

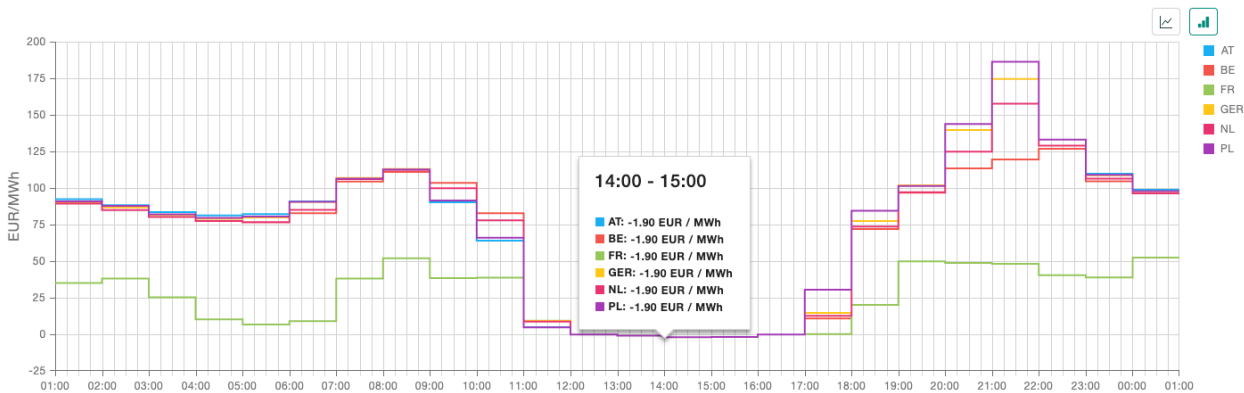
Application Note - Nordpool Tariffs for EU

1. Overview

Nord Pool is the world's first power exchange and the world's first multinational power exchange. More than 400 companies from 20 countries trade on markets. During 2023, a total of 1103.83 TWh of power was traded through Nord Pool (made up of buy volume of 526.00 TWh and sell volume of 577.83 TWh).

Anker SOLIX X1 leverages data from Nordpool, to forecast day-ahead prices and provide dynamic precise for different regions and countries. Customers can set up working mode like battery charging and discharging periods, Cut-off SOC, the number of desired charges etc. And set the tariff details like tariff type, fee and VAT. With the upcoming firmware/ software version of Anker SOLIX X1, customers can optimize their X1 energy storage systems to charge the batteries when purchase electricity prices are low and discharge them back to the grid when selling electricity prices are high. The goal is to maximize savings based on the customer's electricity usage habits.

Nordpool forecast day-ahead prices as follows:



Status: Final

Delivery period (EET)	AT (EUR)	BE (EUR)	FR (EUR)	GER (EUR)	NL (EUR)	PL (EUR)
01:00 - 02:00	92,48	89,47	35,15	90,64	89,47	91,09
02:00 - 03:00	88,38	85,08	38,22	86,86	85,08	87,90
03:00 - 04:00	83,66	80,31	25,41	81,76	80,31	82,24
04:00 - 05:00	81,42	77,64	10,29	79,17	77,64	79,73
05:00 - 06:00	82,27	76,76	6,78	80,03	76,77	80,60
06:00 - 07:00	90,97	83,00	9,16	90,57	85,18	90,74
07:00 - 08:00	107,00	104,62	38,21	107,00	106,24	106,60
08:00 - 09:00	112,98	111,19	52,13	113,13	112,47	112,87
09:00 - 10:00	90,45	103,70	38,56	99,98	99,98	91,64
10:00 - 11:00	64,23	82,94	38,87	78,00	78,00	66,11
11:00 - 12:00	5,05	9,13	9,44	9,31	8,90	4,87
12:00 - 13:00	0,00	0,00	0,00	0,00	0,00	0,00
13:00 - 14:00	-0,76	-0,76	-0,76	-0,76	-0,76	-0,76
14:00 - 15:00	-1,90	-1,90	-1,90	-1,90	-1,90	-1,90
15:00 - 16:00	-1,68	-1,66	-1,66	-1,67	-1,67	-1,68
16:00 - 17:00	-0,01	-0,01	-0,01	-0,01	-0,01	-0,01
17:00 - 18:00	14,82	11,00	0,31	14,82	12,87	30,59
18:00 - 19:00	77,60	72,07	20,32	77,60	73,80	84,60
19:00 - 20:00	102,00	96,90	49,96	102,00	97,33	101,58
20:00 - 21:00	139,83	113,59	48,93	139,83	125,00	143,98
21:00 - 22:00	174,75	119,62	48,30	174,75	157,86	186,42
22:00 - 23:00	129,11	127,03	40,55	129,11	129,11	133,27
23:00 - 00:00	109,95	104,79	39,06	108,83	106,53	109,22
00:00 - 01:00	98,90	96,50	52,53	97,82	96,50	98,10
Min:	-1,90	-1,90	-1,90	-1,90	-1,90	-1,90
Max:	174,75	127,03	52,53	174,75	157,86	186,42
Average:	72,56	68,38	24,91	73,20	70,61	74,08

