EG4 6000XP SYSTEM WIRING DIAGRAMS

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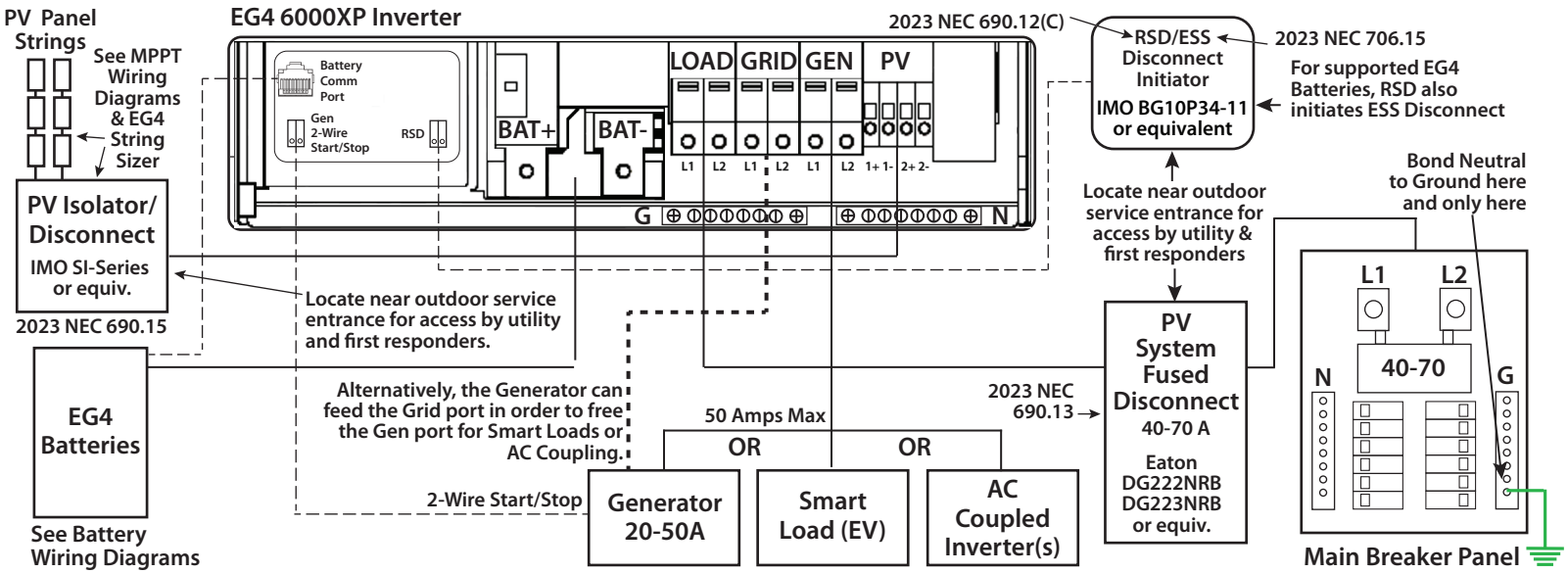
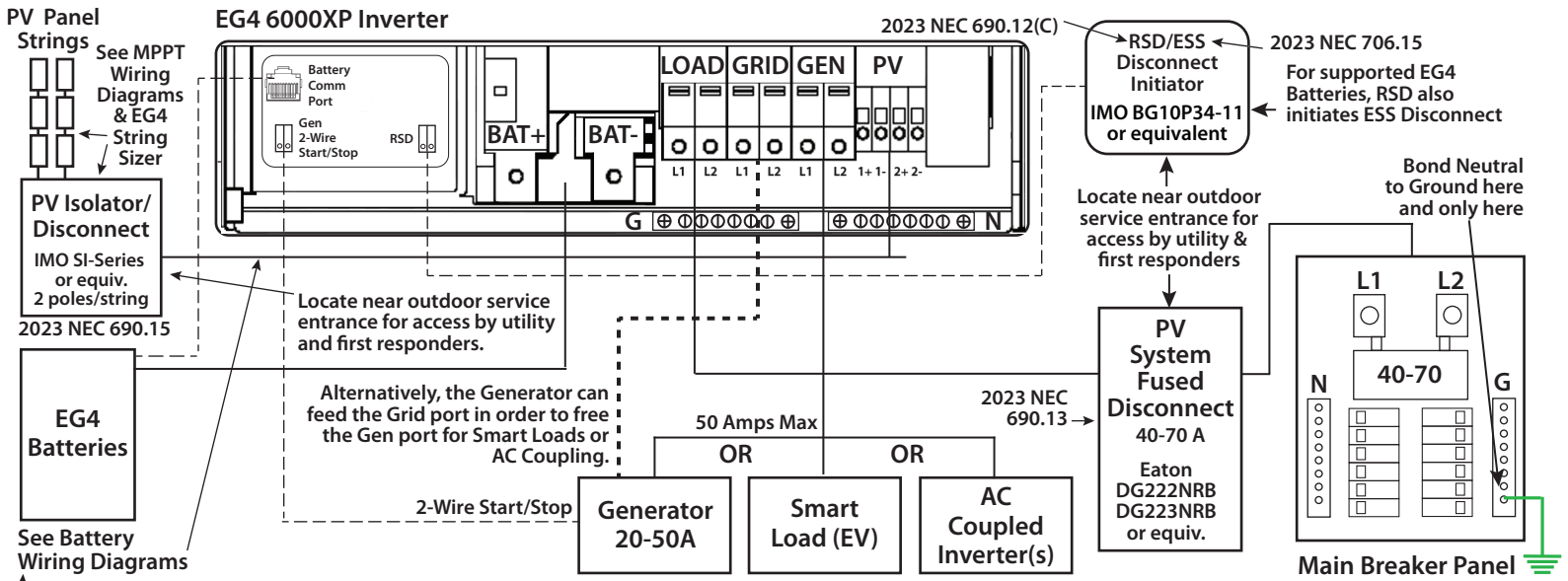
1. 6000XP - Off-Grid



1a. 6000XP - Off-Grid (with Notes)



PV INPUT DATA	
NUMBER OF MPPTS	2
INPUTS PER MPPT	1
MAX. USABLE INPUT CURRENT	17/17A
MAX. SHORT CIRCUIT INPUT CURRENT	25/25A
DC INPUT VOLTAGE RANGE	100-480 VDC
UNIT STARTUP VOLTAGE	100 VDC ± 10 VDC
MPP OPERATING VOLTAGE RANGE	120-385 VDC
NOMINAL MPPT VOLTAGE	320 VDC
MAXIMUM UTILIZED SOLAR POWER	8000W (4000W per MPPT)
RECOMMENDED MAXIMUM SOLAR INPUT	10000W

BATTERY DATA	
TYPE	Lead-acid/Lithium
MAX. DISCHARGE CURRENT	140A
MAX. CHARGE CURRENT	125A**
NOMINAL VOLTAGE	48 VDC
REC. MIN. BATTERY CAPACITY PER INVERTER	> 200AH

