

UK G100-2 import-export compliance with Enphase Energy Systems

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1 Applicable country

- Great Britain (GBR)

2 Overview

[UK ENA EREC G100 Issue 2 Amendment 2](#) (G100-2) is a compliance requirement that ensures the customer site's safety and the grid's stability. This requirement asks for grid import and grid export power regulation on the site.

- Grid import electricity: This is the electricity taken from the grid to support home loads and charge the battery when the Charge From Grid setting is enabled.
- Grid export electricity: This is the surplus electricity from the solar PV system that is sent back to the grid.

As a requirement of G100-2, the Enphase Energy System must stop solar production and battery operation if the grid import or export power limit criteria are exceeded.

Enphase systems constantly monitor grid import and export power. The solar microinverters and the batteries are actively managed to maintain site operation within any limits set by the distribution network operators (DNOs). The installer sets these limits at the time of system commissioning. However, there are situations where these DNO limits may be violated due to changes in on-site loads that Enphase does not control. This document explains how these violations can occur, how your system will behave if this happens, and what action may be needed to correct the issue.

If a grid import or export limit is violated, then UK DNOs require that your Enphase solar system must stop operation, and checks must be made before it can resume regular operation.

3 Forms of violation

3.1 Violation of grid export power limit

This is only applicable if your site has a pre-defined maximum power export limit, set by the installer during the commissioning of the Enphase system. As shown in the following figures, this is taken as input from the grid profile with a specified power export limit (PEL) selected during system commissioning.

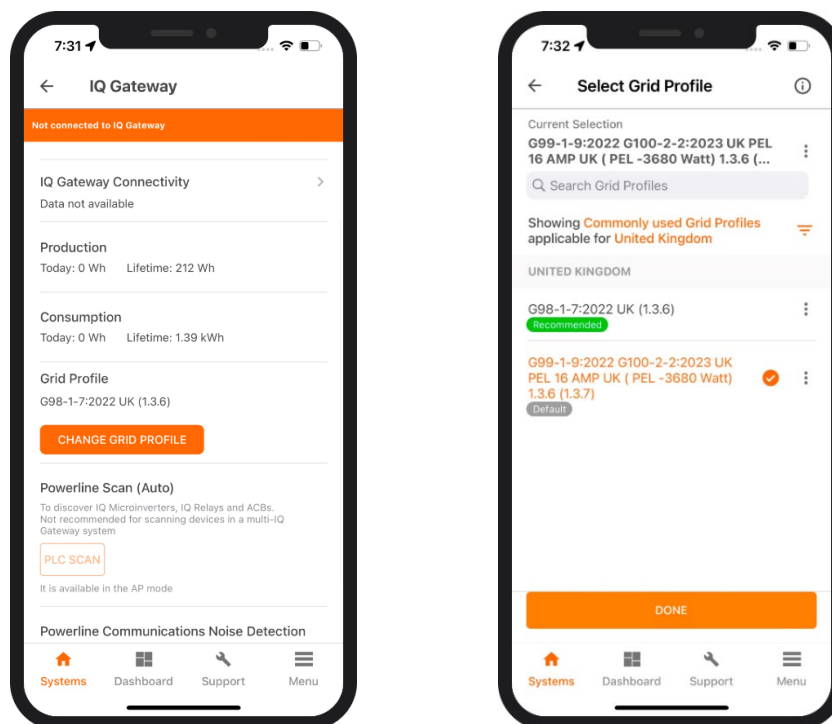


Figure 1: Enphase Installer App - Grid profile selection screen

If the solar PV system or the battery starts exporting power to the grid beyond the authorized export limit, the Enphase solar PV and battery system must shut down entirely and notify the homeowner and installer.

