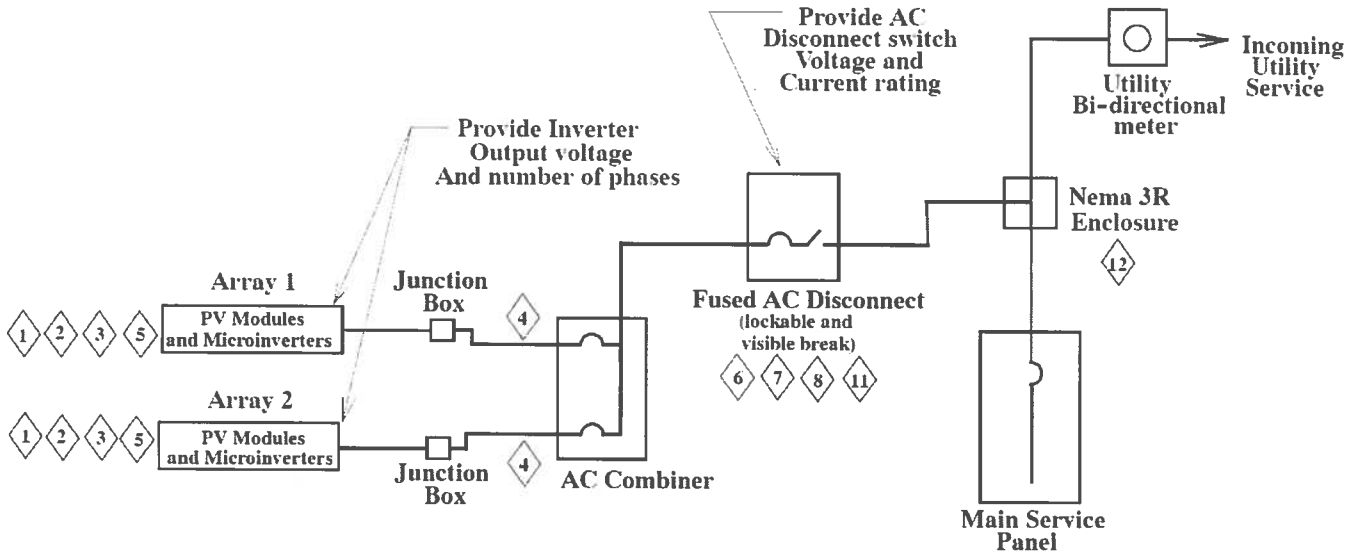
PV System One-Line Diagram – Service Tap Connection



General notes:

A. Equipment shall be designed and installed according to Authority Having Jurisdiction (AHJ). If no AHJ, design and installation must meet requirements of NEC.

B. When a standby generator is present, the connection of standby generator and transfer switch must be included in the one-line diagram.

C. All system elements from the bi-directional meter to the solar panels and customer's service panels should be shown and sized on the wiring diagram including any step-down transformers.

D. If there are multiple main service panels, the drawing should show the size of the panel that the solar system will be connected to. However, the service size in the net metering application is the sum of all main service panels.

E. Only one AC Disconnect is permitted for the entire PV system.

F. Meter sockets and metering equipment enclosures are not to be used as junction boxes or raceways for customer distribution circuit wiring. Only service entrance wires are permitted in those enclosures.

G. Unauthorized wiring shall be removed by the customer at no cost to Ameren.

H. If existing meter is a K-base (bolt in) type three-phase meter, the meter enclosure may need to be replaced with instrument transformer metering or a 320 amp meter base. A CT/PT enclosure, CT enclosure or 320 amp meter base is required for the following service types:

   a. 277/480 volt, 3 phase, 4 wire greater than 200 amp (CT/PT Enclosure)
   b. 480 volt, 3 phase, 3 wire greater than 200 amp (CT/PT Enclosure)
   c. 120/208 volt, 3 phase, 4 wire greater than 400 amps (CT Enclosure)
   d. 240 volt, 3 phase, 3 wire greater than 400 amps (CT Enclosure)
   e. 120/208 volt, 3 phase, 4 wire greater than 200 amp but less than 400 amps (320 amp meter base with a 2 terminal clamp jaw socket)
   f. 240 volt, 3 phase, 3 wire greater than 200 amps but less than 400 amps (320 amp meter base with a 5 terminal clamp jaw socket)

