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pv magazine webinars

Prospects of bringing together PV, storage and EV charging

25 September 2023

9:00 am – 10:00 am | Morocco
10:00 am – 11:00 am | CEST, Berlin
6:00 pm - 7:00 pm | AEST, Sydney

Emiliano Bellini
News Director
pv magazine

Roy Zhang
Head of Solution Sales
Sigenergy

Luc Demeyere
CEO
Earth

Welcome!

Do you have any questions? ❓ 🙋

Send them in via the Q&A tab. 👉 We aim to answer as many as we can today!

You can also let us know of any tech problems there.

We are recording this webinar today. 📹

We‘ll let you know by email where to find it and the slide deck, so you can re-watch it at your convenience. 👀 💡

SIGENERGY X pv magazine

Webinar

Prospects of bringing together PV, storage and EV charging

Presenter: Roy Zhang

New Trends of Home ESS

is on the way

All-round
Safety Protection

Leave
Simplicity
for customers & installers

Fully
Integrated system

SigenStor

A new way of producing, storing,
charging and using home energy

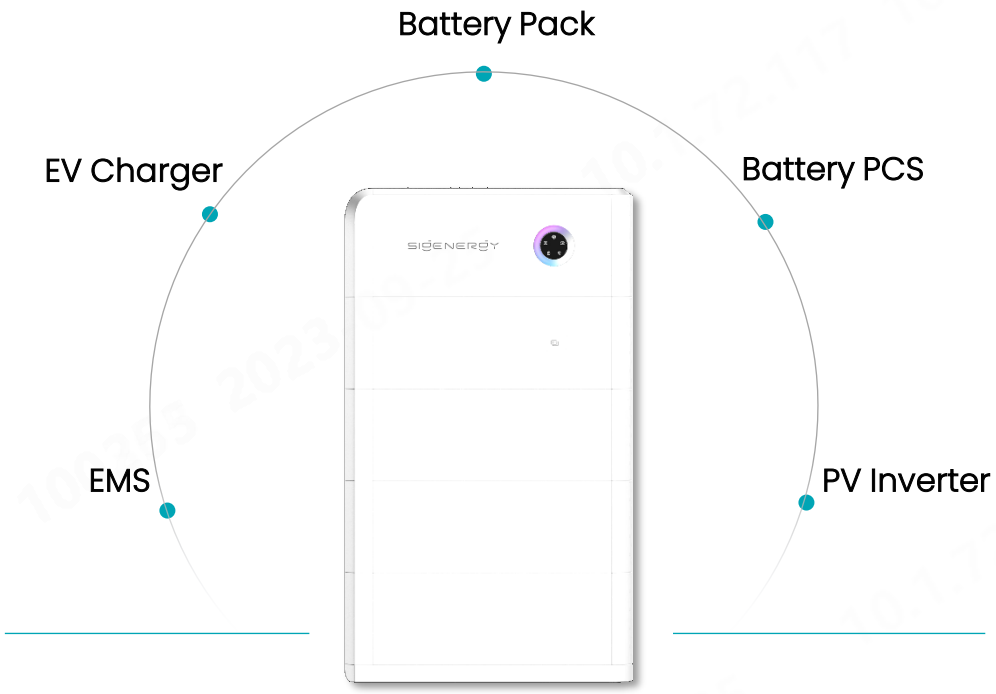
Harmonious

Blend with surroundings

5-in-One

Simple Design, Powerful Function

Highly integrated energy system with
Solar + ESS + EV Charging



Compatible with different scenarios

1 Solar + ESS + EV Charging system

