# PG&E Interconnection Guide
# NEM-MT with Storage

## Applicability

This guide is for residential homes and small commercial sites with existing NEM 1.0/2.0 solar that are adding a FranklinWH System for energy management storage alongside new non-export solar, and would like to retain their existing NEM 1.0/2.0 status (NEM-MT), with a solar generator size of 30 kilowatts or less.

If you have any question during the application or need guidance for a specific interconnection application, please contact engineering@franklinwh.com.

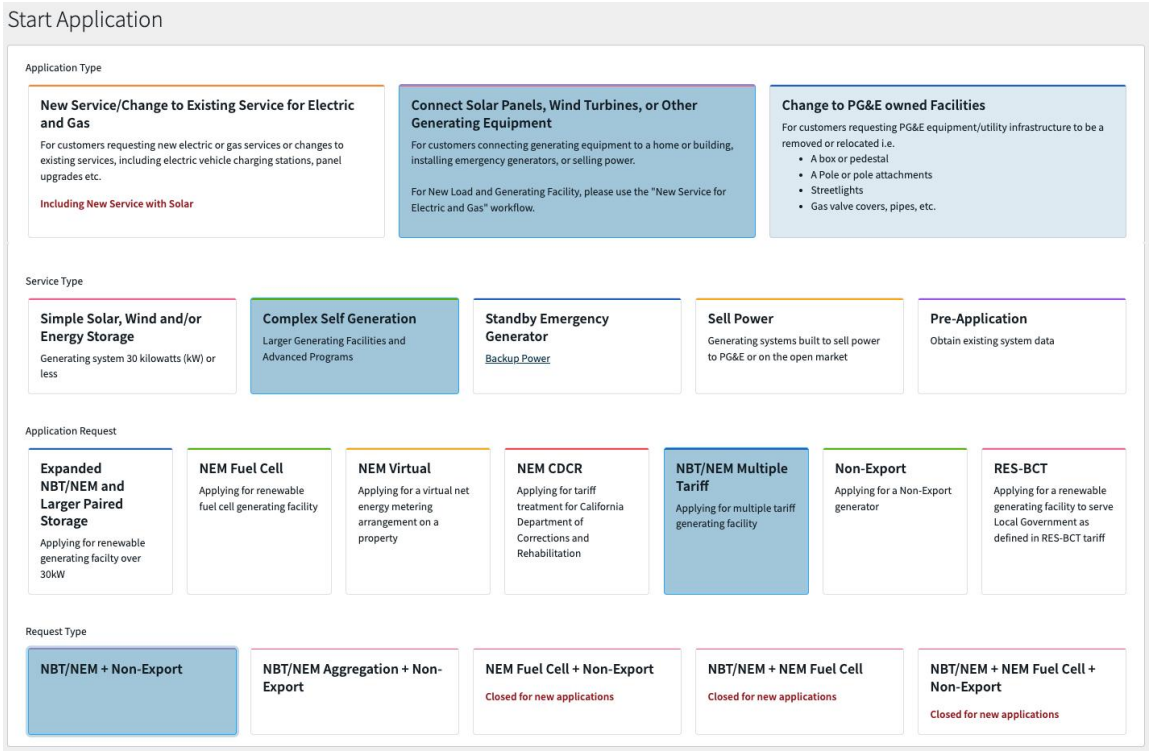
## Guide

On the PG&E Your Projects portal, start a new application.

## Program Type

For NEM-MT applications, choose the following interconnection program:

| | |
|---|---|
| Application Type | Connect Solar Panels, Wind Turbines, or Other Generating Equipment |
| Service Type | Complex Self Generation |
| Application Request | NBT/NEM Multiple Tariff |
| Request Type | NBT/NEM + Non-Export |




## Project Info and Contact Info

Fill out the customer and facility info based on the individual case.

## Equipment

A NEM-MT application contains multiple System entries under Equipment Details:

- System #1. The existing solar PV system interconnected under NEM 1.0/2.0.
- System #2. The new FranklinWH System, entered under the Non-Export program.
- System #3. New AC-coupled, non-export solar added with the project.