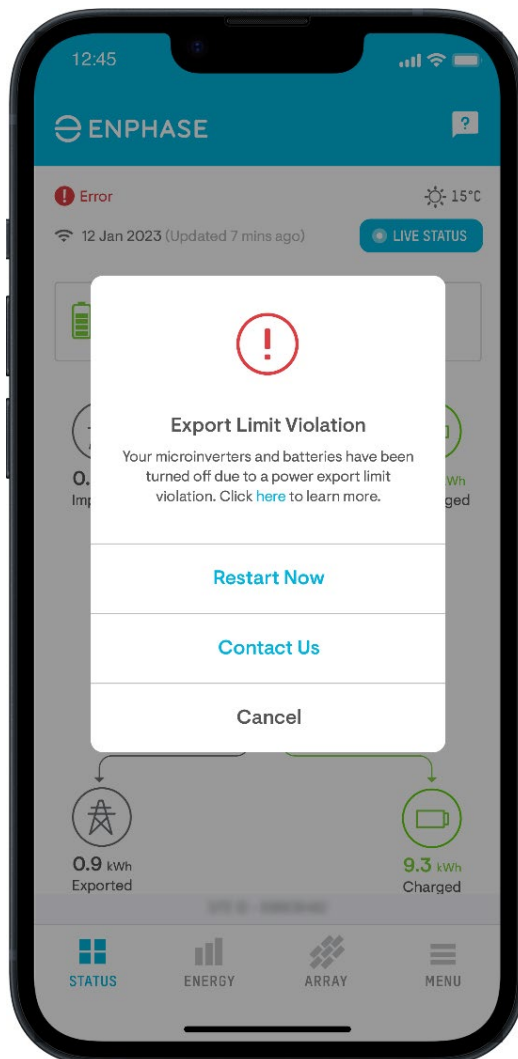


Figure 2: Enphase App notification for grid export violation

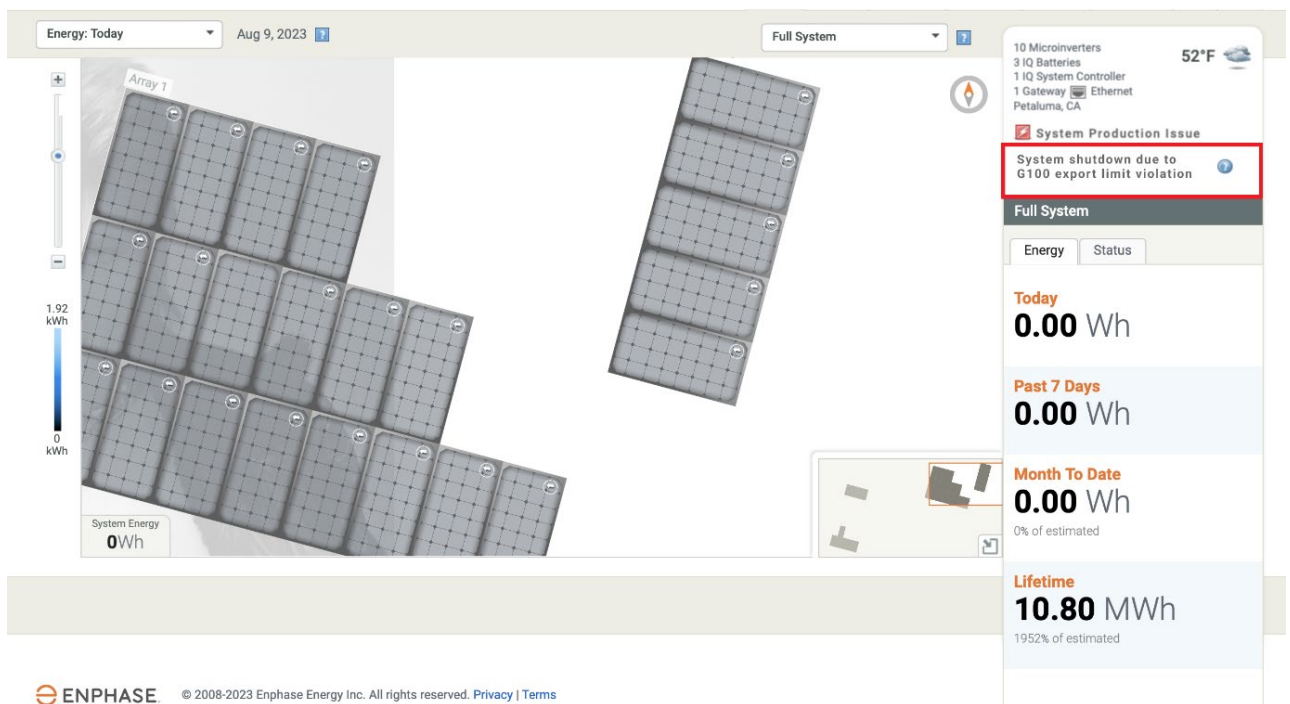


Figure 3: Enphase Installer Platform notification for grid export violation

3.1.1 Example

A site has a pre-defined power export limit of 16 A and on-site loads consume 24 A. The on-site solar PV and battery support these loads by producing 14 A and 10 A, respectively. If the 24 A load(s) are suddenly switched OFF, the solar PV and battery power briefly export to the grid before being curtailed to the 16 A export limit. Enphase systems react immediately and curtail the solar PV and battery below the allowable export limit.

If the curtailment of solar PV and battery power is not achieved within the duration specified in the G100-2 requirements, then the Enphase solar PV and battery system must shut down and notify the homeowner and installer.



NOTE: The following are the recommendations to the homeowner and installer in the event of an export limit violation:

- Investigate the cause of such sudden changes in on-site loads and seek how to avoid future similar incidents.
- Check if the allowable export limit can be altered to accommodate on-site conditions.

3.2 Violation of grid import power limit

This is only applicable if you have an on-site battery and during periods when the Charge-From-Grid setting is enabled.

A maximum import limit (MIL) needs to be configured in the Enphase Installer App, which is typically the DNO cut-out fuse rating.