2 Solar + Energy Storage system

3 AC-Coupled Storage system

4 Off-grid system

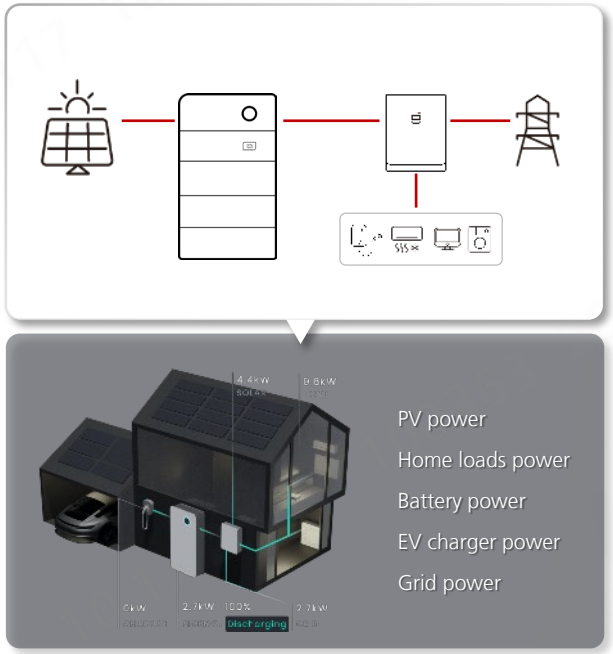
Simple & Fast Installation

Do more business with less time per install, leave simplicity for installers

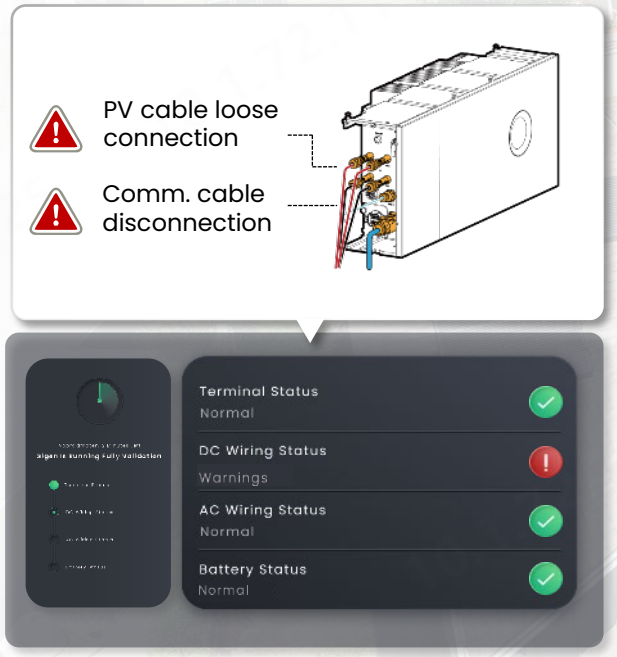
1 Quick connectors
15 mins Installation

No need for external wiring, safe & reliable

2 Auto-Networking
5 mins commissioning



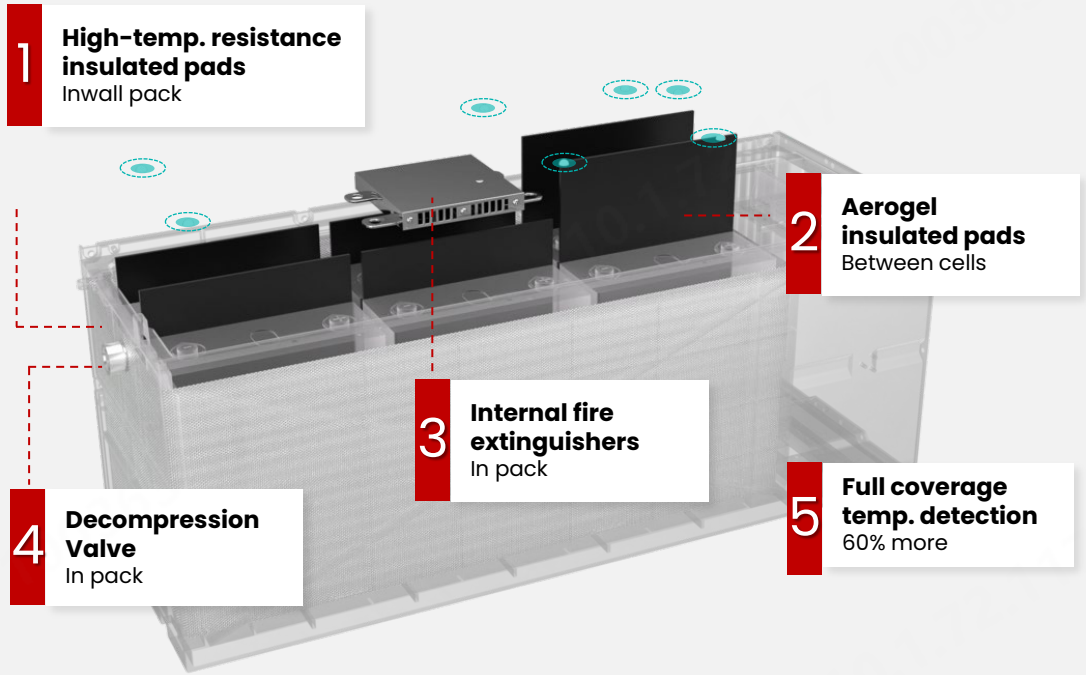
3 One-click diagnosis
Free from rectification



All-round Safety Protection

Comprehensive protection, from battery cell level to system level

5 Layers of Battery Protection



1 **High-temp. resistance insulated pads**
Inwall pack

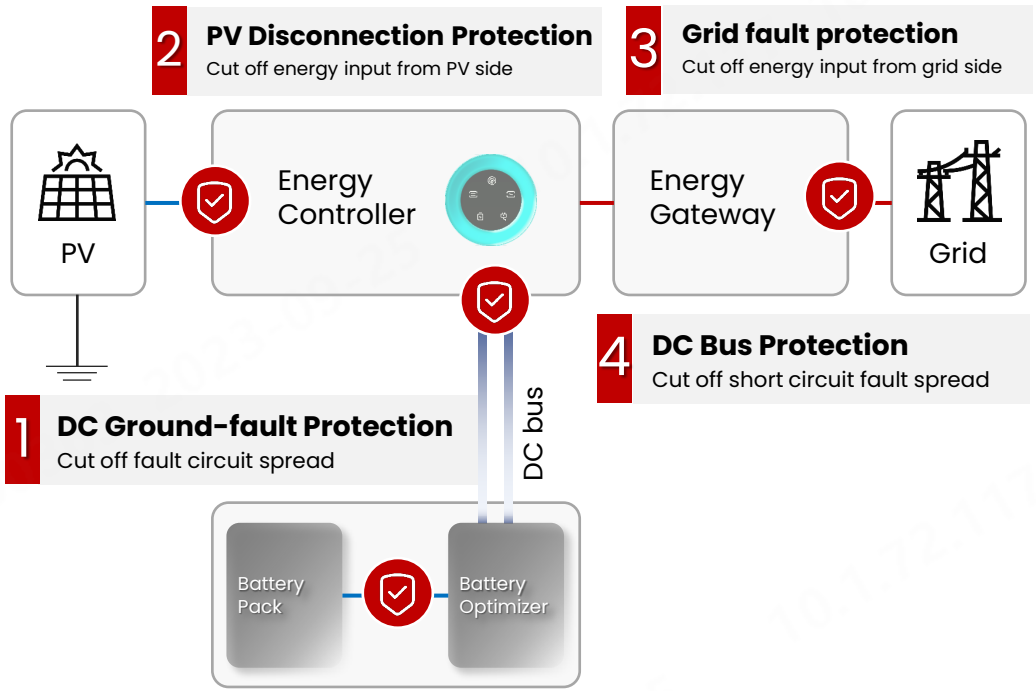
2 **Aerogel insulated pads**
Between cells

3 **Internal fire extinguishers**
In pack

4 **Decompression Valve**
In pack

5 **Full coverage temp. detection**
60% more

4 Layers of System Protection



2 **PV Disconnection Protection**
Cut off energy input from PV side

3 **Grid fault protection**
Cut off energy input from grid side

4 **DC Bus Protection**
Cut off short circuit fault spread

1 **DC Ground-fault Protection**
Cut off fault circuit spread

Reliable battery cell use

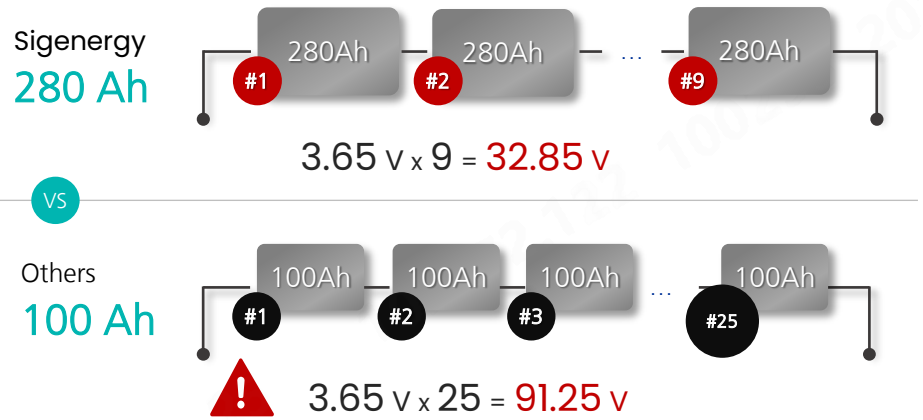
More reliable ESS designed with 280 Ah battery cells

