

IQ EV Charger installation configurations (EV Charger, Solar+EV Charger, Solar+EV Charger+Battery)



Contents

Summary	3
Product overview	3
IQ EV Charger SKU	3
Supported system configurations	4
Basic site requirements	5
Safety and electrical requirements	5
Site-specific requirements	5
Commissioning requirements	5
Configurations	6
EV Charger standalone configuration	6
Solar + EV Charger configurations	6
Solar Only with M/S Series with Envoy R or Envoy S Standard (Consumption CT not supported) (grid-tied system)	6
Solar Only with M/S Series with Envoy S Metered (Consumption CT supported) (grid-tied system)	7
Solar Only with IQ6/7/8 and IQ Gateway (grid-tied system)	7
Solar + EV Charger + Battery configurations	8
Solar + Battery with EV Charger on backup panel (whole home backup or full energy independence)	8
Solar + Battery with EV Charger on mains panel (partial home backup or home essentials backup)	9
Solar + Battery with multiple EV Chargers	10
Revision history	12

Summary

This technical brief provides Enphase installers with the adequate information required to support the Enphase IQ EV Charger installations and provisioning flow at new and retrofit home sites.

Product overview

Our new Bluetooth and Wi-Fi-enabled chargers provide customers with smart energy management while combining the best of hardware and software.

Table 1: IQ EV Charger models

IQ EV Charger models	40	50	60	80
Maximum charging current (Amps)	32	40	48	64
Average miles/hour*	28	35	42	56
Input cable	6-50 P/14-50 P/Hardwired		Hardwired	
Connectivity	BLE/Wi-Fi			
Charging cable length	25 ft. ruggedized cable			
Cable management	Integrated			
User experience	Enphase App			

* Approximate based on 0.275 kWh/mile



Figure 1: IQ EV Charger

IQ EV Charger SKU

Table 2: SKU and description

SKU	Product description
IQ-EVSE-NA-1040-0100-0100	32 A charging, 208/240 VAC, 10 AWG service, 25* J1772 connector, Wi-Fi and BLE connectivity
IQ-EVSE-NA-1040-0110-0100	32 A charging, 208/240 VAC, NEMA 14-50 plug, 25* J1772 connector, Wi-Fi and BLE connectivity

SKU	Product description
IQ-EVSE-NA-1040-0120-0100	32A charging, 208/240VAC, NEMA 6-50 Plug, 25* J1772 connector, Wi-Fi & BLE connectivity
IQ-EVSE-NA-1050-0100-0100	40 A charging, 208/240 VAC, 8AWG service, 25* J1772 connector, Wi-Fi and BLE connectivity
IQ-EVSE-NA-1050-0110-0100	40 A charging, 208/240 VAC, NEMA 14-50 plug, 25* J1772 connector, Wi-Fi and BLE connectivity
IQ-EVSE-NA-1050-0120-0100	40 A charging, 208/240 VAC, NEMA 6-50 plug, 25* J1772 connector, Wi-Fi and BLE connectivity
IQ-EVSE-NA-1060-0100-0100	48 A charging, 208/240 VAC, 8 AWG service, 25* J1772 connector, Wi-Fi and BLE connectivity
IQ-EVSE-NA-1080-0100-0100	64 A charging, 208/240 VAC, 8 AWG service, 25* J1772 connector, Wi-Fi and BLE connectivity

* Recommended SKU and product

Supported system configurations

Table 3: System configurations

Type	Microinverters	IQ Gateway	Consumption CT	IQ System Controller	IQ Load Controller	IQ Battery
Standalone	NA	NA	NA	NA	NA	NA
Solar Only with M or S Series	M or S Series	Envoy R*	Not supported	NA	NA	NA
Solar Only with M or S Series	M or S Series	Envoy S Standard*	Not supported	NA	NA	NA
Solar Only with M or S Series	M or S Series	Envoy S Metered	Supported	NA	NA	NA
Solar Only with IQ6/7/8	IQ6/7/8 Series	IQ Gateway	Supported	NA	NA	NA
Solar + Battery with EV Charger in backup panel	All	IQ Gateway	Supported	IQ System Controller/IQ System Controller 2	Supported	3/3T
Solar + Battery with EV Charger in the main panel	All	IQ Gateway	Supported	IQ System Controller/IQ System Controller 2	Supported	3/3T

* Self-Consumption and Savings modes are supported by upgrading to Envoy S Metered with Consumption CT.

