OCALA ELECTRIC UTILITY
OCALA, FLORIDA

FIRST REVISED SHEET NO. 19.0
CANCELS ORIGINAL SHEET NO. 19.0

# APPLICATION FOR INTERCONNECTION OF CUSTOMER-OWNED RENEWABLE GENERATION SYSTEMS

TIER 1 - Ten (10) kW or Less
TIER 2 - Greater than 10 kW and Less Than or Equal to 100 kW
TIER 3 - Greater than 100 kW and Less Than or Equal to Two (2) MW

Note: These customer-owned renewable generation system size limits may be subject to a cumulative enrollment limit on net-metering customers located in the area served by the City of Ocala Electric Utility. Please refer to the Ocala Electric Utility Net-Metering Rate Schedule.

Ocala Electric Utility customers who install customer-owned renewable generation systems (RGS) and desire to interconnect those facilities with the Ocala Electric Utility system are required to complete this application. When the completed application and fees are returned to Ocala Electric Utility, the process of completing the appropriate Tier 1, Tier 2 or Tier 3 Interconnection Agreement can begin. This application and copies of the Interconnection Agreements may be obtained at Ocala Electric Utility, located at 201 SE 3rd Street, Ocala, Florida 34471, or may be requested by email from OEU@ocalafl.org.

## 1. Customer Information

Name: Rebecca S. Villeda

Mailing Address: 4408 SE 15th Street

City: Ocala State: FL Zip Code: 34471

Phone Number: 352-299-6200 Alternate Phone Number: _____

Email Address: villedafins@gmail.com Fax Number: _____

Ocala Electric Utility Customer Account Number: 511349-114127

## 2. RGS Facility Information

Facility Location: 4408 SE 15th Street Ocala, Fl. 34471

Ocala Electric Utility Customer Account Number: 511349-114127

RGS Manufacturer: Longi Solar

Manufacturer's Address: 8369 Shangyuan Rd. Xi'an Economic & Technological Dev. Zone
Xi'an, Shaanxi, China

Reference or Model Number: LR5-54HABB-400M (400W) 35 Modules

Serial Number: _____

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**3. Facility Rating Information**

Gross Power Rating: 11.9kWac ("Gross power rating" means the total manufacturer's AC nameplate generating capacity of an on-site customer-owned renewable generation system that will be interconnected to and operate in parallel with Ocala Electric Utility's distribution facilities. For inverter-based systems, the AC nameplate generating capacity shall be calculated by multiplying the total installed DC nameplate generating capacity by 0.85 in order to account for losses during the conversion from DC to AC.)

Fuel or Energy Source: Solar PV

Anticipated In- Service Date: 3/12/25

**4. Application Fee**

The application fee is based on the Gross Power Rating and must be submitted with this application. The non-refundable application fee is $375 for Tier 2 and $750 for Tier 3 installations. There is no application fee for Tier 1 installations.

**5. Interconnection Study Fee**

For Tier 3 installations, a deposit in the amount of the estimated costs of the study (to be determined at time of application) must be paid along with this application in addition to the application fee referenced in Article 4 above. This deposit will be applied toward the cost of an interconnection study. The customer will be responsible for the actual costs of the study. Should the actual cost of the study be less than the deposit, the difference will be refunded to the customer. Customer agrees to comply with all interconnection requirements identified in the interconnection study report.

**6. Required Documentation**

Prior to completion of the Interconnection Agreement, the following information must be provided to the Ocala Electric Utility by the customer.

A. Documentation demonstrating that the installation complies with (or most current version at time of inspection approval):

1. IEEE 1547 (2018) Standard for Interconnecting Distributed Resources with Electric Power Systems.
2. IEEE 1547.1 (2005) Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems.
3. UL 1741 (2010) Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources.

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B. Documentation that the customer-owned renewable generation has been inspected and approved by local code officials prior to its operation in parallel with the Ocala Electric Utility system to ensure compliance with applicable local codes. OEU will also require proof of commission testing by a qualified 3rd party testing company (not affiliated in any way with the manufacturer, vendor or installation contractor), for compliance with all required and applicable codes, standards, and interconnection study requirements, prior to setting of OEU metering equipment.

C. Proof of insurance in the amount of:
Tier 1 - $100,000.00
Tier 2 - $1,000,000.00
Tier 3 - $2,000,000.00

**Customer**

By: Rebecca S. Villeda Date: 2/17/2025
(Print Name)

Rebecca V. Villeda
(Signature)

# Tri-Party Net-Metering Power Purchase Agreement

This Tri-Party Net-Metering Power Purchase Agreement (this "Agreement") is entered into this 17th day of February, 20 25, by and between the Florida Municipal Power Agency, a governmental joint action agency created and existing under the laws of the State of Florida (hereinafter "FMPA"), the City of Ocala doing business as Ocala Electric Utility, a body politic (hereinafter "OEU"), and Rebecca S. Villeda, a retail electric customer of OEU (hereinafter "Customer").

**Section 1. Recitals**

1.01. OEU and Customer have executed OEU's Standard Interconnection Agreement for a Customer-Owned Renewable Generation System (RGS) pursuant to which OEU has agreed to permit interconnection of Customer's renewable generation to OEU's electric system at Customer's presently-metered location, and Customer has agreed to deliver excess electric energy generated by Customer's Renewable Generation System to OEU's electric distribution system;

1.02. The City of Ocala and FMPA have entered into the All-Requirements Power Supply Contract, dated as of May 1, 1986, (hereinafter the "ARP Contract") pursuant to which the City of Ocala has agreed to purchase and receive, and FMPA has agreed to sell and supply OEU with all energy and capacity necessary to operate the OEU electric system, which limits OEU's ability to directly purchase excess energy from customer-owned renewable generation.

1.03. In order to promote the development of small customer-owned renewable generation by permitting OEU to allow its customers to interconnect with OEU's electric system and to allow OEU's electric customers to offset their electric consumption with customer-owned renewable generation, FMPA, in accordance with the terms and conditions of this agreement, has agreed to purchase excess customer-owned generation from OEU's electric customers interconnected to OEU's electric system.

NOW THEREFORE, for and in consideration of the mutual covenants and agreements set forth herein, the Parties covenant and agree as follows:

**Section 2. Interconnection**

2.01. Customer shall not begin parallel operations with the OEU electric distribution system until Customer has executed OEU's electric Standard Interconnection Agreement for Small Customer-Owned Renewable Generation and is in compliance with all terms and conditions

OEU requires that the customer install and operate the RGS in accordance with all applicable safety codes and standards. OEU shall establish and enforce terms and conditions of operation and disconnection of all interconnected customer-owned renewable generation as it relates to the effect of the RGS on OEU's electric distribution system.

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**Section 3. Metering**

3.01 In accordance with the OEU's Standard Interconnection Agreement for Customer-Owned Renewable Generation, OEU shall install metering equipment at the point of delivery capable of recording two separate kWh meter readings: (1) the flow of electricity from OEU to the Customer (Delivered), and (2) the flow of excess electricity from the Customer to OEU. OEU shall take meter readings on the same cycle as the otherwise applicable rate schedule.

**Section 4. Purchase of Excess Customer-Owned Renewable Generation**

4.01. Customer-owned renewable generation shall be first used for Customer's own load and shall offset Customer's demand for OEU's electricity. All electric power and energy delivered by OEU to Customer shall be received and paid for by Customer to OEU (Received) pursuant to the terms, conditions and rates of the OEU otherwise applicable rate schedule.

4.02. Excess customer-owned renewable generation shall be delivered to the OEU Electric distribution system. For purposes of this Agreement, the term "excess customer-owned renewable generation" means any kWh of electrical energy produced by the customer-owned renewable generation system that is not consumed by Customer and is delivered to the OEU electric distribution system. FMPA agrees to purchase and receive, and Customer agrees to sell and deliver, all excess customer-owned renewable generation at the energy rate established by FMPA, which shall be calculated in accordance with Schedule A. Excess customer-owned renewable generation shall be purchased in the form of a credit on Customer's monthly energy consumption bill from OEU.

4.03. In the event that a given monthly credit for excess customer-owned renewable generation exceeds the total billed amount for Customer's consumption in any corresponding month, then the excess credit shall be applied to the subsequent month's bill. Excess energy credits produced pursuant to the preceding sentence shall accumulate and be used to offset Customer's energy consumption bill for a period of not more than twelve (12) months. At the end of each calendar year, any unused excess energy credits shall be paid by OEU to the Customer in accordance with the OEU Electric Net-Metering Service Rate Schedule.

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4.04. FMPA and OEU shall not be required to purchase or receive excess customer-owned renewable generation, and may require Customer to interrupt or reduce production of customer-owned renewable generation, (a) when necessary in order to construct, install, maintain, repair, replace, remove, investigate, or inspect any OEU equipment or part of OEU's system; or (b) if either FMPA or OEU determine, in their sole judgment, that curtailment, interruption, or reduction is necessary because of emergencies, forced outages, force majeure, or compliance with any applicable electric code or standard.

4.05. Customer acknowledges that its provision of electricity to OEU hereunder is on a first-offered, first-accepted basis and subject to diminution and/or rejection in the event the total amount of electricity delivered to OEU pursuant to the Net-Metering Service Rate Schedule (as filed with the Florida Public Service Commission), from all participating OEU customers, exceeds two and one-half percent (2.5%) of the aggregate customer peak demand on the OEU electric system.

**Section 5. Renewable Energy Credits**

5.01. Customer shall offer FMPA a first right of refusal before selling or granting to any third party the right to the Green Attributes associated with its customer-owned renewable generation that is interconnected to OEU electric distribution system. The term "Green Attributes" shall include any and all credits, certificates, benefits, environmental attributes, emissions reductions, offsets, and allowances, however entitled, attributable to the generation of electricity from the customer-owned-renewable generation and its displacement of conventional energy generation.

5.02. Any additional meter(s) installed to measure total renewable electricity generated by the Customer for the purposes of measuring Green Attributes, including and renewable energy certificates (or similarly titled credits for renewable energy generated), shall be installed at the expense of the Customer, unless determined otherwise during negotiations for the sale of the Customer's credits to FMPA.

**Section 6. Term and Termination**

6.01. This Agreement shall become effective upon execution by all Parties, and shall remain in effect thereafter on a month-to-month basis until terminated by any Party upon thirty (30) days written notice to all other Parties.

6.02. This Agreement shall terminate immediately and without notice upon: (a) termination of the electric distribution service by OEU or (b) failure by Customer to comply with any of the terms and conditions of this Agreement or OEU's Standard Interconnection Agreement for Customer-Owned Renewable Generation.

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**Section 7. Miscellaneous Provisions**

7.01. Assignment. It is understood and agreed that no party may transfer, sell, mortgage, pledge, hypothecate, convey, designate, or otherwise assign this Agreement, or any interest herein or any rights or obligations hereunder, in whole or in part, either voluntarily or by operation of law, (including, without limitation, by merger, consolidation, or otherwise), without the express written consent of the other parties (and any such attempt shall be void), which consent shall not be unreasonably withheld. Subject to the foregoing, this Agreement shall inure to the benefit of and be binding upon the parties and their respective successors and permitted assigns.

7.02 Amendment. It is understood and agreed that FMPA and OEU reserve the right, on no less than an annual basis, to change any of the terms and conditions, including pricing, in this Agreement on sixty (60) days advance written notice. FMPA and OEU may make such changes on an immediate basis in the event any applicable law, rule, regulation or court order requires them. In such event, FMPA and OEU will give Customer as much notice as reasonably possible under the circumstances.

7.03. Indemnification. To the fullest extent permitted by laws and regulations, and in return for adequate, separate consideration, Customer shall defend, indemnify, and hold harmless FMPA and OEU, their officers, directors, agents, guests, invitees, and employees from and against all claims, damages, losses to persons or property, whether direct, indirect, or consequential (including but not limited to fees and charges of attorneys, and other professionals and court and arbitration costs) arising out of, resulting from, occasioned by, or otherwise caused by the operation or misoperation of the customer-owned renewable generation, or the acts or omissions of any other person or organization directly or indirectly employed by the Customer to install, furnish, repair, replace or maintain the customer-owned renewable generation system, or anyone for whose acts any of them may be liable.

7.04. Governing Law. The validity and interpretation of this Agreement and the rights and obligations of the parties shall be governed and construed in accordance with the laws of the State of Florida without regard for any conflicts of law provisions that might cause the law of other jurisdictions to apply. All controversies, claims, or disputes arising out of or related to this Agreement or any agreement, instrument, or document contemplated hereby, shall be brought exclusively in the County or Circuit Court for Marion County, Florida, or the United States District Court sitting in Marion County, Florida, as appropriate.

(Continued on Sheet No. 20.4)

7.05. Enforcement of Agreement. In the event that either party is required to enforce this Agreement by court proceedings or otherwise, the prevailing party shall be entitled to recover all fees and costs incurred, including reasonable attorney's fees and costs for trial, alternative dispute resolution, and/or appellate proceedings.

7.06. Severability. To the extent any provision of this Agreement is prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of this Agreement.

