Power Quality Response Mode Settings for Sungrow Residential Inverters

1. Introduction

This document only applies to **single-phase inverters** (including SG2K-S, SG2K5-S, SG3K-S, SG3K-D, SG4K-D, SG5K-D, SG6K-D, SG8K-D), **three-phase inverters** (including SG5KTL-MT, SG6KTL-MT, SG8KTL-M, SG10KTL-MT, SG10KTL-M, SG12KTL-M, SG15KTL-M, SG20KTL-M), **Hybrid inverters** (including SH5K-20, SH5K-30) .

2. Enter power quality settings interface through the APP

This product meets the requirements of Australia/New Zealand AS/NZS 4777.2,

This section mainly introduces how to use iSolarCloud APP to enter the setting interface of grid support related parameters. We can do power quality settings via local or remote setting.

For the download and installation of iSolarCloud and other issues, you can search for " iSolarCloud" by clicking the link http://support.sungrowpower.com or scan the QR code below to view the specific APP manual.

3. Example：Local settings For Victorian DNSPs

3.1. Standard for Victorian DNSPs

Energy Victorian specify the voltage and reactive/active power settings in table 1 and table 2 in their Connection standards:

Victorian Distribution Network Service Provider (DNSP) Basic Micro EG Connections Power Quality Response Mode settings

Victorian DNSPs are mandating power quality response mode capability, and associated settings for all micro EG connections from 1 December 2019. The settings are:

- Volt-var response mode (AS/NZS 4777.2 Table 11); and
- Volt-watt response mode (AS/NZS 4777.2 Table 10)

Settings for the power quality response modes are shown below

Table 1: Mandatory: volt-var response mode settings

Reference	Voltage in Volts	Var % Rated VA
V1	208	44% leading (exporting vars)
V2	220 (default)	0%
V3	241	0%
V4	253	44% lagging (sinking vars, 3.7% per volt, 0.9 power factor)

Table 2: Mandatory volt-watt response mode settings

Reference	Voltage in Volts	Power % rated Power
V1	207 (default)	100% (default)
V2	220 (default)	100% (default)
V3	253	100% (default)
V4	259	20% (default, 5.3%/volt)

3.2. Volt-Var Settings

The steps to set the Q(U) mode via iSolarCloud APP are:

1) Access the app via WLAN, you will be prompted to put in the Account and Password. Please put in **"admin"** as the account and the password (contact Sungrow).

