

CSIP-AUS Compliance Services



Dynamic Export



Dynamic Import

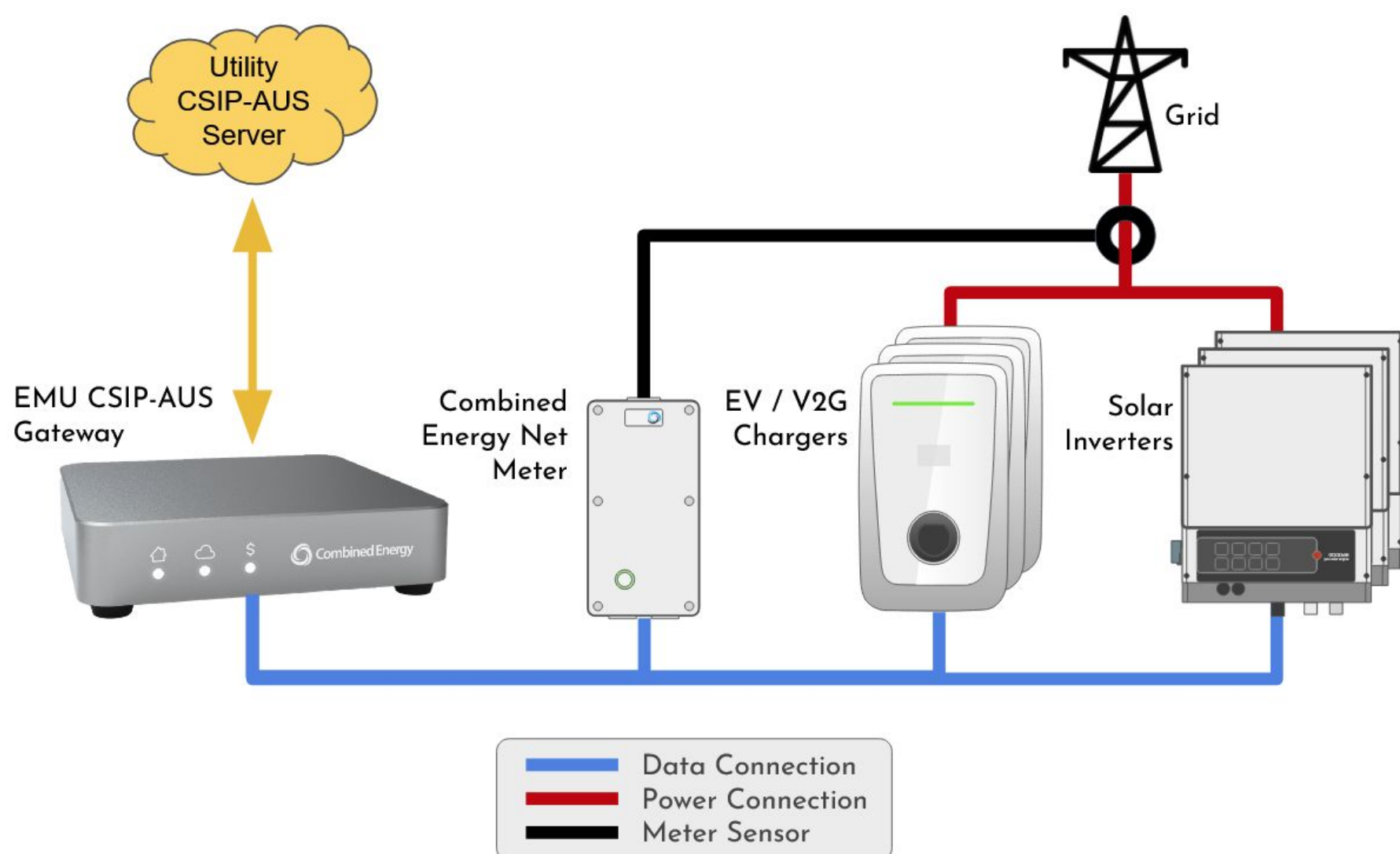


Solar Backstop



EV Load Control

Combined Energy's **Energy Management Unit (EMU)** is a CSIP-AUS Compliant Gateway approved by DNSPs for DER control in all states with mandatory and voluntary CSIP-AUS requirements.



A single EMU can manage any combination of supported solar inverters, battery inverters, EV chargers, and V2G bidirectional chargers to maintain compliance with evolving local CSIP-AUS requirements.