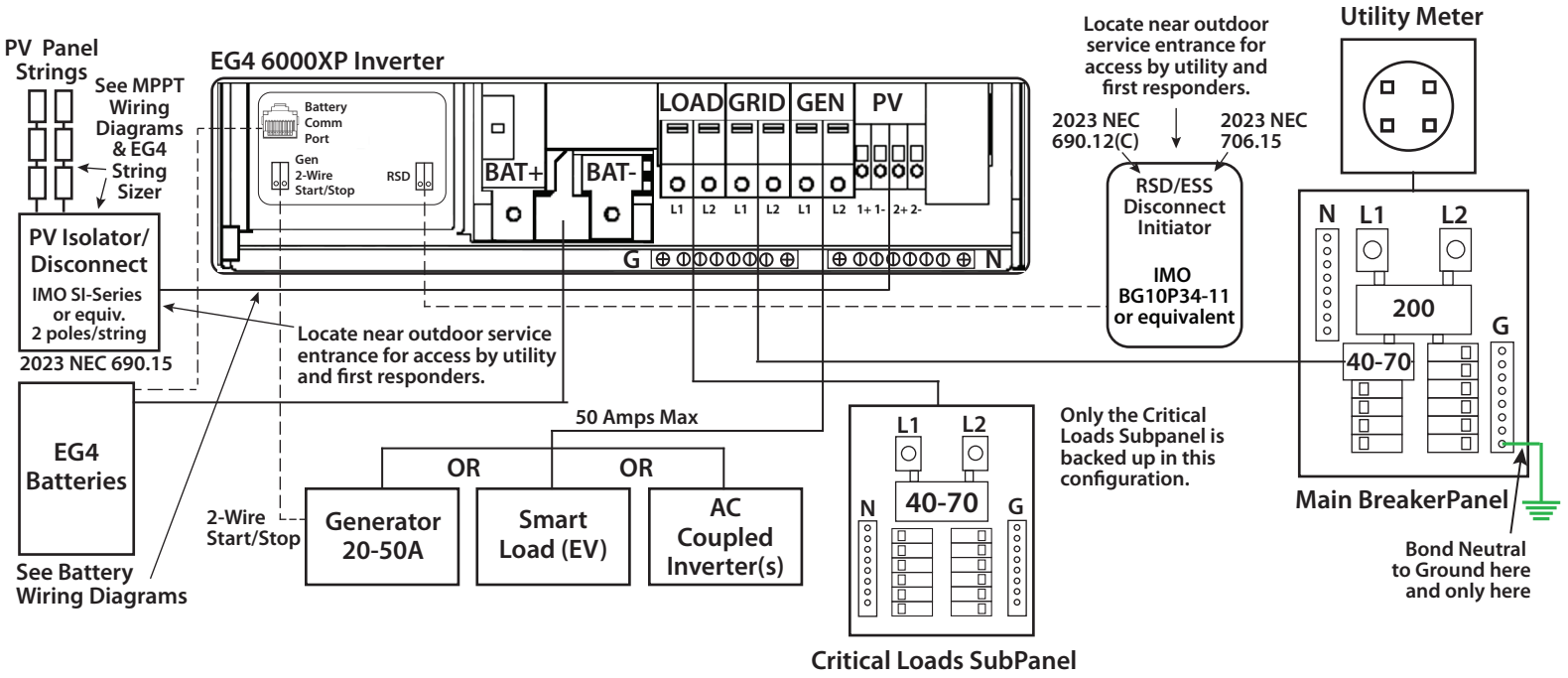
AC INPUT DATA	
NOMINAL AC VOLTAGE	120-240VAC
FREQUENCY	50/60Hz
MAX. CONTINUOUS AC CURRENT	37.5A @ 240VAC
MAX. AC INPUT POWER	9000W
AC BYPASS (GRID | GENERATOR)	50A | 50A

AC OUTPUT DATA	
OUTPUT VOLTAGE	120/240VAC
OUTPUT FREQUENCY	50/60Hz
MAX. CONTINUOUS OUTPUT CURRENT @ 240V	25A
MAX CONT. LINE WATTAGE	3000W
NOMINAL POWER OUTPUT	6000W
SURGE CAPACITY	11,000W for ≈5 seconds

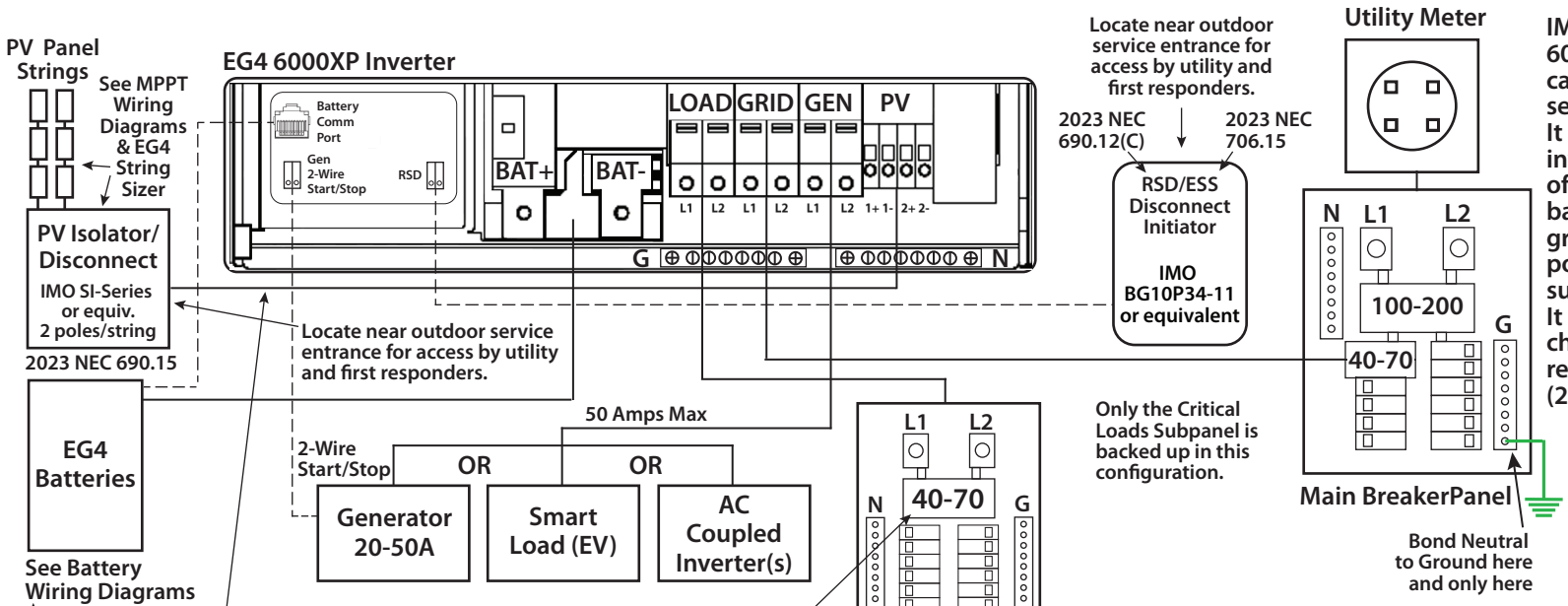
In Off-Grid single inverter installations with no grid input or generator present, the output circuit can be sized to 25 Amps x 1.25 = 31.25 A per inverter. Hence switchgear and overcurrent protection should be sized to 40 Amps.

For Off-Grid installations with a Generator or AC Coupled input, up to 50 Amps can be provided per inverter and passed through to the Loads. In these cases, a 40-70 Amp input and output circuit can be utilized (50 x 1.25 = 62.5 Amps per inverter - next sized breaker = 70 A) depending on how much amperage is available to pass through. A 70 Amp breaker will allow the full 50 Amps to pass through, a 60 Amp breaker will allow 48 Amps of pass-through.

2. 6000XP - Partial Home Backup with Grid Input



2a. 6000XP - Partial Home Backup with Grid Input (with Notes)



IMPORTANT NOTE: The EG4 6000xp inverter is not capable of providing sell-back power to the utility. It is only a backup or off-grid inverter with the capability of grid INPUT for charging batteries or passing through grid power through the load port to a critical loads subpanel or transfer switch. It is essentially a battery charger. Therefore it is not regulated by the NEC 705 (2023) Interconnection code.

For installations with AC inputs including Grid, Generator and/or AC Coupling, up to 50 Amps can be provided per inverter and passed through to the Loads. In these cases, a 40-70 Amp AC input and output circuit can be utilized depending on how much amperage is available (50 x 1.25 = 62.5 Amps per inverter - next sized breaker = 70 A). A 70 Amp breaker on both the grid panel and the backed-up loads subpanel will allow the full 50 Amps to be utilized by the subpanel. 60 Amp breakers will allow for 48 Amps of pass-through power.

