor or by a lower tier Subcontractor on behalf of the Subcontractor. The Subcontractor requesting that the claim be submitted to the District shall furnish reasonable documentation to support the claim. Regardless of whether or not ForeFront Power decides to submit the Subcontractor's claim to the District, ForeFront Power shall provide a copy of the Subcontractor's written request, including all supporting documentation, to the District within ten (10) days of ForeFront Power's receipt of the request. In the event ForeFront agrees to submit a Subcontractor's claim to the District, ForeFront Power shall submit such claim as a request for a Change Order, unless such claim was previously submitted to the District as a request for a Change Order. Within forty-five (45) days of receipt of the Subcontractor's written request, ForeFront Power shall notify the Subcontractor in writing as to whether ForeFront Power submitted the claim to the District and, if ForeFront Power did not submit the claim, ForeFront Power shall provide the Subcontractor with a written statement of the reasons for not having done so and shall concurrently provide a copy of such written statement to the District. In the event ForeFront Power includes supporting documentation with such written statement, ForeFront Power shall concurrently provide a copy of such supporting



documentation to the Project Manager. If ForeFront Power submits a Claim on behalf of a Subcontractor, the Claim shall include a statement in writing and signed by an authorized agent or officer of ForeFront Power under penalty of perjury that includes the following language immediately above or before ForeFront Power's signature: "I declare under penalty of perjury under the laws of the State of California that [insert name of ForeFront Power] has thoroughly evaluated the claim of [insert name of Subcontractor] and determined that the information provided and statements made in the claim are true and correct, substantiated and of merit."

- 43.5. **District Review of Claim.** Upon receipt of a Claim, the District shall review the Claim and, within a period not to exceed forty-five (45) days, shall provide ForeFront Power a written statement identifying what portion of the Claim is disputed and what portion is undisputed. Upon receipt of a Claim, the District and ForeFront Power may, by mutual written agreement, extend the forty-five (45) day time period. The District shall process and make payment of any undisputed portion of a Claim within sixty (60) days after the District issues its written statement. Failure by the District to provide a written statement in response to a Claim from ForeFront Power within the forty-five (45) day time period, or within an agreed upon extended time period, shall result in the Claim being deemed rejected in its entirety. A Claim that is rejected by reason of the District's failure to respond, or failure to timely respond, to the Claim shall not constitute an adverse finding regarding the merits of the Claim or the claimant's responsibility or qualifications.
- 43.6. **Meet and Confer Meeting.** If ForeFront Power disputes the District's written response, or if the District fails to respond within the time frame prescribed above, ForeFront Power, within fifteen (15) days of the District's written response or, if the District fails to respond, within fifteen (15) days after the District's response was due, may demand, in a writing sent to the District's Vice Chancellor, Business and Administrative Services, by registered mail or certified mail, return receipt requested, with a copy to the District's Project Manager, an informal conference to meet and confer for settlement of the issues in dispute. The District shall schedule a meet and confer conference within thirty (30) days of its receipt of ForeFront Power's written demand.
- 43.7. **Mediation.** Within ten (10) business days following the conclusion of the meet and confer conference, if the Claim or any portion of the Claim remains in dispute, the District shall provide ForeFront Power a written statement identifying the portion of the Claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the Claim shall be processed and made within sixty (60) days after the District issues its written statement. Any disputed portion of the Claim, as identified by ForeFront Power in writing, shall be submitted to nonbinding mediation. The expenses and fees of the mediator and the administrative fees shall be divided among the parties equally. Each Party shall pay its own legal fees, witness fees, and other expenses. The District and ForeFront Power shall mutually agree to a mediator within ten (10) business days after the disputed portion of the Claim has been identified in writing. If the Parties cannot agree upon a mediator, each Party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the Claim. Each Party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator. The foregoing notwithstanding, pursuant to Public Contract Code § 9204(f), the Parties may mutually agree in writing to waive mediation.
- 43.8. Pending resolution of the dispute, ForeFront Power agrees it will neither rescind the Contract nor stop the progress of the Work, but will allow determination by the court of the State of California, in the county in which the District's administration office is located, having competent jurisdiction of the dispute.
- 43.9. Nothing in this Article shall prevent the Parties from resolving any disputes or claims pursuant

to Public Contract Code section 20104, et seq., if applicable.

43.10. Nothing in this Contract, waives, modifies or tolls ForeFront Power's obligation to present a timely claim under Government Code § 910, et seq. Therefore, in addition to complying with the contractual Claims procedures, ForeFront Power is required to present claims to the District pursuant to Government Code § 910, et seq.

43.11. **Arbitration.** Except for claims which are subject to the provisions of Public Contract Code section 20104 et seq., any other claims, disputes, disagreements or other matters in controversy between the District and ForeFront Power arising out of, or related, in any manner, to the performance of the Work, or the interpretation, clarification or enforcement of the Contract Documents related to the Work, shall be resolved by arbitration conducted in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association ("AAA") in effect as of the date that a Demand for Arbitration is filed, except as expressly modified herein. The locale for any arbitration commenced hereunder shall be the regional office of the AAA closest to the Site or at a location as mutually agreed by the Parties. The award rendered by the Arbitrator(s) shall be final and binding upon the District and ForeFront Power. In connection with any arbitration proceeding commenced hereunder, the discovery rights and procedures provided for in California Code of Civil Procedure §1283.05 shall be applicable, and the same shall be deemed incorporated herein by this reference. A Demand for Arbitration shall be filed and served within a reasonable time after the occurrence of the claim, dispute or other disagreement giving rise to the Demand for Arbitration, but in no event shall a Demand for Arbitration be filed or served after the date when the institution of legal or equitable proceedings based upon such claim, dispute or other disagreement would be barred by the applicable statute of limitations. In the event more than one Demand for Arbitration is made by either the District or ForeFront Power, all such controversies shall be consolidated into a single arbitration proceeding, unless otherwise agreed to by the District and ForeFront Power. ForeFront Power's Surety, a Subcontractor or Material Supplier to ForeFront Power and other third parties may be permitted to join in and be bound by an arbitration commenced hereunder if required by the terms of their respective agreements with ForeFront Power, except to the extent that such joinder would unduly delay or complicate the expeditious resolution of the claim, dispute or other disagreement between the District and ForeFront Power, in which case an appropriate severance order shall be issued by the Arbitrator(s). The expenses and fees of the Arbitrator(s) shall be divided equally among the parties to the arbitration. Each Party to any arbitration commenced hereunder shall be responsible for and shall bear its own attorneys' fees, witness fees and other cost and expense incurred in connection with such arbitration. The foregoing notwithstanding, the Arbitrator(s) may award arbitration costs, including Arbitrators' fees but excluding attorneys' fees, to the prevailing Party. The confirmation, enforcement, vacation or correction of an arbitration award rendered hereunder shall be the Superior Court of the State of California for the county in which the Site is situated. The substantive and procedural rules for such post-award proceedings shall be as set forth in California Code of Civil Procedure §1285 et seq.

**44. CONFLICT OF INTEREST:** ForeFront Power understands that its professional responsibility is solely to the District. ForeFront Power warrants that it and its employees and/or subcontractors presently have no interest and will not acquire any direct or indirect interest that would conflict with its performance under this Contract, including, without limitation, any direct and/or indirect interest with: (a) entity(ies) performing construction in the same discipline and in competition with any contractor on a District project; (b) entity(ies) connected or related to a trade union or joint labor management committee; (c) the District.

**45. COMPLIANCE WITH LAWS:** ForeFront Power shall give all notices and comply with all laws, ordinance, rules and regulations bearing on conduct of the Work as indicated or specified, including all "Interpretation(s) of Regulations" issued by DSA on or before the date of this Contract. If ForeFront

Power observes that any of the Work required by this Contract is at variance with any such laws, ordinance, rules or regulations, ForeFront Power shall notify the District, in writing, and, at the sole option of the District, any necessary changes shall be made and this Contract shall be appropriately amended in writing, or this Contract shall be terminated effective upon ForeFront Power's receipt of a written termination notice from the District. If ForeFront Power performs any Work that is in violation of any laws, ordinances, rules or regulations, without first notifying the District of the violation, ForeFront Power shall bear all costs arising therefrom.

**46. DISTRICT'S RIGHT TO AUDIT:** District retains the right to review and audit, and the reasonable right of access to ForeFront Power's and any sub-consultant's premises to review and audit ForeFront Power's compliance with the provisions of this Contract ("District's Right"). The District's Right includes the right to inspect, photocopy, and to retain copies, outside of ForeFront Power's premises, of any and all Project-related records and other information with appropriate safeguards, if such retention is deemed necessary by the District in its sole discretion. The District shall keep this information confidential, as allowed by applicable law.

- 46.1. The District's Right includes the right to examine any and all books, records, documents and any other evidence of procedures and practices that the District determines are necessary to discover and verify that ForeFront Power is in compliance with all requirements of this Contract.
- 46.2. If there is a claim for additional compensation or for extra Work, the District's Right includes the right to examine books, records, documents, and any and all other evidence and accounting procedures and practices that the District determines are necessary to discover and verify all direct and indirect costs, of whatever nature, which are claimed to have been incurred, or anticipated to be incurred.
- 46.3. ForeFront Power shall maintain complete and accurate records in accordance with generally accepted accounting practices in the industry. ForeFront Power shall make available to the District for review and audit, all Project-related accounting records and documents, and any other financial data. Upon District's request, ForeFront Power shall submit exact duplicates of originals of all requested records to the District.
- 46.4. ForeFront Power shall include audit provisions in any and all of its subcontracts, and shall ensure that these sections are binding upon all sub-consultants.
- 46.5. ForeFront Power shall retain all Project-related records and other information with appropriate safeguards during the Term of this Contract and for a minimum of five (5) years thereafter.
- 46.6. ForeFront Power shall comply with these provisions within fifteen (15) days of the District's written request to review and audit any or all of ForeFront Power's Project-related records and information.

**47. ANTI-TRUST CLAIM:** ForeFront Power, the EPC Contractor and all Subcontractors of any tier agree to assign to the District all rights, title, and interest in and to all causes of action they may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2 (commencing with Section 16700) of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, services, or materials pursuant to the Contract or a subcontract. This assignment shall be made and become effective at the time the District tenders final payment to ForeFront Power, without further acknowledgment by the Parties.

[END OF DOCUMENT]

**EXHIBIT C**  
**OF GENERAL CONDITIONS**

**REQUIREMENTS APPLICABLE TO THE INSTALLATION WORK**

1. Specification Sections:
  - Division 01: General Requirements
    - 26 00 00: General Electrical
    - 26 05 13: Medium Voltage Distribution
    - 26 12 21: Secondary Substation Medium Voltage Transformers
    - 48 14 00: Photovoltaic System
    - 05 90 02: Solar Photovoltaic Canopy Structures
2. Performance Bond (District's Form)
3. Payment Bond (District's Form)
4. Insurance Certificates and Endorsements
5. Noncollusion Declaration
6. Workers' Compensation Certification
7. Prevailing Wage Certification
8. Drug-Free Workplace Certification
9. Tobacco-Free Environment Certification
10. Asbestos & Other Hazardous Materials Certification
11. Lead-Product(s) Certification
12. Imported Materials Certification

## DIVISION 01

### SECTION 01 14 00 – WORK RESTRICTIONS

#### 01 14 13 – ACCESS TO SITE

##### 1.1 CONSTRUCTION LIMITS

- A. The area to be set aside for the Work under this Contract is shown on the drawings, and the Contractor shall confine the construction to the immediate area within the construction limits. Additional laydown area beyond the limits of the immediate area defined by the drawings may be assigned, at the discretion of the Project Manager.

##### 1.2 PARKING – THE USE OF ROADS – SITE ACCESS

- A. **PARKING:** Parking for private vehicles is limited. Parking for the Contractor, subcontractors, and their workers will be limited to the construction limits and as designated by the Project Manager. Parking regulations will be strictly enforced and all parking violations are subject to citation by the Campus Police Department.
- B. **USE OF ROADS:** The Contractor may use certain roads as designated by the Project Manager for the transportation of equipment, materials, workers, or other needs related to the Work of this Contract. The Contractor shall be responsible for all damage to roads, curbs, gutters, fences, guard rails, and other property resulting from such use. Repairs must be in like-kind and quality, and shall return the damaged property to the same condition as it was prior to the damage.
- C. **SITE ACCESS:** Heavy or oversize vehicles or equipment shall not be permitted on campus roads without the express written permission of the Project Manager. Requests to move such vehicles and/or equipment on campus roads will require a minimum of 48 hours, consisting of regular workdays, advance written request. Track equipment without rubber cleats are not allowed on campus roadways, no exceptions. It is the Contractor's responsibility to contact the City, regarding requirements for trucking permits, and if required, for all fees associated with the permits, at no additional cost to the District.
- D. Permission for access to the site may be revoked for any and all persons who violate the College traffic regulations, including, but not limited to, speed limits, parking restrictions, and directions of the Campus Police. All Contractor personnel, operating forces, and delivery personnel shall be made aware of, and shall comply with traffic regulations at all times.

END OF SECTION

## **DIVISION 01**

### **01 14 33 WORK IN RIGHTS-OF-WAY**

#### **1.1 NOTIFICATION**

- A. Publicly owned utilities, County owned Utilities, and adjacent municipalities may have right-of-way access on portions of the college campuses. Should the Work require crossing, or working in such right-of-way areas, Contractor shall be responsible for contacting the appropriate agency and gaining all required permissions and/or permits to perform the Work in the right-of-way areas, at no additional cost to the District.
  
- B. Contractor is required to meet all current standards for construction, notifications, and clearances required by any publicly owned utility, County owned utility, or municipal utility or right-of-way, for work on that utility, or in the right-of-way, at no additional cost to the District.

**END OF SECTION**

## DIVISION 01

### SECTION 01 18 00 PROJECT UTILITY SOURCES

#### 01 18 13 UTILITY SERVICE CONNECTIONS

##### 1.1 PLANNING

- A. Contractor shall make such application as required and submit all plans, specifications, and product submittals required to make connections to any utility as required by that agency.
- B. Contractor shall pay for all fees, reviews, permits, and inspections required by any utility, municipality, or agency, applicable for connection to any utility, at no additional cost to the District.

##### 1.2 CONSTRUCTION UTILITIES

- A. WATER: College shall furnish water from a hose bib or quick coupler to Contractor at no cost. Should Contractor require more water than can be had from such connection, Contractor shall secure a permit from the appropriate water agency for a fire hydrant meter, at no additional cost to the District.
- B. POWER: College will supply access to electrical power at a distribution panel. Contractor shall provide connection to the available power source and provide distribution to the work site and construction trailers as needed, at no additional cost to the District. If the available power source is too far from the Work to be practical, Contractor shall provide generated electrical power, at no additional cost to the District.

END OF SECTION

## **DIVISION 01**

### **01 26 00 CONTRACT MODIFICATION PROCEDURES**

#### **01 26 13 REQUESTS FOR INTERPRETATION**

- 1.1 Requests for Interpretation (RFI's) shall be submitted via email, in the format approved by the Project Architect/Engineer, to the Project Manager and Project Inspector. All responses to RFI's shall come from the Project Architect/Engineer. All RFI's shall be numbered sequentially. Requests for further information on the same subject shall use the original number followed by .01, .02, etc., or R1, R2, etc.
- 1.2 Contractor shall keep a current log of all RFI's, showing date issued, date answered, and current status (open/closed). Log shall be made available to the Project Manager and Project Inspector at all times. A cloud account for where this file is stored, and for which access has been granted to the above individuals, will be sufficient for this purpose.
- 1.3 Contractor shall at the time of submittal, include possible solution to the question contained within the RFI, should they have a solution to propose.

#### **01 26 63 CHANGE ORDERS**

- 1.1 A Change Order (C/O) shall be issued for all Scope changes to the project.
- 1.2 Change Orders (C/O's) must be approved by the Governing Board of the College District.
- 1.3 Contractor may not invoice for C/O's prior to Board Approval.

END OF SECTION



## **DIVISION 01**

### **01 30 00 ADMINISTRATIVE REQUIREMENTS**

#### **01 31 13 PROJECT COORDINATION**

- 1.1 Contractor shall schedule and coordinate the Work to provide the most efficient manner of completing the Work. Contractor shall schedule and coordinate the activities of subcontractors, of all tiers.
- 1.2 Should the need arise, Contractor shall coordinate with other Contractors and/or College staff if other work must be done in conflicting or adjacent areas.

#### **01 31 14 FACILITY SERVICES COORDINATION**

- 1.1 Contractor shall notify the appropriate underground utility locating company, such as Dig Alert, for the region that the Work will be performed, a minimum of seven days prior to the start of any excavation or directional boring. In addition, Contractor shall employ an underground utility locating company specializing in locating privately owned underground utilities to identify, locate, and memorialize all utilities in the immediate area of all excavation or boring operations, prior to beginning any excavation or directional boring operations. Contractor shall contact the Facilities, Maintenance , and Operations Office (FM&O) on each campus, and be given access to all available as-built plans relative to the area of the Work. Contractor shall be solely responsible for the repair to any utilities damaged during the performance of the Work. Contractor shall immediately notify FM&O of damage to any utility, and shall promptly repair said damaged utility per all applicable codes. All repairs shall be reviewed by the campus Director of FM&O, or designee, who shall determine the adequacy of the repair, prior to covering the repair.

#### **01 31 19 PROJECT MEETINGS**

- 1.1 Project Meetings shall be held weekly, unless the Project Manager determines that another frequency would be better suited to the project.
- 1.2 Project Meetings shall be attended by the PM or designee, the Architect/Engineer or designee (AE), Project Inspector(PI) and Contractor.
- 1.3 All representatives from PM, AE, PI and Contractor, shall be comprised of individuals authorized to make decisions on the project.
- 1.4 Contractor will take the meeting notes, and distribute to the attendees via email.
- 1.5 Project meetings shall be recorded. Recordings shall be distributed to all attendees.

## **DIVISION 01**

- 1.6 Contractor shall provide a schedule which shows the detail of the current week's work and a projection of the next three (3) weeks anticipated work.
- 1.7 Contractor shall provide logs for Requests for Interpretation (RFI's) and Submittals at each project meeting. Such logs shall indicate date of issue, and date of response, for each RFI/Submittal. Notation indication the most urgent responses needed.
- 1.8 RFI's and Submittals will be reviewed at each meeting as needed.

### **01 31 19 13 PRECONSTRUCTION MEETING**

- 1.1 Project Manager shall conduct a Pre-construction Meeting, at a location of his/her choosing, after award of the Contract and prior to beginning the physical construction activities.
- 1.2 The Pre-construction Meeting shall be attended by the Contractor's Project Manager, Contractor's Superintendent, Representatives of all major subcontractors, Architect/Engineer, Major Component Consulting Engineers, and the College's Project Manager.
- 1.3 Prevailing Wage requirements, submittal process and schedule, laydown areas, field office locations, project access, hours of work, project schedule and critical dates will be addressed.

### **01 31 19 16 PROJECT MOBILIZATION MEETING**

- 1.1 Contractor shall conduct a project mobilization meeting with his subcontractors.
- 1.2 Contractor shall review the submittal schedule and the project schedule, emphasizing critical dates.
- 1.3 Contractor shall coordinate his subcontractor to ensure that the project schedule is maintained throughout the duration of the project.

### **01 31 19 23 PROGRESS MEETINGS**

- 1.1 Contractor shall hold weekly progress meeting with subcontractors. Such meetings shall be attended by all subcontractors whose work is currently on-going, as well as subcontractors next scheduled on-site.

### **01 31 19 33 PRE-INSTALLATION MEETINGS**

- 1.1 Contractor shall hold Pre-installation Meeting with all sub-contractors prior to beginning the physical work on the project.

## **DIVISION 01**

- 1.2 The Project Inspector (PI) shall be invited to attend all Pre-installation Meetings
- 1.3 Contractor shall notify the PI at least forty-eight (48) working hours in advance of all Pre-installation Meetings.
- 1.4 Notification shall be via email.

### **01 31 26 ELECTRONIC COMMUNICATION PROTOCOLS**

- 1.1 Written communication, for the purposes of this Contract shall be via email, unless hard copy is required by statute.
- 1.2 Contractor shall provide cellular phone numbers for the Project Manager and the Project Superintendent for the duration of the project. Project Manager and Project Superintendent shall be available twenty-four hours per day, seven days per week, in the event of an emergency involving the Work.
- 1.3 The Project Manager shall compile a list of contacts for the project, and will distribute the list to the Contractor, Architect/Engineer, and the Project Inspector via email.

END OF SECTION

## **DIVISION 01**

### **01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION**

#### **01 32 13 SCHEDULING OF WORK**

- 1.1 Contractor shall submit a detailed Baseline Schedule for the Work, including all sub-categories of the Work, to the Project Manager (PM).
- 1.2 The Baseline Schedule shall include mobilization, beginning and duration of all elements of the Work, and shall include all milestone dates, completing the Work within the allotted Contract time.
- 1.3 PM shall review the Baseline Schedule, and in consultation with the Architect/Engineer (AE), shall request modifications or addition of detail as he/she deems necessary for the complete understanding of execution of the Work. Once PM is satisfied with the Baseline Schedule, the PM shall approve the Baseline Schedule.
- 1.4 Contractor shall supply the PM with a fully licensed copy of the scheduling program used to create the Baseline Schedule. The supplied program shall be the "Professional" version, or equivalent, capable of performing complete schedule analytics. Program shall be compatible with Windows 10, 64 bit and MS Office 2016, or programs in use on the PM's computer at the time of project commencement.
- 1.5 Contractor shall supply the PM with a fully functioning copy of the Baseline Schedule, in the native format of the scheduling program, on a USB drive.

#### **01 32 16 CONSTRUCTION PROGRESS DOCUMENTATION**

- 1.1 Contractor shall provide a schedule at each Project Meeting that depicts the current week's schedule, and the next three (3) week projected work.
- 1.2 Architect/Engineer (AE) and Project Manager (PM), accompanied by the Contractor's Project Manager or Superintendent, shall walk the project site following each project meeting to review the progress of the Work.
- 1.3 AE, PM and project consultants may be present on site at any time of their choosing in order to review or to document the Work.
- 1.4 Contractor shall take photographs, or other photographic evidence to document the existing conditions of the work site, or surrounding areas that may be a part of the Work, or used in transporting materials or equipment, prior the start of the Work. Such evidence shall be copied and presented to the PM, in high quality electronic format, prior to the start of the Work. All existing defects must be noted in the photographic documentation. Damage to the facilities, grounds, sidewalks or roadways not so noted,

## **DIVISION 01**

or insufficiently clear enough to verify, shall be assumed to have been damaged by the Contractor, who shall repair the damage to match the original condition at no additional cost to the District.