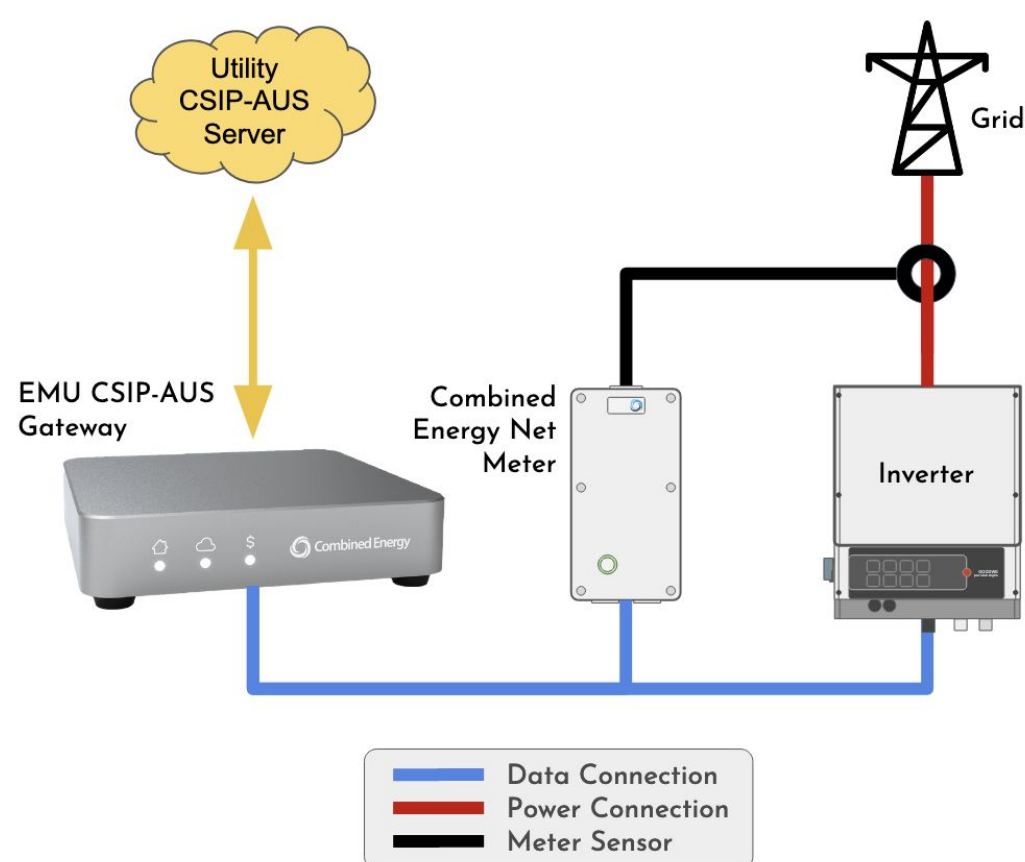
To control devices at the site, a **data connection** is required between the EMU and each managed device. This data connection would typically be Ethernet or RS485.

CSIP-AUS

Net Metering Options

To perform the functions required by CSIP-AUS, the EMU requires access to live **net metering** at the site (i.e. the total flow of power to/from the site as measured at the site's grid connection).

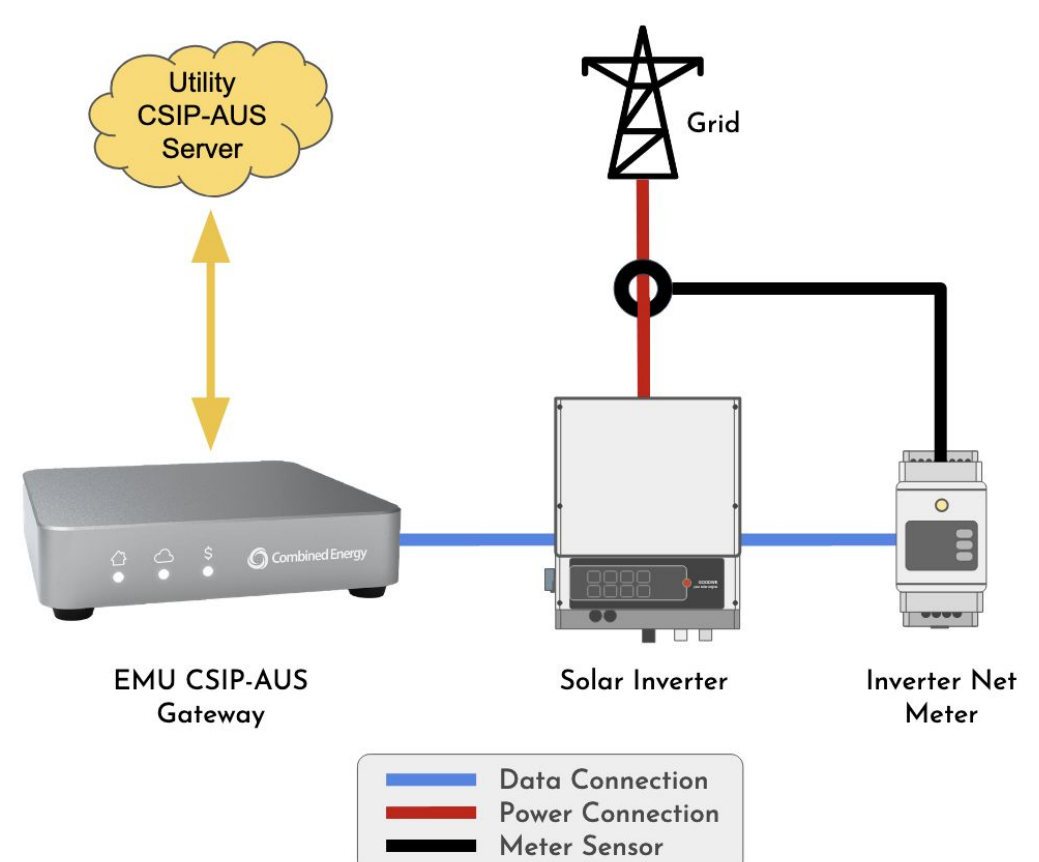
Option 1: Combined Energy Power Meter



A Combined Energy Power Meter can be installed at the Main Switchboard to monitor the grid connection at the site.

To use the net meter data from the Power Meter, the EMU must have a data connection to the Power Meter as well as to the inverter.

