

FEMS App Peak Shaving

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1. Introduction

Dear customer,

Thank you for choosing the "FEMS App Peak Shaving". You are welcome to send us your suggestions so that we can further improve the quality of our products.

2. Installing the app

When you ordered the "FEMS App Peak Shaving", you received a 16-digit license key. You can use this license key to redeem the app independently in the FEMS App Center.

Instructions on how to proceed can be found here.

If it is an FENECON system with Hybrid Inverter, please follow the corresponding instructions below.

3. FEMS App Peak Shaving — Introduction

While private customers only pay the pure "energy price" for their electricity consumption, i.e. a price per kWh, industrial customers also pay a capacity fee. This is based on the maximum measured output during a month or a year and can amount to a significant proportion of the electricity costs. The **FEMS App Peak Shaving** can help here.

> To ensure compliance with the peak load caused at the grid connection point, we recommend installing an independent, individually-configured load management system in addition to the energy storage system, which, for example, intervenes and reduces loads in the event of unplanned, higher loads for which the electrical energy storage system was not designed.

Once the **FEMS App Peak Shaving** has been activated on your FEMS App, you will see this flat widget in your monitoring:

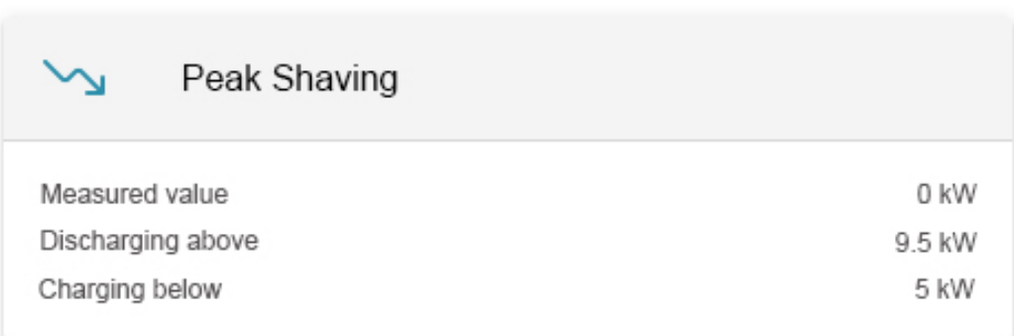


Image 1. Flat widget — Peak Shaving

Measured value

The power currently measured at the grid connection point in [kW].

Discharge above

The configured "Peak Shaving power" in [kW].

Charging below

The configured "Recharging Power" in [kW].

The **FEMS App Peak Shaving** controls an electrical energy storage system in such a way that the battery is discharged when grid withdrawal is high in order to keep the power at the grid connection point below a defined value ("peak shaving power"). In the example above, this value is 9.5 kW.

As soon as the grid withdrawal decreases again and falls below a second threshold value ("recharging power"), the battery recharges itself to be ready for the next peak load. In the example above, this value is 5 kW.

Click on the widget to open the detailed view of the FEMS App:

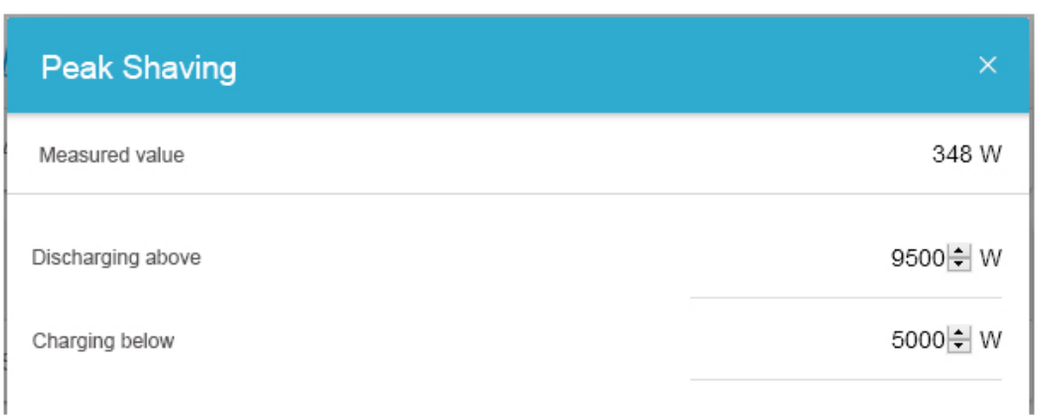


Image 2. Advanced widget — Peak Shaving

Here you have the option of adjusting the "Peak shaving power" and "Recharging power".

Measured value

The power currently measured at the grid connection point in [W].

Discharge above

The configured "Peak Shaving power" in [W].

Charging below

The configured "Recharging power" in [W].

The value of the "peak shaving power" must not be less than the "recharging power"!

The function of the FEMS App Peak Shaving can be traced in the Energy Monitor in the historical view:

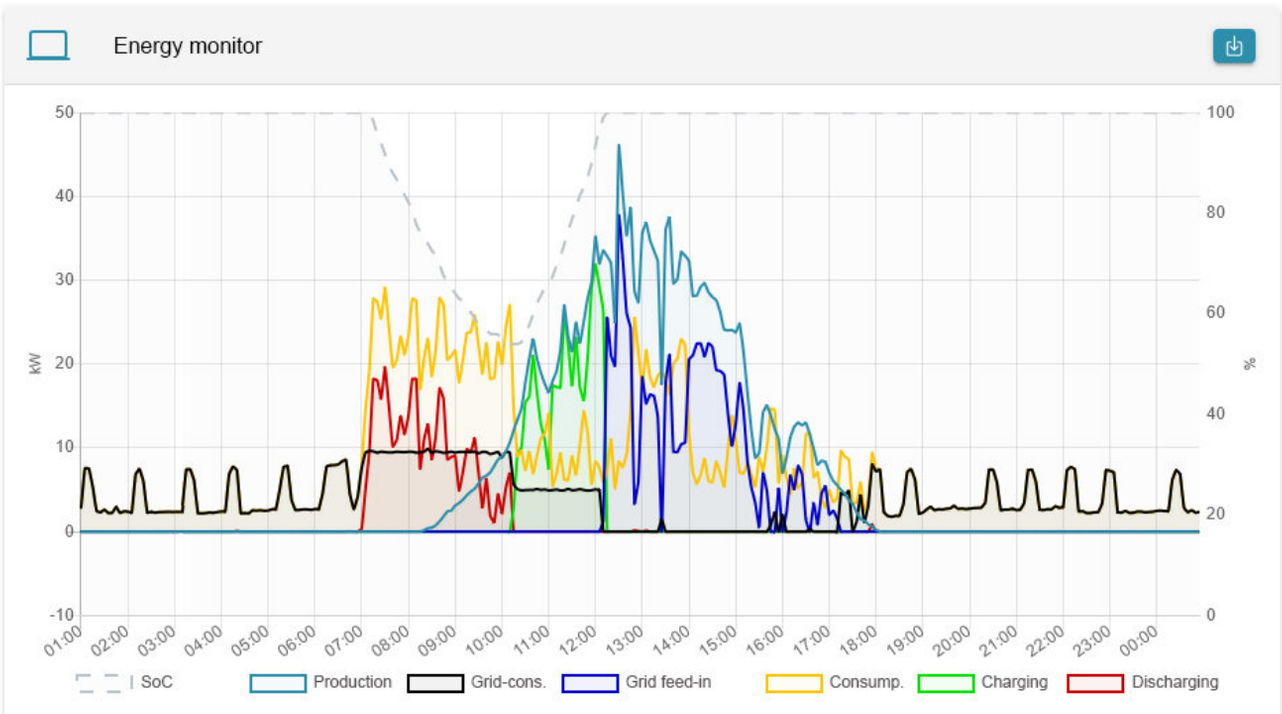


Image 3. FEMS App Peak Shaving History

The detailed History widget for the FEMS App Peak Shaving shows:

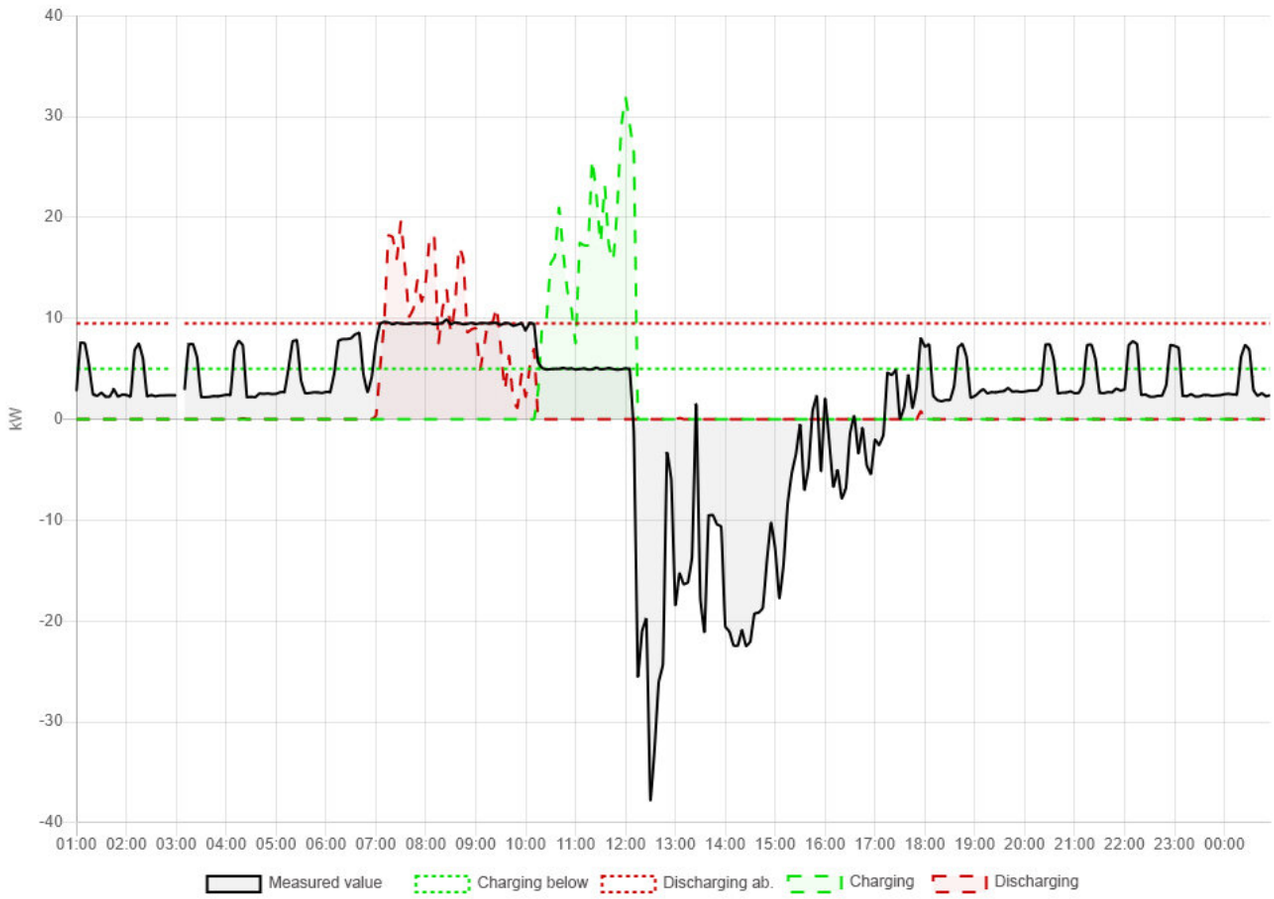


Image 4. FEMS App Peak Shaving History overview

Measured value (black)

The power measured at the grid connection point.

Discharge above (red dotted line)

The configured "Peak Shaving power".

Charging under (green dotted)

The configured "Recharging power".

Charging (green dashed line)

The actual charging capacity of the electrical energy storage system.

Discharge (red dashed line)

The actual discharge capacity of the electrical energy storage system.

4. Peak Shaving with hybrid inverters

4.1. Installation

1. To begin with, the FEMS App Self-Consumption Optimization must be **uninstalled**.

   In the FEMS App Center, navigate to FEMS App Self-Consumption Optimization, tap/click on the tile, and then tap *EDIT APP*.



Image 5. Uninstalling Self-Consumption Optimization

- Select *UNINSTALL APP*.

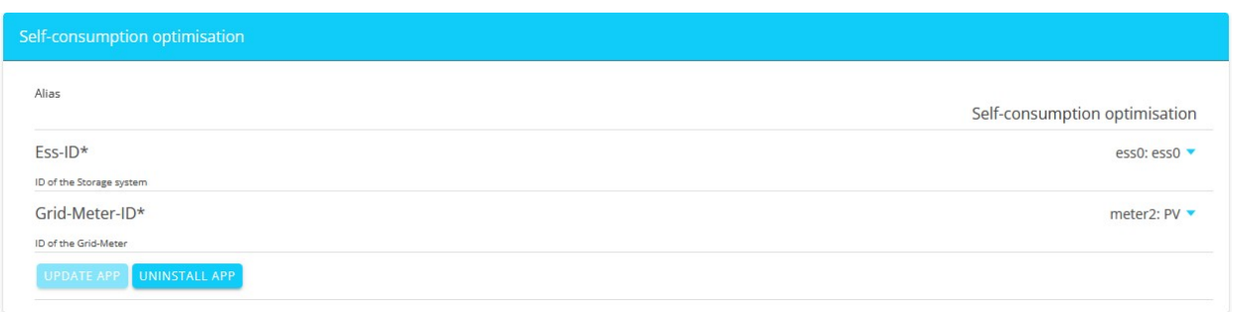


Image 6. Uninstalling Self-Consumption Optimization 2

2. Proceed in the same way with the FEMS App Grid-Optimized Charging: **Uninstall**.

3. Then enter the installation key for the FEMS App Peak Shaving and select *INSTALL APP*.

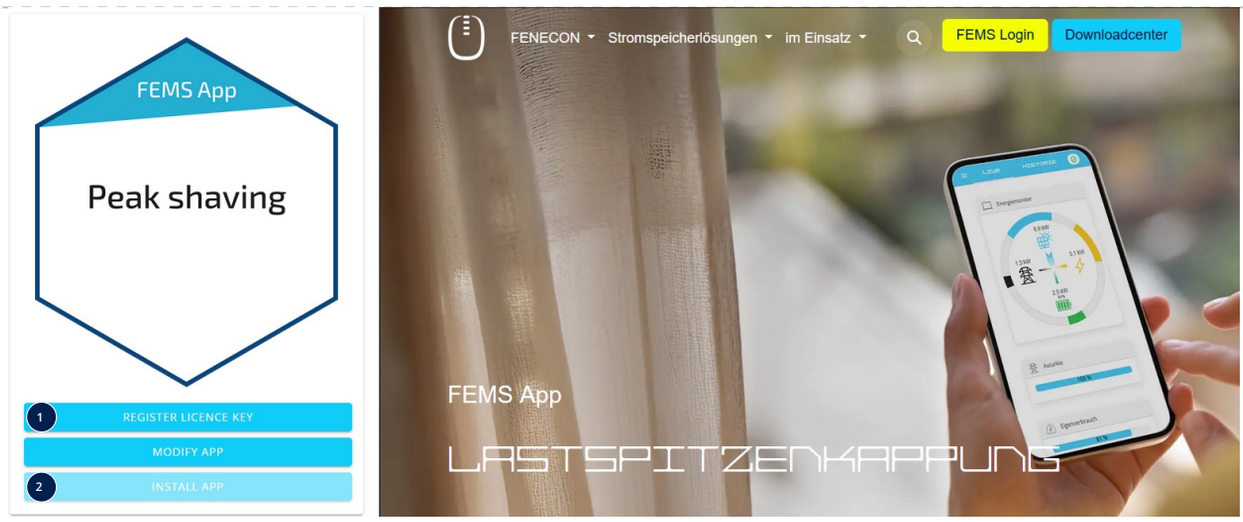


Image 7. Install FEMS App Peak Shaving for Hybrid Inverter

4. Settings must be made before installation.

   The maximum value must be higher than the minimum value.

> Set the maximum value at least 500 W higher than the minimum value.

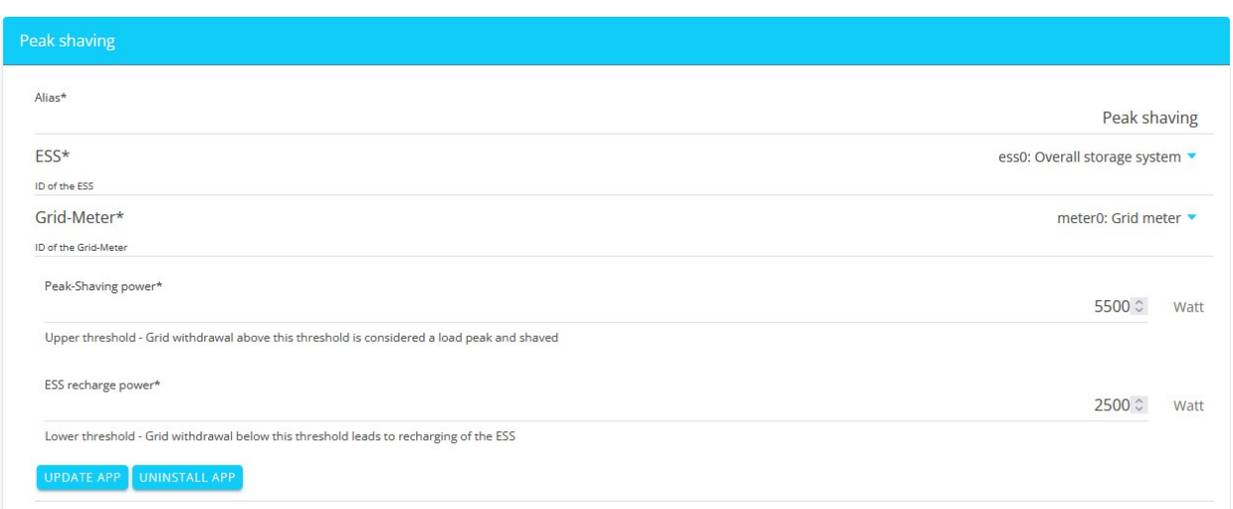


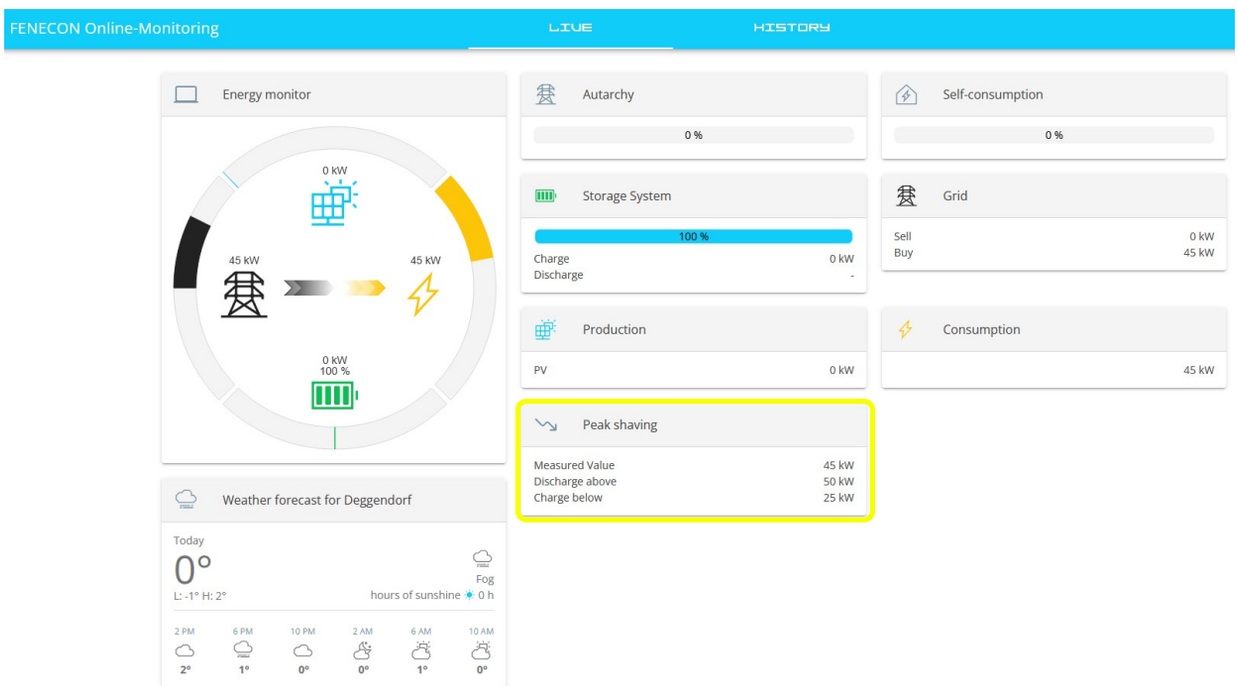
Image 8. FEMS App Peak Shaving for Hybrid Inverter — Settings

5. Then tap/click on *INSTALL APP* again.

6. This completes the installation of the FEMS App Peak Shaving for Hybrid Inverter.

4.2. Configuration

The values can also be subsequently adjusted using the flat widget now available in the FENECON Online Monitoring.



Tap/click on the flat widget to change the values:

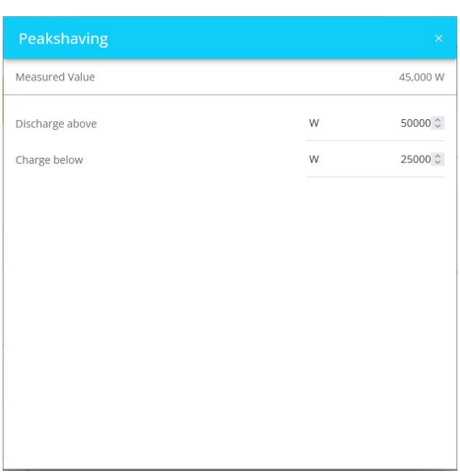


Image 9. Customize the values via flat widget

The FENECON Commercial 50 inverter is a hybrid inverter. It should be noted here that PV and battery discharge can only provide a maximum of 50 kW at the AC output for Peak Shaving.

In this example, the AC output power of the Hybrid Inverter, which is limited to 50 kW, is divided as follows:

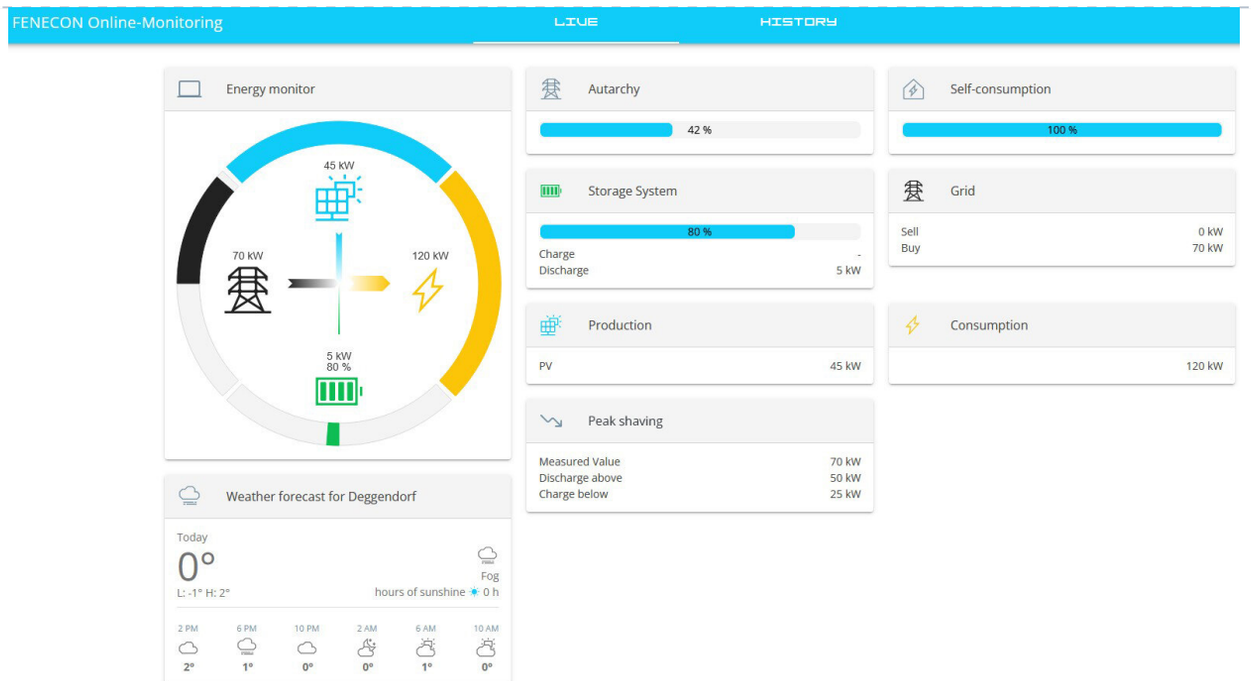


Image 10. Example — Peak Shaving with hybrid inverter

- **5 kW** are discharged from the battery.
- **45 kW** come from PV Production.

This means that the system is already at its maximum AC output power. More battery discharge is not possible. With a consumption of 120 kW, this results in a grid withdrawal of 70 kW, which is higher than "Discharge above" in the Peak Shaving.

5. Peak Shaving combined with EV charging parks

5.1. Why Peak Shaving at the EV charging park makes sense

An electrical energy storage system to reduce peak loads can be particularly useful at an EV charging park. The electrical energy storage system can reduce the load peaks to the grid in order to achieve a lower grid charge or expand a limited grid connection capacity.

To this end, it makes a great deal of sense to work with an energy management system that controls the charging stations individually and bills for charging sessions. You can find EV charging park energy management systems compatible with FENECON storage systems at Manual for FEMS App Charging Park.

5.2. Settings in the FEMS App Peak Shaving

1. The settings in the FEMS App Peak Shaving must be made on a project-specific basis. Please contact us for individual advice.

2. Set the capping limit/shaving value of the charging park management system as required by the manufacturer. Depending on the project, set to economic or physical grid connection limit. Set the discharge limit (discharge above) of the system to the same value, or slightly below, for safeguarding the limit.
3. **The charging limit of the storage system (charging below) must be significantly below the upper two limits. At least by the largest charging power that is switched on at the same time.** In concrete terms, this means that for a charging park consisting of 11 kW AC charging stations, the difference between the charging and discharging threshold must be 11 kW. For an EV charging park consisting only of 150 kW Hyperchargers, at 150 kW.

Background: Battery charging is interpreted by the EV charging park EMS as uncontrollable building consumption. If the battery charging fully utilizes the grid connection, the EV charging park EMS sees no possibility of switching on charging power.

6. Contact us

For support, please contact:

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94547 Iggensbach

Phone — Service: +49 (0) 9903 6280 0
E-mail — Service: service@fenecon.de

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