Application Note – Europe

SolarEdge Inverters – Automatically Pause Production due to Negative Utility Rates

Version 1.4 June 2025

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Revision history

- Version 1.4. June 2025: Added supported countries.
- Version 1.3. April 2025: Added support for zero export when export rates turn negative. Added updated screens for pause production in mySolarEdge.
- Version 1.2, July 2024: Updated firmware versions
- Version 1.1, June 2024: Updated compatible inverters

Overview

Having a SolarEdge system is an excellent way to save money and reduce your environmental footprint. However, in regions where electricity rates can become negative during certain periods, SolarEdge system owners must optimize their energy consumption and grid interaction.

A SolarEdge system can help with the following:

- When import rates are negative, our system helps to manage your loads.
- When export rates are negative, our system protects you from paying for exports.
- When rates go back to normal, our system adjusts and keeps saving you money.

This application note outlines how to configure your SolarEdge inverter, using mySolarEdge, to pause production during negative utility rates, thus ensuring a cost-effective operation.

Background

Electrical utility companies in certain countries offer dynamic electricity rates. This implies that both import and export rates can become negative. Under these conditions, grid operators pay consumers for using power from the grid and penalize consumers if they export power to the grid when export rates are negative. To maximize savings during these periods, it's beneficial for system owners to pause solar inverter production.



Supported countries

The following countries support Negative Rate Optimization (NRO).

Negative Rate Optimization (NRO)
Austria
Belgium
Bulgaria
Czech Republic
Denmark
Estonia
Finland
Latvia
Lithuania
Norway
Poland
Slovakia
Slovenia
Spain
Sweden
The Netherlands

Compatible inverters

Pause production V1 works with all LCD or SetApp-enabled single and three-phase residential and commercial inverters with firmware versions 3.x.x, 4.x.x or higher.

Pause production V2 is only supported for the following FW versions:

- Residential inverters support pause production V2 for firmware version 4.23.22.
- Commercial inverters support firmware version 4.23.520.



Prerequisites

Before implementing the procedure outlined in this application note, ensure that you meet the following prerequisites:

- A SolarEdge PV system is installed and commissioned.
- Install a SolarEdge energy meter to operate version 2 of Pause Production.



NOTE

The energy meter must be directly connected to the inverter.

- All inverters are required to run the minimal supported Firmware version.
- The latest version of the mySolarEdge application is installed on your smartphone or tablet.
- You have a working knowledge of mySolarEdge.
- You are in a country in Europe that offers day-ahead dynamic rates.



IMPORTANT

- When production is paused, the installed PV system does not supply AC power to the site.
- DC-coupled devices continue to operate via the DC bus. For example, a DCcoupled battery can continue charging, even though the inverter is not producing AC power.
- The pause production feature is also available for PV-only sites.
- The pause production feature does not overwrite other backup or battery mode settings. It runs in parallel with other settings, and pauses production when electricity rates are negative.

Pause production or zero export

To take advantage of the fact that grid operators make available day-ahead dynamic rates, SolarEdge can automatically pause or regulate production while the rates are negative.

The following table displays pause production operating modes:

Export rate	Import rate	Pause production V1	Pause production V2 ¹
Negative	Positive	Stop production	Zero export
Negative	Negative	Stop production	Stop production

¹Pause production V2 requires an import/export meter and the latest firmware version.

Typical day-ahead dynamic rate charts are displayed in the following image. The highlighted areas indicate the times and the duration when you can expect negative prices for imported energy.





IMPORTANT

Site owners are fined for exporting energy to the grid under negative export rates.

Activate pause production in mySolarEdge

The following procedure enables you to view and set:

- Import rate [9]: Cost of imported energy
- Export rate [11]: Cost of exported energy
- Effective From [13]: Start date of the contract for bill-saving calculations
- Negative Rate Optimization [14] (NRO): Pause production when export rates are negative
- Daily Rate graphs [15]: Visualizes hourly rate changes over 24 hours

To activate pause production:

solar<mark>edge</mark>

- 1. Open the mySolarEdge application.
- 2. Where there are multiple sites, search for and select the applicable site.
- 3. Tap menu **■** > **Settings**.



