

Parallel Operations & Interconnection of DER Facilities on the Distribution System

PURPOSE:

It is the policy of JEA to support programs, which enhance the quality of life, protect the environment, and provide significant value to the City of Jacksonville and the communities we serve. This will establish clearly defined technical and safety standards necessary for a customer's Generating Facility system to interconnect with JEA. All interconnections are to comply with the applicable statutes, ordinances, codes, rules, and regulations of all governmental units, bodies, and agencies.

SCOPE:

The scope of this procedure is to include the minimum engineering, operating, and protective requirements for safe and reliable operation of both JEA's EPS and the interconnecting DER system. These standards provide a uniform policy to be used for interconnecting DER to the JEA Distribution EPS, but JEA reserves the right to review each interconnection separately for specific needs according to the particular set of conditions and situation involved in each case. For customers wishing to interconnect DER to the Transmission System please refer to the "JEA Agreement for Generator Interconnection to Transmission System."

RESPONSIBILITY:

The Director of Electric System Planning is responsible for the maintenance of this procedure. It is the responsibility of the customer requesting the interconnection to provide for the design and installation of an adequate protection and control system to meet the following items:

- The requirements of this procedure
- All applicable electrical and safety standards and codes
- The criteria of all licensing authorities
- JEA's DG, Net Metering, and Solar Photovoltaic Policies
- JEA Electric Rules and Regulations

DEFINITIONS AND ACRONYMS:

- **ABNORMAL** – Term characterizing an event that results in electrical parameters deviating from normal steady state conditions causing undesirable conditions. The main electric characteristics are Voltage, Current, and Frequency.
- **CLOSED TRANSITION TRANSFER SWITCH** – Make-before-break, resulting in temporary parallel operation of the two power sources.
- **COGENERATION** – To generate two forms of energy sequentially more effectively than two separate systems producing the same energy.
- **COGENERATOR** - A generating facility that produces electricity and another form of useful thermal energy (such as heat or steam), that is used for industrial, commercial, heating, or cooling purposes.
- **DISTRIBUTED ENERGY RESOURCE (DER)** – similarly to DG, refers to the power generation at the point of consumption that includes all forms of DG including energy storage.

- **DISTRIBUTED GENERATION (DG)** – DG refers to the power generation at the point of consumption. The generation fuel source includes but is not limited to Renewables (Biomass, Solar Thermal, Solar PV, Wind) and Fossil Fuels (Natural Gas)
- **EPS** – The JEA Electric Power System
- **GENERATING FACILITY** – **Generating Facility refers collectively to power generating equipment and other associated electric devices located behind the Point of Interconnection.**
- **INTERCONNECTION** – The physical connection of a distributed energy resource or distributed generation to the utility’s power system to operate in parallel.
- **INVERTER** – A device that converts direct current (DC) power into alternating current (AC) power.
- **ISLANDING** – A condition in which a portion of a utility network that contains both load and generation remains energized while isolated from the remainder of the utility grid.
- **OPEN TRANSITION TRANSFER SWITCH** – Break-before-make ensures that the customer load is fed from only one source at a time.
- **PARALLEL OPERATION** – The physical and electrical connection of non-JEA source to JEA’s Electric Power System
- **PHOTOVOLTAIC CELLS** – Semiconductor devices that convert sunlight into direct current (DC) electricity.
- **POINT OF INTERCONNECTION** – The physical point where the customer’s equipment connects to the JEA EPS to allow parallel operations.
- **POINT OF SERVICE** – The point of service is defined as the point of ownership delineation between where JEA delivers electric service and the customer.
- **POWER PURCHASE AGREEMENT** – Technical and commercial agreements in which a third party developer owns, operates and maintains an electric generation system and an electric utility purchases the system’s electric output for a predetermined period. Any systems installed in JEA’s service territory that are not covered under a net metering interconnection agreement must have a PPA in order to sell energy to JEA.
- **POWER QUALITY** – The measurement and characteristics of Voltage and current with respect to instantaneous and steady state values or fluctuations thereof.
- **QUALIFYING FACILITY** – A facility which can produce electric energy and other forms of energy such as heat as a sequential secondary source from the generation of the original form of energy produced. The Qualifying Facility shall meet the criteria for qualification as set by the Federal Energy Regulatory Commission in 18 C.F.R. Part 292
- **RELIABILITY** – The availability of electrical service that has acceptable Power Quality characteristics.
- **UTILITY INTERACTIVE OR GRID CONNECTED** – An inverter intended for use in parallel with the JEA EPS to supply common loads that may deliver power to the JEA EPS.
- **VISIBLE BREAK A. C. DISCONNECT SWITCH** – A lockable switch where the electrical contacts of the blades are readily visible (air gap) in the “off” position. Turning the handle of a disconnect switch to the “off” position does not ensure safety. An internal linkage might be broken, leaving one or more contacts engaged. When working on JEA equipment, JEA crews must be able to readily locate the switch, open the door of this disconnect (without defeating switch safeties), verify the visible break, then be able to close the door and lock the handle.