2. Anker SOLIX Technology

2.1 Purchase/Selling Rules in Different Countries

Purchase: The mandatory field depends on the customer. It is Dynamic tariff.

Purchase Price = ("Nordpool Auction Day-ahead Prices" + Purchase "Fee")*(1+ "VAT")

Purchase "Fee" = Additional fixed costs.

VAT: Value Added Tax

Selling: The optional field depends on the customer.

"Tariff Type - Feed-in Tariff" : Fixed Rate tariff

Selling Price = Manual Input "Selling Fee".

"Tariff Type - Export Tariff" : Dynamic tariff

Selling Price = "Nordpool Auction Day-ahead Prices" - Selling "Fee".

Purchase/Selling fee depends on the customer's tariff. The default value is the average value for 2024 for each country, just for reference. The supported countries are as follows.

Country	Supported System Type	Code	Purchase				Selling: Feed-in Tariff	Selling: Export Tariff	Currency	Units
			Purchase "Fee" default value	Currency	Units	VAT default value	Selling "Fee" default value	Selling "Fee" default value		
United Kingdom	Single-Phase	UK	0.1131	GBP	£/kWh	5%	0.03	/	GBP	£/kWh
	Three-Phase									
Sweden	Three-Phase	SE	0.0643	EUR	€/kWh	25%	/	0.2	EUR	€/kWh
Austria	Three-Phase	AT	0.11332	EUR	€/kWh	20%	0.0973	/	EUR	€/kWh
Belgium	Single-Phase	BE	0.01316	EUR	€/kWh	21%	/	0.01305	EUR	€/kWh
	Three-Phase									
France	Single-Phase	FR	0.1329	EUR	€/kWh	20%	0.127	/	EUR	€/kWh
Germany	Single-Phase	GER	0.17895	EUR	€/kWh	19%	0.0794	/	EUR	€/kWh
	Three-Phase									
Poland	Three-Phase	PL	0.0786	EUR	€/kWh	23%	/	0	EUR	€/kWh

2.2 Anker SOLIX X1 Solution Advantages

Time Slot (Nordpool)—Dynamic :

(1) Smart Mode, Simplified App Setup

Set only the number of desired charges, not specific times. The system autonomously identifies peak and off-peak pricing periods for optimized charging/discharging—eliminating manual scheduling.

(2) Optimized Savings by 15%

Automatically charges during low-rate hours and discharges during high-rate periods, reducing annual energy bills by 15% compared to self-consumption modes.

(3) Negative Pricing Optimization

Capitalizes on negative grid prices by prioritizing grid charging and export limitation to boost revenue and ease grid strain.