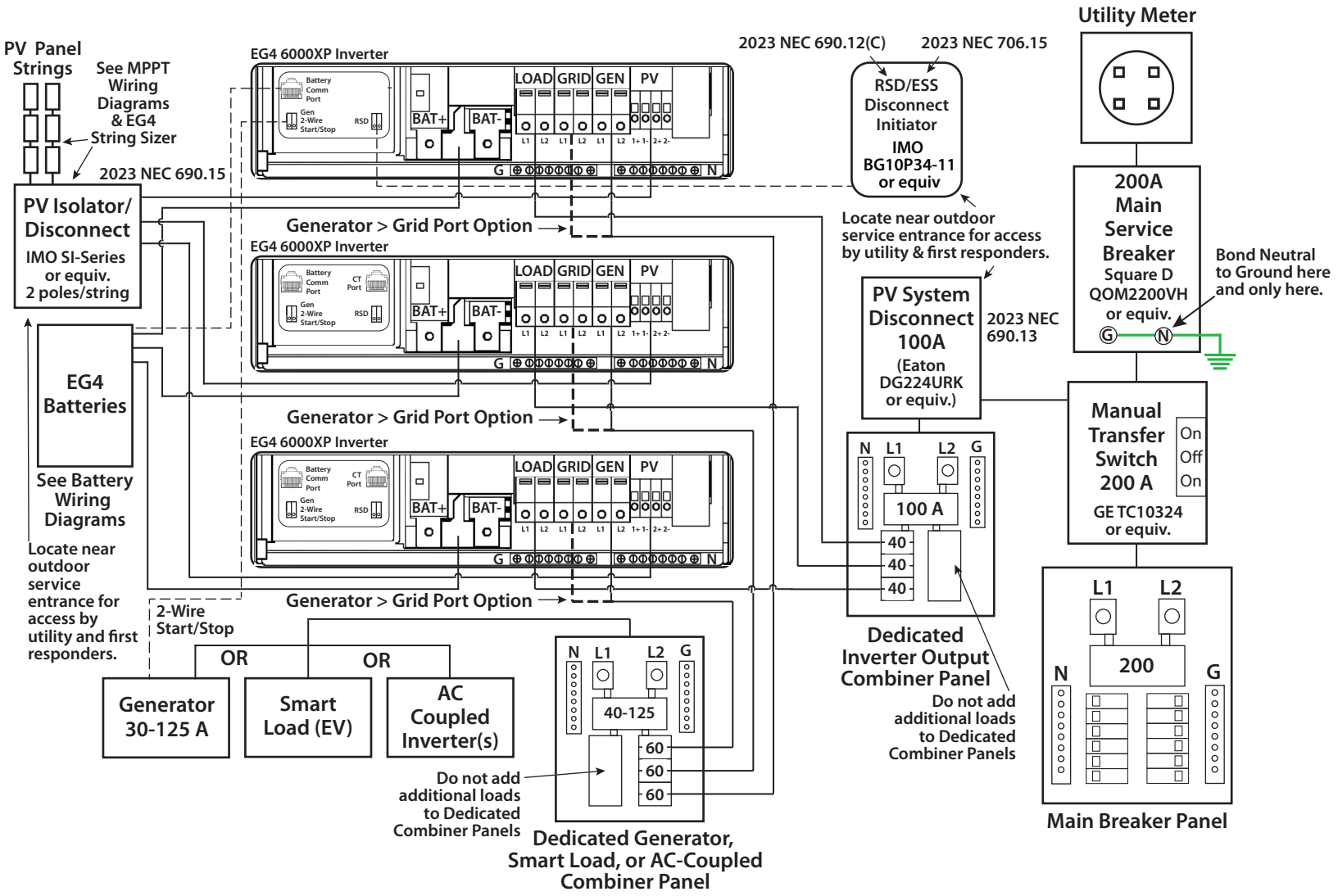
PV INPUT DATA	
NUMBER OF MPPTS	2
INPUTS PER MPPT	1
MAX. USABLE INPUT CURRENT	17/17A
MAX. SHORT CIRCUIT INPUT CURRENT	25/25A
DC INPUT VOLTAGE RANGE	100-480 VDC
UNIT STARTUP VOLTAGE	100 VDC ± 10 VDC
MPP OPERATING VOLTAGE RANGE	120-385 VDC
NOMINAL MPPT VOLTAGE	320 VDC
MAXIMUM UTILIZED SOLAR POWER	8000W (4000W per MPPT)
RECOMMENDED MAXIMUM SOLAR INPUT	10000W

BATTERY DATA	
TYPE	Lead-acid/Lithium
MAX. DISCHARGE CURRENT	140A
MAX. CHARGE CURRENT	125A**
NOMINAL VOLTAGE	48 VDC
REC. MIN. BATTERY CAPACITY PER INVERTER	> 200AH

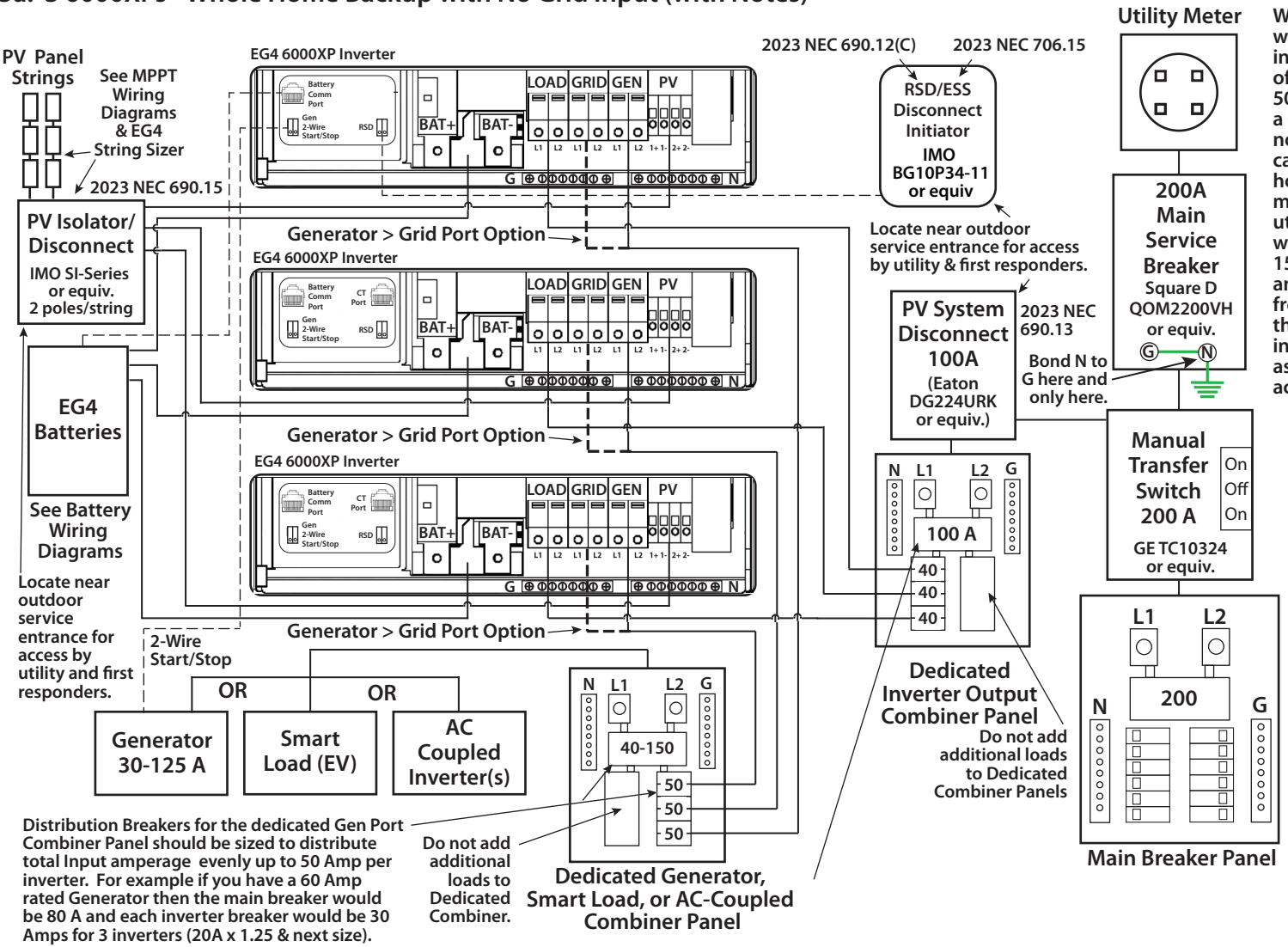
AC INPUT DATA	
NOMINAL AC VOLTAGE	120-240VAC
FREQUENCY	50/60Hz
MAX. CONTINUOUS AC CURRENT	37.5A @ 240VAC
MAX. AC INPUT POWER	9000W
AC BYPASS (GRID | GENERATOR)	50A | 50A

