

UniSource Energy

SERVICES

uesaz.com

Installer Drawing Checklist



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Project Information

Site Plan

(Required for all projects)

1. The installation address and property owner name are shown.	YES <input type="checkbox"/>
2. The drawing omits any copyrighted, proprietary, or confidential language.	YES <input type="checkbox"/>
3. The site plan includes a scale.	YES <input type="checkbox"/>
4. The utility equipment is labeled including: <ul style="list-style-type: none"> • Revenue Meter and Service Entrance • DG Meter Socket • Utility DG Disconnect Switch 	YES <input type="checkbox"/>
5. The proposed location of all PV system equipment, new and existing, is provided and is labeled including: <ul style="list-style-type: none"> • Inverter(s) • Modules • Sub-panels (if applicable) • Junction Boxes and Gutters associated with DG interconnection or Main Service (if applicable) • Additional Disconnect Switches associated with DG interconnection or Main Service (if applicable) • Energy Storage System (if applicable) 	YES <input type="checkbox"/>
6. The Revenue Meter and Service Entrance location are in accordance with UES's Electrical Service Requirements (SR-405).	YES <input type="checkbox"/>
7. The Revenue Meter and Service Entrance are within 10 feet of DG Meter Socket and Utility DG Disconnect Switch per UES's Electrical Service Requirements (SR-702).	YES <input type="checkbox"/>
8. The DG Meter Socket and Utility DG Disconnect Switch have the appropriate work space, location, and height per UES's Electrical Service Requirements (SR-405, SR-702).	YES <input type="checkbox"/>
9. Property lines, streets, gates and fences/walls are labeled.	YES <input type="checkbox"/>
10. Permanently installed structures and equipment are clearly labeled, if in proximity to utility and PV system equipment, including: <ul style="list-style-type: none"> • Carports • Porches • Breezeways • Patios • Doors • Windows • Gas meters • Stairways • Ramps • Ground AC Units 	YES <input type="checkbox"/>

Residential Diagram Guide

One Line Diagram (Required for all projects)	
1. The installation address and property owner name are shown.	YES <input type="checkbox"/>
2. The drawing omits any copyrighted, proprietary, or confidential language.	YES <input type="checkbox"/>
3. The Method of Interconnection (MOI) shown matches MOI listed on the application form.	YES <input type="checkbox"/>
4. Revenue Meter, Service Entrance and Interconnection: <ul style="list-style-type: none"> • The Service Entrance Panel is labeled new or existing. • The Service Entrance Panel make and model number are displayed if new or if the Service Entrance Panel is Solar Ready. • The Service Entrance Panel (Busbar) amperage, voltage, and phase are displayed. • The Service Entrance busing is drawn and labeled to accurately reflect product specifications (Solar Ready Panel, Multiple Main Breakers, etc.). • The PV Breaker amperage is displayed (if applicable). • The Main Circuit Breaker (MCB) amperage is displayed. • The PV Breaker's location is accurately reflected and per NEC (if applicable) • The make, model and catalog number for any lugs or adapters used for Line Side Taps are listed (if applicable). 	YES <input type="checkbox"/>
5. All of the proposed PV system equipment, new and existing, are displayed and labeled: <ul style="list-style-type: none"> • Inverter(s) • Modules • Sub-panels (if applicable) • Junction Boxes and Gutters associated with DG interconnection or Main Service (if applicable) • Additional Disconnect Switches associated with DG interconnection or Main Service (if applicable) • Energy Storage Systems (if applicable) 	YES <input type="checkbox"/>
6. DG Meter Socket: <ul style="list-style-type: none"> • Make and model are displayed. • Amperage, voltage, and phase are displayed. • Displays wiring consistent with SR-702 wiring schematics. • The DG Meter Socket and all related metering equipment and conduits are properly grounded. 	YES <input type="checkbox"/>
7. Utility DG Disconnect Switch: <ul style="list-style-type: none"> • Make and model are displayed. • Amperage, voltage, and phase are displayed. • Location is between the Revenue Meter and DG Meter Socket. • Displays wiring consistent with SR-702 wiring schematics. • The enclosure and conduits are properly grounded. • For Line Side Taps, the Utility DG Disconnect Switch is fused and the fuse amperage is displayed. 	YES <input type="checkbox"/>
8. Inverter(s): <ul style="list-style-type: none"> • Quantity is displayed and matches the Application. • Make and model(s) are displayed and matches the Application. • The total AC kW is displayed and matches the Application. 	YES <input type="checkbox"/>
9. Modules: <ul style="list-style-type: none"> • The Module quantity is displayed and matches the Application. • Make and model are displayed and matches the Application. • The total DC kW is displayed and matches the Application. 	YES <input type="checkbox"/>