Depending on the FranklinWH battery you are installing, refer to the section that describes your installation: Section 1 for aPower 2 and Section 2 for aPower S.

# Section 1: aPower 2 + aGate or MAC

## System #1: Existing NEM Solar

Existing System entry for the existing solar PV system that is currently interconnected under NEM 1.0/2.0.

## System #2: FranklinWH aPower 2 (Non-Export)

Create a new System entry for the FranklinWH equipment and choose the correct aPower 2 model combination according to your configuration (aGate or MAC, power output rating, and voltage).

| System #2: New Non-Export FranklinWH aPower 2 | |
|---|---|
| **Program** | Non-Export **[IMPORTANT]** |
| **Tech Type / Generator Type / Fuel Type** | Storage / Inverter-Incorporated / On-Site Renewable |
| **Will this Generator be used as a Backup?** | Yes |
| **How will the generator act as a back-up?** | Certified Inverter |
| **Please select an Anti-Island Detection Method:** | Group 7: I do not know |
| **Please provide the method of transition:** | Closed |
| **How long will the generator be parallel to the grid?** | Less than or equal to 1 second (60 cycles) |
| **Manufacturer** | FranklinWH Energy Storage Inc. (manually enter if there is no dropdown menu)* |
| **Model** | Choose based on individual case. If there is no dropdown menu, refer to the model info below the table for manual input. * |
| **Operating Mode** | Parallel Only (No export) **[IMPORTANT]** |
| **Protection** | PCS Non-Export (Option 8) **[IMPORTANT]** |

| | |
|---|---|
| **Quantity** | Fill based on individual case |
| **Nameplate Rating (kW)** | Fill based on the desired power output setting if not autofilled: 11.5kW / 10kW / 9.6kW / 7.6kW / 5kW |
| **Phase** | Single |
| **Power Factor Adjustment Max** | 1 |
| **Power Factor Adjustment Min** | 0.87 |
| **Maximum Storage Capacity (kWh)** | 15 |
| **Estimated Annual Net Energy Usage for Energy Storage Device (kWh)** | 0 |
| **Will the Distribution System be used to charge the storage device?** | No |
| **Charging Function Rated Charge Demand (Load kW)** | 0 |

## * aPower 2 Model Input (NEM-MT / Non-Export)

Select the listing that matches your configuration. If a dropdown menu is not available, manually input the manufacturer and equipment information. “XXkW” below stands for the nominal power output options [11.5kW / 10kW / 9.6kW / 7.6kW / 5kW] which should match the PCS Derate setting of the power output during commissioning.

- aPower Xyyy [XXkW] [240V/208V] [SI1-SB] + aGate X; followed by blank, A-Z, or 0-9 [CRD-PCS Non-Export]
- aPower Xyyy [XXkW] [240V/208V] [SI1-SB] + MACyyy + IslandDER (V-1-A-X) [CRD-PCS Non-Export]
- aPower Xyyy [XXkW] [240V/208V] [SI1-SB] + MACyyy + EQB (MIM 200 PLUS PE) [CRD-PCS Non-Export]