PROCEDURE:

I. Requirements

- A.** These standards include such items as follow:
 - 1. Personnel safety
 - 2. Protection and Operation
 - 3. Power Quality
 - 4. Cost Responsibility Associated with Customer Owned Generation
 - 5. Implementation
 - 6. Terms of Service

- B.** If an installation fails to meet any requirements herein specified, JEA may disconnect or refuse to connect the installation. JEA reserves the right to alter the requirements herein specified by special agreement if conditions change and a subsequent technical study indicates that the safe and acceptable operation of the JEA EPS and service to other customers may be compromised.

- C.** A customer shall not operate their Generating Facility in parallel with JEA's EPS without the prior written consent of JEA and without full compliance with this procedure.

- D.** A system impact study may be required prior to the interconnection of the Generating Facility which may include, but not limited to the following:
 - 1. Site Visit
 - 2. Distribution Impact Study (Interconnection for Voltages at 26.4kV and below)
 - 3. Transmission Impact Study – The guidelines for interconnecting to the JEA Transmission System (69kV and above) are set forth in the “JEA Agreement for Generator Interconnection to Transmission System.”

II. Personnel Safety

- A. General** - The foremost concern is safety. It must be recognized that JEA's EPS and the customer's electrical system will interact through the interconnection of the customer's Generating Facility.
 - 1. Adequate protection and safe operational procedures must be achieved by the joint interconnection system. The customer shall be required to furnish, install, repair, operate, and maintain in good order, and be solely responsible for the safe operation of the Generating Facility to be operated in parallel with JEA's EPS. JEA reserves the right to request the maintenance records for all equipment and/or devices associated with the Generating Facility and owned by the customer at any time during the life of the Interconnection Agreement. JEA may require periodic testing of the customer's protection equipment to ensure safe parallel operations.

 - 2. The customer shall permit JEA employees to enter upon its property at any reasonable time for the purpose of inspecting and/or testing the customer's equipment, facilities, or apparatus. JEA reserves the right to inspect the customer owned facilities time to time as

it deems necessary upon reasonable notice to the customer. Such inspections shall not relieve the customer from the obligation to maintain the equipment in safe and satisfactory operating condition.

3. JEA's approval of isolating devices used by the customer will be required in order to ensure that such devices will comply with JEA's switching and tagging procedure for safe working conditions.

B. DER Isolation and Disconnect Requirements

For all DER installations the customer shall install an approved Isolation Point as indicated below:

1. **JEA Isolation Point** – A device shall be required to provide a separation point between the customer's generating and/or energy storage equipment and JEA's EPS, thus providing an external JEA Isolation Point for each. This device will be furnished and installed by the customer, in a visible location accessible to JEA personnel at all times. The device will be installed as close to the JEA revenue meter as practical and be capable of being locked in the open position with a JEA padlock. If multiple generating systems exist behind the JEA revenue meter, one isolation device must be installed to disconnect and/or isolate all generating and energy storage equipment interconnected with that service. The device shall meet all applicable local and national electrical codes for the installed generating and energy storage system.