AC OUTPUT DATA	
OUTPUT VOLTAGE	120/240VAC
OUTPUT FREQUENCY	50/60Hz
MAX. CONTINUOUS OUTPUT CURRENT @ 240V	25A
MAX CONT. LINE WATTAGE	3000W
NOMINAL POWER OUTPUT	6000W
SURGE CAPACITY	11,000W for ≈5 seconds

3. 3 6000XPs - Whole Home Backup with No Grid Input



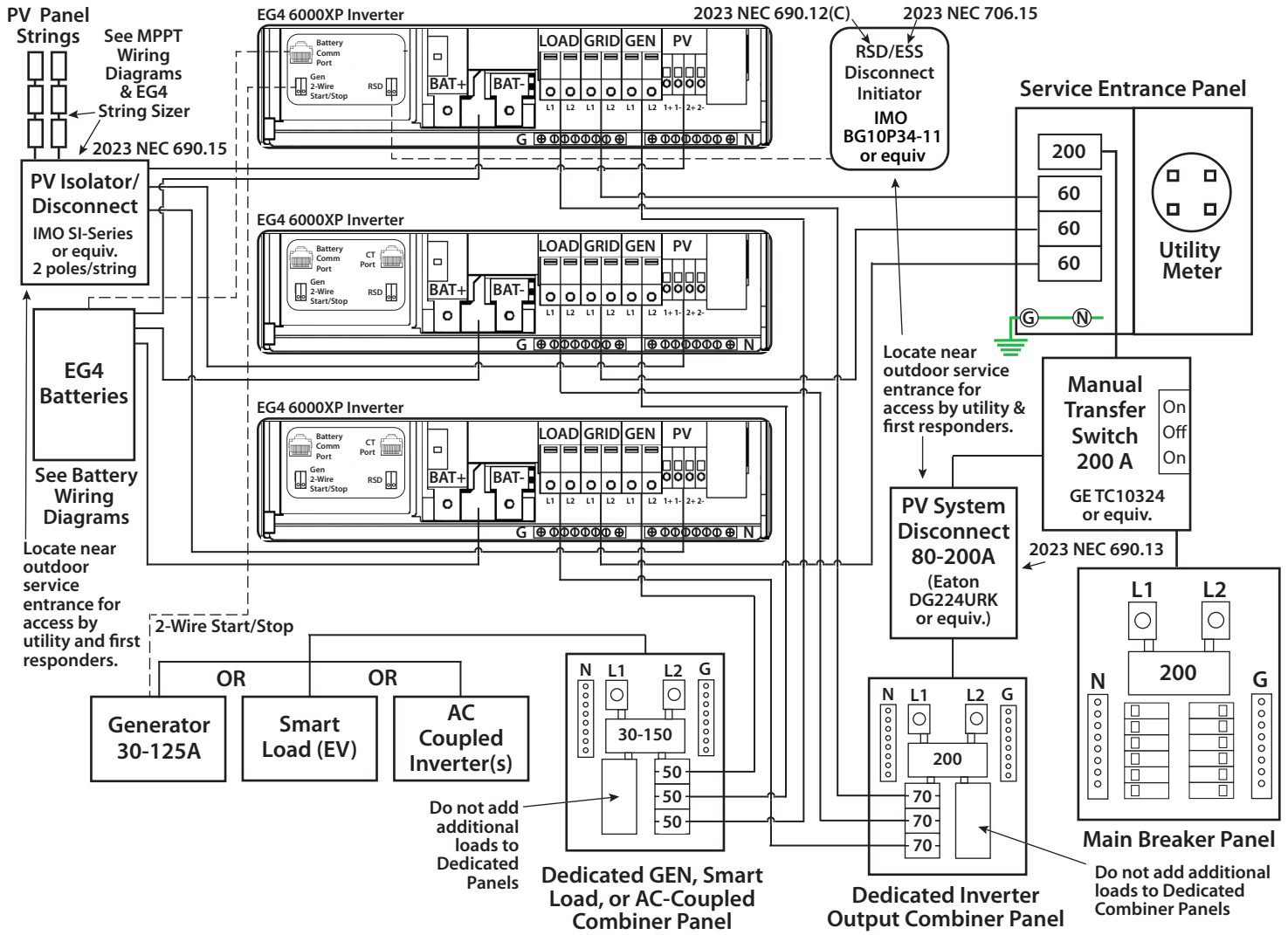
3a. 3 6000XPs - Whole Home Backup with No Grid Input (with Notes)



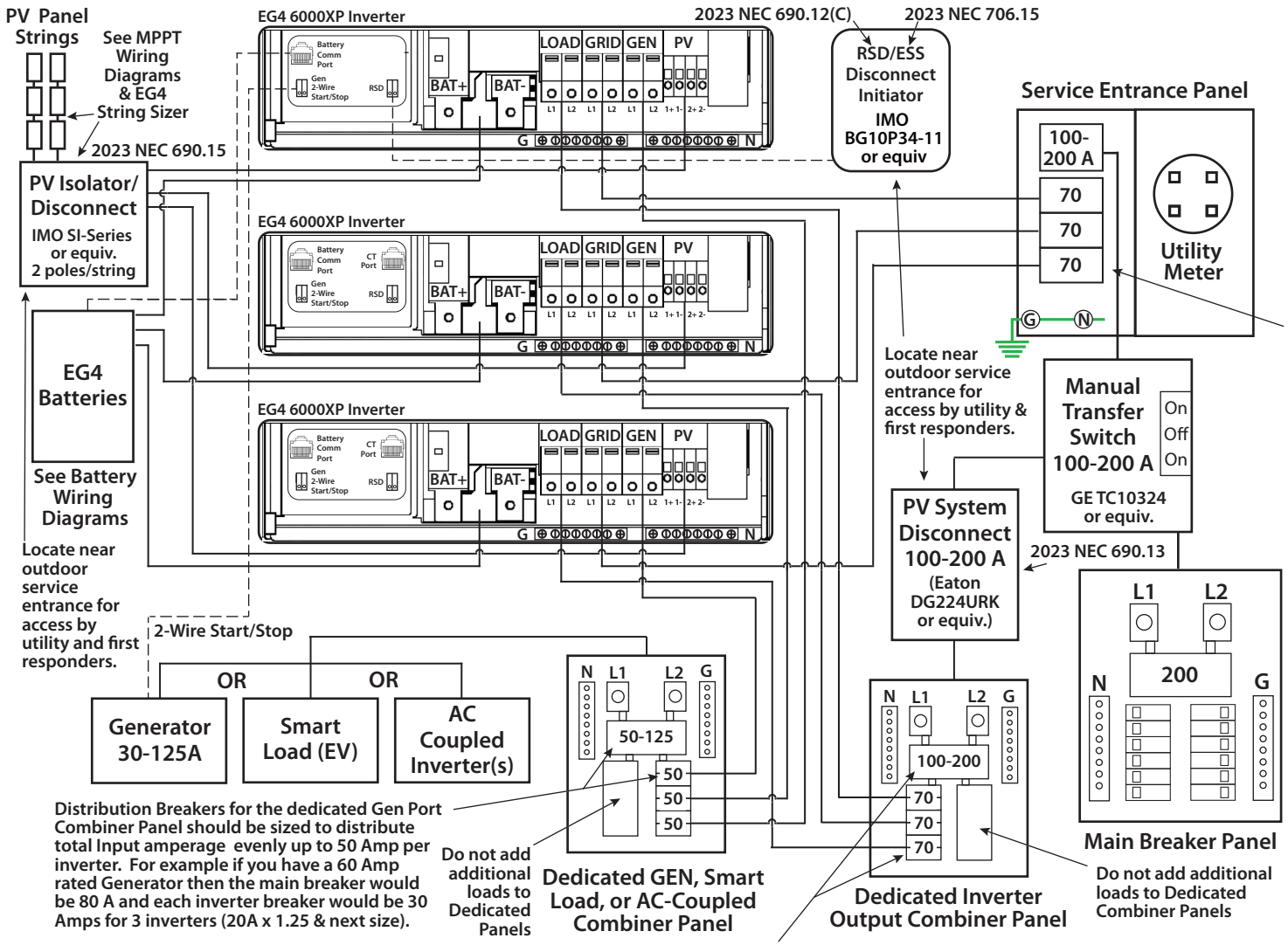
Whole home backup can be achieved with multiple inverters. Since each inverter can supply 25 Amps continuous of backup power and can pass-through 50 Amps of AC input power (either from a Generator or AC Coupled Solar in the no grid-input case) 3-6 inverter setups can provide the majority of what most homes need on a continuous basis. To match the full output of a 200 Amp utility service (160 A continuous) you would need 6 inverters (you would be at 150 Amps). Most homes don't draw anywhere near the 160 amps available from the utility and function usually in the 80-120 Amp range hence 4 or 5 inverters will cover most homes. A load assessment is called for when trying to achieve whole home backup.

