

SOLAR GROUND LEASE AGREEMENT

THIS SOLAR GROUND LEASE AGREEMENT (this “Lease”) is made and entered into as of the ____ day of _____, 20____ (the “Effective Date”), by the City of Milwaukee, a Wisconsin municipal corporation (“Landlord”), and Wisconsin Electric Power Company, a Wisconsin corporation doing business as We Energies (“Tenant”). Landlord and Tenant are at times collectively referred to hereinafter as the “Parties” or individually as the “Party.”

WITNESSETH:

A. Landlord is the owner of that certain property located at 1600 East College Avenue, Milwaukee, WI and further legally described in Exhibit A attached hereto (the “Property”).

B. Landlord and Tenant have agreed to enter into a Solar Electric Service Agreement under Tenant’s “Solar Now” Solar PV System Hosting Pilot Program Within the State of Wisconsin (“Service Agreement”), attached hereto as Exhibit B, whereby Landlord would host a Tenant-owned approximately 2,250 kW nameplate capacity electric power generating photovoltaic solar panel array and connector equipment (such as wires, cabling, pipes, conduit, inverters, mounting, trackers, controls and associated equipment) on the Property (all of the foregoing collectively, the “PV System”).

C. Tenant desires to lease from Landlord and Landlord desires to lease to Tenant, certain areas of the Property as further specified herein for purposes of installing, operating, maintaining and repairing the PV System, all on the terms and conditions hereinafter provided.

NOW, THEREFORE, in consideration of the terms and conditions set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Landlord and Tenant hereby agree as follows:

1. **Lease.** Landlord hereby leases to Tenant, during the Term hereof and subject to the restrictions set forth herein, those portions of the Property constituting approximately 343,542 square feet (approximately 7.88 acres) of land that are described on Exhibit C attached hereto and made a part hereof (the “Premises”), for the purposes of installing, operating, maintaining, repairing, replacing, and removing the PV System. Premises excludes the PV System as defined above. Subject to the terms and conditions set forth in this Lease, Tenant shall have the right to use the Premises for the installation, operation, maintenance, repair, replacement, and removal of the PV System, as such PV System is more particularly described on Exhibit D attached hereto and made a part hereof.

2. **Term.** The term of this Lease (the “Term”) shall begin on the Effective Date and shall end on the last day of the calendar month that includes the **twentieth (20th)** anniversary of the Rent Commencement Date (as defined below) (the “Expiration Date”). In the event that prior to the Rent Commencement Date Tenant determines, in Tenant's sole discretion, that the Premises are not suitable for the installation and operation of the PV System, Tenant may terminate this Lease by providing written notice of such termination to Landlord.

3. **Rent.** In consideration of the rights granted hereunder, beginning on the date (the "Rent Commencement Date") on which Tenant, under the Service Agreement, first furnishes electricity that has been generated by the PV System (excluding electricity generated during commissioning and testing periods), Tenant shall pay to Landlord rent ("Rent") in the amount specified in Exhibit E attached hereto and made a part hereof and payable as set forth in Exhibit E (the "Lease Payment" as that term is defined in the Service Agreement is 1/12th (one twelfth) of the Rent). In the event of any failure by Landlord (as "Customer," as that term is defined in the Service Agreement) to pay Tenant (as the "Company," as that term is defined in the Service Agreement) any rates or other compensation due under the Service Agreement, during the time of such non-payment Tenant shall not be obligated to pay Rent under this Lease.

4. **Easements.**

(a) **Access.**

(i) Landlord hereby grants to Tenant, and its agents and its contractors, during the Term, non-exclusive easements over, across and through areas of the Property (as reasonably designated by Landlord from time to time) for ingress and egress to and from the Premises at all times (including parking related to Tenant's use of the Premises), and for the installation, maintenance, repair, replacement and removal of the PV System and related equipment (including construction laydown and related activities).

(ii) Landlord acknowledges that Tenant is currently negotiating an access agreement with the 128th Refueling Wing, Wisconsin Air National Guard at 1700 College Avenue, Milwaukee, WI (the "128th"), during the Term of the Lease. If Tenant is unable to negotiate an agreement with the 128th by February 28th, 2020, Landlord agrees to work with Tenant on a mutually agreeable alternative to access the Property during the Term of the Lease.

(b) **Sunlight and Solar Energy.** Landlord hereby grants to Tenant, during the Term, an exclusive easement over the Premises and Property for the unobstructed passage of sunlight to the photovoltaic panel systems within the PV System (the "Panels"), and for the capture, use and conversion of the unobstructed flux of solar energy over the Premises and Property from all angles from sunrise to sunset during each day of the Term. Without limiting the generality of the foregoing, Landlord specifically agrees not to construct any buildings or structures, or plant any trees or other vegetation, on the Premises or Property which blocks sunlight from reaching the Panels. Notwithstanding the foregoing, Landlord has no duty to (1) remove any structure that may exist as of the Effective Date or (2) remove blockage by a narrow protrusion (including but not limited to a pole or wire) that may exist as of the Effective Date.

(c) **Effects.** Landlord hereby grants to Tenant, during the Term, an exclusive easement over and across the Premises and Property for electromagnetic, audio, visual, view, light, noise, vibration, electrical, radio interference and/or other effects attributable to the PV System.

(d) **Interconnection and Utilities.** Landlord hereby grants to Tenant and its agents and contractors, during the Term, non-exclusive easements over, across and through the Premises and

Property for the installation, maintenance, repair, replacement and removal of interconnection facilities such as wires, cabling and similar facilities and for utilities required for the operation of the PV System and the connection of the PV System to Tenant's electrical distribution system (all of the foregoing collectively, the "Interconnection Facilities"). The locations for such Interconnection Facilities shall be as shown in Exhibit D or as mutually agreeable to Landlord and Tenant.

(e) Distribution. Landlord hereby grants to Tenant, and its agents and contractors, perpetual non-exclusive easements over, across and through those portions of the Premises and Property that are described on Exhibit F attached hereto for the installation, maintenance, repair, replacement and removal of overhead and underground facilities for Tenant's electrical distribution system.

(f) Cooperation. Tenant's activities under the easements described in this Section 4 shall not unreasonably interfere with Landlord's normal business activities on the Property (excluding the Premises), and the Parties will cooperate to establish reasonable policies and procedures, consistent with Tenant's internal rules and regulations, applicable industry standards and prudent utility practices, for the ongoing maintenance, repair and operation of Tenant's PV System and Interconnection Facilities.

5. Additional Terms and Conditions. In addition to the other terms of this Lease, the rights and obligations herein shall be subject to the following terms and conditions:

(a) Tenant shall be solely responsible for installing, operating, maintaining, repairing, replacing, and removing the PV System and Interconnection Facilities, at Tenant's sole cost and expense in a good and workmanlike manner (provided that if the need for any such repairs is due to damage caused by Landlord or any of its agents, employees or contractors, Landlord shall reimburse Tenant for the reasonable cost of such repairs within thirty (30) days after Landlord's receipt of a written invoice therefor from Tenant).

(b) Tenant shall pay for all utility services related to Tenant's use of the Premises as described hereunder.

(c) Tenant shall keep and maintain the PV System and the Premises reasonably free of debris, trash and maintain vegetation so as to not interfere with the PV System.

(d) Landlord shall not directly or indirectly allow any lien on or with respect to Property or PV System by, through or under Landlord.

(e) Tenant shall not directly or indirectly allow any lien on or with respect to the Premises or PV System by, through or under Tenant.

(f) Tenant shall be responsible for installing, maintaining, repairing, removing, and replacing fence or other line of demarcation on the Premises, as shown on Exhibit C, in accordance with applicable local, state, and federal rules and regulations.

(g) Landlord has provided Tenant and Tenant acknowledges receipt of the following environmental reports:

(i) Landfill Closure Construction Documentation Report North College Avenue Landfill Miwlauee, Wisconsin dated August 30, 2011

(ii) DNR PUB-RR-683 dated June 2005

(h) Tenant and Landlord shall coordinate all subsurface or any soil disturbing activity at the Premises and Property. All such activities must be in accordance with regulatory guidelines. For example, if impacted soils, known to be contaminated, are encountered during the installation, operation, maintenance, repair, replacement, or removal of the PV System or Interconnection Facilities on the Premises or Property, such activities must be coordinated with the Landlord or Tenant's environmental consultant at the Tenant's sole expense and in accordance with regulatory guidelines.

6. Modifications to Premises or Property. Any modifications to the Premises or Property in connection with the rights granted to Tenant hereunder shall be made in accordance with any and all applicable governmental guidelines, laws, ordinances, codes, rules, regulations and requirements of all federal, state or local governmental units or agencies having jurisdiction over the Premises or Property, respectively, (collectively, "Laws") in effect from time to time.

7. Licenses, Permits, Laws and Rules. Tenant shall secure and maintain throughout the Term of this Lease from the proper governmental authorities all licenses or permits required by applicable Laws for the installation, location, maintenance and operation of the PV System and Interconnection Facilities on the Premises. Tenant shall, at Tenant's sole cost and expense, promptly observe and comply with any and all Laws, as such Laws may relate to the use, location, maintenance or operation of the PV System and Interconnection Facilities. Landlord shall provide reasonable cooperation and assistance to Tenant in obtaining all governmental approvals required for Tenant to be in compliance with this Section 7.

8. Maintenance of the Premises and Property. Tenant shall, at Tenant's expense, promptly repair any damage to the Premises or Property to the extent such damage is caused by Tenant or any of its employees, agents or contractors. Tenant shall maintain the Premises in a state of good condition and repair in accordance with all Laws. Landlord shall maintain the Property in a state of good condition and repair in accordance with all Laws. To the extent that any repairs or replacements of the Premises are Landlord's responsibility and are necessary during the Term hereof, Landlord shall promptly notify Tenant thereof, and shall coordinate such repairs or replacements with Tenant so as to not interfere with Tenant's exercise of its rights hereunder. To the extent that any repairs or replacements of the Property are Tenant's responsibility and are necessary during the Term hereof, Tenant shall promptly notify Landlord thereof, and shall coordinate such repairs or replacements with Landlord so as to not interfere with Landlord's exercise of its rights hereunder.

9. Default and Remedies.

(a) In the event of any breach of any provision of this Lease by Tenant, which breach shall remain uncured for thirty (30) days after written notice thereof to Tenant (or such longer period of time, in the event that such cure will reasonably take longer than thirty (30) days, so long as Tenant begins the cure during such thirty (30)-day period and diligently pursues completion of the same thereafter), or in the event of a termination of the Service Agreement as a result of a breach or default thereunder by Tenant (as the Company), Landlord may declare Tenant to be in default hereunder and may terminate this Lease. In addition, Landlord shall be entitled to exercise all available rights and remedies at law or in equity as a result of such default; provided, however, that in no event shall Landlord be entitled to receive consequential, special or punitive damages as a result of a default under this Lease by Tenant.

(b) In the event of any breach of any provision of this Lease by Landlord, which breach shall remain uncured for thirty (30) days after written notice thereof to Landlord (or such longer period of time, in the event that such cure will reasonably take longer than thirty (30) days, so long as Landlord begins the cure during such thirty (30)-day period and diligently pursues completion of the same thereafter), or in the event of a termination of the Service Agreement as a result of a breach or default thereunder by Landlord (as Customer, as that term is defined in the Service Agreement), Tenant may declare Landlord to be in default hereunder and may terminate this Lease. In addition, Tenant shall be entitled to exercise all available rights and remedies at law or in equity as a result of such default; provided, however, that in no event shall Tenant be entitled to receive consequential, special or punitive damages as a result of a default under this Lease by Landlord.

10. Sale of PV System; Surrender of Premises; Removal of PV System. Not later than one (1) year prior to the Expiration Date, Landlord and Tenant will begin good faith negotiations regarding the possible sale (or other mutually agreeable disposition) of the PV System, for fair market value, to Landlord. In the event that Landlord and Tenant are not able to agree upon the terms and conditions for a sale or other disposition of the PV System to Landlord by the Expiration Date, or in the event of any termination of this Lease prior to the Expiration Date, upon such expiration or termination Tenant shall have ninety (90) days (subject to reasonable extension in the event of adverse weather conditions) to decommission and remove the PV System and any related property from the Premises (except for the Interconnection Facilities, which may be abandoned in place) and restore the surrounding area where such PV System was located to the condition existing prior to the installation of the PV System (reasonable wear and tear and customary commercial facility degradation excepted). Such decommissioning, removal and restoration shall be at Tenant's expense, unless the Lease has been terminated as a result of a default by Landlord (in which event Landlord shall bear the costs of such decommissioning, removal and restoration).