7.07. Third Party Beneficiaries and Sovereign Immunity. This Agreement is solely for the benefit of FMPA, OEU, and Customer and no right nor shall any cause of action accrue upon or by reason, to or for the benefit of any third party not a formal party to this Agreement. Nothing in this Agreement, expressed or implied, is intended or shall be construed to confer upon any person or corporation other than FMPA, OEU, or Customer, any right, remedy, or claim under or by reason of this Agreement or any of the provisions or conditions of this Agreement; and, all provisions, representations, covenants, and conditions contained in this Agreement shall inure to the sole benefit of and be binding upon FMPA, OEU, and Customer and their respective representatives, successors, and assigns. Further, no term or condition contained in this Agreement shall be construed in any way as a waiver by either FMPA or OEU of the sovereign immunity applicable to either or both of them as established by Florida Statutes, 768.28.

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CANCELS ORIGINAL SHEET NO. 20.5

**IN WITNESS WHEREOF**, Customer and OEU have executed this Agreement the day and year first above written.

**City of Ocala Electric Utility**

By: Signed by: Janice Mitchell 5519BB43858A4E1...
Title: CFO
Date: 4/23/2025

**Florida Municipal Power Agency**

By: DocuSigned by: 087F58EBB34B474...
Title: Chief Sys Ops & Tech Officer
Date: 4/23/2025

**Customer**

By: Rebecca S. Villeda Date: 2/17/2025
(Print Name)
(Signature)

Customer's City of Ocala Electric Utility Account Number: 511349-114127

Approved as to form and legality:

DocuSigned by: William E. Sexton B07DCFC4E86E429...
William E. Sexton, Esq., City Attorney

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**Tri-Party Net-Metering Power Purchase Agreement**
**Schedule A**

## I. All-Requirements Project Calculation of Excess Customer-Owned Renewable Generation Credit

a) FMPA shall pay OEU for the excess kWh energy delivered by customer-owned renewable generation to OEU's electric system. Every month, OEU shall determine the total kWh of customer-owned renewable generation that is delivered to OEU's electric system, and shall send the information to FMPA as soon as it becomes available, but no later than the second working day of every month. FMPA will then provide a monthly payment to OEU in the form of a credit on the ARP power bill for the excess energy delivered to the distribution grid. The ARP Renewable Generation Credit will be calculated as follows:

**ARP Renewable Generation Credit = Quarterly Energy Rate * Monthly kWh of excess customer-owned renewable generation**

**Quarterly Energy Rate = 3 month average of ARP energy rate. FMPA will update the Quarterly Energy Rate every April 1, July 1, October 1 and January 1.**

b) As part of the monthly bill adjustment, FMPA will also increase OEU's kWh billing amount by the same kWh amount as the customer-owned renewable generation purchased by FMPA. This adjustment is necessary because excess customer generation that flows onto OEU's electric system has been purchased by FMPA, but will remain on OEU's electric system and be used by OEU to meet its other customers' electric needs. As a result, OEU's monthly ARP bill will be adjusted accordingly to reflect FMPA's subsequent sale of this energy to OEU.

## II. Payment for Unused Excess Energy Credits

a) Monthly excess energy credits shall accumulate and be used to offset the Customer's following month energy consumption bill for a period of not more than twelve (12) months.

b) At the end of each calendar year, OEU shall pay the Customer for any unused excess energy credits in accordance with the OEU Electric Net-Metering Service Rate Schedule.

**Tier 2**
**Standard Interconnection Agreement**
**Customer-Owned Renewable Generation System**

This **Agreement** is made and entered into this 17th day of February, 20 25, by and between Rebecca S. Villeda, (hereinafter called "**Customer**"), located at 4408 SE 15th Street in Ocala, Florida, and the City of Ocala doing business as Ocala Electric Utility (hereafter called "**OEU**"), a body politic. Customer and OEU shall collectively be called the "**Parties**". The physical location/premise where the interconnection is taking place: 4408 SE 15th Street Ocala, Fl. 34471.

**WITNESSETH**

**Whereas,** a Tier 2 Renewable Generation System (RGS) is an electric generating system that uses one or of more of the following fuels or energy sources: hydrogen, biomass, solar energy, geothermal energy, wind energy, ocean energy, waste heat, or hydroelectric power as defined in Section 377.803, Florida Statutes, rated at more than 10 kilowatts (10 kW) but not greater than 100 kilowatts (100 kW) alternating current (AC) power output and is primarily intended to offset part or all of the customer's current electric requirements; and

**Whereas,** OEU operates an electric system serving parts of the City of Ocala and Marion County; and

**Whereas,** Customer has made a written Application to OEU, a copy being attached hereto, to interconnect its RGS with OEU's electrical supply grid at the location indentified above; and

**Whereas**, the City of Ocala and the Florida Municipal Power Agency (hereinafter called "FMPA") have entered into the All-Requirements Power Supply Contract pursuant to which OEU has agreed to purchase and receive, and FMPA has agreed to sell and supply OEU with all energy and capacity necessary to operate OEU's electric system, which limits OEU's ability to directly purchase excess energy from customer-owned renewable generation; and

**Whereas,** in order to promote the development of small customer-owned renewable generation by permitting OEU to allow its customers to interconnect with OEU's electric system and to allow OEU customers to offset their electric consumption with customer-owned renewable generation, FMPA, in accordance with the terms and conditions of this agreement, has agreed to purchase excess customer-owned generation from OEU customers interconnected to OEU's electric system; and

**Whereas,** OEU desires to provide interconnection of a RGS under conditions which will insure the safety of OEU customers and employees, reliability and integrity of its distribution system;

(Continued on Sheet No. 22.1)

(Continued from Sheet No. 22.0)

**NOW, THEREFORE**, for and in consideration of the mutual covenants and agreements herein set forth, the parties hereto covenant and agree as follows:

1. The Customer shall be required to enter into a Tri-Party Net-Metering Purchase Power Agreement with FMPA and OEU.

2. "Gross power rating" (GPR) means the total manufacturer's AC nameplate generating capacity of an on-site customer-owned renewable generation system that will be interconnected to and operate in parallel with OEU distribution facilities. For inverter-based systems, the GPR shall be calculated by multiplying the total installed DC nameplate generating capacity by 0.85 in order to account for losses during the conversion from DC to AC.

3. This agreement is strictly limited to cover a Tier 2 RGS as defined above. It is the Customer's responsibility to notify OEU of any change to the GPR of the RGS by submitting a new application for interconnection specifying the modifications at least 30 days prior to making the modifications. In no case should modifications to the RGS be made such that the GPR increases above the 100 kilowatts (100 kW) limit.

4. The RGS GPR must not exceed 90 percent (90%) of the Customer's OEU calculated distribution service rating at the Customer's location (including shared electric facilities). If the GPR does exceed the 90 percent (90%) limit, the Customer shall be responsible to pay the cost of upgrades to the distribution facilities required to accommodate the GPR capacity and ensure the 90 percent (90%) threshold is not breached. OEU will not allow a RGS GPR greater than required to offset the customer's annual kWh energy consumption (based on customer's historical consumption data or by means of estimated usage of similar type of service as determined by OEU).

5. The Customer shall be required to pay a non-refundable application fee of $375 for the review and processing of the application.

6. The Customer shall fully comply with OEU's Rules and Regulations and Electric Service Specifications as those documents may be amended or revised by OEU from time to time.

7. The Customer certifies that its installation, its operation and its maintenance shall be in compliance with the following standards (or most current version at time of inspection approval):

a. IEEE-1547 (2018) Standard for Interconnecting Distributed Resources with Electric Power System;
b. IEEE-1547.1 (2005) Standard Conformance Test Procedures for Equipment Interconnection Distributed Resources with Electric Power Systems;
c. UL-1741 (2010) Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed *Energy Resources.*

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d. The National Electric Code, state and/or local building codes, mechanical codes and/or electrical codes;
e. The manufacturer's installation, operation and maintenance instructions.

8. The Customer is not precluded from contracting for the lease, operation or maintenance of the RGS with a third party. Such lease may not provide terms or conditions that provide for any payments under the agreement to any way indicate or reflect the purchase of energy produced by the RGS. Customer shall not enter into any lease agreement that results in the retail purchase of electricity; or the retail sale of electricity from the customer-owned renewable generation. Notwithstanding this restriction, in the event that Customer is determined to have engaged in the retail purchase of electricity from a party other than OEU, then Customer shall be in breach of this Agreement and may be subject to the jurisdiction of the Florida Public Service Commission and to fines/penalties.

9. The Customer shall provide a copy of the manufacturer's installation, operation and maintenance instructions to OEU. If the RGS is leased to the Customer by a third party, or if the operation or maintenance of the RGS is to be performed by a third party, the lease and/or maintenance agreements and any pertinent documents related to these agreements shall be provided to OEU.

10. Prior to commencing parallel operation with OEU's electric system, Customer shall have the RGS inspected and approved by the appropriate code authorities having jurisdiction. Customer shall provide a copy of this inspection and approval to OEU.

11. The Customer agrees to permit OEU, if it should so choose, to inspect the RGS and its component equipment and the documents necessary to ensure compliance with this Agreement both before and after the RGS goes into service and to witness the initial testing of the RGS equipment and protective apparatus. OEU will provide Customer with as much notice as reasonably possible, either in writing, email, facsimile or by phone as to when OEU may conduct inspections and or document review. Upon reasonable notice, or at any time without notice in the event of an emergency or hazardous condition, Customer agrees to provide OEU access to the Customer's premises for any purpose in connection with the performance of the obligations required by this Agreement or, if necessary, to meet OEU's legal obligation to provide service to its customers. At least ten (10) business days prior to initially placing the customer-owned renewable generation system in service, Customer shall provide written notification to OEU advising OEU of the date and time at which Customer intends to place the system in service, and OEU shall have the right to have personnel present on the in-service date in order to ensure compliance with the requirements of this Agreement.

(Continued on Sheet No. 22.3)

12. The Customer's RGS must have an appropriately sized grid-tie inverter system that includes applicable protective systems. Customer certifies that the RGS equipment includes a utility-interactive inverter or interconnection system equipment that ceases to interconnect with the OEU system upon a loss of OEU power. The inverter shall be considered certified for interconnected operation if it has been submitted by a manufacturer to a nationally recognized testing laboratory (NRTL) to comply with UL 1741. The NRTL shall be approved by the Occupational Safety & Health Administration (OSHA).

13. If Customer adds another RGS which (i) utilizes the same utility-interactive inverter for both systems; or (ii) utilizes a separate utility-interactive inverter for each system, then Customer shall provide OEU with sixty (60) days advance written notice of the addition.

14. The Customer shall not energize the OEU system when OEU's system is deenergized. The Customer shall cease to energize the OEU system during a faulted condition on the OEU system and/or upon any notice from OEU that the deenergizing of Customer's RGS equipment is necessary. The Customer shall cease to energize the OEU system prior to automatic or non-automatic reclosing of OEU's protective devices. There shall be no intentional islanding, as described in IEEE 1547, between the Customer's and OEU's systems.

15. The Customer is responsible for the protection of its generation equipment, inverters, protection devices, and other system components from damage from the normal and abnormal operations that occur on OEU's electric system in delivering and restoring system power. Customer agrees that any damage to any of its property, including, without limitation, all components and related accessories of its RGS system, due to the normal or abnormal operation of OEU's electric system, is at Customer's sole risk and expense. Customer is also responsible for ensuring that the customer-owned renewable generation equipment is inspected, maintained, and tested regularly in accordance with the manufacturer's instructions to ensure that it is operating correctly and safely.

16. The Customer must install, at their expense, a manual disconnect switch of the visible load break type to provide a separation point between the AC power output of the customer-owned renewable generation system and any Customer wiring connected to OEU's electric system such that back feed from the customer-owned renewable generation system to OEU's electric system cannot occur when the switch is in the open position. The manual disconnect switch shall be mounted separate from the meter socket on an exterior surface adjacent to the meter. The switch shall be readily accessible to OEU and capable of being locked in the open position with an OEU padlock. When locked and tagged in the open position by OEU, this switch will be under the control of OEU.

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17. Subject to an approved inspection, including installation of acceptable disconnect switch, this Agreement shall be executed by OEU within thirty (30) calendar days of receipt of a completed application. Customer must execute this Agreement and return it to OEU at least thirty (30) calendar days prior to beginning parallel operations with OEU's electric system, subject to the requirements of Sections 18 and 19, below, and within one (1) year after OEU executes this Agreement.

18. Once OEU has received Customer's written documentation that the requirements of this Agreement have been met, all agreements and documentation have been received and the correct operation of the manual switch has been demonstrated to an OEU representative, OEU will, within fifteen (15) business days, send written notice that parallel operation of the RGS may commence.

19. OEU requires the Customer to maintain general liability insurance for personal injury and property damage in the amount of not less than one million dollars ($1,000,000.00).

20. OEU will furnish, install, own and maintain metering equipment capable of measuring the flow of kilowatt-hours (kWh) of energy. The Customer's service associated with the RGS will be metered to measure the energy delivered by OEU to Customer, and also measure the energy delivered by Customer to OEU. Customer agrees to provide safe and reasonable access to the premises for installation, maintenance and reading of the metering and related equipment. The Customer shall not be responsible for the cost of the installation and maintenance of the metering equipment necessary to measure the energy delivered by the Customer to OEU.