For systems with no grid input but including a transfer switch to energize the Main Breaker Panel, the size of the output circuit must match the # of inverters and the needed generator pass-through power. For 3 inverters the total output is 75 amps continuous, so a 100 Amp circuit would suffice. However if you have a larger than 80 Amp Generator, then a larger circuit with the corresponding breakers would be needed to allow the full pass-through of the generator. For choosing breakers for individual inverters a 40 A Breaker will allow for full inverter output but a 70 A breaker is needed for full 50 Amp pass-through (50 x 1.25 = 62.5 Amps per inverter - next sized breaker = 70 A). Alternately a 60 Amp breaker will allow 48 Amps of pass-through.

4. 3 6000XPs - Whole Home Backup with Grid Input by Service Entrance Panel (Option 1)



4a. 3 6000XPs - Whole Home Backup with Grid Input by Service Entrance Panel (Option 1) (with Notes)



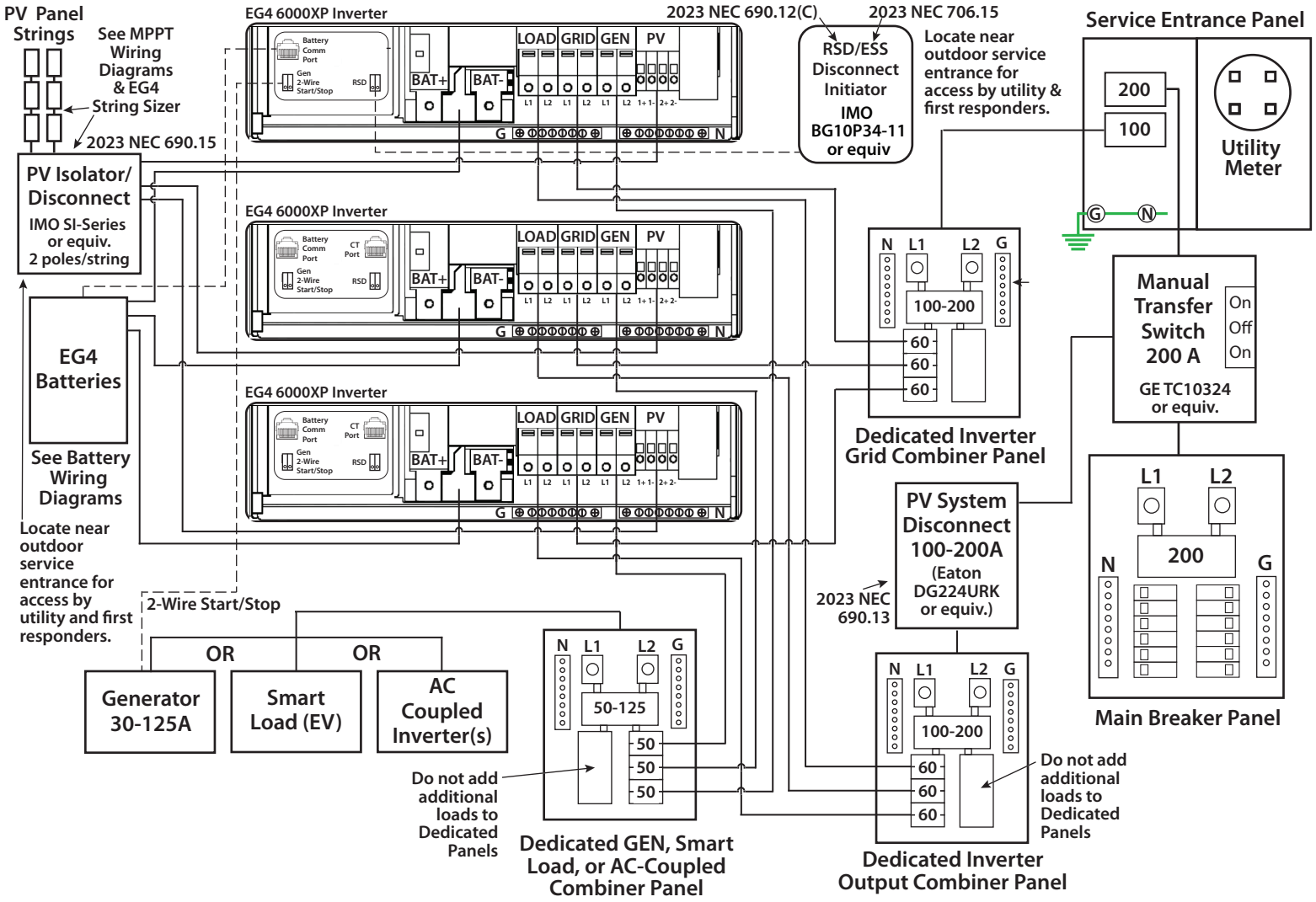
IMPORTANT NOTE: The EG4 6000xp inverter is not capable of providing sell-back power to the utility. It is only a backup or off-grid inverter with the capability of grid INPUT for charging batteries or passing through grid power through the load port to a critical loads subpanel or transfer switch. It is essentially a battery charger. Therefore it is not regulated by the NEC 705 (2023) Interconnection code.

A cost-effective way to provide the multiple grid input circuits needed for a multiple inverter configuration is through a Service Entrance Panel (sometime called a Service Entrance Combination Panel). Any Main Breaker panel can be used - however the majority of house loads should be on a separate Main Breaker Panel as shown if backup of those circuits is wanted.