(4) Broad Regional Coverage

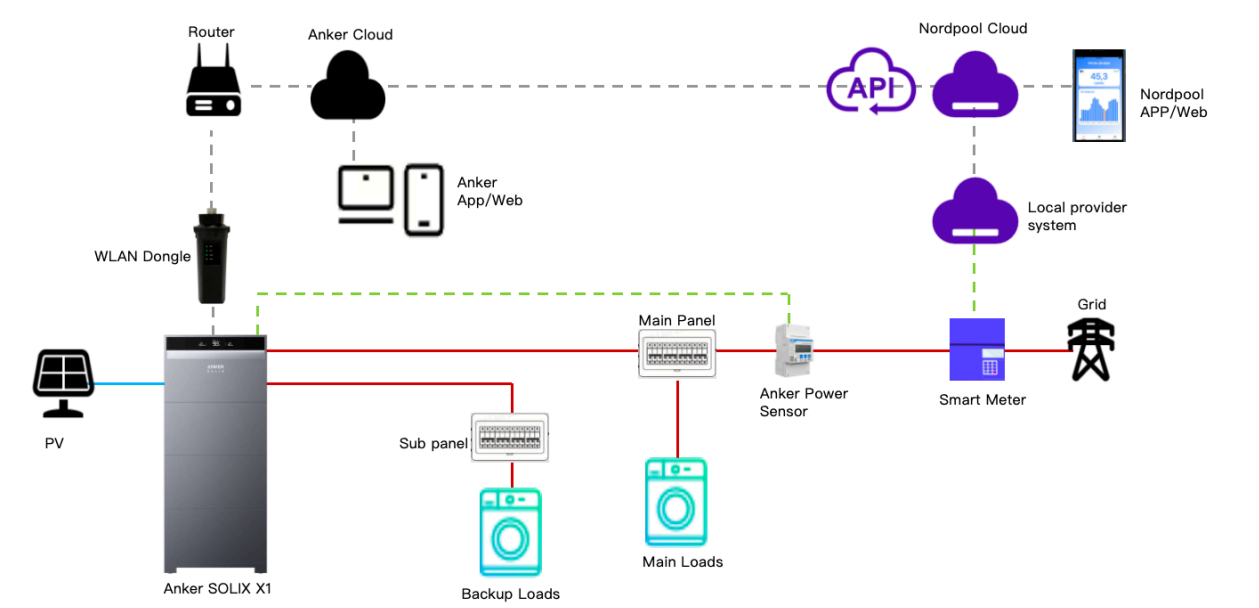
Collaborates with Nordpool for localized energy plans, extends tailored management to UK, SE, AT, BE, FR, GER, PL.

2.3 Pre-Conditions

There is no additional wiring from Anker SOLIX X1 device to the provider device on the home owner's side. But the following conditions must be ensured:

- (1) It is necessary to ensure the stability of the X1 networks. The information is interfaced through the "Nordpool Cloud" API to "Anker SOLIX Cloud".
- (2) It is also necessary to ensure that the Nordpool tariff is valid and that the provider smart meter is installed and communicating properly, make sure Nordpool cloud can get the correct information from the smart meter.
- (3) Home owners need to configure the Anker SOLIX app parameters according to their tariff with Nordpool.

The logic diagram is as follows.



2.4 Version Information

Anker SOLIX X1 Single-Phase/Three-Phase Energy Storage System supports Nordpool. The version information is as follows:

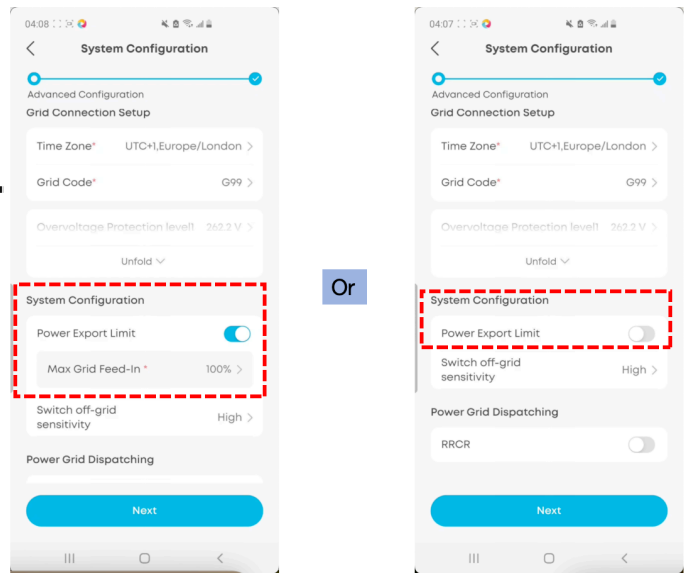
Model type:	X1-H3.68K-S, X1-H4.6K-S, X1-H5K-S, X1-H6K-S	X1-H5K-T, X1-H8K-T, X1-H10K-T, X1-H12K-T
Product firmware version	above V1.0.8.X	above V1.0.9.X
Installer app version	above V1.12.0	above V1.12.0
User app version	above V3.8.0	above V3.8.0
O&M system version	Not involved	Not involved