Basic site requirements

Safety and electrical requirements

The following are the essential safety and electrical site requirements:

- Make sure the electrical panel (main/backup) has a dedicated circuit with a breaker size and wiring adequate to support the EV Charger load. (For example, 50 A circuit breaker for IQ EV Charger 50, 80 A circuit breaker for IQ EV Charger 80).
- If your EV Charger is supplied with a receptacle in the box, use it with the product installation.
- Follow all your local installation codes and make sure the electrical work is performed by a qualified electrician.
- Follow all safety and installation instructions as per the user manual.

Site-specific requirements

The following are the essential site-specific requirements:

- Sites with Solar + EV Charger configurations: users will be able to leverage the excess solar to charge their EVs only when a Consumption CT is present.
- Sites with Solar + EV Charger + Battery configurations, EV Charger is connected to the backup panel, and IQ Load Controller usage is required.
- IQ8 Microinverters with Sunlight Backup configurations are not supported.
- To install the IQ EV Charger on the backup panel, the homeowner is expected to use the [IQ Load Controller](#) (for heavy loads up to 32 A) or build a custom IQ Load Controller using the [Enphase Tech brief](#) that specifies all the recommended contactors for heavy loads > 32 A continuous.

Commissioning requirements

The following are the essential site commissioning requirements:

- EV Charger pairing and commissioning are only allowed through the Enphase App. (downloaded via Play Store APK for Android and App Store/IPA link provided by Enphase).
- EV Charger integration at Enphase Energy System sites must be performed by Enphase-certified installers.
- EV Charger integration with the Enphase Energy System through the IQ Load Controller requires Enphase-certified installers with access to the Enphase Installer App (ITK).
- When installing an EV Charger with Solar/Solar + Battery at a new site, use the Enphase Installer App for site creation. Once the site is commissioned, have the homeowner download the Enphase App and use the same email ID associated with the main site account to provision the EV Charger.

Configurations

EV Charger standalone configuration

In this EV Charger standalone configuration, the EV Charger is connected to the main panel.

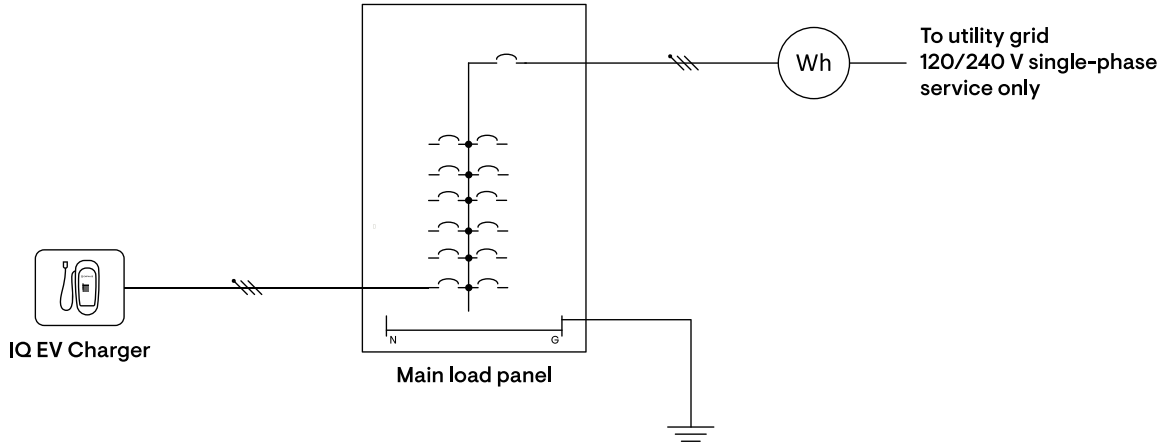


Figure 2: EV Charger standalone configuration

Solar + EV Charger configurations

Solar Only with M/S Series with Envoy R or Envoy S Standard (Consumption CT not supported) (grid-tied system)

EV Charger is connected to the main panel in this configuration.

