FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS & INTENT

- PROPRIETARY INVERTER ISOLATION/CONTROL EQUIPMENT MAY VARY DEPENDING ON TECHNOLOGY (INSIDE PANEL OR SEPARATE DEVICE).
- APS DOES NOT PERMIT BACKFEEDING THE GRID WITH BATTERY ENERGY IRRESPECTIVE IF ENERGY TO CHARGE THE BATTERY ORIGINATED FROM APS.
- FOR BACKUP POWER SYSTEMS, ISOLATION/SEPARATION FROM THE GRID IS REQUIRED DURING A GRID OUTAGE
- FOR SYSTEMS THAT PROVIDE LOAD SHIFTING/PEAK SHAVING (OF CUSTOMER USAGE), DER SYSTEMS ARE REQUIRED TO SHUT-DOWN DURING A GRID OUTAGE
- PROVISIONS FOR GENERATOR NOT DEPICTED.
- THESE CONCEPTUAL DIAGRAMS DEPICT APS REQUIRED ISOLATION AND METERING EQUIPMENT ONLY.

![Diagram of AC Coupled Configuration A-1](https://example.com/diagram.png)

**AC COUPLED CONFIGURATION A-1**
**BATTERY CHARGED FROM GRID (DER STORAGE ONLY)**
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS & INTENT

- PROPRIETARY INVERTER ISOLATION/CONTROL EQUIPMENT MAY VARY DEPENDING ON TECHNOLOGY (INSIDE PANEL OR SEPARATE DEVICE).
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- FOR BACKUP POWER SYSTEMS, ISOLATION/SEPARATION FROM THE GRID IS REQUIRED DURING A GRID OUTAGE
- FOR SYSTEMS THAT PROVIDE LOAD SHIFTING/PEAK SHAVING (OF CUSTOMER USAGE), DER SYSTEMS ARE REQUIRED TO SHUT-DOWN DURING A GRID OUTAGE
- PROVISIONS FOR GENERATOR NOT DEPICTED.
- THESE CONCEPTUAL DIAGRAMS DEPICT APS REQUIRED ISOLATION AND METERING EQUIPMENT ONLY.

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AC COUPLED CONFIGURATION A-2
BATTERY CHARGED FROM GRID (DER STORAGE ONLY)
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS & INTENT

- PROPRIETARY INVERTER ISOLATION/CONTROL EQUIPMENT MAY VARY DEPENDING ON TECHNOLOGY (INSIDE PANEL OR SEPARATE DEVICE).
- APS DOES NOT PERMIT BACKFEEDING THE GRID WITH BATTERY ENERGY IRRESPECTIVE IF ENERGY TO CHARGE THE BATTERY ORIGINATED FROM APS.
- FOR BACKUP POWER SYSTEMS, ISOLATION/SEPARATION FROM THE GRID IS REQUIRED DURING A GRID OUTAGE
- FOR SYSTEMS THAT PROVIDE LOAD SHIFTING/PEAK SHAVING (OF CUSTOMER USAGE), DER SYSTEMS ARE REQUIRED TO SHUT-DOWN DURING A GRID OUTAGE.
- PROVISIONS FOR GENERATOR NOT DEPICTED.
- THESE CONCEPTUAL DIAGRAMS DEPICT APS REQUIRED ISOLATION AND METERING EQUIPMENT ONLY.
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS & INTENT

- PROPRIETARY INVERTER ISOLATION/CONTROL EQUIPMENT MAY VARY DEPENDING ON TECHNOLOGY (INSIDE PANEL OR SEPARETE DEVICE).
- APS DOES NOT PERMIT BACKFEEDING THE GRID WITH BATTERY ENERGY IRRESPECTIVE IF ENERGY TO CHARGE THE BATTERY ORIGINATED FROM APS.
- FOR BACKUP POWER SYSTEMS, ISOLATION/SEPARATION FROM THE GRID IS REQUIRED DURING A GRID OUTAGE.
- FOR SYSTEMS THAT PROVIDE LOAD SHIFTING/PEAK SHAVING (OF CUSTOMER USAGE), DER SYSTEMS ARE REQUIRED TO SHUT-DOWN DURING A GRID OUTAGE.
- PROVISIONS FOR GENERATOR NOT DEPICTED.
- THESE CONCEPTUAL DIAGRAMS DEPICT APS REQUIRED ISOLATION AND METERING EQUIPMENT ONLY.
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- PROPRIETARY INVERTER ISOLATION/CONTROL EQUIPMENT MAY VARY DEPENDING ON TECHNOLOGY (INSIDE PANEL OR SEPARATE DEVICE).
- APS DOES NOT PERMIT BACKFEEDING THE GRID WITH BATTERY ENERGY IRRESPECTIVE IF ENERGY TO CHARGE THE BATTERY ORIGINATED FROM APS.
- FOR BACKUP POWER SYSTEMS, ISOLATION/SEPARATION FROM THE GRID IS REQUIRED DURING A GRID OUTAGE
- FOR SYSTEMS THAT PROVIDE LOAD SHIFTING/PEAK SHAVING (OF CUSTOMER USAGE), DER SYSTEMS ARE REQUIRED TO SHUT-DOWN DURING A GRID OUTAGE
- PROVISIONS FOR GENERATOR NOT DEPICTED.
- THESE CONCEPTUAL DIAGRAMS DEPICT APS REQUIRED ISOLATION AND METERING EQUIPMENT ONLY.
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- FOR BACKUP POWER SYSTEMS, ISOLATION/Separation FROM THE GRID IS REQUIRED DURING A GRID OUTAGE
- FOR SYSTEMS THAT PROVIDE LOAD SHIFTING/PEAK SHAVING (OF CUSTOMER USAGE), DER SYSTEMS ARE REQUIRED TO SHUT-DOWN DURING A GRID OUTAGE
- PROVISIONS FOR GENERATOR NOT DEPICTED.
- THESE CONCEPTUAL DIAGRAMS DEPICT APS REQUIRED ISOLATION AND METERING EQUIPMENT ONLY.
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS & INTENT