11. Indemnification.

(a) Landlord shall indemnify and hold Tenant, and Tenant's officers, contractors and employees, harmless from and against any and all losses, injuries, damages, demands, costs, expenses, fines, penalties, lawsuits, claims and/or liabilities (including reasonable attorneys' fees), occasioned by, arising out of or resulting in connection with, this Lease, Landlord's activities at or from the Property, any act or failure to act by Landlord or any of its officers or employees acting within the scope of their employment or agency pursuant to sections 895.46(1) and/or 893.80,

Wis. Stats., or any default by Landlord hereunder, except to the extent arising from the negligence or willful misconduct of Tenant or its officers, agents, contractors, employees or invitees. Notwithstanding the foregoing, the Landlord does not waive any of its statutory and common law defenses and immunities.

(b) Tenant shall indemnify, defend and save Landlord, and Landlord's officers, agents, contractors and employees, harmless from and against any and all losses, injuries, damages, demands, costs, expenses, fines, penalties, lawsuits, claims and/or liabilities (including reasonable attorneys' fees), occasioned by, arising out of or resulting in connection with, this Lease, Tenant's activities at or from the Property, any act or failure to act by Tenant, its officers, agents, contractors, employees or invitees, or any default by Tenant hereunder, except to the extent arising from the negligence or willful misconduct of Landlord or its officers, agents, contractors, employees or invitees.

12. Insurance.

(a) Tenant shall carry or cause to be carried the following insurance during the entire Term hereof:

(i) Commercial general liability insurance, including contractual liability insuring the indemnification provisions contained in this Lease, in an amount of not less than One Million and 00/100 Dollars (\$1,000,000.00) per occurrence; naming Landlord as an additional insured; and

(ii) Automobile liability insurance in an amount of not less than One Million and 00/100 Dollars (\$1,000,000.00) per occurrence; naming Landlord as an additional insured; and

(iii) Workers compensation and employer's liability insurance with statutory limits and employer's liability in an amount of not less than One Million and 00/100 Dollars (\$1,000,000.00) per occurrence; and

(iv) Umbrella/Excess liability insurance in an amount of not less than Five Million and 00/100 Dollars (\$5,000,000.00) per occurrence; and

(v) "All Risk" property insurance for the full replacement cost of the PV System and all additions, improvements and alterations to the Premises and all other items of Tenant's property at or in the Premises.

Alternatively, Tenant may self-insure for the risks described in this Section 12(a).

(b) Landlord shall carry or cause to be carried the following insurance during the entire Term hereof:

(i) Commercial general liability insurance, including contractual liability insuring the indemnification provisions contained in this Lease, in an amount of not less than One

Million and 00/100 Dollars (\$1,000,000.00) per occurrence; naming Tenant as an additional insured; and

(ii) Automobile liability insurance in an amount of not less than One Million and 00/100 Dollars (\$1,000,000.00) per occurrence; naming Tenant as an additional insured; and

(iii) Workers compensation and employer's liability insurance with statutory limits and employer's liability in an amount of not less than One Million and 00/100 Dollars (\$1,000,000.00) per occurrence; and

(iv) Umbrella/Excess liability insurance in an amount of not less than Two Million and 00/100 Dollars (\$2,000,000.00) per occurrence; and

(v) "All-Risk" property insurance for the full replacement cost of the Landlord's surrounding Property. (and any buildings or other improvements thereon), including coverage to protect against loss of rents.

Alternatively, Landlord may self-insure for the risks described in this Section 12(b).

(c) Each Party shall, prior to the commencement of the Term hereof and thereafter upon annual request during the Term, furnish certificates of insurance evidencing the coverages required hereunder. Tenant's and Landlord's obligations under this Section 12(c) shall not apply to the extent that Tenant and Landlord, respectively, self-insure.

(d) Landlord and Tenant and all parties claiming under them hereby mutually waive the right of subrogation against the other Party.

13. Damage or Destruction. In the event the Premises shall be partially or totally destroyed by fire or other casualty so as to become partially or totally unfeasible for use by Tenant hereunder, the damage shall be promptly repaired by Landlord, and a just and proportionate part of the Rent and all other additional rent and charges shall be abated until so repaired; provided, however, that if more than ten percent (10%) of the Premises shall be damaged or destroyed by fire or other casualty, then Tenant shall have the option to terminate this Lease by giving written notice to Landlord of its election to so terminate within thirty (30) days after actual notice of the fire or other casualty.

14. Eminent Domain. If all or substantially all of the Premises is taken by any public authority under its power of condemnation or the threat thereof, this Lease shall terminate as of the date possession shall be transferred to the acquiring authority, and the Rent and all other additional rent and charges payable hereunder shall be apportioned accordingly. If any material part of the Premises is taken, then Tenant shall have the right to terminate this Lease as of the date possession is transferred to the acquiring authority, upon giving written notice thereof to Landlord, and the Rent payable hereunder shall be apportioned accordingly. Upon any taking of less than substantially all of the Premises (unless this Lease is terminated by Tenant as provided herein), this Lease shall continue in force as to the part of the Premises not taken, and the Rent payable thereafter shall be reduced in proportion to the amount of total area of the Premises taken. In the event of any such taking, Landlord, upon receipt and to the extent of the award in

condemnation or proceeds of sale, shall, unless this Lease has been terminated, make necessary repairs and restorations to restore the Premises remaining to as near its former condition as circumstances will permit. Any damages awarded by or amounts paid by the acquiring authority for any such taking, whether for the whole or a part of the Premises, shall belong to Landlord; provided, however, that Tenant shall have the right to pursue such claim or claims as Tenant may have legally for relocation expenses, interruption of business and such items which do not reduce the award or proceeds of sale payable to Landlord; and further provided that to the extent that Tenant incurs any cost or damage due to the loss of expected depreciation related to the PV System as a result of such taking, then Landlord shall reimburse Tenant for such cost or damage (as reasonably estimated by Tenant) within thirty (30) days after Landlord's receipt of the award of damages or other compensation from the acquiring authority.

15. Assignment/Subletting.

(a) Tenant shall have the right to assign its interest in this Lease and the leasehold estate created hereby upon written notice to Landlord, provided that any such assignee agrees in writing to assume and perform the obligations of Tenant under this Lease.

(b) Landlord shall have the right to assign its interest in this Lease and the leasehold estate created hereby in connection with a sale of the Premises or Property, upon written notice to Tenant, provided that any such assignee agrees in writing to assume and perform the obligations of Landlord under this Lease.

(c) Any assignee of either Tenant or Landlord, if reasonably requested by the other Party, shall provide proof of insurance in lieu of self-insurance.

16. Title to Property; Title to PV System.

(a) Landlord represents and warrants to Tenant that (i) Landlord owns the Property free and clear of any easements or other encumbrances or restrictions that could have a material adverse effect on Tenant's rights under this Lease, (ii) Landlord has full and complete authority to enter into this Lease under all of the terms, conditions and provisions set forth herein, and (iii) no approvals are required under any recorded or unrecorded documents affecting the Property for the construction of the PV System or Tenant's use of the Premises for the purposes described in Section 1 above. Notwithstanding the foregoing, Tenant acknowledges that Landlord's entry into this Lease is subject to the approval of the City of Milwaukee's Common Council.

(b) Notwithstanding the PV System's presence and operation on the Premises, Tenant shall at all times retain title to and be the legal and beneficial owner of the PV System and all alterations, additions or improvements made thereto by Tenant, and the PV System shall remain the property of Tenant or Tenant's assigns, and Tenant shall have the right to remove the PV System from the Premises in accordance with the terms of this Lease. In no event shall anyone claiming by, through or under Landlord (including but not limited to any present or future mortgagee of the Premises and/or Property) have any rights in or to the PV System at any time, except as otherwise provided in this Lease (and except for any rights that Landlord might have under the Service Agreement with respect to Solar Renewable Resource Credits related to the PV

System). Landlord shall not cause the PV System or any part thereof, to become subject to any lien, encumbrance, pledge, levy or attachment arising by, under or through Landlord, and Landlord will promptly, at its expense, take such action as may be necessary to duly discharge any such lien, encumbrance, pledge, levy or attachment if the same shall arise at any time.

17. Estoppel; Non-Disturbance Agreement.

(a) Landlord and Tenant each agree, within ten (10) days after request therefor by the other Party, to execute in recordable form and deliver to the requesting Party a statement, in writing, certifying (if such be the case) (i) that this Lease is in full force and effect, (ii) the date of commencement of the Term, (iii) that Rent is paid currently without any off-set or defense thereto, (iv) the amount of Rent, if any, paid in advance, (v) that there are no uncured defaults by the requesting Party or, if such defaults are claimed, stating the facts giving rise thereto, and (vi) other similar matters as may be requested by the requesting Party or its lenders, mortgagees or prospective mortgagees. Any such certificate may be relied upon by the Party requesting it and any other person, firm or corporation to whom the same may be exhibited or delivered, and the contents of such certificate shall be binding on the Party providing it.

(b) Landlord represents to Tenant that the Premises is not subject to any mortgages, deeds of trust, security instruments, ground leases, easement agreements, trust agreements, covenants, conditions or restrictions (collectively, "Superior Interests") and Landlord covenants that if Landlord desires to subject the Premises to a Superior Interest, Landlord shall notify Tenant in writing and shall obtain a non-disturbance agreement reasonably satisfactory to Tenant from the holder of any such Superior Interest. Such non-disturbance agreement shall provide that, in the event of any proceedings brought for the enforcement of any Superior Interest, Tenant shall, upon demand by the Superior Interest holder but subject to Tenant's rights of non-disturbance, attorn to and recognize such Superior Interest holder as Landlord under this Lease.

18. Marketing. Tenant shall have the exclusive right to own and operate the PV System during the Term. In the event that marketing rights are sold to a third party, Tenant reserves the right to view and approve the content of such third party's marketing program related to the PV System, such approval not to be unreasonably withheld. In addition, Tenant reserves the right to market that Landlord (as a Customer) is a participant in the "Solar Now" program through a mutually agreeable joint press release. Landlord acknowledges that under the Service Agreement, Tenant may use Landlord's business name and/or website address in Solar Now promotional materials, and Tenant will provide the Landlord with public recognition of Landlord's commitment to renewable energy under the Solar Now program.

19. Notice. Any notice, request, demand, instruction or other communication to be given to any Party hereunder shall be in writing and hand delivered or sent by overnight courier or registered or certified mail, return receipt requested, as follows:

To Landlord:	City of Milwaukee
	809 North Broadway
	Milwaukee, WI 53202
	Attn: Commissioner of City Development

With a copy to:

Office of City Attorney
800 City Hall
200 East Wells Street
Milwaukee, WI 53202
Attn: Jeremy R. McKenzie

To Tenant: Wisconsin Electric Power Company
231 West Michigan Street
Milwaukee, Wisconsin 53203
Attn: Doug Wetjen

Either Party may, upon prior written notice to the other, specify a different address for the giving of notice. Except as otherwise provided herein, if delivered in person, the notice shall be deemed given when received. If sent by overnight courier, the notice shall be deemed to have been given one (1) day after sending. If mailed, the notice shall be deemed to have been given on the date that is three (3) business days following mailing.

20. Quiet Enjoyment. If and so long as Tenant pays the Rent reserved by this Lease and performs and observes the covenants and provisions hereof, Landlord covenants and agrees that Tenant shall quietly enjoy the exercise of its rights hereunder without hindrance, disturbance or molestation from Landlord or any person claiming by, through or under Landlord.

21. Waiver. Failure or delay on the part of Landlord or Tenant to exercise any right, power or privilege hereunder shall not operate as a waiver thereof.

22. Prior Negotiations. This Lease, and its exhibits, constitute the entire agreement of the Parties with respect to the subject matter hereof and shall supersede all prior offers, negotiations and agreements in connection herewith.

23. Amendment. No modification of this Lease shall be valid unless made in writing and signed by an authorized officer of Landlord and an authorized officer of Tenant.

24. Governing Law. THIS LEASE SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF WISCONSIN, WITHOUT REGARD TO PRINCIPLES OF CONFLICTS OF LAW. THE PARTIES HEREBY IRREVOCABLY SUBMIT TO THE EXCLUSIVE JURISDICTION OF ANY STATE COURT OF MILWAUKEE COUNTY CIRCUIT COURT FOR MATTERS ARISING UNDER STATE LAW AND IN FEDERAL DISTRICT COURT IN THE EASTERN DISTRICT OF WISCONSIN FOR MATTERS ARISING UNDER FEDERAL JURISDICTION WITH RESPECT TO ANY ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS LEASE.

25. No Partnership. Neither Party, by virtue of this Lease, in any way or for any purpose, shall become a partner of the other Party in the conduct of its business, nor become a joint venturer or a member of a joint enterprise with the other Party, nor become responsible for any of the debts, liabilities or obligations of the other Party.

26. Headers and Captions. The Section headings in this Lease are inserted only as a matter of convenience in reference and are not to be given any effect whatsoever in construing any provision of this Lease.

27. Successors and Assigns. The covenants and agreements contained in this Lease shall run with the land as to the Property and shall apply to, inure to the benefit of, and be binding upon the Parties hereto and upon their respective permitted successors and assigns, except as expressly otherwise herein provided.