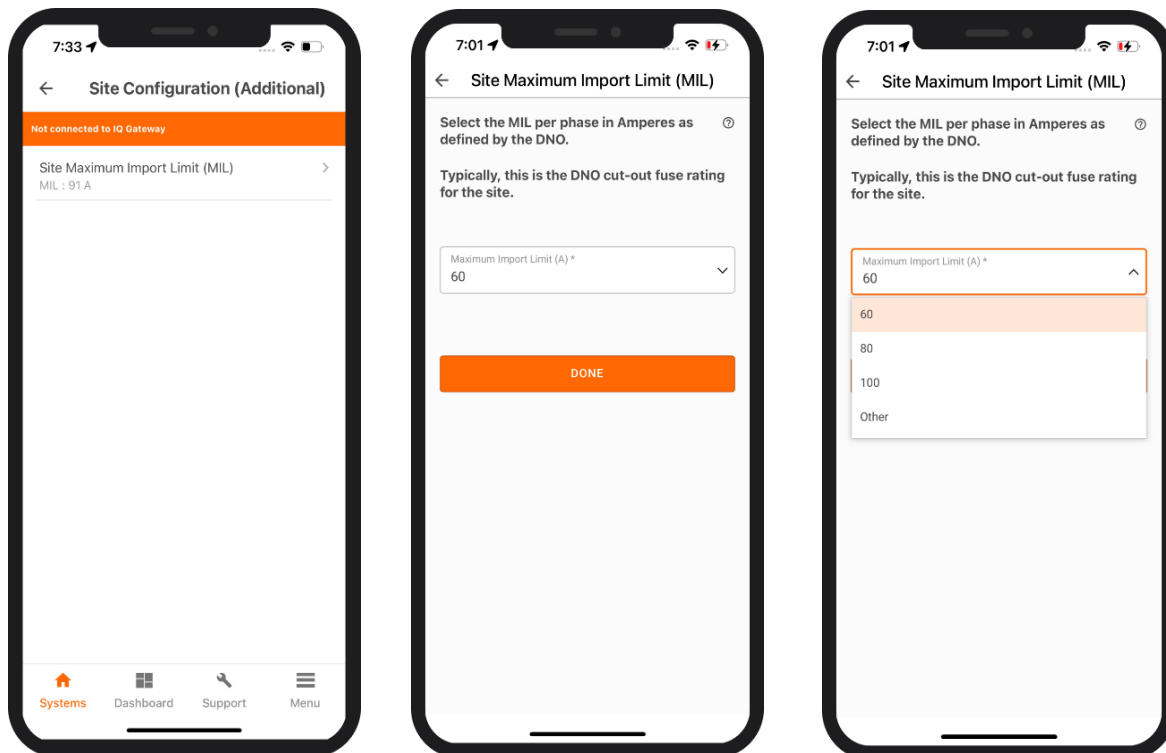


Figure 4: Maximum Import Limit setting screen in Enphase Installer App

When a site starts importing power to charge the battery beyond the allowed import limit set during system commissioning, the Enphase solar PV and battery system must fully shut down and notify the homeowner and installer.