END OF SECTION

## **DIVISION 01**

### **01 33 26 SOURCE QUALITY CONTROL**

- 1.1.1 Contractor shall contact Project Inspector (PI) when material and/or product shipment arrive on the work site.
- 1.1.2 PI shall inspect materials and products for conformity with the approved submittals and Contract Documents.
- 1.1.3 All materials and products must be approved by the PI prior to installation.
- 1.1.4 See Section 01 40 00 for further information.

END OF SECTION

## DIVISION 01

### 01 45 23 TESTING AND INSPECTION

- F. Division of the State Architect (DSA) Interpretation Regulations (IR):
  1. DSA IR 17-2 – Nondestructive Testing (N.D.T.) of Welds.
  2. DSA IR 17-3 – Structural Welding Inspection.
  3. DSA IR 17-8 – Sampling and Testing of High Strength Bolts, Nuts and Washers.
  4. DSA IR 17-9 – High Strength Bolting Inspection.
  5. DSA IR 17-10 – Sampling, Testing and Tagging of Reinforced Bars.
  6. DSA IR 17-11 – Identification, Sampling and Testing of Threaded Steel Anchor Bolts and Anchor Rods.
  7. DSA IR 22-3 – Open Web Steel Joists and Joist Girders.
  8. DSA IR 23-4 – Metal-Plate-Connected Wood Trusses.
  9. DSA IR 23-8 – Manufactured Wood-Chord-Metal-Web Trusses.

#### 1.03 REGULATORY REQUIREMENTS

- A. Laboratories performing testing shall have DSA's Laboratory Evaluation and Acceptance Program approval prior to providing material testing or special inspection services.
- B. Tests of materials and inspections shall be in accordance to Section 4-213 through 4-219 of the California Building Standards Commission's California Administrative Code.
- C. Required materials testing, inspections and special inspections are indicated on the DSA approved DSA-103, Listing of Structural Tests & Special Inspections (T&I List). OWNER will provide CONTRACTOR copy of DSA-103.

#### 1.04 TESTS

- D. OWNER will contract with a DSA approved testing laboratory to perform the testing indicated on the Contract Documents, including the Tests and Special Inspections (T&I) list.
- E. Selection of material to be tested shall be by the Testing Laboratory and not by CONTRACTOR.
- F. Any material shipped from the source of supply prior to having satisfactorily passed such testing and inspection, or prior to the receipt of notice from Project Inspector such testing and inspection is not required, shall not be incorporated into the Work.
- G. OWNER will select, and directly reimburse, the Testing Laboratory for costs of all DSA required tests and inspections; however, the Testing Laboratory may be reimbursed by CONTRACTOR for such costs as specified or noted in related sections of the Contract Documents.

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H. The Testing Laboratory is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.

I. The Testing Laboratory shall not perform any duties of CONTRACTOR.

J. CONTRACTOR shall provide an insulated curing box with the capacity for twenty concrete cylinders and will relocate said box and cylinders as rapidly as required in order to provide for progress of work.

### 1.09 STRUCTURAL TESTS AND SPECIAL INSPECTIONS

#### A. Soils

1. General: Periodic inspection by Geotechnical Engineer for verification of the following construction activities in conformance to CBC Table 1705A.6:

a. Site has been prepared properly prior to placement of controlled fill and/or excavations for foundations.

b. Foundation excavations are extended to proper depth and have reached proper material.

c. Materials below footings are adequate to achieve the design bearing capacity.

2. Compacted Fills: Testing and inspections shall be in conformance to Table 1705A.6:

a. Geotechnical Engineer will continuously verify the use of proper materials and inspect lift thicknesses, placement, and compaction during placement of fill.

b. Testing Laboratory under the supervision of the Geotechnical Engineer will:

1) Perform qualification testing of fill materials.

2) Test the compaction fill.

3. Cast-in-Place Deep Foundations (Piers): Continuous inspections by Geotechnical Engineer in conformance to Table 1705A.8:

a. Inspect drilling operations and maintain complete and accurate records for each pier.

b. Verify placement locations and plumbness, confirm element diameters, bell diameters (if applicable), lengths, and embedment into bedrock (if applicable). Record concrete or grout volumes.

c. Confirm adequate end strata bearing capacity.

1) Concrete Piers: Tests and inspections will be as indicated on paragraphs below for concrete.

4. Retaining Walls:



## DIVISION 01

### a. Continuous inspections by Geotechnical Engineer:

- 1) Placement, compaction and inspection of soil per CBC Section 1705A.6.1 for fills supporting foundations.
- 2) Segmental retaining walls; inspect placement of units, dowels, connectors, etc.

### b. Concrete:

#### 1) Cast-in-Place Concrete: Inspection and testing in conformance to CBC Table 1705A.3:

a. Inspection of reinforcement, including pre-stressing tendons and verification of placement, per ACI 318, sections 25.2, 25.2, 25.51 through 26.5.3.

b. Reinforcing bar welding: Inspect per AWS D1.4, ACI 318 26.5.4.

1) Verification of weldability of reinforcing bars other than ASTM A706.

2) Inspect single-pass fillet welds, maximum 5/16".

3) Inspect all other welds.

c. Inspect anchors cast in concrete per ACI 318, section 17.8.2.

d. Inspect anchors post-installed in hardened concrete members:

1) Continuous inspection of adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads, per ACI 318, section 17.8.2.

e. Design Mix:

1) Verify use of required mix, per ACI 318, chapter 19 and sections 26.4.3 and 26.4.4.

2. Batch Plant Inspection: The quality and quantity of materials used in transit-mixed concrete and in batched aggregates shall be continuously inspected as required by CBC section 1705A.3.2. If approved by DSA, batch plant inspection may be reduced to periodic if plant complies with CBC section 1705A.3.1, item 1, and requires first batch inspection, weighmaster, and batch tickets.

f. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete, per ASTM C172, ASTM C31, ACI 318, sections 26.4.5 and 26.12.

## DIVISION 01

g. Inspect concrete and shotcrete placement for proper application techniques, per ACI 318, section 26.4.5.

h. Verify maintenance of specified curing temperature and techniques per ACI 318 sections 26.4.7 through 26.4.9 and CBC section 1908.9.

i. Inspect pre-stressed concrete for:

1) Application of pre-stressing forces, per CACI 318 section 26.9.2.1.

2) Grouting of bonded pre-stressing tendons per ACI 318 section 26.9.2.3.

j. Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs per ACI 318 section 26.10.1.b.

k. Sampling and testing of reinforcing steel per ASTM A370, DSA IR 17-10 and CBC section 1910A.2. CONTRACTOR shall submit mill certificate indicating compliance with requirements for reinforcement, anchors, ties, and metal accessories.

### 2. Post-installed Anchors:

a. Special Inspector will inspect installation of post-installed anchors in hardened concrete members as required by CBC table 1705A.3, item 4.

1) Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads, per ACI 318 section 17.8.2.4.

2) Mechanical anchors and adhesive anchors not defined above, per ACI 318 section 17.8.2.

b. Testing Laboratory will test post-installed anchors in conformance to CBC section 1905A and ASTM E488.

### C. Structural Steel:

1. Special inspector will verify that all materials are properly marked in conformance with AISC Section 3.3 and applicable ASTM standards.

a. Mill certificates indicating material properties that comply with requirements.

b. Materials, sizes, types and grades complying with requirements.

2. Testing Laboratory will test unidentified materials in conformance with ASTM A370.

3. Special Inspector will examine seam welds of HSS shapes in conformance with DSA IR-17-3.

## DIVISION 01

4. Special inspections and non-destructive testing of structural steel elements shall be in conformance to CBC section 1705A.2.1.

### D. High Strength Bolts:

1. Special inspector will verify identification markings and manufacturer's certificates of compliance.
2. Testing Laboratory will test high strength bolts, nuts and washers in conformance with ASTM F606, ASTM A370 and DSA IR 17-8.
3. Special inspector will inspect bearing-type ("snug tight") bolt connections in conformance with AISC 360 section M2.5 and DSA IR 17-9.
4. Special inspector will inspect slip-critical bolt connections in conformance with AISC 360 section M2.5.

### E. Welding:

1. Verification of Materials, Equipment and Welders:
  - a. Special Inspector will verify weld filler material identification markings per AWS designation listed on the Contract Documents and the WPS.
  - b. Special Inspector will verify material manufacturer's certificate of compliance.
  - c. Special inspector will verify WPS, welder qualifications and equipment in conformance to DSA IR 17-3.
2. Shop Welding: Special inspector will inspect the following, per CBC 1705A.2.1, AISC 360 (and AISC 341, as applicable) and DSA IR 17-3:
  - a. Groove, multi-pass fillet welds larger than 5/16", plug and slot welds.
  - b. Single-pass fillet welds equal or less than 5/16".
  - c. Inspect welding of stairs and railing systems.
  - d. Verification of reinforcing steel weldability.
  - e. Welding of reinforced steel per AWS DI.4.
3. Field Welding: Special inspector will inspect the following, per CBC 1705A.2.1, AISC 360 (and AISC 341, as applicable) and DSA IR 17-3:

## DIVISION 01

- a. Groove, multi-pass fillet welds larger than 5/16", plug and slot welds.
- b. Single-pass fillet welds equal to or less than 5/16".
- c. End welded studs (ASTM A108) installation, including bend test.
- d. Floor deck welds.
- e. Welding of structural cold-formed steel.
- f. Welding of stairs and railing systems.
- g. Verification of reinforcing steel weldability.
- h. Inspect welding of reinforced steel.

5. Non-Destructive Testing: Testing Laboratory will test perform ultrasonic and magnetic particle testing in conformance to AISC 360 section N5.5, AISC 341 appendix Q5.2, AWS DI.1, AWS DI.8, ASTM E543, ASTM E1444, ASTM E164 and DSA IR 17-2.

F. Steel Joists: Continuous inspection, special inspector will verify size, type and grade for all chord and web members as well as connectors and weld filler material, verify joist profile, dimensions and chamber (if applicable); verify all weld locations, lengths and profiles; mark or tag each joist, in conformance with CBC section 2207.1 and DSA IR 22-3.

G. Anchor Bolts, Anchor Rods and Other Steel:

1. Testing Laboratory will sample and test not readily identifiable anchor bolts and anchor rods in accordance with DSA IR 17-11.
2. Testing Laboratory will sample and test not readily identifiable threaded rod not used for foundation anchorage per procedures noted in DSA IR 17-11.

PART 2 – PRODUCTS (Not used).

PART 3 – EXECUTION (Not used).

END OF SECTION

## DIVISION 01

### 01 70 00 EXECUTION AND CLOSEOUT REQUIREMENTS

#### 01 71 13 MOBILIZATION

##### 1.01 SECTION INCLUDES

- A. Contractor shall be responsible for all preparatory work and operations required prior to beginning the Work.

##### 1.02 GENERAL

- A. Mobilization shall include, but not limited to, the following:

1. Movement of personnel, tools, equipment, materials, supplies, and incidentals to the PROJECT site and all preparatory work, including installation of PROJECT sign.
2. Establishment of all necessary facilities, including acquisition of easements for the CONTRACTOR's convenience.
3. Obtaining permits necessary for the execution of the WORK.
4. Providing required bonds and proof of insurance.
4. Upon completion of the WORK, CONTRACTOR shall remove tools, equipment, and unused materials and supplies from the PROJECT site and restore all disturbed areas outside the PROJECT area to their pre-construction condition.

- B. The District has the right to reject construction tools, equipment, materials, and supplies which are, in District's opinion, unsafe, improper, or inadequate.

1. CONTRACTOR shall bring rejected construction tools, equipment, materials, and supplies to an acceptable condition as approved by OWNER or remove from the PROJECT site.

##### 1.03 SUBMITTALS

- B. CONTRACTOR shall submit a layout of the PROJECT site including fences, roads, parking, buildings, storage areas, drainage plans, temporary building layouts, and temporary utility locations per the milestones in Schedule 9, Section 1.5 of the Energy Services Agreement.

END OF SECTION

## DIVISION 01

### 01 71 23 FIELD ENGINEERING AND SURVEYING

#### 1.01 SECTION INCLUDES

- A. It shall be the responsibility of CONTRACTOR to provide construction staking for horizontal and vertical alignment of the centerline, grading, and all appurtenant features of the WORK, including offset lines necessary for construction.
- B. CONTRACTOR shall be responsible for staking the limits of construction.

#### 1.02 REFERENCE POINTS AND SURVEYS

- A. All construction surveying provided by CONTRACTOR shall be completed under the supervision of a California Registered Land Surveyor.
- B. CIVIL ENGINEER will provide the elevations, coordinates and descriptions of the original and temporary PROJECT benchmarks on the Construction Documents.
- C. Requests by CONTRACTOR for survey required reference points and benchmarks not indicated in the Construction Documents shall be made, in writing, to CIVIL ENGINEER, allowing CIVIL ENGINEER a minimum of forty-eight(48) working hours to commence response as requested by CONTRACTOR.
  - 1. The forty-eight (48)-hour time period will commence from the time CIVIL ENGINEER receives such written request from CONTRACTOR.
  - 2. The forty-eight (48)-hour period excludes weekend days, holidays, organized union holidays, and days where weather conditions are detrimental to CIVIL ENGINEER's ability to the requested questions.
- D. WORK that CONTRACTOR has done before reference points and benchmarks have been provided may be rejected.
- E. CONTRACTOR shall carefully preserve all reference points and benchmarks.
  - 1. In case of loss or disturbance of reference points and benchmarks, CONTRACTOR shall be responsible for the cost of replacement.
    - a. Such cost will be deducted from the next progress payment to CONTRACTOR.

END OF SECTION

## DIVISION 01

### 01 71 33 PROTECTION OF ADJACENT WORK, STRUCTURES, UTILITIES, AND LANDSCAPING

#### 1.01 SECTION INCLUDES

- A. CONTRACTOR shall protect all adjacent work, structures and landscaping from damage during the performance of the Work.
  - 1. CONTRACTOR shall erect all fences, barriers, guards necessary to prevent harm or damage to adjacent work, structures, utilities, and landscaping, at no additional cost to the District.
  - 2. Damage to adjacent work, structures, utilities, or landscaping shall be reported immediately in writing to the Project Manager.
    - a. Written notification shall be email for the purposes of this Contract.
    - b. Adjacent work, structures, utilities, and/or landscaping , for the purposes of this Contract, shall be all property belonging to the DISTRICT next to the WORK site, or any roadway or thoroughfare used by the Contractor, or any work, structures, utilities, and/or landscaping alongside any roadway or thoroughfare used by the Contractor.
  - 3. Work, structures, utilities, or landscaping damaged by the CONTRACTOR shall be replaced or repaired to the satisfaction of the Project Manager.

END OF SECTION

## DIVISION 01

### 01 73 00 EXECUTION REQUIREMENTS

#### PART 1 - GENERAL

- A. Site: Maintain Project site free of waste materials and debris. Comply with Schedule 9, Section 2.1, para. 22 of the Energy Services Agreement requirements for waste disposal and TBD via Construction Management Plan and regular project meetings.

#### PART 2 - PRODUCTS

(Not Used).

#### PART 3 - EXECUTION

##### 3.2 SAFETY

- A. Safety and supervision of construction procedures are Contractor's responsibility. Neither the Architect nor his consultants, Project Inspector, or the Project Manager shall be responsible for, construction means and methods or job site safety during construction. Processing and approving submittals made by Contractor which may contain information related to construction methods or safety issues, or participation in meetings where such issues might be discussed shall not be construed as assumption by the design professional, Project Inspector, or Project Manager of any responsibility for safety procedures.

##### 3.3 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
  - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing substrates: Examine the substrate or structure to which a product is to be applied or installed. Do not proceed until unsatisfactory conditions have been corrected. Starting the Work indicates acceptance of conditions and the installer assumes full responsibility for results.
  - 1. Check the substrate or structure for proper clearances and tolerances. Tolerances may be listed under individual Sections.



## DIVISION 01

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

### 3.4 PREPARATION

- A. **Field Measurements:** Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. **Space Requirements:** Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. **Substrates:** Where products are applied to an existing or new substrate, prepare the substrate as recommended by the product Manufacturer, generally as follows:
  1. Bring substrate to a uniform surface by smoothing uneven surfaces and filling holes, cracks and low places with recommended filler or parent material.
  2. **Depressed Slabs:** Bring substrate to required elevation to receive finish materials where finish materials cannot completely fill depression. Use approved cementitious filler or parent material. Coordinate depressed slab locations with finish material locations.
  3. Remove substances, such as dust, oils and other foreign matter, not compatible with the product.
  4. Surfaces shall be dry, unless a moisture content or wetting is specified.
- D. **Surface preparation for installation of finish materials:** The Contractor shall provide all major preparation for finish surfaces, including preparation for all Asphalt Concrete, concrete or metallic surfaces furnished and installed by the Contractor or repaired/resurfaced by the Contractor as a part of the Work.. Finish preparation shall include the following:
  1. Following removal of the existing foreign materials and adhesives, clean, repair and prepare substrate surfaces to receive new finish materials. Remove surface

## DIVISION 01

irregularities that would telegraph to the finish surface. Grind ridges and raised areas. Fill holes and depressions and repair cracks.

2. Filling all holes in existing and new concrete floor slabs.
  3. Filling and patching trenches in existing and new concrete floor slabs after the trenches are cut and filled.
  4. Cleaned and repaired surfaces will be inspected and shall be acceptable to the Project Inspector before installation of finish surface materials.
- E. Inserts and Anchorages:
1. Anchorages where not detailed are the responsibility of the installer to design a suitable connection, structurally sound, and aesthetically acceptable to the Architect. Furnish calculations, drawings, product data when requested by Architect, project Engineers, or DSA.
  2. It is the responsibility of the installer to furnish built in fastening devices for their product to the proper trade for installation as the Work proceeds.
- F. Templates: Provide templates, diagrams and other coordinating documents to the proper Contractor, Manufacturer, or supplier of related items affecting the Work.
- G. Dimensions:
1. If the exact location of an item is not indicated by dimension on the Drawings or noted in the Specifications, the Architect reserves the right to determine such location in the field prior to roughing in.
  2. If the exact dimensions of a product are not indicated or shown, the Architect reserves the right to determine dimensions prior to ordering or fabricating the product.
  3. Such dimensional changes shall not be a basis for changes in the Contract Amount.
  4. Where miscellaneous devices, such as thermostats, switches, controls, grilles, pipes, or outlets of any nature are not exactly located by the Contract Documents, request such location or obtain approval of the location prior to installation. If approval has not been obtained, the Architect may direct the relocation of such devices at the expense of the installer.

## DIVISION 01

### 3.5 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout and work point information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. Construction Lines and Levels: Locate and lay out control lines and levels for structures, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels.

### 3.6 INSTALLATION

- A. Install products in accordance with the Manufacturer's recommendations or the requirements of trade associations, listed standards, approved Shop Drawings, and Contract Documents.
  - 1. Where a conflict exists between these references, the most stringent requirements govern. If printed instructions are not available, consult with the Manufacturer's field representative.
- B. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Contract Completion.
- C. Provide hangers, auxiliary framing, and other means for installing ceiling suspension systems, lighting fixtures, diffusers, and other equipment in ceilings to avoid ducts, piping, etc.
  - 1. Suspend from structural members, such as joists or beams, and not from conduit or piping.
- D. Install Work in a manner that will not interfere with the proper installation of the Work of other trades.
- E. Install Work in a manner to facilitate operating, servicing, and repairing.
- F. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

## DIVISION 01

- G. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- H. Anchors and Fasteners: Provide anchors and fasteners approved by the University and as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
  - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by the Architect.
  - 2. Allow for building movement, including thermal expansion and contraction.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

### 3.7 WORKMANSHIP

- A. Install products straight, plumb, level, and in line. Securely attach items to the substrate, using recommended adhesives, mechanical fasteners or other devices. Where holes are provided for attachment, do not field drill or cut new holes without the approval of the Architect.
- B. Match all finished Work to the approved submitted Samples or approved Sample panels.
- C. Conceal fasteners wherever possible, unless exposed fasteners are permitted or specified.
- D. Weld in accordance with AWS standards for qualifications of operators and for workmanship.

### 3.8 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
- B. The Work.

## DIVISION 01

1. Remove liquid spills promptly.
  2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- C. Installed Work: Keep installed Work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, provide cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- D. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- E. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Contract Completion.
- F. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Contract Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

### 3.9 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

## DIVISION 01

- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: When required by the Specification section, provide a factory-authorized service representative to inspect field-assembled components and equipment installation

### 3.10 PROTECTION

- A. Protect finished surfaces of product being installed and surrounding products from damage during installation. Provide protective devices as required and as recommended by the Manufacturer. Cover Work subject to damage at the end of each day's work.
- B. Coat concealed surfaces of metal products with a bituminous or other approved coating to prevent contact between dissimilar metals or other material that can cause deterioration.
- C. Correct damage by repairing or replacing damaged Work as directed by the Architect. Repairing will be permitted only where the repair is undetectable and does not cause structural damage or interfere with proper functioning of the part.
- D. Protect finish of installed products until Contract Completion, by use of wrappings, covers, or other approved protective devices. Remove such protection immediately prior to final cleaning.

### 3.11 OVERHEAD ATTACHMENTS

- A. For required hangers, each trade to provide one or more of the following:
  - 1. Concrete inserts prior to placement of concrete.
  - 2. Trapeze from adjacent structure with suitable steel framing and approved by DSA.
  - 3. Connections to Structure: Suitable anchorage devices with a minimum load carrying capacity of 250 lbs. plus a safety factor of 4:1 for the applied load and approved by DSA.

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- a. Concrete: Steel expansion anchors approved by DSA.
  - b. Steel: Bolted or welded connections to steel structure per DSA approved Structural Drawings.
- B. Verify support requirements of heavy or unusual loads not specifically shown on drawings with Architect.