Residential Diagram Guide

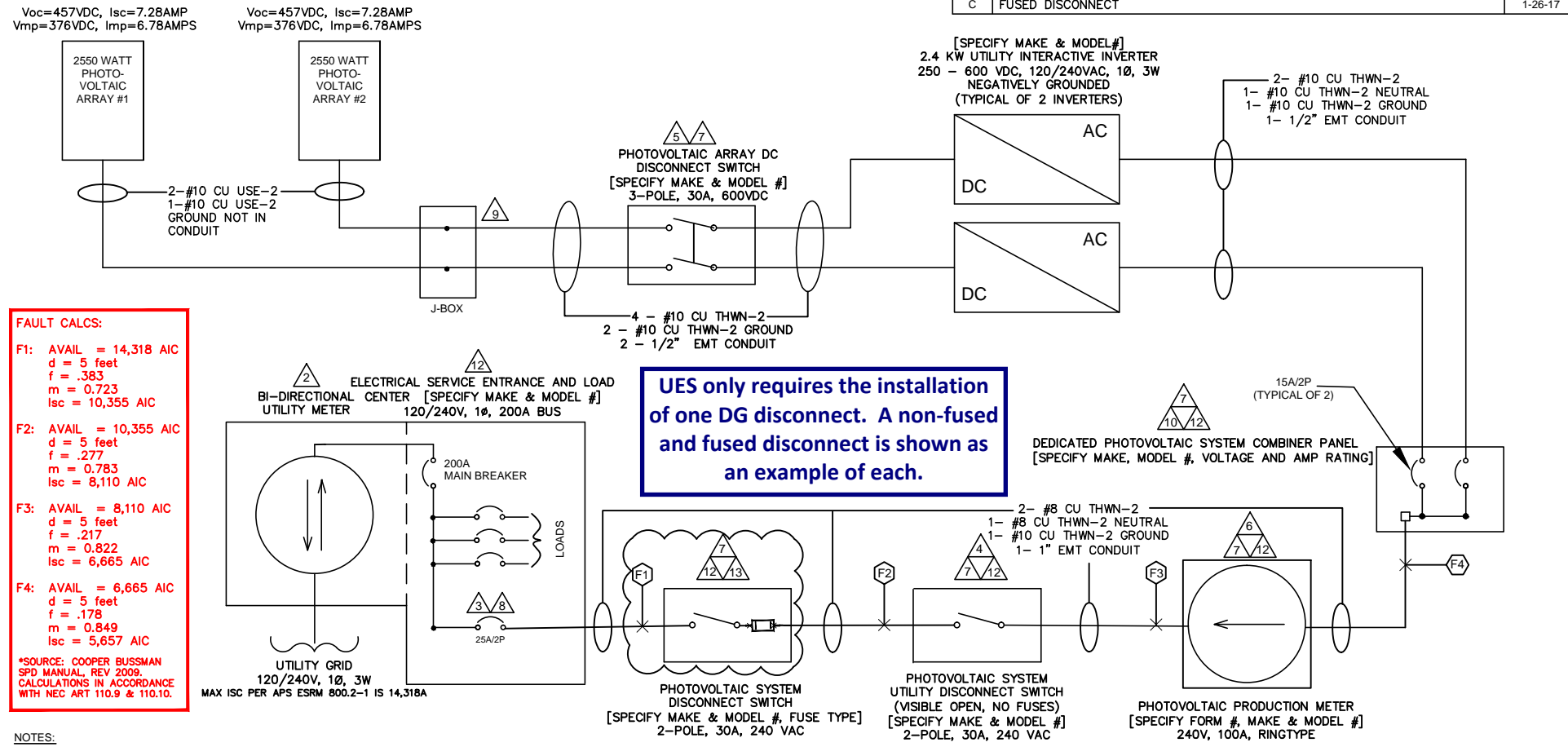
One Line Diagram (Continued)

10. Energy Storage System (if applicable): <ul style="list-style-type: none"> • The Energy Storage quantity is displayed and matches the Application. • The Energy Storage make and model are displayed and matches the Application. • The total Maximum Output Power AC kW is displayed and matches the Application. • The backed-up loads are accurately displayed and labeled. • The Energy Storage System Configuration is accurately displayed. 	YES <input type="checkbox"/>
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DG Interconnection and Metering Elevation Plan

1. The installation address and property owner are shown.	YES <input type="checkbox"/>
2. The drawing omits any copyrighted, proprietary, or confidential language.	YES <input type="checkbox"/>
3. The elevation plan includes a scale.	YES <input type="checkbox"/>
4. The utility equipment is labeled and displayed to scale: <ul style="list-style-type: none"> • Revenue Meter and Service Entrance • DG Meter Socket • Utility DG Disconnect Switch 	YES <input type="checkbox"/>
5. All PV system equipment, new and existing, is labeled and displayed to scale: <ul style="list-style-type: none"> • Inverter(s) • Modules • Sub-panels (if applicable) • Junction Boxes and Gutters associated with DG interconnection or Main Service (if applicable) • Additional Disconnect Switches associated with DG interconnection or Main Service (if applicable) • Energy Storage Systems (if applicable) 	YES <input type="checkbox"/>
6. Approximate height of equipment is displayed.	YES <input type="checkbox"/>
7. Approximate spacing between main components is displayed.	YES <input type="checkbox"/>
8. The Revenue Meter and Service Entrance location are in accordance with UES's Electrical Service Requirements (SR-405).	YES <input type="checkbox"/>
9. The Revenue Meter and Service Entrance are within 10 feet of DG Meter Socket and Utility DG Disconnect Switch per UES's Electrical Service Requirements (SR-702).	YES <input type="checkbox"/>
10. The DG Meter Socket and Utility DG Disconnect Switch have the appropriate work space, location, and height per UES's Electrical Service Requirements (SR-405, SR-702).	YES <input type="checkbox"/>
11. Gates and fences are displayed and labeled.	YES <input type="checkbox"/>
12. Permanently installed structures and equipment are clearly labeled and displayed to scale, if in proximity to utility and PV system equipment, including: <ul style="list-style-type: none"> • Carports • Porches • Breezeways • Patios • Doors • Windows • Gas meters • Stairways • Ramps • Ground AC Units 	YES <input type="checkbox"/>

REV.	DESCRIPTION	DATE
C	FUSED DISCONNECT	1-26-17



UES only requires the installation of one DG disconnect. A non-fused and fused disconnect is shown as an example of each.

FAULT CALCS:

F1: AVAIL = 14,318 AIC
d = 5 feet
f = .383
m = 0.723
lsc = 10,355 AIC

F2: AVAIL = 10,355 AIC
d = 5 feet
f = .277
m = 0.783
lsc = 8,110 AIC

F3: AVAIL = 8,110 AIC
d = 5 feet
f = .217
m = 0.822
lsc = 6,665 AIC

F4: AVAIL = 6,665 AIC
d = 5 feet
f = .178
m = 0.849
lsc = 5,657 AIC

*SOURCE: COOPER BUSSMAN SPD MANUAL, REV. 2009. CALCULATIONS IN ACCORDANCE WITH NEC ART 110.9 & 110.10.