- M and S Series Microinverters with Envoy R and Envoy S Standard are supported.
- This site cannot leverage the excess solar to charge the EV without CT and Envoy upgrades to the site.
- This site configuration can utilize schedule and off-peak charging.

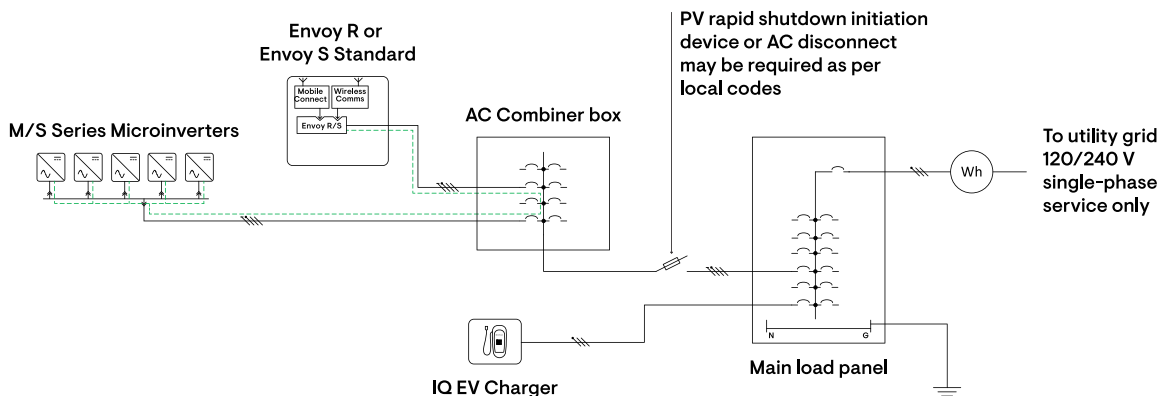


Figure 3: Solar Only with M/S Series with Envoy R or Envoy S Standard

Solar Only with M/S Series with Envoy S Metered (Consumption CT supported) (grid-tied system)

EV Charger is connected to the main panel in this configuration.

- M and S Series Microinverters with Envoy S Metered are supported.
- Production CT for solar and Consumption CT for the home must be present.
- This site can fully leverage excess solar production to charge the EV.