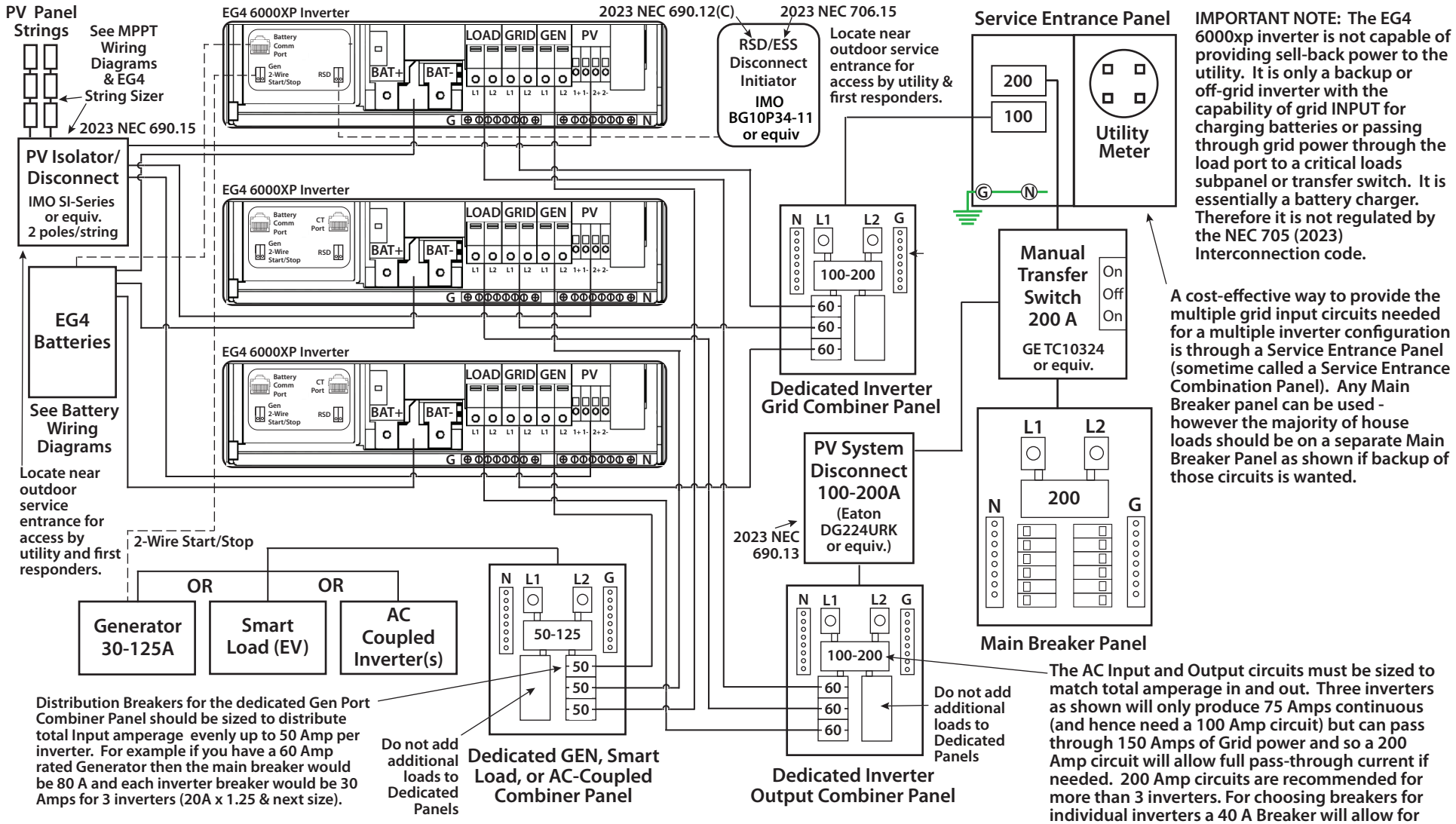
Whole home backup can be achieved with multiple inverters. Since each inverter can supply 25 Amps continuous of backup power and can pass-through 50 Amps of AC input power, 3-6 inverter setups can provide the majority of what most homes need on a continuous basis. To match the full output of a 200 Amp utility service (160 A continuous) you would need 6 inverters (you would be at 150 Amps). Most homes don't draw anywhere near the 160 amps available from the utility and function usually in the 80-120 Amp range hence 4 or 5 inverters will cover most homes. A load assessment is called for when trying to achieve whole home backup.

The AC Input and Output circuits must be sized to match total amperage in and out. Three inverters as shown will only produce 75 Amps continuous (and hence need a 100 Amp circuit) but can pass through 150 Amps of Grid power and so a 200 Amp circuit will allow full pass-through current if needed. 200 Amp circuits are recommended for 3 or more inverters. For choosing breakers for individual inverters a 40 A Breaker will allow for full inverter output but a 70 A breaker is needed for full 50 Amp pass-through (50 x 1.25 = 62.5 Amps per inverter - next sized breaker = 70 A). Alternately a 60 Amp breaker will allow 48 Amps of pass-through.

5. 3 6000XPs - Whole Home Backup with Grid Input by Service Entrance Panel (Option 2)

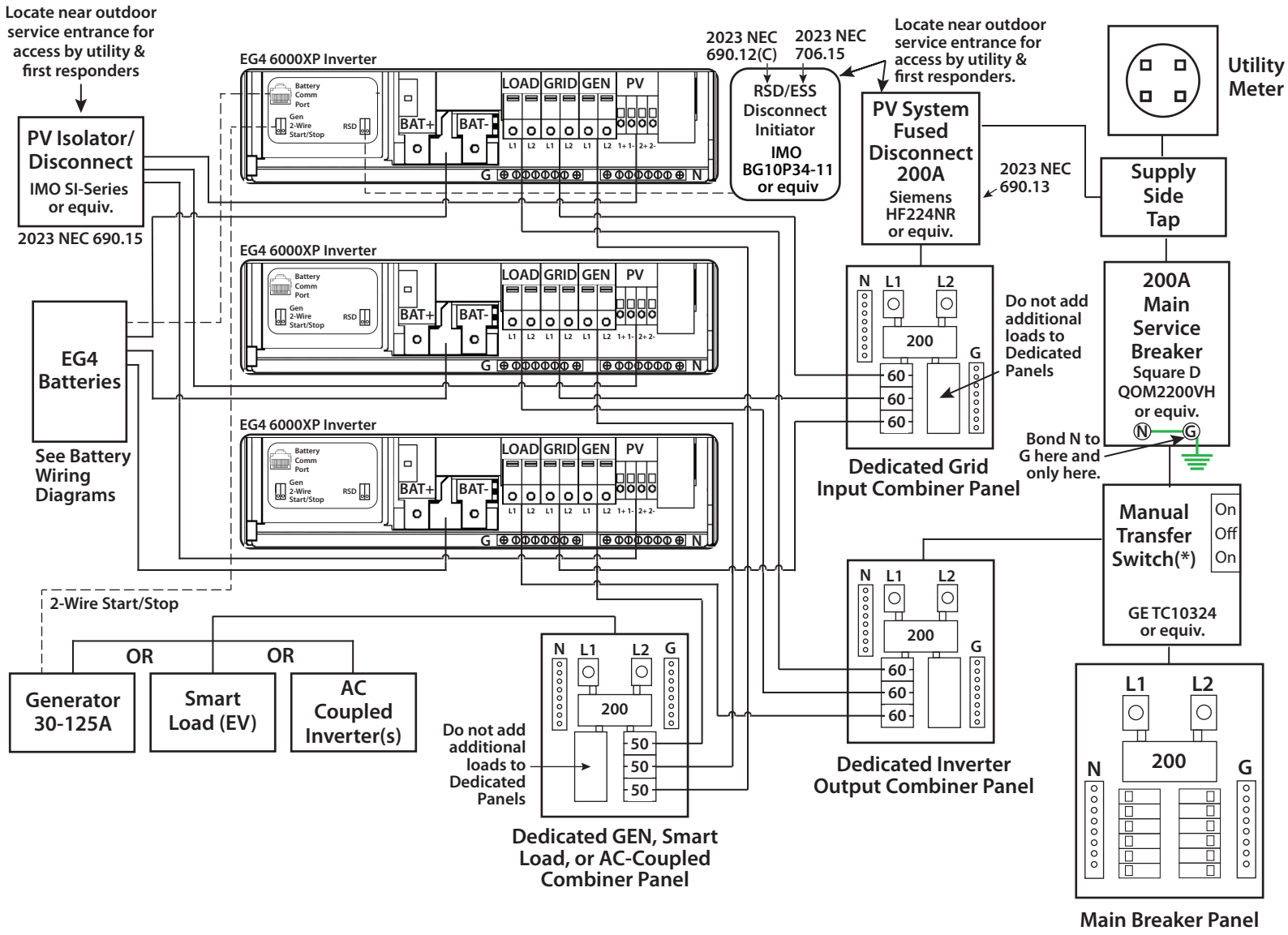


5a. 3 6000XPs - Whole Home Backup with Grid Input by Service Entrance Panel (Option 2) (with Notes)