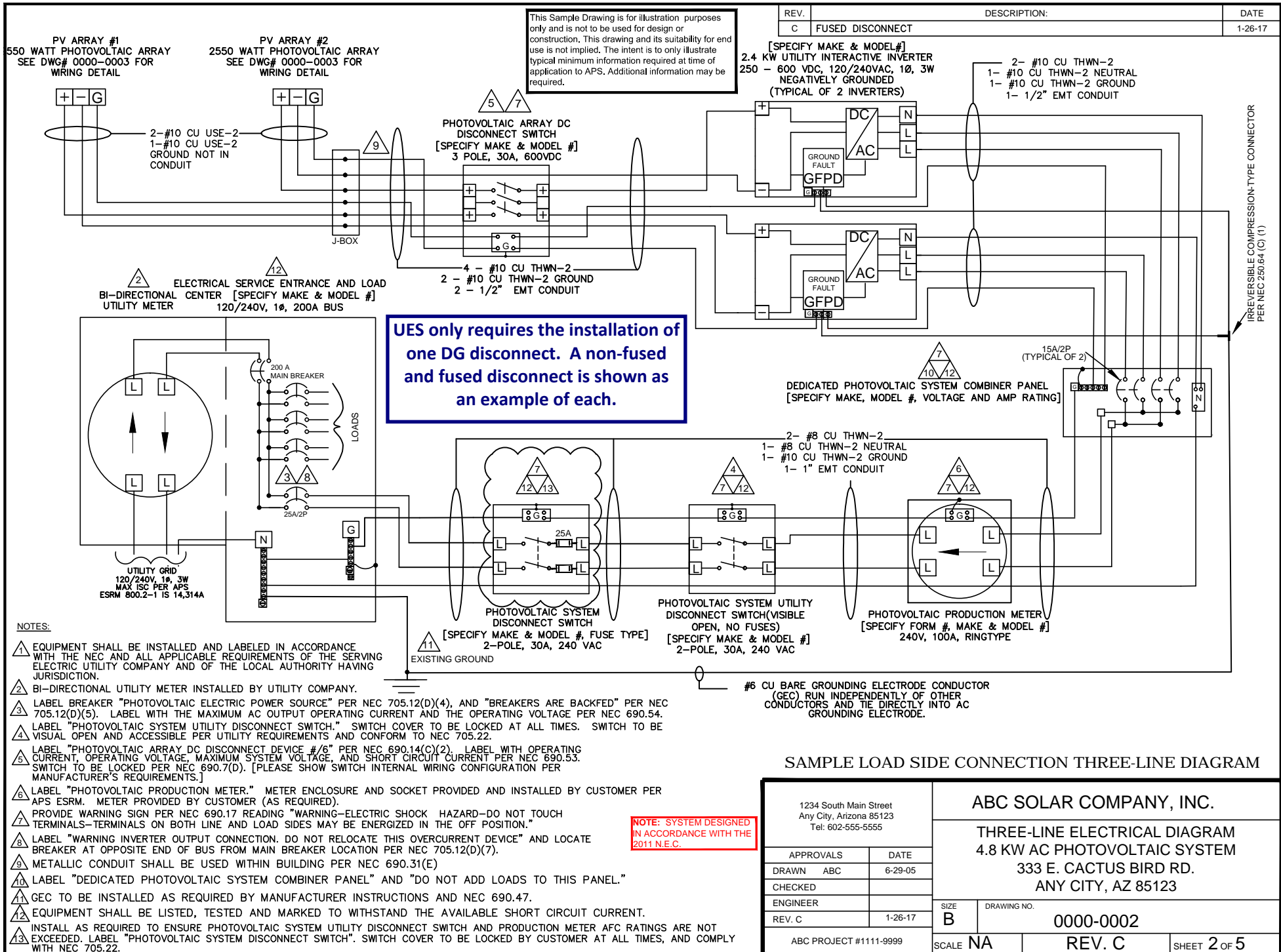
- NOTES:**
- ⚠ EQUIPMENT SHALL BE INSTALLED AND LABELED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
 - ⚠ BI-DIRECTIONAL UTILITY METER INSTALLED BY UTILITY COMPANY.
 - ⚠ LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.12(D)(4), AND "BREAKERS ARE BACKFED" PER NEC 705.12(D)(5). LABEL WITH THE MAXIMUM AC OUTPUT OPERATING CURRENT AND THE OPERATING VOLTAGE PER NEC 690.54.
 - ⚠ LABEL "PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH." SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISUAL OPEN AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
 - ⚠ LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT DEVICE #/6" PER NEC 690.14(C)(2). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED PER NEC 690.7(D). [PLEASE SHOW SWITCH INTERNAL WIRING CONFIGURATION PER MANUFACTURER'S REQUIREMENTS.]
 - ⚠ LABEL "PHOTOVOLTAIC PRODUCTION METER." METER ENCLOSURE AND SOCKET PROVIDED AND INSTALLED BY CUSTOMER PER APS ESRM. METER PROVIDED BY CUSTOMER (AS REQUIRED).
 - ⚠ PROVIDE WARNING SIGN PER NEC 690.17 READING "WARNING-ELECTRIC SHOCK HAZARD-DO NOT TOUCH TERMINALS-TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION."
 - ⚠ LABEL "WARNING INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE" AND LOCATE BREAKER AT OPPOSITE END OF BUS FROM MAIN BREAKER LOCATION PER NEC 705.12(D)(7).
 - ⚠ METALLIC CONDUIT SHALL BE USED WITHIN BUILDING PER NEC 690.31(E)
 - ⚠ LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "DO NOT ADD LOADS TO THIS PANEL."
 - ⚠ GEC TO BE INSTALLED AS REQUIRED BY MANUFACTURER INSTRUCTIONS AND NEC 690.47.
 - ⚠ EQUIPMENT SHALL BE LISTED, TESTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.
 - ⚠ INSTALL AS REQUIRED TO ENSURE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH AND PRODUCTION METER AFC RATINGS ARE NOT EXCEEDED. LABEL "PHOTOVOLTAIC SYSTEM DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED BY CUSTOMER AT ALL TIMES, AND COMPLY WITH NEC 705.22.

NOTE: SYSTEM DESIGNED IN ACCORDANCE WITH THE 2011 N.E.C.

This Sample Drawing is for illustration purposes only and is not to be used for design or construction. This drawing and its suitability for end use is not implied. The intent is to only illustrate typical minimum information required at time of application to APS. Additional information may be required.

SAMPLE LOAD SIDE CONNECTION ONE - LINE DIAGRAM

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY, INC.	
APPROVALS		DATE	
DRAWN ABC		06-29-05	
CHECKED			
ENGINEER			
REV. C		1-26-17	
ABC PROJECT #1111-9999		SIZE B	DRAWING NO. 0000-0001
SCALE NA		REV. C	SHEET 1 OF 5



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REV.	DESCRIPTION:	DATE
C	FUSED DISCONNECT	1-26-17

UES only requires the installation of one DG disconnect. A non-fused and fused disconnect is shown as an example of each.