28. Severability. If any term, covenant or condition of this Lease or any portion of any term, covenant or condition hereof or the application thereof to any person, entity or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Lease, or the application of such term, covenant or condition or portion thereof to persons, entities and circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term, covenant and condition of this Lease and each portion thereof shall be valid and be enforced to the fullest extent permitted by law.

29. Construction. This Lease shall not be construed more strictly against one Party than against the other merely by virtue of the fact that it may have been prepared by counsel for one of the Parties. Words of any gender in this Lease shall be held to include any other gender and words in the singular number shall be held to include the plural where the sense requires. Unless otherwise specified in this Lease, any reference to “days” shall be construed as a reference to calendar days, and shall include in the counting thereof all Saturdays, Sundays and holidays; provided, however, if the final day of any period specified in “days” falls on a Saturday, Sunday or holiday, the period shall be deemed extended to include the next regular business day occurring thereafter.

30. Memorandum for Recording. Upon the request of either Landlord or Tenant, the parties shall record a memorandum of this Lease with the Register of Deeds for the county in which the Property is located.

31. Counterparts. This Lease may be executed in counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

32. Public Records Law: Landlord and Tenant understand that Landlord is bound by the Wisconsin Public Records Law, and as such, all of the terms of this Lease are subject to and conditioned on the provisions of Wis. Stat. sec. 19.21 et. sec. Tenant acknowledges that it is obligated to assist Landlord in retaining and producing records that are subject to the Wisconsin Public Records Law, including but not limited to those records produced or collected by Tenant under this Lease pursuant to Wis. Stat. sec. 19.36(3) and that the failure to do so shall constitute a

material breach of this Lease unless such default is cured within ten (10) days after Tenant's receipt of written notice stating such default, and that Tenant must defend and hold Landlord harmless from liability due to its fault under that law. Except as otherwise authorized, those records shall be maintained for a period of seven years after the termination of this Lease.

[Signatures appear on the following page.]

IN WITNESS WHEREOF, Landlord and Tenant have executed this instrument as of the day and month first above written.

LANDLORD:

By:_____

Name/Title:_____

Customer Tax ID: _____

TENANT:

WISCONSIN ELECTRIC POWER COMPANY

By:_____

Name/Title:_____

EXHIBIT A
Legal Description of Property

OWNER NAME AND MAILING ADDRESS:

City of Milwaukee
809 N. Broadway
Milwaukee, WI 53202

Note:

City of Milwaukee Leases all/part of Parcel to the USA Department of Defense for the Wisconsin National Guard

PROPERTY ADDRESS:

1600 E. College Ave.
Milwaukee, WI

Lease Premises (Solar Field):

Most Northerly 650' of Parcel

LEGAL DESCRIPTION:

PARCEL NO. 6849999000

LANDS IN SW 1/4 SEC 34-6-22 COM NW COR SD 1/4 SEC-TH E ALG N LI SD 1/4 SEC 900.59' TO W LI RR ROW-TH SLY ALG W LI SD RR ROW 2618.21' TO N LI E COLLEGE AV-TH W ALG SD NLY ST LI 600.24' TO W LI SD 1/4 SEC- TH N ALG W LI SD 1/4 SEC 2601.05' TO PT OF COM BID #40

ELECTRIC SERVICE AGREEMENT

“SOLAR NOW” SOLAR PV SYSTEM HOSTING PILOT PROGRAM

WITHIN THE STATE OF WISCONSIN

THIS AGREEMENT made this ____ day of _____, ____, by and between Wisconsin Electric Power Company d/b/a We Energies, hereinafter referred to as the Company, and the City of Milwaukee, a Wisconsin municipal corporation, hereinafter referred to as the Customer.

WITNESSETH:

The parties hereto, each in consideration of the agreement of the other, agree as follows:

1) NATURE OF SERVICE

Customer desires to host a company-owned Solar PV System (defined for purposes of this agreement as solar panels, inverter(s), cabling, mounting, trackers (if applicable), and associated controls and interconnection facilities) with up to 2,250kW_{ac} nameplate capacity on ground mount site. Customer will receive a monthly lease payment, in accordance with the terms of this Agreement, for hosting the Solar PV system.

2) SOLAR PV SYSTEM

Solar PV System will be up to 2250kW_{ac} (2875 kW_{dc}) nameplate system size. The ground system will be made up of panels, inverters, fixed tilt racking, and associated controls and interconnection facilities.

3) RATE

A. Calculation of Lease Payment

Customer will receive a monthly payment for hosting the Solar PV System identified above (the “Lease Payment”). The Lease Payment paid by the Company to Customer shall be the value of the Midcontinent Independent System Operator (“MISO”) accredited capacity of the Solar PV System

multiplied by the value of capacity, as defined below, up to the customer's firm demand at the time this

Agreement is executed. The Lease Payment shall be paid to the customer in monthly installments equal to one twelfth ($1/12^{\text{th}}$) of the annual amount. If the tariff authorizing the "Solar Now" Solar PV System Hosting Pilot Program (PSC Docket No. 6630-TE-102) is revised to provide a greater monthly payment to customers than provided in this Agreement, then the Lease Payment shall be amended to reflect the increased monthly payment available to other customers. Company shall notify Customer within 30 days of the issuance of the revised tariff.

B. Calculation of Value of Capacity

The value of capacity for the Solar PV System will be determined as of the date this Agreement is executed, as determined by MISO's current Business Practice Manual ("BPM"), and will be fixed for the duration of this Agreement. The value of capacity is the MISO zone 2 cost of new entry ("CONE") for the MISO Resource Adequacy Planning Year in which this Agreement is executed. Customer acknowledges that the capacity accredited by MISO is subject to change annually.

C. Customer to Remain on Underlying Tariff.

Customer will be responsible for all rates, adjustments and credits specified in Customer's otherwise-applicable rate schedule(s), including but not limited to facilities charges; energy charges; fuel cost adjustments; on-peak and customer maximum demand charges; and minimum charges, all based on the customer's actual consumption for the billing period, at the rates under their otherwise-applicable rate schedule(s). Customer may, at its sole discretion, elect to take service under schedule ERER-1, ERER-2, ERER-3 or ERER-4, also known as the Company's "Energy for Tomorrow" programs.

4) DELIVERY OF ENERGY

All energy generated by the Solar PV System will be delivered to the Company's distribution system.

5) RENEWABLE RESOURCE CREDITS

Customer elects to receive the Renewable Resource Credits as defined by Wis. Stat. § 196.378 generated by the Solar PV System. As a result of Customer's election, the lease payments made to Customer by the Company will be reduced by the value of the Renewable Resource Credits. Each month, the value of the Renewable Resource Credits will be determined by multiplying the Renewable Resource Credit Market Price at the time this Agreement is executed by the quantity of the Renewable Resource Credits generated by the hosted Solar PV System in the prior month. The Renewable Resource Credit Market Price will not be adjusted during the term of this Agreement. Customer's election to receive the Renewable Resource Credits of the Solar PV System is binding for the term of this Agreement.

Customer agrees that the following Renewable Resource Credit Market Price reflects the market price at the time this Agreement is executed and will be in effect for the term of this Agreement:

_____ \$2.00 / REC Generated _____.

Customer elects, at its sole discretion, that Company will retire all Renewable Resource Credits of the Solar Now on Customer's behalf through the M-RETS system. Customer's election is binding for the term of this Agreement.

6) CONDITIONS OF DELIVERY

The Company's provision of electric service to Customer under this Agreement is subject to the following conditions of delivery:

- a) Customer shall be subject to all of the charges as set forth in this Agreement and its otherwise applicable rate schedule(s) without limitation.
- b) This Agreement shall become effective when the Company first furnishes electricity that has been generated by the Solar PV System (excluding electricity generated during

commissioning and testing periods) hereunder, and shall continue in force for the term set forth in this section. Customer acknowledges that this Agreement has a term of 20 years.

- c) Service under this Agreement is conditioned on the interconnection of the new Wisconsin-based renewable energy resource described in section “2) SOLAR PV SYSTEM” above to the Company’s distribution system, as well as a satisfactory environmental review and, as applicable, siting review of structural components supporting the Solar PV System, including but not limited to the location’s roof, structural supports, and ground conditions.
- d) The Company and Customer will enter into a separate written lease agreement, which will survive in its entirety if the property on which the Solar PV System described above is placed is sold or transferred during the term of the lease.
- e) Decommissioning of the Solar PV System is described in Section 10 of the Solar Ground Lease Agreement.
- f) The Company will retain ownership and responsibility for the monitoring, operation and maintenance of the Solar PV System described above.
- g) Customer warrants that it is a single customer, as defined by tax ID for non-governmental entities or a single unit of government (*e.g.*, municipality, county, school district, etc.), and Customer acknowledges that this Agreement is expressly conditioned on the accuracy of this warranty. The Company and Customer agree that the following eligible accounts will be aggregated for purposes of this Agreement.

Account 1	0466-140-483
Account 2	4296-319-834

- h) Company shall remit the lease payments to Customer as follows: Rent shall be paid on the 15th day of each month for rent due from the prior month.
- i) Customer acknowledges that although it may host multiple Solar PV Systems up to a total of 2.25 MW_{ac} aggregate nameplate capacity, Customer will not be able to exceed its total firm demand for purposes of this Agreement. Customer's firm demand for purposes of this Agreement is: 2700 kW (2.7 MWs).
- j) Customer acknowledges that participation in the "Solar Now" Solar PV System Hosting Pilot Program tariff may be limited at the sole discretion of the Company. Additionally, Customer acknowledges that the Company has the right to limit Customer's participation in the "Solar Now" PV System Hosting Pilot Program tariff based on Customer's bill payment and collection history, and Company may terminate this Agreement, in its sole discretion, based on Customer's bill payment and collection history subsequent to execution of this Agreement. Further, participation shall be subject to an assessment of the solar resource and structural and environmental engineering suitability of the identified rooftop or ground mount location.
- k) Customer shall be bound by, and receive and pay for service furnished hereunder in accordance with (i) the rates, terms and conditions of this Agreement and the "Solar Now" PV System Hosting Pilot Program tariff; (ii) the rates, terms and conditions of Customer's otherwise applicable rate schedule(s); (iii) the Company Rules and Regulations; and (iv) any future modifications of such rates, terms, conditions, and rules and regulations that may be ordered or approved by the PSCW. To the extent that there are conflicts among any of the forgoing, the specific provisions of this Agreement shall govern.

- l) If Customer defaults in any of its obligations contained herein, the Company may suspend delivery of energy from the Solar PV System which may impact the Lease Payment. For the avoidance of doubt, a default under this Agreement, will not otherwise impact the delivery of energy to the Customer. Such suspension, however, shall not interfere with enforcement by the Company of any other legal right or remedy. No delay by the Company in enforcing any of its legal rights hereunder shall be deemed a waiver of any other or subsequent defaults by Customer.
- m) This Agreement shall be binding upon the successors and assigns of the respective parties hereto. Assignment of this Agreement shall be governed by the terms of the Solar Ground Lease Agreement.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the date first above written.