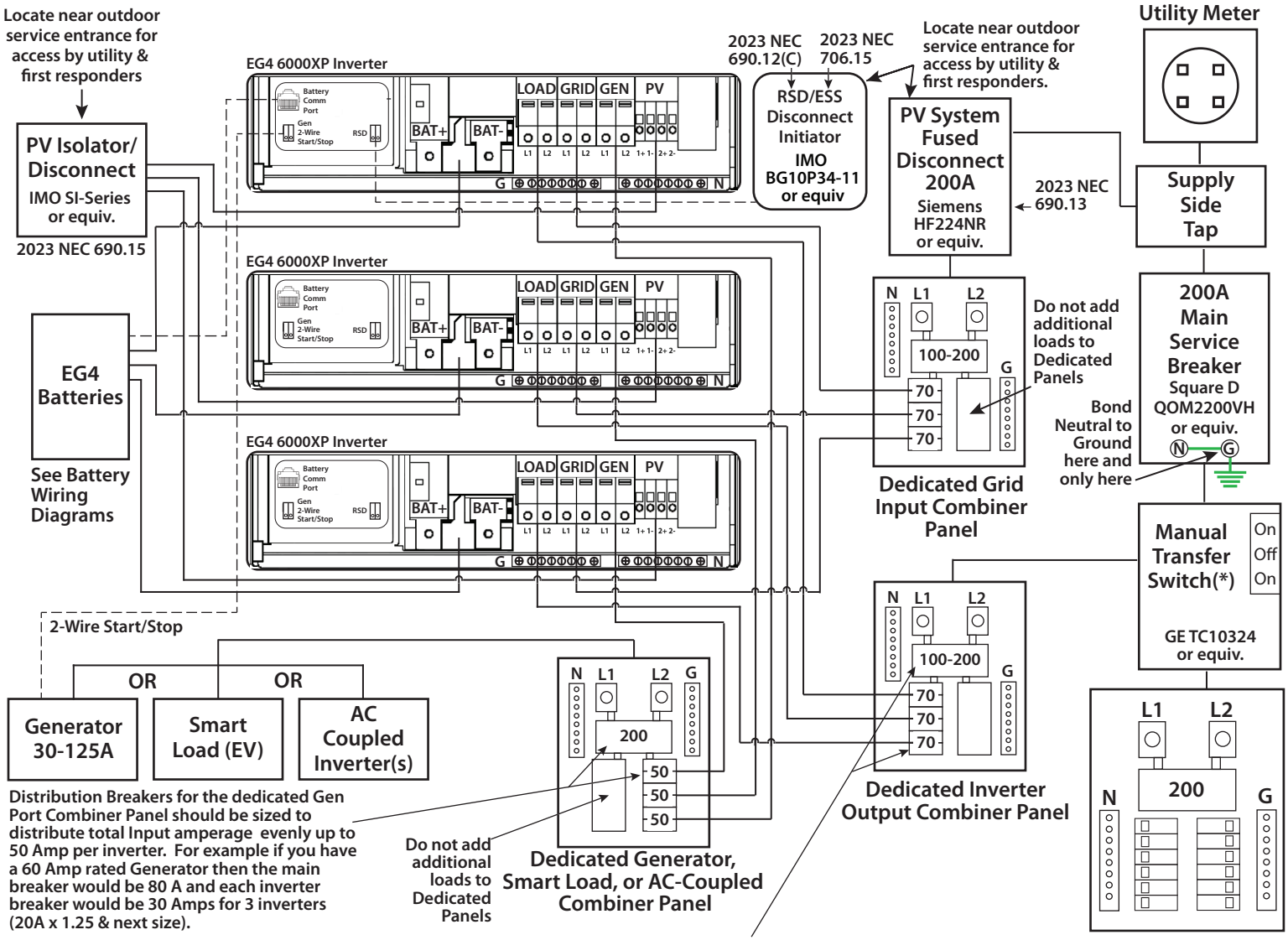


Whole home backup can be achieved with multiple inverters. Since each inverter can supply 25 A continuous of backup power and can pass-through 50 A of AC input power, 3-6 inverter setups can provide the majority of what most homes need on a continuous basis. To match the full output of a 200 A utility service (160 A continuous) you would need 6 inverters (you would be at 150 A). Most homes don't draw anywhere near the 160 amps available from the utility and function usually in the 80-120 A range hence 4 or 5 inverters will cover most homes. A load assessment is called for when trying to achieve whole home backup.

6. 3 6000XPs - Whole Home Backup with Grid Input by Supply Side Tap



6a. 3 6000XPs - Whole Home Backup with Grid Input by Supply Side Tap (with Notes)



Distribution Breakers for the dedicated Gen Port Combiner Panel should be sized to distribute total Input amperage evenly up to 50 Amp per inverter. For example if you have a 60 Amp rated Generator then the main breaker would be 80 A and each inverter breaker would be 30 Amps for 3 inverters (20A x 1.25 & next size).

Do not add additional loads to Dedicated Panels

The AC Input and Output circuits must be sized to match total amperage in and out. Three inverters as shown will only produce 75 Amps continuous (and hence need a 100 Amp circuit) but can pass through 150 Amps of Grid power and so a 200 Amp circuit will allow full pass-through current if needed. 200 Amp circuits are recommended for 3 or more inverters. For choosing breakers for individual inverters a 40 A Breaker will allow for full inverter output but a 70 A breaker is needed to allow full 50 Amp pass-through (50 x 1.25 = 62.5 Amps per inverter - next sized breaker = 70 A). Alternately a 60 Amp breaker will allow 48 Amps of pass-through.