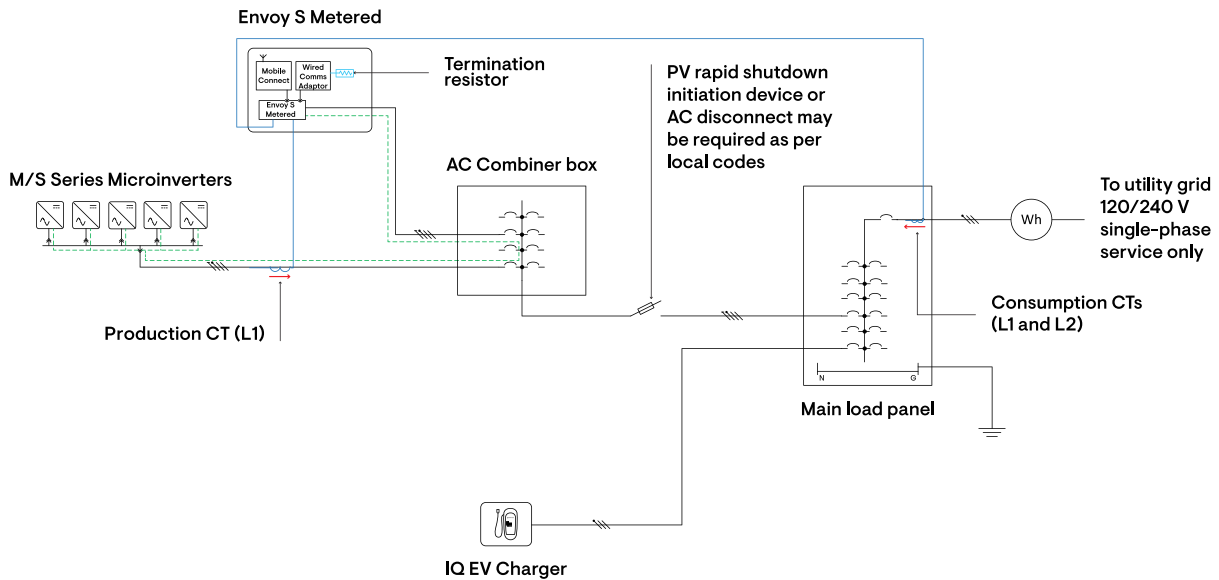


Figure 4: Solar Only with M/S Series with Envoy S Metered

Solar Only with IQ6/7/8 and IQ Gateway (grid-tied system)

EV Charger is connected to the main panel in this configuration.

- Sites with IQ6/7/8 Microinverters, IQ Combiner 4/4C, and IQ Gateway are supported.
- Production CT for solar and Consumption CT for the home must be present.
- This site can fully leverage excess solar production to charge the EV.

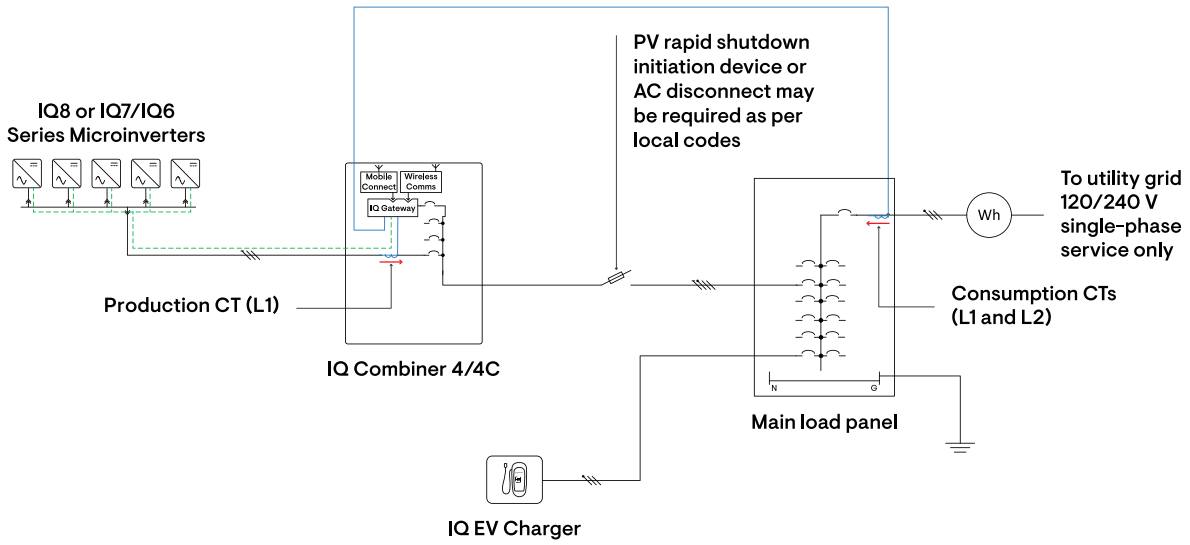


Figure 5: Solar Only with IQ6/7/8 and IQ Gateway



NOTE: Sunlight Backup with IQ8 (grid-forming) – NOT SUPPORTED

Solar + EV Charger + Battery configurations

Solar + Battery with EV Charger on backup panel (whole home backup or full energy independence)

EV Charger is connected to the main panel in this configuration.