21. The Customer shall be solely responsible for all legal and financial obligations arising from the design, construction, installation, operation, maintenance and ownership of the RGS.

22. The Customer must obtain all permits, inspections and approvals required by applicable jurisdictions with respect to the generating system and must use a licensed, bonded and insured contractor to design and install the generating system. The Customer agrees to provide OEU with a copy of the local building code official inspection and certification of installation. The certification shall reflect that the local code official has inspected and certified that the installation was permitted, has been approved, and has met all electrical and mechanical qualifications.

23. In no event shall any statement, representation, or lack thereof, either express or implied, by OEU, relieve the Customer of exclusive responsibility for the Customer's system. Specifically, any OUS inspection of the RGS shall not be construed as confirming or endorsing the system design or its operating or maintenance procedures or as a warranty or guarantee as to the safety, reliability, or durability of the RGS. OEU's inspection, acceptance, or its failure to inspect shall not be deemed an endorsement of any RGS equipment or procedure. Further, as set forth in Sections 15 and 26 of this Agreement, Customer shall remain solely responsible for any and all losses, claims, damages and/or expenses related in any way to the operation or misoperation of its RGS equipment.

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24. Notwithstanding any other provision of this Interconnection Agreement, OEU, at its sole and absolute discretion, may isolate the Customer's system from the distribution grid by whatever means necessary, without prior notice to the Customer. To the extent practical, however, prior notice shall be given. The system will be reconnected as soon as practical once the conditions causing the disconnection cease to exist. OEU shall have no obligation to compensate the Customer for any loss of energy during any and all periods when Customer's RGS is operating at reduced capacity or is disconnected from OEU's electrical distribution system pursuant to this Interconnection Agreement. Typical conditions which may require the disconnection of the Customer's system include, but are not limited to, the following:

a. OEU utility system emergencies, forced outages, uncontrollable forces or compliance with prudent electric utility practice.
b. When necessary to investigate, inspect, construct, install, maintain, repair, replace or remove any OEU equipment, any part of OEU's electrical distribution system or Customer's generating system.
c. Hazardous conditions existing on OEU's utility system due to the operation of the Customer's generation or protective equipment as determined by OEU.
d. Adverse electrical effects (such as power quality problems) on the electrical equipment of OEU's other electric consumers caused by the Customer's generation as determined by OEU
e. When Customer is in breach of any of its obligations under this Interconnection Agreement or any other applicable policies and procedures of OEU.
f. When the Customer fails to make any payments due to OEU by the due date thereof.

25. Upon termination of services pursuant to this Agreement, OEU shall open and padlock the manual disconnect switch and remove any additional metering equipment related to this Agreement. At the Customer's expense, within thirty (30) working days following the termination, the Customer shall permanently isolate the RGS and any associated equipment from OEU's electric supply system, notify OEU that the isolation is complete, and coordinate with OEU for return of OEU's lock.

26. To the fullest extent permitted by law, and in return for adequate, separate consideration, Customer shall indemnify, defend and hold harmless OEU, any and all of their members of its governing bodies, and its officers, agents, and employees for, from and against any and all claims, demands, suits, costs of defense, attorneys' fees, witness fees of any type, losses, damages, expenses, and liabilities, whether direct, indirect or consequential, related to, arising from, or in any way connected with:

a. Customer's design, construction, installation, inspection, maintenance, testing or operation of Customer's generating system or equipment used in connection with this Interconnection Agreement, irrespective of any fault on the part of OEU.

(Continued on Sheet No. 22.6)

b. The interconnection of Customer's generating system with, and delivery of energy from the generating system to, OEU's electrical distribution system, irrespective of any fault on the part of OEU.
c. The performance or nonperformance of Customer's obligations under this Interconnection Agreement or the obligations of any and all of the members of Customer's governing bodies and its officers, contractors (and any subcontractor or material supplier thereof), agents and employees.

Customer's obligations under this Section shall survive the termination of this Interconnection Agreement.

27. Customer shall not have the right to assign its benefits or obligations under this Agreement without OEU's prior written consent and such consent shall not be unreasonably withheld. If there is a change in ownership of the RGS, Customer shall provide written notice to OEU at least thirty (30) days prior to the change in ownership. The new owner will be required to assume, in writing, the Customer's rights and duties under this Agreement, or execute a new Standard Interconnection Agreement. The new owner shall not be permitted to net meter or begin parallel operations until the new owner assumes this Agreement or executes a new Agreement.

28. This Agreement supersedes all previous agreements and representations either written or verbal heretofore made between OEU and Customer with respect to matters herein contained. This Agreement, when duly executed, constitutes the only Agreement between parties hereto relative to the matters herein described. This Agreement shall continue in effect from year to year until either party gives sixty (60) days notice of its intent to terminate this Agreement.

29. This Agreement shall be governed by and construed and enforced in accordance with the laws, rules and regulations of the State of Florida and OEU's tariff as it may be modified, changed, or amended from time to time, including any amendments modification or changes to OEU's Net-Metering Service Rate Schedule, the schedule applicable to this Agreement. The Customer and OEU agree that any action, suit, or proceeding arising out of or relating to this Interconnection Agreement shall be initiated and prosecuted in the state court of competent jurisdiction located in Marion County, Florida, and OEU and the Customer irrevocably submit to the jurisdiction and venue of such court. To the fullest extent permitted by law, each Party hereby irrevocably waives any and all rights to a trial by jury and covenants and agrees that it will not request a trial by jury with respect to any legal proceeding arising out of or relating to this Interconnection Agreement.

None of the provisions of this Interconnection Agreement shall be considered waived by either Party except when such waiver is given in writing. No waiver by either Party of any one or more defaults in the performance of the provisions of this Interconnection Agreement shall operate or be construed as a waiver of any other existing or future default or defaults. If any one or more of the provisions of this Interconnection Agreement or the applicability of any provision to a

(Continued on Sheet No. 22.7)

specific situation is held invalid or unenforceable, the provision shall be modified to the minimum extent necessary to make it or its application valid and enforceable, and the validity and enforceability of all other provisions of this Interconnection and all other applications of such provisions shall not be affected by any such invalidity or unenforceability. This Interconnection Agreement does not govern the terms and conditions for the delivery of power and energy to non-generating retail customers of OEU's electrical distribution system.

30. This Agreement incorporates by reference the terms of the tariff filed with the Florida Public Service Commission by OEU, including OEU's Net-Metering Service Rate Schedule, and associated technical terms and abbreviations, general rules and regulations and standard electric service requirements (as may be applicable) are incorporated by reference, as amended from time to time. To the extent of any conflict between this Agreement and such tariff, the tariff shall control.

31. OEU and Customer recognize that the Florida Statutes and/or the Florida Public Service Commission Rules, including those directly addressing the subject of this Agreement, may be amended from time to time. In the event that such statutes and/or rules are amended that affect the terms and conditions of this Agreement, OEU and Customer agree to supersede and replace this Agreement with a new Interconnection Agreement which complies with the amended statutes/rules.

32. Customer acknowledges that its provision of electricity to OEU hereunder is on a first-offered first-accepted basis and subject to diminution and/or rejection in the event the total amount of electricity delivered to OEU pursuant to the OEU's Net-Metering Service Rate Schedule (as filed with the Florida Public Service Commission), from all participating OEU customers, exceeds 2.5 percent (%) of the aggregate customer peak demand on OEU's electric system.

33. This Agreement is solely for the benefit of OEU and Customer and no right nor any cause of action shall accrue upon or by reason, to or for the benefit of any third party not a formal party to this Agreement. Nothing in this Agreement, expressed or implied, is intended or shall be construed to confer upon any person or corporation other than OEU or Customer, any right, remedy, or claim under or by reason of this Agreement or any of the provisions or conditions of this Agreement; and, all provisions, representations, covenants, and conditions contained in this Agreement shall inure to the sole benefit of and be binding upon OEU and Customer and their respective representatives, successors, and assigns. Further, no term or condition contained in this Agreement shall be construed in any way as a waiver by OEU of the sovereign immunity applicable to OEU as established by Florida Statutes, 768.28.

(Continued on Sheet No. 22.8)

**IN WITNESS WHEREOF**, Customer and OEU have executed this Agreement the day and year first above written.

**OUS:**

By: Signed by: Janice Mitchell 55198B43858A4E1...

Title: CFO

Date: 4/23/2025

**Customer:**

By: Rebecca S. Villeda
(Print Name)

(Signature)

Date: 2/17/2025

City of Ocala Electric Utility Account Number:
511349-114127

Approved as to form and legality:

DocuSigned by: William E. Sexton B07DCFC4E8BE429...
William E. Sexton, Esq.
City Attorney

**CONTRACT# ELE/250630**

# CERTIFICATE OF INSURANCE

2/17/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES LISTED BELOW.

| | |
|---|---|
| **FLORIDA FARM BUREAU INSURANCE COMPANIES**<br>**P.O. BOX 147030**<br>**GAINESVILLE, FLORIDA 32614-7030** | COMPANIES AFFORDING COVERAGES:<br>Company Letter **A:**<br>**Florida Farm Bureau General Ins. Co.** |
| NAME AND ADDRESS OF INSURED:<br>GARY HELFIN<br>REBECCA VILLEDA<br>4408 SE 15TH ST<br>OCALA FL 34471 | Company Letter **B:**<br>**Florida Farm Bureau Casualty Ins. Co.** |

The policies of insurance listed below have been issued to the insured named above and are in force at this time. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies.

| CO. LTR | TYPE OF INSURANCE | POLICY NUMBER | POLICY EFFECTIVE DATE (MM/DD/YY) | POLICY EXPIRATION DATE (MM/DD/YY) | ALL LIMITS IN **THOUSANDS** | | |
|---|---|---|---|---|---|---|---|
| | **General Liability:**<br>☐ Commercial General Liability (Occurrence Form)<br>☐ Owner's & Contractor's Protective<br>☐ Farmer's Personal Liability | | | | General Aggregate<br>Products-completed operations aggregate<br>Personal & Advertising Injury<br>Each Occurrence<br>Fire Damage (Any one fire)<br>Medical Expense (Any one person) | $<br>$<br>$<br>$<br>$<br>$ | |
| | **Automobile Liability:**<br>☐ Any auto<br>☐ All owned autos<br>☐ Scheduled autos<br>☐ Hired autos<br>☐ Non-owned autos | | | | Combined Single Unit<br>Bodily Injury (Per Person)<br>Bodily Injury (Per Accident)<br>Property Damage | $<br>$<br>$<br>$ | |
| A | **Excess Liability:**<br>☑ Umbrella Form<br>☐ Other than Umbrella form | 8684790 | 02/17/2025 | 02/17/2026 | | Each Occurrence<br>$ 1,000 | Aggregate<br>$ 1,000 |
| | **Employers Liability:**<br>☐ Farm Employer's Liability<br>☐ Farm Employee's Medical | | | | | | $ (Each Occurrence)<br>$ (Each Employee) |
| | Other: | | | | | | $ |

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES:

Umbrella Liability $1,000,000

CANCELLATION: Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 10 days written notice to the below named certificate holder, but failure to mail such notice shall impose no obligation or liability of any kind upon the company.

NAME AND ADDRESS OF CERTIFICATE HOLDER:

COUNTY CODE 42 DATE ISSUED 02/17/25

Serviced by Marion County Farm Bureau

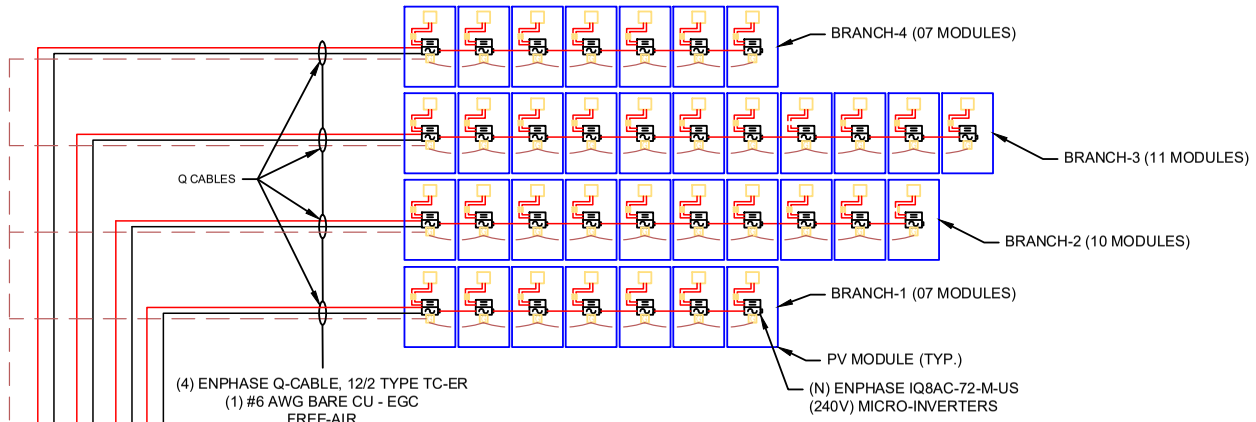
Scott Williams

AUTHORIZED REPRESENTATIVE

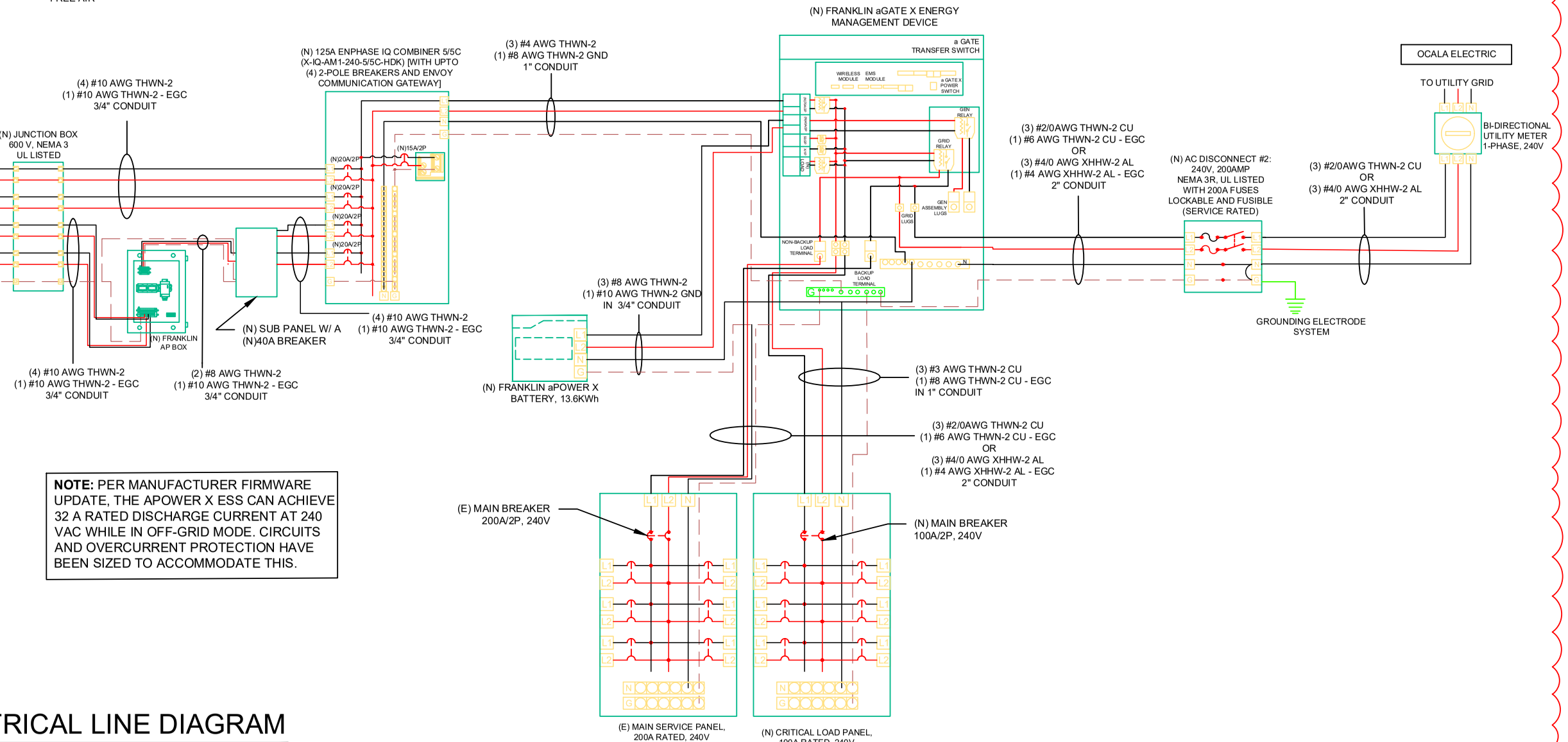
A

**SYSTEM SUMMARY**
DC SYSTEM SIZE: 14.00 kW DC STC
AC SYSTEM SIZE: 12.22 kW AC
(35) LONGI SOLAR: LR5-54HABB-400M (400W) MODULES

(01) BRANCH OF 11 MODULES,
(01) BRANCH OF 10 MODULES &
(02) BRANCHES OF 07 MODULES




**NOTE :-** ALL SERVICE EQUIPMENT SHALL HAVE SURGE PROTECTION PER NEC 230.67.




**NOTE:** PER MANUFACTURER FIRMWARE UPDATE, THE APOWER X ESS CAN ACHIEVE 32 A RATED DISCHARGE CURRENT AT 240 VAC WHILE IN OFF-GRID MODE. CIRCUITS AND OVERCURRENT PROTECTION HAVE BEEN SIZED TO ACCOMMODATE THIS.

1 ELECTRICAL LINE DIAGRAM
E-02 SCALE: NTS

SOLAR TREK

**SOLAR TREK INC.**
3347 SW 7TH ST.,
OCALA, FL 34474

| REVISIONS | | |
|---|---|---|
| DESCRIPTION | DATE | REV |
| CLIENT COMMENT | 03/07/2025 | A |
| | | |
| | | |

DATE : 02/03/2025

PROJECT NAME

REBECCA VILLEDA

4408 SE 15TH ST.,
OCALA, FL 34471

SHEET NAME
ELECTRICAL LINE DIAGRAM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
E-02

Signature with Seal

JEFFREY A. TORRES, PE
FL PE #80379
SUNSMART ENGINEERING LLC
FL COA #35170
255 PRIMERA BLVD, SUITE 160
LAKE MARY, FL 32746
(866) SUN-8655

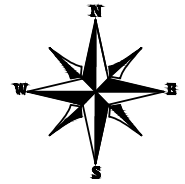
CONTRACT# ELE/250630

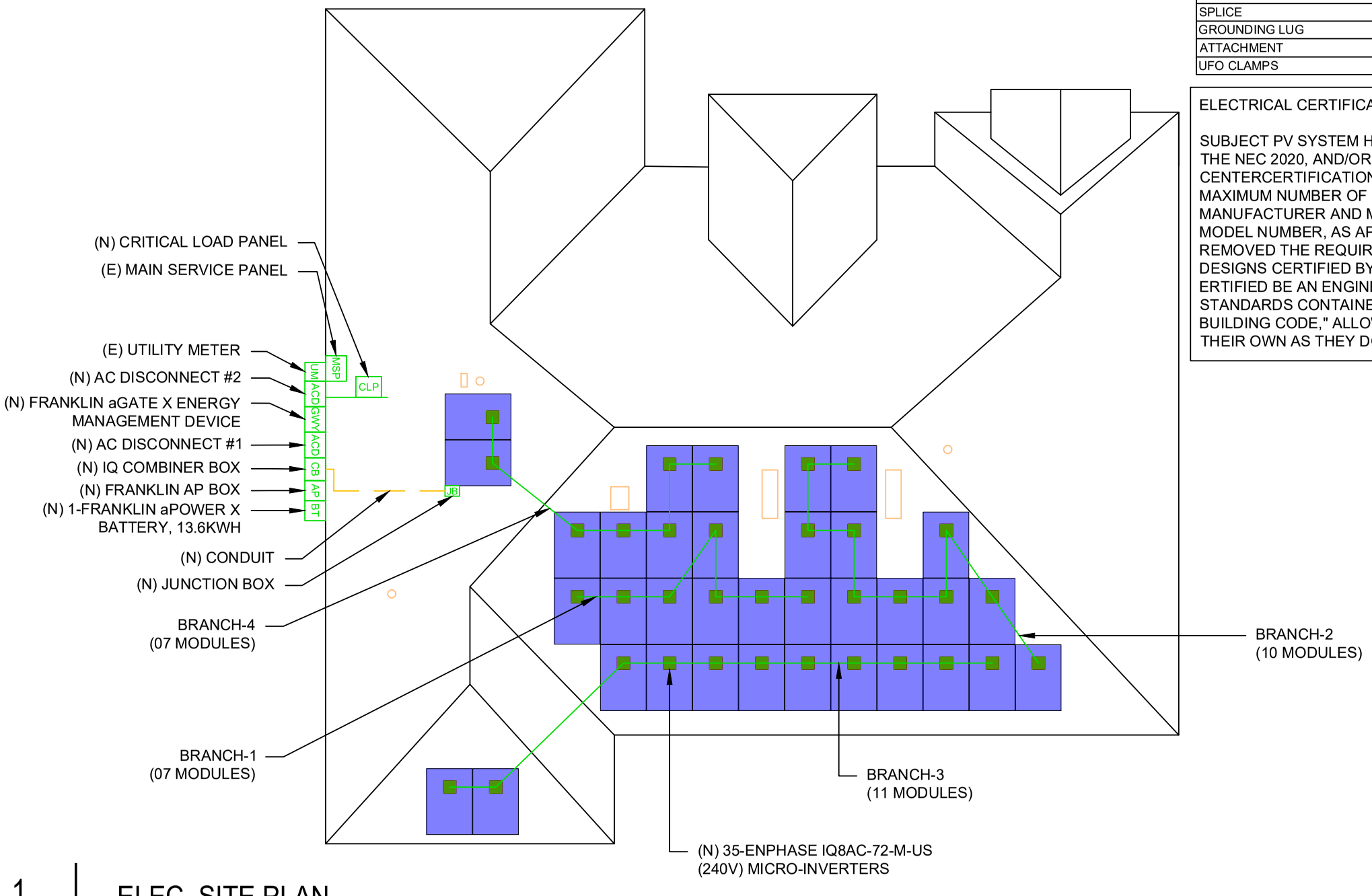
**SYSTEM SUMMARY**
DC SYSTEM SIZE: 14.00 kW DC STC
AC SYSTEM SIZE: 12.22 kW AC
(35) LONGI SOLAR: LR5-54HABB-400M (400W) MODULES

(01) BRANCH OF 11 MODULES,
(01) BRANCH OF 10 MODULES &
(02) BRANCHES OF 07 MODULES

# SE 15TH ST.

## (E) FRONT YARD




## (E) BACK YARD

1 ELEC. SITE PLAN
E-01 SCALE:1"=10'-0"

| BILL OF MATERIALS | | |
|---|---|---|
| EQUIPMENT | QTY | DESCRIPTION |
| SOLAR PV MODULE | 35 | LONGI SOLAR: LR5-54HABB-400M (400W) MODULES |
| MICRO INVERTER | 35 | ENPHASE IQ8AC-72-M-US (240V) MICRO INVERTERS |
| AP BOX | 1 | FRANKLIN AP BOX |
| AC DISCONNECT #2 | 1 | 200A RATED, FUSED AC DISCONNECT WITH 125A FUSES |
| AC DISCONNECT #1 | 1 | 100A RATED, NON-FUSED AC DISCONNECT |
| CRITICAL LOAD PANEL | 1 | 125A RATED CRITICAL LOAD PANEL |
| IQ COMBINER BOX | 1 | ENPHASE IQ COMBINER BOX (X-IQ-AM1-240-5/5C-HDK) |
| GATEWAY | 1 | FRANKLIN aGATE X ENERGY MANAGEMENT DEVICE |
| BATTERY | 1 | FRANKLIN aPOWER X BATTERY, 13.6KWH |
| BREAKER | 2 | 20A/2P BREAKER |
| BREAKER | 1 | 15A/2P BREAKER |
| BREAKER | 1 | 40A/2P BREAKER |
| BREAKER | 1 | 30A/2P BREAKER |
| BREAKER | 1 | 70A/2P BREAKER |
| BREAKER | 1 | 125A/2P BREAKER |
| RAIL | 19 | IRONRIDGE XR100 RAIL, 168" |
| SPLICE | 10 | SPLICE KIT |
| GROUNDING LUG | 18 | GROUNDING LUG |
| ATTACHMENT | 72 | IRONRIDGE FLASHFOOT 2 PV ROOF ATTACHMENT |
| UFO CLAMPS | 88 | UFO CLAMPS |

ELECTRICAL CERTIFICATION STATEMENT:

SUBJECT PV SYSTEM HAS BEEN DESIGNED TO MEET THE REQUIREMENTS OF THE NEC 2020, AND/OR THOSE SET FORTH BY THE FLORIDA SOLAR ENERGY CENTERCERTIFICATION, INCLUDING MAXIMUM NUMBER OF MODULE STRINGS. MAXIMUM NUMBER OF MODULES PER STRING, MAXIMUM OUTPUT, MODULE MANUFACTURER AND MODEL NUMBER, INVERTER MANUFACTURER AND MODEL NUMBER, AS APPLICABLE. HB1021 AMENDED F.S. 377.05 IN 2017 REMOVED THE REQUIREMENT FOR DESIGNERS TO HAVE THEIR SYSTEM DESIGNS CERTIFIED BY FSEC. THE VERBIAGE .... UNLESS OTHERWISE ERTIFIED BE AN ENGINEER LICENSED PURSUANT TO CHAPTER 471 USING THE STANDARDS CONTAINED IN THE MOST RECENT VERSION OF THE FLORIDA BUILDING CODE," ALLOWS LICENSED ENGINEERS TO DESIGN PV SYSTEMS ON THEIR OWN AS THEY DO IN ALL OTHER TRADES.