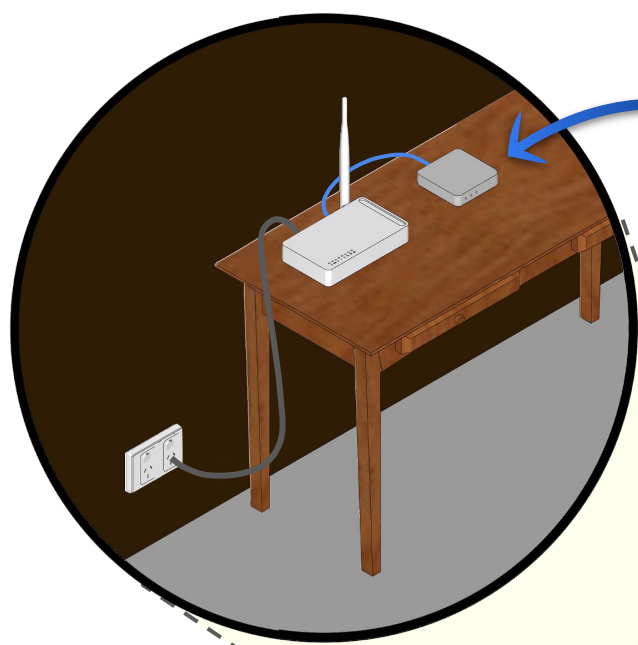
Option 2: Inverter Power Meter



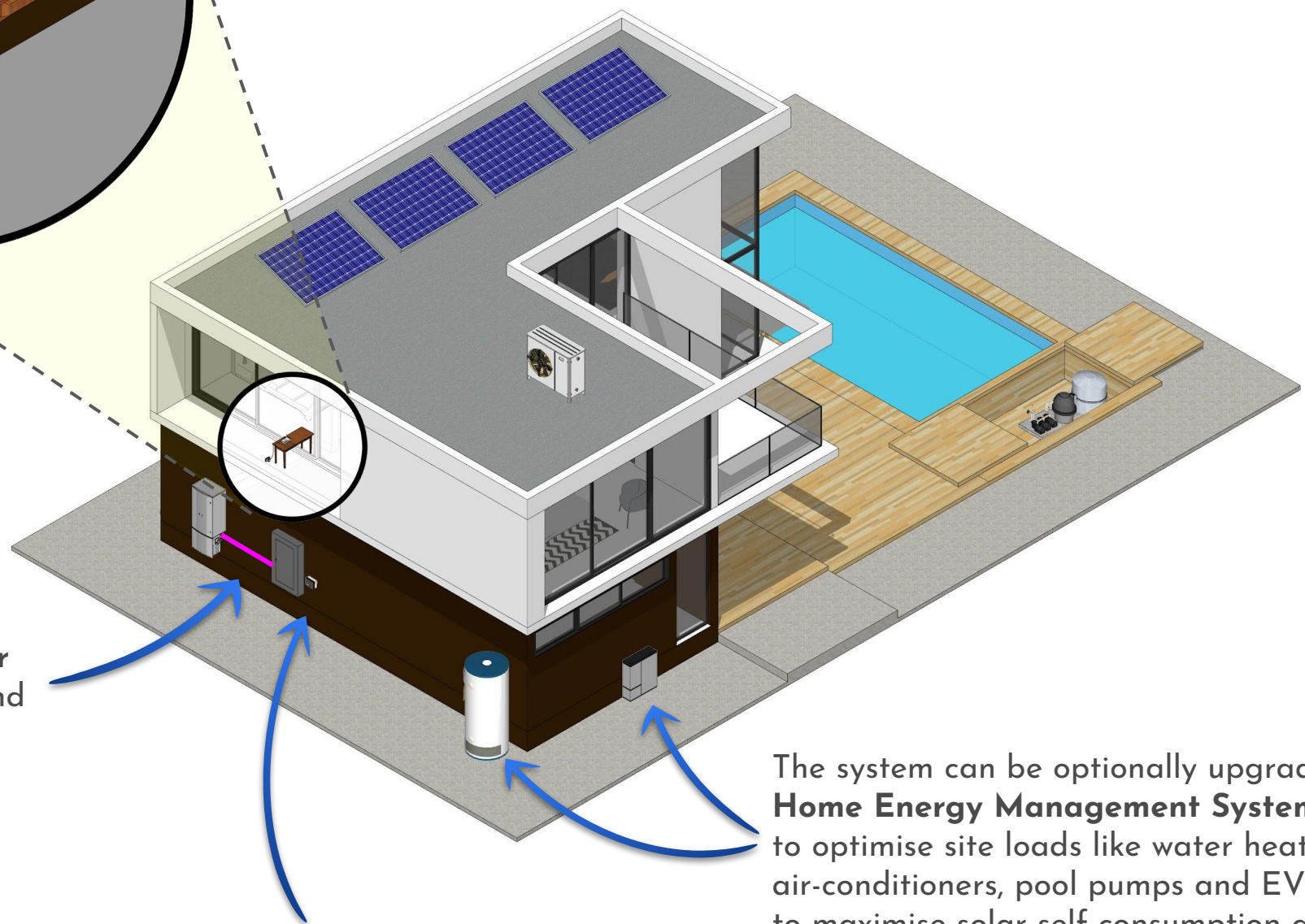
For inverter brands including FIMER, Goodwe, SolarEdge, and Sungrow, the EMU can read the required net meter data from the power meter that is included with the inverter.

Please contact Combined Energy to confirm compatibility prior to installation.

CSIP-AUS Typical Installation



An **Energy Management Unit (EMU)** is installed indoors and connects to the customer's Internet service. The EMU becomes the CSIP-AUS Gateway for the site.