CITY OF MILWAUKEE

WISCONSIN ELECTRIC POWER COMPANY

By: _____

By: _____

Print Name: _____

Print Name: _____

Title: _____

Title: _____

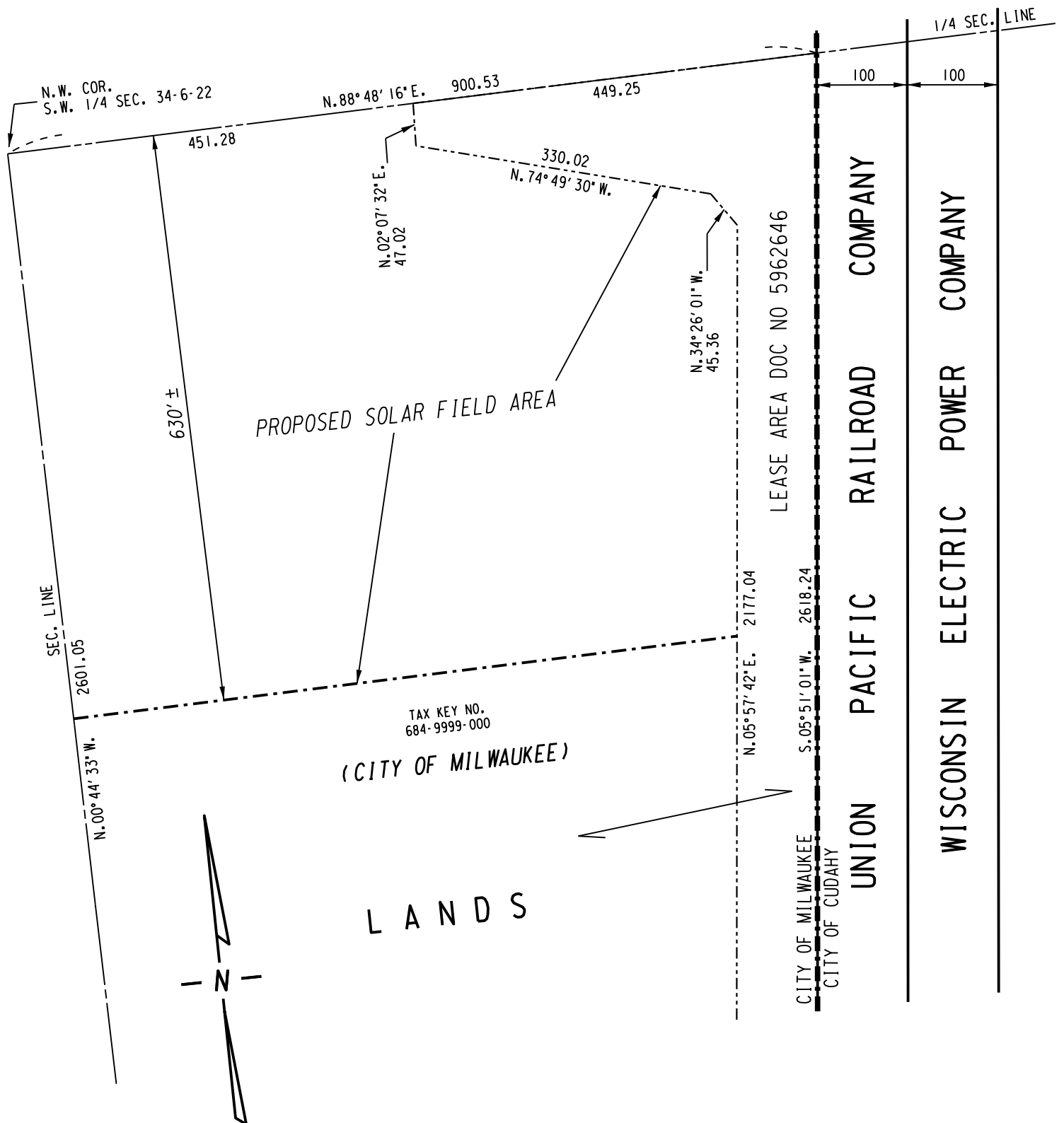
Date: _____

Date: _____

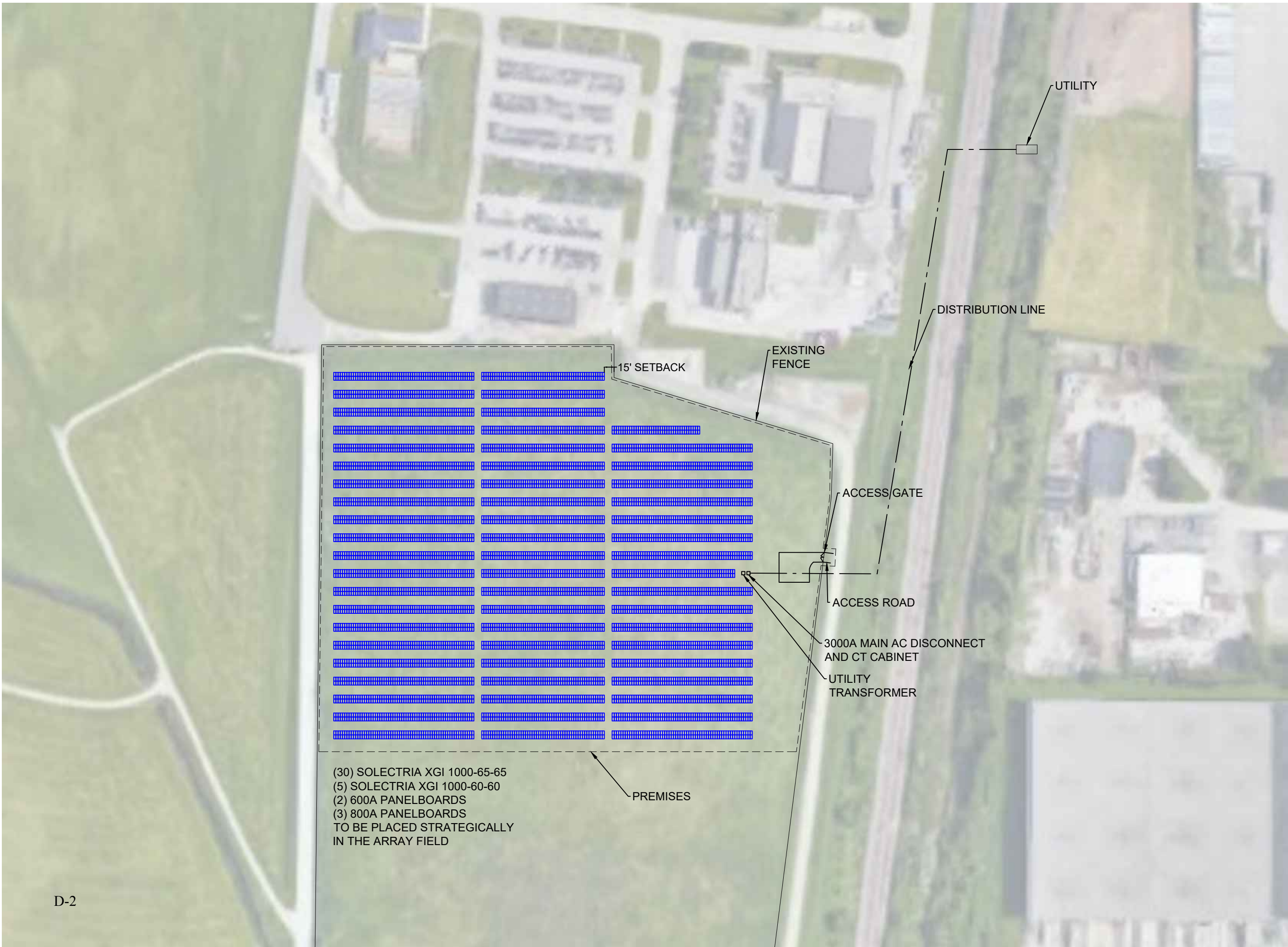
EXHIBIT C
DESCRIPTION OF PREMISES
PRELIMINARY - SUBJECT TO FINAL DESIGN AND ENGINEERING

S.W. 1/4 SEC. 34, T.6N., R.22E.

684



DATE: 1-16-2020 SCALE: 1" = 150'



(30) SOLECTRIA XGI 1000-65-65
(5) SOLECTRIA XGI 1000-60-60
(2) 600A PANELBOARDS
(3) 800A PANELBOARDS
TO BE PLACED STRATEGICALLY
IN THE ARRAY FIELD

PREMISES

15' SETBACK

EXISTING
FENCE

ACCESS GATE

ACCESS ROAD

3000A MAIN AC DISCONNECT
AND CT CABINET

UTILITY
TRANSFORMER

DISTRIBUTION LINE

UTILITY

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.
LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.
LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.
It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

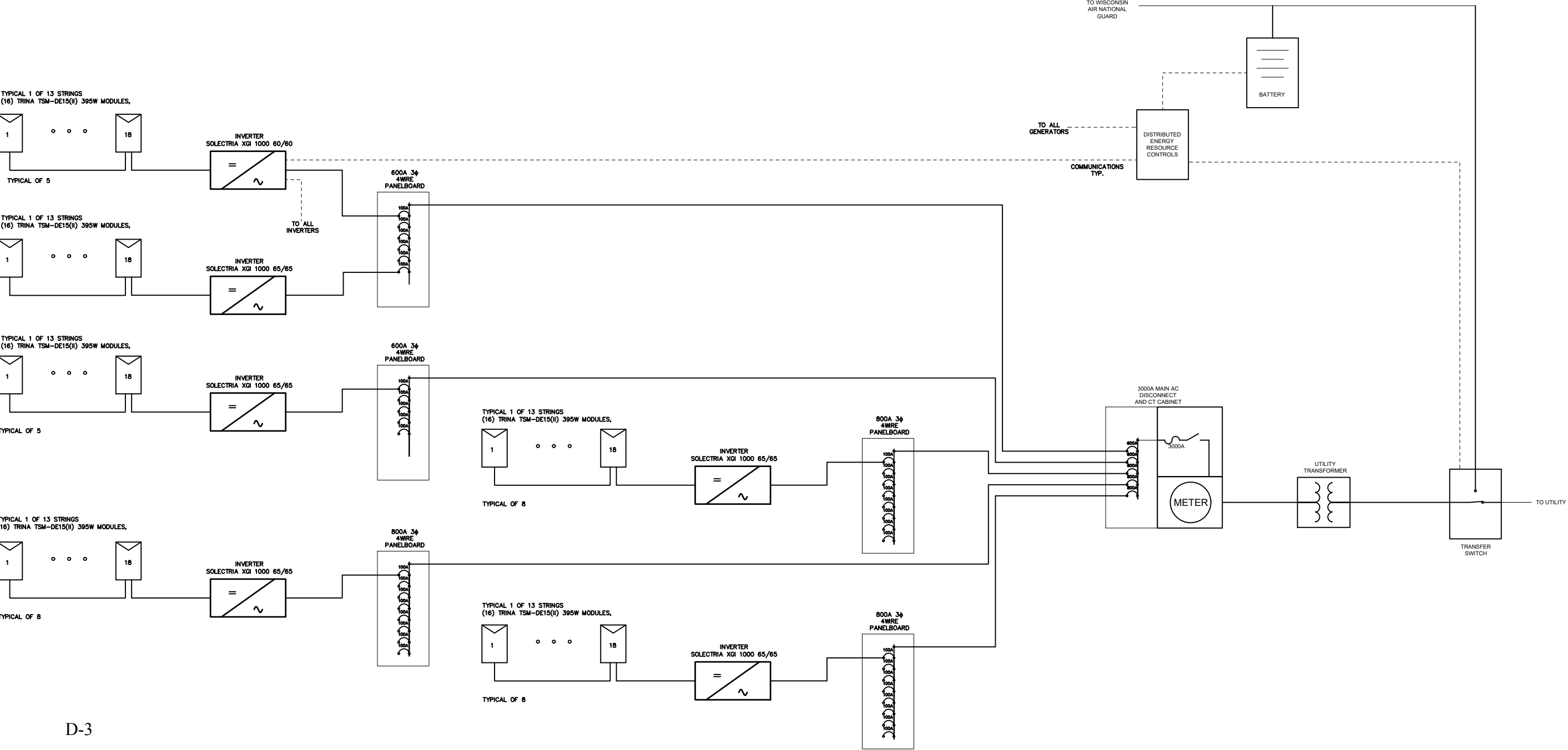
DATE		
D		
C		
B		
A		
REV	DATE	DESCRIPTION
DRAWN BY: AK		CHECKED BY:
SCALE: AS NOTED		JOB NO:

CITY OF MILWAUKEE
N. COLLEGE LANDFILL
1600 E COLLEGE AVE
MILWAUKEE, WI

SHEET TITLE
ARRAY LAYOUT

DWG. NO.
PV-1.00

PV SYSTEM DETAILS	
ROOF TYPE:	N/A
DC SYSTEM SIZE:	2.875 MW DC
DC SYSTEM VOLTAGE:	1000 V
AC SYSTEM SIZE:	2.25 MW AC
MODULES	(7280) TRINA SOLAR TSM-DE15H(I) 395W
INVERTERS:	(30) SOLECTRIA XGI 1000-65/65 (5) 1000-60/60
OPTIMIZERS:	N/A
RACKING:	RBI
CLAMPS:	N/A
AZIMUTH:	180
PITCH:	25





N27 W24075 PAUL CT.
PEWAUKEE, WI 53072
PHONE: (262)-547-1200
WWW.SUNVEST.COM

LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.
LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.
LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.
It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

DATE		
D		
C		
B		
A		
REV	DATE	DESCRIPTION
DRAWN BY: AK		CHECKED BY:
SCALE: AS NOTED		JOB NO:

CITY OF MILWAUKEE
N. COLLEGE LANDFILL
1600 E COLLEGE AVE
MILWAUKEE, WI

SHEET TITLE
ONE LINE DIAGRAM

DWG. NO.
E-1.00

THE TALLMAX^M PLUS⁺

FRAMED 144 HALF-CELL MODULE

144-Cell
MONOCRYSTALLINE MODULE

385-400W
POWER OUTPUT RANGE

19.7%
MAXIMUM EFFICIENCY

0~+5W
POSITIVE POWER TOLERANCE

Founded in 1997, Trina Solar is the world's leading comprehensive solutions provider for solar energy. We believe close cooperation with our partners is critical to success. Trina Solar now distributes its PV products to over 60 countries all over the world. Trina is able to provide exceptional service to each customer in each market and supplement our innovative, reliable products with the backing of Trina as a strong, bankable partner. We are committed to building strategic, mutually beneficial collaboration with installers, developers, distributors and other partners.