The type of isolation device used shall be a manual A.C. disconnect switch of the visible break type. Exceptions:

- a) Circuit breakers with a door/cover capable of being locked with a JEA padlock may be used as the JEA required isolation device (hold cards by themselves are not acceptable).
- b) Manual transfer switches capable of being locked in the open position with a JEA padlock may be used as the JEA required isolation device
- c) Automatic transfer switches, if used, must have one of the above approved isolation devices between the JEA transformer and the customer's generations system.

The device must:

- a) Allow visible verification that separation has been accomplished.
 - i. The requirement may be met by opening the enclosure to observe contact separation.
- b) Include markings or signage that clearly indicates open and closed positions.

2. **Disconnect Switch** - A manual A. C. disconnecting switch, of the visible load break type, shall be required to provide a separation point between the customer's generating and/or energy storage facility and JEA's EPS. This switch will be furnished and installed by the customer, in a visible location accessible to JEA personnel at all times. The switch will be installed as close to the JEA revenue meter as practical and be capable of being locked in the open position with a JEA padlock. If multiple generating systems and/or energy storage systems exist behind the JEA revenue meter, one external AC isolation device must be installed for each to disconnect all generating equipment interconnected with

that service. The switch(es) shall meet all applicable local and national electrical codes for the installed DER system. The switch(es) shall be permanently labeled with a sign provided by JEA stating "JEA RGS DISC" for renewable systems or "JEA GEN DISC" for non-renewable systems. If the switch is mounted out of sight of the JEA revenue meter, a JEA approved sign with instructions must be posted at the meter clearly stating the location of the disconnect switch(es). In the event of a system emergency JEA reserves the right to lock the switch(es) in the open position, thereby isolating the customer's Generating Facility without prior notice to the customer.

If for any reason the customer's installation is not in compliance with this procedure, JEA will reschedule the work for a time when the customer will turn the Generating Facility off, disable the start circuit and allow JEA to put a lock on the generator control box to prevent starting the generator until the customer's installation/design is in full compliance with this procedure.

Signage – The device used as the JEA isolation point shall be permanently and clearly labeled for JEA personnel to identify the device as the JEA isolation point. The permanently mounted sign(s) should be approximately six inches by six inches with 3/8" white letters on a bright red background and constructed of metal, hard plastic, or weatherproof vinyl. For the safety and reliability of the JEA EPS, all reasonable efforts must be made to install the isolation device within 5 feet of the revenue meter. If the isolation device is mounted more than 5 feet away from the meter, additional signage approved by JEA must be posted at the meter clearly stating the location of the isolation device. The device must be accessible to JEA personnel at all times.

Emergencies – In the event of a system emergency JEA reserves the right to open the switch thereby isolating the customer's Generating Facility without prior notice to the customer. Any of the following conditions shall be cause for **disconnection**:

1. JEA's system emergencies and/or maintenance requirements
2. Any abnormal system conditions that cause reliability or safety concerns as determined by JEA
3. Hazardous conditions existing on the customer's generating or protective equipment, as determined by JEA
4. Adverse effects of customer's generation to JEA's other electric customers and/or system, as determined by JEA
5. Failure of customer to comply with any existing or future regulations, rules, order, or decisions of any governmental or regulatory authority having jurisdiction over the customer's electric generating equipment or the operation of such equipment.

Exception: Primary Metered Customers and/or Customers with Service Voltages above 600 Volts – The customer shall coordinate with JEA to accomplish the procurement and installation of the disconnect switch. The customer is required to bear all JEA related labor and equipment costs associated with the disconnect and associated equipment and devices beyond that which would be required to provide normal service to the customer if no interconnection of the customer's DER system were involved. The costs shall be paid in advance by the customer to JEA for all material and labor that is required. JEA shall supply the customer with a written cost estimate of all its required materials and labor prior to any

work being done. JEA shall also provide project timing and feasibility information to the customer.

- C. Responsibility and Liability** - JEA shall be responsible for JEA owned facilities. The customer shall be responsible for the customer's entire system, ensuring adequate safeguards for; other customers, JEA personnel, JEA equipment and for the protection of its own generating system.

The customer shall indemnify and hold JEA harmless from any and all claims, demands, costs, or expenses for loss, damage, or injury to persons or property (including the customer's DER system) caused by, arising out of, or resulting from:

1. Any act or omission by the customer, or customer's contractors, agents, servants, and employees in connection with the installation or operation of the customer's DER system or the operation thereof in connection with JEA's system
2. Any defect in, failure of, or fault related to the customer's generating system
3. Customer's negligence or negligence of customer's contractors, agents, servants, and employees
4. Any other event or act that is the result of, or proximately caused by the customer or the customer's facilities

III. Protection and Operation of DER systems

- A. General** - The protection and operation of the interconnection between the customer's DER system and JEA's EPS depends on the size, type, and location of the facility within JEA's system. It will be the responsibility of the customer to provide all devices necessary to protect the customer's equipment from damage by any abnormal conditions and operations which occur on JEA's system that result in interruptions, restorations of service by JEA's equipment, personnel and their DER system. The protection criteria are also required to protect the JEA EPS.

It is the customers' responsibility to protect their DER system and associated equipment from the abnormal conditions and/or events below. The DER system shall be equipped with all protective functions necessary to sense the abnormal conditions and isolate the Generating Facility from the JEA EPS unless abnormal ride through capabilities are required by JEA or attempt to connect to the EPS inappropriately.

Abnormal Conditions:

1. Overvoltage or Undervoltage
2. Overfrequency or Underfrequency
3. Overload
4. Short Circuits (including ground fault)
5. Open Circuits
6. Phase Unbalance and Reversal
7. Reverse Power Flow Conditions
8. Reclose attempt by JEA

9. Any attempt by the Customer to synchronize with JEA's system
10. Any other injurious electrical conditions that may arise on JEA's system

JEA reserves the right to perform such tests as it deems necessary to ensure safe and efficient protection and operation of the customer's Generating Facility.

- B. Loss of Source** – The customer shall provide approved protective equipment necessary to detect an unintentional island and disconnect the Generating Facility from the JEA EPS in the event of this condition and the loss of source from the JEA EPS.

The customer's Generating Facility shall cease to energize the EPS as well as contain an active anti-islanding function such that the customer's DER system does not attempt to generate and reconnect to the EPS until the abnormal conditions above have been cleared from the JEA EPS. The customer's system shall disconnect in 0.160 seconds or less from the detection of any one of the above mentioned abnormal conditions unless a different clearing time or load shed scheme is required by JEA.

- C. Coordination and Synchronization** - The customer shall be responsible for the coordination and synchronization of the customer's equipment with JEA's EPS, and assumes all responsibility for damage that may occur from improper coordination or synchronization of the Generating Facility with JEA's EPS. The customer shall install the equipment necessary to sense Voltage and Frequency with time delay functionality to prevent the DER system from energizing a de-energized JEA circuit and to prevent the DER system from connecting to the EPS if the DER system is not operating within the specified Voltage and Frequency range in this procedure. Details of synchronization are in the Power Quality section of this procedure.

- D. Electrical Characteristics** – Single-phase interconnections with JEA are permitted at power levels up to 15 kW. For power levels exceeding 15 kW, a three-phase balanced interconnection will normally be required. The Customer shall interconnect with JEA at the Voltage of the available distribution line of JEA for the locality of the interconnection.

JEA reserves the right to require a separate transformation and/or service for a customer's DER system, at the customer's expense. The customer shall bond all neutrals of the customer's system to JEA's neutral, install a separate driven ground to 10 ohms or less, and bond the ground to the customer's neutral.