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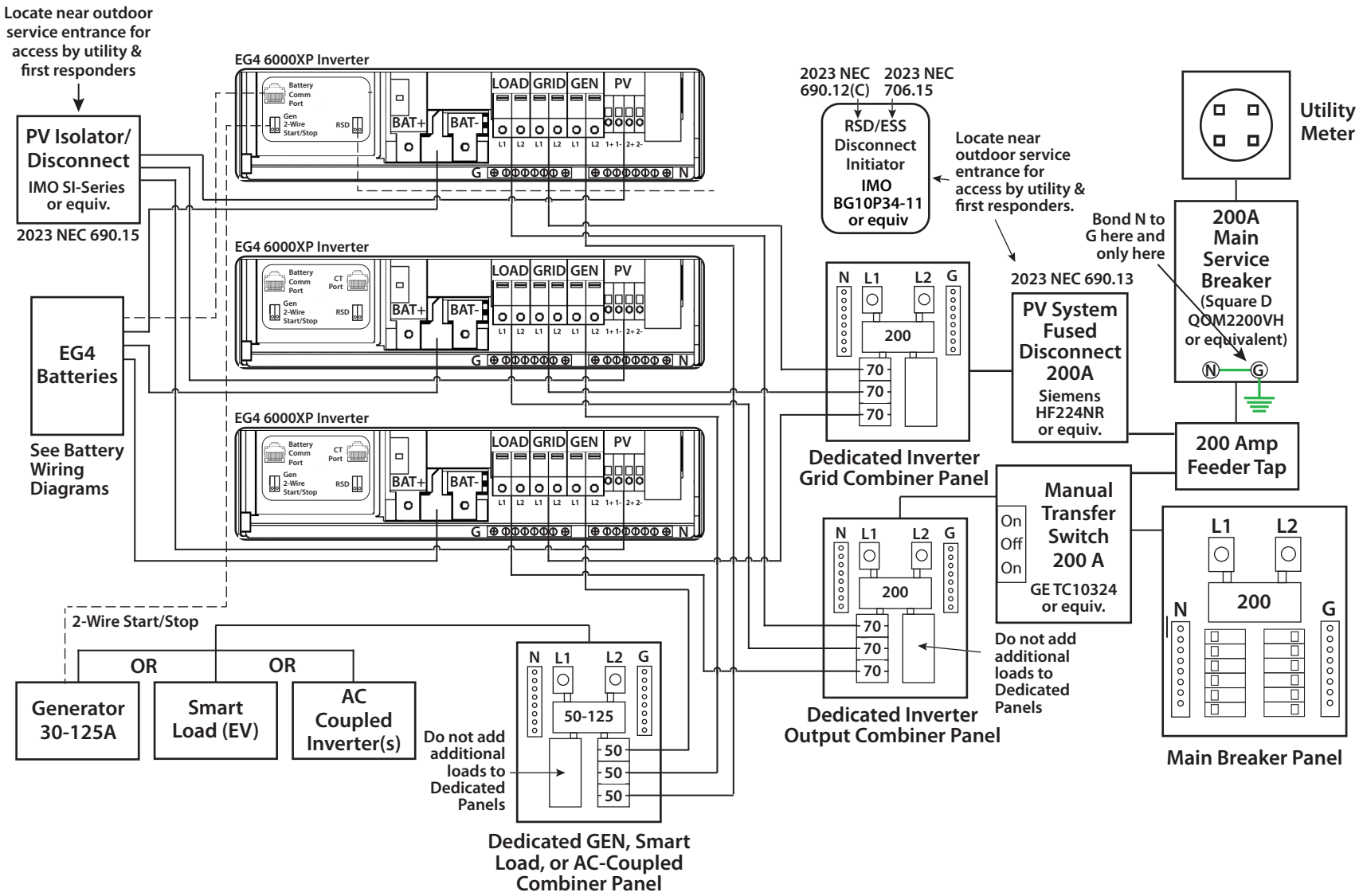
Supply Side Taps allow you to feed the full pass-through capability of the inverter to either your critical loads subpanel or to a transfer switch back to the Main Breaker Panel. Since the 6000 XP has a 25 Amp Off-grid output and a50 A pass-through rating from the Grid or a Generator you can achieve whole panel or whole home backup by using 4-6 Inverters in parallel.

Caution: A Supply Side Tap will essentially add loads to your Service Entrance since the 6000XP adds close to 30 Amps per inverter to the total house loads with it's battery chargers. With this increased load there is the very real danger of overloading the Service Entrance conductors if the home is already using the full capacity of a 200 A Service. Do this under advisement of your electrician and/or Electrical Inspector. Alternatively use a Feeder Tap to mitigate this issue. Feeder taps locate this extra load on the load side of the Main Breaker - thus protecting all Service Entrance Conductors. (See Feeder Tap Diagram).

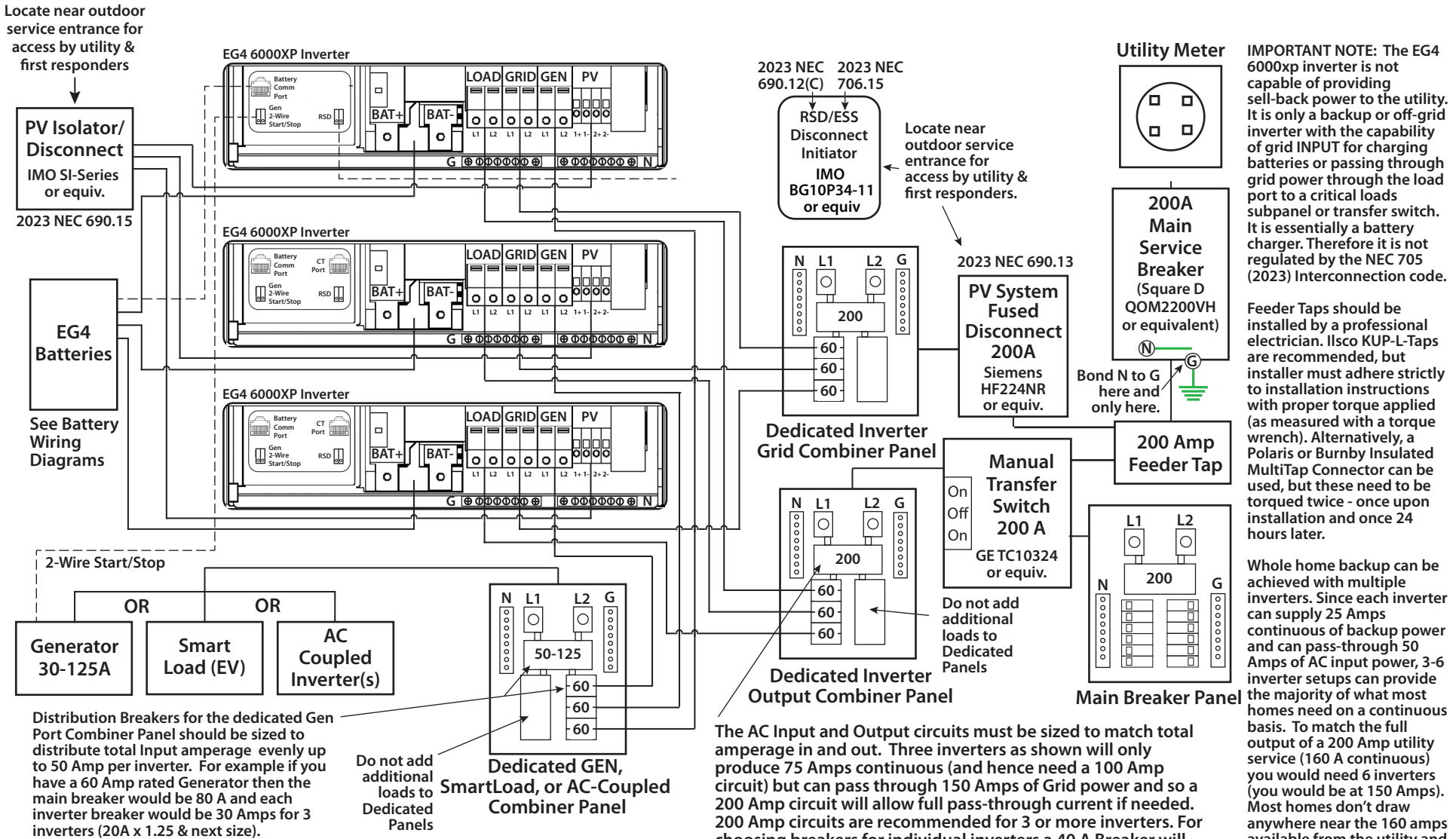
Supply Side Taps should be installed by a professional electrician. Ilsco KUP-L-Taps are recommended, but the installer must adhere strictly to installation instructions with proper torque applied (as measured with a torque wrench). Alternatively, a Polaris or Burnby Insulated MultiTap Connector can be used, but these need to be torqued twice - once upon installation and once 24 hours later.

Refer to EG4 Design Guides for discussion of partial home and whole home backup.

7. 3 6000XPs - Whole Home Backup with Grid Input by Feeder Tap



7a. 3 6000XPs - Whole Home Backup with Grid Input by Feeder Tap (with Notes)



The AC Input and Output circuits must be sized to match total amperage in and out. Three inverters as shown will only produce 75 Amps continuous (and hence need a 100 Amp circuit) but can pass through 150 Amps of Grid power and so a 200 Amp circuit will allow full pass-through current if needed. 200 Amp circuits are recommended for 3 or more inverters. For choosing breakers for individual inverters a 40 A Breaker will allow for full inverter output but a 70 A breaker is needed to allow full 50 Amp pass-through (50 x 1.25 = 62.5 Amps per inverter - next sized breaker = 70 A). Alternately a 60 Amp breaker will allow 48 Amps of pass-through.

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