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FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS & INTENT

- PROPRIETARY INVERTER ISOLATION/CONTROL EQUIPMENT MAY VARY DEPENDING ON TECHNOLOGY (INSIDE PANEL OR SEPARATE DEVICE).
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- PROVISIONS FOR GENERATOR NOT DEPICTED.
- THESE CONCEPTUAL DIAGRAMS DEPICT APS REQUIRED ISOLATION AND METERING EQUIPMENT ONLY.
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS & INTENT

- Proprietary inverter isolation/control equipment may vary depending on technology (inside panel or separate device).
- APS does not permit backfeeding the grid with battery energy irrespective if energy to charge the battery originated from APS.
- For backup power systems, isolation/separation from the grid is required during a grid outage.
- For systems that provide load shifting/peak shaving (of customer usage), DER systems are required to shut-down during a grid outage.
- Provisions for generator not depicted.
- These conceptual diagrams depict APS required isolation and metering equipment only.

NOTE:

The backup load panel could be a separate load panel as shown in this diagram or could be the entire main panel. If it is the entire main panel, then a second utility disconnect shall be required.
FIGURE ILLUSTRATES REPRESENTATIVE CONCEPTS & INTENT
- THESE CONCEPTUAL DIAGRAMS DEPICT APS REQUIRED ISOLATION AND METERING EQUIPMENT ONLY.
- DASHED BOXED EQUIPMENT BELOW MAY OPTIONALLY BE REPLACED WITH APS APPROVED METER TESTBLOCK ENCLOSURE.

SEE OPTIONAL EQUIPMENT TESTBLOCK
WIRING DIAGRAM SHEET 15
1. All Customer equipment shall be installed and maintained by the Customer in accordance with the local AHJ, NEC and APS. If no jurisdictional authority is responsible, a Letter In-Lieu of Electrical Clearance shall be required following completion of all work.

2. DER systems with storage utilized to serve a Customer back-up load panel will require an Automatic Disconnect Switch (ADS) to isolate the Customer back-up system in the event of a utility outage. The Customer is responsible for selecting and installing any devices required to affect this transfer. The ADS may be integrated into a DER storage system, inverter/battery charger or may be a separate device.

3. DER systems with storage installed in a stand-alone application shall include an associated meter socket and disconnects as shown.

4. The Utility Disconnect shall be connected between the Electric Service Entrance Section (SES) and DER system as shown. The Customer-fused disconnect required for residential or commercial DER systems with a short circuit rating greater than 10 kA shall be connected between the SES and Utility Disconnect.

5. The SES, Utility Disconnect, production meter socket(s) and meter disconnects shall be grouped together within a maximum distance of 10' with no obstructions and Readily Accessible per APS ESRM.

   **EXCEPTION:** If conditions prohibit grouping the Utility Disconnect(s), production meter socket(s) and meter disconnect(s) within 10' of the SES, the production meter socket(s) and associated Utility Disconnect and meter isolation disconnect(s) shall be grouped together at an alternate location; however, APS approval is required. The alternate location must be a Readily Accessible location per APS ESRM. The SES shall have signage indicating an interconnected generator, and express concise directions to the location of the Utility Disconnect, the production meter socket and meter isolation disconnect as applicable. The Utility Disconnect shall have signage with express concise directions to the location of the SES.

   The Utility Disconnect, production meter socket(s) and meter disconnect(s) shall be a minimum of 36” from any natural gas vent or water bib in accordance with the APS ESRM Section 301.25.

   If the SES is upgraded, a new SES may require relocation to meet present APS ESRM requirements. Consult an APS Design representative.

6. Label equipment as shown. Accurate labeling is crucial for APS personnel for safety and efficiency and avoids meter set fails and multiple truck rolls.

7. Individual Meter and Disconnects may be replaced with single Meter with Testblocks. See Pre-Approved Production Meter Sockets in the APS Residential Manufacture List at aps.com/esrm. Testblocks are NOT to replace Utility Disconnect. Retain all meter and disconnect labels.
LINE SIDE (TOP) TERMINALS
CONNECT PHASE "A" TO THE LEFT
ELEMENT (TERMIAL) OF THE METER
[LOOKING AT THE FRONT OF THE METER]

BI-DIRECTIONAL METER
[SPECIFY FORM #, MAKE & MODEL #]
240V, 100A, RINGTYPE
LINE SIDE (TOP) TERMINALS CONNECT PHASE "A" TO THE LEFT ELEMENT (TERMINAL) OF THE METER [LOOKING AT THE FRONT OF THE METER]

UNI-DIRECTIONAL METER [SPECIFY FORM #, MAKE & MODEL #]
240V, 100A, RINGTYPE
LINE SIDE (TOP) TERMINALS
CONNECT PHASE "A" TO THE LEFT
ELEMENT (TERMINAL) OF THE METER
[LOOKING AT THE FRONT OF THE METER]

TEST BLOCK METER
[SPECIFY FORM #, MAKE & MODEL #]
240V, 100A, RINGTYPE