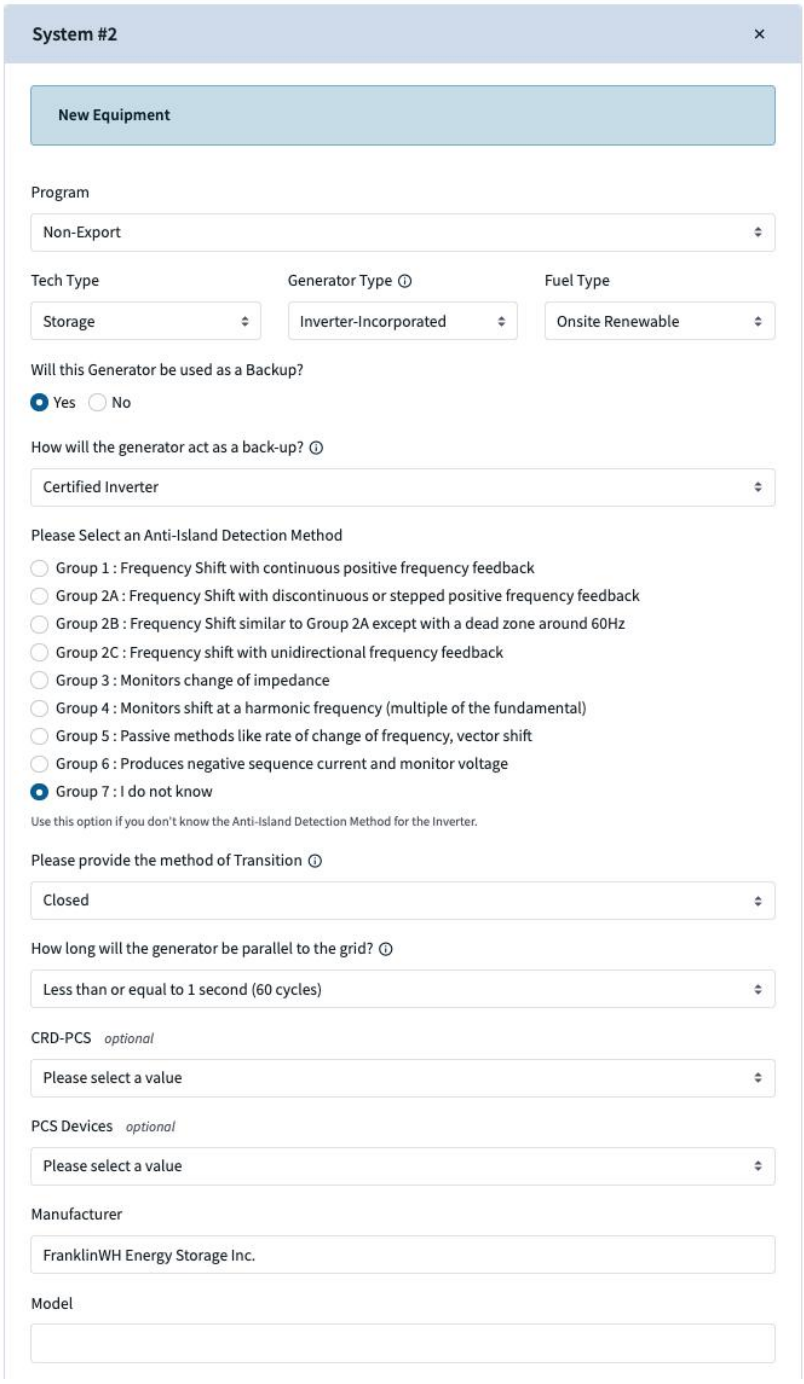
Example: aPower Xyyy [11.5kW] [240V] [SI1-SB] + aGate X; followed by blank, A-Z, or 0-9 [CRD-PCS Non-Export]

Manufacturer

FranklinWH Energy Storage Inc.

Model

aPower Xyyy [11.5kW] [240V] [SI1-SB] + aGate X; followed by blank, A-Z, or 0-9 [CRD-PCS Non-Export]



Operating Mode ⓘ

Parallel Only (No Export)

Protection ⓘ

PCS Non-Export (Option 8)

Qualifying Facility (QF)?

○ Yes ◉ No

Quantity

1

Nameplate Rating (kW)

11.500

Inverter Efficiency ⓘ

0.965

Output Voltage Rating (V)

240.000

Phase

Single Phase

Power Factor

1.00

Power Factor Adjustment Max

1.00

Power Factor Adjustment Min

0.87

☐ Short Circuit Contribution exceeds 1.2 per unit *optional*

Total Gen (kW)

11.5

Maximum Storage Capacity (kWh)

15.000

Estimated Annual Net Energy Usage for Energy Storage Device (kWh)

0

Will the Distribution System be used to charge the storage device?