END OF SECTION

## DIVISION 01

### 01 73 29 CUTTING AND PATCHING

- A. Concrete Cutting and Patching: Should it be necessary to cut existing concrete paving of any kind during the course of executing the Work, the Contractor shall remove the existing concrete in increments not less than the regularly occurring existing expansion/control joints or cuts. The Contractor shall not use an old patch cut as a cut point unless that cut falls on a regularly occurring expansion/control joint or cut. Should the existing concrete paving have no expansion or control joints or cuts, the replacement concrete shall not exceed twenty (20) lineal feet without adding a control/expansion joint. Where such concrete abuts a building or other concrete paving or slabs-on-grade, the Contractor shall dowel #4 Grade sixty (60) rebar a minimum of six inches (6") into the existing concrete and extending a minimum of eighteen (18") into the new concrete at eighteen (18") on center. Secure the rebar into the holes with Hilti HIT-HY 200, or equivalent, at each occurrence. All new concrete shall be four (4") inches minimum thickness, or the thickness of the original concrete, whichever is greater. All concrete shall be a minimum of five thousand pound compressive strength (5,000PSI), or equal to the existing, if known to be greater than 5,000 PSI. Concrete surface finish shall be a "light broom" finish at all exposed surfaces.
- B. Asphalt Paving Cutting and Patching: Should it be necessary to cut existing asphalt paving of any kind during the course of executing the Work, the Contractor shall match the original paving in aggregate size, mix composition, section thickness, subgrade composition and section thickness. All surrounding joints shall be coated with appropriate adhesive, and filled/sealed to prevent water intrusion. To prevent the pavement patch from subsidence, excavations must be filled in lifts not exceeding six inches (6") in depth and compacted to achieve Relative Compaction of ninety-five percent (R 95%).

END OF SECTION



## DIVISION 01

### 01 74 00 CLEANING AND WASTE MANAGEMENT

#### 01 74 16 SITE MAINTENANCE

- A. Site shall be kept clean and free of debris at all times. Contractor shall supply, at no additional cost to the District, sufficient number of refuse containers so as to keep the site clean and free of litter and debris daily. Such containers shall be removed and replaced with new, empty containers as they become full.
- B. Equipment and materials shall be kept in an orderly manner. Equipment shall not leak any fluids. Equipment leaking any fluids must be removed from the site immediately, and contaminated surfaces shall be disposed of in a lawful manner. Materials shall be organized and stored in a safe manner.

#### 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

- A. Demolished materials shall be recycled if possible. Receipts for all recycled materials shall be turned in to the Project Manager.
- B. Waste materials must be disposed of in a legal manner. Receipts for waste tonnage shall be given to the Project Manager.

#### 01 74 23 FINAL CLEANING

- A. Contractor return the entire area of the Work to the District in condition equal to prior to construction.
- B. The Contractor shall ensure that the Work Area shall be free from debris of any kind, and shall have been swept clean of all dirt, sand and deleterious material.
- C. The Contractor shall ensure that landscape areas shall be raked free of debris.
- D. The Contractor shall ensure that roofs, gutters and downspouts shall be cleared free of all debris.
- E. The Contractor shall remove all storage bins trash and recycle bins from the site.

END OF SECTION

## DIVISION 01

### 01 75 00 STARTING AND ADJUSTING

#### 01 75 13 CHECKOUT PROCEDURES

##### 1.01 GENERAL

- A. Contractor shall follow manufacturer's instructions for adjustment of all installed equipment.

#### 01 75 16 START-UP PROCEDURES

##### 1.01 GENERAL

- A. Contractor shall employ a Factory Certified Technician to perform the initial start-up of all provided equipment.
- B. Contractor shall ensure that all provided equipment is operating within manufacturer's specifications, is fully functional, and ready to turn over to the District.
- C. Contractor shall obtain warranties as stipulated in the Construction Documents.

END OF SECTION

## DIVISION 01

### 01 77 00 CLOSEOUT PROCEDURES

#### 01 77 13 PRELIMINARY CLOSEOUT REVIEW

##### 1.01 GENERAL

- A. Upon completion of all Work described in the Contract Documents, the Contractor shall request that the Architect/Engineer, Project Inspector, and the Project Manager convene a meeting onsite for the purpose of reviewing the completed Work. The Architect/Engineer shall prepare a list of items requiring further work, are missing, or are incomplete. This list of deficiencies shall be referred to as the Punch List.
- B. The Contractor shall within thirty (30) days, correct all deficiencies contained in the Punch List.
- C. The Architect/Engineer, upon review of the Work, and if the Work contained in the Contract Documents is completed, requiring only minor adjustments or modifications, the Architect/Engineer shall prepare a Notice of Substantial Completion (NOSC), and distribute the NOSC to the Project Manager and the Contractor.

#### 01 77 16 FINAL CLOSEOUT REVIEW

##### 1.01 GENERAL

- A. Upon completion of the corrections in the Punch List, The Contractor shall request that the Architect/Engineer revisit the Work to review the deficiencies, and verify completion.
- B. The Contractor shall prepare and provide to the Architect/Engineer a copy of the Record Set (AS-Built) Drawings for review and approval.
  1. The Record Drawings shall include, legibly marked record of the Work as actually constructed, including, but not limited to all changes and deviations from the original drawings
- C. The Contractor shall prepare and provide to the Architect/Engineer, Operation and Maintenance Manuals and product data for all materials and equipment used in the Work.
- D. The Contractor shall provide training in the safety features of all installed equipment.

#### 01 77 19 CLOSEOUT REQUIREMENTS

## **DIVISION 01**

### **1.01 GENERAL**

- A. All closeout documentation included under section 01 78 00 through 01 78 53 shall be provided to the District in a comprehensive, legible format, as described therein, prior to final payment.

**END OF SECTION**

## DIVISION 01

### 01 78 00 CLOSEOUT SUBMITTALS

### 01 78 13 COMPLETION AND CORRECTION LIST

#### 1.01 GENERAL

- A. A Completion and Corrections List, also known as the Punch List, shall be developed by the Architect/Engineer, following notification by the Contractor that the Work is Substantially Complete, and has been reviewed by the Architect/Engineer who shall determine that the Contract Work is substantially completed. The items listed in the Punch List as needing completion or correction, shall be determined by the Architect/Engineer who shall verify that all components meet the intent of the Contract Documents prior to removal from the Punch List.
- B. The Contractor shall diligently pursue the completion and correction of the items indicated in the Punch List. All items contained in the Punch List shall be completed or corrected within thirty (30) days following the issuance of the Punch List.
- C. The District shall grant reasonable access to the Work to the Contractor for completing the Punch List items.

### 01 78 19 MAINTENANCE CONTRACTS

#### 1.01 General

- A. Contractor shall provide Maintenance Contracts as required in the Contract Documents. Contractor shall create a binder containing the requisite contracts, in their complete form. The Binder shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size. When multiple binders are used, Designer/Builder shall correlate data into related consistent groupings. The Maintenance Contracts shall be organized by CSI Division, shall contain a Table of Contents, and shall contain sequentially numbered pages. Contractor shall also provide the Maintenance Documents in a searchable PDF Binder Document containing the same documents in the same format as the hard copy binder.

### 01 78 23 OPERATION AND MAINTENANCE DOCUMENTS

#### 1.01 OPERATING INSTRUCTIONS AND MAINTENANCE MANUAL

- A. Contractor shall prepare data in the form of an instructional manual entitled "OPERATING INSTRUCTIONS AND MAINTENANCE MANUAL."

## **DIVISION 01**

- B. Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size. When multiple binders are used, Designer/Builder shall correlate data into related consistent groupings.
- C. Contractor shall, on the cover and the spine of the binder, identify each binder with typed or printed title "OPERATING INSTRUCTIONS AND MAINTENANCE MANUAL"; and shall list title of Project and identify subject matter of contents.
- D. Contractor shall arrange content by systems process flow under section numbers and sequence of Table of Contents of the Contract Documents.
- E. Contractor shall provide tabbed fly leaf for each separate Product and system, with typed description of Product and major component parts of equipment.
- F. The content shall include Manufacturer's printed data, or typewritten data on 24 pound paper.
- G. The Contractor shall provide manufacturer's drawings with reinforced punched binder tab and shall bind in with text; folding larger drawings to size of text pages.
- H. Contractor shall also provide the OPERATING INSTRUCTIONS AND MAINTENANCE MANUAL in a searchable PDF Binder Document containing the same documents in the same format as the hard copy binder.

END OF SECTION

## SPECIFICATION SECTION 05 90 02: SOLAR PHOTOVOLTAIC CANOPY STRUCTURES

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. The Contract and any design-build bridging documents.
- B. Section 26 00 00: General Electrical Specifications
- C. Section 48 14 00: Photovoltaic System Specifications
- D. Other relevant Purchaser Specifications

*NOTE: Where this specification and other specifications or bridging-documents are in conflict, the more stringent shall apply. Provider shall identify conflicts and confirm recommended equipment or procedures with the Purchaser.*

#### 1.02 CODES & REFERENCES

- A. The design and installation shall conform to all requirements as defined by the applicable codes, laws, rules, regulations and standards of applicable code enforcing authorities (Latest Edition unless otherwise noted). The following are key standards that shall be followed. Provider shall ensure all applicable codes are followed:
  - 1. Aluminum Association (AA) ([www.aluminum.org](http://www.aluminum.org)) - Aluminum Standards and Data
  - 2. ASTM International (ASTM) ([www.astm.org](http://www.astm.org)), including:
    - a. A6, Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling
    - b. A36, Standard Specification for Carbon Structural Steel
    - c. A123, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
    - d. A653, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
    - e. E3010, Standard Practice for Installation, Commissioning, Operation, and Maintenance Process (ICOMP) of Photovoltaic Arrays
  - 3. AISC Manual of Steel Construction
  - 4. AISI Specifications for the Design of Cold Formed Steel Members
  - 5. American National Standards Institute (ANSI)
  - 6. American Society of Civil Engineers (ASCE), Minimum Design Loads and Associated Criteria for Buildings And Other Structures (7-16)
  - 7. California Building Code (CBC), with State of California Amendments
  - 8. California Energy Commission Title 24 Building Energy Efficiency Requirements
  - 9. California Department of Forestry and Fire Protection, Office of the State Fire Marshal – Solar Photovoltaic Installation Guidelines
  - 10. Local and State Fire Code
  - 11. Purchaser Specifications and Requirements
  - 12. DSA IR-16-8 (most recent) Guidelines
  - 13. DSA PL-07-02 (most recent) Guidelines
  - 14. Institute of Electrical and Electronics Engineers (IEEE)
  - 15. National Electrical Manufacturers Association (NEMA)
  - 16. National Fire Protection Association (NFPA), National/CA Electrical Code
  - 17. Occupational Safety and Health Administration (CAL\_OSHA)

## SPECIFICATION SECTION 05 90 02: SOLAR PHOTOVOLTAIC CANOPY STRUCTURES

18. Research Council on Structural Connections (RCSC)
19. Underwriters Laboratory (UL), including:
  - a. UL 2703 – Standard for Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for use with Flat-Plate Photovoltaic Modules.
20. Utility company standards and requirements
21. All other applicable Codes and Ordinances

### 1.03 GENERAL

- A. “Purchaser” shall refer to owner of the site where project will be located, regardless of system ownership, and include any representative of the site host, such as consultants or inspectors. “Provider” refers to Forefront Power. “Contract” refers to the Energy Services Agreement and any associated design-build bridging documents. The Provider shall include all items and all work reasonably inferred by these specifications and the Contract for compliance with all applicable structural codes. If the Provider is in doubt as to the intent of any portion of these specifications and the Contract, or necessary information is omitted, the Provider shall notify the Purchaser in writing for clarifications or corrections to be provided by addendum.
- B. All design documents, cut sheets, and technical specifications shall be submitted, reviewed and accepted by the Purchaser per the guidelines specified in the Contract.
- C. General Specifications as described in Section 26 00 00: General Electrical Specifications, are referred to herein and shall apply to this specification. Section 26 00 00 shall be deemed to supersede this specification in the case of conflicts.

### 1.04 WORK INCLUDED

- A. The work shall include the design and construction of the structural systems for solar PV canopies, in conformity with applicable codes and professionally recognized standards.
- B. The structural design shall be fully developed, including descriptions and calculations for all structural components. The site, plans, elevations, schedules and detail drawings must be sufficiently developed to reflect the overall design per the Contract and as described in Section 48 14 00, Photovoltaic System Specifications. Clear-height of canopy above grade shall be clearly noted on the drawings for the low side of canopies at corners and at the minimum clear location between corners.
- C. Provider shall provide all materials, labor, equipment, services, and incidentals necessary to install the structures at each Site as shown on the design drawings and as specified hereinafter.
- D. Provider shall provide temporary power and lighting as required for construction. Additionally, contractor must provide sufficient temporary facility lighting in place of removed existing lighting during construction phase until under canopy lighting is fully operational except that Provider will not be responsible for providing lighting to areas not accessible to the public.
- E. Provider shall be responsible for location of all underground utilities and infrastructure with the use of Ground Penetrating Radar (GPR) or equivalent technology such as electromagnetic locating. GPR shall be used for areas of drilling or open cut. Electromagnetic detection shall be used as a substitution for GPR in drilling/open cut areas only when GPR is not possible.
- F. Provider shall be responsible to cause for prompt removal and disposal of spoils from all related construction activities.



## SPECIFICATION SECTION 05 90 02: SOLAR PHOTOVOLTAIC CANOPY STRUCTURES

### 1.05 DESIGN PROCEDURE & REQUIREMENTS

- A. Engineering calculations, drawings and specifications shall be prepared and signed by a Structural Engineer, registered in the State of California and regularly employed in the design of photovoltaic canopy systems. For projects under the jurisdiction of the California Division of the State Architect (DSA), the Engineer and Architect of Record shall be regularly employed in the design of DSA canopy projects. Structural Engineer shall be the Engineer of Record as required by code-enforcing authorities. The Engineer of Record shall provide required statements and certifications.
- B. All structural system components shall be designed and constructed to withstand the environmental conditions of the site to which they will be exposed. The mounting systems shall be designed and installed to resist dead load, live load, corrosion UV degradation, wind loads, and seismic loads appropriate to the geographic area over the expected life of the PV system, a minimum 25-years.
- C. For California projects under the purview of DSA, designs shall utilize structural designs with current Pre-Check (PC) status, eligible for Over-the-Counter (OTC) review.
- D. All canopies shall be designed to meet ADA requirements per the relevant AHJ(s). Provider shall be responsible for all ADA improvements including path of travel improvements and other improvements required by the AHJ as part of the project. If additional ADA upgrades are required as a result of the premises not being code compliant prior to the start of construction, Purchaser shall be responsible for the costs of such additional upgrades, provided, Provider shall work with Purchaser in good faith to determine a mutually-acceptable solution for Purchaser to pay such additional costs, including potentially an increase in the kWh rate in Schedule 2. Provider shall be responsible for costs associated with signage and striping for any parking spaces impacted, altered, or otherwise affected as a result of the Systems being installed.
- E. GEOTECHNICAL STUDY AND ANALYSIS
  - 1. A geotechnical analysis shall be provided and directed by the Provider and performed by a licensed geotechnical engineering firm at the locations where the structures are to be installed. The results of the analysis shall be used when designing the foundations for the structures on the Site.
  - 2. At a minimum, the following should be included in the analysis:
    - a. Review available geotechnical information. This may include past geotechnical reports, soils and geologic maps/literature, photographs, groundwater reports, water well data, etc.
    - b. Coordination and mobilization of the geotechnical services team for subsurface exploration of the site. This shall include coordinating local utilities to mark any existing underground utilities.
    - c. Study the site to determine the presence of faults, ground fissures, and other potential geologic hazards that could affect the structural design and construction of the facility.
    - d. Drilling or digging of exploratory borings and pits. The amount and depth shall be determined by the Engineer of Record.
    - e. Laboratory testing of collected soil samples from the borings and test pits. An evaluation of the in-place moisture content and dry density, gradation, plasticity, consolidation characteristics, collapse potential, expansivity, shear strength, resistivity, chloride content, sodium sulfate content, and solubility potential (total salts) should be conducted.

## SPECIFICATION SECTION 05 90 02: SOLAR PHOTOVOLTAIC CANOPY STRUCTURES

- f. Analyze the corrosivity of the soil upon determination of a professional engineer. Include a recommendation for the type of cement to be used in concrete foundations. Also include recommendations for corrosion protection for underground steel, including rigid metal conduit (such as the need for polyvinyl chloride [PVC] coating).
- g. A detailed report shall be provided outlining the tasks performed and the results of the testing. Included in the report should be any recommendations for the foundation designs, structural support designs, corrosion protection, pile drive frequency, minimum pile size, and any geologic conditions that may prevent the development of the project. For ground mount systems, an opinion on the viability of driven piles as the PV racking supports should be provided.

### 1.06 PERMITS AND INSPECTIONS

- A. Provider shall obtain all required permits and arrange for all required inspections, including utility company requirements, inspections, and sign-offs.
- B. For California projects under the purview of DSA, the Provider shall obtain a permit from DSA. A Project Inspector will be employed by Purchaser in accordance with requirements of Title 24 of the California Code of Regulations with their duties specifically defined therein. Additional DSA Special Inspectors may be employed and assigned to the Work by Purchaser in accordance with the requirements of the CBC and DSA.
- C. Inspection of Work shall not relieve Provider from any obligation to fulfill all terms and conditions of the Contract Documents.
- D. Provider shall be responsible for scheduling times of inspection, tests, sample taking, and similar activities of the Work.
- E. Provider shall not allow or cause any of the work to be covered or enclosed until it has been tested and/or inspected.

## PART 2 - PRODUCTS

### 2.01 SOLAR CANOPY STRUCTURES

- A. The PV Canopies shall consist of interconnected structural steel columns and beams, purlins attached to cross beams and solar modules mechanically fastened to the purlins. Canopies shall have a single row of columns along the long axis of the canopy. In parking areas, columns shall be located between parking stall spaces with beams cantilevered to either one or both sides of the column for both dual entry (aisle) and single entry (perimeter) parking structures.
- B. COATINGS AND CORROSION CONTROL
  - 1. Each canopy system and associated components must be designed and selected to withstand the environmental conditions of the site (e.g., temperatures, winds, rain, flooding, etc.) to which they will be exposed. The design life shall be a minimum of 25-years.
  - 2. All structural members and racking installed outdoors shall be hot dipped galvanized steel.
    - a. All galvanized structural components shall be hot-dipped galvanized in compliance with ASTM 123.
    - b. All purlin framing members shall meet ASTM A653, minimum G90. If structure is in close proximity to a marine environment (within 1 mile), G120 or higher shall be installed per Engineer/Architect of Record's specification.

## SPECIFICATION SECTION 05 90 02: SOLAR PHOTOVOLTAIC CANOPY STRUCTURES

- c. Field cuts of galvanized materials shall be kept to a minimum. All galvanized materials cut during construction shall be field coated with a long-lasting rust inhibiting coating, color matched and intended for coating hot-dipped galvanized metal in outdoor settings.
  3. All canopy bolts, nuts and washers, unless otherwise noted, shall be hot dip galvanized or stainless steel.
  4. Particular attention shall be given to the prevention of corrosion at the connections between dissimilar metals.
- C. All materials shall conform to the requirements, tolerances, etc. of the latest editions of the AISC Manual of Steel Construction, AISI Specifications, ASTM Standard Specifications.
- D. All framing material shall be drained or have provisions to prevent water pooling on or within the framing member (weep holes).
- E. FOUNDATIONS AND COLUMNS
  1. In parking areas, concrete column foundations shall extend a minimum height of 30 inches above grade.
  2. For canopies outside of parking areas, such as hardscape play areas or interior campus areas, foundations shall be flush to grade, with no concrete above-grade. Columns shall be painted yellow (on top of hot-dipped galvanizing) from grade up to 6-feet above grade and topped with a 3" wide band of outdoor rated reflective tape along the top edge of the paint. All column anchor bolts shall be torqued per Engineer of Record requirements and marked once torqued. Nuts shall then be double nutted or 'staked' (threading irreversibly altered) to protect from structural compromise and vandalism.
  3. For canopy columns bolted to the foundations, all structural connections at the flanged base of columns shall be outfitted with metal pole skirts coated to match columns. Pole skirts shall have rounded corners. Alternatively, flange bases may be grouted at the approval of the Purchaser.
- F. CANOPY
  1. All canopies shall have a minimum clear height above grade of 12'6 or 13'6 as at the lowest point of any structure as indicated in Schedule 8 of the Energy Services Agreement Special Conditions. Provider is responsible for determining grade elevations under canopies and ensuring clear-heights are achieved. Clear heights shall be identified on drawings, including at all low side corners and at the point of minimum clearance on the low side.
  2. All canopies to be co-planer and in alignment horizontally and vertically with adjacent arrays. Installations with slopes on the long axis or stair-stepping between adjacent arrays shall only be approved in writing by Purchaser. Top of column heights shall be shown in design drawings.
  3. Canopies shall have a minimum tilt of five degrees (5°) and maximum tilt of ten degrees (10°).
  4. Canopies placed in parking lots shall be clearly labeled with max clearance for vehicles at the low points. Labels shall be rated for long-term UV exposure with lifetime to match warranties specified for PV panels. Minimum labeling along the long axis of the low-side of the carport shall be every 50 feet of canopy or 3 labels, whichever is greater. Labeling shall

## SPECIFICATION SECTION 05 90 02: SOLAR PHOTOVOLTAIC CANOPY STRUCTURES

also include the exterior low-side corner of each canopy within a parking lot. Label should be easily visible from a vehicle.

### G. ELECTRICAL CONDUITS

1. Electrical conduits extending from the canopy to grade are to be encased in the foundations, not mounted on the outside of finished piers.
2. All electrical connections between separate structures shall be underground. Overhead "jumpers" between structures greater than distances of 24 inches and in excess of four (4) 1" conduits shall not be permitted without the written consent of the Purchaser. Structures are considered separate wherever a gap exists between structural crossmembers that is not spanned by purlins.

### 2.02 EV CHARGING SPARES

- A. For canopies located in parking lots, Provider and Purchaser acknowledge that Purchaser may choose to have installed spare conduits to enable future needs such as Electric Vehicle Charging Stations or security systems. Purchaser and Provider shall coordinate on the location, number and sizing of spare conduits.
- B. Provider shall provide Purchaser with reasonable documentation demonstrating the costs associated with the specific time and materials relating to the installation of such spare conduit with a 10% markup. Within 30 days of receipt of notice from Provider reasonably substantiating the associated costs, Purchaser will provide written notice to Provider of its election of one of the options specified in Schedule 2 of the Energy Services Agreement.
- C. Any such spare conduit installed shall terminate in a Christy box (hand hole) or as determined with purchaser. Spare conduit shall include a minimum of two sufficiently rated pull strings or wires inside conduit for future wire pull.
- D. Additional spare conduits may be required as specified in the bridging documents

### 2.03 . LIGHTING SYSTEMS

- A. Lighting shall be included under all canopies, except where noted in the bridging documents
- B. All lighting sources shall be LED type.
- C. For installations in California, lighting shall meet all Title 24 requirements.
- D. Canopy lighting systems shall be designed to meet the Illuminating Engineering Society of North America (IESNA) requirements for parking lot areas, to meet or exceed minimum values and maximum uniformity ratios as listed in the IESNA criteria.
- E. Lighting control system shall be connected to the existing lighting controls in each area. Where tie-in with existing circuits is not feasible or no circuit exists, Provider shall establish new circuit and controls.
- F. Lighting design on canopies shall insure cut-off light control to limit spill light or glare to adjoining areas as-needed.
- G. Lighting temperature or Kelvin Rating shall be consistent with Purchaser Standards and approved during design phase. Provider shall obtain written approval from Purchaser of temperature rating prior to ordering fixtures.