- E. Interconnection Review and Study Requirement** – JEA reserves the right to perform a technical review of the customer submitted data and design for the Generating Facility. The review and study, if required, will include, but not be limited to, evaluating MW and MVAR injection at the point of interconnection; thermal loadings of the impacted JEA facilities; breaker duty; system protection and coordination; overall protection design, including surge arrestors, voltage, reactive power and power factor control, power quality impacts, voltage flicker, grounding and safety issues, metering and telecommunications, operational issues (abnormal frequency and voltages), generator ride through capabilities, stability and electromagnetic transients. The scope and schedule of the review and study will depend on several factors such as connection

voltage, rating of the proposed Generating Facility, type and design of the Generating Facility, etc.

Generating Facilities that require a study shall abide by the additional requirements identified in the study report for safe a reliable interconnection to the JEA system.

F. Load Shed/Recovery - JEA may require the customer's Generating Facility to have an automatic load-shed/recovery scheme to minimize potential Power Quality issues on the JEA EPS.

G. The Generating Facility must comply with all of the following standards:

For all inverter based generation JEA requires the DER systems to be capable of operating as defined by the enhanced features and functionality consistent with the most current technical recommendations of the California Rule 21 Smart Inverter Working Group (SIWG).

All DER systems shall also abide by the latest and all approved revisions to the IEEE 1547, UL-1741, and all UL-1741 supplemental standards.

- 1) IEEE Std. C37.95, Guide for Protective Relaying of Utility-Consumer Interconnection (Latest Edition/Revision)
- 2) UL 1741-2010, including UL 1741 SA, UL Standard for Inverters, Converters, Controllers and Interconnection System Equipment for use with Distributed Energy Resources (Latest Edition/Revision)
- 3) All IEEE 1547 Standards including, but not limited to:(Latest Editions/Revisions)
 - a. IEEE Std. 1547-2018, IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems
 - b. IEEE 1547.1 – 2005, IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems
 - c. IEEE 1547.2 – 2008, IEEE Application Guide for IEEE Std 1547
 - d. IEEE 1547.3 – 2007, IEEE Guide for Monitoring, Information Exchange, and Control of Distributed Resources Interconnected with Electric Power Systems
 - e. IEEE 1547.4 – 2011, IEEE Guide for Design, Operation, and Integration of Distributed Resource Island Systems with Electric Power Systems
 - f. IEEE 1547.6 – 2011, IEEE Recommended Practice for Interconnecting Distributed Resources with Electric Power Systems Distribution Secondary Networks
 - g. IEEE 1547.7 – 2013, IEEE Guide for Conducting Distribution Impact Studies for Distributed Resource Interconnection
- 4) NFPA 70 – National Electric Code (Latest Edition/Revision)
- 5) NESC – National Electric Safety Code (Latest Edition/Revision)

The most up to date version or latest approved version of the Standards/Guidelines above will apply to all DER interconnections at the time of the applied interconnection to meet the JEA compliance requirements.

IV. Power Quality

- A. **General** - It is the policy of JEA to allow only those interconnections which can be achieved without reducing the Power Quality and Reliability of service to other customers and to disconnect such interconnections should unforeseen difficulties arise which impair the Power Quality or Reliability of the JEA EPS.
- B. The customer's Generating Facility must be of sound engineering design and quality workmanship, it shall have safe and reliable operating characteristics, it shall meet all applicable codes, and shall be approved by all Governmental authorities having jurisdiction. JEA reserves the right to perform such tests as it deems necessary to ensure the quality of the customer's Generating Facility.
- C. The characteristics of the customer's DER system shall meet the following minimum guidelines below in addition to all requirements of the JEA Rules and Regulations:
 - 1. The customer's Generating Facility shall be designed, operated, and controlled to provide reactive power within the full range of 0.90 lead to 0.90 lag power factor at the point of service when output is > 10% of nameplate rating for DER systems above 50kW or as required by JEA. DER Systems under 50kW and approved by JEA may operate at unity PF.