3. How to Operate

3.1 Necessary Parameter Settings

(1) Installer APP

"Power Export Limit" can't select to 0%.
Suggest enabling the "Power Export Limit"
and setting the "Max Grid Limit" to "100%".
Or you can disable the "Power Export Limit"



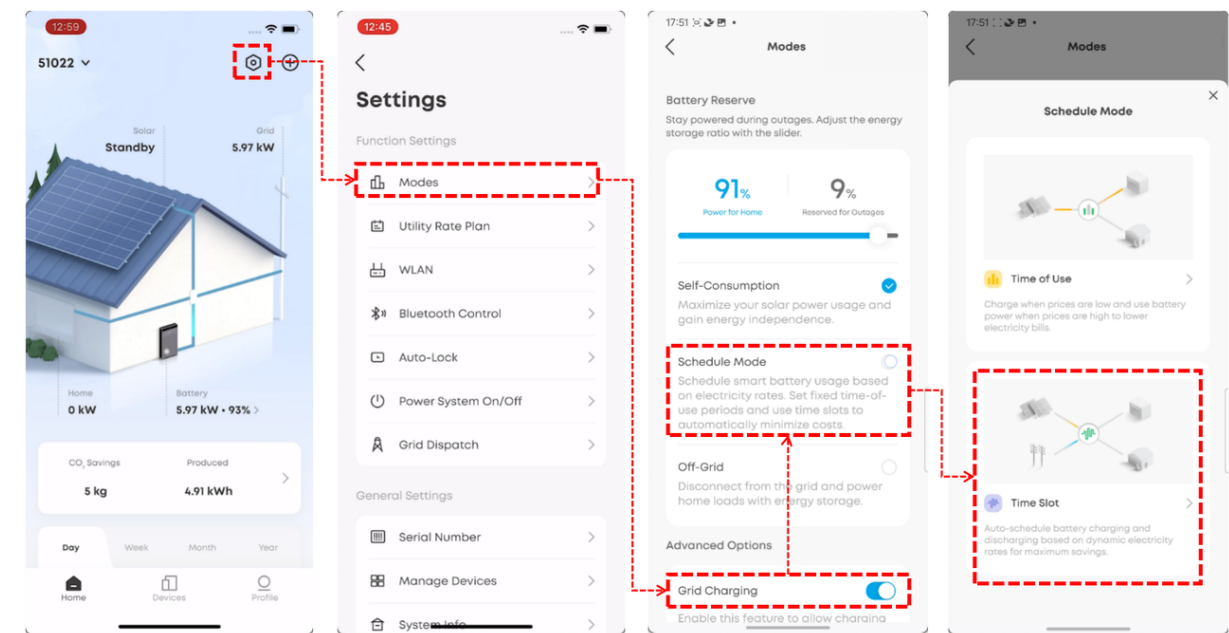
(2) User APP

"Grid Charging" must be turned on for Time Slot mode.
Need to set up "Schedule Mode" and the details
The parameters to be set for User APP please refer to 3.2

3.2 Agile Nordpool Tariff Setting Details (User APP Mode: Time Slot)

(1) Initial setup modes steps:

"Mode" -> "Grid Charging": Enable -> "Schedule Mode" -> "Time Slot"