## LEGEND

| | |
|---|---|
| BT | - BATTERY |
| FEP | - FHP EMERGENCY POWER OFF |
| CLP | - CRITICAL LOAD PANEL |
| AP | - AP BOX |
| GWY | - FRANKLIN aGATE |
| MSP | - MAIN SERVICE PANEL |
| UM | - UTILITY METER |
| ACD | - AC DISCONNECT |
| CB | - IQ COMBINER BOX |
| JB | - JUNCTION BOX |
| | - ROOF OBSTRUCTION |
| | - MICRO INVERTER |
| | - CONDUIT |


SOLAR TREK

**SOLAR TREK INC.**
3347 SW 7TH ST.,
OCALA, FL 34474


| REVISIONS | | |
|---|---|---|
| DESCRIPTION | DATE | REV |
| | | |
| | | |
| | | |

DATE : 02/03/2025

PROJECT NAME

REBECCA VILLEDA

4408 SE 15TH ST.,
OCALA, FL 34471

SHEET NAME
ELECTRICAL SITE PLAN & BOM

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
E-01

Signature with Seal


JEFFREY A. TORRES, PE
FL PE #80379
SUNSMART ENGINEERING LLC
FL COA #35170
255 PRIMERA BLVD, SUITE 160
LAKE MARY, FL 32746
(866) SUN-8655


CONTRACT# ELE/250630

ENPHASE.

DATA SHEET

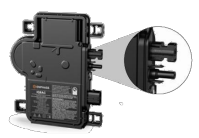

# IQ8AC Microinverter

Our newest IQ8 Series Microinverters are the industry's first microgrid-forming*, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC), which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55 nm technology with high-speed digital logic and has superfast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.

Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the IQ Battery, IQ Gateway, and the Enphase App monitoring and analysis software.

Enphase 25 year limited warranty

IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to the IQ8 Series Microinverters that have integrated MC4 connectors.

UL CERTIFIED SAFETY

IQ8 Series Microinverters are UL Listed as PV rapid shutdown equipment and conform with various regulations when installed according to the manufacturer's instructions.

*Meets UL 1741 only when installed with IQ System Controller 2 or 3.



**Easy to install**

- Lightweight and compact with plug-and-play connectors
- Power line communication (PLC) between components
- Faster installation with simple two-wire cabling

**High productivity and reliability**

- Produces power even when the grid is down*
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

**Microgrid-forming**

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) and IEEE 1547:2018 (UL 1741-SB)

**NOTE:**

- IQ8 Series Microinverters cannot be mixed together with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, and so on) in the same system.
- IQ Microinverters ship with default settings that meet North America's IEEE 1547 interconnection standard requirements. Region-specific adjustments may be requested by an Authority Having Jurisdiction (AHJ) or utility representative according to the IEEE 1547 interconnection standard. An IQ Gateway is required to make these changes during installation.



## IQ8AC Microinverter

| INPUT DATA (DC) | UNITS | IQ8AC-72-M-US |
|---|---|---|
| Commonly used module pairings [1] | W | 295–500 |
| Module compatibility | – | To meet compatibility, PV modules must be within the maximum input DC voltage and maximum module $I_{sc}$ listed below. Module compatibility can be checked at https://enphase.com/installers/microinverters/calculator. |
| MPPT voltage range | V | 28–45 |
| Operating range | V | 18–58 |
| Minimum/Maximum start voltage | V | 22/58 |
| Max. input DC voltage | V | 60 |
| Max. continuous input DC current | A | 14 |
| Max. input DC short-circuit current | A | 25 |
| Max. module ($I_{sc}$) | A | 20 |
| Overvoltage class DC port | – | II |
| DC port backfeed current | mA | 0 |
| PV array configuration | – | Ungrounded array; no additional DC side protection required; AC side protection requires max 20 A per branch circuit |

| OUTPUT DATA (AC) | UNITS | IQ8AC-72-M-US @240 VAC | IQ8AC-72-M-US @208 VAC |
|---|---|---|---|
| Peak output power | VA | 366 | 350 |
| Max. continuous output power | VA | 349 | 345 |
| Nominal grid voltage (L-L) | V | 240, split-phase (L-L), 180° | 208, single-phase (L-L), 120° |
| Minimum and maximum grid voltage [2] | V | 211-264 | 183-229 |
| Max. continuous output current | A | 1.45 | 1.66 |
| Nominal frequency | Hz | 60 | |
| Extended frequency range | Hz | 47-68 | |
| AC short circuit fault current over three cycles | Arms | 2.70 | |
| Max. units per 20 A (L-L) branch circuit [3] | – | 11 | 9 |
| Total harmonic distortion | % | < 5 | |
| Overvoltage class AC port | – | III | |
| AC port backfeed current | mA | 18 | |
| Power factor setting | – | 1.0 | |
| Grid-tied power factor (adjustable) | – | 0.85 leading ... 0.85 lagging | |
| Peak efficiency | % | 97.3 | 97.2 |
| CEC weighted efficiency | % | 97.0 | 96.5 |
| Nighttime power consumption | mW | 30 | 22 |

| MECHANICAL DATA | UNITS |
|---|---|
| Ambient temperature range | -40°C to 65°C (-40°F to 149°F) |
| Relative humidity range | 4% to 100% (condensing) |
| DC connector type | Stäubli MC4 |
| Dimensions (H × W × D); Weight | 212 mm (8.3") × 175 mm (6.9") × 30.2 mm (1.2"); 1.1 kg (2.43 lbs) |
| Cooling | Natural convection – no fans |
| Approved for wet locations; Pollution degree | Yes; PD3 |
| Enclosure | Class II double-insulated, corrosion-resistant polymeric enclosure |
| Environ. category; UV exposure rating | NEMA Type 6; outdoor |

| COMPLIANCE | |
|---|---|
| Certifications | CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547:2018 (UL 1741-SB), FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01<br>This product is UL Listed as PV rapid shutdown equipment and conforms with NEC 2014, NEC 2017, NEC 2020 and NEC 2023 section 690.12 and C22.1-2018 Rule 64-218 rapid shutdown of PV systems for AC and DC conductors when installed according to manufacturer's instructions. |

(1) No enforced DC/AC ratio.
(2) Nominal voltage range can be extended beyond nominal if required by the utility.
(3) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

IQ8AC-MC4-DSH-00046-4.0-EN-US-2024-02-09

SOLAR TREK

**SOLAR TREK INC.**
3347 SW 7TH ST.,
OCALA, FL 34474

| REVISIONS | | |
|---|---|---|
| DESCRIPTION | DATE | REV |
| | | |
| | | |
| | | |

DATE : 02/03/2025

PROJECT NAME

REBECCA VILLEDA
4408 SE 15TH ST.,
OCALA, FL 34471

SHEET NAME
MICROINVERTER DATA SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
DS-02

Signature with Seal

JEFFREY A. TORRES, PE
FL PE #80379
SUNSMART ENGINEERING LLC
FL COA #35170
255 PRIMERA BLVD, SUITE 160
LAKE MARY, FL 32746
(866) SUN-8655

CONTRACT# ELE/250630

ENPHASE.

DATA SHEET


X-IQ-AM1-240-5-HDK
X-IQ-AM1-240-5C-HDK
X-IQ-AM1-240-5
X-IQ-AM1-240-5C

# IQ Combiner 5/5C

The IQ Combiner 5/5C consolidates interconnection equipment into a single enclosure and streamlines IQ Series Microinverters and IQ Gateway installation by providing a consistent, pre-wired solution for residential applications. IQ Combiner 5/5C uses wired control communication and is compatible with IQ System Controller 3/3G and IQ Battery 5P.

The IQ Combiner 5/5C, IQ Series Microinverters, IQ System Controller 3/3G, and IQ Battery 5P provide a complete grid-agnostic Enphase Energy System.

**IQ Series Microinverters**
The high-powered smart grid-ready IQ Series Microinverters (IQ6, IQ7, and IQ8 Series) simplify the installation process.

**IQ System Controller 3/3G**
Provides microgrid interconnection device (MID) functionality by automatically detecting grid failures and seamlessly transitioning the home energy system from grid power to backup power.

**IQ Battery 5P**
Fully integrated AC battery system. Includes six field-replaceable IQ8D-BAT Microinverters.

**IQ Load Controller**
Helps prioritize essential appliances during a grid outage to optimize energy consumption and prolong battery life.

Enphase 5 year limited warranty

5-year limited warranty

NOM

UL CERTIFIED SAFETY US-CA SURETE US-CA E341166

**Smart**

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect (CELLMODEM-M1-06-SP-05), only with IQ Combiner 5C
- Supports flexible networking: Wi-Fi, Ethernet, or cellular
- Provides production metering (revenue grade) and consumption monitoring

**Easy to install**

- Mounts to one stud with centered brackets
- Supports bottom, back, and side conduit entries
- Supports up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV branch circuits
- Factory installed hold-down kit
- Bluetooth-based Wi-Fi provisioning for easy Wi-Fi setup

**Reliable**

- Durable NRTL-certified NEMA type 3R enclosure
- 5-year limited warranty
- 2-year labor reimbursement program coverage included for IQ Combiner SKUs*
- UL1741 Listed

*For country-specific warranty information, see the https://enphase.com/installers/resources/warranty page.





## IQ Combiner 5/5C

| MODEL NUMBER | |
|---|---|
| IQ Combiner 5<br>(X-IQ-AM1-240-5/ X-IQ-AM1-240-5-HDK) | IQ Combiner 5 with IQ Gateway printed circuit board for integrated revenue-grade PV production metering (ANSI C12.20 ±0.5%), consumption monitoring (±2.5%), and IQ Battery monitoring (±2.5%). Includes a silver solar shield to deflect heat.<br>IQ-AM1-240-5-HDK includes a factory installed hold-down kit compatible with all the circuit breakers mentioned in the **Accessories and Replacement Parts** section. |
| IQ Combiner 5C<br>(X-IQ-AM1-240-5C / X-IQ-AM1-240-5C-HDK) | IQ Combiner 5C with IQ Gateway printed circuit board for integrated revenue-grade PV production metering (ANSI C12.20 ±0.5%), consumption monitoring (±2.5%), and IQ Battery monitoring (±2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05)[1]. Includes a silver solar shield to deflect heat.<br>IQ-AM1-240-5C-HDK includes a factory installed hold-down kit compatible with all the circuit breakers mentioned in the **Accessories and Replacement Parts** section. |
| **WHAT'S IN THE BOX** | |
| IQ Gateway printed circuit board | IQ Gateway is the platform for total energy management for comprehensive, remote maintenance, and management of the Enphase Energy System |
| Busbar | 80 A busbar with support for one IQ Gateway breaker and four 20 A breakers for installing IQ Series Microinverters and IQ Battery 5P |
| IQ Gateway breaker | Circuit breaker, 2-pole, 10 A/15 A |
| Production CT | Pre-wired revenue-grade solid-core CT, accurate up to ±0.5% |
| Consumption CT | Two consumption metering clamp CTs, shipped with the box, accurate up to ±2.5% |
| IQ Battery CT | One battery metering clamp CT, shipped with the box, accurate up to ±2.5% |
| CTRL board | Control board for wired communication with IQ System Controller 3/3G and the IQ Battery 5P |
| Enphase Mobile Connect (only with IQ Combiner 5C) | 4G-based LTE-M1 cellular modem (CELLMODEM-M1-06-SP-05) with a 5-year T-Mobile data plan |
| Accessories kit | Spare control headers for the COMMS-KIT-2 board |
| **ACCESSORIES AND REPLACEMENT PARTS (NOT INCLUDED, ORDER SEPARATELY)** | |
| CELLMODEM-M1-06-SP-05 | 4G-based LTE-M1 cellular modem with a 5-year T-Mobile data plan |
| CELLMODEM-M1-06-AT-05 | 4G-based LTE-M1 cellular modem with a 5-year AT&T data plan |
| Circuit breakers (off-the-shelf) | Supports Eaton BR2XX, Siemens Q2XX, and GE/ABB THQL21XX Series circuit breakers (XX represents 10, 15, 20, 30, 40, 50, or 60). Also supports Eaton BR220B, BR230B, and BR240B circuit breakers compatible with the hold-down kit. |
| Circuit breakers (provided by Enphase) | BRK-10A-2-240V, BRK-15A-2-240V, BRK-20A-2P-240V, BRK-15A-2P-240V-B, and BRK-20A-2P-240V-B (more details in the "Accessories" section) |
| XA-SOLARSHIELD-ES | Replacement solar shield for IQ Combiner 5/5C |
| XA-ENV2-PCBA-5 | IQ Gateway replacement printed circuit board (PCB) for IQ Combiner 5/5C |
| X-IQ-NA-HD-125A | Hold-down kit compatible with Eaton BR-B Series circuit breakers (with screws). Not required for X-IQ-AM1-240-5-HDK/X-IQ-AM1-240-5C-HDK. |
| XA-COMMS2-PCBA-5 | Replacement COMMS-KIT-2 printed circuit board (PCB) for IQ Combiner 5/5C |
| **ELECTRICAL SPECIFICATIONS** | |
| Rating | 80 A |
| System voltage and frequency | 120/240 VAC or 120/208 VAC, 60 Hz |
| Busbar rating | 125 A |
| Fault current rating | 10 kAIC |
| Maximum continuous current rating (input from PV/ storage) | 64 A |
| Branch circuits (solar and/or storage) | Up to four 2-pole Eaton BR, Siemens Q, or GE/ABB THQL Series distributed generation (DG) breakers only (not included) |
| Maximum total branch circuit breaker rating (input) | 80 A of distributed generation/95 A with IQ Gateway breaker included |
| IQ Gateway breaker | 10 A or 15 A rating GE/Siemens/Eaton included |
| Production metering CT | 200 A solid core pre-installed and wired to IQ Gateway |

[1] A plug-and-play industrial-grade cell modem for systems of up to 60 microinverters. Available in the United States, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.