A **data connection to the solar inverter** provides monitoring and control capabilities to the EMU

The system can be optionally upgraded to a **Home Energy Management System (HEMS)** to optimise site loads like water heaters, air-conditioners, pool pumps and EV charging to maximise solar self-consumption and reduce grid cost.



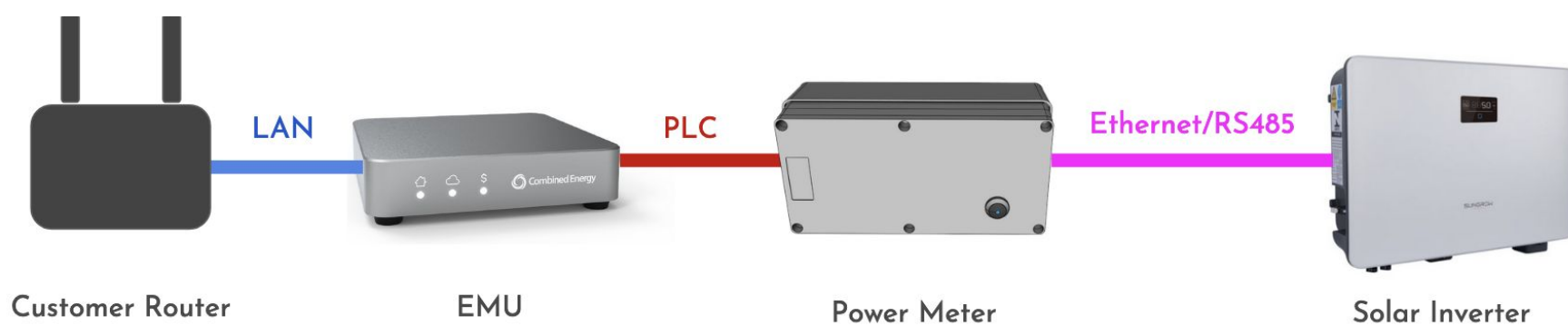
A **Power Meter** installed at Main Switchboard monitors the grid supply and sub-circuits of interest. This can be the Combined Energy Power Meter or the inverter-supplied power meter (for supported models)

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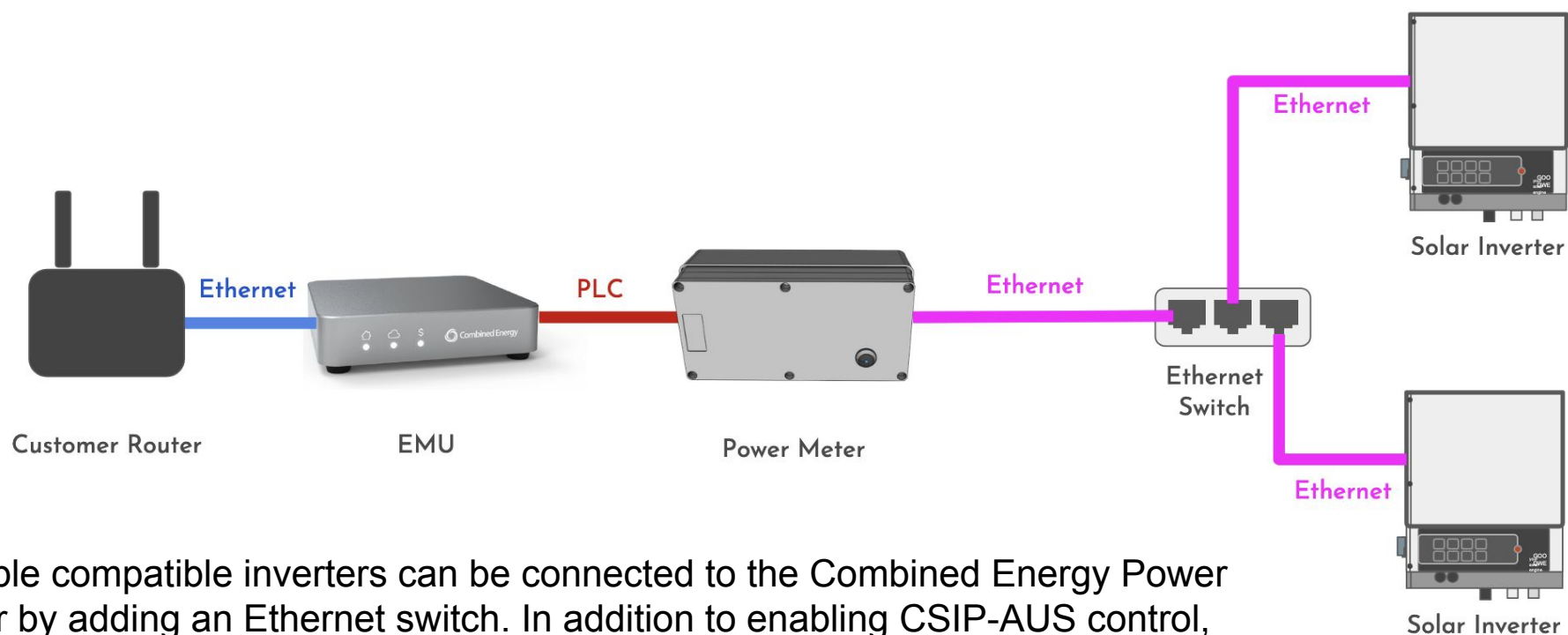
Data Connection Options

Combined Energy products, including the EMU and Power Meter, use built-in **Powerline Communications (PLC)** to communicate over the existing building wiring. Powerline communications simplifies installation in residential installations by removing the need to install dedicated communications cabling.