- NOTES:**
- 1. EQUIPMENT SHALL BE INSTALLED AND LABELED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
 - 2. BI-DIRECTIONAL UTILITY METER INSTALLED BY UTILITY COMPANY.
 - 3. LABEL BREAKER "PHOTOVOLTAIC ELECTRIC POWER SOURCE" PER NEC 705.12(D)(4), AND "BREAKERS ARE BACKFED" PER NEC 705.12(D)(5). LABEL WITH THE MAXIMUM AC OUTPUT OPERATING CURRENT AND THE OPERATING VOLTAGE PER NEC 690.54.
 - 4. LABEL "PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH." SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISUAL OPEN AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
 - 5. LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT DEVICE #/6" PER NEC 690.14(C)(2). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED PER NEC 690.7(D). [PLEASE SHOW SWITCH INTERNAL WIRING CONFIGURATION PER MANUFACTURER'S REQUIREMENTS.]
 - 6. LABEL "PHOTOVOLTAIC PRODUCTION METER." METER ENCLOSURE AND SOCKET PROVIDED AND INSTALLED BY CUSTOMER PER APS ESRM. METER PROVIDED BY CUSTOMER (AS REQUIRED).
 - 7. PROVIDE WARNING SIGN PER NEC 690.17 READING "WARNING-ELECTRIC SHOCK HAZARD-DO NOT TOUCH TERMINALS-TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION."
 - 8. LABEL "WARNING INVERTER OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE" AND LOCATE BREAKER AT OPPOSITE END OF BUS FROM MAIN BREAKER LOCATION PER NEC 705.12(D)(7).
 - 9. METALLIC CONDUIT SHALL BE USED WITHIN BUILDING PER NEC 690.31(E)
 - 10. LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "DO NOT ADD LOADS TO THIS PANEL."
 - 11. GEC TO BE INSTALLED AS REQUIRED BY MANUFACTURER INSTRUCTIONS AND NEC 690.47.
 - 12. EQUIPMENT SHALL BE LISTED, TESTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.
 - 13. INSTALL AS REQUIRED TO ENSURE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH AND PRODUCTION METER AFC RATINGS ARE NOT EXCEEDED. LABEL "PHOTOVOLTAIC SYSTEM DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED BY CUSTOMER AT ALL TIMES, AND COMPLY WITH NEC 705.22.

NOTE: SYSTEM DESIGNED IN ACCORDANCE WITH THE 2011 N.E.C.

SAMPLE LOAD SIDE CONNECTION THREE-LINE DIAGRAM

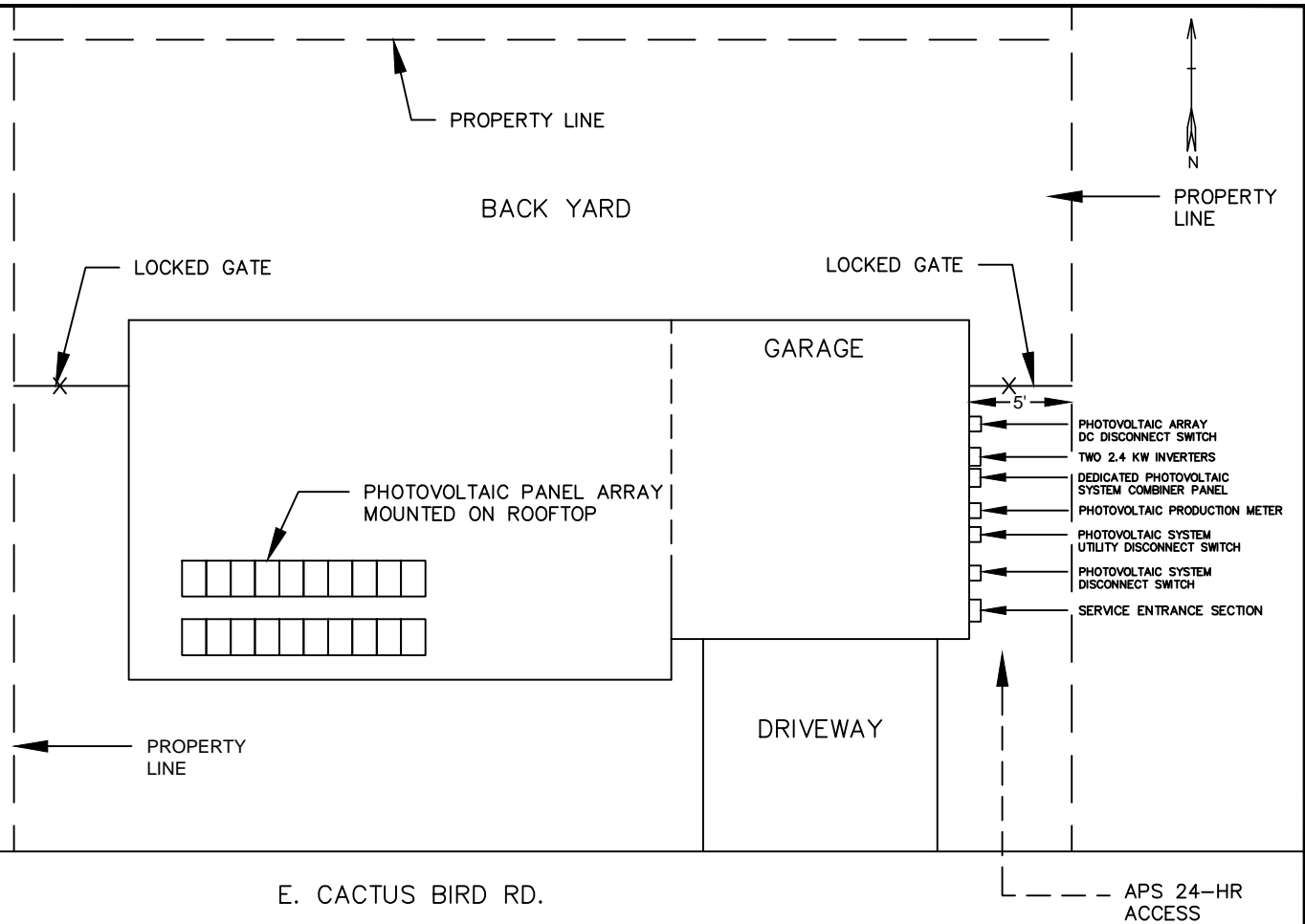
1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY, INC.	
		THREE-LINE ELECTRICAL DIAGRAM 4.8 KW AC PHOTOVOLTAIC SYSTEM 333 E. CACTUS BIRD RD. ANY CITY, AZ 85123	
APPROVALS	DATE	SIZE	DRAWING NO.
DRAWN ABC	6-29-05	B	0000-0002
CHECKED		SCALE	REV. C
ENGINEER		NA	2 OF 5
REV. C	1-26-17		
ABC PROJECT #1111-9999			

NOTE: UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT SERVICE ENTRANCE.