## **SPECIFICATION SECTION 05 90 02: SOLAR PHOTOVOLTAIC CANOPY STRUCTURES**

- H. Existing pole mounted lighting in areas of new carport canopies shall be removed and provided to Purchaser. Modify other existing lighting to coordinate with the new work and design, including reconnection of any existing downstream circuiting and controls to remain. Foundations of existing pole mount lighting are to be completely removed a minimum of 6-inches below grade, with grade restored to surrounding condition. Provider shall cause for all demolition material shall be removed and disposed of.
- I. New design shall cover all areas of the parking lots (in the area of the work) to leave no dark spots and meet IESNA requirements for all areas previously covered by light standards removed under this contract. Provider shall cause to install new pole mounted luminaires if canopy lighting does not provide sufficient lighting in all areas previously covered by removed or altered light standards. Provider can utilize existing light poles as necessary. Existing fixtures may remain, if not in direct conflict with canopies or causing shading of canopies.

### **PART 3 - EXECUTION**

#### **3.01 SITE PREPARATION AND INSPECTION**

- A. Provider shall direct, oversee and inspect all site work related to structural installation. Site preparation shall be in accordance with final drawings and specifications provided by manufacturer.
- B. Provider shall be responsible for scheduling times of inspection, tests, sample taking, and similar activities of the Work, including notifying and scheduling Purchaser's or AHJ's inspector.

#### **3.02 INSTALLATION**

- A. Erect/stand structural steel with proper equipment and qualified installers.
- B. Actively cooperate with other trades and provide incidental welding, connections, etc. for securement of work of others to structural steel framing.
- C. Erect/stand temporary flooring, planking, and scaffolding necessary in connection with erection of structural steel or support of erection machinery. Use of temporary floors shall be as required by municipal or state laws and governing safety regulations. Hoist metal deck onto structural frame.
- D. After erection, clean connections and abrasions to shop coat and spot paint with same primer used in shop.
- E. Installation of the structural system and all components shall be in strict accordance with manufacturer's recommendations.
- F. Post installation for any light pole designs, the base of the column will be grouted to produce a finished joint.

#### **3.03 ERECTION TOLERANCES**

- A. Erection tolerances for structural steel work shall be in accordance with latest AISC "Code of Standard Practice for Steel Buildings and Bridges".

#### **3.04 BOLTING**

- A. High strength steel bolts shall be used where indicated. Fabrication and erection shall be in strict accordance with the latest edition of "Specifications for Assembly of Structural Joints Using

## SPECIFICATION SECTION 05 90 02: SOLAR PHOTOVOLTAIC CANOPY STRUCTURES

High-Strength Steel Bolts”, as approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation. Load indicator washer shall be used. Use beveled washers on sloping surfaces.

### 3.05 WELDING

- A. Welding and welded joints shall be in accordance with AWS standards. Work shall be performed by operators who have been qualified by test in accordance with AWS D1.1, “Structural Welding Code – Steel”, to perform type of work required for this project.
- B. All methods, sequence, qualifications and procedures, including preheating, post heating, etc. shall be detailed in writing and submitted for review by the testing laboratory and results provided to Purchaser. Provisions shall be made in detailing of lengths of members for dimensional changes as a result of shrinkage stresses so as to provide specified finished dimensions.
- C. Remove all runoff tabs, and bottom backing bars. Top backup bars to be removed or have continuous fillet weld to column.

### 3.06 ANCHOR BOLTS

- A. Provide and install all anchor bolts, bearing plates, and templates to be embedded in concrete.
- B. Provide necessary steel or wood templates and diagrams for setting and securing of such anchor bolts in concrete forms.
- C. Be responsible for proper locating and installing, and make good any deficiencies and errors.
- D. Setting of anchor bolts in hardened concrete necessitates drilled holes solidly grouted in place with epoxy grout. Submit materials and methods for review and approval.

END OF SPECIFICATION SECTION 05 90 02

## SPECIFICATION SECTION 26 00 00: GENERAL ELECTRICAL

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. Section 48 14 00: Photovoltaic System Specification
- B. Section 05 90 02: Solar PV Canopy Structure Specification
- C. Other relevant Purchaser Specifications

*NOTE: Where this specification and other specifications or bridging-documents are in conflict, the more stringent shall apply. Provider shall identify conflicts and confirm recommended equipment or procedures with the Purchaser.*

#### 1.02 CODES & REFERENCES

- A. The design and installation shall conform to all requirements as defined by the applicable codes, laws, rules, regulations and standards of applicable code enforcing authorities (Latest Edition's enforced by the Authority Having Jurisdiction, unless otherwise noted). The following are key standards that shall be followed. The Architect/Engineer of Record and Provider's contractor shall ensure all applicable codes are followed:
  - 1. ASTM International (ASTM) ([www.astm.org](http://www.astm.org)), including:
    - a. E3010, Standard Practice for Installation, Commissioning, Operation, and Maintenance Process (ICOMP) of Photovoltaic Arrays
  - 2. American National Standards Institute (ANSI)
  - 3. California Building Code (CBC), with State of California Amendments
  - 4. California Energy Commission Title 24 Building Energy Efficiency Requirements
  - 5. California Department of Forestry and Fire Protection, Office of the State Fire Marshal – Solar Photovoltaic Installation Guidelines
  - 6. DSA IR-16-8 (most recent) Guidelines
  - 7. DSA PL-07-02 (most recent) Guidelines
  - 8. Institute of Electrical and Electronics Engineers (IEEE)
  - 9. International Electrical Testing Association (NETA)
  - 10. Local Fire Permit Requirements
  - 11. National Electrical Manufacturers Association (NEMA)
  - 12. National Fire Protection Association (NFPA), National & California Electrical Code
  - 13. Purchaser Specifications and Requirements
  - 14. Underwriters Laboratory (UL), including:
    - a. UL 2703 – Standard for Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for use with Flat-Plate Photovoltaic Modules.
  - 15. Utility company standards and requirements
  - 16. All other applicable Codes and Ordinances

#### 1.03 GENERAL

- A. "Purchaser" shall refer to owner of the site where project will be located, regardless of system ownership, and include any representative of the site host, such as consultants or inspectors. "Contract" refers to the Energy Services Agreement and any associated design-build bridging documents. "Provider" refers to Forefront Power.

## **SPECIFICATION SECTION 26 00 00: GENERAL ELECTRICAL**

- B. This specification defines the general electrical work required for complete and fully functioning photovoltaic systems at each site. The design and installation shall conform to all requirements as defined by the applicable codes, laws, rules, regulations and standards as specified in the Agreement.
- C. Provider shall include all items and all work reasonably inferred by these specifications and the Contract Documents, including any design-build bridging documents. If the Provider is in doubt as to the intent of any portion of these specifications or the Contract Documents, or necessary information is omitted, the Provider shall notify the Purchaser in writing for clarifications or corrections to be provided by addendum.
- D. All design documents, cut sheets, and technical specifications shall be submitted, reviewed and accepted by the Purchaser per the guidelines specified in the Contract.

### **1.04 WORK INCLUDED**

- A. The work shall include the design of the electrical system, materials, equipment, fabrication, installation and tests in conformity with applicable codes and professionally recognized standards.
- B. The electrical design shall be fully developed, including but not limited to the following:
  - 1. Description and supportive calculations for all power and grounding systems.
  - 2. Evaluation of existing switchgear and Utility transformers for interconnection compatibility.
  - 3. Location and layout of all system equipment.
  - 4. Site plans, elevations, schedules, equipment arrangement and detailed drawings
  - 5. Single line diagrams including local utility system tie-ins.
  - 6. All other drawings, calculations, details, and schedules required for the system design.
- C. All required construction documents and compliance documentation.
- D. Temporary power and lighting as required for construction except that Provider will not be responsible for providing lighting to areas not accessible to the public.
- E. All required incidental work directly related to the construction of the System, such as excavating, directional boring, backfilling, roof flashing, fire stopping, waterproofing, pavement repair, striping, and testing.
- F. Any other electrical work as might reasonably be implied as required to fulfill the contracted scope, even though not specifically mentioned herein or shown on the drawings
- G. Design and construction coordination with all other disciplines and trades.
- H. All other utilities, labor, materials, apparatus, tools, equipment, transportation, and special or occasional services as required to fulfill the contracted scope.

### **1.05 CONDITIONS AT SITE**

- A. Provider is responsible for familiarizing themselves with all discernible site conditions. No extra payment will be allowed for work required because of these conditions, whether specifically mentioned or not.



## **SPECIFICATION SECTION 26 00 00: GENERAL ELECTRICAL**

- B. Provider shall conduct underground survey work to identify potential underground irrigation and utility lines. Lines of other services previously identified by Provider or Purchaser that are damaged as a result of Provider's work shall promptly be repaired at no expense to the Purchaser and to the reasonable satisfaction of the Purchaser. Provider shall use all reasonable efforts to avoid irrigation re-routing and shall be responsible for re-routing of known irrigation lines. If damage to the utility lines or existing irrigation systems that were not detected by Provider or disclosed by Purchaser occurs during Installation Work or re-routing is required as a result of such undetected utility irrigation lines, Provider shall work with Purchaser in good faith to determine a mutually-acceptable solution for Purchaser to pay such additional costs, including potentially an increase in the kWh rate in Schedule 2. Purchaser makes no warrants on the as-builts.

### **1.06 QUALITY ASSURANCE**

#### **A. GENERAL**

- 1. Construction Documents shall be designed and signed by a validated, registered professional engineer in the State of California.

#### **B. CONFORMANCE**

- 1. All equipment and accessories to be the product of a manufacturer regularly engaged in its manufacture.
- 2. Supply all new equipment and accessories free from defects and listed by Underwriter's Laboratories, Inc., or bearing its label or label of a Nationally Recognized Testing Laboratory (NRTL).
- 3. All items of a given type shall be the products of the same manufacturer, or equal.
- 4. If after contract is awarded, minor changes and additions are required by aforementioned authorities, they shall be included at Provider's expense.

#### **C. COORDINATION**

- 1. Provider shall become familiar with the conditions at each job site and plan the installation of the electrical work to conform with the existing conditions so as to provide the commercially reasonable assembly of the combined work of all trades within the Provider's scope.

#### **D. COORDINATION DRAWINGS FOR ELECTRICAL INSTALLATION**

- 1. Prepare Coordination Drawings, to scale. Detail major elements, components and systems of electrical equipment and materials in relation to each other and to other systems, installations, and building components. Indicate locations and space requirements for installation, access and working clearances. Indicate the following:
  - a. Provisions for scheduling, sequencing, moving and positioning large equipment in or on the site or buildings during construction.
  - b. Plans, elevations and details including the following:

## **SPECIFICATION SECTION 26 00 00: GENERAL ELECTRICAL**

- i) Clearances to meet safety requirements and for servicing and maintaining equipment, including space for equipment disassembly required for periodic maintenance.
- ii) Equipment support details.
- iii) Exterior wall, roof and foundation penetrations of cable and raceway; and their relation to other penetrations and installations.
- iv) Fire-rated wall and roof penetrations by electrical installations.
- v) Sizes and locations of required concrete pads and bases.
- vi) Grounding system details.

### **1.07 DELIVERY, STORAGE AND HANDLING**

- A. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work and materials of all trades.
- B. Delivery and Storage: Deliver all materials to the job site in their original containers with all labels intact and legible at time of use. Store in strict accordance with approved manufacturers' recommendations. All deliveries are to be made to the approved storage location. Under no circumstances shall Purchaser be responsible for accepting deliveries.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Purchaser and at no additional cost to the Purchaser.
- D. Provider shall personally, or through an authorized representative, check all materials upon receipt at jobsite for conformance with approved shop drawings and/or plans and specifications.

### **1.08 SCHEDULING/SEQUENCING**

- A. Provider shall cause to coordinate all schedules and sequencing of electrical work with Purchaser.
- B. Place orders for all equipment in time to prevent any delay in construction schedule or completion of project. If any materials or equipment are not ordered in time, additional charges made by equipment manufacturers to complete their equipment in time to meet the construction schedule, together with any special handling charges, shall be borne by the Provider.

### **1.09 WIND LOADING AND SEISMIC DESIGN**

- A. Comply with all applicable codes and standards and provide wind load restraints for all equipment installed under this contract that requires restraint. The electrical equipment wind loading restraint shall be designed as required by the Authorities Having Jurisdiction (AHJs).
- B. The electrical system shall be designed for the appropriate seismic zone and to meet all seismic design requirements of the AHJs. Where applicable, the electrical equipment shall be designed to accommodate lateral displacement in the event of an earthquake based on a nonlinear response-history seismic analysis for the appropriate seismic zone.

### **1.10 PERMITS AND INSPECTIONS**

- A. Provider shall obtain all required permits and arrange for all required inspections, including utility company requirements, inspections, and sign-offs.

## **SPECIFICATION SECTION 26 00 00: GENERAL ELECTRICAL**

- B. Do not allow or cause any of the work to be covered or enclosed until it has been tested and/or inspected.

### **PART 2 - PRODUCTS**

#### **2.01 MATERIALS**

- A. Materials of the same type or classification, used for the same purpose, shall be the product of the same manufacturer, or equal.

#### **2.02 POSTED OPERATING INSTRUCTIONS**

- A. Furnish approved operating instructions for systems and equipment where indicated in the technical sections for use by operation and maintenance personnel. The operating instructions shall include wiring diagrams, control diagrams, and control sequence for each principal system and equipment. Print or engrave operating instructions and frame under glass or in approved laminated plastic. Post instructions as directed. Attach or post operating instructions adjacent to each principal system and equipment including startup, proper adjustment, operating, lubrication, shutdown, safety precautions, procedure in the event of equipment failure, and other items of instruction as recommended by the manufacturer of each system or equipment. Provide weather-resistant materials or weatherproof enclosures for operating instruction exposed to the weather. Operating instruction shall not fade when exposed to sunlight and shall be secured to prevent easy removal or peeling.

#### **2.03 CATALOGUED PRODUCTS / SERVICE AVAILABILITY**

- A. Materials and equipment shall be current products by manufacturers regularly engaged in the production of such products. Specified product models shall have been in satisfactory commercial or industrial use for a minimum of 2 years prior to design. The 2-year period shall include applications of equipment and materials under similar circumstances and of similar size. The 2-year period shall be satisfactorily completed by a product for sale on the commercial market through advertisements, manufacturers' catalogs, or brochures. Products having less than a 2-year field service record will be acceptable if a certified record of satisfactory field operation for not less than 6,000 hours, exclusive of the manufacturers' factory or laboratory tests, is furnished. The equipment items shall be supported by service organizations which are reasonable convenient to the equipment installation in order to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

#### **2.04 ACCEPTABLE MANUFACTURERS**

- A. Materials shall be of make mentioned elsewhere in this specification, or equal. All materials shall be new and approved by the Underwriters' Laboratories or an NRTL approved by Purchaser.

#### **2.05 BASIC ELECTRICAL EQUIPMENT AND MATERIALS**

- A. Inverters and PV Modules – See Specification 48 14 00.
- B. AC Panelboards:

## SPECIFICATION SECTION 26 00 00: GENERAL ELECTRICAL

1. As manufactured by Cutler-Hammer, Square D, General Electric, Siemens, IEM, or to match existing equipment at each Site, wherever possible. Similar products may be submitted for considerations and formal approval. Equipment shall at a minimum be NEMA 3R outdoors or NEMA 1 for surface mount in unfinished interior locations and flush mounted in finished and occupied spaces. Provide housekeeping pads for all floor or slab mounted equipment.
  2. Enclosures: code gauge galvanized sheet steel with welded full flange end pieces, stretcher-leveled steel trim, back pan and door or painted steel or powder-coated steel. All surface mounted panels to have enclosures painted in gray enamel. All flush mounted panels to have cover painted to match adjacent surface.
  3. Phase and ground bussing of copper with silver-plated or tin-plated or nickel-plated contact surfaces.
  4. Trims on surface-mounted cabinets secured with nickel-plated screws with cup washers, bottom of all trims to have lugs for resting on cabinet flange.
  5. Panels shall be 20 inches minimum in width, provided with approved gutter space, barriers and adjustable supports. Doors mounted with concealed hinges provided with combination spring latch and lock. Doors and trims and surface mounted cabinets primed and finished with one coat baked on gray enamel.
  6. Each panel shall be equipped with a copper ground bus.
  7. All panels shall be fully bussed to accept future circuit breakers.
- C. Distribution Low Voltage Dry-Type Transformers (120/208V and 277/480V):
1. Ventilated type, NEMA 3R where used outdoors.
  2. Transformer shall be 3-phase, 60 Hertz. Primary winding shall be Delta connected and secondary winding shall be Wye connected. The temperature rise at rated voltage and full load shall not exceed 150 degrees C with a 220 degrees C U.L. Component Recognized Insulation System. The windings shall be Aluminum or Copper.
  3. The higher voltage winding shall have quantity (6) 2.5% taps - (2) FCAN and (4) FCBN. Set secondary voltage for 120/208V.
  4. Transformer terminals shall be front connected for ease of installation and maintenance.
  5. Where the transformers are installed outdoors provide weatherproof drip cover, rodent screen and a NEMA 3R rating of the enclosure.
  6. Transformers shall be suitable to carry the PV load characteristics and in the direction of power flow required for the PV system power production.
- D. Circuit Breakers:
1. Circuit breakers shall be molded case rated 250 or 480 volt, multiple or single pole with amperage ratings as required for each circuit. All breakers to be bolt on, manually operated with "de-ion" arc chutes. Plug-in breakers greater than 60 amps are not acceptable.
  2. Circuit breakers shall be rated to interrupt the available short circuit current at the point of application.

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- E. Raceways and Conduit Bodies: Only the raceways specified below shall be utilized on these projects. Substitutions shall be pre-approved in writing:
1. EMT or Rigid Type - hot dip galvanized or sherardized steel, to be used at all exterior locations, below grade, or in concrete slab, and to 18" on either side of structural expansion joints in floor slabs, with completely watertight, threaded fittings throughout. EMT may only be used 8-ft above grade or higher.
    - a. All rigid steel conduit couplings and elbows in soil or concrete or under membrane to be ½ lap wrapped with Scotch #50 tape and threaded ends coated with T&B #S.C.40 rust inhibitor prior to installation of couplings.
    - b. ½ lap wrap all rigid steel conduit stub-ups from slab or grade to 6" above finished grade level with Scotch #50 tape.
    - c. In lieu of rigid steel conduit for power and control raceways and branch circuit conduits in soil or concrete slabs, "Schedule 40" PVC with Schedule 80 PVC conduit elbows and stub-ups may be used with code size (minimum No. 12) ground wire. A "stub-up" is considered to terminate 6" above the finished surface.
      - i) Schedule 80 PVC conduit shall be used in all concrete footings or foundations and to 18" of either side of footings or foundation walls.
      - ii) Schedule 80 PVC conduit shall be used in all concrete masonry unit (CMU) walls or columns.
  2. Provide a minimum cover of 36 inches for all conduits in ground outside of buildings, unless otherwise noted.
  3. Conduit installed using horizontal directional boring (HDB) shall include tracer tape or traceable conduit. Minimum depth of the conduit shall be per NEC Table 300.5 or per Purchaser Requirements, whichever is more stringent. The Provider is responsible for demonstrating that all conduits installed utilizing horizontal boring meets the minimum depth requirement and is solely responsible for any remediation costs and schedule impacts if the specification is not met. Provider shall provide documentation of final depth and routes of all conduit installed in horizontal bores.
  4. Conduit buried underground shall be suitable for the application and compliant with all applicable codes. PVC shall be constructed of a virgin homopolymer PVC compound and be manufactured according to NEMA and UL specifications. All PVC conduit feeders shall contain an appropriate copper grounding conductor sized per NEC requirements and continuity shall be maintained throughout conduit runs and pull boxes. Minimum conduit size shall be ¾". A metallic tracing/caution tape shall be installed in the trench over all buried conduit. All underground conduits placed in trenches buried under roadways, or swales shall be encased with red dyed concrete slurry cap.
  5. All conduit runs in concrete floor slabs (where allowed) shall be installed to comply with all applicable UBC and structural codes to maintain the structural integrity of the floor slab. Where conflicts occur, alternate routing shall be provided at no additional cost to the Purchaser.
  6. Electrical Metallic Tubing (EMT) shall only be exposed in electrical and mechanical rooms and in unfinished spaces and in concealed and furred spaces, made up with steel watertight or steel set screw type fittings and couplings. Set screws shall have hardened points. Cast

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- fittings are unacceptable. EMT may be used in exterior installations where allowed by NEC, DSA or AHJ requirements and any other applicable code. All exterior fittings shall be watertight. EMT may not be installed in areas subject to severe physical damage, including in any carport location with potential for vehicle strike or within 8' of grade.
7. All exposed conduits on sides of buildings, or in other visible areas, shall be painted to match adjacent finishes, after complete installation.
  8. Fasten conduits securely to boxes with locknuts and bushings to provide good electrical continuity.
  9. To facilitate pulling of conductors, install junction boxes as required.
  10. If any empty conduits are provided as part of the projects, they shall be provided with a minimum of two sufficiently rated pull strings or wires inside conduit for future wire pull.
  11. If conduits are to pass through structural expansion joints in floor slab, rigid galvanized conduit shall be used 18" on either side of joint, complete with Appleton expansion couplings and bonding jumpers, or equal. All above grade expansion joint crossings shall also utilize expansion joint couplings or flex conduit transitions as required for each particular installation. No solid conduits shall be allowed to cross expansion joints without proper provisions for building and seismic movement. Expansion joints only refer to contiguous structures, not the overhead space between adjacent, separate canopies. Under no circumstance shall conduits/conductors pass overhead between separate canopies.
  12. Provide thermal expansion fittings or provisions, per NEC 300.7(b), for all raceways subject to high temperatures in direct exposure to sunlight. Provide expansion provisions where more than 0.25" of expansion is calculated.
  13. Provide and install exterior wall conduit seals and cable seals in the locations listed below. Coordinate installation and scheduling with other trades:
    - a. Conduit seals through exterior wall or slab (below grade): O.Z. Gedney series "FSK" in new cast in concrete locations, series "CSM" in cored locations.
    - b. Conduit seals through exterior wall or slab (above grade): O.Z. Gedney series "CSMI."
    - c. Cable seals at first interior conduit termination after entry through exterior wall or slab: O.Z. Gedney series "CSBI." Coordinate quantity of conductors at each location.
- F. Function Boxes / Pull Boxes:
1. One-piece steel knockout type drawn j-boxes, unless otherwise noted, sized as required for conditions at each location.
  2. J-boxes for wet locations, NEMA 3R or cast aluminum FS or FD type with cast aluminum gasketed spring lid cover. Weatherproof "Bell" type boxes are not acceptable.
  3. Pull boxes to be NEMA 1 (indoor) or NEMA 3R (outdoor), sized per code, with grey enamel finish, steel construction, and screw-on covers.
  4. All connectors from conduit to junction or outlet boxes shall have insulated throats. Connectors shall be manufactured with insulated throats as integral part. Insertable insulated throats are unacceptable.

