

Dear Prospective Green Power Provider Customer,

Please find below a list of items required for the City of Oak Ridge Electric Department (CORED) to perform due diligence prior to forwarding your application to TVA.

NOTE: Do not purchase any equipment until the design has been approved and the Participation Agreement has been approved by TVA.

- A COMPLETE electric single line diagram beginning at CORED distribution transformer (or point of connection to the 13.2 kV grid) and ending at the solar array must be provided. Show ALL CONNECTIONS. **GENERIC DRAWINGS CANNOT BE APPROVED**. Generic drawings are only useful for discussion purposes early in the project.
- Provide a cutsheet/datasheet for all equipment to be installed. Clearly indicate the model with options you intend to purchase.
- For each device or equipment, provide the following, as a minimum:
 - Manufacturer name
 - Model number
 - Voltage rating
 - Continuous current rating
 - Short circuit current rating
 - Settings of any programmable device
 - Transformer test report if applicable
 - Etc.
- All Panel Breakers require evidence of Bi-directional rating. This includes any existing panel breakers that will carry currents from both sources.
- Inverters and isolating disconnects require a UL listing with year and IEEE 1547 certification with year of certification. Clearly indicate the voltage rating of the isolating disconnect is in compliance with the 220% voltage rating required by IEEE 1547, if plans include a battery backup system.
- Clearly indicate whether the equipment you intend to install is new or used/refurbished.
- If you intend to utilize an existing CORED transformer, note the size and connection on the single line. Assume an impedance within the range of the IEEE Red Book. Assume an infinite source impedance on the high voltage side of the CORED transformer for purposes of calculating short circuit conditions within the facility.
- Clearly indicate on the single line that loss of phase will result in isolation from the grid. Indicate the timings and settings of all adjustable devices. If the system is three phase, clearly indicate that the system will completely isolate the entire three phase system for low voltage upon any phase or loss of any phase. Indicate the threshold voltage that

triggers isolation. Indicate the particular device(s) that will function during low voltage and voltage loss conditions.

- Where required, the single line must be sealed by an Electrical Engineer registered in the State of Tennessee.

After the above information has been received, the application can be forwarded to TVA for approval of the application. Assuming the application is approved by TVA, permitting of construction by Code Enforcement and field commissioning tests can be scheduled after the following items are addressed. Note: In order to *streamline the project schedule and/or mitigate risk of expenditures*, CORED stands ready to review the items below prior to approval of the application:

- Provide calculations made for available short circuit current at each panel and device.
- Where a customer's existing electrical installation is utilized, provide enough information to demonstrate the existing equipment and conductors are rated to handle the electrical conditions resulting from both sources.
- If the project calls for installing solar panels on existing buildings or structures, provide evidence that a structural PE, registered in the State of TN, has verified the structure is suitable. Said engineer must design any required structural modifications and supports required for a safe installation and seal the design prior to receiving a permit for the project from the City of Oak Ridge Code Enforcement Division.
- To ensure and memorialize compliance with the NEC, the following must be indicated on the single line diagram:
 - Specification of all wire sizes on the design, current carrying capacities, and length of each section.
 - Calculation of voltage drop on each section of the design and worst case voltage drop for the overall photovoltaic system.
 - Calculations showing all panels, and buses within the panels, comply with the NEC requirements.