Comprehensive Products And System Certificates

IEC61215/UL1709/IEC61730/IEC61701/IEC62716
ISO 9001: Quality Management System
ISO 14001: Environmental Management System
ISO14064: Greenhouse gases Emissions Verification
OHSAS 18001: Occupational Health and Safety Management System



Trina solar

PRODUCTS TSM-DEL5H(0) COLOR OF FRAME Silver POWER RANGE 385-400W



Increased value

- Reduce BOS cost with high power bin and 1500V system voltage
- Low thermal coefficients for greater energy production at higher temperature



Half-cell design brings higher efficiency

- New cell string layout and split-J-box location to reduce the energy loss caused by inter-row shading
- Integrated LRF (Light Redirecting Film) to enhance power, specially for ground-mount applications
- Lower cell connection power losses due to half-cell layout (144 monocrystalline)



Highly reliable due to stringent quality control

- Over 30 in-house tests (UV, TC, HF etc)
- Increased module robustness to minimize micro-cracks
- PID resistant and free of snail trails
- Internal test requirement of Trina more stringent than certification authority



Certified to withstand the most challenging environmental conditions

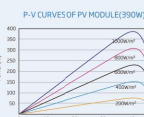
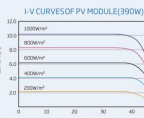
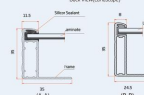
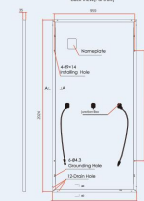
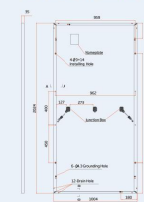
- 2400 Pa negative load
- 5400 Pa positive load



TALLMAX^M PLUS⁺

FRAMED 144 HALF-CELL MODULE

DIMENSIONS OF PV MODULE (mm)



ELECTRICAL DATA (STC)

	385	390	395	400
Peak Power Watts-P _{max} (W)*				
Power Output Tolerance-P _{max} (W)	0 ~ +5			
Maximum Power Voltage-V _{mp} (V)	40.1	40.5	40.8	41.1
Maximum Power Current-I _{mp} (A)	9.61	9.64	9.69	9.74
Open Circuit Voltage-V _{oc} (V)	48.5	49.7	50.1	50.4
Short Circuit Current-I _{sc} (A)	10.03	10.08	10.13	10.18
Module Efficiency -η _p (%)	18.9	19.2	19.4	19.7

STC: Irradiance 1000W/m², Cell Temperature 25°C, Air Mass AM1.5, Measurement tolerance ±2%.

ELECTRICAL DATA (PMPT)

	291	295	298	302
Maximum Power-P _{max} (W)*				
Maximum Power Voltage-V _{mp} (V)	37.9	38.4	38.7	38.9
Maximum Power Current-I _{mp} (A)	7.66	7.68	7.71	7.76
Open Circuit Voltage-V _{oc} (V)	45.6	46.8	47.2	47.4
Short Circuit Current-I _{sc} (A)	8.09	8.13	8.17	8.21

PMPT: Irradiance at 800W/m², Ambient Temperature 25°C, Wind Speed 3m/s.

MECHANICAL DATA

Solar Cells	Monocrystalline 158.75 × 158.75 mm
Cell Orientation	144 cells (6 × 24)
Module Dimensions	2024 × 1004 × 35 mm (79.69 × 39.53 × 1.38 inches)
Weight	22.8 kg (50.3 lb)
Glass	3.2 mm (0.13 inches), High Transmission, AR Coated Heat Strengthened Glass
Encapsulant Material	EVA
Backsheet	White
Frame	35 mm (1.38 inches) Anodized Aluminium Alloy w/ 400 m Mounting Holes
J-Box	IP68 rated
Cables	Photovoltaic Technology Cable 4.0mm ² (0.006 inches) ² , Portable: 1.140 mm (0.045 inches) (55.12 inches), Landscape: 1.1400 mm (0.045 inches) (55.12 inches)
Connector	Trina T54

TEMPERATURE RATINGS

NDOT (nominal module operating temperature)	41°C (±3°C)
Temperature Coefficient of P _{max}	-0.37%/°C
Temperature Coefficient of V _{oc}	-0.29%/°C
Temperature Coefficient of I _{sc}	0.05%/°C

(DO NOT connect Fusion Combinder Box with two or more strings in parallel connecting)

WARRANTY

- 10 year Product Workmanship Warranty
- 25 year Linear Power Warranty

(Please refer to product warranty for details)

MAXIMUM RATINGS

Operational Temperature	-40 ~ +85°C
Maximum System Voltage	1500V DC (IEC)
Max Series Fuse Rating	20A

PACKAGING CONFIGURATION

- Modules per box: 30 pieces
- Modules per 40' container: 660 pieces

Trina solar



CAUTION: READ SAFETY AND INSTALLATION INSTRUCTIONS BEFORE USING THE PRODUCT.
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Version number: TSM_DEL5H(0)_EN_2019_0_C www.trinasolar.com

YASKAWA

SOLECTRIA XGI 1000

Premium 3-Ph Transformerless Commercial String Inverters



Features

- Made in the USA with global components
- Buy American Act (BAA) compliant
- 50kW, 60kW and 65kW
- Built to last
- Lowest cost of labor/installation
- Access to all inverters on-site via WiFi from one location
- Lowest cost of O&M
- Remote diagnostics
- Remote software & firmware upgrades
- 5-90° installation angles
- 4 MPPTs
- Advanced grid-support functions
- Integrated AFCI

Options

- Plug & play MC4 or H4 connectors
- Web-based monitoring
- Revenue grade metering

Yaskawa Solectria Solar's XGI 1000 commercial string inverters are designed for high reliability and built with the highest quality components. Components were selected, tested and proven to last beyond their warranty. The XGI 1000 Inverters provide advanced grid-support functionality and meet the latest IEEE 1547 and UL 1741 standards for safety. Offering a wide mounting-angle range (5 ~ 90° from horizontal), the XGI Inverters can be installed to meet NEC array-level rapid shutdown requirements. Designed and engineered in Lawrence, MA, the XGI inverters are assembled and tested at Yaskawa America's facilities in Buffalo Grove, IL. The all new XGI 1000 Inverters are Made in the USA with global components and are compliant with the Buy American Act.



SOLECTRIA SOLAR

SOLECTRIA XGI 1000

Specifications

	XGI 1000-50/60	XGI 1000-60/60	XGI 1000-60/65	XGI 1000-65/65
DC Input				
Absolute Maximum Input Voltage	1000 VDC	1000 VDC	1000 VDC	1000 VDC
Maximum Power Input Voltage Range (MPPT)	560-850 VDC	580-850 VDC	600-850 VDC	600-850 VDC
Operating Voltage Range (MPPT)	350-950 VDC	350-950 VDC	350-950 VDC	350-950 VDC
Maximum Operating Input Current	88.0 A (22.0 A per zone)	105.6 A (26.4 A per zone)	105.6 A (26.4 A per zone)	110.6 A (27.65 A per zone)
Maximum Operating PV Power (per MPPT)	12.5 kW	15.3 kW	15.3 kW	16.6 kW
Maximum Rated PV Input (per MPPT)	16.75 kW	22.5 kW	22.5 kW	24.4 kW
Number of MPP Trackers	4 / 1 (default)	4 / 1 (default)	4 / 1 (default)	4 / 1 (default)
Number of PV Source Circuits (P-Input)	4 per MPPT; 16 total	4 per MPPT; 16 total	4 per MPPT; 16 total	4 per MPPT; 16 total
Maximum PV Current (I _{sc} x 1.25 per Zone / Single Zone)	50 A / 180 A	50 A / 180 A	50 A / 180 A	50 A / 180 A
Maximum Recommended DC to AC Ratio	1.5	1.5	1.5	1.5
AC Output				
Nominal Output Voltage	480 VAC, 3-Ph	480 VAC, 3-Ph	480 VAC, 3-Ph	480 VAC, 3-Ph
AC Voltage Range	-12% ~ +10%	-12% ~ +10%	-12% ~ +10%	-12% ~ +10%
Continuous Real Output Power	50 kW	60 kW	60 kW	65 kW
Continuous Apparent Output Power	60 kVA	60 kVA	65 kVA	65 kVA
Maximum Output Current	72.2 A	72.2 A	78.2 A	78.2 A
Nominal Output Frequency	60 Hz	60 Hz	60 Hz	60 Hz
Power Factor (Unity default)	+/- 0.85 Adjustable	+/- 0.85 Adjustable	+/- 0.85 Adjustable	+/- 0.85 Adjustable
Total Harmonic Distortion (THD) @ Rated Power	<3%	<3%	<3%	<3%
Grid Connection Type	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND	3-Ph + N/GND
Peak Current Contribution (1 cycle RMS)	93.9 A	93.9 A	101.7 A	101.7 A
Recommended AC Overcurrent Device Rating	100 A (AC Maximum Output Current x 1.25)			
Efficiency				
Peak Efficiency	98.2%	98.2%	98.2%	98.2%
25°C Average Efficiency	98.0%	98.0%	98.0%	98.0%
Tare Loss	<1 W	<1 W	<1 W	<1 W
Temperature				
Ambient Temperature Range		-40°F to 140°F (-40°C to 60°C)		113°F (45°C)
De-Rating Temperature				
Storage Temperature Range		-40°F to 167°F (-40°C to 75°C)		
Relative Humidity (non-condensing)		0-95%		
Operating Altitude		9,842.5 ft (3,000 m)		
Communications				
Advanced Graphical User Interface		WiFi		
Communication Interface		RJ-45 Ethernet		
Third-Party Monitoring Protocol		Sunspec Modbus TCP/IP		
Web-Based Monitoring		Optional		
Revenue Grade Metering		Optional		
Firmware Updates		Remote/Local		
Testing & Certifications				
Safety Listings & Certifications		UL 1741 / IEEE 1547, UL 1699B, UL 1699B		
Advanced Grid Support Functionality		Rule 21, UL 1741SA (pending)		
Testing Agency		Intertek		
FCC Compliance		FCC Part 15, Class A		
Warranty				
Standard Limited Warranty		10 Years		
Enclosure				
Acoustic Noise Rating		55 dBA @ 3 m		
DC Disconnect		Integrated, 2 Pole		
Mounting Angle		5-90° Measured from horizontal		
Dimensions (H x W x D)		45.6 in. x 28.3 in. x 11.6 in. (1163 x 719 x 295 mm)		
Weight		Inverter: 120 lbs (55.4 kg) Wiring Box: 30 lbs (14.1 kg)		
Enclosure Rating and Finish		Type 4, Polyester Powder-Coated Aluminum		

Specifications subject to change.

SOLECTRIA SOLAR

Yaskawa Solectria Solar

300 Merrimack Street
Lawrence, MA 01843
solectria.com

1-978-683-9700
inverters@solectria.com

DOCR-070604-J | November 2018
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YASKAWA