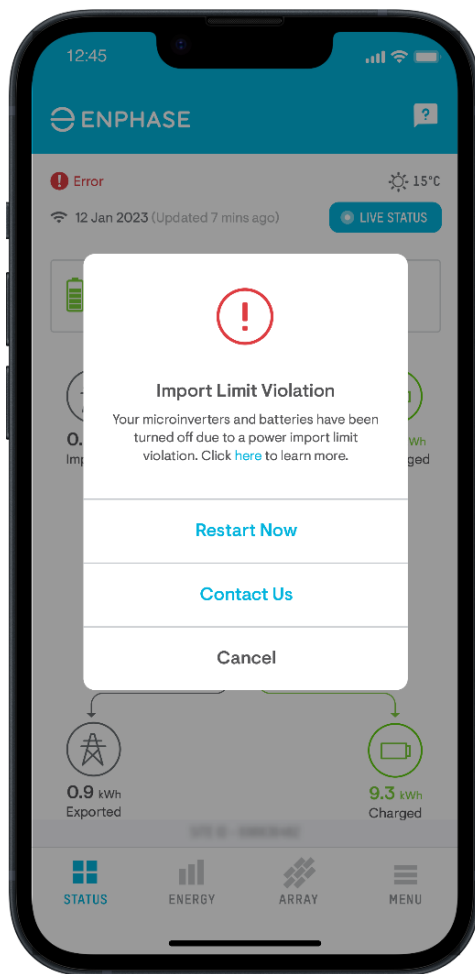


Figure 5: Enphase App notification for grid import violation

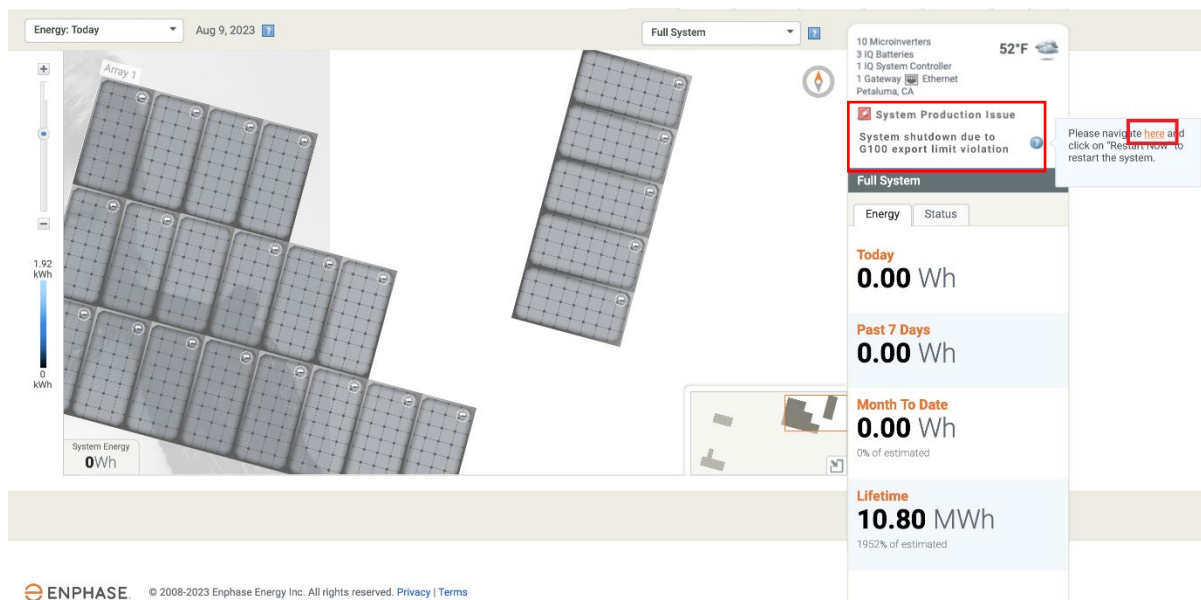


Figure 6: Enphase Installer Platform notification for grid import violation

3.2.1 Example

A site has a pre-defined site import limit of 60 A set at system commissioning, the battery charges at 10 A, and the site consumes 25 A for the loads. If the homeowner switches on an EV charging point that

consumes 32 A collectively, it increases overall site consumption to 67 A, which exceeds the 60 A limit. The Enphase IQ Battery curtails its charge rate to bring the site consumption within the 60 A limit.

If the curtailment of the battery power does not bring the total on-site load consumption below the import limit within the duration specified in the G100-2 requirements, then the Enphase solar PV and battery system must shut down and notify the homeowner and installer.



NOTE: The following are the recommendations to the homeowner and installer:

- On-site loads must be managed to stay within the DNO cut-out fuse rating for the site. Your installer or electrician must consider this as part of their design when installing battery storage that charges from the grid, EV charging, a heat pump, or any other high-power appliance.
- If a violation occurs and notification is received, ensure that you turn OFF significant loads, such as an EV charging point or heat pumps, before you restart the Enphase system to avoid any risk of overload of the cut-out fuse.
- Avoid turning ON all high-power devices at the same time. This may result in an import power violation.

4 How to recover an Enphase system shutdown/lockout

Self-recovery from grid import or grid export power violation mentioned in the previous sections can only be done three times within 30 days by the homeowner.

The homeowner or installer can use the Enphase App or Enphase Installer Platform to clear this violation and resume generation on-site.