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5. Conduit Bodies: Malleable iron type, with lubricated spring steel clips over edge of conduit body, O-Z/Gedney type EW, or equal for rigid conduit applications. For EMT conduits, EMT conduit bodies are acceptable. EMT may only be used 8-ft above grade or higher.
- G. Site Pull boxes: All site pull boxes shall be flush in-ground concrete, with engraved covers identifying service use (i.e. electrical, communications, etc.). Boxes shall be NEMA 250, Type 6, outside flanged, with recessed cover for flush mounting, by Christy or equal, with required depth to provide box and conduit depths shown or required.
1. Provide concrete covers for all boxes in planted or paved areas (up to available concrete cover size).
  2. Provide galvanized steel covers for all larger boxes (when concrete is not available), or in traffic areas. No cast iron covers.
  3. Provide bolted covers and slab bottoms (with grouted perimeter) or vault type boxes for all electrical distribution and signal system pull boxes used for site distribution, to prevent rodent entry. No collar type boxes with dirt or gravel bottoms.
  4. Provide drain hole at bottom of all vault type boxes, with loose aggregate base below, for proper drainage.
  5. All covers to be completely flush with finished adjacent surfaces.
  6. Provide galvanized steel H20 rated covers and installation of box rated for H20 in all traffic areas.
- H. Wire and Cable:
1. 600 or 1,000-volt class (as required for system design), insulation color coded, minimum No. 12 AWG for DC string circuits or AC circuits.
  2. All conductors shall be copper. Any substitution shall require written approval from Purchaser.
  3. Insulation type:
    - a. Standard locations: Conductors shall be Type PV or THWN or THWN-2 or RHH, RHW-2, USE-2 for wet and dry locations. All AC wire sizes used shall be based on a 75-degree insulation rating, unless specifically used with 90-degree rated devices. For wires/cables with 90 deg C insulation, the 90 deg C ampacity ratings shall be used for cable sizing before conditions of use de-rates are applied per NEC. All DC wire sizes shall be based on 90-degree insulation rating, when used with 90-degree rated PV equipment and components.
    - b. All conductors shall be stranded.
    - c. Install all wiring (low voltage and line voltage) in conduit, except PV string wiring at modules, which may be run outside of raceway.
    - d. Do not pull conductors into conduit until raceways and boxes have been thoroughly cleaned and swabbed as necessary to remove water and debris.
    - e. Approximately balance all AC circuits about the neutral conductors in AC collector panels.
    - f. All wire and cable shall bear the Underwriters' Label or equivalent NRTL label, brought to the job in unbroken packages.

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- g. The equipment grounding conductor shall be insulated or bare copper; where it is insulated, the insulation shall be colored green.
- h. Install all circuits in one continuous section unless splices are approved by Purchaser. Exercise care in pulling to avoid damage or disarrangement of conductors, using approved grips. No cable shall be bent to smaller radius allowed by NEC code or manufacturer recommendations. Color code feeder cables at terminals. Provide identifying linen tags in each pull box
- i. Fire stopping: as manufactured by 3M Fire Protection Products or equal.
  - 1. Fire-rated and smoke barrier construction: Maintain barrier and structural ceiling fire and smoke resistance ratings including resistance to cold smoke at all penetrations, connections with other surfaces or types of construction, at separations required to permit building movement and sound vibration absorption, and at other construction gaps.
  - 2. Systems or devices listed in the UL Fire Resistance Directory under categories XHCR and XHEZ may be used, providing that it conforms to the construction type, penetration type, annular space requirements and fire rating involved in each separate instance, and that the system be symmetrical for wall penetrations. Systems or devices must be asbestos free.

### **PART 3 - EXECUTION**

#### **3.01 INSPECTION**

- A. Examine the areas and conditions under which the work of this Section will be installed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

#### **3.02 FIELD QUALITY CONTROL**

- A. All workmanship shall be first class and carried out in a manner satisfactory to and approved by the Purchaser.
- B. The Purchaser shall personally, or through an authorized and competent representative or agent, constantly supervise the work and, as much as possible, keep the same foreman and workmen on the job throughout.

#### **3.03 INSTALLATION/APPLICATION/ERECTION**

- A. All cutting, repairing and structural reinforcing for the installation of this work shall be done by the Provider in conformance with the Purchaser's requirements.
- B. Excavate and trench or directional bore as necessary for the electrical installation, and when the work has been installed, inspected and approved, backfill all excavations with clean earth from excavation, or imported sandy soil in maximum 8" (eight-inch) layers, moisten and machine tamp to 95% compaction, and restore the ground and/or paving or floor surfaces to their original condition.
- C. Floor Mounted Inverter Installation: Provide mounting channels for grouting into floor or slab. Channels shall be properly drilled to receive the equipment placed flush in floor, leveled and secured in place prior to pouring of floor, of length as required for switchboard. Bolt or weld switchboard to channels.



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- D. Furnish and install all disconnect switches as required by code (AC and DC).

### 3.04 EARTHQUAKE RESISTANT INSTALLATION & FASTENING:

- A. All electrical equipment and raceways shall be designed to withstand forces generated by earthquake motions. As a minimum, equipment and equipment frames shall be designed to withstand a force of 25% of the weight of the equipment and frame acting at its center of gravity. Anchorage of the equipment and/or frame to the structure shall be for a force of 50% gravity also acting at the center of gravity.
- B. For floor mounted inverters and switchboards / distribution panels, the above values shall be doubled. Design stresses in either case may be increased 1/3 over normal allowable stresses but never beyond yield.

### 3.05 ADJUSTING AND CLEANING

- A. All electrical equipment, including existing equipment not "finish painted" under other sections, shall be touched up where finished surface is marred or damaged.
- B. All equipment shall be left in clean condition, with all shipping and otherwise unnecessary labels removed there from.

### 3.06 IDENTIFICATION

- A. Inverters, combiner boxes, pull boxes, switchboards, panel boards, distribution circuit breakers, disconnect switches, and related electrical enclosures shall be properly identified by means of engraved laminated plastic descriptive nameplates mounted on apparatus using stainless steel screws or permanent epoxy adhesive where set screws are not feasible. Standard adhesives alone are not acceptable. Nameplates shall have white letters with black background. Cardholders in any form are not acceptable.
- B. Provide all required safety and identification placards as required by code.

### 3.07 PAINTING OF EQUIPMENT

- A. Factory Applied: Electrical equipment shall have factory-applied painting systems which shall, as a minimum, meet the requirements of NEMA ICS 6 corrosion-resistance test, except equipment specified to meet requirements of ANSI C37.20 shall have a finish as specified in ANSI C37.20.
- B. Field Applied: Paint electrical equipment as required to match finish or meet safety criteria.

### 3.08 TESTING

- A. General:
  - 1. All inspections and tests shall be in accordance with the International Electrical Testing Association - Acceptance Testing Specifications ATS-2009 (referred to herein as NETA ATS-2009).
  - 2. Final test and inspection may be conducted in presence of Purchaser: Tests shall be conducted at the expense of the Provider at a mutually agreed time. Submit written test reports.

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3. The electrical installation shall be inspected and tested to ensure safety to building occupants, operating personnel, conformity to code authorities, and final Construction Shop Drawings.
4. Final Inspection Certificates: Prior to delivery of Final Completion, deliver to the Purchaser signed certificates of final inspection by the appropriate inspection authority.
  - a. Grounding System:
    - i) All ground connections shall be checked and the entire system shall be checked for continuity. The resistance of the ground system at each site shall be measured using a 3-point fall-of-potential method. The maximum ground resistance shall be three ohms.
    - ii) Ground tests shall meet the requirements of the National Electric Code, Article 250.
    - iii) All PV system grounding shall meet the requirements of NEC Article 690.

END OF SPECIFICATION SECTION 26 00 00

## SPECIFICATION SECTION 26 05 13: MEDIUM VOLTAGE DISTRIBUTION

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### PART 1 - GENERAL

#### 1.1 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.
- B. American National Standards Institute (ANSI) Publication (Latest Edition):
  - C2 National Electrical Safety Code
- C. Institute of Electrical and Electronic Architects, Inc. (IEEE) Publication (Latest Edition):
  - 48 Standard Test Procedures and Requirements for Alternating Current Cable Terminations 2.5KV through 765KV
  - 386 Separable Insulated Connectors for Power Distribution Systems Above 600V.
  - 400 Field Testing and the Evaluation of Insulation for Shielded Power Cable Systems
- D. National Fire Protection Association (NFPA) Publication (Latest Edition):
  - 70 National Electrical Code (NEC)
- E. Underwriter's Laboratories, Inc. (UL) Publications (Latest Edition):
  - UL 1072
- F. State of California Public Utilities Commission (Cal. P.U.C.) Publication:
  - G.O. 128 Rule for construction of Underground Electric Supply and Communication Systems.
- G. AEIC CS6-96: Specifications for Ethylene Propylene Rubber Insulated Shielded Power Cables Rated 69 kV
- H. ASTM B8-04: Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft
- I. ICEA S-93-639/NEMA WC74: Shielded Power Cables Rated 5 – 46 kV
- J. ICEA S-97-682: Utility Shielded Power Cables Rated 5 - 46 kV

#### 1.2 SUBMITTALS

- A. Submittals: Submit the following information for approval:

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1. Manufacturer's Data and Shop Drawings:
  - a. Conduit
  - b. Medium Voltage Cables
  - c. Medium Voltage Splice Kits
  - d. Medium Voltage Terminating Kits
  - e. Medium Voltage Connectors
  - f. Terminators
  - g. Fault Indicators
2. Manufacturer's and Installer's Experience: Submit evidence documenting manufacturer's ten-year experience in medium voltage cable and accessories manufacturing. Submit manufacturer's data on electrical cable and terminations. Provider shall submit a list of its selected contractor's previous work evidencing at least five years experience in medium voltage cable installation of similar type. Submit name and experience record of each person to be engaged in medium voltage cable work. Only those persons approved by the Purchaser will be permitted to engage in medium voltage cable work.
3. Cable Test Reports:
  - a. Three copies of factory test records on a per-reel basis shall be furnished at the time of cable shipment. The data shall include the following items: Purchase order and date; description of cable; description of sample high voltage test; dielectric loss and P.F. test; bending test; marked length and actual conductor resistance at 25 degrees C.; insulation resistance in megohms at the testing temperature of each reel length of cable or insulation resistance in megohms at the standard temperature of 15.5 degrees C. per 1000 feet of the cable supplied in this order; sheath integrity and thickness.
  - b. The maximum current carrying capacities and maximum safe operating temperatures on the basis of 3 equally loaded single conductor cables in underground ducts at 100 percent and at 75 percent load factors, and on the basis of 90 RHO, 20 degrees C. ambient and 80 degrees C. conductor temperatures, shall be stated. (Three cables in one duct.)
4. Certificates:
  - a. Workmen's Competency: Submit high voltage cable Splicer/Terminator certification of competency and experience 30 days before splices or terminations are made in high voltage cables. Splicer/Terminator experience during the immediate past 3 years shall include performance in splicing and terminating cables of the type and classification being provided under this contract.
  - b. Before assigning any cable splicer to work covered by this specification, the Provider shall provide the Purchaser with the names of the cable splicer to be employed, together with satisfactory proof that each splicer has had at least 3 years experience in splicing high-voltage cables and is experienced with the type and rating of cables to be spliced.
5. Provider to submit a medium voltage cable pulling plan complete with calculations and layout. Cable pulling plan shall include but not be limited to the actual calculations of jam ratios, sidewall bearing pressures and maximum pulling tensions using pulling eyes or cable grips for each run. Also, provide cable information on the plan and diagram of each pull run.

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6. Provider to provide submittal of lubricants.
7. Submit shipping and handling protocol.

### 1.3 COORDINATION AND SCHEDULING

- A. Coordinate with the Purchaser for the connections to the existing medium voltage switchgear at the sub-station building, as well as use of spare facility duct bank locations.
- B. It is the responsibility of the Provider to arrange for all services with the Purchaser and to ensure that all conduit and other service provisions are as required by the Purchaser prior to installation of these service provisions. No extra payments will be made to the Provider as a result of his failure to fully coordinate with the Purchaser.
- C. Location of existing utilities: Although available record drawings endeavor to show all underground or above ground utilities at the project site, all utility locations are not necessarily known nor shown. The Provider is cautioned that the utilities encountered at the site include communication cables and electrical cables conducting high voltage, as indicated. When excavating in the vicinity of such cables, special precautions are to be observed by the Provider at his own cost and shall include the following: All cables and their enclosure ducts shall be exposed by careful hand excavation so as not to damage the ducts or cables nor cause injury to persons, and suitable warning signs, barricades, and safety devices shall be erected whenever necessary or appropriate.
- D. Provide schedule notification to the Purchaser 5 working days prior to medium voltage testing.

## PART 2 - PRODUCTS

### 2.1 GENERAL

- A. Materials and equipment shall conform to the Purchaser's Standards and to the specifications herein. Electrical ratings shall be as indicated.

### 2.2 MATERIALS

- A. Conduit:
  1. Schedule 40 PVC minimum, encased with red dyed concrete slurry cap with warning tape at 12". Exception to concrete encasement is directional line bored runs, where concrete encasement is not possible.
- B. Tape: UL 510. Plastic insulating tape shall be capable of performing in a continuous temperature environment of 80 degrees C.
- C. Power Wire and Cable:
  1. Wire and Cable Conductor Sizes: American Wire Gauge (AWG) designates wire and cable conductor sizes. Conductors shall be copper. Insulated conductors shall bear

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the date of manufacture imprinted on the wire insulation with other identification. Wire and cable manufactured more than 6 months before delivery to the job site shall not be used. Provide conductor identification within each enclosure where a tap, a splice or a termination is made.

- D. Medium Voltage Wires and Cables: Operating voltage times 1.25 or as specified by Electrical Engineer of Record (whichever is greater) single conductor, Class B concentric stranded copper, compact round type, bare or annealed uncoated copper per ASTM B-496, size as required for the design. Underwriters' Laboratories shall list Cable as, Operating voltage times 1.25 or as specified by Electrical Engineer of Record (whichever is greater)-volt power cable type MV-105, the cable shall bear the U.L label, and shall be rated for installation in wet or dry conditions. Cables shall be designed to operate continuously at 105 degrees C for normal operation; 140 degrees C for emergency overload conditions, and 250 degrees C for short circuit conditions.
1. Strand Screen: Extruded semi-conducting EPR (ethylene propylene rubber) layer over conductors.
  2. Insulation: The insulation shall be type EPR, 133 percent insulation level, 220 mils.
  3. Insulation Screen: The insulation shall be screened by an extruded semi-conducting EPR layer. The thickness shall be in accordance with the referenced standards.
  4. Shield: 5 mil bare copper tape helically applied with 12.5% nominal overlap.
  5. Medium voltage shield drain wrap half-lapped shall not exceed 12.5%.
  6. Outer jacket: Black polyvinyl chloride jacket, 80 mils, surface printed, water, oil, alkali, and sunlight resistant.
  7. Strand Screen, Insulation, Insulation Screen, and Jacket shall meet ICEA S-93-639 / NEMA WC74, ICEA S-97-682, AEIC CS8 and U.L 1072 standards.
  8. The manufacture, reeling, testing, certification and shipping of this cable shall be in accordance with IEEE-48 standards.
  9. All factory serial numbers of reels and all other markings must match identically with those shown on the Factory test certificates.
  10. Each reel must have one pulling-eye attached to outer cable end.
  11. Medium voltage conducting thermosetting compound shall be compatible with both the insulation and the conductor and have an allowable operating temperature equal to that of the insulation.
  12. Cable ratings shall include medium voltage emergency overloads for up to 1,500 hours cumulative through the life of the cable.
  13. The cable must be free stripping without the use of heat cutting or the need of machine removal.
  14. Cable Warranty: 40 years from date of shipment.
  15. Provide stranded copper code sized ground conductor in each conduit with phase conductors.
- E. Terminations and splices shall be rated as follows:
- Voltage: BIL: 110kV, 1.2 X 50 microseconds
- Withstand: 50kV, 60 Hz, 1 minute  
75kV, DC, 15 minutes

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Corona: 19 kV extinction

Current: Continuous: Equal to cable ampacity  
8-hour overload: 150% of cable ampacity

Momentary: 25,000 amps, RMS, 12 cycles  
10,000 amps, RMS, .5 seconds  
3,500 amps, RMS, 3.0 seconds

Production

Tests: Applied Potential: 50kV, 60 Hz, 1 minute  
Corona: 19kV extinction  
Test Point: Verify operation

- F. Medium Voltage Terminations (Indoor):
1. Medium Voltage Cable Terminations: IEEE 48 Class 1. The manufacturer shall provide all components, materials and complete instructions for installations, which shall include stress relief devices.
  2. Terminators: Shall be modular, molded rubber type: IEEE 48 Class I. Provide terminator as specified herein for terminating single conductor, solid insulated, nonmetallic jacketed type cables for service voltage up to operating voltage times 1.25 or as specified by Electrical Engineer of Record (whichever is greater). The terminator shall consist of stress control, ground clamp, non-tracking rubber skirts, crimp-on connector, rubber cap, and serial lug. Separate parts of copper or copper alloy shall not be used in contact with aluminum or aluminum alloy parts in the construction and installation of the terminator.
- G. Medium Voltage Terminations (Outdoor):
1. Terminators shall be 600 ampere, non-loadbreak, separable elbow type, Elastimold Type 655LR or equal, with shield terminator with appropriate shield adapt kit.
  2. Terminators shall be fully shielded, fully submersible, designed for energized operation.
  3. Terminators shall be of the materials and construction to ensure dead front construction, shielding, and proper creep path length and water seal. An integral voltage test point and a reinforced pulling ring of stainless steel shall enable the elbow connector to be removed with a shotgun tool. The crimp-type connector for the cable conductor shall meet all requirements of TDJ-162 for Class "A" connectors. A copper pin incorporating Belleville washers at the engagement point with conductor contact shall ensure the integrity of the electrical connection and result in the total connector system meeting Class "A" connector requirements. A stainless steel hold down bail shall mechanically lock the elbow connector onto the bushing.
  4. All separable connectors and junctions shall comply with IEEE-386.
- H. Splices: Splicing shall be allowed only with the prior permission of the Purchaser and will be allowed only if cable cannot be installed in one continuous piece without splice. Splices shall be made using a "kit" which shall be the product of one manufacturer and shall have

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the approval in writing of the manufacturer of the cable, which is to be spliced. Splice shall be suitable for continuous immersion in water. Kit shall be modular, molded rubber type, and shall be as manufactured by Raychem HVS-1520S Series for Heat-Shrinkable splice and Elastimold 655LR Series Separable Connector for elbow splice, or approved equal.

1. Molded Kits shall be fully shielded, fully submersible, designed for energized operation.
  2. Connectors shall be shielded, with proper creep path length and water-seal. The crimp-type connector for the cable conductor shall meet all requirements of TDJ-162 for Class "A" connectors.
- I. Fault Indicators:
1. At elbow connectors provide and install Cooper Power Systems Type TPR or approved equal test point reset fault indicators. Fault indicators shall not trip due to mechanical forces caused by handling. An electric pulse shall turn the indicator's display. When line voltage is restored, the indicator shall reset in approximately 3 minutes. A semi-conductive molded rubber housing, epoxy encapsulated electronic componentry and sealed target window shall make indicator suitable for submersible applications.

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Cable installation shall conform to NFPA 70 and ANSI C2:
1. Ends of cable shall be taped immediately after cutting to prevent moisture from entering the cable. Where the cable is not expected to be connected for at least 72 hours, the tape shall also be varnished.
  2. Cables shall be in one piece without splices between connections except where the distance exceeds the lengths in which the cable is furnished.
  3. Bends in cables shall have an inner radius not less than 12 times the cable diameter.
  4. Leave a horizontal slack of approximately 3 feet on each end of cable runs, on each side of connection boxes, and at all points where connections are brought to equipment. Leave additional slack to make necessary connections.
  5. Ground cable shielding, metallic sheath, and armor at each cable joint or splice by means of braided tinned copper wire connected to equipment grounding conductor. Connections to metallic cable sheaths shall be by means of tinned terminals soldered to ground wires and to cable sheaths. Care shall be taken in soldering not to damage metallic cable sheaths or shields. Ground wires shall be neatly and firmly attached to pullbox walls and the amount of exposed bare wire shall be held to a minimum.
- B. Cable Pulling: Test raceways with a mandrel and thoroughly swab out to remove foreign material before the pulling of cables. Pull cables down grade with the feed-in point at the pullbox or equipment enclosure of the highest elevation. Use flexible cable feeds to convey cables through the pullbox opening and into the raceway runs. Cable slack shall be accumulated at each junction box where space permits by training the cable around the interior to form one complete loop. Minimum allowable bending radii shall be maintained in forming such loops.