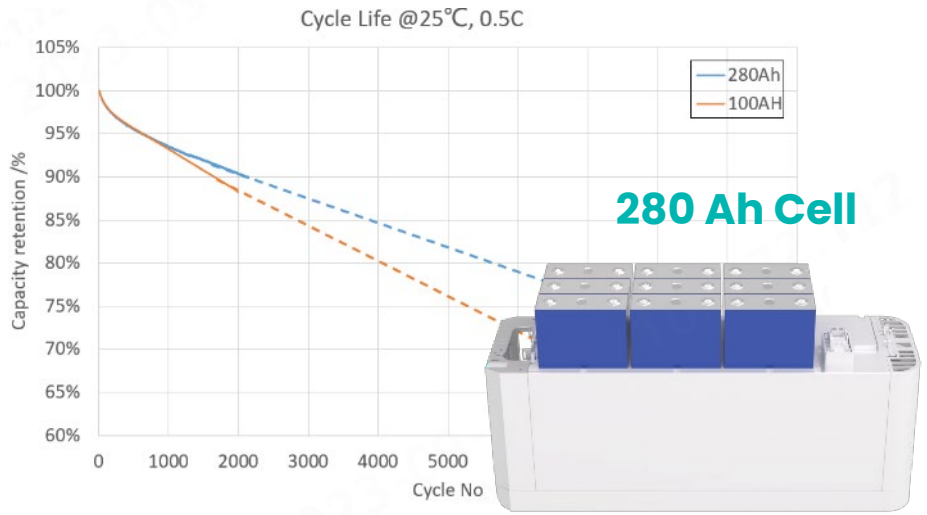
1 Low voltage, safe to maintain
human safety voltage 32.85 V < 36 V

2 Longer cycle life
Over 7000 cycles by long-term optimization

3 Higher energy density
Energy/weight density, 18% higher (vs. 50 Ah)

Safe to maintain
8 kWh Battery Pack as example

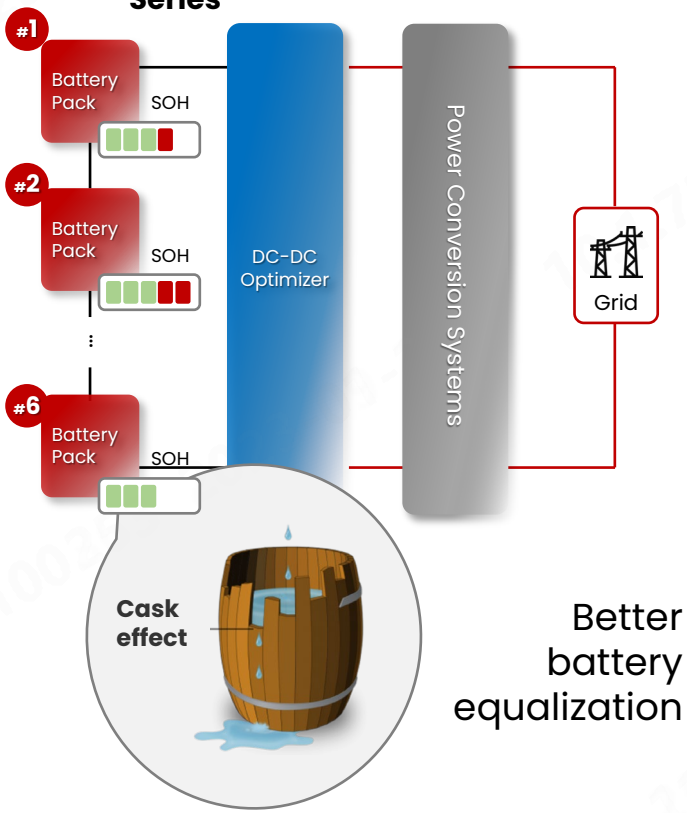




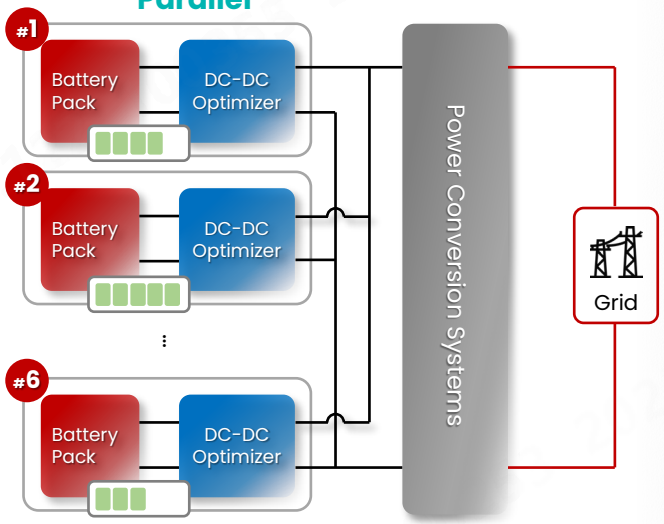
Simplify Warehouse Mgmt.

Support mixed use of old and new battery packs & different cell types

Packs Connection in Series



Packs Connection in Parallel



Better battery equalization

Flexible mix of packs among different **Battery SOH / SOC** or different cell **modes**

Powerful DC Charging

More powerful systems & abundant low-cost energy for electric vehicles

Max 25 kW DC Charging

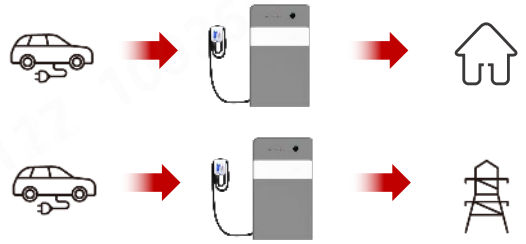
* The actual available mileage after charging 1 hour