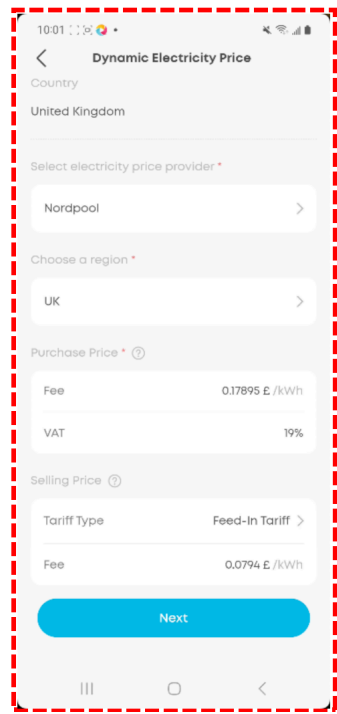
(2) Initial "Dynamic Electricity Price" setting:

"Select electricity price provider" -> Select a provider "Nordpool"

"Choose a region" -> Select the region, e.g. "GER"

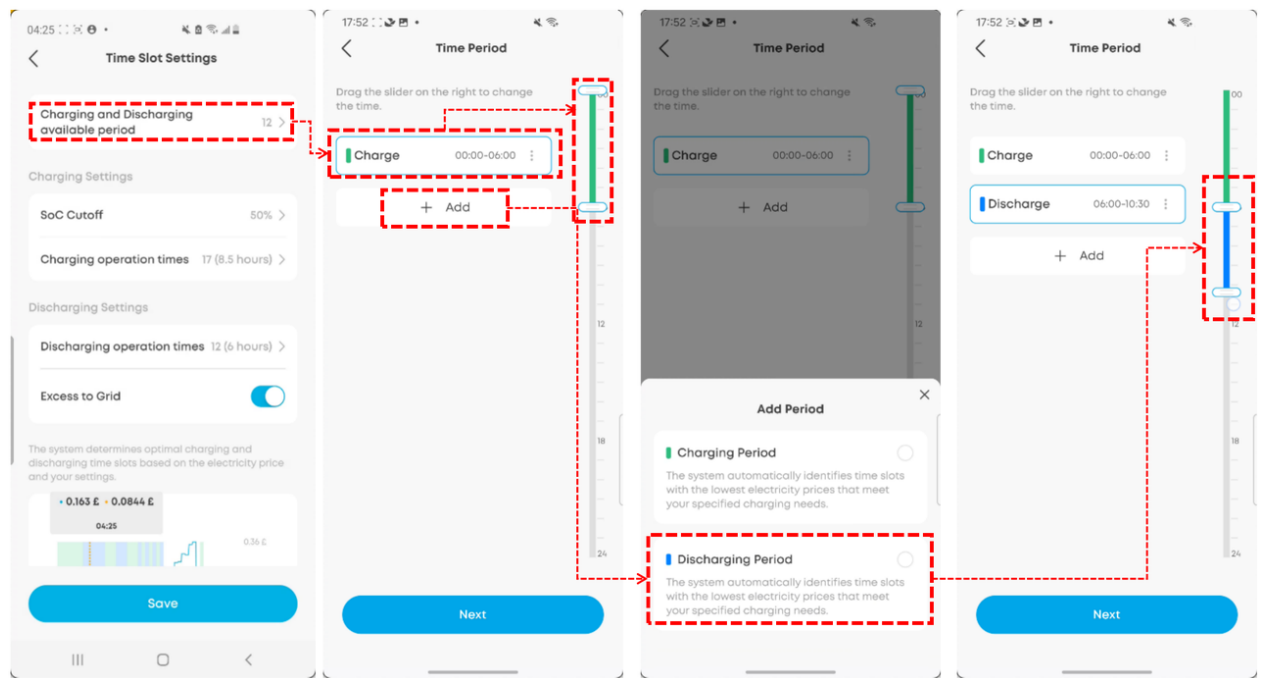
Purchase Price: ->Additional "Fee" and "VAT"

Selling Price: -> "Tariff Type" and "Fee"



(3) Time Slot Settings:

"Charging and Discharging available period" -> Setting the charging and discharging time period according to your 'Household electricity habits'. Max 12 periods can be set.