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1. Lubricants for assisting in the pulling of jacketed cables shall be those specifically recommended by the cable manufacturer. Cable lubricants shall be soapstone, graphite, or talc for plastic jacketed cables. The lubricant shall not be deleterious to the cable sheath, jacket, or outer coverings.
  2. Cable pulling tensions: Use a dynamometer and do not exceed a value of  $TM =$  number of conductors in the run, times the cross sectional area in circular mills, times the constant .011, or the maximum pulling tension recommended by the cable manufacturer, whichever is lower.
  3. Installation of Cables in Pullboxes: Do not install cables utilizing the shortest route, but route along those walls providing the longest route and the maximum spare cable lengths. Form all cables to closely parallel walls, not to interfere with conduit entrances, and support on brackets and cable insulators at a maximum of 18 inches separation. Support cable splices by racks on each side of the splice. Locate splices to prevent cyclic bending in the spliced sheath. Install cables at middle and bottom of cable racks, leaving top space opening for future cables, except as otherwise indicated for existing installations. Provide one spare three-insulator rack arm for each cable rack in each pullbox.
  4. Use nylon or manila rope.
  5. Cable racks, supports and related fittings to be UL listed, cable iron insulators to be dry processed glazed porcelain, use industry standard equipment.
- C. Observation by Purchaser's representative: pulling set up and approved pulling plan, pulling operation.
- D. Cable Terminating: Protect terminations of insulated power cables from accidental contact, deterioration of coverings and moisture by the use of terminating devices and materials. Install all terminations of insulated power cables, cable splices, and high voltage terminations in accordance with the manufacturer's requirements. Make terminations using materials and methods as indicated or specified herein or as designated by the written instructions of the cable manufacturer and termination kit manufacturer.
- E. Splices in Medium Voltage Cables: Splices shall be made only in pullboxes and only where approved in advance by the Purchaser. Splices in Shielded Cables: Splices in shielded cables shall include covering the spliced area with metallic tape, or like material, to the original cable shield and by connecting it to the cable shield on each side of the splice. Provide a copper ground connection as part of the splice installation. Wire shall be trained to the sides of the enclosure in a manner to avoid interference with the working area.
- F. Cable in Underground Duct:
1. The duct shall have a minimum slope of 3 inches in each 100 feet away from buildings and toward manholes and other necessary drainage points, and shall run in straight lines except where a change of direction is necessary. As each conduit run is completed, a testing mandrel not less than 12 inches long with a diameter 1/4 inch less than the inside diameter of the duct shall be drawn through the duct; after which a brush, having stiff bristles, shall be drawn through until the conduit is clear of all particles of earth, sand or gravel; conduit plugs shall then immediately be installed. Provide a plastic warning tape in the backfill approximately 12 inches below grade.

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The tape shall be yellow plastic with integral warning legend repeated continuously throughout the entire length of the tape.

2. Except at conduit risers, accomplish changes in direction of runs exceeding a total of 10 degrees, either vertical or horizontal, by long sweep bends having a minimum radius of curvature of 25 feet. Sweep bends may be made up of one or more curved or straight sections or combinations thereof. Manufactured bends shall have a minimum radius of 18 inches for use with conduits of less than 3 inches in diameter, a minimum radius of 36 inches for ducts of 3 inches in diameter and larger, and a minimum of 48 inch radius for medium voltage applications.
3. Use end bells where duct lines enter pullboxes or handholes and rigid steel exposed in pullboxes or handholes. During construction, protect partially completed duct lines from the entrance of debris such as mud, sand and dirt by means of suitable conduit plugs.
4. Removal of Ducts: Where duct lines are removed from existing manholes, close the openings to waterproof the manhole. Chip out the wall opening to provide a key for the new section of wall.
5. Multiple duct runs shall maintain 3-inch minimum separation between runs. Provide plastic spacers at maximum 5 feet-0 inch centers to maintain 3 inch spacing between conduits. Drive two reinforcing bars to anchor the conduits at 10 feet-0 inch centers to prevent floating during concrete pour.
6. Do not install plastic conduit in rock base. Provide double wrapped galvanized rigid steel elbows on runs greater than 100 feet or on runs with more than two 90-degree elbows.
7. Install 3" minimum concrete encasement on duct banks that include two or more raceways in a single trench. Drive two reinforcing bars to anchor the conduits at 10 feet-0 inch centers to prevent floating during concrete pour.
8. Burial depth - Concrete encased: 36-inch minimum.
9. Color mix on medium voltage ductbanks to be 10-lbs red oxide per yard of concrete.
10. Manholes shall be left in a clean condition with all debris removed and with all cables supported on approved cable supports. All stubs for manholes shall be concrete encased and shall extend 5 inches beyond manholes.
11. Underground Structures: Precast concrete - risers and tops to conform to ASTM C 478. Precast units (ACI 318) shall be the product of a manufacturer regularly engaged in the manufacture of precast concrete pullboxes. Top, walls, and bottom shall consist of reinforced concrete. Walls and bottom shall be of monolithic concrete construction. Duct entrances and windows shall be located near the corners of structures to facilitate cable racking. Covers shall fit the frames without undue play. Steel and iron shall be formed to shape and size with sharp lines and angles. Castings shall be free from warp and blow holes that may impair their strength or appearance. Exposed metal shall have a smooth finish and sharp lines and arises. Provide all necessary lugs, rabbets, and brackets. Set pulling-in irons and other built-in items in place before depositing concrete. A pulling-in iron shall be installed in the wall opposite each duct line entrance. The words "HIGH VOLTAGE" and "M.H.-XX" (confirm manhole number with Purchaser) shall be cast in, or welded on, the top of pullbox cover. Cable racks, including rack arms and insulators, shall be adequate to accommodate the cable. All steel covers, frames, and steel fittings shall be galvanized. Penthead security bolts shall secure steel cover.

## SPECIFICATION SECTION 26 05 13: MEDIUM VOLTAGE DISTRIBUTION

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- a. Metal Frames, Covers and Gratings: Full traffic covers shall satisfy the ASSHTO H-20 loading criteria, and pedestrian traffic covers shall satisfy the ASSHTO H-10 loading criteria.
  - b. Drainage Pipe and Fittings: Cast-iron, extra strength. Drains shall be cast-iron, coated or uncoated, plain pattern, bottom outlet with perforated or slotted hinged cover.
- G. Transformer or Concrete Pullbox Grounding: Install ground rod in manholes and in transformer compartment, and connect properly to the cable shielding, metallic sheath, and armor at each cable joint or splice by means of braided tinned copper wire. Ground rods shall be protected with a double wrapping of pressure-sensitive plastic tape for a distance of 2 inches above and 6 inches below concrete penetrations.

### 3.2 LABELING

- A. Label all medium voltage conductors, splices, and terminations.

### 3.3 SERVICES INSTALLATION

- A. Arrange with the Purchaser for scheduling of connection into the medium voltage site distribution system. Furnish and install all materials and labor necessary for complete installation and as required by the Purchaser.

### 3.4 EARTHWORK

- A. See other sections of these specifications.

### 3.5 TESTING

- A. Perform inspection and tests per NETA ATS-2009 Section "Cables-Medium Voltage-69kV Maximum" and per Purchaser's requirements.
- B. All medium voltage cables, cable splices, junctions and jumpers shall be subjected to dielectric-absorption and high voltage test after the installation has been completed.
- C. Provide schedule notification to the Purchaser 5 working day prior to testing.
- D. Each medium voltage power cable shall be tested with a 2,500 volt insulation resistance test set and readings recorded each 15 seconds for the first 3 minutes until fully charged and then at 1 minute intervals for 3 minutes with a minimum reading of 200 megohms at 60° F and corrected accordingly at all other temperatures.
- E. For each medium voltage cable: An initial voltage shall be applied and increased in no less than 5 uniform steps up to the maximum test voltage for Operating voltage times 1.25 or as specified by Electrical Engineer of Record (whichever is greater) system, to 63 KVDC and hold for 5 minutes.

## **SPECIFICATION SECTION 26 05 13: MEDIUM VOLTAGE DISTRIBUTION**

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- F. Ensure that terminator voltage limits are not exceeded. Investigate any readings exceeding 10 micro-amps for every 1,000 feet of cable.
- G. Perform a shield continuity test on each power conductor by ohmmeter method. Provider to investigate resistance values in excess 10 ohms per 1,000 feet of cable.
- H. All cables failing tests or with evidence of damage shall be removed and replaced in their entirety (no splices), at no cost to the Purchaser.
- I. Provider shall assist in testing by providing test equipment, labor and technical personnel.
- J. Provider to provide equipment that will allow for proper bailing to avoid premature connection failure.
- K. Test Fault Indicators and verify correct operation per Manufacturer's instructions.

**END OF SECTION**

# SPECIFICATION SECTION 26 12 21: SECONDARY SUBSTATION MEDIUM VOLTAGE TRANSFORMERS

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## PART 1 -- GENERAL

### 1.01 GENERAL REQUIREMENTS

#### A. SCOPE:

1. This section specifies indoor dry-type secondary unit substation transformers used for feeding double-ended switchgear with dummy and tie breakers. Primary voltage is 4kV and the secondary voltages are 480V and less than 1000kVA.
2. This section specifies outdoor pad mount liquid-filled transformers used for the plant power distribution system. Primary voltage is 4kV and secondary voltages are below 5KV. The primary and secondary termination bushings shall be horizontal and shall be located on opposite sides to facilitate connection of incoming and outgoing termination equipment. Pad-mounted compartmental style transformers are not acceptable.

### 1.02 REFERENCES

- A. REFERENCE STANDARDS: The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall prevail.

| <u>Reference</u> | <u>Title</u>  |
|------------------|---|
| ANSI C37.2       | Standard Electrical Power System Device Function Numbers  |
| ANSI C57.12.00   | General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers   |
| ANSI C57.12.10   | Requirements for Transformers 230,000 Volts and Below, 833/958 through 8,333/10,417 KVA, Single Phase, and 750/862 through 60,000/80,000/100,000 KVA, Three Phase |
| ANSI C57.12.90   | Test Code for Distribution, Power, and Regulating Transformers  |
| ANSI C57.104     | Guide for the Interpretation of Gases Generated in Oil-Immersed Transformers  |
| NEMA TR1         | Transformers, Regulators, and Reactors  |
| NEMA 210         | Secondary Unit Substations  |

- B. DEFINITIONS: (Not Used)

### 1.03 SUBMITTALS

- A. The following information shall be submitted for review:

## **SPECIFICATION SECTION 26 12 21: SECONDARY SUBSTATION MEDIUM VOLTAGE TRANSFORMERS**

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1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviations.
2. Elementary diagrams.
3. Connection diagrams.
4. Dimensional or outline drawings with a complete bill of materials.
5. Manufacturer's installation instructions.
6. Nameplate information in accordance with ANSI 57.12.00.
7. Seismic calculations.
8. Letter stating transformer, primary and secondary connecting equipment compatibility.
9. Short circuit study data: Provide the transformer number, location, KVA ratings, voltage, wiring configuration, impedance, and X/R ratio for each transformer.
10. Factory test results.

### **1.04 OPERATION AND MAINTENANCE INSTRUCTIONS**

- A. Submit operation and maintenance (O&M) instructions. O&M instructions shall be submitted after all submittals specified above have been returned mark "No Exceptions Taken" or "Make Corrections Noted." O&M instructions shall reflect the approved materials and equipment.

## **PART 2 -- PRODUCTS**

### **2.01 ACCEPTABLE PRODUCTS**

- A. Transformers shall be built in accordance with NEMA 210, NEMA TR-1, ANSI C57.12.00, and ANSI C57.12.10. Transformer connections shall be compatible with the primary and secondary electrical equipment. The secondary substation transformers shall be manufactured by General Electric Type GEK, ABB Asea Brown Boveri Type RSL, or equal.

### **2.02 TRANSFORMER CHARACTERISTICS**

- A. RATING:
  1. Transformers shall be suitable for outdoor operation, three phase, 60 hertz. The voltage and KVA rating shall be as indicated on the drawings.
- B. IMPEDANCE:

## **SPECIFICATION SECTION 26 12 21: SECONDARY SUBSTATION MEDIUM VOLTAGE TRANSFORMERS**

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1. The impedance shall be 5.75 percent with a tolerance of  $\pm 7.5$  percent of the base impedance.
- C. TEMPERATURE RISE:
1. Unless shown otherwise on the drawings, the transformer self-cooled rating (OA) shall be based, on a temperature rise of 55° C. Transformers rated at 55° C shall deliver an additional 12 percent capacity when operated at 65° C rise.
- D. COOLANT:
1. The transformer shall have a mineral oil coolant with a 0.3 percent inhibitor.
- E. WINDINGS:
1. The transformer winding shall be copper. The transformers shall have winding configuration of delta-wye grounded. The primary winding shall be provided with two 2-1/2 percent taps above and below the specified voltage. Primary winding basic impulse level (BIL) shall be 95 kV. Secondary winding BIL shall be 30 kV.
- F. HIGH EFFICIENCY:
1. Transformers shall have a minimum efficiency of 98.5 percent at full rated nameplate load and 97.25 percent at half-rated load and meet DOE 2016 efficiency standards.

### **2.03 ACCESSORIES**

- A. Transformer accessories shall consist of the following: drain, filter, and sampling valve; de-energized tap changer with key-interlocked externally operated cover-mounted handle; pressure test connection; 1-inch filling plug and filter press connection in cover; liquid temperature gage with high temperature alarm contacts (ANSI C37.2 Device 39); liquid level gage with low level alarm contacts (ANSI C37.2 Device 71); provisions for lifting and jacking; instruction nameplate; two ground pads; pressure and vacuum gage with alarm contacts (ANSI C37.2 Device 63); and welded-on main tank cover. A bolted manhole cover shall be located on the tank to permit inspection and removal of the tap changer. Alarm contacts shall be rated SPDT, 10 ampere at 120V AC and shall actuate on alarm conditions. Each contact shall be wired individually to a terminal board in a NEMA 4 enclosure.

### **2.04 BUSHING CONFIGURATION**

- A. The transformers shall have horizontal primary and secondary voltage terminal bushings located on opposite sides. Bushing locations shall be coordinated with primary and secondary equipment. Bushings shall be porcelain with copper terminals.

### **2.05 PRIMARY AND SECONDARY CONNECTING EQUIPMENT**

- A. GENERAL:

## **SPECIFICATION SECTION 26 12 21: SECONDARY SUBSTATION MEDIUM VOLTAGE TRANSFORMERS**

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1. The Provider shall submit a letter of certification with the shop drawings stating that the combination of transformer, primary and secondary equipment has been coordinated. The transformer shall be provided with the interface hardware for the primary and secondary connecting equipment. All current-carrying parts shall be copper.
- B. PRIMARY EQUIPMENT:
  1. Provide transition throat.
- C. SECONDARY EQUIPMENT:
  1. Provide low voltage air terminal chamber including:
    - a. Cable compartment bused for the connection of the number and size of the conductors shown on the drawings.
    - b. Ground bus for connecting up to eight No. 4/0 AWG grounding conductors. Bus shall be predrilled.
    - c. Terminal chamber shall be adequately sized to accommodate all the equipment without compromising safe, minimum spacing tolerances. Terminal chamber shall be equipped with a removable gasketed panel. The cables shall be readily accessible with removal of the panel. Busing shall be tinned copper.

### **2.06 FINISH**

- A. The exterior secondary substation transformer finish shall consist of phosphate pretreatment, rinse, zinc chromate epoxy primer and middle coats oven baked and final coat of aliphatic polyurethane ambient cured, 7 mils total. The color shall be ANSI/ASA 61, light gray.

### **2.07 NAMEPLATES**

- A. All electrical equipment shall be labeled with equipment nameplates. The nameplate shall be engraved with the equipment number and description as shown on the "C" drawings and specification schedules. Mount nameplate in location easily legible by operations and maintenance personnel.

### **2.08 KEY INTERLOCK**

- A. The medium voltage disconnect switch shall have the no-load tap changer on the transformer. The keyed sequence shall require the medium voltage switch to be in the open position before the tap changer can be moved on the transformer. The medium voltage disconnect switch shall also be key interlocked with the low voltage switchgear. The key sequence shall require the switchgear main breaker to be in the open position before the medium voltage switch can be opened. The key interlock shall be as manufactured by Square D, Type S with key and dust covers, or equal.



## **SPECIFICATION SECTION 26 12 21: SECONDARY SUBSTATION MEDIUM VOLTAGE TRANSFORMERS**

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### **PART 3 -- EXECUTION**

#### **3.01 GENERAL**

##### **A. GROUNDING:**

1. Transformer enclosures and secondary termination compartments shall be connected to the plant grounding system.

#### **3.02 INSTALLATION**

- A. The transformers shall be installed in accordance with manufacturer's instructions and as shown on the drawings.
- B. The seismic calculations shall be approved prior to mounting the equipment.
- C. A certified welder shall weld or bolt the transformer to the embedded sills.

#### **3.03 TESTING**

##### **A. Preoperational Testing**

1. Transformers shall be factory tested in accordance with ANSI C57.12.00 and the District's Commissioning Plan Preparation Guide. The manufacturer shall certify that the tests have been performed and that the results comply with ANSI C57.12.90.

##### **a. ROUTINE TESTS:**

- 1) Winding resistance
- 2) Ratio polarity and phase relation
- 3) No load losses and excitation current
- 4) Impedance, voltage and load losses
- 5) Dielectric (high frequency)
- 6) Mechanical leak

##### **b. DESIGN TESTS:**

- 1) Temperature rise
- 2) Dielectric (lightning impulse)
- 3) Audible sound level

**SPECIFICATION SECTION 26 12 21: SECONDARY SUBSTATION MEDIUM VOLTAGE TRANSFORMERS**

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4) Mechanical (lifting, moving and pressure)

**B. OPERATIONAL TESTING:**

1. Transformers shall be tested per Manufacturer recommendations.

**3.04 TRAINING (NOT USED)**

**END OF SECTION**

## SPECIFICATION SECTION 48 14 00: PHOTOVOLTAIC SYSTEM

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A. The Contract and any design-build bridging documents.
- B. Section 26 00 00: General Electrical Specifications
- C. Section 05 90 02: Solar PV Canopy Structure Specification
- D. Section 05 90 03: Solar PV Ground-Mount Specification
- E. Other relevant Purchaser Specifications

*NOTE: Where this specification and other specifications or bridging-documents are in conflict, the more stringent shall apply. Provider shall identify conflicts and confirm recommended equipment or procedures with the Purchaser.*

#### 1.02 CODES & REFERENCES

- A. The design and installation shall conform to all requirements as defined by the applicable codes, laws, rules, regulations and standards of applicable code enforcing authorities (Latest Edition's enforced by the Authority Having Jurisdiction, unless otherwise noted). The following are key standards that shall be followed. The Architect/Engineer of Record and Provider's contractor shall ensure all applicable codes are followed:
  - 1. ASTM International (ASTM) ([www.astm.org](http://www.astm.org)), including:
    - a. E3010, Standard Practice for Installation, Commissioning, Operation, and Maintenance Process (ICOMP) of Photovoltaic Arrays
  - 2. American National Standards Institute (ANSI)
  - 3. California Building Code (CBC), with State of California Amendments
  - 4. California Energy Commission Title 24 Building Energy Efficiency Requirements
  - 5. California Department of Forestry and Fire Protection, Office of the State Fire Marshal – Solar Photovoltaic Installation Guidelines
  - 6. DSA IR-16-8 (most recent) Guidelines
  - 7. DSA PL-07-02 (most recent) Guidelines
  - 8. Institute of Electrical and Electronics Engineers (IEEE)
  - 9. International Electrotechnical Commission (IEC), including:
    - a. 62446-1 Photovoltaic (PV) systems – Requirements for testing, documentation and maintenance. Part 1: Grid connected systems – Documentation, commissioning tests and inspection
  - 10. International Electrical Testing Association (NETA)
  - 11. Local Fire Permit Requirements
  - 12. National Electrical Manufacturers Association (NEMA)
  - 13. National Fire Protection Association (NFPA), National & California Electrical Code
  - 14. Purchaser Specifications and Requirements
  - 15. Underwriters Laboratory (UL), including:
    - a. UL 2703 – Standard for Mounting Systems, Mounting Devices, Clamping/Retention Devices, and Ground Lugs for use with Flat-Plate Photovoltaic Modules.
  - 16. Utility company standards and requirements
  - 17. All other applicable Codes and Ordinances

## **SPECIFICATION SECTION 48 14 00: PHOTOVOLTAIC SYSTEM**

### **1.03 GENERAL**

- A. "Purchaser" shall refer to owner of the site where project will be located, regardless of system ownership, and include any representative of the site host, such as consultants or inspectors. "Contract" refers to the Energy Services Agreement and any associated design-build bridging documents. "Provider" refers to Forefront Power. The project includes the design and construction of complete Photovoltaic Systems (PV), including all AC and DC components. The design and installation shall conform to all requirements as defined by the applicable codes, laws, rules, regulations and standards as specified in the Contract.
- B. The Provider shall include all items and all work reasonably required to complete the System in accordance with the Agreement. If the Provider is in doubt as to the intent of any portion of these specifications, or necessary information is omitted, the Provider shall notify the Purchaser in writing for clarifications or corrections to be provided by addendum.
- C. All design documents, cut sheets, and technical specifications shall be submitted, reviewed and accepted by the Purchaser per the guidelines specified in the Contract and any bridging documents.

### **1.04 WORK INCLUDED**

- A. The work shall include the design, engineering, materials, labor, equipment, installation, testing, services, and incidentals necessary to install complete Photovoltaic (PV) Systems in conformity with applicable codes and professionally recognized standards.
- B. PV systems shall consist of arrays of framed photovoltaic modules, mounting hardware, terminal boxes, combiner boxes, quick-connect electrical connectors, DC wiring, DC disconnects, utility interactive inverters, AC disconnects, AC feeders, AC circuit breakers, AC panel boards / switchgear, and complete data acquisition and monitoring systems.
- C. The PV systems shall be utility grid connected. The Provider shall be responsible for all required utility company coordination, applications, inspections, permits, and final approval for the complete interconnection of the PV systems with the utility company grid, including bi-directional utility meters at each location.
- D. The Provider shall ensure adequate clearance and equipment space within the allotted areas and existing building and site conditions. All equipment and sizes / clearances shall be coordinated with the Purchaser prior to rough-in.
- E. The Provider shall provide for the disconnection, disposition, and proper disposal of all existing equipment to be replaced.

### **1.05 QUALITY ASSURANCE**

- A. All equipment shall be listed to either Underwriters' Laboratories (UL) or Electrical Testing Laboratories (ETL) standards as applicable.
- B. Installer Qualifications – The installing contractor shall be familiar with the equipment to be installed and have the necessary training to install in the equipment.

### **1.06 MATERIALS, DELIVERY, STORAGE, AND HANDLING**

- A. All materials shall be delivered new, undamaged and without defects.

## SPECIFICATION SECTION 48 14 00: PHOTOVOLTAIC SYSTEM

- B. All equipment and panels shall be handled with care so as not to damage the delivered products. All equipment shall be installed in new and neat condition.
- C. Appropriate protective clothing shall be worn when handling the equipment.

### PART 2 - PRODUCTS

#### 2.01 ACCEPTABLE MANUFACTURERS

- A. Acceptable system manufacturers/vendors shall be as specified in other sections of this document. Manufacturers shall provide their latest line of equipment, meeting all current industry standards and all performance criteria set forth in this Contract. The Purchaser seeks equipment from proven, industry leading manufacturers in solid financial standing, producing tier-one equipment.
- B. Contractor proprietary products shall have an ICC report or a testing report stamped and signed by a licensed California engineer.