SUNVEST
SOLAR INC

2024-2025-2026-2027-2028-2029-2030-2031-2032-2033-2034-2035-2036-2037-2038-2039-2040-2041-2042-2043-2044-2045-2046-2047-2048-2049-2050-2051-2052-2053-2054-2055-2056-2057-2058-2059-2060-2061-2062-2063-2064-2065-2066-2067-2068-2069-2070-2071-2072-2073-2074-2075-2076-2077-2078-2079-2080-2081-2082-2083-2084-2085-2086-2087-2088-2089-2090-2091-2092-2093-2094-2095-2096-2097-2098-2099-2100-2101-2102-2103-2104-2105-2106-2107-2108-2109-2110-2111-2112-2113-2114-2115-2116-2117-2118-2119-2120-2121-2122-2123-2124-2125-2126-2127-2128-2129-2130-2131-2132-2133-2134-2135-2136-2137-2138-2139-2140-2141-2142-2143-2144-2145-2146-2147-2148-2149-2150-2151-2152-2153-2154-2155-2156-2157-2158-2159-2160-2161-2162-2163-2164-2165-2166-2167-2168-2169-2170-2171-2172-2173-2174-2175-2176-2177-2178-2179-2180-2181-2182-2183-2184-2185-2186-2187-2188-2189-2190-2191-2192-2193-2194-2195-2196-2197-2198-2199-2200-2201-2202-2203-2204-2205-2206-2207-2208-2209-2210-2211-2212-2213-2214-2215-2216-2217-2218-2219-2220-2221-2222-2223-2224-2225-2226-2227-2228-2229-2230-2231-2232-2233-2234-2235-2236-2237-2238-2239-2240-2241-2242-2243-2244-2245-2246-2247-2248-2249-2250-2251-2252-2253-2254-2255-2256-2257-2258-2259-2260-2261-2262-2263-2264-2265-2266-2267-2268-2269-2270-2271-2272-2273-2274-2275-2276-2277-2278-2279-2280-2281-2282-2283-2284-2285-2286-2287-2288-2289-2290-2291-2292-2293-2294-2295-2296-2297-2298-2299-2300-2301-2302-2303-2304-2305-2306-2307-2308-2309-2310-2311-2312-2313-2314-2315-2316-2317-2318-2319-2320-2321-2322-2323-2324-2325-2326-2327-2328-2329-2330-2331-2332-2333-2334-2335-2336-2337-2338-2339-2340-2341-2342-2343-2344-2345-2346-2347-2348-2349-2350-2351-2352-2353-2354-2355-2356-2357-2358-2359-2360-2361-2362-2363-2364-2365-2366-2367-2368-2369-2370-2371-2372-2373-2374-2375-2376-2377-2378-2379-2380-2381-2382-2383-2384-2385-2386-2387-2388-2389-2390-2391-2392-2393-2394-2395-2396-2397-2398-2399-2400-2401-2402-2403-2404-2405-2406-2407-2408-2409-2410-2411-2412-2413-2414-2415-2416-2417-2418-2419-2420-2421-2422-2423-2424-2425-2426-2427-2428-2429-2430-2431-2432-2433-2434-2435-2436-2437-2438-2439-2440-2441-2442-2443-2444-2445-2446-2447-2448-2449-2450-2451-2452-2453-2454-2455-2456-2457-2458-2459-2460-2461-2462-2463-2464-2465-2466-2467-2468-2469-2470-2471-2472-2473-2474-2475-2476-2477-2478-2479-2480-2481-2482-2483-2484-2485-2486-2487-2488-2489-2490-2491-2492-2493-2494-2495-2496-2497-2498-2499-2500-2501-2502-2503-2504-2505-2506-2507-2508-2509-2510-2511-2512-2513-2514-2515-2516-2517-2518-2519-2520-2521-2522-2523-2524-2525-2526-2527-2528-2529-2530-2531-2532-2533-2534-2535-2536-2537-2538-2539-2540-2541-2542-2543-2544-2545-2546-2547-2548-2549-2550-2551-2552-2553-2554-2555-2556-2557-2558-2559-2560-2561-2562-2563-2564-2565-2566-2567-2568-2569-2570-2571-2572-2573-2574-2575-2576-2577-2578-2579-2580-2581-2582-2583-2584-2585-2586-2587-2588-2589-2590-2591-2592-2593-2594-2595-2596-2597-2598-2599-2600-2601-2602-2603-2604-2605-2606-2607-2608-2609-2610-2611-2612-2613-2614-2615-2616-2617-2618-2619-2620-2621-2622-2623-2624-2625-2626-2627-2628-2629-2630-2631-2632-2633-2634-2635-2636-2637-2638-2639-2640-2641-2642-2643-2644-2645-2646-2647-2648-2649-2650-2651-2652-2653-2654-2655-2656-2657-2658-2659-2660-2661-2662-2663-2664-2665-2666-2667-2668-2669-2670-2671-2672-2673-2674-2675-

1. GENERAL REQUIREMENTS:

- 1.1 THE WORK TO BE DONE UNDER THIS PROJECT INCLUDES PROVIDING ALL EQUIPMENT, MATERIALS, LABOR AND SERVICES NOT INCLUDED IN THE B.O.M. AND PERFORMING ALL OPERATIONS FOR COMPLETE AND OPERATING SYSTEMS. ANY WORK NOT SPECIFICALLY COVERED BUT NECESSARY TO COMPLETE THIS INSTALLATION, SHALL BE PROVIDED. ALL EQUIPMENT AND WIRING TO BE NEW AND PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED.
- 1.2 ENTIRE INSTALLATION, INCLUDING MATERIALS, EQUIPMENT AND WORKMANSHIP, SHALL CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS ALL APPLICABLE LAWS AND REGULATIONS AND REGULATORY BODIES HAVING JURISDICTION OVER THIS WORK.
- 1.3 THE TERM "FURNISH" SHALL MEAN TO OBTAIN AND SUPPLY TO THE JOB SITE. THE TERM "INSTALL" SHALL MEAN TO FIX IN POSITION AND CONNECT FOR USE. THE TERM "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL. THE TERM "CONTRACTOR" SHALL MEAN ELECTRICAL CONTRACTOR.
- 1.4 ONLY WRITTEN CHANGES AND/OR MODIFICATIONS APPROVED BY THE ENGINEER, CONSULTING ENGINEER OR OWNER'S REPRESENTATIVE WILL BE RECOGNIZED.
- 1.5 THE ELECTRICAL CONTRACTOR SHALL SUBMIT, FOR THE ENGINEER'S APPROVAL, DETAILED SHOP DRAWINGS OF ALL EQUIPMENT SPECIFIED.
- 1.6 CONTRACTOR SHALL COORDINATE WITH SPECIFICATIONS PROVIDED BY OTHER TRADES.
- 1.7 PROVIDE OPERATING AND MAINTENANCE MANUALS, PER SPECIFICATIONS, AND GIVE INSTRUCTIONS TO USER FOR ALL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT AFTER ALL ARE CLEANED AND OPERATING.
- 1.8 KEEP PREMISES FREE FROM RUBBISH. REMOVE ALL ELECTRICAL RUBBISH FROM SITE.
- 1.9 ALL WORK SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.
- 1.10 THE WORK SHALL INCLUDE ALL PANELS, DEVICES, FEEDERS AND BRANCH CIRCUIT WIRING AS REQUIRED FOR THE DISTRIBUTION SYSTEM INDICATED AND CALLED FOR ON THE DRAWINGS, REQUIRED BY SPECIFICATIONS AND AS NECESSARY FOR COMPLETE FUNCTIONAL SYSTEMS PRESENTED AND INTENDED.
- 1.11 THE CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR, TOOLS, EQUIPMENT, CONSUMABLES AND SERVICES REQUIRED FOR OBTAINING, DELIVERY, INSTALLATION, CONNECTION, DISCONNECTION, REMOVAL, RELOCATION, REPAIR, REPLACEMENT, TESTING AND COMMISSIONING OF ALL EQUIPMENT AND DEVICES INCLUDED IN OR NECESSARY FOR THE WORK, AS APPLICABLE. THIS INCLUDES SCAFFOLDING, LADDERS, RIGGING, HOSTING, ETC.
- 1.12 ELECTRICAL WORK SHALL INCLUDE ALL REQUIRED CUTTING, PATCHING AND THE FULL RESTORATION OF WALL AND FLOOR STRUCTURE AND SURFACES. ALL EQUIPMENT, WALLS, FLOORS, ETC., DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTORS EXPENSE.
- 1.13 BEFORE SUBMITTING HIS BID, THE CONTRACTOR SHALL FULLY ACQUAINT HIMSELF/HERSELF WITH THE JOB CONDITIONS AND DIFFICULTIES THAT WILL PERTAIN TO THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
- 1.14 THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO EXISTING UTILITIES.
- 1.15 UPON COMPLETION OF THE ELECTRICAL WORK, THE CONTRACTOR SHALL TEST THE COMPLETE ELECTRICAL SYSTEM FOR SHORTS, GROUNDS, AND PROPER OPERATION, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE.
- 1.16 UPON COMPLETION OF WORK, THE CONTRACTOR SHALL CLEAN AND ADJUST ALL EQUIPMENT AND LIGHTING AND TEST SYSTEMS TO THE SATISFACTION OF OWNER AND ENGINEER. RESULTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- 1.17 THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF FINISHED CONSTRUCTION PRIOR TO FABRICATION AND INSTALLATION OF FIXTURES AND EQUIPMENT.
- 1.18 EXACT ROUTING OF CONDUITS AND "MC" CABLES SHALL BE DETERMINED IN THE FIELD.
- 1.19 IF THE OWNER AND/OR HIS REPRESENTATIVE CONSIDERS ANY WORK TO BE INFERIOR, THE RESPECTIVE CONTRACTOR SHALL REPLACE SAME WITH CONTRACT STANDARD WORK WITHOUT ADDITIONAL CHARGE. ALL WORK SHALL BE DONE IN A NEAT, WORKMANLIKE MANNER, LEFT CLEAN AND FREE FROM DEFECTS, AND COMPLETELY OPERABLE.
- 1.20 THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AS SHOWN ON THE DRAWINGS AND/OR AS SPECIFIED. ALL MATERIALS SHALL BE NEW, AND BEAR THE UL LABEL. ALL WORK SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.
- 1.21 DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC, AND SHALL BE FOLLOWED AS CLOSELY AS CONDITIONS ALLOW TO COMPLETE THE INTENT OF THE CONTRACT. THE DRAWINGS AND SPECIFICATIONS COMPLEMENT ONE ANOTHER, AND WHAT IS SHOWN ON THE DRAWINGS AND NOT MENTIONED IN THE SPECIFICATIONS, AND VICE VERSA, IS TO BE INCLUDED IN THE SCOPE OF WORK.
- 1.22 ALL EQUIPMENT CONNECTIONS SHALL BE INSTALLED PER APPLICABLE SEISMIC REQUIREMENTS.
- 1.23 ENGINEER WILL MAKE A FINAL INSPECTION WITH THE OWNER AND CONTRACTOR AND WILL NOTIFY THE CONTRACTOR IN WRITING OF ALL PARTICULARS IN WHICH THIS INSPECTION REVEALS THAT THE WORK IS INCOMPLETE OR DEFECTIVE. THE CONTRACTOR SHALL IMMEDIATELY TAKE SUCH MEASURES AS ARE NECESSARY TO COMPLETE SUCH WORK OR REMEDY SUCH DEFICIENCIES.
- 1.24 THE CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING AND BACKFILL REQUIRED FOR ELECTRICAL WORK. BACKFILL SHALL BE SUITABLE MATERIAL PROPERLY COMPACTED TO 95% DENSITY IN EACH LAYER OF SIX (6) INCH DEPTH. CONDUIT SHALL BE MINIMUM 36" BELOW FINISHED GRADE.

2. PROJECT COORDINATION:

- 2.1 THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS AT THE SITE AND NOTIFY THE OWNER OF ANY DISCREPANCIES, PRIOR TO COMMENCING WITH THE WORK.
- 2.2 THE CONTRACTOR SHALL REVIEW AND COORDINATE WITH THE DOCUMENTS OF ALL TRADES.
- 2.3 THE CONTRACTOR SHALL FURNISH A SCHEDULE INDICATING HIS PORTION OF TIME, WITHIN THE OVERALL SCHEDULE, REQUIRED TO COMPLETE THE WORK, IN CONJUNCTION WITH ALL TRADES. ALL WORK THAT MAY AFFECT OPERATION OF BUILDING SYSTEMS SHALL BE COORDINATED WITH THE OWNER'S REPRESENTATIVE.
- 2.4 REFER TO THE CONSTRUCTION DRAWINGS AND APPROPRIATE VENDORS APPROVED DIMENSIONED LAYOUT DRAWINGS FOR THE LOCATIONS OF ALL ELECTRICAL DEVICES AND EQUIPMENT.
- A. EXTERIOR, BUILDING MOUNTED LUMINARIES
- B. SWITCHES
- 2.5 REFER TO THE PLUMBING DRAWINGS (IF APPLICABLE) FOR THE LOCATIONS OF THE FOLLOWING:
- A. GENERATOR
- 2.6 SHUT DOWN OF POWER SHALL BE COORDINATED WITH THE OWNER, ARCHITECT AND PROJECT MANAGER AT LEAST 14 WORKING DAYS PRIOR TO SHUT DOWN. SHUT DOWNS LONGER THAN 2 DAYS SHALL BE COORDINATED WITH THE ABOVE PERSONNEL AT LEAST ONE MONTH IN ADVANCE. TEMPORARY POWER FOR CONSTRUCTION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR FOR SHUT DOWNS OVER 2 DAYS.
- 2.7 ALL CONDUITS AND DEVICE BOXES SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, INCLUDING ALL TECHNOLOGY CONDUITS AND BOXES.
- 2.8 EXACT LOCATIONS OF OUTLETS AND EQUIPMENT SHALL BE COORDINATED WITH ARCHITECTURAL AND MILLWORK PLANS. ALL OUTLET AND EQUIPMENT LAYOUTS SHALL BE VERIFIED AND COORDINATED WITH WORK OF OTHER TRADES.
- 2.9 PROVIDE TEMPORARY LIGHTING AND POWER IN ACCORDANCE WITH ARTICLE 305 OF THE NEC. TEMPORARY LIGHTING FIXTURES IN UNFINISHED AREAS SHALL REMAIN CONNECTED UNTIL REMOVAL IS REQUESTED BY THE CONTRACTOR.
- 2.10 COLORS AND FINISHES OF ALL LIGHTING FIXTURES SHALL BE AS DETERMINED BY THE PROPERTY OWNER WHO SHALL SELECT SAME FROM THOSE AVAILABLE AS STANDARD OF THE EQUIPMENT SPECIFIED.
- 2.11 THE CONTRACTOR SHALL CONTACT THE BUILDING MANAGER TO OBTAIN A COPY OF THE GENERAL REQUIREMENTS AND/OR CONDITIONS TO BE USED FOR THIS PROJECT.
- 2.12 INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. TEMPORARY SHUT DOWNS OF ANY SYSTEM SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER AND ARCHITECT.
- 2.13 CONTRACTOR SHALL VERIFY ALL EQUIPMENT POWER REQUIREMENTS AND REQUIRED OUTLET TYPES WITH EQUIPMENT MANUFACTURER AND OWNER PRIOR TO POWER DISTRIBUTION AND RECEPTACLE INSTALLATION.