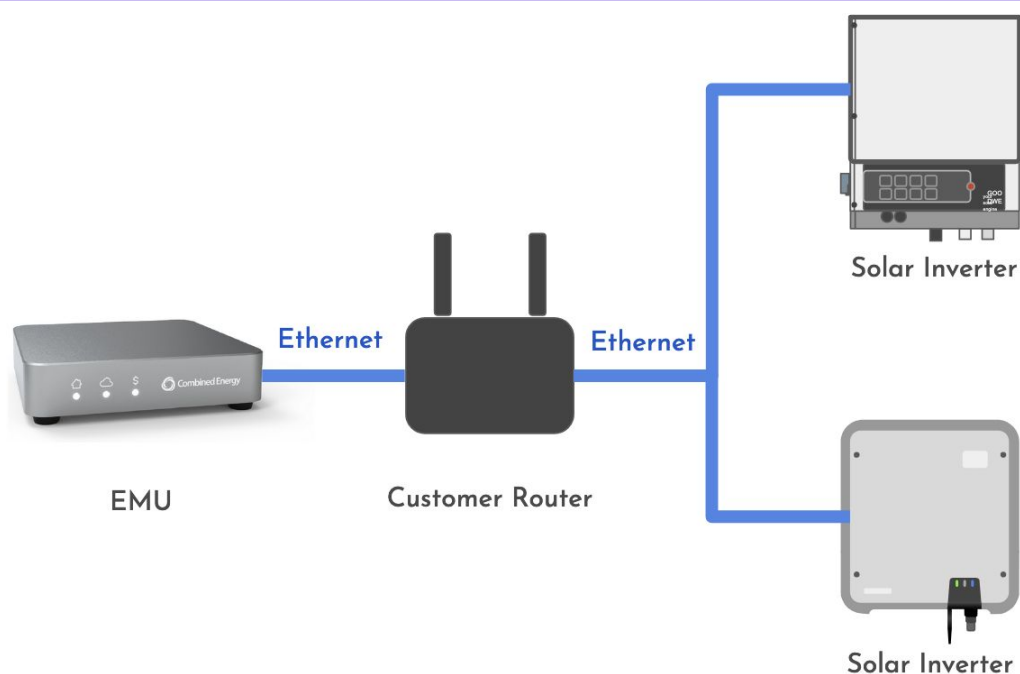
Some options for providing the EMU with a data connection to inverters for CSIP-AUS control are shown below:



In this example the EMU communicates with the Combined Energy Power Meter using powerline communications (PLC). An Ethernet or RS485 link between the Power Meter and inverter provides the EMU with a data connection to the inverter.



Multiple compatible inverters can be connected to the Combined Energy Power Meter by adding an Ethernet switch. In addition to enabling CSIP-AUS control, inverters connected with Ethernet can access the Internet via the Power Meter and EMU - meaning there is no need to connect them to Wi-Fi separately.



In this example the EMU is connected to the same Ethernet network as the managed inverters and can communicate with them directly.

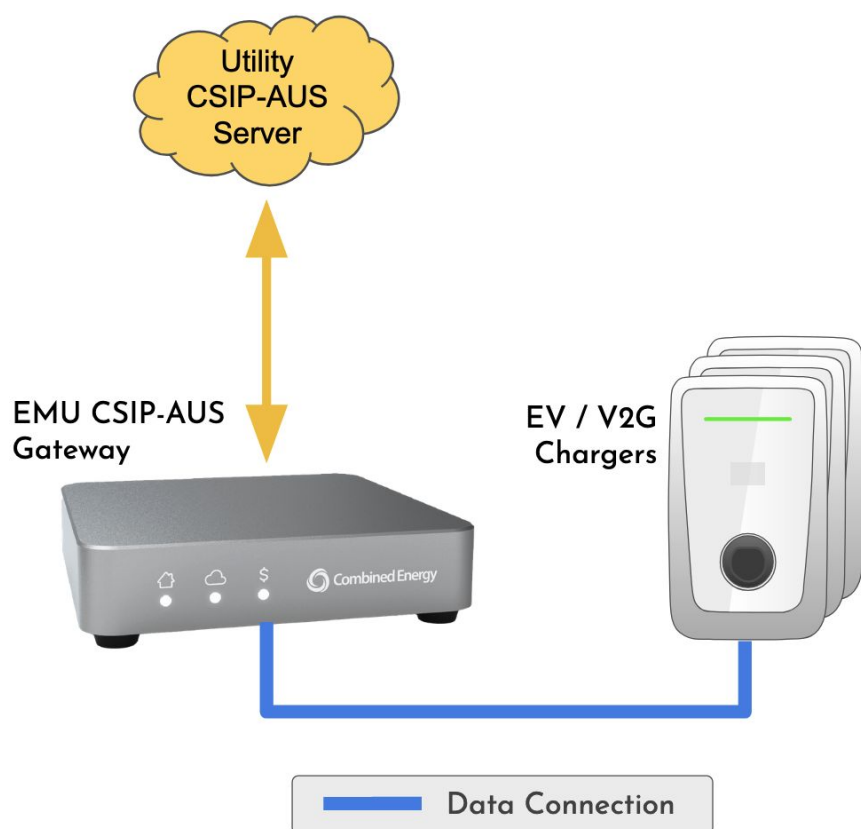
The EMU uses net meter data from one of the inverter power meters to maintain CSIP-AUS compliance for the whole site.