SigenStor EVDC 25 kW [1, 2] — 130 km

Traditional EV Charger 7 kW — 40 km

Charging a 75 kWh EV from 10% to 90%[2] ▶ **2.5 hours**

V2X feature



V2H More backup power for home

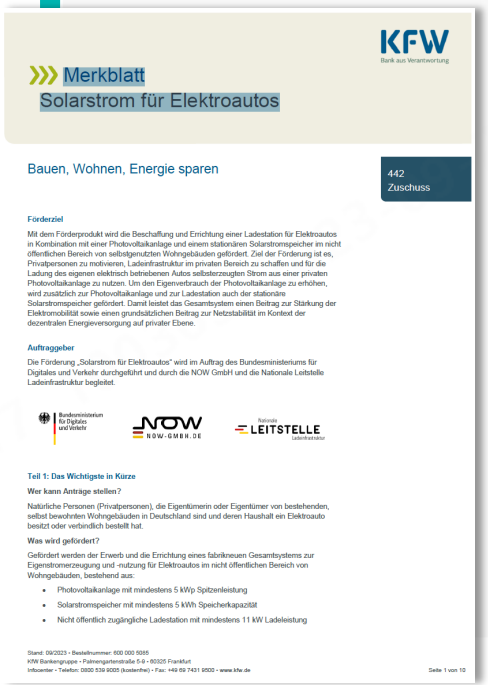
V2G For peak shaving and VPP dispatch

1. Refer to the realistic consumption per 100km for a compact class EV, data sourced by P3 Charging Index Report 2022
2. SigenStor EC/AC 25 kW module with SigenStor EVDC Charging module as an example

One Device for Full KfW Subsidies

Germany KfW funding at a glance

- Application Start date: **26th September, 2023**
- Subsidy items: **Newly purchased or ordered** (not before the application time) energy systems consisting of PV systems, storage systems and Charging station.


KFW

Merkblatt
Solarstrom für Elektroautos

Bauen, Wohnen, Energie sparen

442
Zuschuss

Förderziel

Mit dem Förderprodukt wird die Beschaffung und Errichtung einer Ladestation für Elektroautos in Kombination mit einer Photovoltaikanlage und einem stationären Solarstromspeicher im nicht öffentlichen Bereich von selbstgenutzten Wohngebäuden gefördert. Ziel der Förderung ist es, Privatpersonen zu motivieren, Ladeinfrastruktur im privaten Bereich zu schaffen und für die Ladung des eigenen elektrisch betriebenen Autos selbsterzeugten Strom aus einer privaten Photovoltaikanlage zu nutzen. Um den Eigenverbrauch der Photovoltaikanlage zu erhöhen, wird zusätzlich zur Photovoltaikanlage und zur Ladestation auch der stationäre Solarstromspeicher gefördert. Damit leistet das Gesamtsystem einen Beitrag zur Stärkung der Elektromobilität sowie einen grundsätzlichen Beitrag zur Netzstabilität im Kontext der dezentralen Energieversorgung auf privater Ebene.

Auftraggeber

Die Förderung „Solarstrom für Elektroautos" wird im Auftrag des Bundesministeriums für Digitales und Verkehr durchgeführt und durch die NOW GmbH und die Nationale Leitstelle Ladeinfrastruktur begleitet.

Bundesministerium für Digitales und Verkehr · NOW GMBH · Nationale Leitstelle Ladeinfrastruktur

Teil 1: Das Wichtigste in Kürze

Wer kann Anträge stellen?

Natürliche Personen (Privatpersonen), die Eigentümerin oder Eigentümer von bestehenden, selbst bewohnten Wohngebäuden in Deutschland sind und deren Haushalt ein Elektroauto besitzt oder verbindlich bestellt hat.

Was wird gefördert?

Gefördert werden der Erwerb und die Errichtung eines fabrikneuen Gesamtsystems zur Eigenstromerzeugung und -nutzung für Elektroautos im nicht öffentlichen Bereich von Wohngebäuden, bestehend aus:

- Photovoltaikanlage mit mindestens 5 kWp Spitzenleistung
- Solarstromspeicher mit mindestens 5 kWh Speicherkapazität
- Nicht öffentlich zugängliche Ladestation mit mindestens 11 kW Ladeleistung

Stand: 09/2023 · Bestellnummer: 600 000 5085
KfW Bankengruppe · Palmengartenstraße 5-9 · 60325 Frankfurt
Infocenter · Telefon: 0800 539 9005 (kostenfrei) · Fax: +49 69 7431 9500 · www.kfw.de
Seite 1 von 10

Up to **10200€** per household

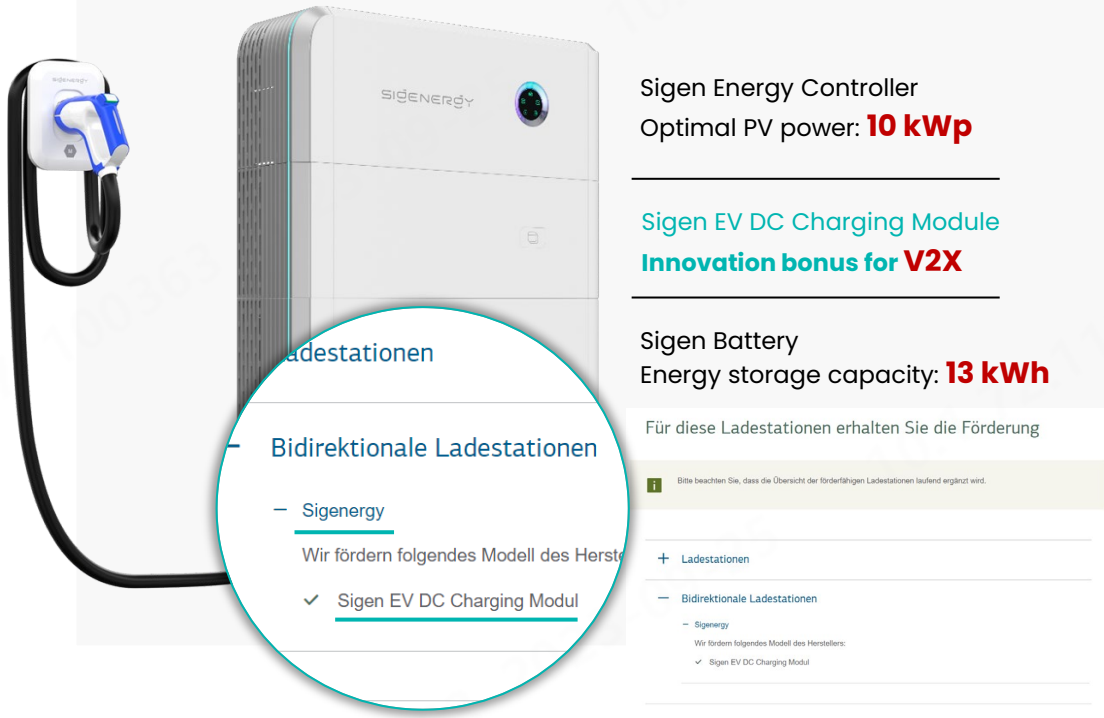
Subsidy composition:

PV	**600€** per kWp Up to **6000€** / 10 kWp
Storage	**250€** per kWh up to **3000€**/ 12 kWh
Charging	600€ / **1200€** for bi-directional charging

Sigenergy, the first vendor listed by KfW supported for Bi-directional charging

Source: https://www.kfw.de/inlandsfoerderung/Privatpersonen/Bestehende-Immobilie/F%C3%B6rderprodukte/Solarstrom-f%C3%BCr-Elektroautos-(442)/?redirect=760514

SigenStor, Optimal portfolio for full subsidy



Sigen Energy Controller
Optimal PV power: **10 kWp**

Sigen EV DC Charging Module
Innovation bonus for V2X

Sigen Battery
Energy storage capacity: **13 kWh**

Robust EV AC Charging

One platform for global standards, 15-min installation

Sigen EV AC Charger

7 kW / 11 kW / 22 kW

High compatibility, globally marketable

- PEN disconnection protection
- Split-phase, NEMA Pluggable wiring
- Emergency stop switch
- Case B with Shutter

Compatible with different national specifications around the world and can be sold globally

Highly integrated for easy installation

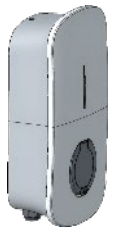
1 Bracket fixing

Top/Bottom Entry

Meet different installation scenarios

2 Wiring

3 Align the rear cover



"Click-in"

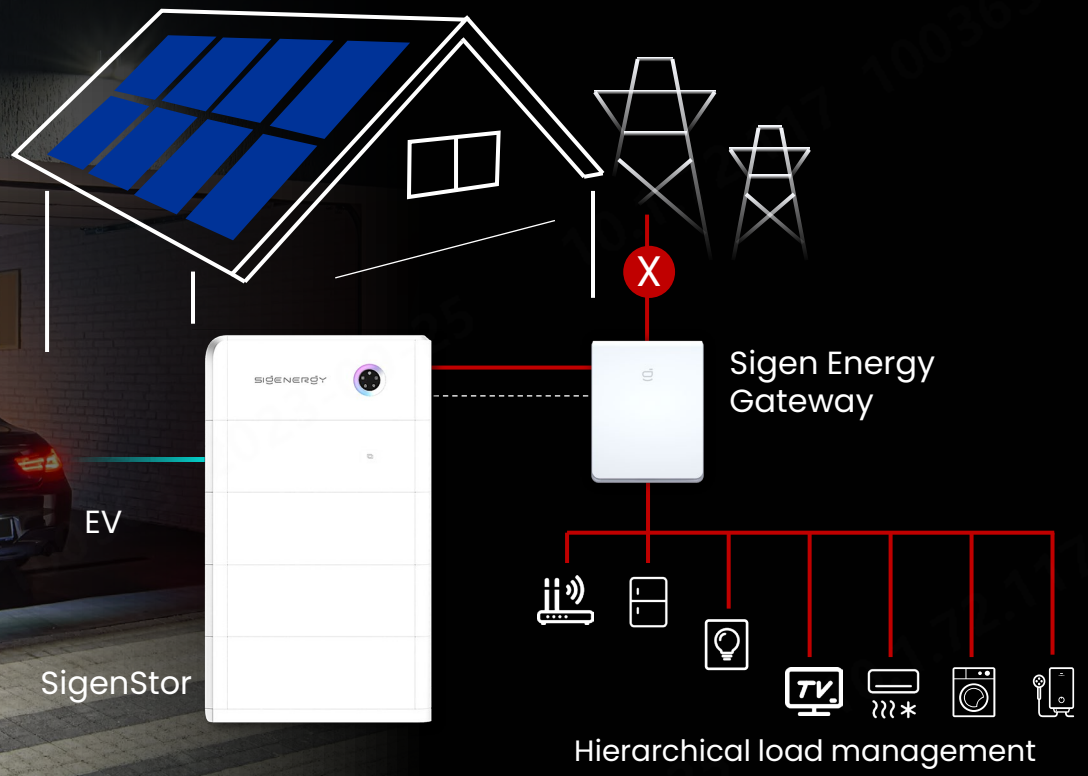
✓ Finish

15 mins

Installation time

Worry-free Energy Usage

Auto switch to backup power in 0 ms



Fast switching time

0 ms (Sigenergy) VS About **2** s (Others)

Automatic switching

Auto (Sigenergy) VS **Manual** (Others)

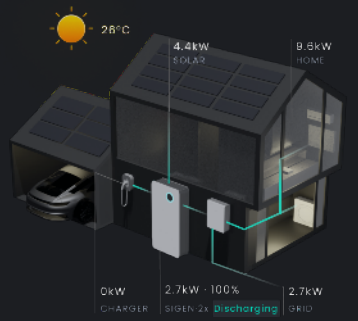
Various energy supply

Battery + EV (Sigenergy) VS Battery only (Others)

mySigen App

Advanced experience of smart home energy management

Homepage

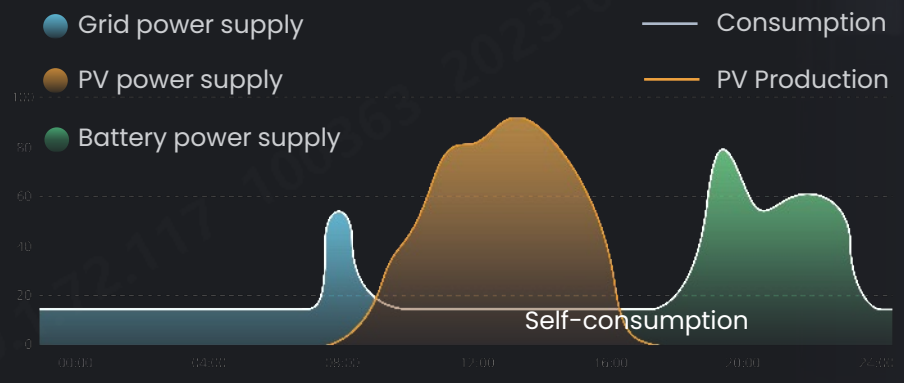


- Auto-networking
- Real-time energy flow
- 10 Seconds data refresh

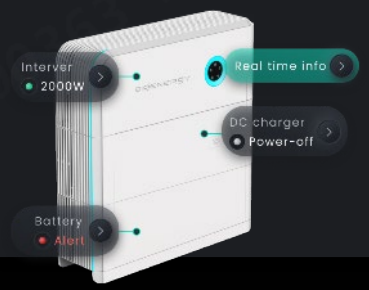
AI Suggestion

AI

- Suggest changing the operation mode
- Check if the system is overloaded
- Whether need to increase storage capacity