The customer's location in the service territory may change the minimum power factor requirement at the point of service. JEA reserves the right to require a higher/lower power factor at the point of service necessary to facilitate efficient distribution operations at any time during the life of the interconnection agreement. Operating at a power factor outside the range specified is acceptable if the reactive power needs of the customer's local load requires it and it does not adversely impact the JEA EPS.

In addition, the customer's Generating Facility shall operate under the following reactive power flow criteria if PF control is required by JEA:

April through October:

- a. Between the hours of 6AM and 11PM, for real power flow to JEA, the customer shall supply reactive power to the point of service if the EPS requires it for Voltage control and shall not take reactive power from the EPS
- b. Between the hours of 11PM and 6AM, regardless of direction of real power flow, the customer shall not deliver reactive power to the EPS

November through March:

- a. Between the hours of 5AM and 11PM, for real power flow to JEA the customer shall supply reactive power to the point of service if EPS requires it for Voltage control and shall not take reactive power from JEA's distribution system

between the hours of 11PM and 5AM, regardless of direction of real power flow, the customer shall not deliver reactive power to JEA's EPS

2. Operate in the Frequency range of 59.3 - 60.5 Hz. If the DER system is generating 50 kW or less and operates outside this range, the DER system must automatically disconnect from the Point of Interconnection with JEA in 0.16 seconds or less. If the DER system is generating more than 50 kW, JEA may require a faster or slower clearing time for this abnormality.
3. The Generating Facility must comply with the IEEE 1547 Standards for harmonics and shall not exceed the limits stated in the IEEE 1547 Standards.
4. The Voltage at the Point of Interconnection shall not fluctuate more than plus or minus 5%. Any abnormal operation, condition, or malfunctioning of the customer owned equipment not meeting this criteria the Generating Facility shall disconnect from the POI in 0.16 seconds and cease to energize the EPS and shall follow the clearing times in Table 1 below unless JEA provides the Generating Facility different ride through criteria and clearing times. The DER system shall not actively regulate the Voltage at the Point of Interconnection unless approved by JEA. See **Table 1** for acceptable clearing times associated with each range of Abnormal Voltage detection.

Table 1

Interconnection System Response to Abnormal Voltages	
Voltage (% of nominal)	*Clearing Time (Sec)
$V < 50$	0.16
$50 \leq V < 88$	0.16
$110 < V < 120$	1.00
$V \geq 120$	0.16
Nominal Voltages comply with ANSI C84.1 -1995, Table 1	

**Clearing time is defined as the time it takes between the onset of the Abnormal Voltage condition and the time it takes the DER system ceasing to energize the JEA EPS.*

5. No reconnection shall take place until every abnormal condition is cleared and the EPS Voltage and/or DER system Voltage is within Range B of ANSI C84.1-1995 and the Frequency range is within 59.3 and 60.5 Hz for at least 5 minutes.

All Solar PV Installations and DER systems utilizing Utility Interactive Inverter Technology must comply with the following criteria:

1. All inverter(s) shall be listed and in compliance with *Underwriters Laboratories (UL) 1741, Inverters, Converters, and Controllers for Use in Independent Power Systems*.
2. Photovoltaic modules and panels shall be in compliance with:
 - a. *Underwriters Laboratories (UL) 1703, Standard for Safety: Flat-Plate Photovoltaic Modules and Panels*.
 - b. *IEEE Standard 1262-1995, IEEE Recommended Practice for Qualification of Photovoltaic (PV) Modules*.
3. PV system installation shall be completed by a qualified state licensed contractor. In addition, the system shall be in compliance with:
 - b. *IEEE Standard 929-2000, Recommended Practice for Utility Interface of Photovoltaic Systems*.
 - c. All relevant articles of the latest edition of the *National Electrical Code*.
4. All local building and electrical codes.