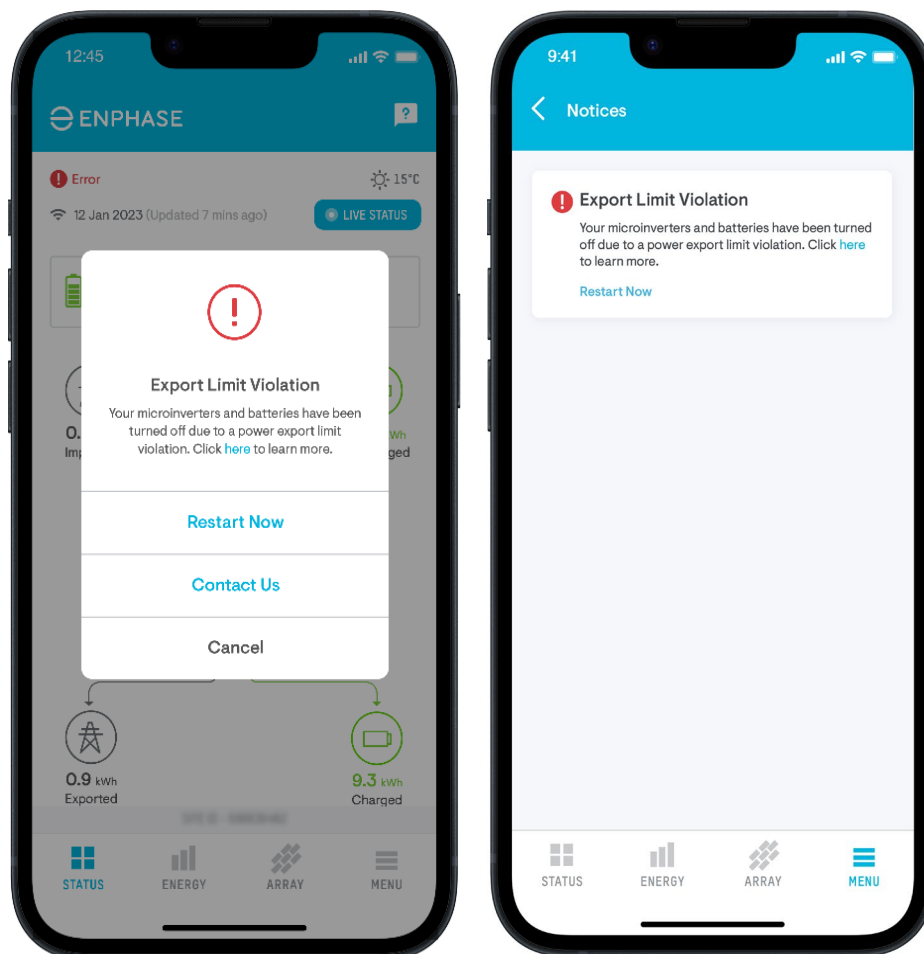


Figure 7: Clearing G100-2 violation from the Enphase App for homeowner

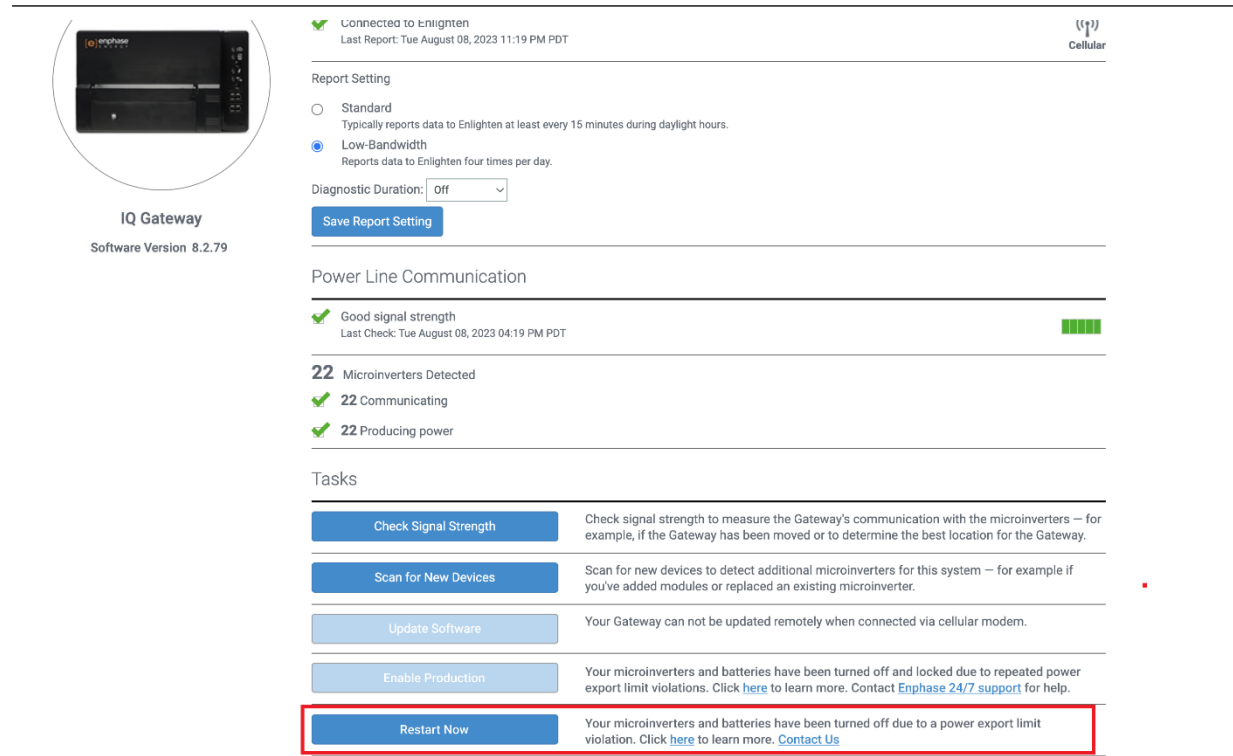


Figure 8: Clearing G100-2 violation from Enphase Installer Platform for the installer

If a total of four grid import or grid export power violations occur within 30 days, then your system is locked, and you must contact [Enphase Support](#) to investigate such on-site behaviour before allowing the operation to resume.