Real-time Monitoring



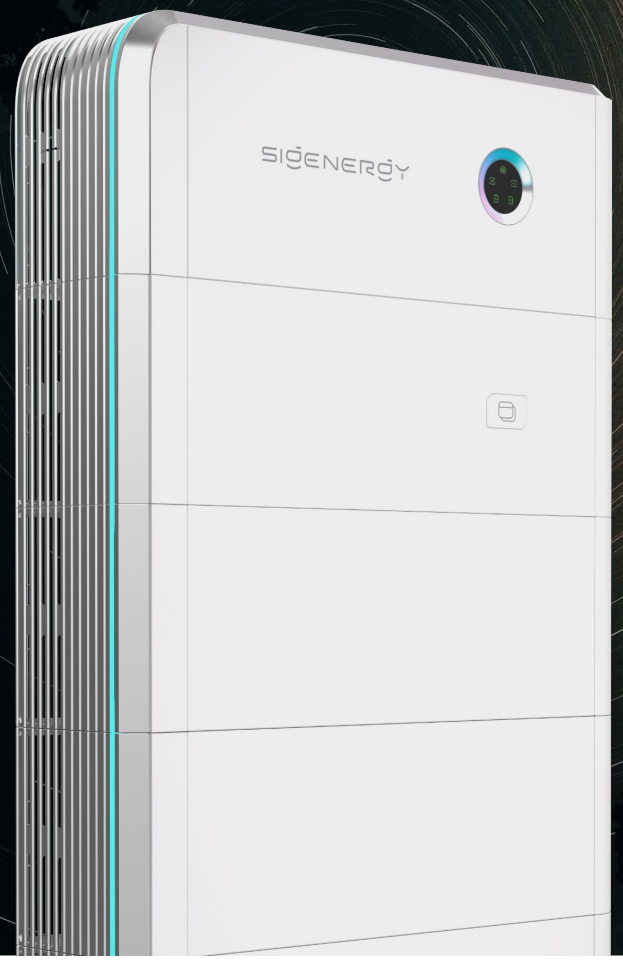
GPT-4

Integrated in Q&A

Schedule EV Charging

SigenStor

The world's first
5-in-One



DC Charging

Integrated into solar + ESS system for **the first time**

Sigen AI

The world's first GPT-4 empowered energy APP

0 ms

Load-side disruption

15 mins

stackable installation

5 mins

fast commissioning

280 Ah

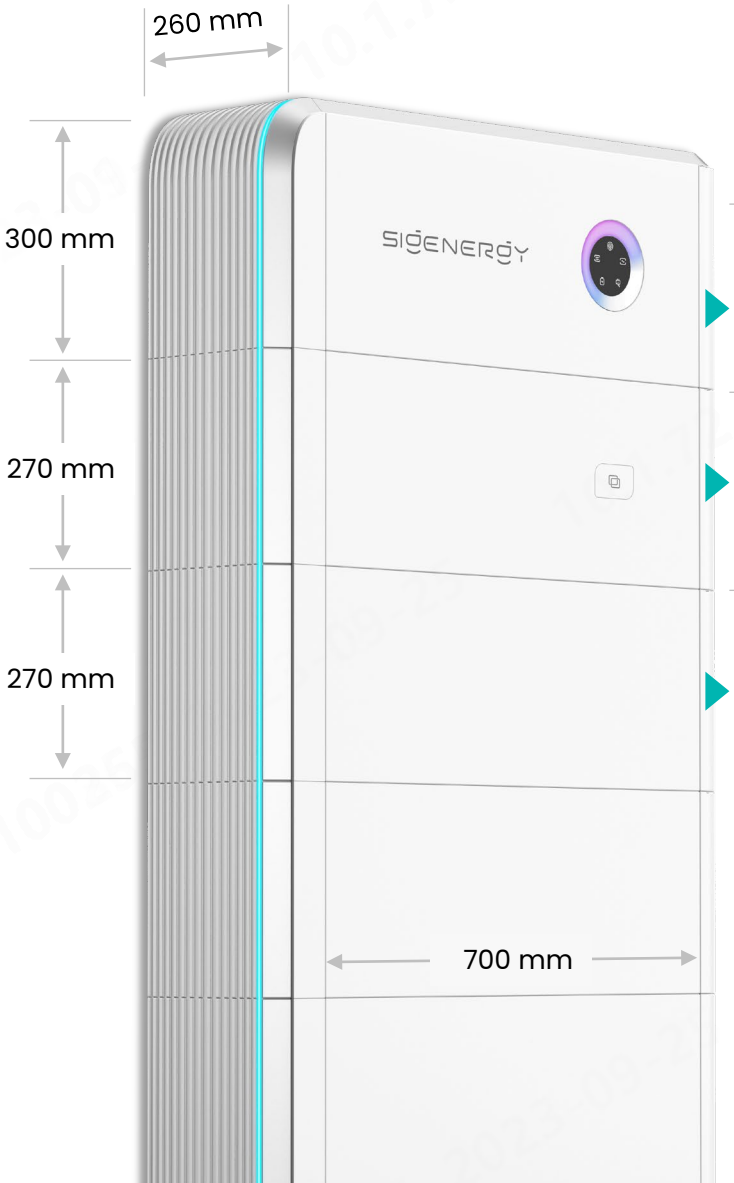
Long cycle-life battery cell

V2X

bi-directional charging

5-layer

Battery safety protection



Sigen Energy Controller or Sigen Storage Controller

for solar + storage system

for AC-coupled storage system

Single phase grid connection (kW)

3.0	3.68	4.0	4.6	5.0	6.0

Three phase grid connection (kW)

5.0	6.0	8.0	10.0	12.0	15.0	17.0	20.0	25.0

Sigen DC Charger Module (kW)

Ready for V2X

12	24

Sigen Battery (kWh)

5.0	8.0

Support **1** – **6** batteries combined for a single system

5 kWh - **48** kWh

Energy capacity range for a single system

Multi-parallel Connection Supported

Flexible, Suitable, Scalable

				Max. DC input power	Max. ESS capacity
Farms Shed	about 300 m^2		x 2	80 kW_{dc}	96 kWh
Communities	about 1,000 m^2		x 4	160 kW_{dc}	192 kWh
Charging Carports	about 2,000 m^2		x 7	280 kW_{dc}	336 kWh
Factory	about 3,000 m^2		x 10	400 kW_{dc}	480 kWh

* Take SigenStor EC 25.0 + SigenStor BAT 8.0*6 per stack as calculation example

SIGENERGY

For more information, Contact us!

YouTube

LinkedIn

Website

EARTH

SUSTAINABLE ENERGY SOLUTIONS

THE BRIGHT **ENERGY MOVE**

Gridlink

The link between energy and renewable energy

ENBRO

Analysis, negotiation, finalisation & follow up of energy contracts

B2B & B2C

EARTH
SUSTAINABLE ENERGY SOLUTIONS

Renewable enery solutions. Study, execution and O&M

B2B, B2C & B2G

fibonaki

Advisory, monitoring & study

Earth Finance
Earth Finance Business
Clever Solutions

Third party investments
SPV's for durable projects

Growth oriented

Only Belgian solar installer for installations from 7 tot 7777 panels.
One of the fastest growing EPC companies in Benelux.

since **2018**

150.000

Installed solar panels

since **2020**

Third party investments

B2C & B2B

february **2023**

Earth Germany

120.000 panels in order

since **2020**

Batteries & charging stations

2023

EPC partner for Belgian government

june **2023**

Earth France

start

Enbro & Earth facts & figures

250.000
Energy contracts

150.000+
Solar panels installed
(± 75 MWp)

€ 100M+
forecast **2023**
revenue 2022 = 50M

45+
FTE's
since FPIM investment

VEB
€50M portfolio
VEB framework contract Flemish Govt.

2023
€100M
Expected revenue

2023
From 40 to 100 FTE
Belgium only!

2025
€200M
Expected revenue (with +- 200 FTE)

Why Sigenergy?


The right partner to meet our ambitions for a sustainable future

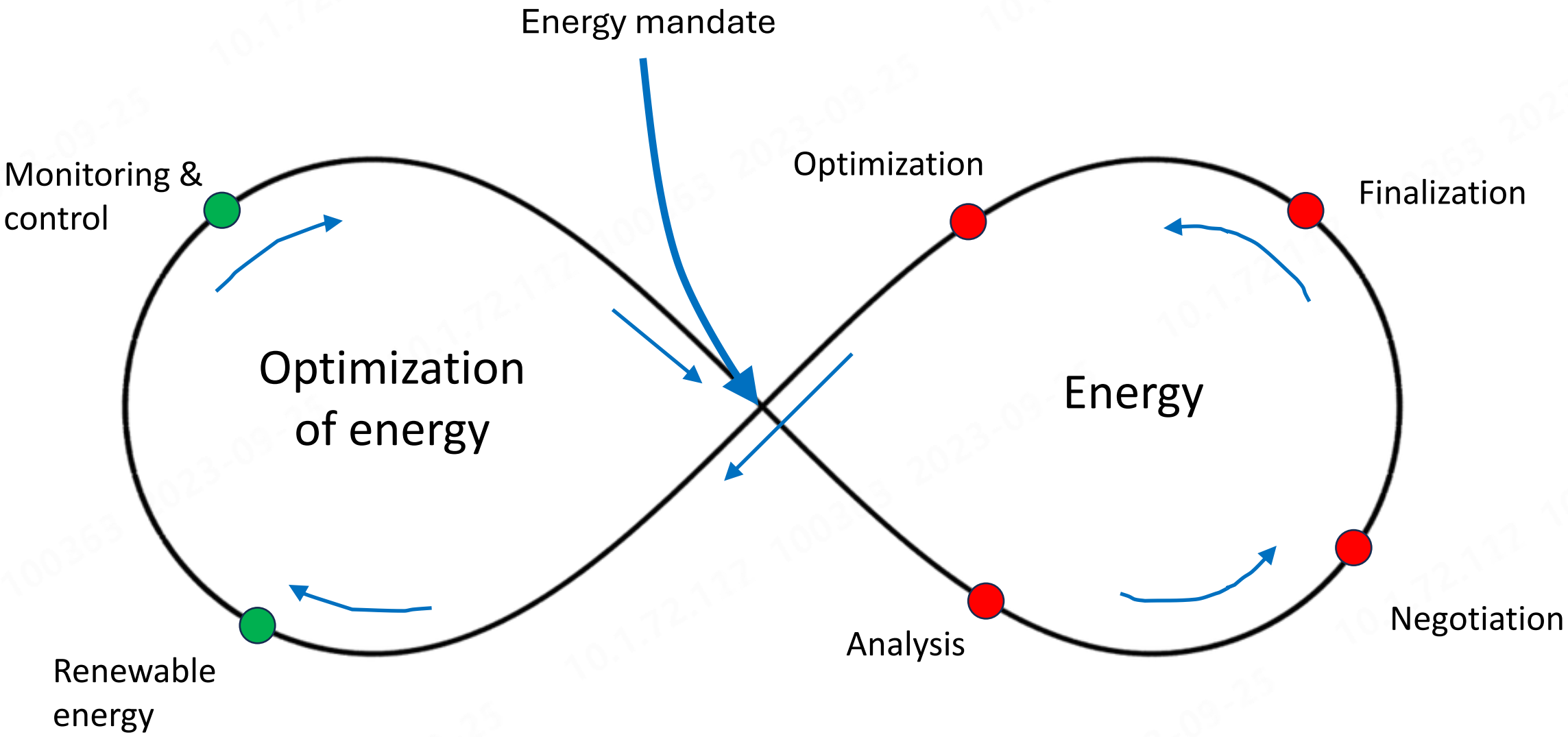
Why Sigenergy?

The excellent communication with Sigenergy and the perfect match with our international group goals makes the choice for Sigenergy a no-brainer.

The high product standards and our mutual ambitions will be the basis for a succesful long-term partnership.