IV. Cost Responsibility

The customer is required to bear all JEA related labor and equipment costs associated with the protective devices, transformers, lines, services, switches, and associated equipment and devices beyond that which would be required to provide normal service to the customer if no interconnection of the customer's DER system were involved. The costs shall be paid in advance by the customer to JEA for all material and labor that is required. JEA shall supply the customer with a written cost estimate of all its required materials and labor prior to any work being done. JEA shall also provide project timing and feasibility information to the customer.

V. Metering

Renewable DER Installations:

JEA does not require metering of the energy deliveries from the PV system. If the customer desires to meter the system, the meter shall be furnished and installed by the customer. JEA shall follow the JEA Net Metering and DG Policy guidelines regarding JEA's revenue meter install.

Non-Renewable DER Installations:

If the customer wishes to export energy as defined in the Interconnection Agreement or Power Purchase Agreement, JEA shall follow the JEA Net Metering and DG Policy guidelines regarding the required revenue meter install.

VI. Implementation

A. Application for Interconnection and Interconnection Agreements for DER systems

1. **Application for Interconnection of Renewable DER systems** - Formal application for Interconnection shall be made by the customer prior to the installation of any equipment connecting to the JEA system. This application shall be accompanied by, but not limited to, the following:
 - a. Gross power Rating (GPR) in watts
 - b. Electrical system interface drawing to include a one line diagram of the JEA/customer interface, clearly indicating the location of the JEA PV disconnect switch, inverter, and panels.

Any subsequent change in the system must also be submitted to JEA for review and written approval prior to actual modification. The above mentioned review, recommendations and approval by JEA do not relieve the customer from the complete responsibility for the adequate engineering design, construction, and operation of the customer's equipment and for any liability for injuries to property or persons associated with any failure to perform in a proper and safe manner for any reason.

Interconnection Agreement – The customer shall complete and submit to JEA the Renewable Generation System (RGS) Interconnection Agreement or the applicable JEA Interconnection Agreement for systems larger than 2MW, Renewable Generation System (RGS) Application, and IRS W-9 form.

2. **Application for Interconnection of Non-Renewable DER systems**- Formal application shall be made by the customer prior to the installation of any generating related equipment. The application package shall include, but not limited to the following:
 - a. Physical layout drawings of the entire DER system, including dimensions showing the locations of JEA transformers and metering equipment along with customer disconnect switch/isolation device, main panel, sub panels, transfer switch(es) and DER system with a description of the access to be provided to JEA during all hours of the year.
 - b. DER equipment ratings, specifications, system protection (including all settings for all protection devices), and characteristics including fault current analysis at the point of service from the addition of the DER system.
 - c. Synchronizing method and operating instructions for paralleling the customer's electrical system with JEA.

Any subsequent change in the system must also be submitted to JEA for review and written approval prior to actual modification. The above mentioned review, recommendations and approval by JEA do not relieve the customer from the complete responsibility for the adequate engineering design, construction, and operation of the customer's equipment and for any liability for injuries to property or persons associated with any failure to perform in a proper and safe manner for any reason.

Interconnection Agreement - At the first opportunity the customer shall complete and submit to JEA the DG Interconnection Agreement, DG Application, and IRS W-9 form.

3. Upon formal completion of the Interconnection Agreement and DG Application, the customer shall give JEA seventy-two hours' notice to provide JEA an opportunity to witness and approve the initial interconnection of any Generating Facility with JEA's EPS after installation of the DER system.

VII. Terms of Service

- A. **Generation Capability/Equipment Changes** - It shall be the customer's responsibility to inform JEA of any change in their Generating Facility for the interconnection with JEA. JEA reserves the right to disconnect the Generating Facility if any changes on the customers system results in adverse impacts to the JEA EPS.
- B. **Maintenance and Outages** – The customer shall notify JEA immediately in the event emergency conditions or planned maintenance requires the DER system Generating Facility to be out of service.