SOLAR PLANT FAILURE RESPONSE

The following procedures are meant as a guideline for disconnecting a solar facility from the electric grid in response to an emergency. These procedures should be updated during construction and before commercial operation to properly reflect the as-built conditions and equipment locations and descriptions for the solar plant.

In an emergency situation:

- If the inverters have Emergency Stop buttons, push them in on each inverter.
- If the inverter has an on/off switch, turn it to the off position (this may require a key). Each inverter should be manually turned to the off position. This will immediately open the internal ac and dc contactors (if present) inside the inverter.
- If the site contains multiple inverters, open inverter output circuit breakers at the AC panel combiner panels.
- Call local utility (Eversouce) to open project specific utility recloser to cut AC power to the site.

Note that some inverters do not have an on/off switch or an Emergency Stop button. For these inverters, it will be necessary to turn the systems off using the disconnect switches attached to or located near the inverters. Do not open switches that are specifically labeled "Do not disconnect under load" until a load-break switch has been opened and current flow is stopped. Generally, the first available upstream load-break ac switch or circuit breaker is safer to operate first (before the dc switch), because the inverter instantly shuts down the transistor bridge when ac voltage is removed. Once the system is off, the remaining switches can be opened and the system can be locked out until the fault condition is repaired or it is safe to turn it back on.

Isolation Procedure—Inverter Pad Equipment

To isolate the inverter pad safely:

- Shut the inverters off through a controlled shutdown.
- Turn off all dc and ac disconnects that feed the pad. Follow the procedure in the LOTO section for opening electrical disconnects.
- Use LOTO procedures to ensure the system remains off.
- Always wear appropriate PPE and test for voltages with a properly rated meter to confirm the system is completely isolated.

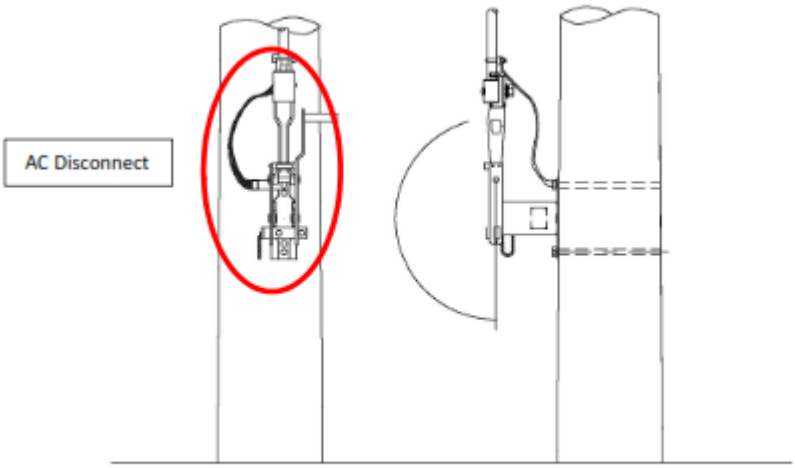
Isolation Procedure—Field Combiner Box

To isolate field combiner boxes:

- Turn off the inverters as described above.

- Operate the switch of the combiner (if applicable) by turning the handle to the off position.
- Use a dc clamp on the meter to confirm there is no current passing through the ungrounded conductors in the combiner box, and then open all of the fuses.
- If further isolation of the box is needed, use the string diagrams to locate the homeruns (end connectors of the PV strings).
- Use a clamp-on dc current meter to confirm that the homerun does not have any current passing through it, and then disconnect the string by opening the homerun positive and negative connectors and putting caps on the source circuit connectors.
- Go back to the combiner box and use a voltmeter to confirm that each string has been successfully disconnected.

Medium Voltage Switch Operation (Qualified Medium Voltage Personnel)

Emergency Shutdown Procedure

1. Proceed to the disconnect located on pole UP-1 just outside facility gate.
2. De-energize the AC Disconnect by pulling handle to the “Off Position”