Key notes:

1. Photovoltaic solar cell array open circuit voltage cannot exceed the inverter maximum DC voltage input.
2. Inverters must comply with IEEE 1547 and UL 1741.
3. Inverter specified must match the existing service type except in cases where a step-down transformer exists. If service is 3-phase, inverters must be connected 3-phase.
4. Separate inverters are also acceptable. In this case, the number of PV strings and the number of modules per string must be shown on the drawing.
5. Balanced generation must be maintained on three-phase service. Show the generation (kW) per phase on the drawing.
6. A lockable and visible break AC disconnect switch is required between the AC combiner or inverter(s) and the main panel. For services 277/480V or above, bolted pressure switch or a rackable breaker, fused disconnect switch, or similar equipment capable of creating a visual open must be used. A note must be added to the one-line diagram specifying which one will be used in the design. It must be accessible to Ameren Missouri personnel at all times.
7. The AC disconnect switch should be located within 10 feet and in sight of the service revenue meter. If this is not feasible, provide the reason in your application. On a submitted drawing, provide the wording to be placed on a placard describing the disconnect location. The placard must be placed on the meter base cover.
8. The AC disconnect switch must be located outside. Exceptions may be granted upon Ameren approval. Justifications for inside location must be provided.

Notes applicable only to distribution panel connections:

9. Per NEC requirements, to prevent distribution panel bus overload, the connected generation cannot exceed 20% of the service panel rating.
10. There must be a feeder breaker or fuse supplying the inverter which can interrupt maximum short circuit current and carry maximum generation sized per AHJ or NEC requirements.

Notes applicable only to tap connections:

11. The PV system tap must have short circuit protection (fuse or circuit breaker) located within 4ft. of the tap. The breaker or fuse supplying the inverter must be rated to carry maximum generation and interrupt maximum short circuit current. A note must be added to the one-line diagram stating that the AC disconnect is located 4 ft. or less from the tap.
12. The PV system tap should be made in the NEMA 3R enclosure. The PV system tap cannot be made in a 200 amp meter base, and can only be made in a 320 amp meter base if there are spare lugs available. Double lugging is not allowed. We do not allow a tap in the CT enclosure.

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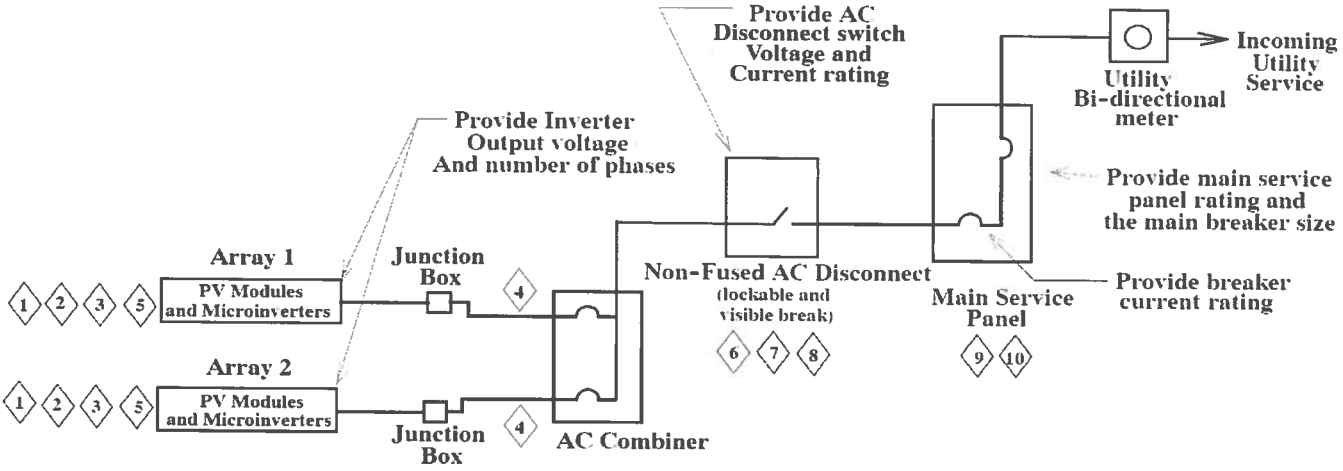

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