○ Yes ◉ No

Charging Function Rated Charge Demand (Load kW)

0

+ Add Power Module

## System #3: New Non-Export Solar

Create an additional System entry for the new PV system.

| System #3 – New Non-Export Solar | |
|---|---|
| **Program** | Non-Export **[IMPORTANT]** |
| **Tech Type / Generator Type / Fuel Type** | Solar PV / Inverter-External / Solar |
| **Manufacturer / Model** | Select the manufacturer and model of the new PV inverter being installed. |
| **Operating Mode** | Parallel Only (No Export) **[IMPORTANT]** |
| **Protection** | Reverse Power (Option 1) **[IMPORTANT]** |
| **All other fields** | Fill based on the new PV equipment. |

### Power Module #1 – Solar PV

Add a Power Module for the solar panels. Fill in the fields according to the PV panels being installed.

# Section 2: aPower S + aGate or MAC

### System #1: Existing NEM Solar

Existing System entry for the existing solar PV system that is currently interconnected under NEM 1.0/2.0.

### System #2: FranklinWH aPower S (Non-Export)

Create a new System entry for the aPower S under the Non-Export program. At the System level, choose the aPower S listing without a power output rating; the power output is selected later at the Power Module level.

| **System #2 – FranklinWH aPower S** | |
|---|---|
| **Program** | Non-Export **[IMPORTANT]** |
| **Tech Type / Generator Type / Fuel Type** | Solar PV / Inverter-External / Solar |
| **Will this Generator be used as a Backup?** | Yes |
| **How will the generator act as a back-up?** | Certified Inverter |
| **Please select an Anti-Island Detection Method:** | Group 7: I do not know. |
| **Please provide the method of transition:** | Closed |
| **How long will the generator be parallel to the grid?** | Less than or equal to 1 second (60 cycles) |
| **Manufacturer** | FranklinWH Energy Storage Inc. (enter manually if there is no dropdown menu)* |
| **Model** | Choose the applicable listing from the dropdown menu based on individual case. Must be a [CRD-PCS Non-Export] listing.* |
| **Operating Mode** | Parallel Only (No export) **[IMPORTANT]** |
| **Protection** | PCS Non-Export (Option 8) **[IMPORTANT]** |

| | |
|---|---|
| **Quantity** | Fill based on individual case |
| **Nameplate Rating (kW)** | Fill based on the power output setting if not autofilled: 11.5kW / 10kW / 9.6kW / 7.6kW / 5kW* |
| **Phase** | Single |
| **Power Factor Adjustment Max** | 1 |
| **Power Factor Adjustment Min** | 0.87 |

***aPower S Model Input (NEM-MT / Non-Export)**

Select the listing that matches your configuration; if your configuration is not available in the dropdown menu, manually input the manufacturer and model information in the following format with the right voltage and chosen equipment:

- aPower Syyy [240V/208V] [SI1-SB] + aGate X; followed by blank, A-Z, or 0-9 [CRD-PCS Non-Export]
- aPower Syyy [240V/208V] [SI1-SB] + MACyyy + IslandDER (V-1-A-6) [CRD-PCS Non-Export]
- aPower Syyy [240V/208V] [SI1-SB] + MACyyy + EQB (MIM 200 PLUS PE) [CRD-PCS Non-Export]

Example: aPower Syyy [240V] [SI1-SB] + MACyyy + IslandDER (V-1-A-6) [CRD-PCS Non-Export]


Note that you can choose the aPower S listing without a power output rating; the power output is selected later at the Power Module level. However, it is recommended to suggest the power output rating in the Nameplate Rating box according to your PCS Derate setting. The PCS derate can be configured during installation and commissioning of the Franklin System and may be adjusted prior to interconnection. Available power output settings include 11.5 kW, 10 kW, 9.6 kW, 7.6 kW, and 5 kW. Refer to the FranklinWH Commissioning Guide for instructions on configuring the PCS Derate.

**System #2** ×

**New Equipment**

Program

Non-Export

Tech Type: Solar PV

Generator Type ⓘ: Inverter-External

Fuel Type: Solar

Will this Generator be used as a Backup?