The Settings screen is displayed.

14:34	ul 🗢 🗐
<	Settings
Language	English (US) >
System Units	Metric >
Notifications	>
Use Face ID	
Utility Rates	>

4. Select Utility Rates.





NOTE

The Utility Rates screen gradually displays the following information, depending on your configurations:

- Import Rate Plan
- Export Rate Plan
- Utility Rate Effective Period
- Dynamic Rate Settings, including Negative Rate Optimization (NRO) and Additional Fees settings.

The Utility Rates screen is displayed.

14:35	II 🗢 💷
C Utility Rates	Save
Specify the import and export rate pla your current electricity contract. We v your site's energy usage according to rates and calculate the money you sa electricity bill.	ins according to vill then optimize these defined ved on your
UTILITY RATE PLAN	
Rate Type	Set >
UTILITY RATE EFFECTIVE PERIOD	
Effective From	
① Where can I find my plan?	



NOTE

Dynamic rates are based on EPEX or ENTSO-E Aggregator rates, depending on your location.



NOTE

The selection of import and export rate plans are dependent on specific in-country parameters.



Import rate plan



NOTE

- You can find the additional fee amounts on your electricity bill or by contacting your electricity supplier. Your electricity bill displays an example base rate and fees to help you decide what additional fees you want to add to your import/export utility rate plan.
- Utility rates are provided by EPEX or ENTSO-E.
- Additional fees are added so you can determine your actual total fees, and when we should activate pause production.

1. In **UTILITY RATE PLAN**, tap **Set**.

Dynamic **Rate Type** is displayed.

14:35		ul 🗢 💷
<	Utility Rates	Save
Specify the import your current electr your site's energy rates and calculate electricity bill.	and export rate plans icity contract. We will usage according to the e the money you saved	according to then optimize ese defined d on your
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(i) Where can I fi	nd my plan?	
Rate Type		
Dynamic Day-ahead rates ba	ased on wholesale ma	irket prices
Flat Rates remain the s	same along the day, fo	r all days

2. Tap Dynamic.

The Utility Rates screen is displayed.

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🕑 Additional Fees	>
EXPORT RATE PLAN	
Rate Type	Set >
UTILITY RATE EFFECTIVE PERIOD	
Effective From	
(1) Where can I find my plan?	

3. Tap Additional Fees >.

The import Additional Fees screen is displayed.



4. In the Additional fee (€/kwh) field, type your additional import fee. Your Additional Fees are configured and On. Tap Set.



NOTE

Your import and export fees can be set as the same, or different.



Export rate plan



NOTE

- You can find the additional fee amounts on your electricity bill or by contacting your electricity supplier. Your electricity bill displays an example base rate and fees to help you decide what additional fees you want to add to your import/export utility rate plan.
- Utility rates are provided by EPEX or ENTSO-E.
- Additional fees are added so you can determine your actual total fees, and when we should activate pause production.

1. In **EXPORT RATE PLAN**, tap **Set**.

Dynamic **Rate Type** is displayed.

14:35		al 🗢 29
	Utility Rates	Save
Specify the impor your current elect your site's energy rates and calcula electricity bill. Learn about Dyna	rt and export rate pl tricity contract. We i usage according to te the money you sa unic Rates	ans according to will then optimize these defined aved on your
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2. Tap Dynamic.



The Utility Rates screen is displayed.

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UTILITY RATE EFFECTIVE PERIOD	
Effective From Start date of the utility rate program	Set
DYNAMIC RATES SETTINGS	
Negative Rate Optimization	Off >
<u></u>	_

3. Tap Additional Fees >.

The export Additional Fees screen is displayed.



4. In the Additional fee (€/kwh) field, type your additional export fee. Your additional export fee is configured and On. Tap Set.



