



SUPPLY (OR LINE) SIDE CONNECTION INTERCONNECTION REQUIREMENTS EXCERPT

A Supply Side Connection (SSC), also referred to as a Line Side Tap constitutes a new service as defined by the National Electric Code (NEC), and is subject to all applicable NEC requirements and/or requirements adopted by the Authority Having Jurisdiction. The Tap is on the load side of the APS billing meter and ahead of the main service disconnect to ensure that the billing meter registers net energy flow. In addition, any such connection must comply with the APS ESRM and specifically with section 8.1(F) of the APS Interconnection Requirements manual.

The following guidelines should be followed when implementing a SSC, and may be required by the APS Representative:

1. Rigid Metal Conduit (RMC) shall be used between the SSC connection in the service entrance section (SES) and an externally mounted (external to the SES) SSC fused service disconnect (SSC Service Disconnect).
2. The ampere rating of the conductor feeding an SSC Service Disconnect shall not be less than #2 AWG Cu or the ampere rating of the SSC Service Disconnect, whichever is larger, unless determined otherwise by APS. The minimum ampere rating of the SSC Service Disconnect shall be 60 A per NEC Art 230.79(D).
3. The SSC Service Disconnect shall be mounted "immediately adjacent" to the SES (10 feet or less per NEC Art 705.31), located on the same wall and the circuit shall not be routed through any other enclosures (i.e. junction boxes and/or distribution panels) between the SES and the SSC Service Disconnect. Workspace and elevation shall be in accordance with Section 8.2(C) of the APS Interconnection Requirements. If it is necessary to go beyond the 10-foot maximum requirement, there is an allowance under NEC Art 705.31 for current limited circuit breakers or cable limiters to be installed at the tap point.
4. A neutral to ground (N-G) bond must be re-established in the SSC Service Disconnect, and GEC installed. Note however, that if the SSC is made via a breaker or fused disconnect switch located within the SES (i.e. not an externally mounted service disconnect), then the existing N-G bond will suffice. The grounding electrode conductor must be connected to the neutral bus (not the ground bus) in the SSC Service Disconnect and existing SES per NEC Art 250.24(A)(1) and exhibits in the code handbook.
5. The SSC shall be made without altering any factory installed and/or UL listed equipment, unless expressly authorized by the manufacturer. If panel manufacturer authorization is granted to perform a SSC, proof of such authorization and AHJ approval shall be provided to APS as part of the Interconnection Application process.
 - a. No drilling, tapping or replacing of factory installed bus bars or conductors unless performed by the manufacturer or its designated representative.
 - b. If lugs are replaced to accommodate additional conductors, the panel manufacturer must specify a listed kit or give written approval of the parts to be used. Appropriate torque specs shall also be provided.
 - c. When connecting to a field installed conductor a UL listed tap should be used. Breaking the conductor should be avoided - using a lay in lug is preferred. The connector's make and model number should be provided.
 - d. Fused and unfused conductors shall not occupy the same raceway unless they are isolated from each other via a firewall barrier in a manner acceptable to APS.
 - e. Bonding jumpers per NEC Art 250.92(B) shall be installed around reducing washers and any eccentric or concentric fitting knockouts remaining.
 - f. **Exception:** If panel manufacturer does not grant permission and/or have a kit to perform the Tap required, a field evaluation is required in order to perform the SSC. In this case, the Customer shall provide APS the Letter of Compliance issued to the Nationally Recognized Testing Laboratory (NRTL) certified by OSHA to perform the evaluation (i.e. CSA, TUV, UL, etc.) as well as a photograph of the approval sticker affixed to the SES at the time the work is completed in the field. A full list of authorized NRTL program providers can be located at <https://www.osha.gov/dts/otpca/nrtl/nrtllist.html>
6. Per NEC Art 225.32, the Service Disconnect shall be readily accessible.
7. Per NEC Art 240.24 (B), all over-current devices protecting the conductors supplying the premises shall be readily accessible to the occupant.



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8. No Customer connections or equipment are permitted in the Utility sealed metering compartment or pull-section of the SES. Any SSC shall be made in either (a) the applicable Customer accessible section of the SES (e.g. large system switchgear) or (b) a field installed NEMA 3R rated gutter or tap box (applies to meter-main or main-lug-only), and a label shall be placed at the SES in accordance with Section 8 of the APS Interconnection Requirements.
9. APS secondary electrical service conductors are not fused and can only be de-energized by APS personnel. Customer will need to contact APS to arrange for the electrical service to be de-energized prior to performing a SSC. Since APS will not re-energize the service following completion of the SSC unless an electrical clearance (“green tag”) has been issued by the AHJ, it is important that Customer coordinate this work very closely with APS and the AHJ. **In an area where there is no plan review or permit requirement imposed by the AHJ, a Third-Party Inspection is required to be completed with any/all corrections addressed by Customer Representative. In addition, the Third-Party Inspection report shall be stamped by a Professional Engineer (Electrical) registered in the State of Arizona and submitted to APS prior to meter-set.**
10. The maximum output current nameplate rating of the Generator(s) shall not exceed the 100% continuous duty rating of the APS transformer or service run. Note that the ratings of the APS transformer and service run do not necessarily match the SES rating. APS will notify Customer if any APS equipment is over-dutied following APS review of the Interconnection Application. Any required equipment upgrades shall be performed at Customer’s sole expense.

NOTE: For a typical SSC, APS requires a two disconnect switch configuration. The first switch is fused and constitutes the Photovoltaic System Service Disconnect Switch as is required by the NEC. The second switch is the Photovoltaic System Utility Disconnect Switch as is required by APS. The following example illustrates this configuration:

