Gossner Systems

User Manual
GO SunPilot

Table of Contents

1 Introduction

1.1 What is GO SunPilot?

GO SunPilot is a smart app designed to optimize your photovoltaic self-consumption. The app uses precise PV forecasts to help you turn on electrical devices at the most cost-effective times. The goal is to reduce electricity costs, maximize self-consumption, conserve battery storage, and cut CO_2 emissions.

1.2 This Manual

The manual is structured like the app, meaning it starts with the onboarding process that appears when you first launch the program.

This is followed by the sections in the same order as they appear in the menu.

Finally, there are tips and FAQs.

1.3 Quick Start

I know nobody likes reading manuals (me neither). So here are a few tips on which chapters are really important and the best way to proceed:

- **Step 1: Demo Mode**
  - Start by using demo mode; this lets you play around with the app without having to configure many settings.
  - You can try out the app's main feature via the "Turn on devices" menu item. Check out the "4 " chapter for more details.
- **Step 2: Enter your actual device data**
  - Create a free Solcast account and enter the data (see the section at5.4).
  - Enter your correct electricity rate and base load (see chapter5.3).
  - Add all major appliances (washer, dryer, dishwasher).
    However, you can also start by using the default appliances.
- **Step 3: Daily Routine**
  - Decide which appliances you want to use.
  - Go to "Turn on devices" and check if the device's button is already green. Great, you can activate it right away.
  - If the button is still yellow, unfortunately there isn't enough power yet. Set a reminder so you'll be notified when sufficient power is available.
    NOTE: It's also possible that not enough power is being generated for the device today. In that case, you won't receive a notification. The system will continue to check in the following days until sufficient power is available.

1.4 Core Features

- **PV Forecasts:** Detailed forecasts for yesterday, today, and tomorrow with three different probability levels (optimistic, most likely, pessimistic).
- **Device Management:** Configuration of household appliances, including consumption and runtime.
- **Smart Activation:** Automatic calculation of the optimal start time for devices based on the solar forecast
- **Notifications:** Lets you know when it's best to turn on appliances and when they're finished.
- **Savings Calculation:** Automatic calculation of energy, **cost,** and CO_2 savings.
- **Generation:** Calculation of the estimated total daily generation.
- **Statistics:** Overview of total savings since the start of use.

1.5 How it works

- The app loads local PV forecast data via the Solcast API.
- The expected solar power production is visualized in clear diagrams.
- The user configures devices with power (watts) and runtime.
- The app determines the optimal time to turn on the device.
- Upon activation, the planned consumption is factored into the forecast curve and the potential savings are calculated.

2 First Launch – Onboarding

When you launch the app for the first time, it guides you through a setup process.

2.1 Welcome and Legal Information

- Select your **language in the** top right corner.
- Read the **Terms of Service** and **Privacy Policy**.
- Accept the Privacy Policy and Terms of Service to continue.

2.2 Personal Data & System Data

Enter your basic information here for the calculations:

- **Name or nickname (optional):** For a personalized greeting.

- **System Power:** Enter the maximum power of the PV system here. This is usually the sum of all PV modules. For small systems, the power is often limited by the inverter. Use the lower of the two values.
- **Number of people in the household:** This is used to roughly estimate the household's base load.
- **Battery storage:** Enter the **net** capacity in kWh, i.e., the actual usable capacity.
- **Goal selection**
  Select your primary focus:
  - **Save money:** Focus on cost reduction.
  - **Preserve battery:** Focus on the storage system's lifespan.
  - **Maximize self-consumption:** Feed as little electricity into the grid as possible.
  - **Help the environment:** Focus on reducing CO_2.

    Recommendation: For most users, "Save money" or "Maximize self-consumption" is the best option.

2.3 How it works

The app briefly explains how to activate devices and view your savings.

2.4 Feedback

We welcome your feedback. You can send it to us directly through the app.

2.5 Completion & Solcast Account Settings

Finally, you have two options:

- **"Explore the app in demo mode":** Starts the app in demo mode (ideal for trying it out).
- **"Go directly to Solcast account settings":** To immediately configure your actual PV data (see chapter5.4).

3 Main Screen – PV Forecast

The main screen is the app's control center. Here you can view forecasts and consumption data.

3.1 User Interface & Menu

You can access all areas of the app via the menu (drawer):

- **PV Forecast:** The current home screen.
- **Turn on devices:** For planning consumers.

- **Settings:** Configure the app, Solcast, and rates.
- **Subscription:** Here you can sign up for a subscription and view its status
- **Feedback:** We look forward to your messages
- **Manual and FAQ:** A link to the manual with FAQs
- **About:** Information about the version, our website, licenses, etc.

3.2 Information displays

- **Greeting:** Displays your name (if provided).
- **Total savings:** Displays your cumulative savings since first use in kWh, euros, and CO_2 savings.
- **Status:** Displays the date and time of the last data update.
- **Trial banner:** Shows the number of remaining trial days (if active).
- **Charts and daily information:** Below each chart, you can see the yield and savings for that day.

3.3 The charts

The app visualizes data for **yesterday**, **today,** and **tomorrow**.

3.3.1 Explanation of the lines

- **Orange:** Optimistic estimate
- **Green:** Most realistic estimate; this is the forecast the app uses.
- **Red:** Pessimistic estimate
- **Blue:** Your current consumption (base load + devices turned on).

3.3.2 Interpretation

- **Green line above blue line:** You have a solar surplus. This is the ideal time to use your devices.
- **Green line below the blue line:** Electricity must be purchased from the grid.

3.4 Data refresh (Pull-to-Refresh)

Pull down the screen to manually refresh the data.

Please note that with a free Solcast account, you are limited to 10 queries per day. The app updates the data regularly in the background (8 times a day, approximately every 3 hours), which means you will only have 2 additional queries available.

4 Turn on appliances

In this section, you plan the use of your household appliances.

Here you can see the current solar production and the available power (production minus the base load and active devices). If it says “Deficit,” no power is available.

4.1 The Device Map

Each device is displayed as a card with:

- Name
- Power consumption in watts (W)
- Runtime (h:mm)
- Device status
    - The "Turn on now" button is **green**: There is enough power available for the device. You can therefore start it immediately.
    - The "Turn on now" button is **yellow**. There is currently not enough power available to run the device 100% on solar power, but according to the current forecast, enough energy will be available later in the day. You can still start it at any time or activate the clock on the right so you’ll be notified when enough power is available.
    - The “Turn on now” button is **red**. Same as yellow, but there will likely not be enough energy available today to run the device 100% on solar power.
    - A **red “Stop” button**: The device is now active. The start time, stop time, and remaining time are displayed (for devices without a fixed runtime, only the start time and runtime are shown). For devices with a fixed runtime, you can activate the bell next to it if you’d like a notification when the device is finished. You can also stop the device using the button.

4.2 Step-by-step activation process

- Tap **“Turn on now”** for the desired device.
- The device’s consumption is included in the forecast curve (blue line).
- A success message confirms the activation.

Important: The app does not physically turn on the device. You must turn on the device manually.

5 Settings

Here you can customize the app to your individual needs.

5.1 App Settings

- **First name or nickname (optional):** For personalization.
- **Language:** Automatic, German, or English.
- **Design:** Light, Dark, or System Default.
- **Formats:** Settings for date, numbers, and currency.

5.2 System Settings

- **System** Power**:** This is the maximum power that can be delivered via the inverter. This is usually the sum of all PV modules. For small systems, however, it may also be limited by the inverter. Use the smaller of the two values. For balcony solar systems, it is usually 0.6 or 0.8.
  ATTENTION: The forecast data will be limited to this value!
- **Storage capacity:** Enter the net capacity of the storage system here. If you do not have a battery storage system, please enter 0.
- **What should Go SunPilot do for me?:** Select a profile based on what you want to achieve with the app.

5.3 Consumption settings

5.3.1 Costs and Rates

- **Cost per kWh:** Your electricity purchase price (see electricity bill).
- **Feed-in tariff:** Payment per kWh (usually €0.00 for balcony power plants).
- **CO_2 savings:** The standard for the German electricity mix is approx. 380 g/kWh (0 g/kWh for green electricity). This is usually listed on your electricity bill, or you can ask your utility provider.
- **Base** load**:** The base load is your home’s electricity consumption when it is idle (standby, refrigerator, etc.). We’ll show you how to calculate the base load in the next chapter:5.3.2 .
- **Calculate savings without base load:** If this option is disabled, you will see the total savings from the PV system on the overview page. Otherwise, you will only see the savings from the GO SunPilot app (excluding savings from the base load).
- **Hide chart for 'Yesterday':** Hides the chart on the PV forecast.
- **Device configuration:** You can find the device configuration in the chapter5.3.3 .

5.3.2 Calculate base load

The base load is your home’s electricity consumption when idle (standby, refrigerator, etc.).

Record the meter reading in the evening and in the morning, along with the two times. You can then use the calculation icon in the app to calculate the base load.

Important: Make sure that no additional appliances, such as a TV, washing machine, dryer, dishwasher, or stove, are turned on during this time.

5.3.3 Device configuration

Here you can add, edit, or delete devices. Common devices are already preconfigured. You can start with these and expand or modify the list later.

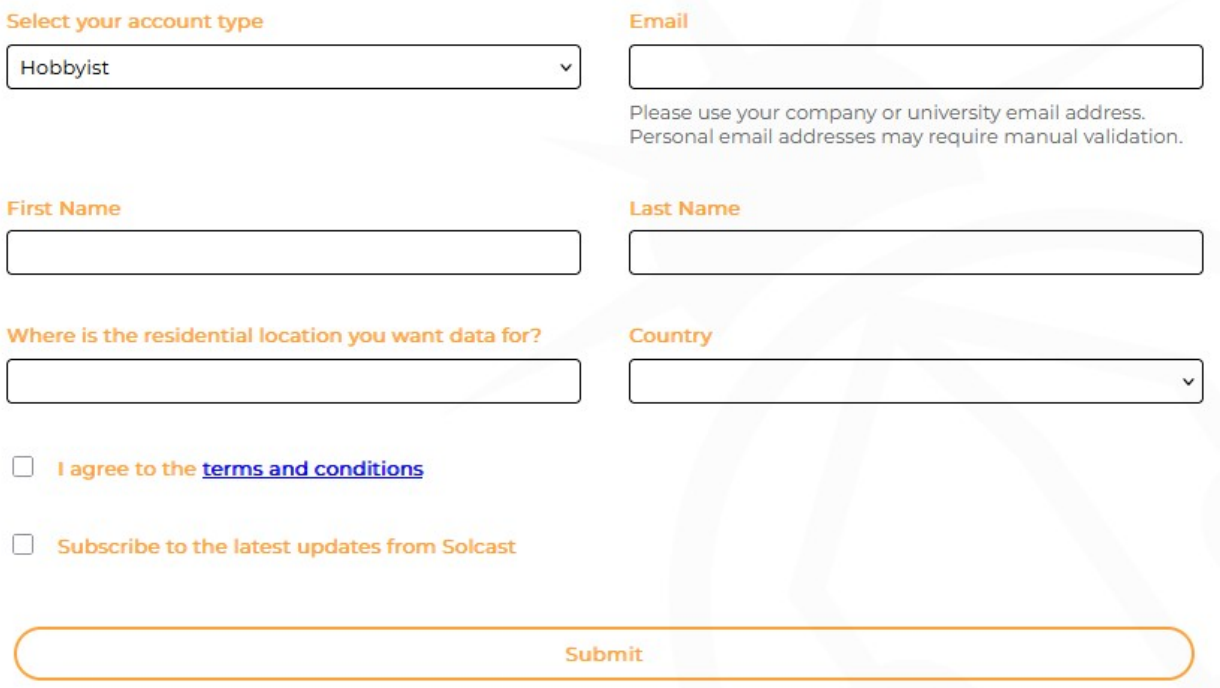
- **Add device:** At the bottom of the list, you can add new devices (enter name, power consumption (watts), and runtime (minutes)).
- **Delete:** Next to each device is a trash can icon to delete the device
- **Edit:** Next to the device is a pencil icon to change the device name, power consumption, and runtime.

You can measure devices yourself if you have an energy meter. Write down the meter readings as you did for the base load calculation and enter them into the calculator.

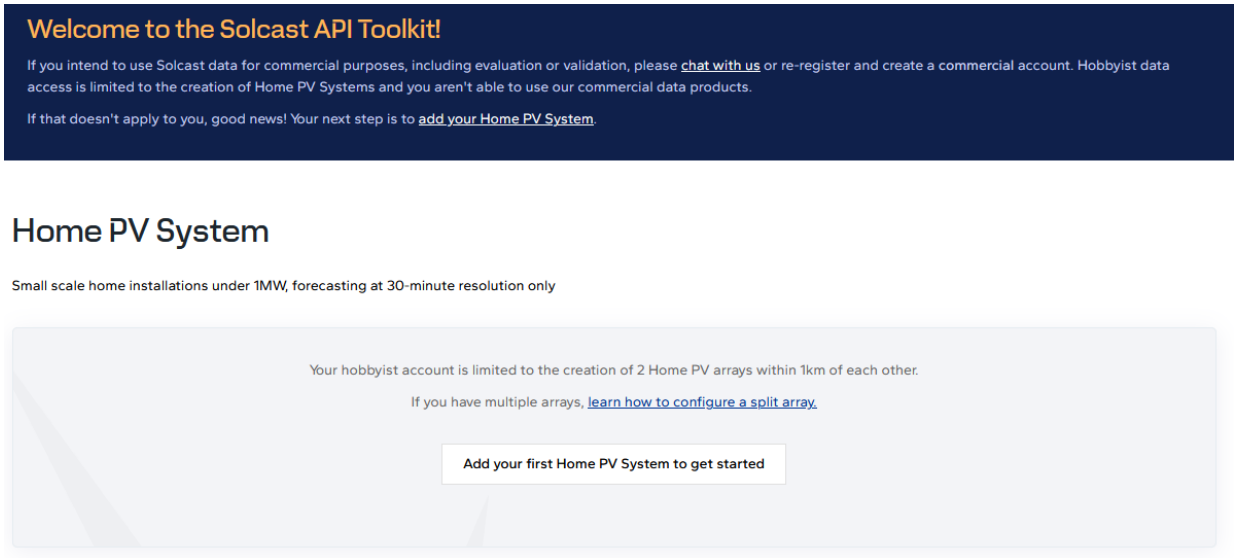
5.4 Solcast Account (API)

To obtain real data, you must disable demo mode and connect the app to Solcast.

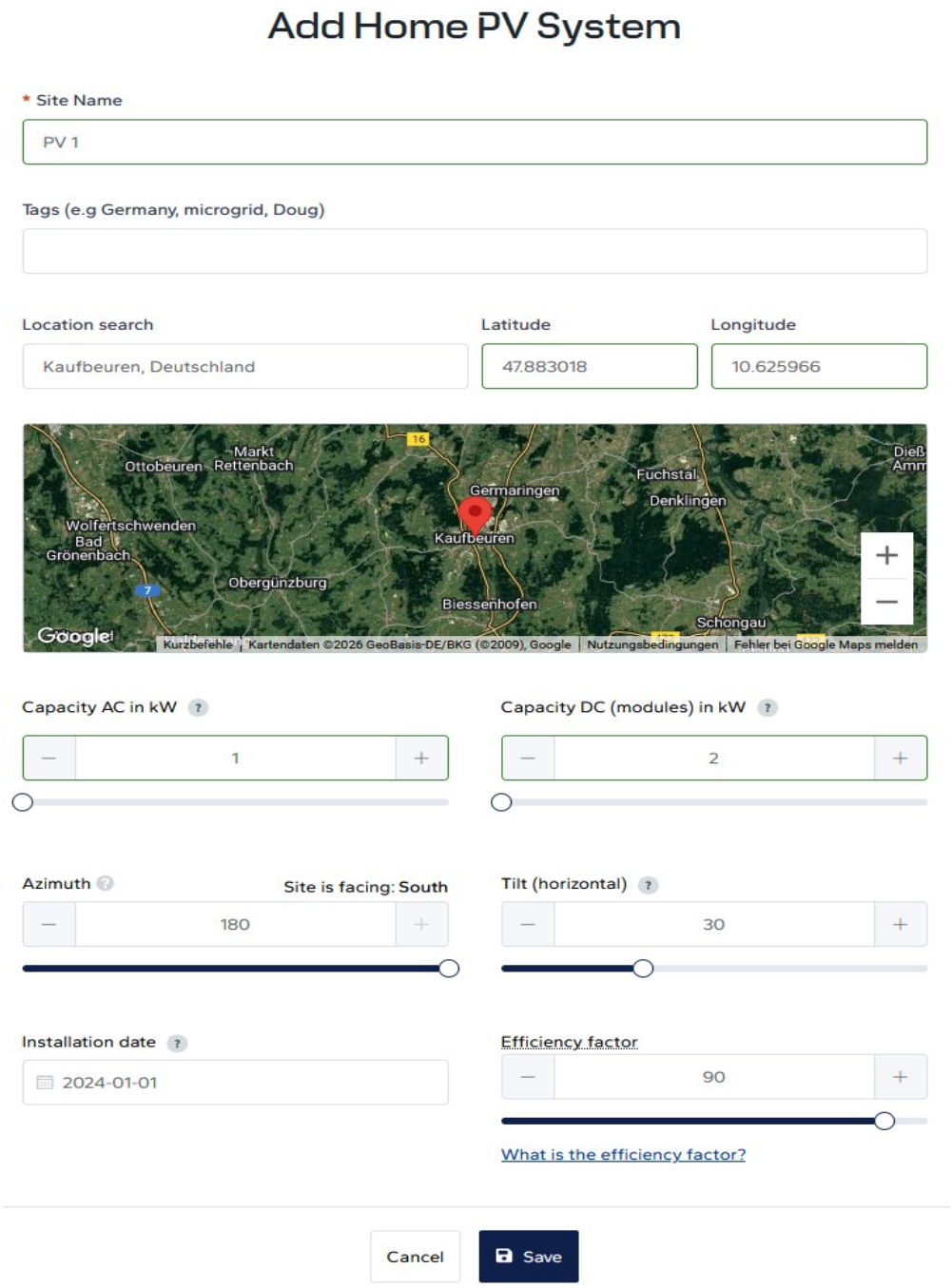
- Register at https://solcast.com/free-rooftop-solar-forecasting
- Scroll all the way down and click “Register for home hobbyist access.”
- Select “Home User”.
- Fill out the form:



- Click “Submit” and set a password on the next page.
- Wait for the registration email and click the confirmation link in it.
- Log in at https://toolkit.solcast.com.au/.
- Now you can add your PV system: “Add your first Home PV System to get started.”



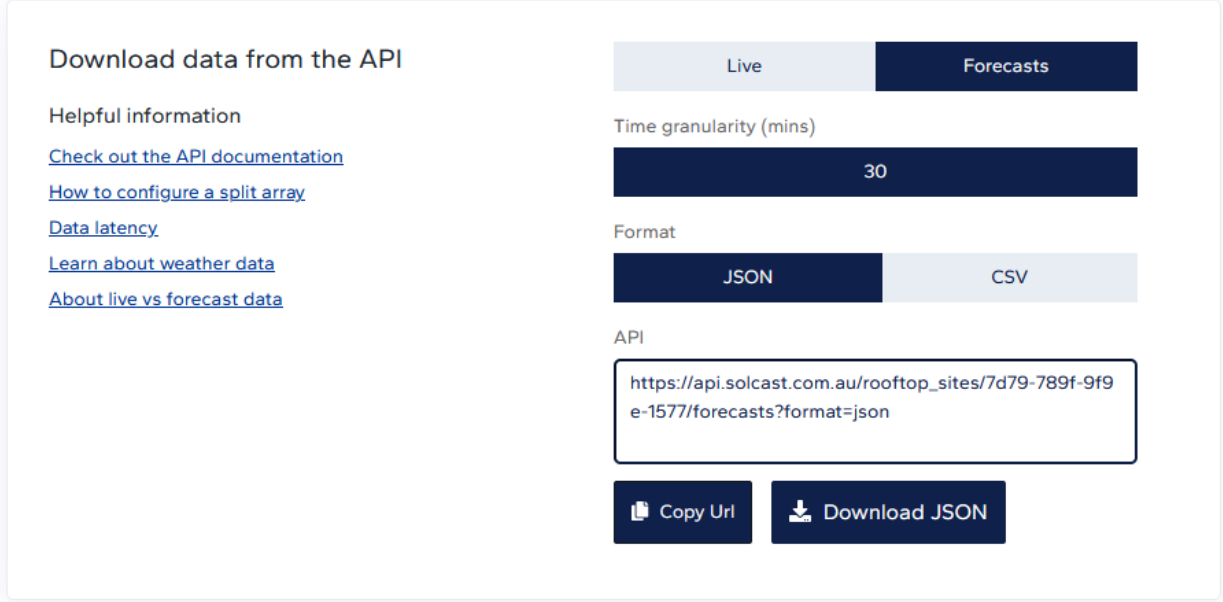
- Enter your information and click “Save”:



Please note that “Capacity AC in kW” refers to the system output, i.e., the maximum power that can be delivered via the inverter. This is usually the sum of all PV modules. For small systems, however, it may also be limited by the inverter. Use the smaller of the two values.

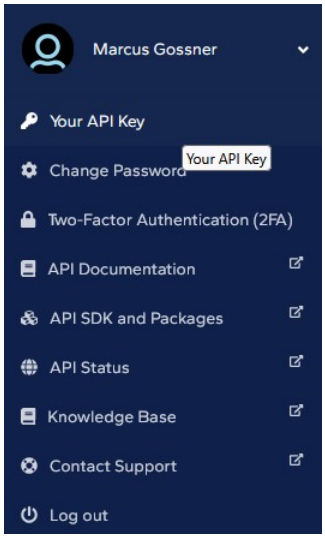
The smallest value that can be set here is 1 kW. For small systems, the actual value may be lower. Balcony solar systems often have 0.6 or 0.8 kW. Enter 1 here anyway. We’ll take that into account in the app.

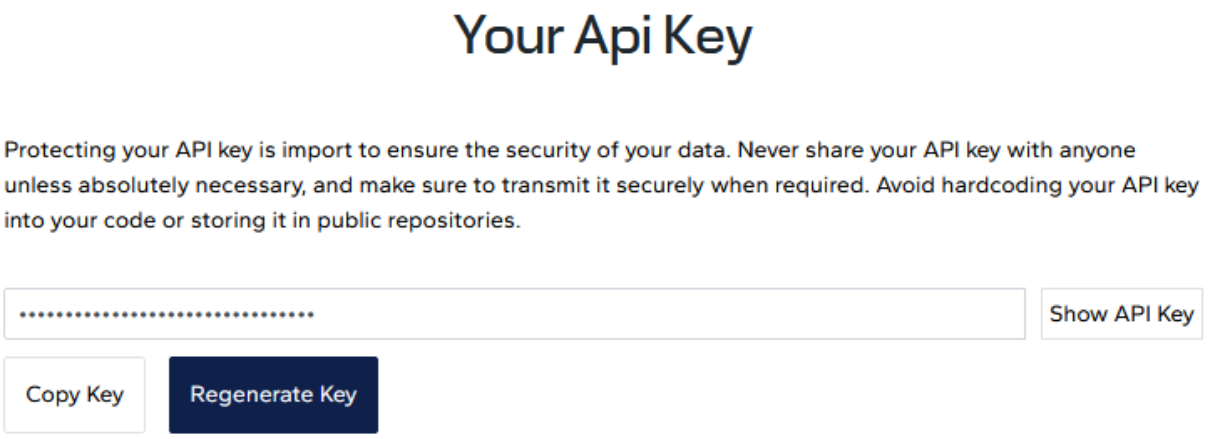
- Data:



Select “Forecast,” “30,” and “JSON” as shown in the image.
Click “Copy URL” and paste it into the app under “API URL.”

- Click on your user in the top right corner and copy your **API key**.





- Enter the API key in the app under “API Key” and tap **“Save Settings**.”

6 Subscription

Here you can see your status (Trial or Active). After the demo period expires, you can purchase a subscription here.

- You can try the app for free in demo mode for 28 days without a subscription
- After that, or if you want to use your actual PV data, you'll need to sign up for a subscription. There are two options:
    - **Monthly subscription**
    - **Discounted annual subscription**

You'll then get another 30 days to test the app for free. During this time, you can cancel the subscription at any time, and there are no charges!

7 Feedback

Have you found any bugs or have any requests?

Please use the feedback form.

If you encounter technical issues, please check the "Include debug information" box.

We welcome both positive and negative feedback, suggestions for improvement, or requests for changes and enhancements.

8 Frequently Asked Questions (FAQ) and Troubleshooting

Do I have to turn devices on manually?
Yes, the app calculates the timing and visualizes the savings, but does not physically control the device (no smart home hardware required).

Where can I find my electricity rate?
On your latest annual bill under “Energy rate per kWh.”

Not receiving notifications or seeing outdated forecast data?
This is usually because permission for notifications or background services hasn’t been granted in Android. Unfortunately, this often varies from manufacturer to manufacturer. Go to Android Settings – Apps and search for GO SunPilot. Enable all notifications there, and under Battery Usage, set background usage to “Unrestricted” or similar.

Notifications are arriving late.
The app only checks for notifications about every 20 minutes (this may vary depending on the device or Android version). This prevents the app from using too much battery power in the background.

No data is displayed.

Solution: Check your internet connection. Make sure demo mode is disabled and the API key has been entered correctly.

Device activation is not working.

Solution: Make sure that PV forecast data has been loaded. Calculations cannot be performed without weather data.

Savings are not being calculated.

Solution: Check the consumption settings to see if costs and base load have been entered.

9 Glossary

- **API:** Interface for retrieving data (here: weather data).
- **Base load:** The continuous electricity consumption of a household without active major appliances (often also referred to as standby consumption).
- **PV:** Photovoltaics.