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EV Charger Control Schemes

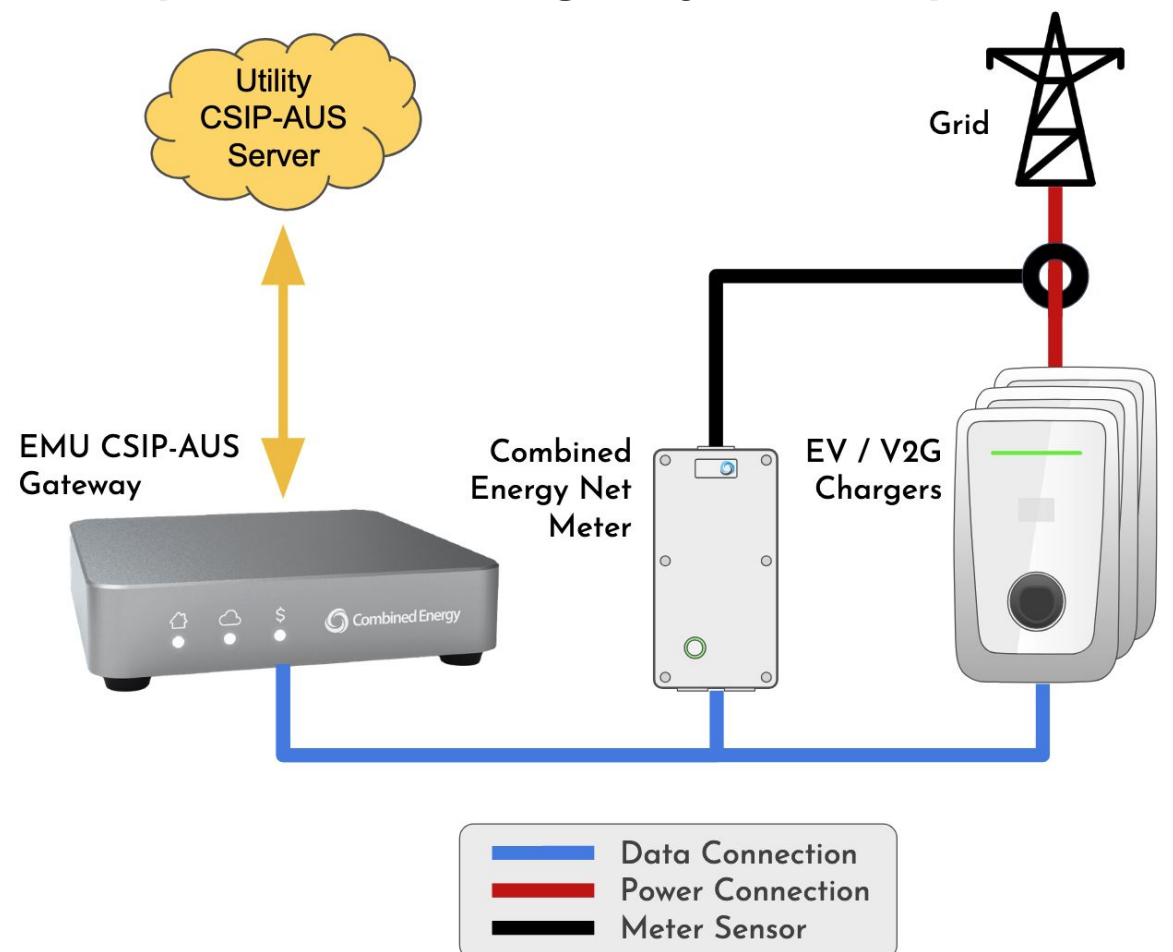
(1 of 2)

Option 1: EV Charger Load Control



This is the minimal installation option for EV control under CSIP-AUS. The EV Charger may be throttled down or turned off completely by the DSNP, irrespective of the net power flow to/from the site.