IQC-5-5C-DSH-00007-6.0-EN-US-2024-09-30

SOLAR TREK

**SOLAR TREK INC.**
3347 SW 7TH ST.,
OCALA, FL 34474

| REVISIONS | | |
|---|---|---|
| DESCRIPTION | DATE | REV |
| | | |
| | | |
| | | |

DATE : 02/03/2025

PROJECT NAME

REBECCA VILLEDA
4408 SE 15TH ST.,
OCALA, FL 34471

SHEET NAME
COMBINER DATA SHEET-1

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
DS-03

Signature with Seal

JEFFREY A. TORRES, PE
FL PE #80379
SUNSMART ENGINEERING LLC
FL COA #35170
255 PRIMERA BLVD, SUITE 160
LAKE MARY, FL 32746
(866) SUN-8655

CONTRACT# ELE/250630

| ACCESSORIES AND REPLACEMENT PARTS (NOT INCLUDED, ORDER SEPARATELY) | |
|---|---|
| Consumption monitoring CT (CT-200-CLAMP) | A pair of 200 A clamp-style current transformers is included with the box |
| IQ Battery metering CT | 200 A clamp-style current transformer for IQ Battery metering, included with the box |
| **MECHANICAL DATA** | |
| Dimensions (W × H × D) | 37.5 cm × 49.5 cm × 16.8 cm (14.75" × 19.5" × 6.63").<br>Height is 53.5 cm (21.06") with mounting brackets. |
| Weight | 7.5 kg (16.5 lb) |
| Ambient temperature range | -40°C to 46°C (-40°F to 115°F) |
| Cooling | Natural convection, plus heat shield |
| Enclosure environmental rating | Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction |
| Wire sizes | • 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors<br>• 60 A breaker branch input: 4 to 1/0 AWG copper conductors<br>• Main lug combined output: 10 to 2/0 AWG copper conductors<br>• Neutral and ground: 14 to 1/0 copper conductors<br>• Always follcw local code requirements for conductor sizing |
| Communication (in-premise connectivity) | Built-in CTRL board for wired communication with the IQ Battery 5P and the IQ System Controller 3/3G. Integrated power line communication for IQ Series Microinverters. |
| Altitude | Up to 2,600 meters (8,530 feet) |
| **COMMUNICATION INTERFACES** | |
| Integrated Wi-Fi | 802.11b/g/n (dual band 2.4 GHz/5 GHz) for connecting the Enphase Cloud through the internet. |
| Wi-Fi range (recommended) | 10 m (32.8 feet) |
| Bluetooth | BLE4.2, 10 m range to configure Wi-Fi SSID |
| Ethernet | Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included) for connecting to the Enphase Cloud through the internet. |
| Cellular/Mobile Connect | CELLMODEM-M1-06-SP-05 or CELLMODEM-M1-06-AT-05 (included with the IQ Combiner 5C) |
| Digital I/O | Digital input/output for grid operator control |
| USB 2.0 | Mobile Connect, COMMS-KIT-01 for IQ Battery 3/3T/10/10T, COMMS-KIT-02 for IQ Battery 5P |
| Access point (AP) mode | For connection between the IQ Gateway and a mobile device running the Enphase Installer App |
| Metering ports | Up to two Consumption CTs, one IQ Battery CT, and one Production CT |
| Power line communication | 90–110 kHz |
| Web API | See https://developer-v4.enphase.com |
| Local API | See Guide for local API |
| **COMPLIANCE** | |
| IQ Combiner with IQ Gateway | UL 1741, CAN/CSA C22.2 No. 107.1, Title 47 CFR, Part 15, Class B, ICES 003, NOM-208-SCFI-2016, UL 61010-1, CAN/CSA 22.2 No. 61010-1, IEEE 1547: 2018 (UL 1741-SB, 3rd Ed.), IEEE 2030.5/CSIP Compliant, Production metering: ANSI C12.20 accuracy class 0.5 (PV production) |

| COMPATIBILITY | | |
|---|---|---|
| PV | Microinverters | IQ6, IQ7, and IQ8 Series Microinverters |
| COMMS-KIT-01[2] | IQ System Controller | EP200G101-M240US00 |
| | IQ System Controller 2 | EP200G101-M240US01 |
| | IQ Battery | ENCHARGE-3-1P-NA, ENCHARGE-10-1P-NA, ENCHARGE-3T-1P-NA, ENCHARGE-10T-1P-NA |
| COMMS-KIT-02[3] | IQ System Controller 3 | SC200D111C240US01, SC200G111C240US01 |
| | IQ Battery | IQBATTERY-5P-1P-NA |

[2] For information about IQ Combiner 5/5C compatibility with the 2nd-generation batteries, refer to the compatibility matrix.
[3] IQ Combiner 5/5C comes pre-equipped with COMMS-KIT-02.



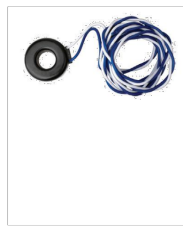
# Accessories

**Mobile Connect**

4G-based LTE-M1 cellular modem with a 5-year data plan (CELLMODEM-M1-06-SP-05 for T-Mobile and CELLMODEM-M1-06-AT-05 for AT&T)

**Circuit breakers**

BRK-10A-2-240V Circuit breaker, 2-pole, 10 A, Eaton BR210
BRK-15A-2-240V Circuit breaker, 2-pole, 15 A, Eaton BR215
BRK-20A-2P-240V Circuit breaker, 2-pole, 20 A, Eaton BR220
BRK-15A-2P-240V-B Circuit breaker, 2-pole, 15 A, Eaton BR215B with hold-down kit support
BRK-20A-2P-240V-B Circuit breaker, 2-pole, 20 A, Eaton BR220B with hold-down kit support



**CT-200-SOLID**

200 A revenue-grade solid-core Production CT with <0.5% error rate (replacement SKU)

**CT-200-CLAMP**

200 A clamp-style consumption and battery metering CT with <2.5% error rate (replacement SKU)

IQC-5-5C-DSH-00007-6.0-EN-US-2024-09-30

SOLAR TREK

**SOLAR TREK INC.**
3347 SW 7TH ST.,
OCALA, FL 34474

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|---|---|---|
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| | | |

DATE : 02/03/2025

PROJECT NAME

REBECCA VILLEDA

4408 SE 15TH ST.,
OCALA, FL 34471

SHEET NAME
COMBINER DATA SHEET-2

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
DS-04

Signature with Seal

JEFFREY A. TORRES, PE
FL PE #80379
SUNSMART ENGINEERING LLC
FL COA #35170
255 PRIMERA BLVD, SUITE 160
LAKE MARY, FL 32746
(866) SUN-8655

CONTRACT# ELE/250630

FRANKLINWH

# aGate

## Intelligent energy management system

The aGate serves as the controller for all home power sources by interconnecting solar, grid, batteries, and a standby generator to supply electricity to the home. It seamlessly transitions the home supply from grid power to backup power so that always-on appliances, such as the refrigerator and network router, will not be affected when the grid goes down.

The aGate can be installed at the service entrance, connected to the main load center, or used as a load center.


### Robust

- Micro-grid interconnect device (MID)
- EMS Integrated PV and grid metering
- UL1741 certified PCS function & 280A busbar to avoid Main Panel Upgrades
- 12-year limited warranty

### Hassle-free

- Precise control of electricity usage through Smart Circuits Module
- Standby generator integration via generator module
- Remarkable black start function ensures battery charge after a prolonged outage or extended trip
- Vehicle to loads (V2L) function to power essential home appliances during an emergency
- Commissioning through the aGate Wifi hotspot or Bluetooth

### Flexible

- Compatible with micro and string solar inverter
- Indoor and outdoor / wall-mounted

### Easy installation

- Built-in design Smart Circuits and Generator Modules
- Conduit entry options from the bottom, left, or right

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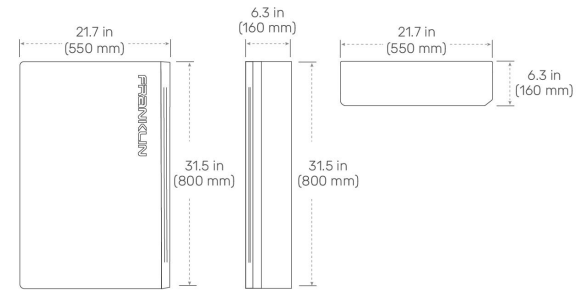
## PERFORMANCE SPECIFICATIONS

| | |
|---|---|
| Model Number | aGate X |
| Coupling | AC-coupled |
| Nominal AC Voltage | 120 / 208 V, 120 / 240 V, 60 Hz |
| Phase | 2 W+N+PE |
| aPower Over Current Protection Device | 125 A Max |
| Solar Input Over Current Protection Device | 80 A Max |
| Backup Load Port Over Current Protection Device | 200 A Max |
| Generator Over Current Protection Device[1] | 200 A Max |
| Smart Circuits Over Current Protection Device[2] | Opt. a 1 × 80 A Max @ 208 V / 240 V & 1 × 50 A Max @ 208 V / 240 V<br>Opt. b 1 × 80 A Max @ 208 V / 240 V & 2 × 50 A Max @ 120 V |
| Maximum Supply Fault Current | 22 kA |
| Busbar Rating | 280 A |
| Work Modes | Self-Consumption, Time of Use, Emergency Backup |
| Communications | Ethernet / 4G / Wifi /Bluetooth |
| User Interface | FranklinWH App |
| Warranty | 12-year limited |

## MECHANICAL SPECIFICATIONS

| | |
|---|---|
| Dimensions (H × W × D) | 31.5 in × 21.7 in × 6.3 in<br>(800 mm × 550 mm × 160 mm) |
| Weight | 38.6 lb (17.5 kg) |
| Mounting | Wall mount |




1. Generator Module is optional.
2. Smart Circuit Module is optional.

## COMPLIANCE INFORMATION

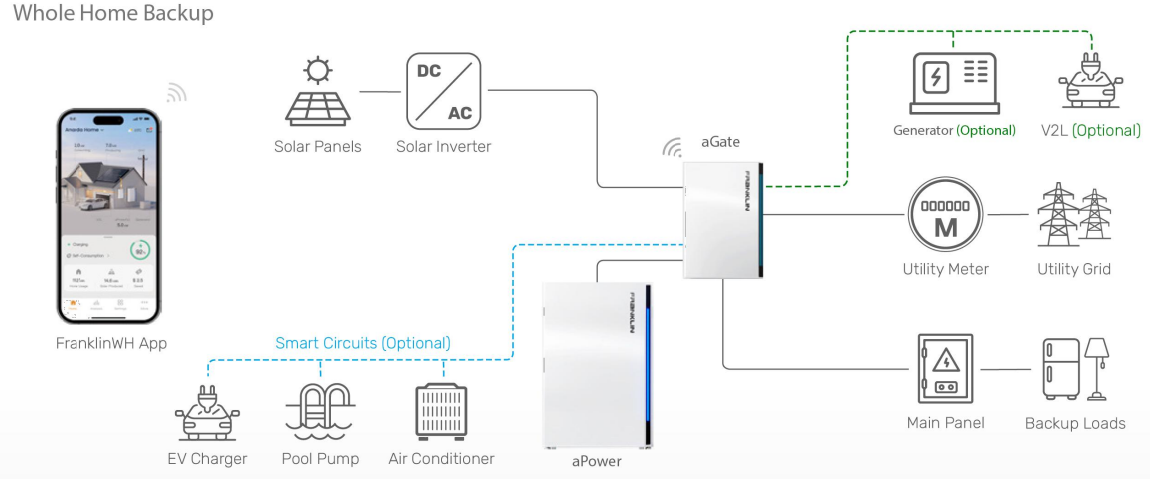
| | |
|---|---|
| Certifications | UL 1741, UL 1741 PCS, UL 67, UL 869A, UL 916, CAN / CSA C22.2 No. 107.1-16, CSA C22.2 No. 29, CSA C22.2 No. 0.19 |
| Seismic | AC 156, OSHPD, IEEE 693-2005 (high) |
| Environmental | California Proposition 65<br>RoHS Directive 2011 / EU |
| Emissions | FCC Part 15 Class B, ICES 003 |

## ENVIRONMENTAL SPECIFICATIONS

| | |
|---|---|
| Enclosure Type | NEMA 3R |
| Operating Temperature | -4°F to 122°F (-20°C to 50°C) |
| Operating Humidity (RH) | Up to 100% RH, condensing |
| Altitude | Maximum 9,843 ft (3,000 m) |
| Environment | Indoor and outdoor rated |

## Franklin Home Power Solution

Whole Home Backup

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SOLAR TREK

**SOLAR TREK INC.**
3347 SW 7TH ST.,
OCALA, FL 34474

| REVISIONS | | |
|---|---|---|
| DESCRIPTION | DATE | REV |
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| | | |

DATE : 02/03/2025

PROJECT NAME

REBECCA VILLEDA

4408 SE 15TH ST.,
OCALA, FL 34471

SHEET NAME
aGATE
DATA SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
DS-05

Signature with Seal

JEFFREY A. TORRES, PE
FL PE #80379
SUNSMART ENGINEERING LLC
FL COA #35170
255 PRIMERA BLVD, SUITE 160
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(866) SUN-8655



CONTRACT# ELE/250630

FRANKLINWH

# aPower

## AC-coupled battery

Store solar generated power while the sun is shining. Use the stored energy when needed to lower electric bills. Run heavy loads such as air conditioners and water heaters as usual even during grid outages. Provide homeowner peace of mind by fully charging before severe weather events.