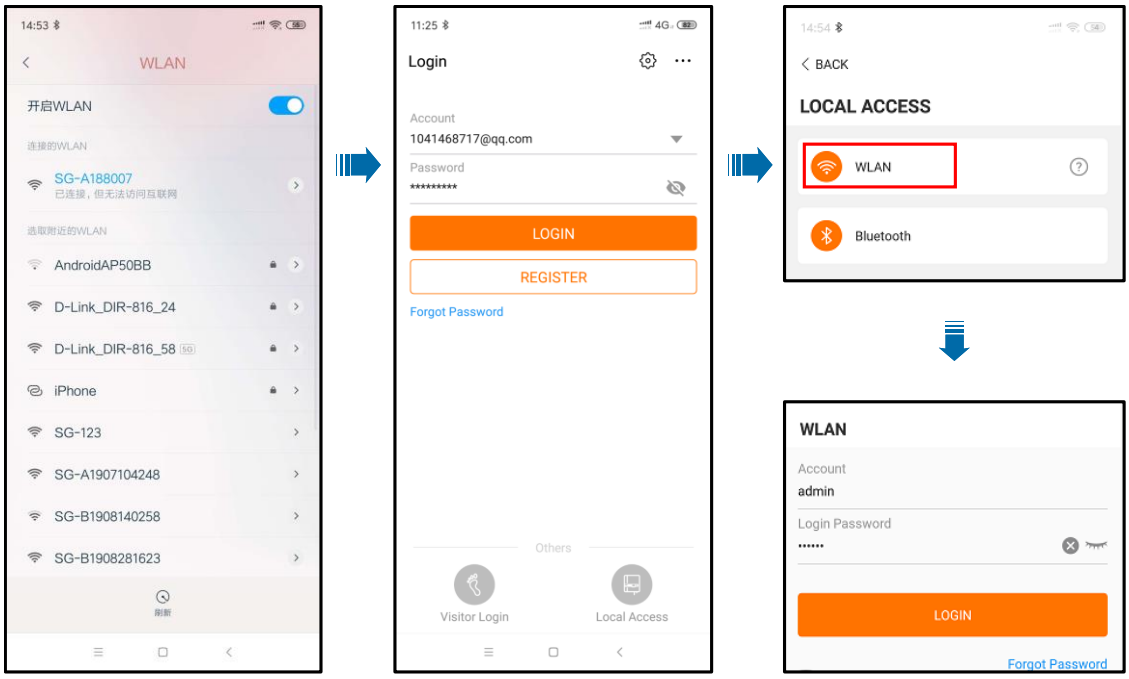

Fig.1. Local access

2) Above local access is same for all inverters. But reactive power settings is a little different. Please see the detailed setting steps separately as below:

Single-phase inverter.

- Click "More" > "Settings" > Country (Australia) > "Power Control" > “Reactive Adjusting Switch" (For example Q(U))> to input the Voltage and reactive power ratio as per the requirement.

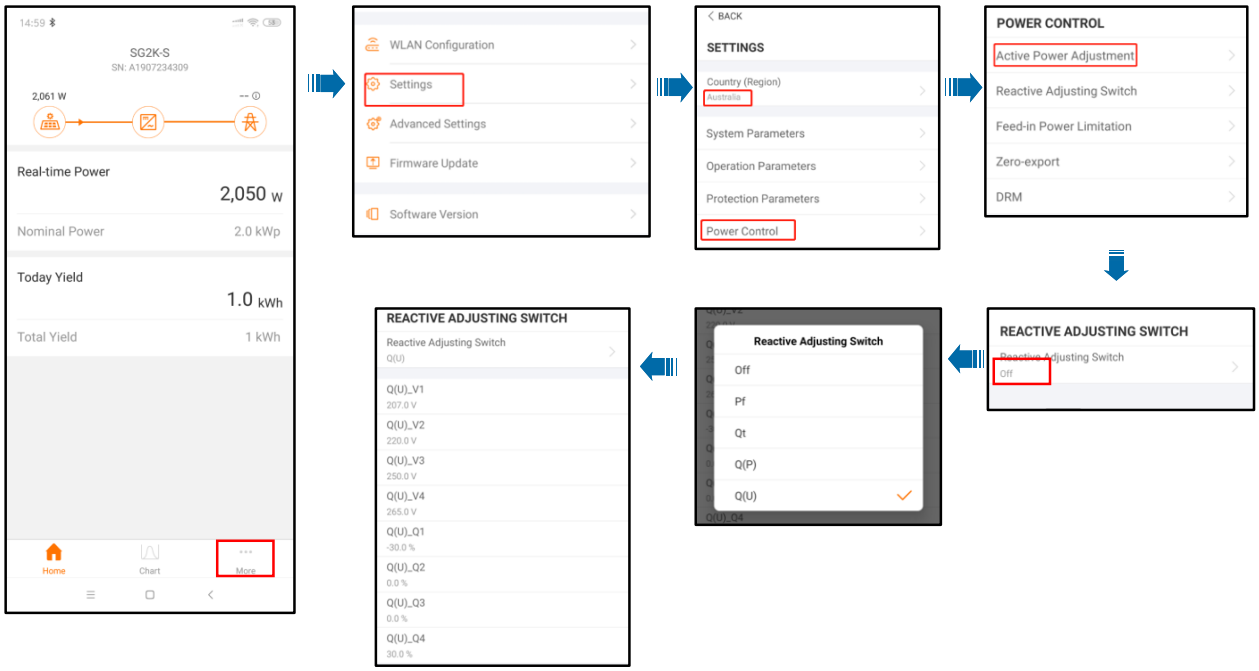

Fig.2. Single-phase inverter reactive power setting interface

Three-phase inverter

- Click "More" > "Settings" >"Protection Parameters" > Country (Australia) >go back "Operation Parameters" >"Active and Reactive Power" > "Reactive Power Regulation" > Choose the reactive power mode (For example Q(U)) > to input the voltage and reactive power ratio as per the requirement.