NOTE

Your import and export fees can be set as the same, or different.



Effective From

When you have set your import and export rate plans you can select an Effective From date on the calendar.

To set an Effective From start date:

1. In **UTILITY RATE EFFECTIVE PERIOD**, tap **Set**. The Effective From calendar is displayed.

1	2:09	11 5G 65
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₿	Rate Type	Dynamic >
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	Effective From Start date of the utility	Set
	rate program	
DYNAI	MIC RATES SETTINGS	
Nega	ative Rate Optimization	Off >
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- 2. Select your Effective From date.
- 3. Tap Done > Save.

Your start date for the utility rate program is saved.





Negative Rate Optimization



NOTE

Negative Rate Optimization (NRO) is the same as Pause Production. For the following procedure, we refer to Negative Rate Optimization.

To set Negative Rate Optimization:

1. Under DYNAMIC RATES SETTINGS, tap Off. This is the default setting. NRO is displayed.

VIIIITY RATES Save Specify the import and export rate plana according to your current electricity contract. We will then optimize your current electricity usage according to these definition rates and calculate the money you saved on your electricity bill. Not according to these definition rates IMPORT RATE PLAN Dynamic > Additional Fees On > Additional Fees > Or Additional Fees > DUTULITY RATE EFFECTIVE PERIOD I DUTULITY RATE EFFECTIVE PERIOD I DUTULITY RATE SETTINOS > Negative Rate Optimization Off > If Where can I find my plan?	14:35	.ıl ≎ 29	ŀ
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Negative Rate Optimization Off → ③ Where can I find my plan?	DYNAMIC RATES SETTINGS		
(i) Where can I find my plan?	Negative Rate Optim	ization Off	>
	(i) Where can I find my	plan?	





2. To switch on your NRO, tap **On** > **Save**.

NRO is now set.



NOTE

If you leave NRO Off and tap **Save**, the following pop-up window is displayed.

Av	oid Export at gative Bates to
Ma	iximize Savings
Neg prot to th nega mon	ative Rate Optimization (NRO) ects you from exporting energy le grid when export rates are ative. Activate NRO to save e.
	Activate NRO and Save

To proceed with NRO, tap Activate NRO and Save.



NOTE

Dynamic rates are based on EPEX or ENTSO-E Aggregator rates, depending on your location.



NOTE

The selection of import and export rate plans are dependent on specific in-country parameters.

Daily Rate graphs

To view your daily rates on a graph:

On the Utility Rates screen, tap Daily rates view.



The Daily Rates graph is displayed.

15:01		. 5G 53
<	Utility Rates	Save
	es view	
Specify the impo your current elec your site's energy rates and calcula electricity bill. Learn about Dyna	rt and export rate plar tricity contract. We wi v usage according to t ite the money you sav amic Rates	ns according to II then optimize hese defined ed on your
Daily Rates		
<	📅 Today	> >
Import Ra	ites Expo	ort Rates
Tomorrow's ra	tes are available	View
	15:00 €0.06	5/kWh
0.2 0.15 0.1 0.05 €/kwh	6 Noon	18
Bate Type		Dynamic
,,		

You have the option to view the following on the graph:

- Import Rates: Tap Import Rates
- Export Rates: Tap Export Rates
- Change the date: Select a date in the calendar, or tap < > to move the date forward or back.

< 🛗 Today > >I

Bidding zones

Some countries have divided their area into separate Bidding Zones. These zones may have slightly different import or export rates compared to other Bidding zones. If this feature is available in your country, it appears in the Utility Rates screen where you may select your Bidding zone in place of the default value.

13:29		.ıl ≎ 40		
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Specify the import and export rate plans according to your current electricity contract. We will then optimize your site's energy usage according to these defined rates and calculate the money you saved on your electricity bill. Learn about Dynamic Rates				
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0	Bidding Zone	Sweden Dynamic	>	
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EXPC	IRT RATE PLAN			
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C	Additional Fees		>	
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