- The use of the IQ System Controller and IQ Load Controller is mandatory.
- Sites with IQ6/7/8 Microinverter, IQ Combiner 4/4C, IQ System Controller, IQ Battery 3/3T, and IQ Gateway are supported.
- Production CT for solar and Consumption CT for the home must be present.
- This site can fully leverage excess solar and battery to charge the EV.

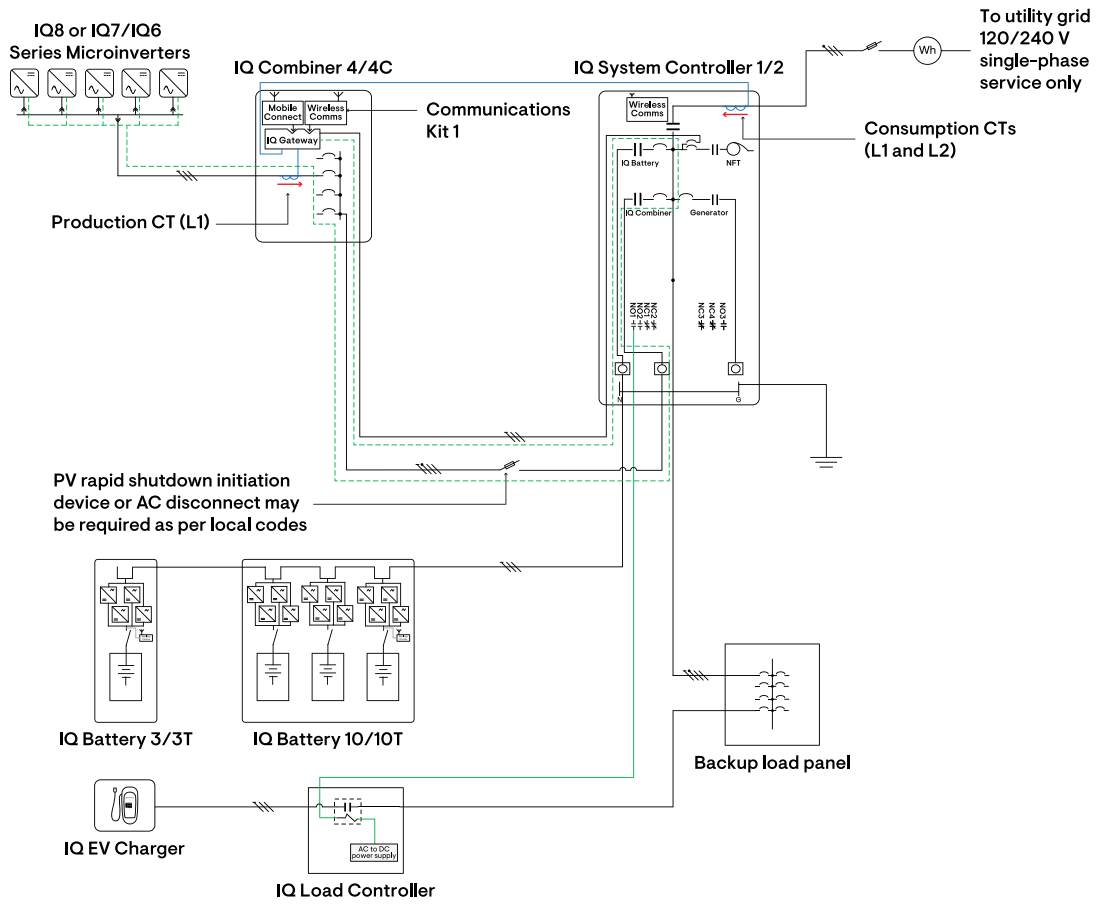


Figure 6: Solar + Battery with EV Charger on backup panel

Solar + Battery with EV Charger on mains panel (partial home backup or home essentials backup)

EV Charger is connected to the main panel in this configuration.