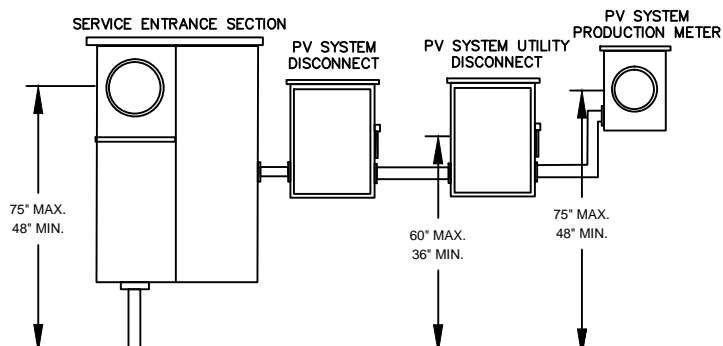
NOTE: REFERENCE SECTION 301.15 OF THE APS ESRM FOR ELECTRIC METER SEPARATION BETWEEN WATER AND GAS.

NOTE: WORKSPACE IN FRONT OF AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH APS AND NEC REQUIREMENTS. FOR APS REQUIREMENTS, REFERENCE SECTION 300 OF THE APS ESRM AND SECTION 8.2 OF THE APS INTERCONNECTION REQUIREMENTS.

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ELEVATION VIEW



SAMPLE LOAD SIDE CONNECTION SITE PLAN

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY, INC.	
APPROVALS		DATE	
DRAWN ABC		1-26-17	
CHECKED			
ENGINEER		DRAWING NO.	
REV.		0000-0005	
ABC PROJECT #1111-9999		SCALE NA	REV.
		SHEET 5 OF 5	

ABC SOLAR COMPANY, INC.

SITE PLAN
4.8 KW AC PHOTOVOLTAIC SYSTEM
333 E. CACTUS BIRD RD.
ANY CITY, AZ 85123

APPROVALS	DATE
DRAWN ABC	1-26-17
CHECKED	
ENGINEER	
REV.	

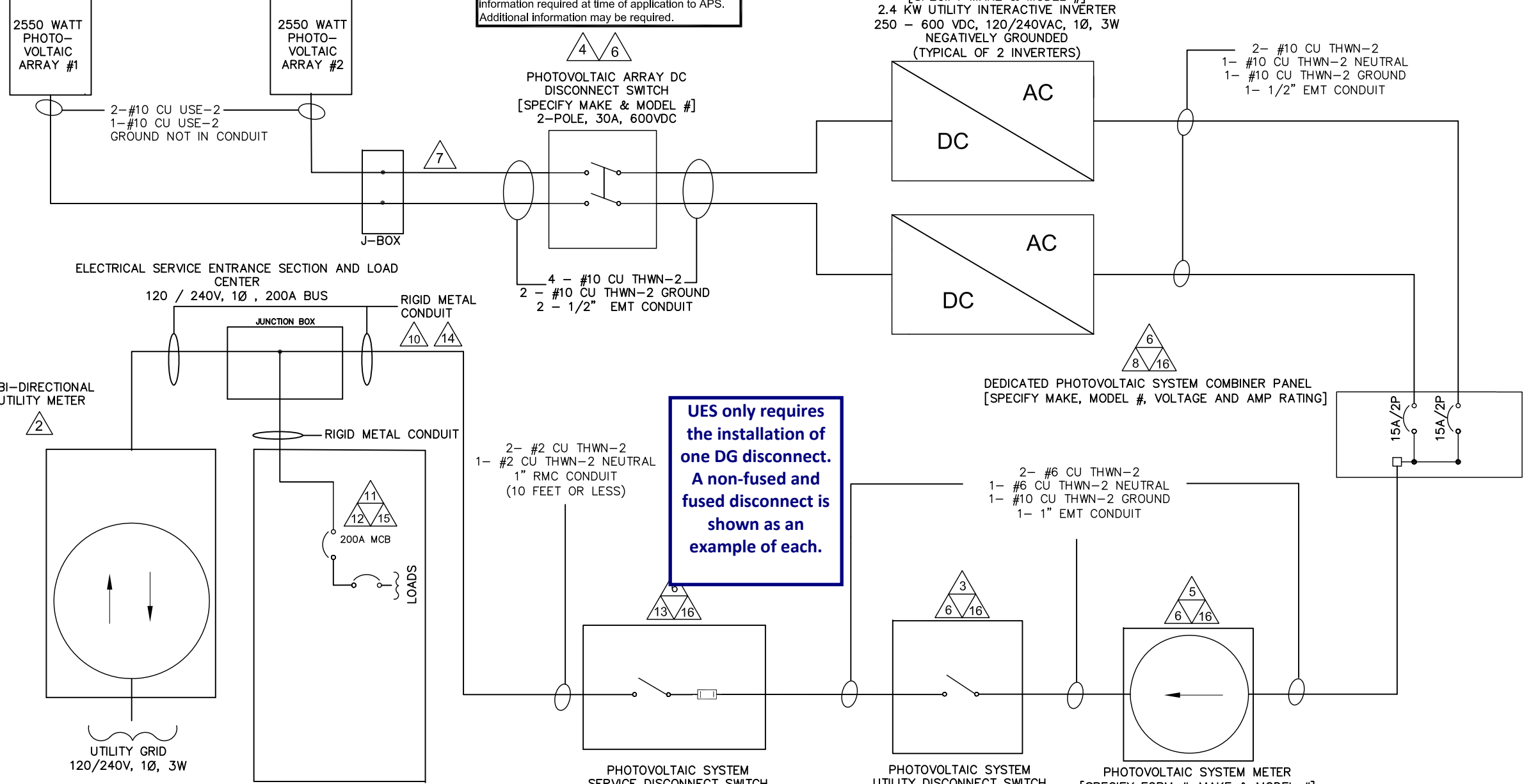
SIZE B	DRAWING NO. 0000-0005
SCALE NA	REV.
SHEET 5 OF 5	

Voc= 457 VDC, Isc= 7.28 AMPS
Vmp= 376 VDC, Imp= 6.78 AMPS
(TYPICAL OF 2 ARRAYS)

Voc= 457 VDC, Isc= 7.28 AMPS
Vmp= 376 VDC, Imp= 6.78 AMPS
(TYPICAL OF 2 ARRAYS)

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REV.	DESCRIPTION:	DATE
C	JUNCTION BOX	10/19/16



UES only requires the installation of one DG disconnect. A non-fused and fused disconnect is shown as an example of each.

