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9 March 2022

3:00 pm – 4:30 pm | CET, Berlin, Rome, Paris

2:00 pm – 3:30 pm | GMT, London / WET, Lisbon

4:00 pm – 5:30 pm | SAST, Johannesburg



Marjia Maisch

Editor
pv magazine



Tristan Rayner

Editor
pv magazine



Thomas Haering

Managing Director EMEA
GoodWe



Ali Bouattour

Technical Director EMEA
GoodWe



Jason Yan

Sr. Product Marketing Mgr.
LONGi

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Home Solar+Storage Focus: Smart application trends and tech in EMEA

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Home Solar+Storage Focus: Smart application trends and tech in EMEA



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Riccardo Frisinghelli
International Strategic Manager
VP Solar



Tobias Wenleder
CEO
Memodo



Nick Roche
CPO
Rubicon Energy



Jeroen Lochs
Country Manager Belgium
Natec Sunenergy

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Agenda

Welcome

- Thomas Haering, GoodWe

Fireside Chat

- Jason Yan, LONGi & Ali Bouattour, GoodWe

Presentation

- Ali Bouattour, GoodWe

Panel Discussion & Audience Q&A

- Thomas Haering, GoodWe
- Ali Bouattour, GoodWe
- Riccardo Frisinghelli, VP Solar
- Jeroen Lochs, Natec Sunergy
- Nick Roche, Rubicon
- Tobias Wenleder, Memodo

Market Overview | Europe

Germany

- LCOE 12.2E/kWh
- Accounts for **70% of the storage market**

Europe

- **400% growth** expected
- from 3GWh in 2020 to 12.8GWh by 2025

Market Overview | Middle East & Africa

Middle East

- Adding **50GW** of solar PV by 2030
- Storage market nascent with a lack of incentives, as well as concerns around weather conditions

Africa

- Batteries are being deployed as **the central piece in energy systems**
- Serving remote regions with little or no grid coverage

Market Highlights

- **Increase of 10-20% for Lithium-ion (Li-ion) battery prices** was documented
- Medium term: **Projected rise of 3-5% in stationary storage** projects
- **No dent to the growth outlook** as battery storage costs remain competitive with alternatives

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Fireside Chat



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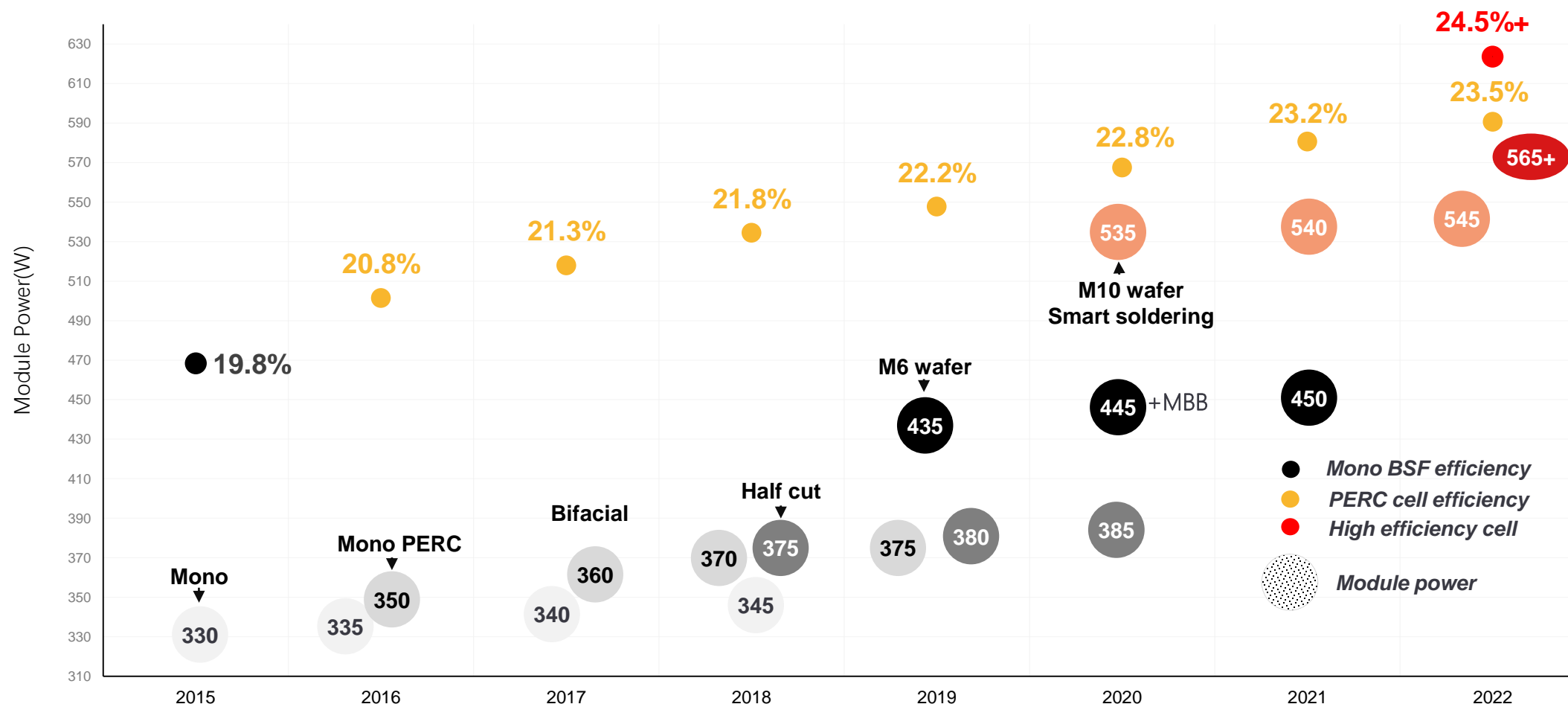