3. PROTECTION OF WORK:

- 3.1 EFFECTIVELY PROTECT ALL MATERIALS AND EQUIPMENT FROM ENVIRONMENTAL AND PHYSICAL DAMAGE UNTIL FINAL ACCEPTANCE. CLOSE AND PROTECT ALL OPENINGS DURING CONSTRUCTION. PROVIDE NEW MATERIALS AND EQUIPMENT TO REPLACE ITEMS DAMAGED.

4. WARRANTIES:

- 4.1 ALL MATERIALS AND EQUIPMENT SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF ONE YEAR AFTER FINAL ACCEPTANCE BY OWNER.
- 4.2 WORKMANSHIP SHALL BE GUARANTEED IN WRITING FOR A MINIMUM OF 5 YEARS AFTER FINAL ACCEPTANCE BY OWNER
- 4.2 OBTAIN AND DELIVER TO THE OWNER'S REPRESENTATIVE ALL GUARANTEES AND CERTIFICATES OF COMPLIANCE.

5. PERMITS:

- 5.1 CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND INSPECTION FEES FOR ELECTRICAL WORK.

6. RACEWAYS:

- 6.1 ALL CONDUIT SHALL BE MINIMUM SIZE OF 3/4" FOR POWER CIRCUITS AND CONTROL CIRCUITS EXCEPT WHERE FLEXIBLE CONDUIT IS CALLED FOR ON PROJECT DOCUMENTS. ALL EXTERIOR EXPOSED CONDUIT SHALL BE GRC (GALVANIZED RIGID METAL CONDUIT). ALL UNDERGROUND, IN SLAB OR UNDER SLAB SHALL BE RNC (RIGID NONMETALLIC CONDUIT). CHANGE TO RIGID METALLIC CONDUIT OR INTERMEDIATE METALLIC CONDUIT BEFORE EXITING OUT OF CONCRETE OR PENETRATING A WALL, FLOOR OR ROOF. EMT IS ALLOWED IN INTERIOR DRY LOCATIONS WHERE NOT SUBJECT TO DAMAGE.
- 6.2 ALL FLEXIBLE CONDUIT IN WET OR DRY AREAS SHALL BE LIQUID TIGHT CONDUIT. NONMETALLIC FLEXIBLE CONDUIT IS SPECIFICALLY PROHIBITED.
- 6.3 CONDUIT SHALL BE RUN AT RIGHT ANGLES AND PARALLEL TO BUILDING LINES, SHALL BE NEATLY RACKED AND SECURELY FASTENED. JUNCTION BOXES SHALL BE PROVIDED WHERE REQUIRED TO FACILITATE INSTALLATION OF WIRES.
- 6.4 ALL CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN AN APPROVED MANNER.
- 6.5 ALL EMPTY RACEWAYS SHALL BE FURNISHED WITH A 200 LB. TEST NYLON DRAG LINE.
- 6.6 ARRANGEMENT OF CONDUIT AND EQUIPMENT SHALL BE AS INDICATED, UNLESS MODIFICATION IS REQUIRED TO AVOID INTERFERENCES.
- 6.7 ALL RACEWAY AND WIRING SHALL BE CONCEALED IN FINISHED AREAS. RACEWAY IN MECHANICAL ROOMS, BASEMENTS AND CRAWL SPACES MAY BE SURFACE MOUNTED.
- 6.8 FOR CONDUITS CROSSING EXPANSION JOINTS, PROVIDE EXPANSION FITTINGS FOR SIZE 1-1/4", AND LARGER. PROVIDE SECTIONS OF FLEXIBLE CONDUIT WITH GROUNDING JUMPERS FOR SIZES 1" AND SMALLER.
- 6.9 THE CONTRACTOR SHALL SEAL ALL PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS WITH APPROVED FIRE RATED SEALANT. ALL PENETRATIONS THROUGH ALL WALLS AND FLOORS SHALL BE SEALED. FOR ALL SLAB PENETRATIONS THE METHOD, DEPTHS AND LOCATIONS SHALL BE PRE-APPROVED BY THE BUILDING ENGINEER PRIOR TO THE START OF WORK.
- 6.10 THE CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND TAPES FOR THE PROTECTION, LOCATION AND IDENTIFICATION OF UNDERGROUND CONDUIT INSTALLATION.
- 6.11 EXACT ROUTING OF CONDUITS AND CABLES SHALL BE DETERMINED IN FIELD.
- 6.12 ALL PENETRATIONS THROUGH FLOORS SHALL BE FIRE STOPPED AND SEALED WITH APPROVED SEALANT.
- 6.13 ELECTRICAL RACEWAY CONNECTIONS TO VIBRATING EQUIPMENT AND MACHINERY SUCH AS MOTORS, TRANSFORMERS, ETC., SHALL BE MADE WITH FLEXIBLE LIQUID TIGHT METALLIC CONDUIT.
- 6.14 SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS IN HOLLOW MASONRY. EXPANSION SHELDs OR INSERTS IN CONCRETE AND BRICK. MACHINE SCREWS IN METAL. BEAM CLAMPS IN FRAMEWORK AND WOOD SCREWS IN WOOD. NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO BUILDING LINES.
- 6.15 DO NOT RUN RACEWAYS CLOSER THAN 6 INCHES WHEN PARALLEL, TO HOT WATER OR STEAM PIPES. WHEN CROSSING WATER OR STEAM PIPES CROSS A MINIMUM OF 3 INCHES ABOVE. IF CROSSING BELOW IS UNAVOIDABLE, PROVIDE DRIP SHIELDS EXTENDING 6 INCHES BEYOND THE WATER OR STEAMPIPE. BOXES INSTALLED IN PROXIMITY TO WATER OR STEAM PIPE SHALL BE RATED NEMA 4X.

7. BOXES:

- 7.1 INTERIOR OUTLET BOXES SHALL BE METALLIC, EXCEPT AS NOTED. FAN MOUNTING BOXES SHALL BE RATED FOR THE APPLICATION AND FOR THE WEIGHT OF THE FAN. EXTERIOR OUTLET BOXES SHALL BE CAST ALUMINUM AND SHALL BE MADE WEATHERTIGHT.
- 7.2 INTERIOR JUNCTION BOXES SHALL BE SHEET STEEL. EXTERIOR JUNCTION BOXES SHALL BE NONMETALLIC, WITH SCREW COVERS. BOXES SHALL BE SUPPORTED INDEPENDENTLY OF CONDUITS.
- 7.3 MOUNTING HEIGHTS OF EQUIPMENT AND DEVICES SHALL BE AS FOLLOWS:
- A. RECEPTACLES (WALL MOUNTED) - 18" A.F.F.
- B. RECEPTACLES (COUNTER HEIGHT) - 9" ABOVE COUNTER
- C. RECEPTACLES (EXTERIOR) - 24" ABOVE FINISHED GRADE
- D. COMMUNICATION OUTLETS - SAME AS RECEPTACLES
- E. LIGHTING SWITCHES AND CONTROLS - 44" A.F.F.
- F. PANELBOARDS AND CABINETS - 78" TO TOP OF ENCLOSURE
- 7.4 WHERE MULTIPLE SWITCHES AND RECEPTACLES ARE INDICATED AT THE SAME LOCATION, THEY SHALL BE MOUNTED BEHIND A COMMON FACEPLATE. TECHNOLOGY OUTLETS SHALL BE SEPARATED FROM AND BE PROVIDED WITH SEPARATE FACEPLATES FROM THE ASSOCIATED POWER RECEPTACLES.
- 7.5 RECEPTACLES SHALL BE ACCESSIBLE EXCEPT A DEDICATED RECEPTACLE MAY BE OBSTRUCTED BY THE REMOVABLE EQUIPMENT IT SERVES.
- 7.6 OUTLET BOXES IN EXISTING CONCRETE FLOORS WITH ACCESS FROM BELOW SHALL BE FIRE RATED, POKE-THROUGH TYPE FOR POWER AND LOW TENSION SERVICE. SERVICE FITTING HEADS SHALL BE ANODIZED ALUMINUM AND SHALL CONTAIN DEVICES AS SHOWN ON THE DRAWINGS. BOXES SHALL BE AS MANUFACTURED BY STEEL CITY OR HUBBELL.
- 7.7 SET BOXES SQUARE AND TRUE WITH BUILDING FINISH. INSTALL RECEPTACLE AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. SECURE TO BUILDING STRUCTURE IN ACCORDANCE WITH NEC REQUIREMENTS.
- 7.8 FURNISH OUTLET BOXES WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WHERE NO FIXTURE OR DEVICE IS INSTALLED, PROVIDE OUTLET BOX WITH BLANK COVER. OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 INCH HORIZONTAL SEPARATION.

8. WIRING:

- 8.1 ALL WIRE SHALL BE MADE OF COPPER WITH INSULATION SUITABLE FOR THE APPLICABLE ENVIROMENT AND VOLTAGE. CONTRACTOR SHALL GET APPROVAL FOR ANY OTHER WIRE TYPE.
- 8.2 UNDER NO CIRCUMSTANCES SHALL FEEDERS BE SPLICED.
- 8.3 ALL COMPUTER CIRCUITS SHALL HAVE SEPARATE NEUTRAL CONDUCTORS. ALL OTHER CIRCUITS MAY SHARE GROUND AND NEUTRAL CONDUCTORS.
- 8.4 WHERE EQUIPMENT, LIGHTING FIXTURES AND WIRING DEVICES ARE SHOWN WITH CIRCUIT NUMBERS ONLY, THE MINIMUM BRANCH CIRCUITING REQUIREMENTS SHALL BE AS FOLLOWS:
- A. LIGHTING FIXTURES - (2)#12 & #12 GND.
- B. RECEPTACLES - (2)#12 & #12 GND.
- C. BRANCH CIRCUIT BREAKERS (120 VOLT) - 1P, 20A
- D. HOMERUNS TO PANEL BOARDS SHALL CONTAIN NO MORE THAN THREE CIRCUITS.
- E. WHERE LIGHTING SWITCH INDICATIONS ARE NOT SHOWN SWITCHES SHALL BE CONNECTED TO CONTROL ALL SWITCHED FIXTURES WITHIN THE CORRESPONDING SPACE.
- 8.5 ALL ELECTRICAL TERMINAL TEMPERATURE RATINGS ASSUMED TO BE 75° C UNLESS SITE CONDITIONS REQUIRE OTHERWISE.
- 8.6 WIRE SIZES SHALL BE INCREASED WHERE NECESSARY TO LIMIT VOLTAGE DROP AS FOLLOWS:
- A. 1% TOTAL AND 2% FOR ANY INDIVIDUAL RUN, FROM MODULE TO INVERTER.
- B. 1% TOTAL AND 2% FOR ANY INDIVIDUAL RUN, FROM INVERTER TO POINT OF INTERCONNECTION.

9. GROUNDING:

- 9.1 PROVIDE A COMPLETE EQUIPMENT GROUND SYSTEM FOR THE ELECTRICAL SYSTEM AS REQUIRED BY ARTICLE 250, OF THE NEC, AND AS SPECIFIED HEREIN.
- 9.2 ALL BRANCH CIRCUITS FOR POWER WIRING SHALL CONTAIN A COPPER GROUND WIRE. NO FLEXIBLE METAL CONDUIT OF ANY KIND OR LENGTH SHALL BE USED AS THE EQUIPMENT GROUNDING CONDUCTOR.