- The use of the IQ System Controller is mandatory.
- Sites with IQ6/7/8 Microinverters, IQ Combiner 4/4C, IQ System Controller, IQ Battery 3/3T, and IQ Gateway are supported.
- Production CT for solar and Consumption CT for the home must be present.
- This site can fully leverage excess solar to charge the EV.

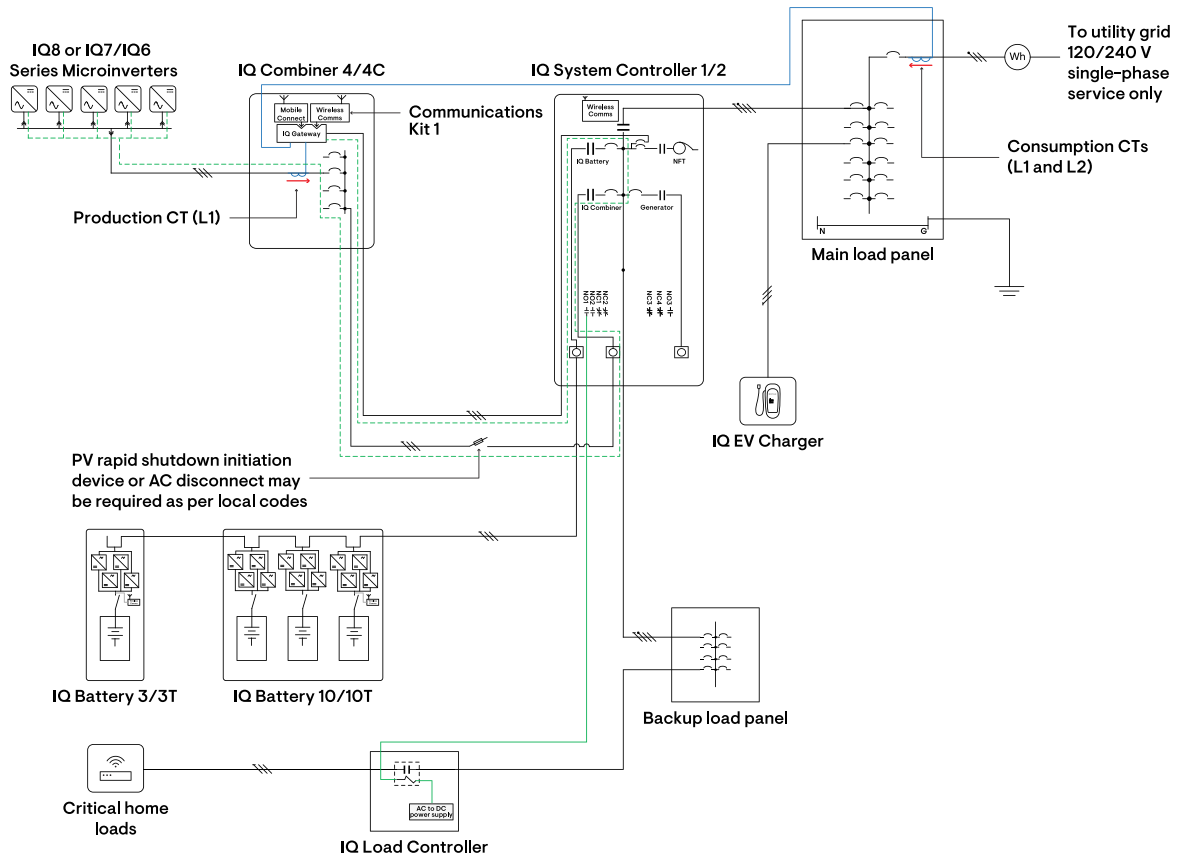


Figure 7: Solar + Battery with EV Charger on mains panel



NOTE: PCS not enabled.