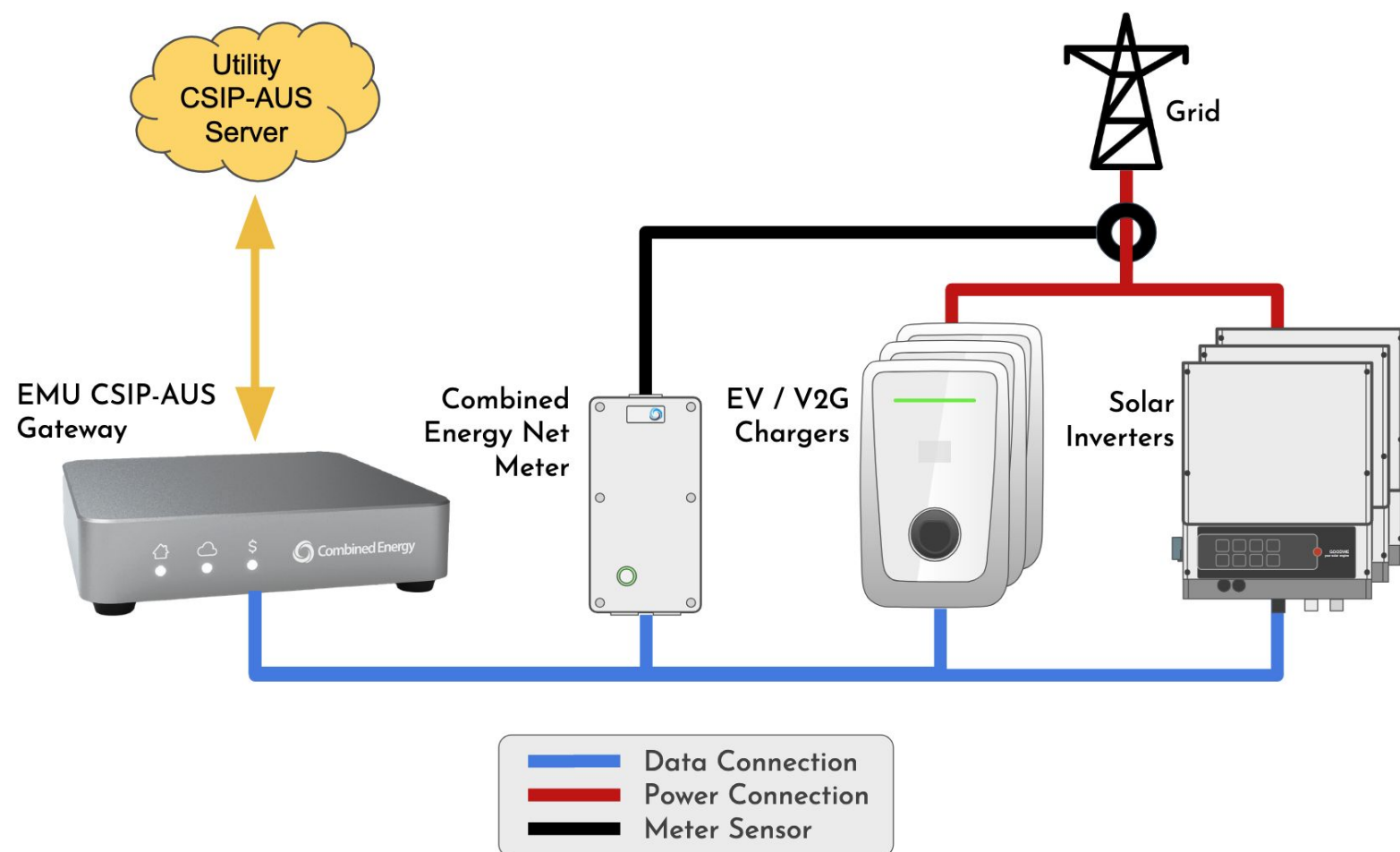
Option 2: EV Charger Dynamic Import



In this configuration the EV Charger will be throttled by the EMU to comply with the whole-of-site DNSP dynamic import limit. This will often result in the EV Charger being less limited than under Option 1.

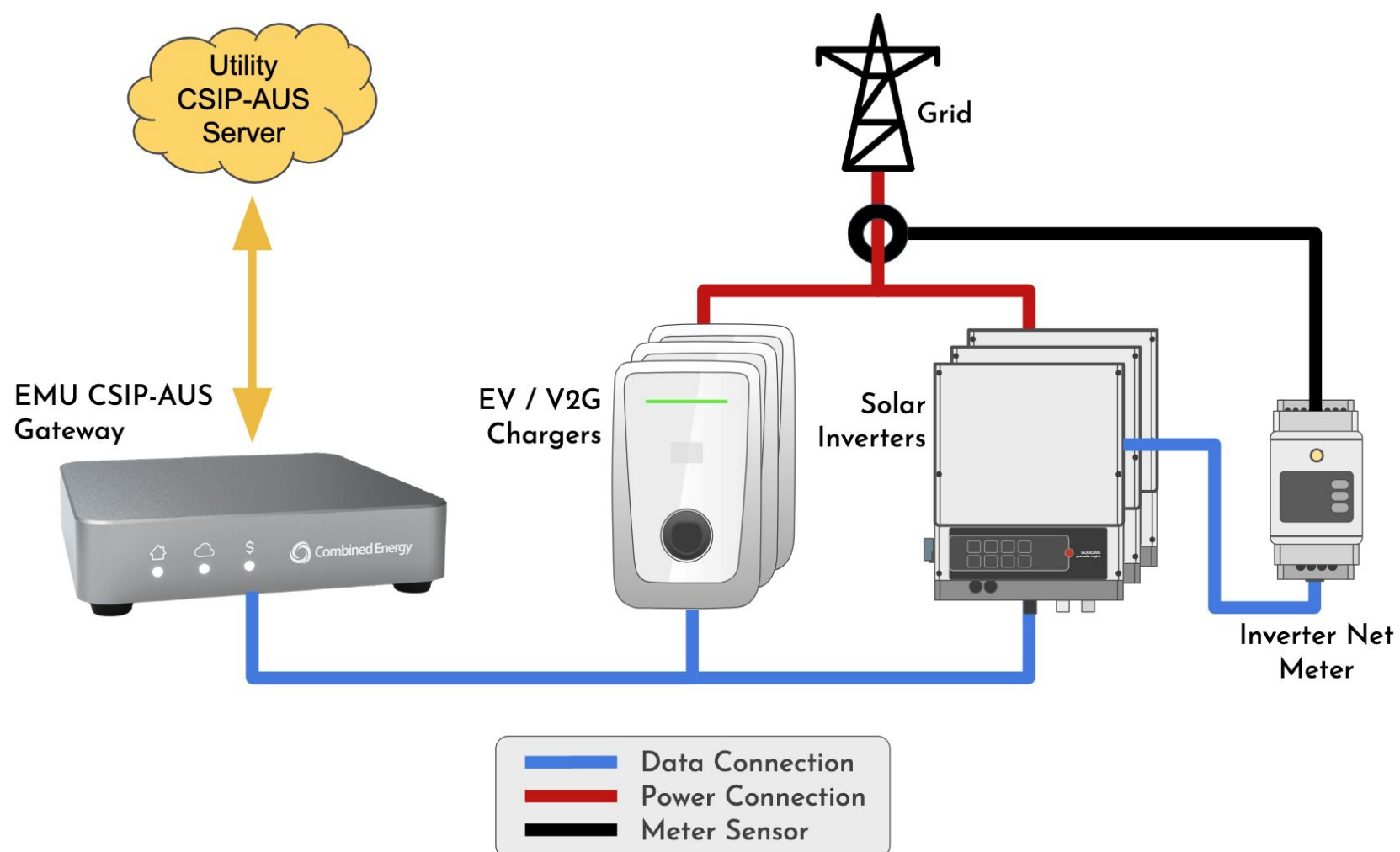
EV Charger Control Schemes (2 of 2)