(•) Yes ( ) No

How will the generator act as a back-up? ⓘ

Certified Inverter

Please Select an Anti-Island Detection Method

( ) Group 1 : Frequency Shift with continuous positive frequency feedback
( ) Group 2A : Frequency Shift with discontinuous or stepped positive frequency feedback
( ) Group 2B : Frequency Shift similar to Group 2A except with a dead zone around 60Hz
( ) Group 2C : Frequency shift with unidirectional frequency feedback
( ) Group 3 : Monitors change of impedance
( ) Group 4 : Monitors shift at a harmonic frequency (multiple of the fundamental)
( ) Group 5 : Passive methods like rate of change of frequency, vector shift
( ) Group 6 : Produces negative sequence current and monitor voltage
(•) Group 7 : I do not know

Use this option if you don't know the Anti-Island Detection Method for the Inverter.

Please provide the method of Transition ⓘ

Closed

How long will the generator be parallel to the grid? ⓘ

Less than or equal to 1 second (60 cycles)

CRD-PCS *optional*

Please select a value

PCS Devices *optional*

Please select a value

Manufacturer

FranklinWH Energy Storage Inc.

Model

Operating Mode ⓘ

Parallel Only (No Export)

Protection ⓘ

PCS Non-Export (Option 8)

Qualifying Facility (QF)?

○ Yes ◉ No

Quantity

1

Nameplate Rating (kW)

10.000

Inverter Efficiency ⓘ

0.965

Output Voltage Rating (V)

240.000

Phase

Single Phase

Power Factor

1.00

Power Factor Adjustment Max

1.00

Power Factor Adjustment Min

0.87

☐ Short Circuit Contribution exceeds 1.2 per unit *optional*

Total Gen (kW)

10.0

+ Add Power Module

**Power Module #1: Solar Panels**

Add a Power Module for the solar panels attached to the aPower S System. Fill in the fields according to the PV panels being installed.


**Power Module #2: Storage (aPower S)**

Add a second Power Module for storage.

| Power Module #2: Storage | |
|---|---|
| **Tech Type / Generator Type / Fuel Type** | Storage / Battery / Onsite Renewable |
| **Manufacturer** | FranklinWH Energy Storage Inc. (enter manually if there is no dropdown menu) |
| **Model** | Choose nominal output power [11.5kW / 10kW / 9.6kW / 7.6kW / 5kW] based on needs. Enter manually if the configuration is not available in the dropdown list.<br><br>Example: aPower Syyy [11.5kW] [240V] [SI1-SB] + MACyyy + IslandDER (V-1-A-X) [CRD-PCS Non-Export] |
| **Software Version** | 1 |
| **Quantity** | Based on desired quantity |
| **Inverter Efficiency** | 0.975 if not autofilled |
| **PTC Rating/ Nameplate Rating** | 11.5 / 10/ 9.6/ 7.6 / 5 based on the desired power output |
| **Total Gen** | Auto filled |

| | |
|---|---|
| **Maximum Storage Capacity (kWh)** | 15 |
| **Estimated Annual Net Energy Usage for Energy Storage Device (kWh)** | 0 |
| **Will the Distribution System be used to charge the storage device?** | No |
| **Charging Function Rated Charge Demand (Load kW)** | 0 |

## System #3 – New Non-Export Solar (if applicable)

If there are additional new non-export solar panels that are connected with third party inverters, create an additional System entry for the new PV system and a Power Module for the solar panels. The steps are the same as in Section 1, System #3.

| **System #3 – New Non-Export Solar (if applicable)** | |
|---|---|
| **Program** | Non-Export **[IMPORTANT]** |
| **Tech Type / Generator Type / Fuel Type** | Solar PV / Inverter-External / Solar |
| **Manufacturer / Model** | Select the manufacturer and model of the new PV inverter being installed. |
| **Operating Mode** | Parallel Only (No Export) **[IMPORTANT]** |
| **Protection** | Reverse Power (Option 1) **[IMPORTANT]** |
| **All other fields** | Fill based on the new PV equipment. |

If you have any further question regarding interconnection request, please contact engineering@FranklinWH.com.