- NOTES:**
- 1 EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
 - 2 BI-DIRECTIONAL UTILITY METER TO BE INSTALLED BY UTILITY COMPANY.
 - 3 LABEL "PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISUAL OPEN AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
 - 4 LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT SWITCH" PER NEC 690.14(C)(2). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED PER NEC 690.7(D).
 - 5 LABEL "PHOTOVOLTAIC POWER SYSTEM DEDICATED KWH METER". METER ENCLOSURE AND SOCKET PROVIDED AND INSTALLED BY CUSTOMER PER APS ESRM. METER PROVIDED BY CUSTOMER.
 - 6 PROVIDE WARNING SIGN PER NEC 690.17 READING "WARNING-ELECTRIC SHOCK HAZARD-DO NOT TOUCH TERMINALS-TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION."
 - 7 METALLIC CONDUIT SHALL BE USED WITHIN BUILDING PER NEC 690.31(E).
 - 8 LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "LOADS NOT TO BE ADDED TO THIS PANEL".
 - 9 GEC TO BE INSTALLED AS REQUIRED BY MANUFACTURER INSTRUCTIONS AND NEC 690.47.

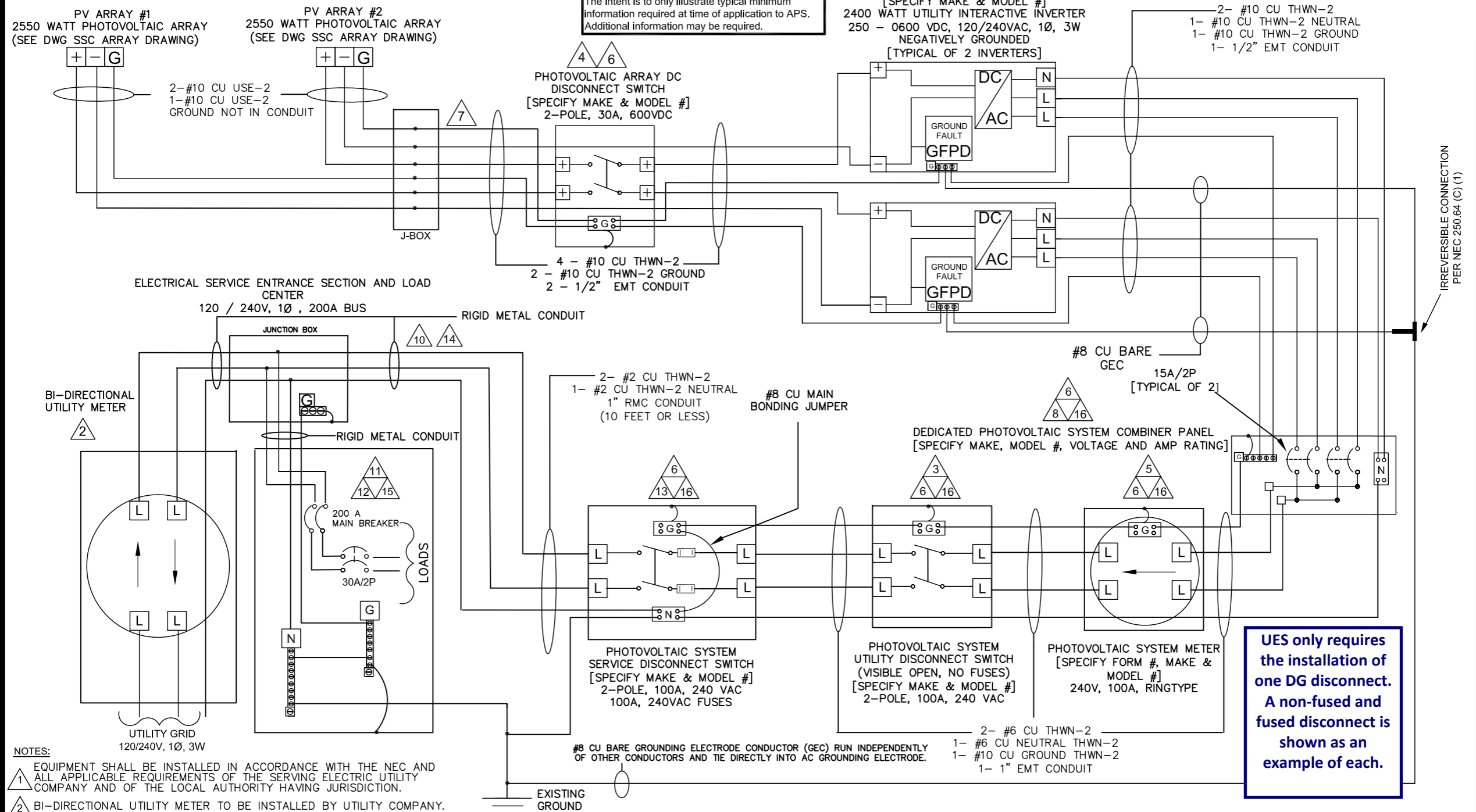
- 10 GROUNDING BUSHINGS AT EVERY ENTRY AND EXIT POINT TO ENCLOSURES WITH RMC
- 11 A PLACARD OR DIRECTORY IS INSTALLED AT THE SERVICE ENTRANCE WITH EXPLICIT DIRECTIONS TO THE LOCATION OF THE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH AS REQUIRED BY APS.
- 12 A PERMANENT PLACARD OR DIRECTORY IS INSTALLED PER NEC 705.10.
- 13 SUPPLY SIDE CONNECTION IS INSTALLED PER NEC 230, APS, ESRM, AND APS INTERCONNECTION REQUIREMENTS. LABEL "PHOTOVOLTAIC SYSTEM SERVICE DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED AT ALL TIMES.
- 14 SUPPLY SIDE CONNECTION IS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DOCUMENTATION IS INCLUDED WITH THE APS INTERCONNECTION APPLICATION. ENSURE UL LISTED CONNECTORS.
- 15 LABEL "WARNING - A GENERATION SOURCE IS CONNECTED TO THE SUPPLY (UTILITY) SIDE OF THE SERVICE DISCONNECTING MEANS. FOLLOW PROPER LOCKOUT/ TAGOUT PROCEDURES TO ENSURE THE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH IS OPENED PRIOR TO PERFORMING WORK ON THIS DEVICE."
- 16 EQUIPMENT SHALL BE LISTED, TESTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.