Option 3: EV Charger + Solar (CET Meter)



In this configuration EV Chargers can make use of local generation while complying with the DNSP dynamic import limit. The Combined Energy Power Meter provides net metering for the site.

Option 4: EV Charger + Solar (Inverter Meter)

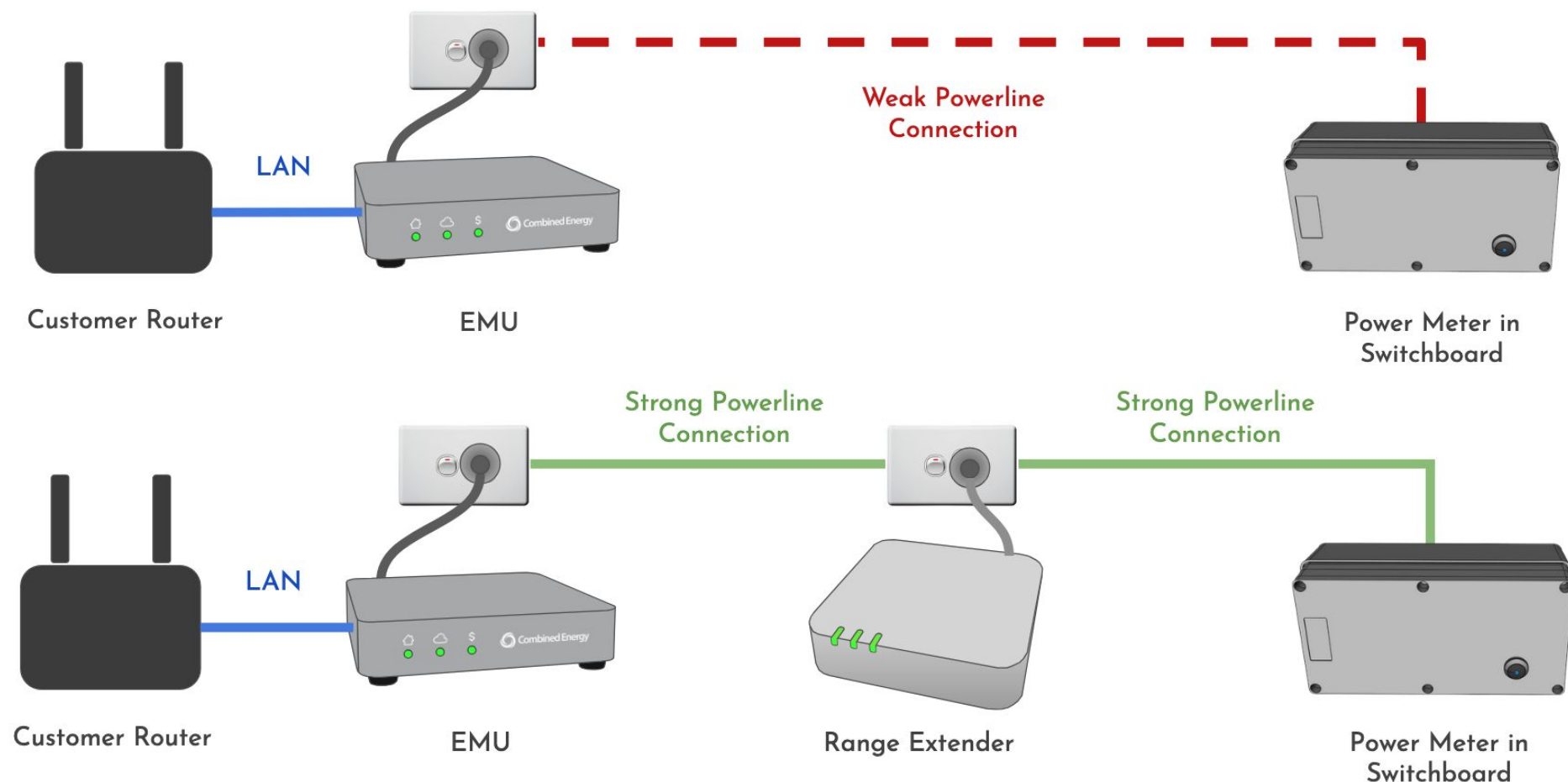


In this configuration EV Chargers can make use of local generation while complying with the DNSP dynamic import limit. The EMU uses the Inverter power meter for net metering of the site.

Powerline Communications

Range Extender

In sites using Powerline Communications (PLC), the CET-H4-RE2-1 Range Extender can be used to improve connections between distant devices and to overcome local signal interference



Clip-on Ferrites

Powerline Communications (PLC) can be adversely affected by interference from electrically noisy appliances. Clip-on Ferrites (CET-IT1-FERPK6-1) can be used to suppress interference from noisy appliances.