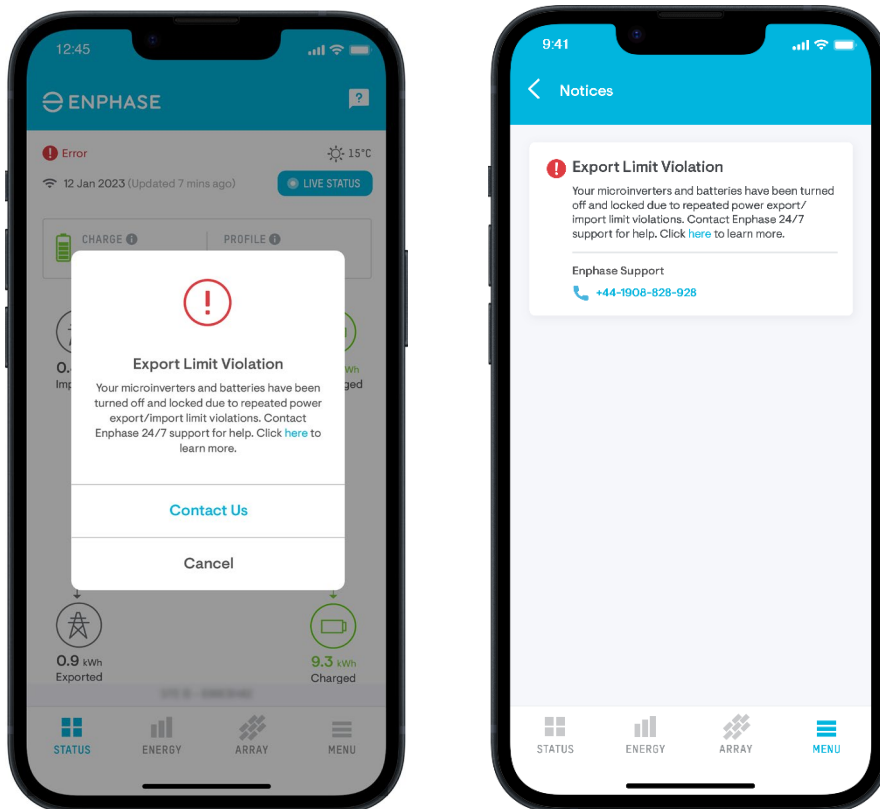


Figure 9: Enphase App – System Lockout notification for homeowner

Enphase consistently ensures that your site does not experience these scenarios and is actively working to provide optimal system performance to prevent such violations. If you have any concerns with this information, contact [Enphase Support](#).

Revision history

Revision	Date	Description
TEB-00106-1.0	November 2023	Initial release.