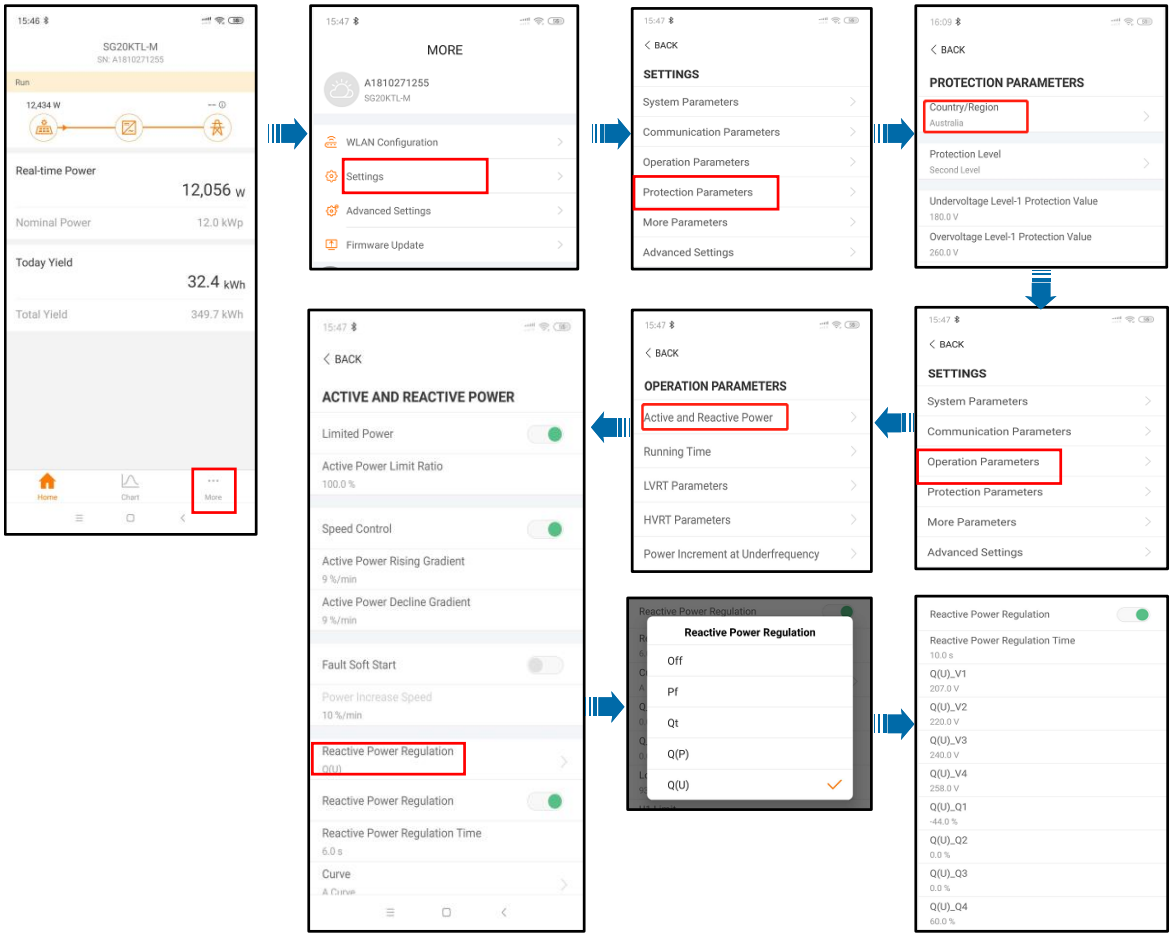

Fig.3. Three-phase inverter reactive power setting interface

Hybrid inverter

- Click "More" > "Settings" > Country (Australia) > "Power Control" >" Reactive Power Setting" > "Reactive Power Regulation Mode" > Choose the reactive power mode (For example Q(U)) > to input the voltage and reactive power ratio as per the requirement.