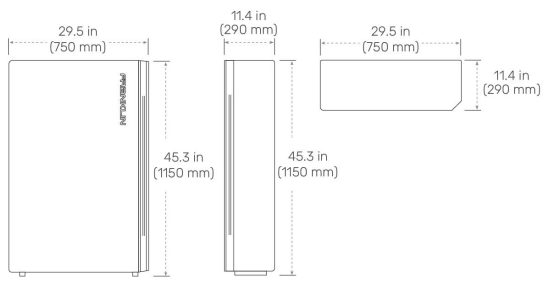

- ✓ Safe LFP chemistry
- ✓ Built-in inverter
- ✓ 13.6 kWh per unit, up to 204 kWh (15 units) per aGate
- ✓ 5 kW continuous / 10 kW peak for 10s (discharge)
- ✓ Normal operations down to -4°F (-20°C)
- ✓ IP67 protection
- ✓ Single aPower capable of starting a 4-Ton AC
- ✓ First-of-its-kind 208 V compliant battery for multi-family housing

### PERFORMANCE SPECIFICATIONS

| | |
|---|---|
| Model Number | aPower X |
| Battery Chemistry | Lithium Iron Phosphate (LFP) |
| Usable System Energy | 13.6 kWh per unit, up to 15 units[1] per aGate |
| Aggregate Throughput | 43 MWh |
| Real Power (charge) | 5 kW continuous, 7.6 kW peak for 30 minutes |
| Real Power (discharge) | 5 kW continuous, 10 kW peak for 10 seconds |
| Load Start Capability | 118 A LRA[2] |
| Nominal AC Voltage | 120 / 208 V, 120 / 240 V, 60 Hz |
| Coupling | AC-coupled |
| Phase | 2 W+N+PE |
| Round Trip Efficiency | 89%[3] |
| Work Modes | Self-Consumption, Time of Use, Emergency Backup |
| Noise Emission | <30 dB (A)[4] |
| User Interface | FranklinWH App |
| Warranty | 12 years |

### MECHANICAL SPECIFICATIONS

| | |
|---|---|
| Dimensions (H × W × D) | 45.3 in × 29.5 in × 11.4 in (1150 mm × 750 mm × 290 mm) |
| Weight | 395 lb (179 kg) |
| Mounting | Wall mount or floor mount |
| Cooling | Natural air-cooled design |




### COMPLIANCE INFORMATION

| | |
|---|---|
| Certifications | UL 9540, UL 9540A, UL 1741, UL 1973, IEEE 1547, IEEE 1547.1, UN 38.3,CAN/CSA C22.2 No. 107.1-16 |
| Seismic | AC 156, OSHPD, IEEE 693-2005 (high) |
| Environmental | California Proposition 65<br>RoHS Directive 2011 / EU |
| Emissions | FCC Part 15 Class B, ICES 003 |

### ENVIRONMENTAL SPECIFICATIONS

| | |
|---|---|
| Ingress Protection | IP67 (Battery and power converter system), IP56 (Wiring compartment) |
| Operating Temperature | -4°F to 122°F (-20°C to 50°C) |
| Operating Humidity (RH) | Up to 100% RH, condensing |
| Altitude | Maximum 9,843 ft (3,000 m) |
| Envirorment | Indoor and outdoor rated |

1. For 120 / 208V applications, max. 4 aPowers per aGate can be connected in parallel. Please contact us if you have large capacity requirements.
2. Load start capability may vary.
3. At beginning of life, AC to battery to AC, 50% power rating.
4. 5 kW discharge power, no fan running.

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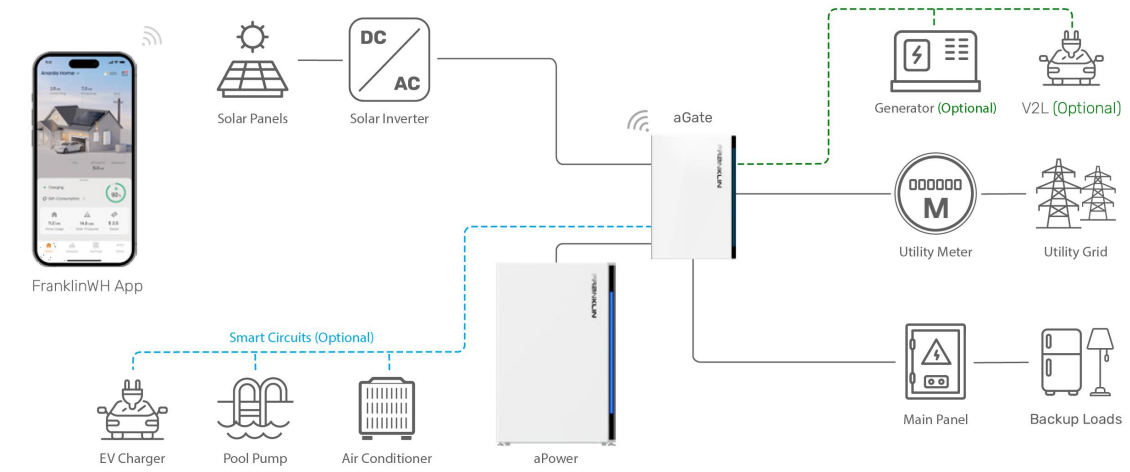
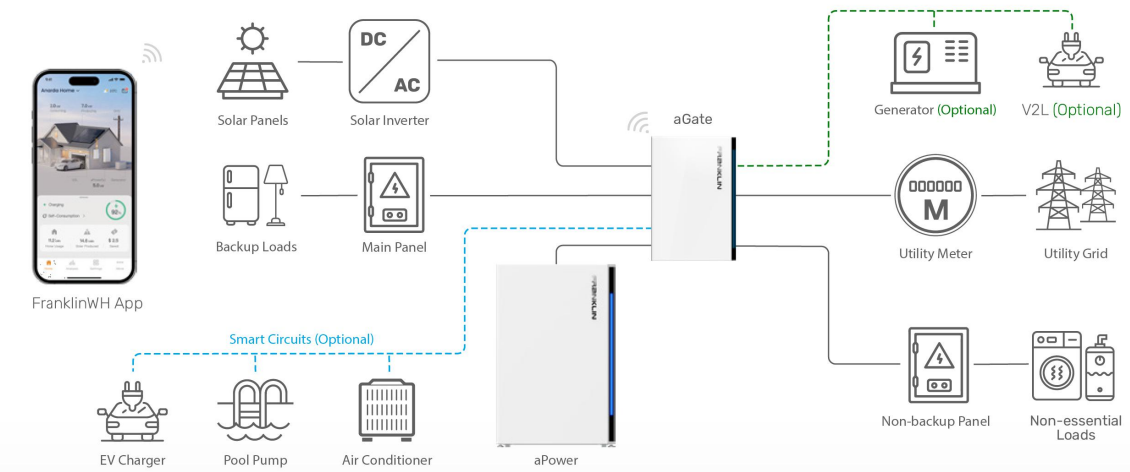
## Franklin Home Power Solution

### Whole Home Backup




### Partial Home Backup

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**SOLAR TREK INC.**
3347 SW 7TH ST.,
OCALA, FL 34474

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| DESCRIPTION | DATE | REV |
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| | | |
| DATE : 02/03/2025 | | |

PROJECT NAME

REBECCA VILLEDA

4408 SE 15TH ST.,
OCALA, FL 34471

SHEET NAME
BATTERY DATA SHEET

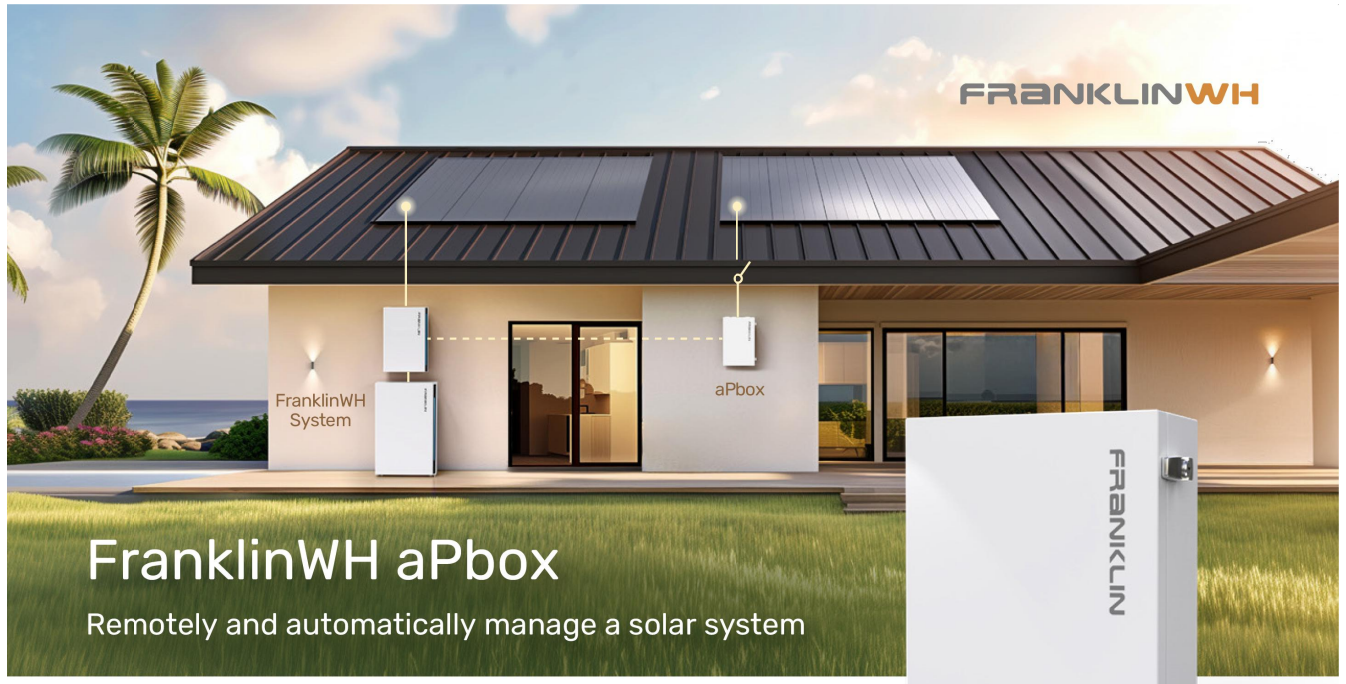
SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
DS-06

Signature with Seal

JEFFREY A. TORRES, PE
FL PE #80379
SUNSMART ENGINEERING LLC
FL COA #35170
255 PRIMERA BLVD, SUITE 160
LAKE MARY, FL 32746
(866) SUN-8655

CONTRACT# ELE/250630




# FranklinWH aPbox

## Remotely and automatically manage a solar system

aPbox

There are circumstances in which a solar (PV) system cannot be connected through the aGate X solar breaker, either on grid side or load side. The FranklinWH aPbox is a junction that provides an intelligent solution, linking those PV systems into the Franklin Home Power architecture for ease of management and control.

When installing a Franklin Home Power (FHP) system alongside a PV system, there are multiple PV installation configurations which require different methods to connect them with a home energy management system such as the FHP. The aPbox is designed to help installers address those issues. It is also designed to protect the aPower X battery from overcharging while maximizing the utilization of photovoltaics.

The aPbox has built-in meters and current transformers (CTs) to measure electricity. It can also connect and disconnect the solar systems as conditions require.

## Applicable Scenarios

### Remote solar system

An existing solar system is far from the aGate X installation location and changing the power line wiring will increase overall costs. An aPbox can be used for easier connection without changing the power line route. Newly added solar systems can also use aPbox for control or metering. An aPbox can disconnect the solar system when it is over generating power in an off-grid or blackout situation, or when excess generation can't be exported to the grid due to regulatory limitations.

### Oversized solar system

The total power of a solar system exceeds the maximum continuous current of 64A for the 80A solar circuit breaker in the aGate X. Panels providing the excess can be connected to load-side of the aGate X, and the aPbox will be used for metering and control.

### Over generating solar system

The generated power of the solar system exceeds the total continuous power of the aPower X batteries installed. To prevent the entire solar system from being shut down, the excess production will be connected to load-side and aPbox will be used for metering and control.