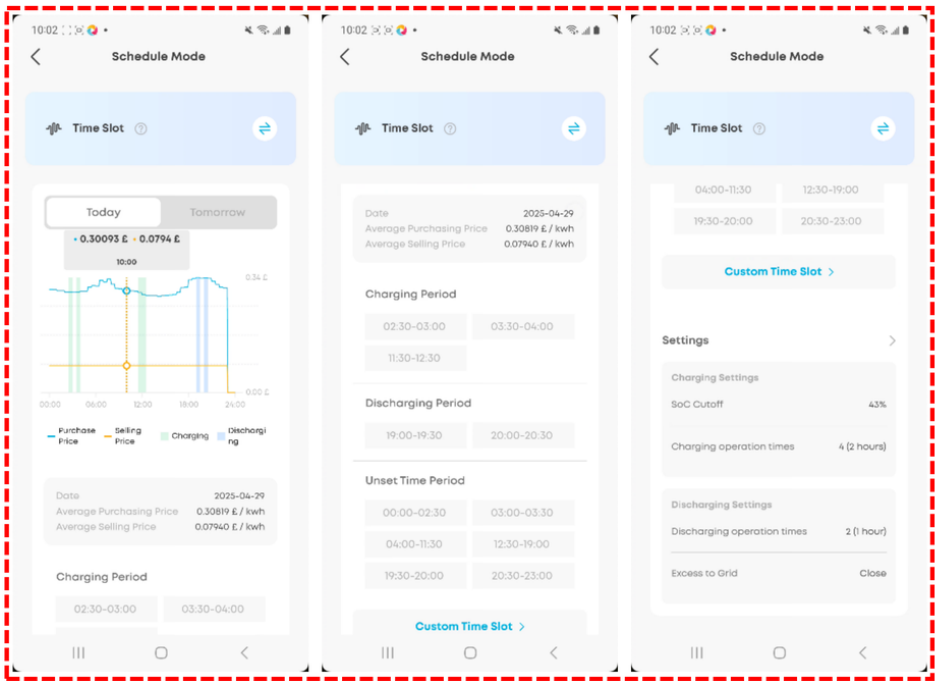
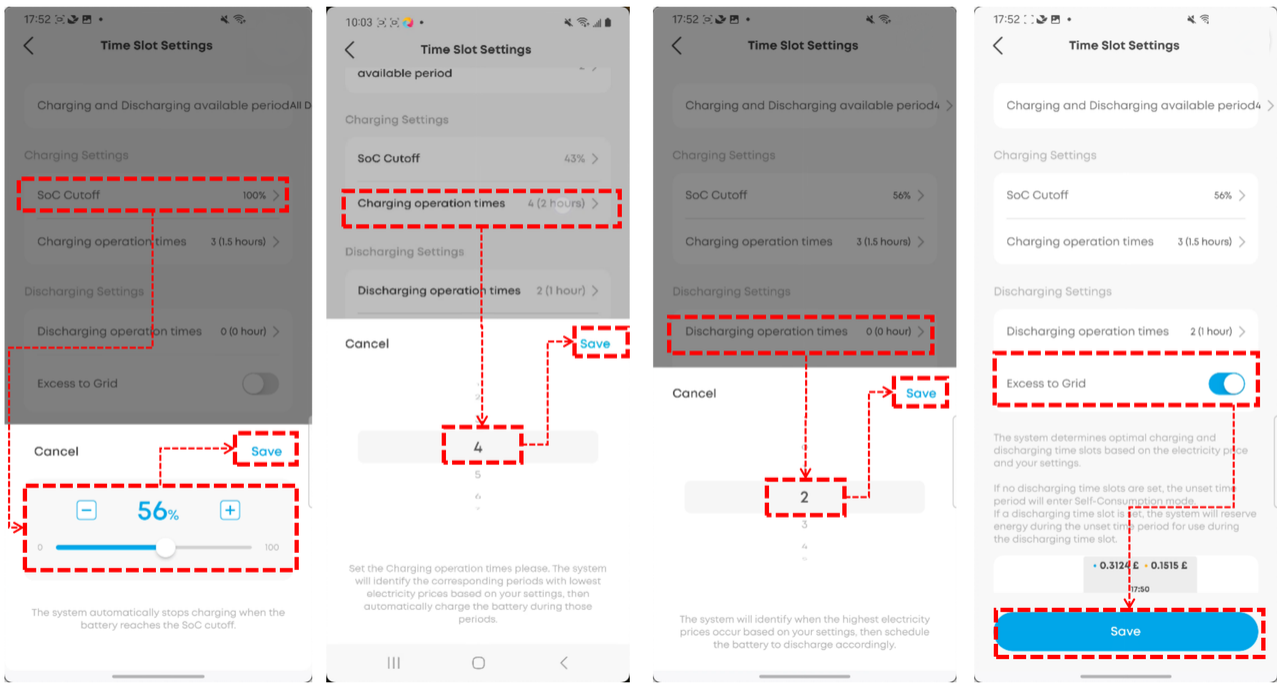