#### 2.02 EQUIPMENT AND MATERIALS

- A. PV MODULES SHALL MEET THE FOLLOWING:
  - 1. Module manufacturer that has produced no less than 250MW of modules in the prior year.
  - 2. Modules are from a field-tested product line that has been commercially available for no less than three years.
  - 3. Module manufacturer shall provide a 25-year warranty on the solar modules with at least 80 percent power output guaranteed at 25 years.
  - 4. Have a minimum 25-year design life, designed for normal, unattended operation.
  - 5. UL 1703 listed.
  - 6. UL listed for the specified voltage (typically 1000 V-DC).
  - 7. Meet IEC 61215 (crystalline silicon PV modules) or IEC 61646 (thin film PV modules) standards.
  - 8. Meet California SB1 Guidelines for Eligibility.
- B. INVERTERS SHALL MEET THE FOLLOWING:
  - 1. String-type inverters.
  - 2. Integrated AC and DC disconnects
  - 3. Include a 10-year warranty.
  - 4. Manufacturer produced no less than 250 MW of inverters in the prior fiscal year.
  - 5. Field-tested product line that is commercially available for no less than 2 fiscal years.
  - 6. Comply with the following:
    - a. UL 1741 listed, inclusive of UL 1741-SA requirements.
    - b. IEEE 1547, including testing to IEEE 1547.1 and IEEE C62.45.
    - c. IEEE C62.41.2 and CSA107.1-01.1.

## SPECIFICATION SECTION 48 14 00: PHOTOVOLTAIC SYSTEM

- d. California Rule 21, CEC approved and utility line interactive type.
7. Incorporate disconnect switch for main DC power disconnect in compliance with applicable codes and utility requirements.
8. Sized as required to support the PV module production load within the rating of the equipment, together with all other components. Sizing shall not exceed 1.35 DC:AC ratio without approval by Purchaser.
9. Meet the following requirements:
  - a. Nominal AC Voltage (Three-phase, + 10%): 208, 240, or 480 VAC (as required per site)
  - b. Nominal AC Frequency (+ 0.5 Hz): 60 Hz
  - c. Line Power Factor (Above 20% rated power): >0.99
  - d. AC Current Distortion (At rated power): <5% THD
  - e. Maximum Open Circuit Voltage DC: 1,000 VDC
  - f. Maximum Ripple Current (% of rated current): <5%
  - g. Minimum Inverter Efficiency: >96%
  - h. Temperature Range Ambient: -4° F to 122° F (-20° C to 50° C)
  - i. Enclosure Environmental Rating (minimum): NEMA 3R
  - j. Relative Humidity (non-condensing): 0-95%
  - k. Sound level: <85 dBA
  - l. Capable of producing reactive power to operate between a power factor of 0.9 lagging to 0.9 leading (as adjusted on the inverter equipment).
  - m. Protective Functions: Standard wakeup voltage, wakeup time delay, shutdown power, shutdown time delay, AC over / under voltage and time delays, AC over / under frequency and time delays, ground over current, over-temperature, AC and DC over current, DC over voltage
  - n. User Display: Standard-LCD with on/off capability
  - o. DC Disconnect: 1,000 VDC load break rated
  - p. Isolation Transformer (if applicable): High-efficiency type, supplied by the manufacturer of the Inverter Systems, mounted within same enclosure or directly adjacent, with factory-designated wiring provisions.
  - q. Zone 4 Seismic Rating (free standing) or wall mounted
  - r. Internal combiner panel option to allow connections of sub-arrays at the Inverter without the use of additional equipment.
- C. No substitution for contracted equipment shall be made without the written consent of Purchaser. Such consent will not to be unreasonably conditioned, delayed, or withheld.
- D. Upon connection of the new PV systems, provide a placard on the respective Main Switchboard to identify the two sources of power feeding the equipment.
- E. Combiner boxes (where used) shall be NEMA 3R rated (minimum) and shall include fuses for string inputs and a bus bar to combine the strings into sub-arrays, for input into the Inverter system. Minimum combiner box output bus ampacity shall be 156% of the rated short circuit current available to be carried on the bus (the sum from all strings to the bus).]
- F. All AC interconnecting feeders shall be sized to NEC Table 310.16 (75 degree column) based on associated disconnect amperage. Conduit fill to 40% max. Include temperature derating as

## SPECIFICATION SECTION 48 14 00: PHOTOVOLTAIC SYSTEM

required for the ambient temperatures and roof conditions per NEC. Provide equipment grounding conductor in each conduit.

- G. All roof and exterior mounted raceways shall be designed and installed to accommodate expansion and contraction due to heating affects, including adequate cable length and listed expansion couplings. All expansion couplings or installations shall include grounding bonding jumpers as required by code.
- H. All AC circuits to be 3-wire or 4-wire + ground. All grounding per NEC 690, Part V.
- I. All DC circuits and feeders sized to NEC table 310.16 (90-degree column) based on associated disconnect amperage. Minimum ampacity shall be 156% of the rated short circuit current available to be carried on the specific conductor. Conduit fill to 40% max. Include temperature derating as required for the ambient temperatures and roof conditions per NEC. Provide equipment grounding conductor in each conduit.
- J. All DC circuits to be 2-wire + ground.
- K. All AC and DC wiring in conduit to be RHW-2, PVWIRE, THWN-2, or XHHW-2 (90 degree) wet rated for use with 90 degree listed terminals on PV equipment.
- L. All exposed DC wiring to be USE-2, PVWIRE, or SE (90 degree) wet rated and sunlight resistant or PV Wire.
- M. Above ground exposed conduit shall be rigid galvanized steel with threaded fittings except where DSA and other applicable codes specifically allow for the use of EMT conduit. All conduit shall meet NEC Code, DSA Guidelines and any applicable standards. Exterior installations shall have watertight fittings. All conduit shall be rated for exposed installation and a minimum design life equivalent to the solar panels. Provider shall paint all visible exposed raceways and boxes to match adjacent surface finish after installation. Colors to be selected and approved by the Purchaser, such approval not to be unreasonably conditioned, delayed, or withheld.
- N. All conduits and stub-ups under array canopies shall be encased within concrete caissons or piers or, protected from parking traffic with appropriately sized bollards if protection is required by electrical engineer.
- O. All interior conduit to be EMT with steel set-screw fittings (no cast fittings).

### 2.03 WIRE MANAGEMENT

- A. All inter-array wiring methods must meet or exceed current industry standards for wire management, strain relief and fastening.
- B. All inter-array wire management shall use stainless steel or galvanized steel cable clips, Heyco or similar. UV rated cable ties shall be used minimally and only in locations where the use of cable clips is impossible.
- C. Where exposed, wires, cables and conductors shall be managed in a neat and orderly manner. Where exposed to environmental conditions (e.g., sunlight, rain, wind, etc.) and visible from below, wires shall be fastened in a uniform and discrete fashion.
- D. All conductors and conduits between separate arrays shall be routed underground. Wiring shall be routed down columns, encased in piers/caissons, routed underground between arrays or carports, and up the nearest column on the adjacent array. Under no circumstance shall circuits,

## SPECIFICATION SECTION 48 14 00: PHOTOVOLTAIC SYSTEM

conduits, or chaseways be mounted overhead between separate structures, including seismic gaps unless such distance is less than 24 inches and conduits do not exceed four (4) 1" conduits.

- E. Strain relief and drip loops shall be utilized at all entrances to and from conduit bodies, junction boxes, weather heads, switchgear, inverters and panelboards etc. Conductors shall be strapped with strain relief as not to stress panel leads, home runs or mechanically crimped connections within the array.

### 2.04 MISC. SYSTEM REQUIREMENTS

- A. All exterior equipment to be sunlight and UV resistant as well as rated for elevated temperatures at which they are expected to operate (on roofs in hot sunlight).
- B. No dissimilar metals are allowed to contact each other (use plastic or rubber washers) with the exception of anodized aluminum module frames in contact with galvanized carport purlins. Best practices shall be used to avoid corrosion.
- C. No aluminum in contact with concrete or masonry materials.
- D. Bolted connections shall be non-corrosive and include locking devices designed to prevent twisting over the design life of the PV system.
- E. Environmental impact of system equipment containing hazardous materials shall be disclosed, as well as maintenance and disposal instructions for equipment at the end of its useful life.

### 2.05 SYSTEM ELECTRICAL

- A. The modules shall be interconnected using cable assemblies. The pigtails shall be quick-connect electrical wiring connections rated for the application (90 degree rated).
- B. Raceway system shall be installed in a manner that prevents water from draining into electrical equipment.
- C. Full specifications of the inverter shall be supplied as part of the system submittal.
- D. All major components of the systems and the installation procedures shall meet National Electrical Code requirements, including Article 690.
- E. The PV system shall be designed to automatically drop offline when normal utility power is lost to avoid unintentional islanding effects as required by the local utility.
- F. All electrical system equipment shall be properly rated to withstand and interrupt (in the case of over current protection devices) the available fault current at the point of use.
- G. All required overcurrent protection and electrical bussing sizes per NEC 690.
- H. Means of system grounding to be approved by professional Electrical Engineer of record and GFCI protection shall be in accordance with latest NEC requirements.

### 2.06 MONITORING

- A. DAS - A Data Acquisition and Monitoring System (DAS) shall be provided for all points of interconnect. The system shall include, but not be limited to, the measurement, calculation, display, and reporting of the following items:
  - 1. PV production in 15-min reporting intervals.



## SPECIFICATION SECTION 48 14 00: PHOTOVOLTAIC SYSTEM

2. Energy consumption in 15-min reporting intervals.
  3. Weather data in 15-min reporting intervals
  4. System electrical functions (instantaneous and accumulated power output (kW and kWh), AC and DC system voltage and amperage, and peak value tracking with associated time stamps).
  5. Pounds of CO<sub>2</sub> emissions avoided from the generation of PV energy at the site (compared to local utility fuel mix electric carbon content).
  6. DAS shall be capable of outputting data in the Western Renewable Energy Generation Information System (WREGIS) format sufficient for registering Renewable Energy Credits (RECs) from each system.
  7. Lifetime logging and access to data reported by DAS.
  8. DAS shall provide Purchaser access to all data through an open data exchange protocol (FTP Push or API) at no additional cost to Purchaser or Purchaser's third-party designee. This data shall, at a minimum, include PV production data, energy consumption data, inverter production data, inverter AC power data, inverter current data, inverter voltage data, weather station and/or satellite data, and alarm status readings. All data shall be available over multiple timescales, ranging from 15-min intervals to annual intervals and shall include both real-time and historic data.
- B. Cellular data shall be used for communications with the DAS and metering systems.
- C. Separate consumption meters shall be provided for each utility account. Consumption meters shall include a web-enabled interface and 15-min reporting intervals to be synced with PV meter production intervals. Consumption meter standard assumption is 480V POI, assumption for anything above 480V POI without a storage component will be monitored at additional cost.
- D. Provider shall load software (as applicable) on Purchaser provided computers and train Purchaser in operation and maintenance of software or cloud-based systems and related monitoring functions.
- E. WEATHER STATION
1. A weather station shall be provided at one site out of three (with a minimum of one) in the Purchaser's portfolio of Systems, located geographically to best provide coverage for the portfolio of sites being considered. The station shall provide at a minimum: solar irradiation (coplanar and horizontal), ambient temperature, wind speed and any other data relevant to weather correction of solar PV system performance.
  2. Alternatively, satellite weather may be utilized in lieu of on-site weather stations. If utilized in place of a weather station, satellite weather information shall be made available on the same interval as PV production at no additional cost to Purchaser per Item A above.

## SPECIFICATION SECTION 48 14 00: PHOTOVOLTAIC SYSTEM

### PART 3 - EXECUTION

#### 3.01 REQUIRED PLACARDS

- A. All placards shall be machine generated phenolic type with red background and white lettering, affixed to equipment with stainless steel screws or with permanent adhesive where set screws are not feasible. Minimum lettering size to be 1/4" unless otherwise noted or required for legibility.
- B. Provide a placard clearly visible at each main service panel to identify both sources of power, with the following wording in 1/4" high lettering per NEC 690.64(B)(4): "Warning - This Service Is Fed by Two Sources Of Power – The Utility Service Main Disconnect And The PV System Main Disconnect – Both Services Must Be Disconnected To Remove Power From The Switchboard".
- C. Provide a placard on each PV system input circuit breaker (where used) at the main panel with the following wording in 1/4" high lettering per NEC 690.64(B)(7): "Warning – Inverter Output Connection – Do Not Relocate This Overcurrent Device".
- D. Provide a placard on all disconnects with the following wording in 1/4" high lettering per NEC 690.17: "Warning - Electric Shock Hazard - Do Not Touch Terminals - Terminals On Both The Line and Load Sides May Be Energized In The Open Position".
- E. Provide a placard on the Main PV System Disconnect (adjacent to each main service panel) with the following information in 1/4" high lettering per NEC 690.53: "Photovoltaic Power Source Disconnect - Operating Current: X Amps; Operating voltage: XX VAC; Maximum System Voltage: XX VAC; Short-Circuit Current: XXX Amps", where X is the operating current, XX is the system voltage, and XXX is the maximum short circuit current contribution of the generating facility at the point of interconnection with the utility system.
- F. Provide a placard at each Main Switchboard with the following information in 1/4" High lettering per NEC 690.54: "Caution - Possible Backfeed From Photovoltaic Power System – X VAC, XX Amps", where X is the system voltage and XX is the maximum AC amperes of the installed system.
- G. Provide a placard on each PV System Inverter with the following information in 1/4" high lettering: "Photovoltaic Power Source Inverter Rating - Operating Current: XX Amps; Operating voltage: XXX VDC; Maximum System Voltage: 1,000 VDC; Short-Circuit Current: XXXX Amps", where XX is the maximum DC amperes of the installed system, XXX is the operating voltage DC, and XXXX is the short circuit current that the Inverter can provide (from all strings in parallel).
- H. Provide utility-required System Directory placard and utility safety switch Identification placard as required by local utility company, to identify all system components.
- I. Provide a placard for all Combiner Boxes to read: "DC Combiner Box [XXX]– [System Voltage] VDC Maximum".

#### 3.02 UTILITY INTERCONNECTION

- A. The Provider shall complete the submissions for the utility interconnection agreement with the Purchaser's approval. The Provider shall submit the required authorization form with the utility to act on behalf of the Purchaser. In the event that the Purchaser has already submitted interconnection applications, the Provider shall take all responsibility for the interconnect process upon contract execution.

## SPECIFICATION SECTION 48 14 00: PHOTOVOLTAIC SYSTEM

- B. The PV system at each Site shall not be interconnected with the Utility's distribution facilities until written authorization from the Utility Company has been obtained.

### 3.03 INSTALLATION STANDARDS

- A. System Installation shall conform to the equipment manufacturers Installation Manual(s) and requirements or guidelines.
- B. All Local, State, and NEC codes shall be observed, including all industry standards related to the installation, operation, and maintenance of photovoltaic power systems.

### 3.04 TESTING

- A. Photovoltaic modules shall be tested in the factory for design performance and results shall be included in the Operation and Maintenance manuals.
- B. Inverters shall be factory tested for performance and the results shall be included in the Operation and Maintenance manuals.
- C. System testing of the installed photovoltaic array shall be performed on all system strings and recorded in commissioning documentation and the Operation and Maintenance manuals.
- D. Commissioning of PV Systems shall adhere to IEC 62446-1 requirements and shall include the following at a minimum:

#### 1. CONDUCTORS

- a. AC & DC conductor inspection / megger testing
- b. Wire management check
- c. DC string Voc/sc testing and recording
- d. Confirm all conduits & junction boxes are installed properly/watertight

#### 2. Inspection of DC fusing and disconnects

#### 3. Inspection of AC components: AC Disconnect, Main Switch Board, AC Combiner Panel Boards, Breakers, Fuses, Terminations, Phasing, OCPD operation, etc.

#### 4. Grounding & bonding system inspection and continuity testing

#### 5. INVERTERS

- a. Inverter inspections and tests per manufacturer instructions
- b. Inverter start-up and confirm proper inverter settings
- c. Inverter output tests - Confirm PV system AC output as expected based on design, insolation and inverter readings

#### 6. IV Curve Trace, Performance testing and recording

#### 7. DELETED

#### 8. Torque spot check on mechanical and electrical terminations

#### 9. Inspection of corrosion control measures

#### 10. Confirm signage and placards meet plans

#### 11. Workmanship evaluation

## SPECIFICATION SECTION 48 14 00: PHOTOVOLTAIC SYSTEM

12. Inspection of DAS / CT metering and monitoring equipment
13. Weather station component inspection and performance audit, on applicable site
14. Confirm web-based monitoring interface operations

### 15. LIGHTING CONTROLS

- a. Confirm canopy lighting levels match photometric design
  - b. Verify component installations
  - c. Confirm existing lighting controls function as specified
16. Commissioning of any other major electrical infrastructure installed on the project per manufacturer requirements
  17. Medium voltage equipment tested to ANSI/NETA requirements
- E. Testing to be performed per CPUC Electric Rule 21 testing procedures and requirements. All testing to be done on “no-cloud” days to avoid system fluctuation by passing clouds. Provider to provide all testing and certification / commissioning.
- F. System start-up procedure shall be as outlined by the Manufacturer’s Installation Manual(s).

### 3.05 DOCUMENTATION

- A. All commissioning and testing reports shall be provided to the Purchaser within 15 days of completion of testing.
- B. The provider shall submit to the Purchaser a comprehensive Operations and Maintenance (O&M) Manual with details for each system. O&M Manuals shall be compiled as a single, bookmarked portable document format (PDF) file. The document shall be a well-organized, comprehensive and custom document created with details for each site. The document shall include at a minimum the following:
1. System description and overview
  2. Simplified site plan that shows array naming convention, inverter locations, and disconnects
  3. Safety Details, including shut down procedures
  4. Contact information for the system installer and maintenance personnel
  5. Monitoring system login and operation details
  6. Standard procedures for both Purchaser and O&M personnel
  7. Maintenance information, including schedules and responsibilities for ongoing maintenance
  8. Troubleshooting and repair, including responses to typical issues and responsible parties
  9. Summary of Performance Guarantee on a site-by-site basis, inclusive of COD for each site, reporting dates and true-up dates.
  10. Summary table with the following details for each site: Site, System Size, Permission-to-Operate (PTO), Commercial Operation Date (COD), Final Completion Date, DSA/AHJ Closeout Date
  11. Any other information that may be required for the Purchaser to easily and safely interact with and confirm performance of the system installed under this Contract.

## SPECIFICATION SECTION 48 14 00: PHOTOVOLTAIC SYSTEM

### 12. O&M Attachments shall include:

- a. Permission-to-Operate (PTO) notice and any other pertinent Utility documentation
- b. As-built Record Drawings in both AutoCAD and PDF (single compiled file for each site), provided as separate files from the fully compiled O&M Manual PDF. The updated as-built drawings shall also include the following details:
  - i) DC string maps with corresponding inverter nomenclature (ID), locations, serial numbers, azimuth, and tilt.
  - ii) Data logger make, model and serial number
  - iii) Include all horizontal/directional boring logs and column footing depths
- c. Performance Guarantee (PeGu) with as-built details
- d. Performance Data, Modeled As-built, including expected production over time. Electronic 8760 production and insolation data shall also be provided in spreadsheet format.
- e. Material List - Complete material list of all items furnished and installed, including but not limited to the following: PV Modules, inverters, wiring, combiner boxes, panelboards, switch gear, optimizers, disconnects, boxes, metering and DAS equipment, etc. PV System operation details
- f. All warranties, cut sheets and manuals for major equipment
- g. System testing and commissioning documentation

END OF SPECIFICATION SECTION 48 14 00

**PERFORMANCE BOND (100% of Guaranteed Project Cost)**  
**(Note: Contractor must use this form, NOT a surety company form.)**

**KNOW ALL MEN BY THESE PRESENTS** that we, \_\_\_\_\_, as Principal, and \_\_\_\_\_ as Surety, are held and firmly bound unto **VENTURA COUNTY COMMUNITY COLLEGE DISTRICT** hereinafter the "Obligee", in the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally.

**THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

**WHEREAS**, the Obligee, by resolution of its Board of Trustees has awarded to the Principal a Contract for the Work described as **Solar Energy Project**.

**WHEREAS**, the Principal, has entered into a Contract with the Obligee for performance of the Work; the Contract and all of its terms and conditions set forth therein are incorporated herein and made a part hereof by this reference.

**WHEREAS**, by the terms of the Contract, the Principal is required to furnish a bond ensuring the Principal's prompt, full and faithful performance of the Work of the Contract Documents.

**NOW THEREFORE**, if the Principal shall promptly, fully and faithfully perform each and all of the obligations and things to be done and performed by the Principal in strict accordance with the terms of the Contract as said Contract may be modified or amended from time to time; and if the Principal shall indemnify and save harmless the Obligee and all of its officers, agents and employees from any and all losses, liability and damages, claims, judgments, stop notices, costs, and fees of every description, whether imposed by law or equity, which may be incurred by the Obligee by reason of the failure or default on the part of the Principal in the performance of any or all of the terms or the obligations of the Contract, including all modifications and amendments thereto, and any warranties or guarantees required thereunder; then this obligation shall be void; otherwise, it shall be, and remain, in full force and effect.

In the event the Principal is declared by the Obligee to be in breach or default in the performance of the Contract, then, after written notice from the Obligee to the Surety, as provided for herein, the Surety shall either remedy the default or breach of the Principal or shall take charge of the Work of the Contract and complete the Contract with a Contractor other than the Principal at its own expense; provided, however, that the procedure by which the Surety undertakes to discharge its obligations under this Bond shall be subject to the advance written approval of the Obligee.

If the Surety does not proceed to cure or remedy the Principal's default(s) of its performance of the Contract with reasonable promptness, the Surety shall be deemed to be in default on this Bond twenty-one (21) calendar days after receipt of a written notice from Obligee to the Surety demanding that the Surety perform its obligations under this Bond, and the Obligee shall be entitled to enforce any remedy available to Obligee.

Within twenty-one (21) calendar days of Obligee's written notice to the Surety of the failure of performance of the Contract by the Principal, it shall be the duty of the Surety to give to the Obligee an unequivocal notice in writing of the Surety's election to remedy the default(s) of the Principal promptly, or to promptly arrange for performance of the Contract, time being of essence to this Bond. In arranging for such performance of the Contract, Surety shall not elect to contract with the Principal for the completion of the Work of the Project without the prior written consent of Obligee, which consent will not be unreasonably withheld. In said Notice of Election, the Surety shall state the date of commencement of its cure or remedy of the Principal's default(s) or its performance of the Contract. The Surety's obligations for cure or remedy, include but are not limited to: correction of defective or incomplete work and completion of the Contract, additional legal, design professional and delay costs arising from

Surety's actions or failure to act; and liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance by the Principal. The Surety shall give prompt written notice to the Obligee upon completion of the cure or remedy of the Principal's default(s) of its performance of the Contract.