SAMPLE SUPPLY SIDE TAP ONE-LINE DIAGRAM

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY, INC.	
APPROVALS	DATE	ONE-LINE ELECTRICAL DIAGRAM 4.8 KW AC PHOTOVOLTAIC SYSTEM 999 N. CACTUS BIRD RD. ANY CITY, AZ 85123	
DRAWN ABC	04-05-05	SIZE A	CODE INTENT NO.
CHECKED		DRAWING NO. SSC ONE-LINE	
ENGINEER		REV. C	
M.G.R.		SCALE NA	
REV. C	10-19-16	SHEET 1 of 5	
ABC PROJECT #1111-9999			
DO NOT SCALE DRAWINGS			

REV.	DESCRIPTION:	DATE
C	APS CORRECTIONS	10-19-16

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- NOTES:**
- 1 EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NEC AND ALL APPLICABLE REQUIREMENTS OF THE SERVING ELECTRIC UTILITY COMPANY AND OF THE LOCAL AUTHORITY HAVING JURISDICTION.
 - 2 BI-DIRECTIONAL UTILITY METER TO BE INSTALLED BY UTILITY COMPANY.
 - 3 LABEL "PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED AT ALL TIMES. SWITCH TO BE VISUAL OPEN AND ACCESSIBLE PER UTILITY REQUIREMENTS AND CONFORM TO NEC 705.22.
 - 4 LABEL "PHOTOVOLTAIC ARRAY DC DISCONNECT SWITCH" PER NEC 690.14(C)(2). LABEL WITH OPERATING CURRENT, OPERATING VOLTAGE, MAXIMUM SYSTEM VOLTAGE, AND SHORT CIRCUIT CURRENT PER NEC 690.53. SWITCH TO BE LOCKED PER NEC 690.7(D).
 - 5 LABEL "PHOTOVOLTAIC POWER SYSTEM DEDICATED KWH METER". METER ENCLOSURE AND SOCKET PROVIDED AND INSTALLED BY CUSTOMER PER APS ESRM. METER PROVIDED BY CUSTOMER.
 - 6 PROVIDE WARNING SIGN PER NEC 690.17 READING "WARNING-ELECTRIC SHOCK HAZARD-DO NOT TOUCH TERMINALS-TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OFF POSITION."
 - 7 METALLIC CONDUIT SHALL BE USED WITHIN BUILDING PER NEC 690.31 (E).
 - 8 LABEL "DEDICATED PHOTOVOLTAIC SYSTEM COMBINER PANEL" AND "LOADS NOT TO BE ADDED TO THIS PANEL".
 - 9 GEC TO BE INSTALLED AS REQUIRED BY MANUFACTURER INSTRUCTIONS AND NEC 690.47.
 - 10 GROUNDING BUSHINGS AT EVERY ENTRY AND EXIT POINT TO ENCLOSURES WITH RMC

- 11 A PLACARD OR DIRECTORY IS INSTALLED AT THE SERVICE ENTRANCE WITH EXPLICIT DIRECTIONS TO THE LOCATION OF THE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH AS REQUIRED BY APS.
- 12 A PERMANENT PLACARD OR DIRECTORY IS INSTALLED PER NEC 705.10.
- 13 SUPPLY SIDE CONNECTION IS INSTALLED PER NEC 230, APS ESRM, AND APS INTERCONNECTION REQUIREMENTS. LABEL "PHOTOVOLTAIC SYSTEM SERVICE DISCONNECT SWITCH". SWITCH COVER TO BE LOCKED AT ALL TIMES.
- 14 SUPPLY SIDE CONNECTION IS INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DOCUMENTATION IS INCLUDED WITH THE APS INTERCONNECTION APPLICATION. ENSURE UL LISTED CONNECTORS.
- 15 LABEL "WARNING - A GENERATION SOURCE IS CONNECTED TO THE SUPPLY (UTILITY) SIDE OF THE SERVICE DISCONNECTING MEANS. FOLLOW PROPER LOCKOUT/ TAGOUT PROCEDURES TO ENSURE THE PHOTOVOLTAIC SYSTEM UTILITY DISCONNECT SWITCH IS OPENED PRIOR TO PERFORMING WORK ON THIS DEVICE."
- 16 EQUIPMENT SHALL BE LISTED, TESTED AND MARKED TO WITHSTAND THE AVAILABLE SHORT CIRCUIT CURRENT.

UES only requires the installation of one DG disconnect. A non-fused and fused disconnect is shown as an example of each.