"SoC Cutoff" -> Setting the battery charging cutoff SOC 0~100%, e.g. "56%", which means charging will be stopped automatically when the battery is charged to 56% SOC. "SoC Cutoff" > "SOC Reserved for Outage".

"Charging operation times" -> Setting the number of desired charges, 1 means "One hour". The default value is 4, which means 4 hours of charging time.

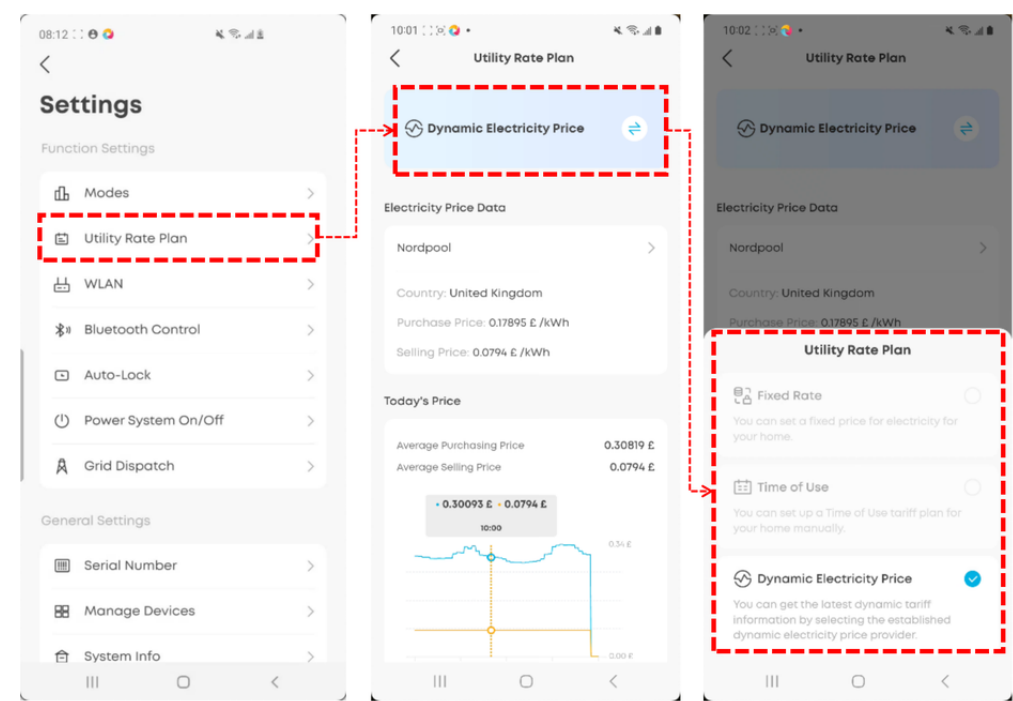
"Discharging operation times" -> Setting the number of desired discharges, 1 means "One hour". The default value is 0, which means not selling battery power to the grid. Not influenced PV power export to grid selling.

"Excess to Grid" -> Click to set, Enable/ disable sell battery power to grid. **For Feed-in Tariff disable it, for Export Tariff enable it.**



3.3 Check and Modify the Utility Rate Plan

"Setting" -> "Utility Rate Plan" -> Switch button: check the current mode, but can't change mode here. If wanna to change to "Time of Use" mode, need to go to "Modes".



"Electricity Price Data" shows the current tariffs information, and can also change the details here.