Business Case

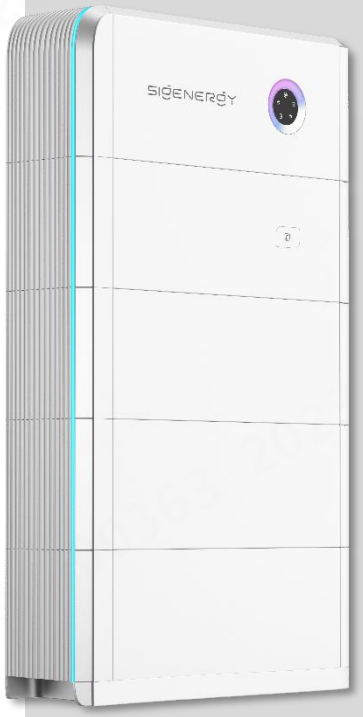
Energy Loop: our way of working



Starting point of every business case (B2C or B2B) is the local energy situation: optimization of cost, usage, profile through contract improvement (Enbro) and renewable solutions (Earth)

Product Family: crucial element in proposal

SigenStor



SigenStor EC / AC
Sigen Energy/Storage controller
Single Phase & Three Phase

SigenStor EVDC
Sigen EV DC Charging Module

SigenStor BAT
Sigen Battery

Sigen Hybrid Inverter

Sigen PV Max Inverter

Sigen Gateway
Single Phase & Three Phase

Sigen CommMod

Sigen EVAC
Sigen EV AC Charger

Sigen Cloud

mySigen APP

Sigenergy is and will be a crucial element in every renewable proposal, not only thanks to all great product features but certainly thanks to the possibility of directing energy flows.

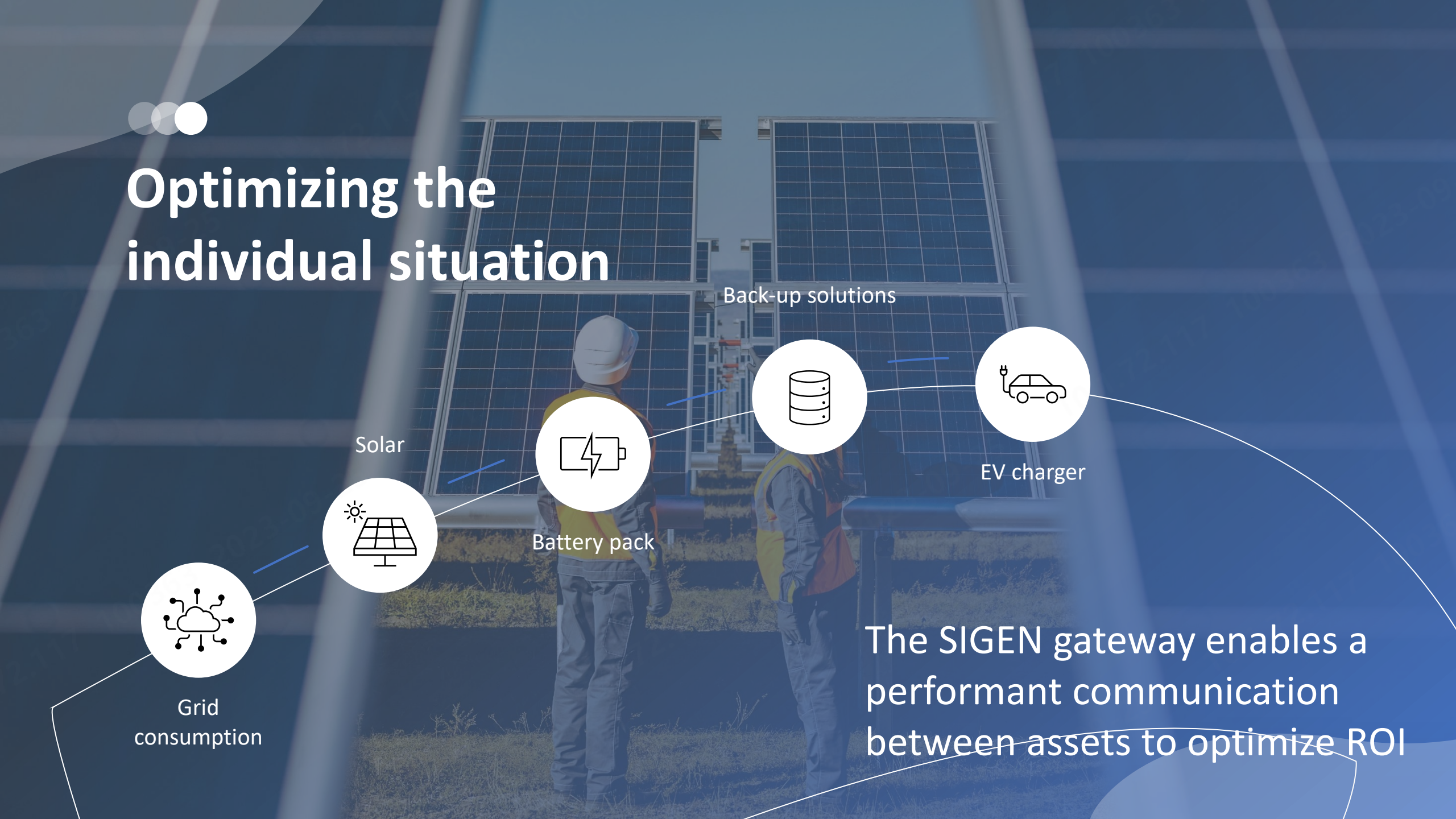
In the ongoing energy transition every consumer becomes an active stakeholder in the energy market

All hardware has to be able to fulfill a dual role

Optimizing the individual situation

Optimizing the grid stability

Optimizing the individual situation



The SIGEN gateway enables a performant communication between assets to optimize ROI

Optimizing grid stability

There is a great revenue possibility in support of grid stability. Renewables are an enormous grid challenge and intermittency will have to be tackled.

It is the unique position of Enbro, Earth and Sigenergy as a partner, to be able to fill in this dual ‘role’. Valorizing state-of-the-art hardware through an internal and external income flow is the USP of the Enbro/Earth group.

Thank you for your attention

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pv magazine webinars

Prospects of bringing together PV, storage and EV charging

Q&A

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by Emiliano Bellini

[How long do residential solar inverters last?]

by Ryan Kennedy

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Coming up next...

Tuesday, 26 September 2023
8:00 am – 9:00 am PDT, Los Angeles
5:00 pm - 6:00 pm CEST, Berlin

Variables to consider in solar module procurement

Wednesday, 4 October 2023
11:00 am – 12:00 pm CEST, Berlin
2:30 pm – 3:30 pm IST, Delhi

Unlocking the power of advanced analytics: maximizing value in multi-GW utility-scale solar portfolios

Many more to come!

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Emiliano Bellini
News Director
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