In the event the Surety shall fail to issue its Notice of Election to Obligee within the time provided for herein above, the Obligee may thereafter cause the cure or remedy of the Principal's failure of performance or default or to complete the Work. The Principal and the Surety shall be each jointly and severally liable to the Obligee for all damages and costs sustained by the Obligee as a result of the Principal's failure of performance under the Contract Documents or default in its performance of obligations thereunder, including without limitation the costs of cure or completion exceeding the then remaining balance of the Guaranteed Project Cost; provided that the Surety's liability hereunder for the costs of performance, damages and other costs sustained by the Obligee upon the Principal's failure of performance under or default under the Contract Documents shall be limited to the penal sum hereof, the amount of which shall be increased to include the amount of any Changes to the Work which increase the Guaranteed Project Cost.

The Surety, for value received, hereby consents, stipulates and agrees absolutely and unconditionally that no change, adjustment, alteration, deletion, addition or modification to the terms of the Contract or Contract Documents, including but not limited to Contract Time or Guaranteed Project Cost, or the Work to be performed thereunder, shall in any way release, limit, restrict, or otherwise affect the obligations of the Surety under this Bond. Surety waives notice of any change, adjustment, alteration, deletion, addition or modification to the terms of the Contract or the Contract Documents, including but not limited to the Contract Time or Guaranteed Project Cost, or the Work to be performed thereunder and agrees to automatically adjust the penal sum of this Bond to reflect any adjustments of the Contract Time or Guaranteed Project Cost which increase the Guaranteed Project Cost. The Surety unconditionally and absolutely waives its entitlement, if any, to the benefits of California Civil Code §2845 concerning any security held by the District. The Surety also agrees that it shall not be exonerated or released from the obligations of this Bond, either by total exoneration or pro tanto, by any overpayment or underpayment made by the Obligee under the Contract. The Surety agrees that none of the aforementioned changes, adjustments, alterations, deletions, additions, modifications or actions shall in any way affect its obligations on this Bond, and it does hereby waive notice of any such changes, adjustments, alterations, deletions, additions, modifications or actions.

Principal and Surety agree that if Obligee is required to engage the services of an attorney in connection with enforcement of this Bond, each shall pay Obligee's costs and reasonable attorney's fees incurred, with or without suit, in addition to the above penal sum.

The guarantees contained in this Bond survive Final Completion of the Work called for in the Contract Documents with respect to the obligations and liabilities of the Principal, which survive Final Completion of the Work. The obligations of Surety hereunder shall continue so long as any obligation of the Principal remains. Nothing herein shall limit the Obligee's rights or the Principal's or Surety's obligations under the Contract, law or equity, including without limitation California Code of Civil Procedure section 337.15.

**Any claims under this bond may be addressed to the Surety at the following address. This cannot be the Contractor's broker for this bond, but must be an employee of the Surety or the Surety's legal counsel:**

\_\_\_\_\_  
\_\_\_\_\_

**Attention:** \_\_\_\_\_

**Telephone No.:** ( \_\_\_\_\_ ) \_\_\_\_\_ - \_\_\_\_\_

Fax No.: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

E-mail Address: \_\_\_\_\_

***IN WITNESS WHEREOF***, the Principal and Surety have executed this instrument this \_\_\_\_ day of \_\_\_\_\_, 20\_\_ by their duly authorized agent or representative.

**Principal**

**Surety**

\_\_\_\_\_  
(Name of Principal)

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Signature of Person with Authority)

\_\_\_\_\_  
(Signature of Person with Authority)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Name of California Agent of Surety)

\_\_\_\_\_  
(Address of California Agent of Surety)

\_\_\_\_\_  
(Telephone Number of California Agent of Surety)

**Contractor must attach a Notarial Acknowledgment for all Surety's signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.**



**PAYMENT BOND -- Contractor's Labor & Material Bond (100% of Guaranteed Project Cost)**  
**(Note: Contractor must use this form, NOT a surety company form.)**

**Civil Code § 9554**

**KNOW ALL MEN BY THESE PRESENTS** that we, \_\_\_\_\_ as Principal, and \_\_\_\_\_ as Surety, are held and firmly bound unto **VENTURA COUNTY COMMUNITY COLLEGE DISTRICT** hereinafter "the Obligee", in the penal sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_) in lawful money of the United States, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally.

**THE CONDITION OF THIS OBLIGATION IS SUCH THAT:**

**WHEREAS**, the Obligee, by resolution of its Board of Trustees has awarded to the Principal a Contract for the Work described as **Solar Energy Project**.

**WHEREAS**, the Principal, has entered into a Contract with the Obligee for performance of the Work; the Contract and all of its terms and conditions set forth therein are incorporated herein by this reference and made a part hereof.

**WHEREAS**, by the terms of the Contract Documents, the Principal is required to furnish a bond for the prompt, full and faithful payment to any Claimant, as hereinafter defined, for all labor materials or services used, or reasonably required for use, in the performance of the Work.

**NOW THEREFORE**, if the Principal shall promptly, fully and faithfully make payment to any Claimant for all labor, materials or services used or reasonably required for use in the performance of the Work then this obligation shall be void; otherwise, it shall be, and remain, in full force and effect.

The term "Claimant" shall refer to any person, corporation, partnership, proprietorship or other entity including without limitation, all persons and entities described in California Civil Code section 9100, providing or furnishing labor, materials or services used or reasonably required for use in the performance of the Work under the Contract Documents, without regard for whether such labor, materials or services were sold, leased or rented. This Bond shall inure to the benefit of all Claimants so as to give them, or their assigns and successors, a right of action upon this Bond.

In the event that suit is brought on this Bond by any Claimant for amounts due such Claimant for labor, materials or services provided or furnished by such Claimant, the Surety shall pay for the same and reasonable attorneys' fees pursuant to California Civil Code section 9564.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, deletion, addition, or any other modification to the terms of the Contract Documents, the Work to be performed thereunder, the Specifications or the Drawings, or any other portion of the Contract Documents, shall in any way limit, restrict or otherwise affect its obligations under this Bond; the Surety hereby waives notice from the Obligee of any such change, extension of time, alteration, deletion, addition or other modification to the Contract Documents, the Work to be performed under the Contract Documents, the Drawings or the Specifications of any other portion of the Contract Documents.

**IN WITNESS WHEREOF**, the Principal and Surety have executed this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ by their duly authorized agent or representative.

**Principal**

**Surety**

\_\_\_\_\_  
(Name of Principal)

\_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Signature of Person with Authority)

\_\_\_\_\_  
(Signature of Person with Authority)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Print Name)

\_\_\_\_\_  
(Name of California Agent of Surety)

\_\_\_\_\_  
(Address of California Agent of Surety)

\_\_\_\_\_  
(Telephone Number of California Agent of Surety)

**Contractor must attach a Notarial Acknowledgment for all Surety's signatures and a Power of Attorney and Certificate of Authority for Surety. The California Department of Insurance must authorize the Surety to be an admitted surety insurer.**

**NONCOLLUSION DECLARATION**

**Public Contract Code § 7106**

TO BE EXECUTED BY CONTRACTOR

The undersigned declares:

I am the \_\_\_\_\_  
**[PRINT YOUR TITLE]**

of \_\_\_\_\_  
**[PRINT FIRM NAME]**

the party making the Contract.

The Contract is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The Contract is genuine and not collusive or sham. The Contractor has not directly or indirectly induced or solicited any other contractor to put in a false or sham bid. The Contractor has not directly or indirectly colluded, conspired, connived, or agreed with any contractor or anyone else to put in a sham proposal, or to refrain from proposing. The Contractor has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the Contract price of the Contractor or any other contractor, or to fix any overhead, profit, or cost element of the Contract price, or of that of any other contractor. All statements contained in the Contract and Contractor's proposal are true. The Contractor has not, directly or indirectly, submitted his or her Contract price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham proposal or contract, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a Contractor that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the Contractor.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on the following date:

Date: \_\_\_\_\_

Proper Name of Contractor: \_\_\_\_\_

City, State: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

**(ATTACH NOTARIAL ACKNOWLEDGMENT FOR THE ABOVE SIGNATURE)**

**WORKERS' COMPENSATION CERTIFICATION**

Labor Code section 3700 in relevant part provides:

Every employer except the State shall secure the payment of compensation in one or more of the following ways:

- 1 By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this state.
  
- 2 By securing from the Director of Industrial Relations a certificate of consent to self-insure, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to its employees.

I am aware of the provisions of section 3700 of the Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of the Contract.

Date: \_\_\_\_\_

Proper Name of Contractor: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

(In accordance with Article 5 - commencing at section 1860, chapter 1, part 7, division 2 of the Labor Code, the above certificate must be signed and filed with the awarding body prior to performing any Work under the Contract.)

**PREVAILING WAGE AND  
RELATED LABOR REQUIREMENTS CERTIFICATION**

I hereby certify that I will conform to the State of California Public Works Contract requirements regarding prevailing wages, benefits, on-site audits with 48-hours' notice, payroll records, and apprentice and trainee employment requirements, for all Work on the Project.

Date: \_\_\_\_\_

Proper Name of Contractor: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

**DRUG-FREE WORKPLACE CERTIFICATION**

This Drug-Free Workplace Certification form is required from the Contractor pursuant to Government Code section 8350 et seq., the Drug-Free Workplace Act of 1990. The Drug-Free Workplace Act of 1990 requires that every person or organization awarded a contract or grant for the procurement of any property or service from any state agency must certify that it will provide a drug-free workplace by doing certain specified acts. In addition, the Act provides that each contract or grant awarded by a state agency may be subject to suspension of payments or termination of the contract or grant, and the contractor or grantee may be subject to debarment from future contracting, if the contracting agency determines that specified acts have occurred.

The District is not a “state agency” as defined in the applicable section(s) of the Government Code, but the District is a local agency and public school district under California law and requires all contractors on District projects to comply with the provisions and requirements of Government Code section 8350 et seq., the Drug-Free Workplace Act of 1990.

Contractor shall certify that it will provide a drug-free workplace by doing all of the following:

- 1 Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person’s or organization’s workplace and specifying actions which will be taken against employees for violations of the prohibition;
- 2 Establishing a drug-free awareness program to inform employees about all of the following:
  - a. The dangers of drug abuse in the workplace.
  - b. The person’s or organization’s policy of maintaining a drug-free workplace.
  - c. The availability of drug counseling, rehabilitation, and employee-assistance programs.
  - d. The penalties that may be imposed upon employees for drug abuse violations.
- 3 Requiring that each employee engaged in the performance of the contract or grant be given a copy of the statement required above, and that, as a condition of employment on the contract or grant, the employee agrees to abide by the terms of the statement.

I, the undersigned, agree to fulfill the terms and requirements of Government Code section 8355 listed above and will publish a statement notifying employees concerning (a) the prohibition of controlled substance at the workplace, (b) establishing a drug-free awareness program, and (c) requiring that each employee engaged in the performance of the contract be given a copy of the statement required by section 8355(a), and requiring that the employee agree to abide by the terms of that statement.

I also understand that if the District determines that I have either (a) made a false certification herein, or (b) violated this certification by failing to carry out the requirements of section 8355, that the Contract awarded herein is subject to termination, suspension of payments, or both. I further understand that, should I violate the terms of the Drug-Free Workplace Act of 1990, I may be subject to debarment in accordance with the requirements of section 8350 et seq.

I acknowledge that I am aware of the provisions of Government Code section 8350 et seq. and hereby certify that I will adhere to the requirements of the Drug-Free Workplace Act of 1990.

Date: \_\_\_\_\_

Proper Name of Contractor: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

**TOBACCO-FREE ENVIRONMENT CERTIFICATION**

Pursuant to, without limitation, 20 U.S.C section 6083, Labor Code section 6400 et seq., Health & Safety Code section 104350 et seq. and District Board Policies, all District sites, including the Project Site, are tobacco-free environments. Smoking and the use of tobacco products by all persons is prohibited on or in District property. District property includes school buildings, school grounds, school owned vehicles and vehicles owned by others while on District property.

I acknowledge that I am aware of the District's policy regarding tobacco-free environments at District sites, including the Project Site and hereby certify that I will adhere to the requirements of that policy and not permit any of my firm's employees, agents, subcontractors, or my firm's subcontractors' employees or agents to use tobacco and/or smoke on the Project Site.

Date: \_\_\_\_\_

Proper Name of Contractor: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

**HAZARDOUS MATERIALS CERTIFICATION**

1. Contractor hereby certifies that no Asbestos, or Asbestos-Containing Materials, polychlorinated biphenyl (PCB), or any material listed by the federal or state Environmental Protection Agency or federal or state health agencies as a hazardous material, or any other material defined as being hazardous under federal or state laws, rules, or regulations ("New Hazardous Material"), shall be furnished, installed, or incorporated in any way into the Project or in any tools, devices, clothing, or equipment used to affect any portion of Contractor's work on the Project for District.
2. Contractor further certifies that it has instructed its employees with respect to the above-mentioned standards, hazards, risks, and liabilities.
3. Asbestos and/or asbestos-containing material shall be defined as all items containing but not limited to chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite. Any or all material containing greater than one-tenth of one percent (.1%) asbestos shall be defined as asbestos-containing material.
4. Any disputes involving the question of whether or not material is New Hazardous Material shall be settled by electron microscopy or other appropriate and recognized testing procedure, at the District's determination. The costs of any such tests shall be paid by Contractor if the material is found to be New Hazardous Material.
5. All Work or materials found to be New Hazardous Material or Work or material installed with equipment containing "New Hazardous Material" will be immediately rejected and this Work will be removed at Contractor's expense at no additional cost to the District.
6. Contractor has read and understood the document Hazardous Materials Procedures & Requirements, and shall comply with all the provisions outlined therein.

Date: \_\_\_\_\_

Proper Name of Contractor: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

**In addition to the requirement to provide this certification, Contractor agrees that it shall provide all documentation requested by the District to confirm compliance with the requirements herein.**

## **LEAD-BASED MATERIALS CERTIFICATION**

This certification provides notice to the Contractor that:

- (1) The Contractor's work may disturb lead-containing building materials.
- (2) The Contractor must notify the District if any work may result in the disturbance of lead-containing building materials.

### **1. Lead as a Health Hazard**

Lead poisoning is recognized as a serious environmental health hazard facing children today. Even at low levels of exposure, much lower than previously believed, lead can impair the development of a child's central nervous system, causing learning disabilities, and leading to serious behavioral problems. Lead enters the environment as tiny lead particles and lead dust disburse when paint chips, chalks, peels, wears away over time, or is otherwise disturbed. Ingestion of lead dust is the most common pathway of childhood poisoning; lead dust gets on a child's hands and toys and then into a child's mouth through common hand-to-mouth activity. Exposures may result from construction or remodeling activities that disturb lead paint, from ordinary wear and tear of windows and doors, or from friction on other surfaces.

Ordinary construction and renovation or repainting activities carried out without lead-safe work practices can disturb lead-based paint and create significant hazards. Improper removal practices, such as dry scraping, sanding, or water blasting painted surfaces, are likely to generate high volumes of lead dust.

Because the Contractor and its employees will be providing services for the District, and because the Contractor's work may disturb lead-containing building materials, CONTRACTOR IS HEREBY NOTIFIED of the potential presence of lead-containing materials located within certain buildings utilized by the District. All school buildings built prior to 1993 are presumed to contain some lead-based paint until sampling proves otherwise.

### **2. Overview of California Law**

Education Code section 32240 et seq. is known as the Lead Safe Schools Protection Act. Under this act, the Department of Health Services ("DHS") is to conduct a sample survey of schools in the State of California for the purpose of developing risk factors to predict lead contamination in public schools. (Ed. Code, § 32241.)

Any school that undertakes any action to abate existing risk factors for lead is required to utilize trained and state-certified contractors, inspectors, and workers. (Ed. Code, § 32243, subd. (b).) Moreover, lead-based paint, lead plumbing, and solders, or other potential sources of lead contamination, shall not be utilized in the construction of any new school facility or the modernization or renovation of any existing school facility. (Ed. Code, § 32244.)

Both the Federal Occupational Safety and Health Administration ("Fed/OSHA") and the California Division of Occupational Safety and Health ("Cal/OSHA") have implemented safety orders applicable to all construction work where a contractor's employee may be occupationally exposed to lead.

The OSHA Regulations apply to all construction work where a contractor's employee may be occupationally exposed to lead. The OSHA Regulations contain specific and detailed requirements imposed on contractors subject to that regulation. The OSHA Regulations define construction work as work for construction, alteration, and/or repair, including painting and decorating. It includes, but is not limited to, the following:



- a. Demolition or salvage of structures where lead or materials containing lead are present;
- b. Removal or encapsulation of materials containing lead;
- c. New construction, alteration, repair, or renovation of structures, substrates, or portions thereof, that contain lead, or materials containing lead;
- d. Installation of products containing lead;
- e. Lead contamination/emergency cleanup;
- f. Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed; and
- g. Maintenance operations associated with the construction activities described in the subsection.

Because it is assumed by the District that all painted surfaces (interior as well as exterior) within the District contain some level of lead, it is imperative that the Contractor, its workers and subcontractors fully and adequately comply with all applicable laws, rules and regulations governing lead-based materials (including title 8, California Code of Regulations, section 1532.1).

**The Contractor must notify the District if any Work may result in the disturbance of lead-containing building materials. Any and all Work that may result in the disturbance of lead-containing building materials must be coordinated through the District. A signed copy of this Certification must be on file prior to beginning Work on the Project, along with all current insurance certificates.**

**3. Renovation, Repair and Painting Rule, Section 402(c)(3) of the Toxic Substances Control Act**

In 2008, the U.S. Environmental Protection Agency, issued a rule pursuant to the authority of Section 402(c)(3) of the Toxic Substances Control Act, requiring lead safe work practices to reduce exposure to lead hazards created by renovation, repair and painting activities that disturb lead-based paint (Renovation, Repair and Painting Rule). Renovations in homes, childcare facilities, and schools built prior to 1978 must be conducted by certified renovations firms, using renovators with accredited training, and following the work practice requirements to reduce human exposures to lead.

Contractor, its workers and subcontractors must fully and adequately comply with all applicable laws, rules and regulations governing lead-based materials, including those rules and regulations appearing within title 40 of the Code of Federal Regulations as part 745 (40 CFR 745).

The requirements apply to all contractors who disturb lead-based paint in a six-square-foot area or greater indoors or a 20-square-foot area outdoors. If a DPH-certified inspector or risk assessor determines that a home constructed before 1978 is lead-free, the federal certification is not required for anyone working on that particular building.

**4. Contractor's Liability**

If the Contractor fails to comply with any applicable laws, rules, or regulations, and that failure results in a site or worker contamination, the Contractor will be held solely responsible for all costs involved in any required corrective actions, and shall defend, indemnify, and hold harmless the District, pursuant to the indemnification provisions of the Contract, for all damages and other claims arising therefrom.

If lead disturbance is anticipated in the Work, only persons with appropriate accreditation, registrations, licenses, and training shall conduct this Work.

It shall be the responsibility of the Contractor to properly dispose of any and all waste products, including, but not limited to, paint chips, any collected residue, or any other visual material that may occur from the prepping of any painted surface. It will be the responsibility of the Contractor to provide the proper disposal of any hazardous waste by a certified hazardous waste hauler. This company shall be registered with the Department of Transportation (DOT) and shall be able to issue a current manifest number upon transporting any hazardous material from any School Site within the District.

The Contractor shall provide the District with any sample results prior to beginning Work, during the Work, and after the completion of the Work. The District may request to examine, prior to the commencement of the Work, the lead training records of each employee of the Contractor.

The Contractor hereby acknowledges, under penalty of perjury, that it:

1. Has received notification of potential lead-based materials on the District's property;
2. Is knowledgeable regarding and will comply with all applicable laws, rules, and regulations governing work with, and disposal of, lead.

The undersigned warrants that he/she has the authority to sign on behalf of and bind the Contractor. The District may require proof of such authority.

Date: \_\_\_\_\_

Proper Name of Contractor: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

**IMPORTED MATERIALS CERTIFICATION**

This form shall be executed by Contractor and by all entities that, in any way, provide or deliver and/or supply any soils, aggregate, or related materials ("Fill") to the Project Site. All Fill shall satisfy the requirements of any environmental review of the Project performed pursuant to the statutes and guidelines of the California Environmental Quality Act, section 21000 et seq. of the Public Resources Code ("CEQA"), and the requirements of section 17210 et seq. of the Education Code, including requirements for a Phase I environmental assessment acceptable to the State of California Department of Education and Department of Toxic Substances Control.

To the furthest extent permitted by California law, the indemnification provisions in the Contract Documents apply to, without limitation, any claim(s) connected with providing, delivering, and/or supplying Fill.

|                   |  |  |                                       |
|-------------------|--|--|---------------------------------------|
| Certification of: | <input type="checkbox"/> Delivery Firm/Transporter | <input type="checkbox"/> Supplier                  | <input type="checkbox"/> Manufacturer |
|                   | <input type="checkbox"/> Wholesaler                | <input type="checkbox"/> Broker                    | <input type="checkbox"/> Retailer     |
|                   | <input type="checkbox"/> Distributor               | <input type="checkbox"/> Other _____               |                                       |
| <hr/>             |  |  |                                       |
| Type of Entity:   | <input type="checkbox"/> Corporation               | <input type="checkbox"/> General Partnership       |                                       |
|                   | <input type="checkbox"/> Limited Partnership       | <input type="checkbox"/> Limited Liability Company |                                       |
|                   | <input type="checkbox"/> Sole Proprietorship       | <input type="checkbox"/> Other _____               |                                       |

Name of firm ("Firm"): \_\_\_\_\_

Mailing address: \_\_\_\_\_  
\_\_\_\_\_

Addresses of branch office used for this Project: \_\_\_\_\_

If subsidiary, name and address of parent company: \_\_\_\_\_  
\_\_\_\_\_

By my signature below, I hereby certify that I am aware of section 25260 of the Health and Safety Code and the sections referenced therein regarding the definition of hazardous material. I further certify on behalf of the Firm that all soils, aggregates, or related materials provided, delivered, and/or supplied or that will be provided, delivered, and/or supplied by this Firm to the Project Site are free of any and all hazardous material as defined in section 25260 of the Health and Safety Code. I further certify that I am authorized to make this certification on behalf of the Firm.

Date: \_\_\_\_\_

Proper Name of Contractor: \_\_\_\_\_

Signature: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_

**In addition to the requirement to provide this certification, Contractor agrees that it shall provide all documentation requested by the District to confirm compliance with the requirements herein.**