SAMPLE SUPPLY SIDE TAP THREE-LINE DIAGRAM

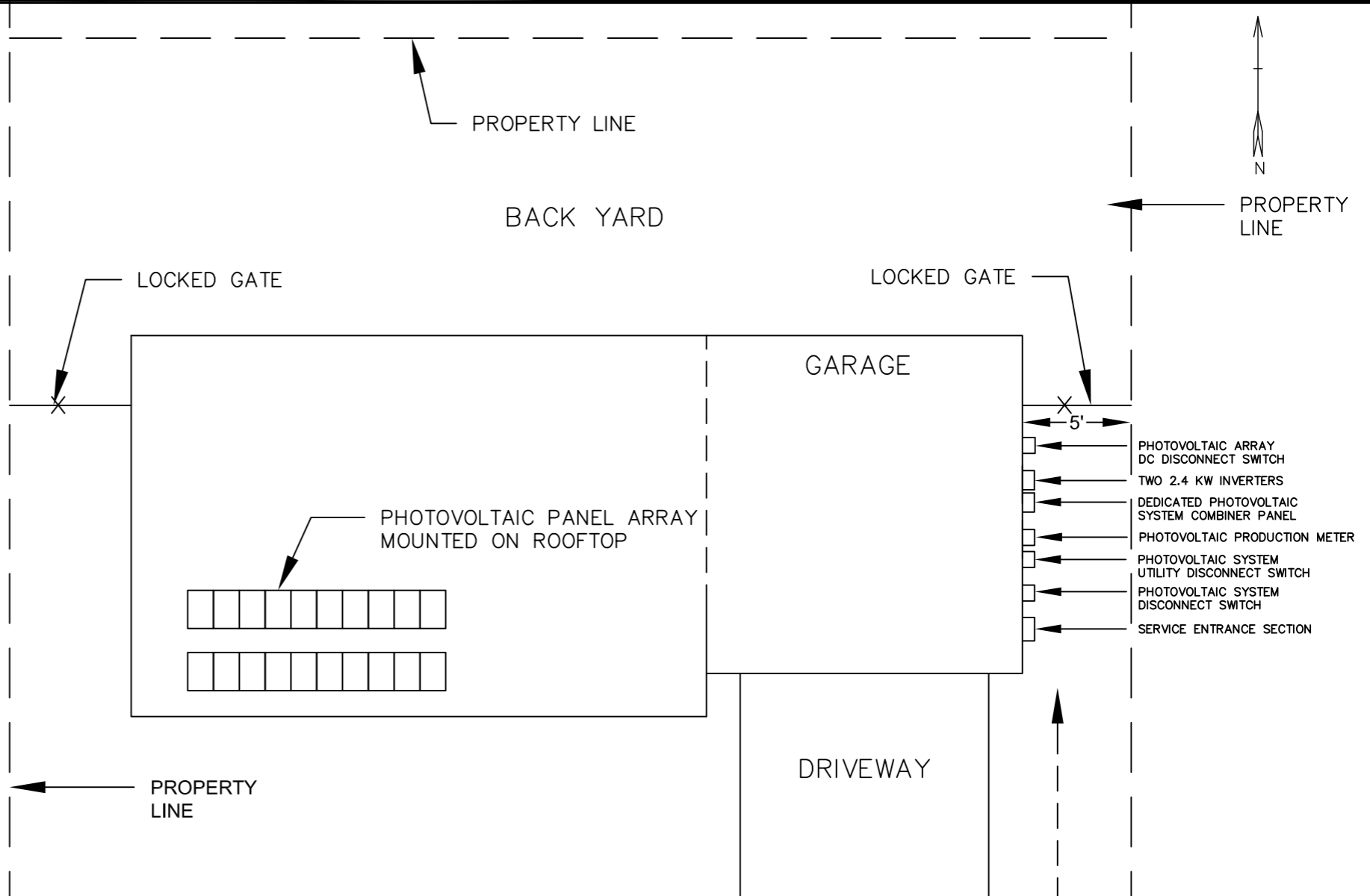
1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY, INC.	
APPROVALS	DATE	THREE-LINE ELECTRICAL DIAGRAM	
DRAWN ABC	04-05-05	4.8 KW AC PHOTOVOLTAIC SYSTEM	
CHECKED		999 N. CACTUS BIRD RD.	
ENGINEER		ANY CITY, AZ 85123	
M.G.R.		SIZE A	CODE INTENT NO.
REV. C	10-19-16	DRAWING NO.	
ABC PROJECT #1111-9999		SSC THREE-LINE	
DO NOT SCALE DRAWINGS	SCALE NA	REV. C	SHEET 2 OF 5

NOTE: UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT SERVICE ENTRANCE.

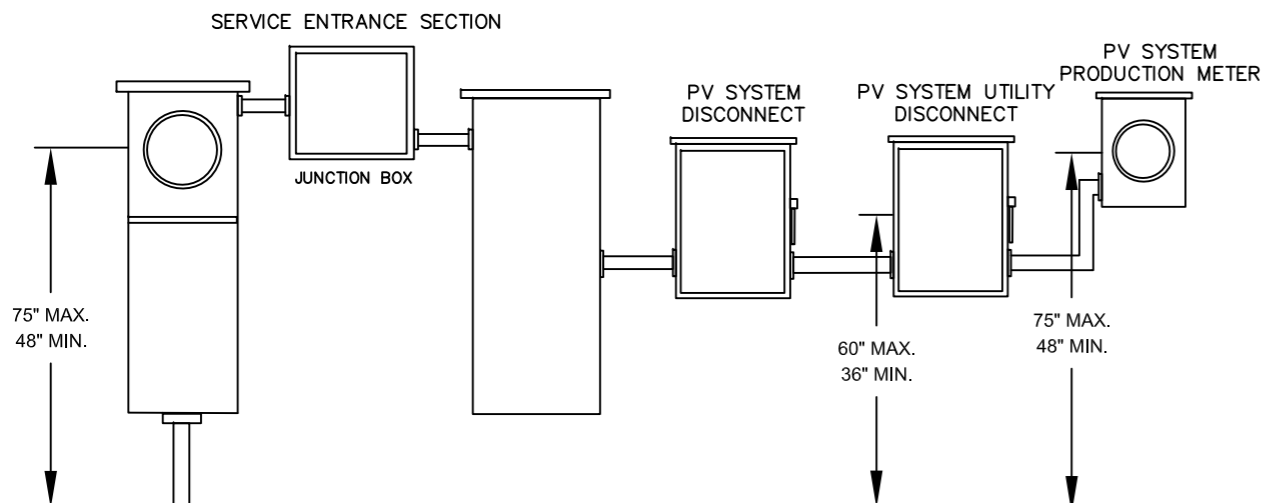
NOTE: REFERENCE SECTION 301.15 OF THE APS ESRM FOR ELECTRIC METER SEPARATION BETWEEN WATER AND GAS.

NOTE: WORKSPACE IN FRONT OF AC ELECTRICAL SYSTEM COMPONENTS SHALL BE IN ACCORDANCE WITH APS AND NEC REQUIREMENTS. FOR APS REQUIREMENTS, REFERENCE SECTION 300 OF THE APS ESRM AND SECTION 8.2 OF THE APS INTERCONNECTION REQUIREMENTS.

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ELEVATION VIEW



SAMPLE SITE PLAN

1234 South Main Street Any City, Arizona 85123 Tel: 602-555-5555		ABC SOLAR COMPANY, INC.	
APPROVALS		DATE	
DRAWN ABC		1-26-17	
CHECKED			
ENGINEER		DRAWING NO.	
REV.		0000-0005	
ABC PROJECT #1111-9999		SCALE NA	REV.
			SHEET 5 OF 5