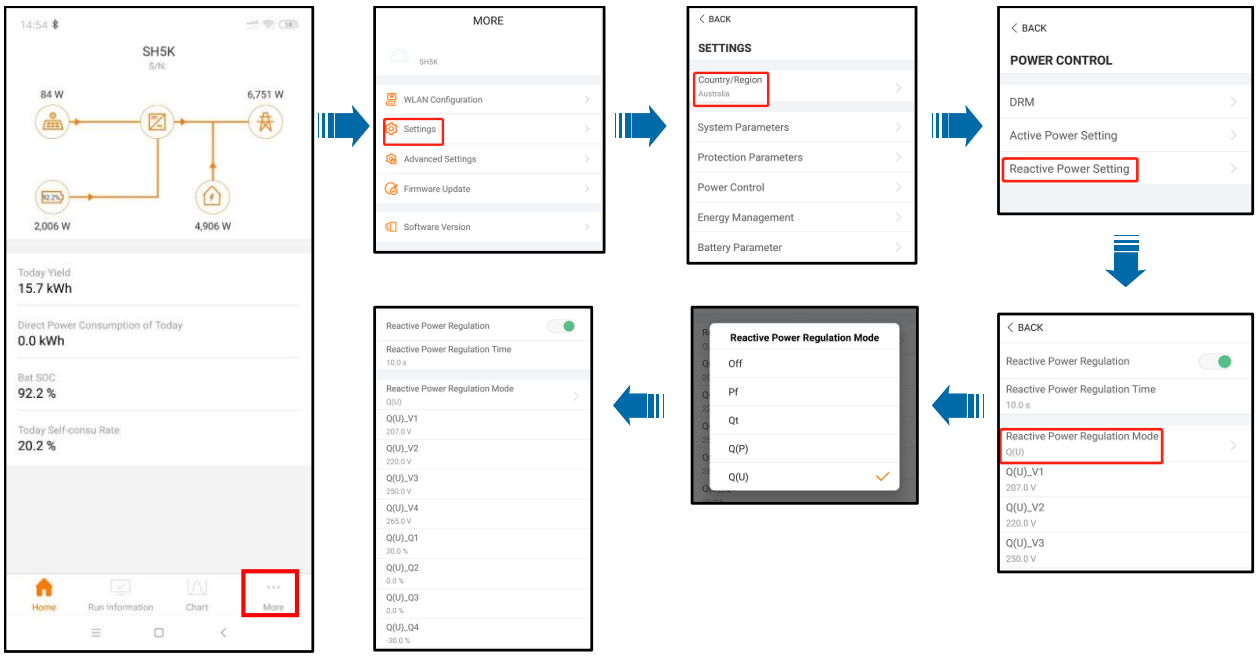

Fig.4. Hybrid inverter reactive power setting interface

3) Enable the “Reactive Power Regulation Mode” to “Q(U)” and set the reactive power value.

it is only possible to enter the value in % Vars in Sungrow inverter. you get the Volt- Var settings value from the DNSP Protection settings calculator, please follow the steps below on how to enter those values on Sungrow inverters.

Reference point		Set Points	Setting Range
QU_V1 = V1	207V	QU_V1	207
	44% leading	QU_Q1	44%
QU_V2 = V2	220V	QU_V2	220
	0%	QU_Q2	0%
QU_V3 = V3	248V	QU_V3	248
	0%	QU_Q3	0%
QU_V4 = V4	253V	QU_V4	253
	44% lagging	QU_Q4	44%

3.3. Volt-watt settings

The steps to enter this function menu are:

1) Access the app via WLAN Direct mode; you will be prompted to put in the Account and Password. Please put in **“admin”** as the account and the password (contact Sungrow).