10. MECHANICAL SYSTEMS POWER:

- 10.1 EXCEPT AS OTHERWISE NOTED, EQUIPMENT FURNISHED UNDER THE MECHANICAL TRADE WILL INCLUDE MOTORS, STARTERS, CONTROL EQUIPMENT, INTERLOCK AND CONTROL WIRING. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING FROM SOURCE THROUGH INTERVENING EQUIPMENT TO MOTOR TERMINALS. STARTERS SHALL BE INSTALLED BY ELECTRICAL CONTRACTOR.
- 10.2 DISCONNECT SWITCHES SHALL BE HEAVY DUTY, HORSEPOWER RATED, QUICK MAKE, QUICK BREAK TYPE, ENCLOSED IN A HEAVY SHEET METAL ENCLOSURE WITH HINGED INTERLOCKING COVER, IN PROPER NEMA RATED ENCLOSURES. FUSED OR NON-FUSED AS REQUIRED. DISCONNECT SWITCHES SHALL BE PROVIDED BY CONTRACTOR, EXCEPT AS NOTED ON DRAWINGS.
- 10.3 THE RATING FOR DISCONNECT SWITCHES SHALL BE THE SAME AS, OR GREATER THAN, THE PROTECTIVE DEVICE SERVING THE EQUIPMENT.
- 10.4 COORDINATE ALL RECEPTACLES, PLUGS, WIRING AND LOCATIONS WITH THE EQUIPMENT PROVIDED PRIOR TO ROUGH IN.
- 10.5 A STRUT FRAME SHALL BE PROVIDED AT ALL LOCATIONS WHERE STRUCTURE WILL NOT ADEQUATELY SUPPORT EQUIPMENT, OR FOR FREESTANDING EQUIPMENT.
- 10.6 THE CONTRACTOR SHALL WIRE ALL MECHANICAL AND FIRE PROTECTION EQUIPMENT SHOWN ON THE DRAWINGS. COORDINATE WITH MECHANICAL, PLUMBING AND FIRE PROTECTION DRAWINGS.
- 10.7 ELECTRICAL EQUIPMENT SHIPPED LOOSE BY THE MANUFACTURER SHALL BE INSTALLED AND WIRED BY THE CONTRACTOR. EQUIPMENT MOUNTED IN THE DUCTWORK WILL BE MOUNTED BY THE MECHANICAL CONTRACTOR AND WIRED BY THE CONTRACTOR.
- 10.8 THE CONTRACTOR SHALL PROVIDE REMOTE INDICATORS FOR ALL DUCT DETECTORS LOCATED ABOVE REMOVABLE CEILINGS. DUCT DETECTORS SHALL BE INSTALLED FOR ALL VENTILATION UNITS WITH 200 CFM OR GREATER SUPPLY AIR. REMOTE INDICATORS SHALL BE WALL MOUNTED 12" BELOW CEILING IN CLOSE PROXIMITY TO CONCEALED DUCT DETECTOR, UON.

11. DEVICES:

- 11.1 THE CONTRACTOR SHALL VERIFY COLOR, LOCATION AND MOUNTING HEIGHT OF ALL DEVICES WITH ARCHITECT PRIOR TO INSTALLATION.
- 11.2 RECEPTACLES SHALL BE DUPLEX TYPE, 20 AMP, 125 VOLT RATING, WITH SIDE AND BACK WIRING. HUBBELL 5362 OR APPROVED EQUAL.
- 11.3 GROUND FAULT INTERRUPTERS SHALL BE SPECIFICATION GRADE. HUBBELL GF5362 OR APPROVED EQUAL.
- 11.4 SWITCHES SHALL BE SPECIFICATION GRADE, 20 AMP AT 120/277 VOLTS, QUIET, AC, SINGLE OR DOUBLE POLE, THREE OR FOUR WAY AS REQUIRED, ROCKER STYLE WITH BACK AND SIDE WIRING.
- 11.5 ALL RECEPTACLES MARKED WP SHALL BE GROUND FAULT PROTECTED AND WEATHER TIGHT WHILE IN USE.
- 11.6 THE COLOR OF FACEPLATES SHALL MATCH COLOR OF DEVICE WHICH IT COVERS. ALL PLATES SHALL BE METALLIC.

12. PANEL BOARDS:

- 12.1 PANELBOARDS: SWITCHING UNITS SHALL BE 3 PHASE, 4 WIRE CIRCUIT BREAKER TYPE UNLESS OTHERWISE NOTED ON PANEL SCHEDULES. BUS BARS SHALL BE HARD DRAWN COPPER, MINIMUM 98% CONDUCTIVITY, AND SILVER OR TIN-PLATED JOINTS. CABINETS SHALL BE GALVANIZED SHEET STEEL BACK BOX, WITH DOOR AND TRIM AND LAPPED AND WELDED CORNERS. HARDWARE SHALL BE CHROME-PLATED WITH FLUSH LOCK/LATCH HANDLE ASSEMBLY (UP TO 48 IN. HIGH DOORS) OR VAULT HANDLE, LOCK AND 3-POINT CATCH (LARGER THAN 48 IN. HIGH DOORS). HINGES SHALL BE SEMI-CONCEALED. 5-KNUCKLE STEEL WITH NONFRREROUS PINS, 180-DEG OPENING, LOCATED A MAXIMUM 28 IN. ON CENTERS. PROVIDE DOOR-IN-DOOR CONSTRUCTION. MINIMUM CUTTER SPACES FOR LIGHTING PANELS SHALL BE 5- BOTTOM. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER.
- 12.2 PROVIDE A NEW TYPE WRITTEN CIRCUIT DIRECTORY FOR EACH PANEL AFFECTED BY THIS PROJECT.
- 12.3 WHEREVER POSSIBLE, PANELBOARDS SHALL BE RECESSED IN WALL. SURFACE MOUNTED PANELBOARDS SHALL BE MOUNTED ON A PLYWOOD BACKBOARD. PLYWOOD SHALL BE MOUNTED ON TOP OF GYPSUM BOARD. PLYWOOD SHALL BE PAINTED ON ALL SIDES AND EDGES. COORDINATE WITH OWNER FOR COLOR.
- 12.4 PROVIDE LIGHTNING SURGE PROTECTION FOR MAIN SWITCHBOARD OR MAIN SERVICE PANEL BOARD. PROVIDE GROUNDING OF SURGE DEVICE PER THE NEC.
- 12.5 CIRCUIT NUMBERS SHOWN SHALL BE GENERALLY FOLLOWED. HOWEVER, CONTRACTOR IS RESPONSIBLE FOR BALANCING LOADS ON ALL PHASES AND MAY ALTER ASSIGNMENT OF CIRCUITS FOR BALANCING PHASES.
- 12.6 CIRCUIT SCHEDULES ARE INTENDED TO REPRESENT THE GENERAL WIRING NEEDS OF THE EQUIPMENT SERVICED FROM THE PANEL. THE EXACT CIRCUIT ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND ARRANGEMENT WILL BE DETERMINED BY PANEL SHOP DRAWING AND PANELS ACTUALLY FURNISHED.

13. LIGHTING:

- 13.4 PROVIDE LIGHTING FIXTURES AS SHOWN ON THE CONSTRUCTION DRAWINGS, COMPLETE WITH ALL STEMS, RODS, SUPPORTS, PLASTER FRAMES, ETC., NECESSARY FOR AN INSTALLATION IN OR ON THE MATERIAL FINISHES PROVIDED. PROVIDE ALL LAMPS FOR LIGHTING FIXTURES. FIXTURES SHALL HAVE ENERGY SAVING LAMPS, AND WHERE APPLICABLE, ENERGY SAVING BALLASTS WITH HIGH POWER FACTOR.
- 13.5 SEE DRAWINGS AND SPECIFICATIONS FOR FIXTURE REQUIREMENTS.

14. IDENTIFICATION:

- 14.1 PROVIDE BLACK PHENOLIC IDENTIFICATION PLATES, WITH WHITE LETTERS ON ALL ELECTRICAL EQUIPMENT FURNISHED IN THIS CONTRACT. ATTACH WITH SUITABLE ADHESIVE.
- 14.2 INSTALL NAMEPLATES ON ALL MAJOR EQUIPMENT, INCLUDE STARTERS, TRANSFORMERS, PANELBOARDS, DISCONNECT SWITCHES AND OTHER ELECTRICAL BOXES AND CABINETS INSTALLED UNDER THIS CONTRACT.
- 14.3 APPLY CABLE/CONDUCTOR IDENTIFICATION MARKERS ON EACH CABLE AND CONDUCTOR IN EACH BOX, ENCLOSURE OR CABINET.

15. RECORD DRAWINGS:

- 15.1 THE CONTRACTOR SHALL SUBMIT SIX (6) COPIES OF SHOP DRAWINGS. THE APPROVAL OF SHOP DRAWINGS SHALL ONLY BE CONSTRUED TO APPLY TO THE GENERAL LAYOUT AND CONFORMANCE TO THE DESIGN CONCEPT OF THE PROJECT AND FOR THE COMPLIANCE WITH THE GENERAL REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL RETAIN THE RESPONSIBILITY FOR ANY DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
- 15.2 PROVIDE SHOP DRAWINGS FOR THE LIGHTING FIXTURES, PANEL BOARDS, CIRCUIT BREAKERS, WIRING DEVICES, FIRE ALARM DEVICES AND SEALS FOR FIRE AND WATER STOPPING.
- 15.3 DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF INSTALLATION PRINTS. HE SHALL NEATLY AND CLEARLY RECORD ON THESE PRINTS ALL DEVIATIONS FROM THE CONTRACT DRAWINGS IN SIZES, LOCATIONS AND DETAILS.
- 15.4 UPON PROJECT COMPLETION, THE CONTRACTOR SHALL COMPLETE THE MARK UP OF ALL PROJECT DRAWINGS TO RECORD INSTALLED CONDITIONS.
- 15.5 REPRODUCIBLE "RECORD" DRAWINGS PREPARED IN CAD FORMAT SHALL BE PROVIDED AS INSTALLED CONDITIONS OF THE WORK. A FULL SIZE PRINT OUT OF THE "RECORD" DRAWING FILE SHALL BE PROVIDED AFTER COMPLETION OF THE INSTALLATION.
- 15.6 UPON COMPLETION AND ACCEPTANCE OF WORK, THE CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUJALS AND DEMONSTRATE TO SPRINT THE PROPER OPERATIONS AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.



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LICENSED ELECTRICAL ENGINEER certifies that they prepared all the electrical "E" sheets in this drawing set.

LICENSED STRUCTURAL ENGINEER certifies that they prepared all of the structural "S" sheets in this drawing set.

LICENSED CIVIL ENGINEER certifies that they prepared all of the civil "C" sheets in this drawing set.

It should be noted that any plan sheets not identified above have been prepared and certified by others and have been included herein for informational purposes only.

DATE		
D		
C		
B		
A		
REV	DATE	DESCRIPTION
DRAWN BY: AK		CHECKED BY:
SCALE: AS NOTED		JOB NO:

CITY OF MILWAUKEE
N. COLLEGE LANDFILL

1600 E COLLEGE AVE
MILWAUKEE, WI

SHEET TITLE

GENERAL NOTES

DWG. NO.

G-1.00

EXHIBIT E

Rent

Annual Rent due and payable under this Lease shall be equal to the value of the Midcontinent Independent System Operator ("MISO") accredited capacity of the PV System multiplied by the value of capacity, as defined below, up to Landlord's firm demand at the time this Lease is executed. Rent shall be paid to Landlord in monthly installments equal to one twelfth ($1/12^{\text{th}}$) of the annual amount.

As used herein, "value of capacity" will be determined as of the date this Lease is executed, as determined by MISO's current Business Practice Manual ("BPM"), and will be fixed for the duration of the Lease. The value of capacity is the MISO zone 2 cost of new entry ("CONE") for the MISO Resource Adequacy Planning Year in which this Lease is executed. Customer acknowledges that the capacity accredited by MISO is subject to change annually.

Please see the rent payment calculation

Solar Now - Illustrative Lease Payment
City of Milwaukee
Prepared: January 14, 2020

System Size (in MW ac)	Capacity Accreditation %	Accredited Capacity (in MW ac)	Value of Capacity (CONE)	Estimated Lease Payment (Annual)	Estimated Lease Payment (Monthly) - Gross	Less: Monthly REC Value	Estimated Lease Payment (Monthly) - Net	Estimated Lease Payment Annual - Net	Estimated Lease Payment 20 Yr Lease - Net
Estimated Lease Calculation - Year 1¹									
2.25	50%	1.125	\$ 87,170	\$ 98,066	\$ 8,172	\$ 591	\$ 7,581	\$ 90,971	\$ 1,819,413
Estimated Lease Calculation - Years 2 - 30²									
2.25	55%	1.238	\$ 87,170	\$ 107,873	\$ 8,989	\$ 591	\$ 8,398	\$ 100,777	\$ 2,015,546
2.25	60%	1.350	\$ 87,170	\$ 117,680	\$ 9,807	\$ 591	\$ 9,215	\$ 110,583.90	\$ 2,211,678

Footnote Explanations	
1	- Indicates that the Capacity Accreditation % is fixed at 50% for year 1 based on the Mid-Continent Independent System Operator (MISO) formula.
2	- Indicates that the Capacity Accreditation % for years 2 - 30 is variable. This percentage will be based on the MISO capacity accreditation formula. That formula is currently defined for solar generating resources as the rolling average of the most recent 3 years historical generation for the hours ending 2:00 PM, 3:00 PM, and 4:00PM (Central Prevailing Time) in the months of June, July and August. The estimate of 55% - 60% was determined using that formula in conjunction with 30 years of historical solar irradiance data for Southeastern Wisconsin. Two illustrative lease calculations are shown, the first is with the 55% capacity accreditation percentage assumption and the second using a 60% capacity accreditation percentage assumption.

Calculation of Estimated Monthly Impact of RECs				
System Size (in MW ac)	Estimated REC Production (Annual MWH)	REC Value (\$ / REC)	Total REC Value (\$ - Annual)	Total REC Value (\$ - Monthly)
2.25	3,547.80	\$ 2	\$ 7,096	\$ 591

EXHIBIT F
DISTRIBUTION EASEMENT LOCATIONS
PRELIMINARY - SUBJECT TO FINAL DESIGN AND ENGINEERING

See Page D-2 of EXHIBIT D