DATASHEET

## Features

### Flexible Configuration

Flexibly arrange the power generated by the solar system to realize the maximum utilization of solar energy.

### Highly Compatible

One aGate X can control up to 2 aPbox units, a maximum of 130A controllable solar current.

### Simple Installation

Easily connect remote solar systems to the aGate X, saving labor costs and shortening project time.

### Easy control

Automatically manage your solar system. In off-grid or blackout scenario, it will automatically control the over generating solar system.

## Specification

### Electrical Specifications

| | |
|---|---|
| Nominal Voltage | 120/240VAC, split |
| Frequency | 60 Hz |
| Rated Output Current | 1 circuit, max 65A |
| Rated Input Current | 2 circuits, max 65A total |

### Mechanical Specifications

| | |
|---|---|
| Dimensions (W x H x D) | 11.8 in x 17.7 in x 5.9 in (300mm x 450mm x 150mm) |
| Weight | 21.2 lbs. (9.6kg) |
| Mounting Options | Wall mount (Indoors/Outdoors) |

### Environmental Specifications

| | |
|---|---|
| Operating Temperature Range | -4°F to 122°F (-20°C to 50°C) |
| Storage Temperature Range | -22°F to 140°F (-30°C to 60°C) |
| Operating Humidity (RH) | Up to 100% |
| Maximum Altitude | 9843 feet (3000 meters) |
| Type of Enclosure | NEMA Type 3R |

### Compliance Information

| | |
|---|---|
| Compliance | UL 1741 |
| Environment | California Proposition 65 |
| Emissions | FCC Part 15 Class B, ICES 003 |

**Address:** 1731 Technology Dr., Suite 530 San Jose, CA 95110 **Telephone:** +1 888-837-2655 **Email:** info@franklinwh.com **Website:** www.franklinwh.com




SOLAR TREK

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| REVISIONS | | |
|---|---|---|
| DESCRIPTION | DATE | REV |
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| | | |

DATE : 02/03/2025

PROJECT NAME

REBECCA VILLEDA

4408 SE 15TH ST.,
OCALA, FL 34471

SHEET NAME
AP BOX
DATA SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
DS-07

Signature with Seal

JEFFREY A. TORRES, PE
FL PE #80379
SUNSMART ENGINEERING LLC
FL COA #35170
255 PRIMERA BLVD, SUITE 160
LAKE MARY, FL 32746
(866) SUN-8655

CONTRACT# ELE/250630

# Hi-MO 5

## LR5-54HABB
## 390~415M

- Suitable for distributed projects
- Advanced module technology delivers superior module efficiency
  - M10 Gallium-doped Wafer • Integrated Segmented Ribbons • 9-busbar Half-cut Cell
- Globally validated bifacial energy yield
- High module quality ensures long-term reliability

25-year Warranty for Materials and Processing

30-year Warranty for Extra Linear Power Output

**Complete System and Product Certifications**

IEC 61215, IEC 61730, UL 61730
ISO9001:2015: ISO Quality Management System
ISO14001: 2015: ISO Environment Management System
ISO45001: 2018: Occupational Health and Safety
IEC62941: Guideline for module design qualification and type approval

LONGi

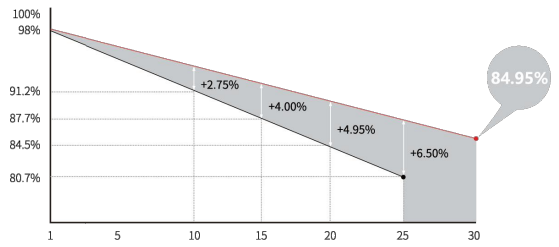
# Hi-MO 5

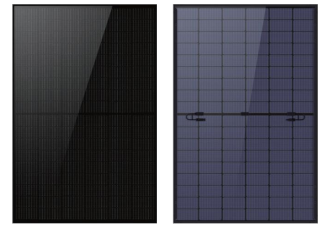
## LR5-54HABB 390~415M

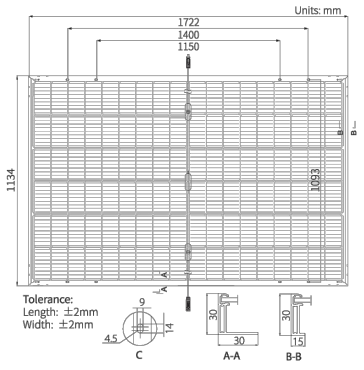
| 21.3% | 0~3% | <2% | 0.45% | HALF-CELL |
|---|---|---|---|---|
| MAX MCDULE EFFICIENCY | POWER TOLERANCE | FIRST YEAR POWER DEGRADATION | YEAR 2-30 POWER DEGRADATION | Lower operating temperature |

### Additional Value

30-Year Power Warranty






### Mechanical Parameters

| | |
|---|---|
| Cell Orientation | 108 (6×18) |
| Junction Box | IP68, three diodes |
| Output Cable | 4mm², ±1200mm length can be customized |
| Glass | Dual glass, 2.0+1.6mm heat strengthened glass |
| Frame | Anodized aluminum alloy frame |
| Weight | 22.5kg |
| Dimension | 1722×1134×30mm |
| Packaging | 36pcs per pallet / 216pcs per 20' GP / 936pcs or 792pcs(Only for USA) per 40' HC |

### Electrical Characteristics

STC : AM1.5 1000W/m² 25°C NOCT : AM1.5 800W/m² 20°C 1m/s Test uncertainty for Pmax: ±3%

| Module Type | LR5-54HABB-390M | | LR5-54HABB-395M | | LR5-54HABB-400M | | LR5-54HABB-405M | | LR5-54HABB-410M | | LR5-54HABB-415M | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Testing Condition | STC | NOCT | STC | NOCT | STC | NOCT | STC | NOCT | STC | NOCT | STC | NOCT |
| Maximum Power (Pmax/W) | 390 | 291.5 | 395 | 295.2 | 400 | 299.0 | 405 | 302.7 | 410 | 306.5 | 415 | 310.2 |
| Open Circuit Voltage (Voc/V) | 36.58 | 34.39 | 36.81 | 34.61 | 37.05 | 34.84 | 37.29 | 35.06 | 37.53 | 35.29 | 37.77 | 35.51 |
| Short Circuit Current (Isc/A) | 13.57 | 10.95 | 13.65 | 11.01 | 13.72 | 11.07 | 13.79 | 11.13 | 13.87 | 11.19 | 13.94 | 11.25 |
| Voltage at Maximum Power (Vmp/V) | 30.47 | 28.43 | 30.70 | 28.64 | 30.94 | 28.86 | 31.18 | 29.09 | 31.42 | 29.31 | 31.66 | 29.54 |
| Current at Maximum Power (Imp/A) | 12.80 | 10.26 | 12.87 | 10.31 | 12.93 | 10.36 | 12.99 | 10.41 | 13.05 | 10.45 | 13.11 | 10.50 |
| Module Efficiency(%) | 20.0 | | 20.2 | | 20.5 | | 20.7 | | 21.0 | | 21.3 | |

**Electrical characteristics with different rear side power gain (reference to 400W front)**

| Pmax /W | Voc/V | Isc /A | Vmp/V | Imp /A | Pmax gain |
|---|---|---|---|---|---|
| 420 | 37.05 | 14.41 | 30.94 | 13.58 | 5% |
| 440 | 37.05 | 15.09 | 30.94 | 14.22 | 10% |
| 460 | 37.15 | 15.78 | 31.04 | 14.87 | 15% |
| 480 | 37.15 | 16.46 | 31.04 | 15.52 | 20% |
| 500 | 37.15 | 17.15 | 31.04 | 16.16 | 25% |

### Operating Parameters

| | |
|---|---|
| Operational Temperature | -40°C ~ +85°C |
| Power Output Tolerance | 0 ~ 3% |
| Voc and Isc Tolerance | ±3% |
| Maximum System Voltage | DC1500V (IEC/UL) |
| Maximum Series Fuse Rating | 30A |
| Nominal Operating Cell Temperature | 45±2°C |
| Protection Class | Class II |
| Bifaciality | 70±5% |
| Fire Rating | UL Similar type 38 * IEC Class C |

*Reference Standard : UL61730 Second Edition, Dated October 28, 2022

### Mechanical Loading

| | |
|---|---|
| Front Side Maximum Static Loading | 5400Pa |
| Rear Side Maximum Static Loading | 2400Pa |
| Hailstone Test | 25mm Hailstone at the speed of 23m/s |

### Temperature Ratings (STC)

| | |
|---|---|
| Temperature Coefficient of Isc | +0.050%/°C |
| Temperature Coefficient of Voc | -0.265%/°C |
| Temperature Coefficient of Pmax | -0.340%/°C |

LONGi


No.8369 Shangyuan Road, Xi'an Economic And Technological Development Zone, Xi'an, Shaanxi, China.
**Web:** www.longi.com




SOLAR TREK

**SOLAR TREK INC.**
3347 SW 7TH ST.,
OCALA, FL 34474

| REVISIONS | | |
|---|---|---|
| DESCRIPTION | DATE | REV |
| | | |
| | | |
| | | |

DATE : 02/03/2025

PROJECT NAME

REBECCA VILLEDA
4408 SE 15TH ST.,
OCALA, FL 34471

SHEET NAME
MODULE DATA SHEET

SHEET SIZE
ANSI B
11" X 17"

SHEET NUMBER
DS-01

Signature with Seal

JEFFREY A. TORRES, PE
FL PE #80379
SUNSMART ENGINEERING LLC
FL COA #35170
255 PRIMERA BLVD, SUITE 160
LAKE MARY, FL 32746
(866) SUN-8655

CONTRACT# ELE/250630

## Certificate Of Completion

Envelope Id: C90ADDD4-6CC6-45D9-A7E3-B018DC87E63C
Status: Completed
Subject: SIGNATURE: Net-Metering Agreement - Rebecca Villeda (ELE/250630)
Source Envelope:
Document Pages: 29
Signatures: 5
Certificate Pages: 5
Initials: 0
AutoNav: Enabled
EnvelopeId Stamping: Enabled
Time Zone: (UTC-05:00) Eastern Time (US & Canada)

Envelope Originator:
April Adolf
110 SE Watula Avenue
City Hall, Third Floor
Ocala, FL 34471
aadolf@ocalafl.gov
IP Address: 216.255.240.104

## Record Tracking

Status: Original
4/21/2025 5:08:50 PM
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| Signer Events | Signature | Timestamp |
|---|---|---|
| William E. Sexton<br>wsexton@ocalafl.org<br>City Attorney<br>City of Ocala<br>Security Level: Email, Account Authentication (None) | DocuSigned by:<br>William E. Sexton<br>B07DCFC4E86E429...<br>Signature Adoption: Pre-selected Style<br>Using IP Address: 216.255.240.104 | Sent: 4/21/2025 5:21:22 PM<br>Viewed: 4/22/2025 11:02:16 AM<br>Signed: 4/22/2025 11:02:51 AM |
| **Electronic Record and Signature Disclosure:**<br>Not Offered via Docusign | | |
| Janice Mitchell<br>jmitchell@Ocalafl.org<br>CFO<br>City of Ocala<br>Security Level: Email, Account Authentication (None) | Signed by:<br>Janice Mitchell<br>55198B43858A4E1...<br>Signature Adoption: Pre-selected Style<br>Using IP Address: 216.255.240.104 | Sent: 4/22/2025 11:02:53 AM<br>Viewed: 4/23/2025 7:29:09 AM<br>Signed: 4/23/2025 7:39:18 AM |
| **Electronic Record and Signature Disclosure:**<br>Accepted: 4/23/2025 7:29:09 AM<br>ID: 7908baf0-2e86-4753-b0a7-d2cd977d1282 | | |
| Chris Gowder<br>chris.gowder@fmpa.com<br>Chief Sys Ops & Tech Officer<br>Security Level: Email, Account Authentication (None) | DocuSigned by:<br>087F58EBB34B474...<br>Signature Adoption: Uploaded Signature Image<br>Using IP Address: 38.77.131.2 | Sent: 4/23/2025 7:39:19 AM<br>Viewed: 4/23/2025 8:49:24 AM<br>Signed: 4/23/2025 8:49:38 AM |
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|---|---|---|

| Editor Delivery Events | Status | Timestamp |
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| Agent Delivery Events | Status | Timestamp |
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| Intermediary Delivery Events | Status | Timestamp |
|---|---|---|

| Certified Delivery Events | Status | Timestamp |
|---|---|---|

| Carbon Copy Events | Status | Timestamp |
|---|---|---|

| Witness Events | Signature | Timestamp |
|---|---|---|

| Notary Events | Signature | Timestamp |
|---|---|---|

| Envelope Summary Events | Status | Timestamps |
|---|---|---|
| Envelope Sent | Hashed/Encrypted | 4/21/2025 5:21:23 PM |
| Certified Delivered | Security Checked | 4/23/2025 8:49:24 AM |
| Signing Complete | Security Checked | 4/23/2025 8:49:38 AM |
| Completed | Security Checked | 4/23/2025 8:49:38 AM |

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|---|---|---|

| Electronic Record and Signature Disclosure |
|---|

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