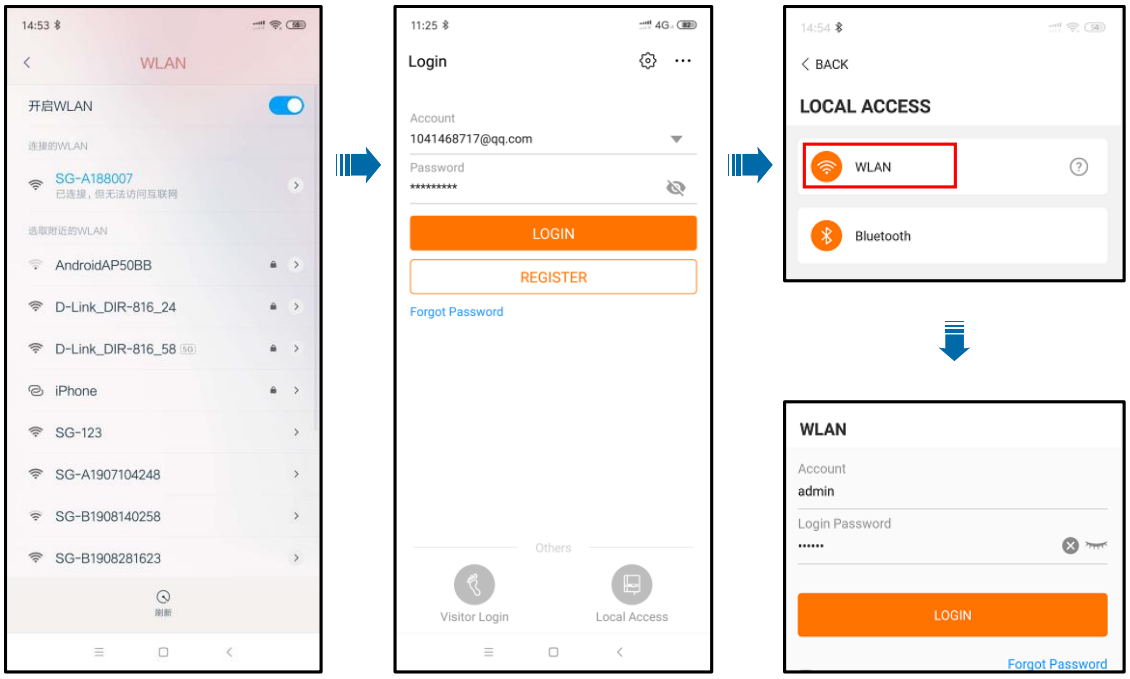

Fig.5. Local access

2) Above local access is same for all inverters. But active power settings is a little different. Please see the detailed setting steps separately as below:

Single-phase inverter

- Click "More" > "Settings" > “Country”(Australia) >"Power control" > “Active Power Adjustment" to enter the “Active Power Adjustment” interface.