Solar + Battery with multiple EV Chargers

One EV Charger is connected to the main panel, and the second EV Charger is connected to the backup panel in this configuration.

- The use of the IQ System Controller and IQ Load Controller is mandatory.
- Sites with IQ6/7/8 Microinverters, IQ Combiner 4/4C, IQ System Controller, IQ Battery 3/3T, and IQ Gateway are supported.
- Production CT for solar and Consumption CT for the home must be present.
- This site can fully leverage excess solar and battery from the EV Charger connected through the backup panel.
- The EV Charger connected through the main panel will work as a standalone EV Charger.

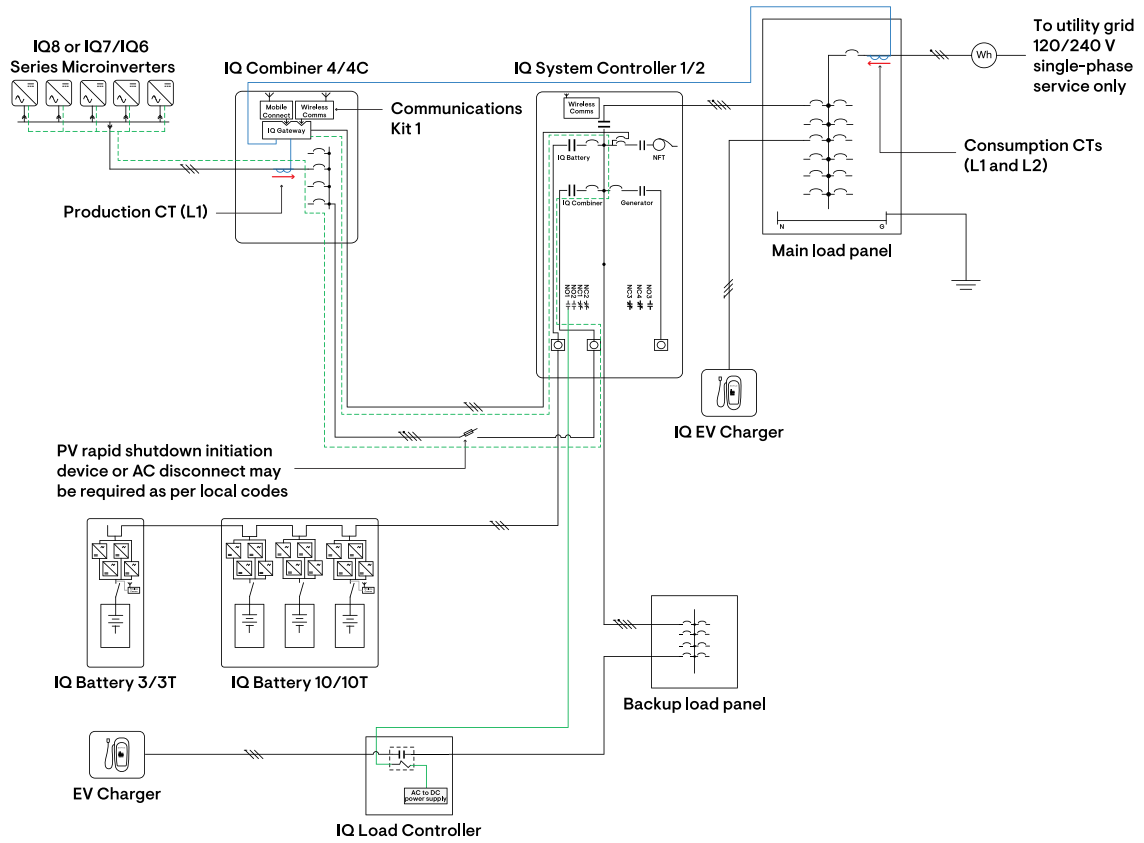


Figure 8: Solar + Battery with multiple EV Chargers



NOTE: PCS not enabled.

Revision history

Revision	Date	Description
TEB-00056-1.0	October 2023	Initial release