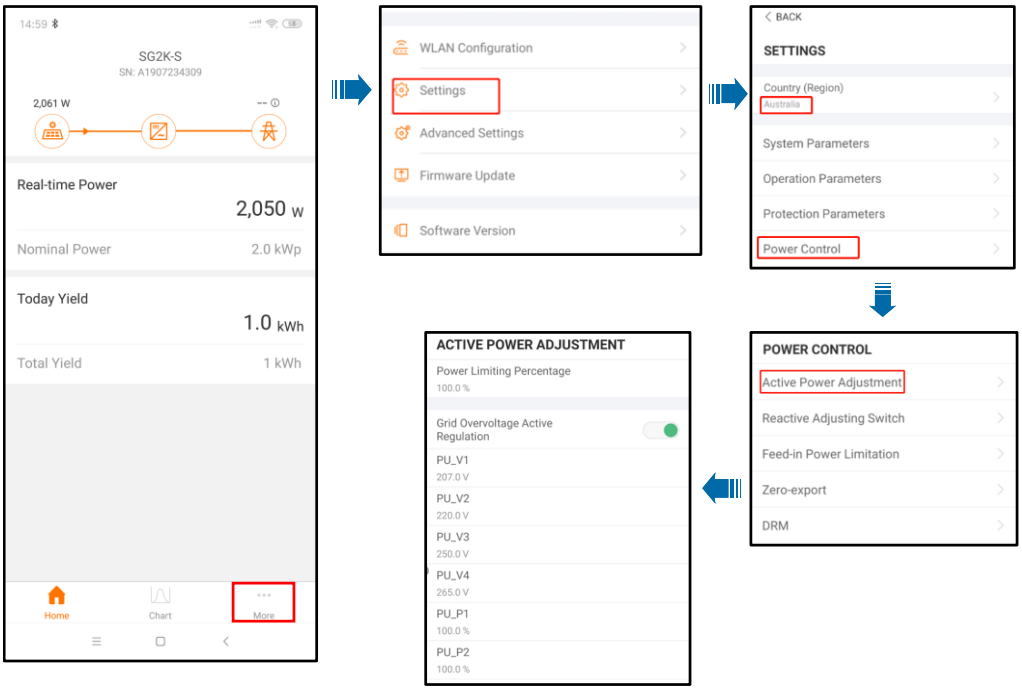

Fig.6. Single-phase inverters Volt-watt settings interface

When setting the above parameters, you need to ensure:

PU_V1 ≤ PU_V2 ≤ PU_V3 ≤ PU_V4

PU_P1 ≥ PU_P2 ≥ PU_P3 ≥ PU_P4

Three-phase inverter

- Click "More" > "Settings" >"Protection Parameters" > Country (Australia) >go back "Operation Parameters" >"Grid Voltage Active" > to input the Voltage and active power ratio as per the requirement.

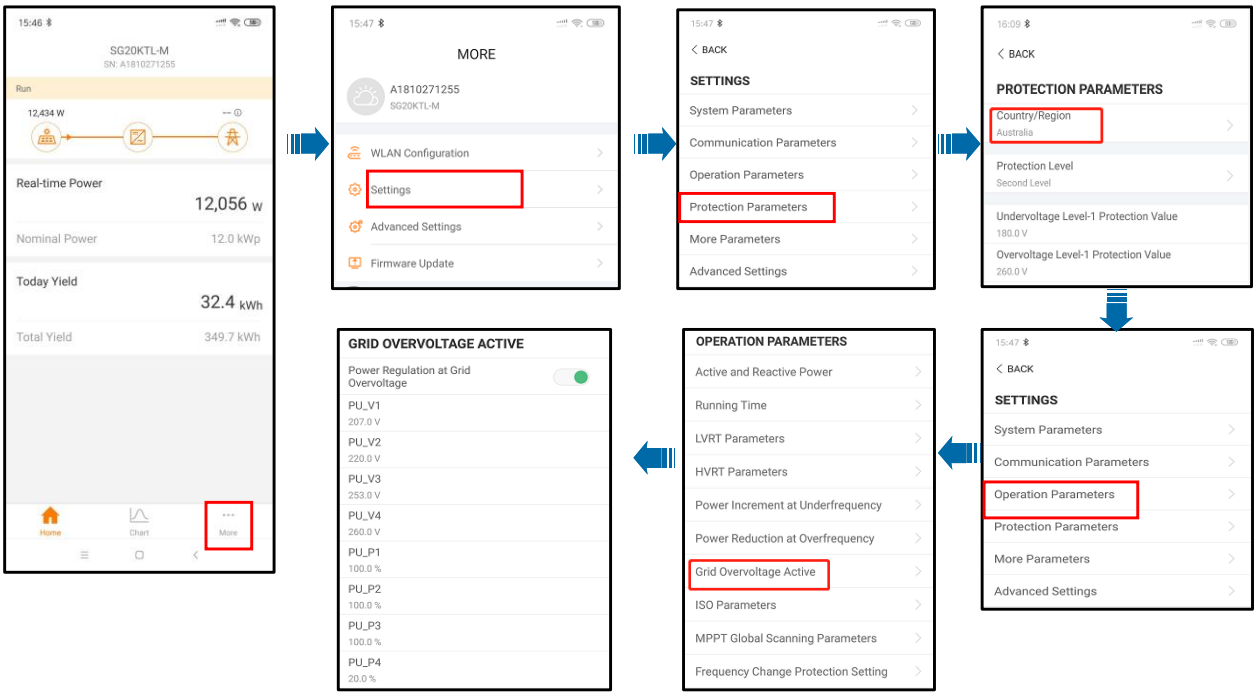

Fig.7. Three-phase inverters Volt-watt settings interface

When setting the above parameters, you need to ensure:

PU_V1 ≤ PU_V2 ≤ PU_V3 ≤ PU_V4

PU_P1 ≥ PU_P2 ≥ PU_P3 ≥ PU_P4

Hybrid inverter

- Click "More" > "Settings" > "Country"(Australia) >"Power control" > "Active Power Setting" to. input the Voltage and active power ratio as per the requirement.

Note: volt-watt in discharging mode and charging mode both can be set in "Active Power Setting". Charging mode is only for hybrid inverters.

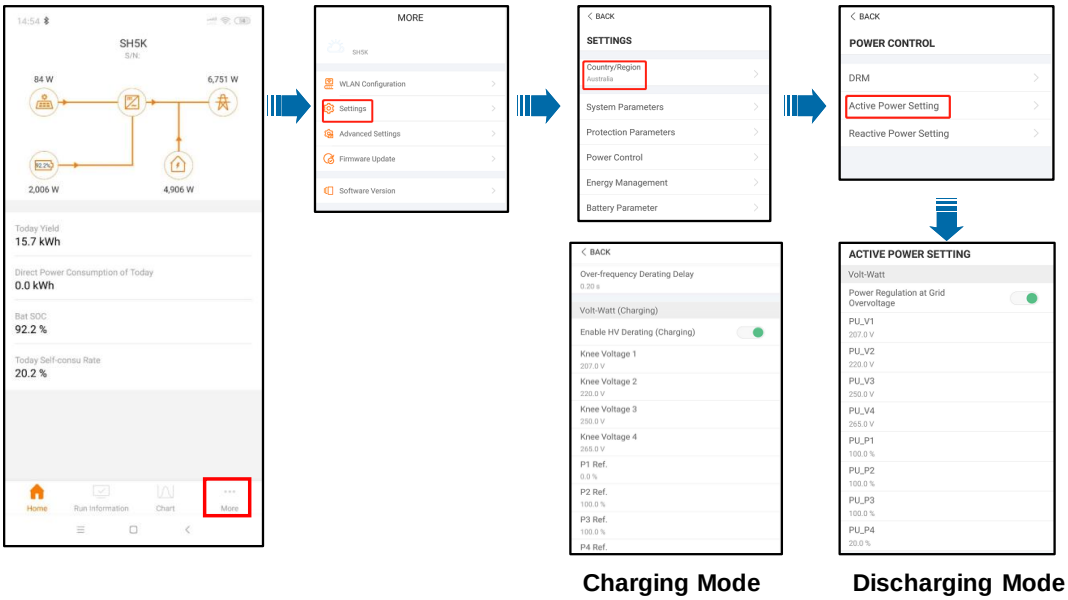

Fig.8. Hybrid inverters Volt-watt settings interface

When setting the above parameters, you need to ensure:

PU_V1 ≤ PU_V2 ≤ PU_V3 ≤ PU_V4

PU_P1 ≥ PU_P2 ≥ PU_P3 ≥ PU_P4

3) For Volt-watt settings. it is only possible to enter the value in % Vars in Sungrow inverter. you get the Volt-Var settings value from the DNSP Protection settings calculator, please follow the steps below on how to enter those values on Sungrow inverters.

Reference point		Set Points	Setting Range
PU_V1 = V1	207V	PU_V1	207
	100%	PU_P1	100%
PU_V2 = V2	220V	PU_V2	220
	100%	PU_P2	100%
PU_V3 = V3	253V	PU_V3	253
	100%	PU_P3	100%
PU_V4 = V4	259V	PU_V4	259
	20%	PU_P4	20%