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Technology Trend of PV Module



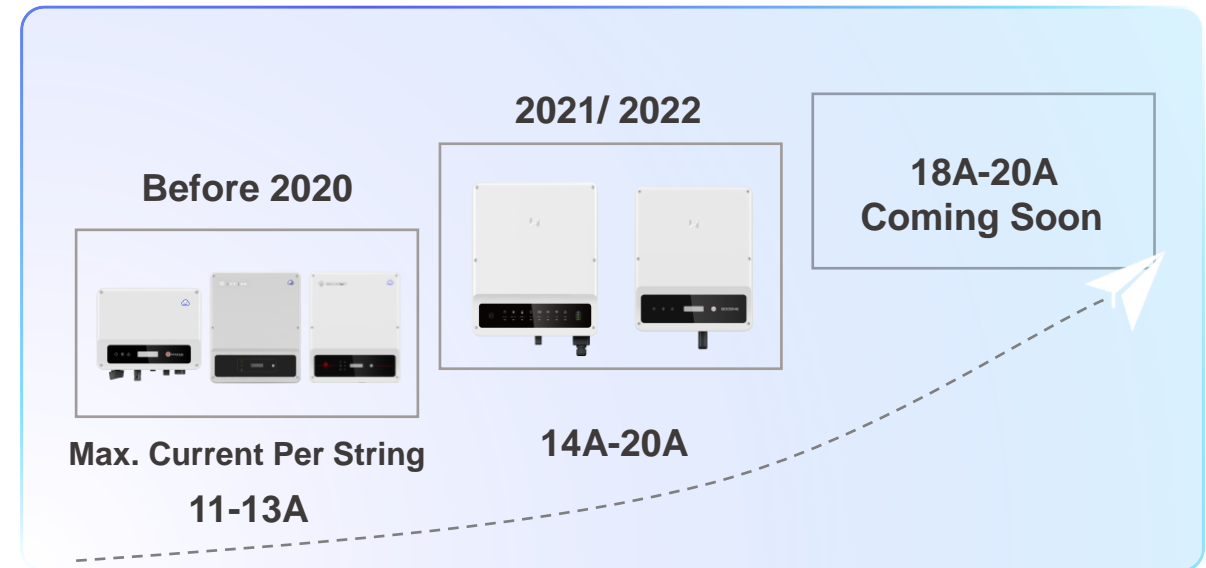
- Improving the cell and module efficiency is the technology trend of PV module.
- PERC cell replacing Poly, Half-cut + MBB, Bifacial module and small gap adoption all demonstrate higher efficiency is critical for better customer value.

Inverter development with increasing solar cell sizes

Larger Solar Cell Sizes increase DC current



GoodWe Solution: increasing inverter input



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Presentation



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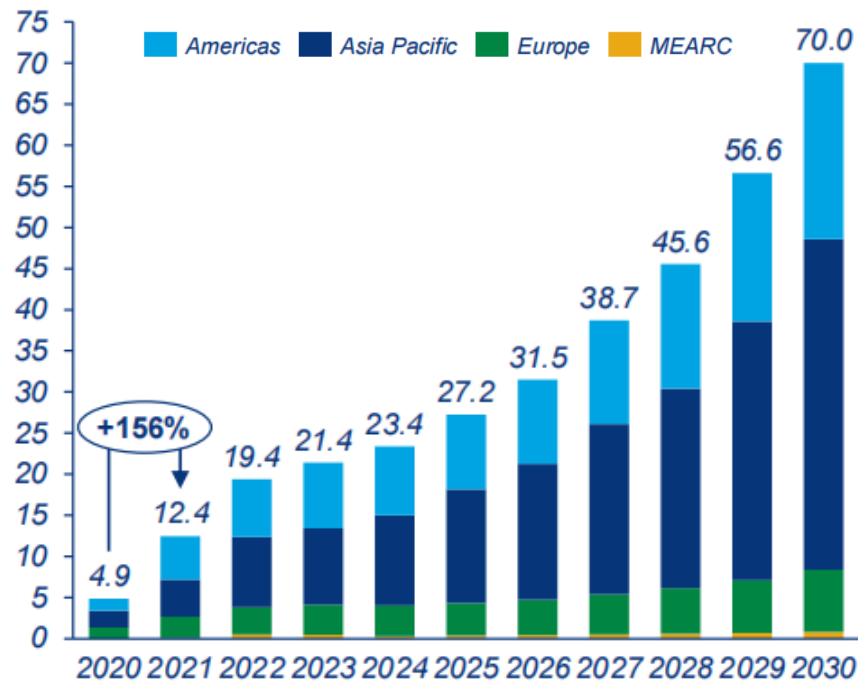
Ali Bouattour
Technical Director EMEA
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Smart Energy Innovation Market trends in EMEA

GoodWe GoodWeek – PV Magazine

Global Energy Storage Market

Global energy storage annual capacity, GW

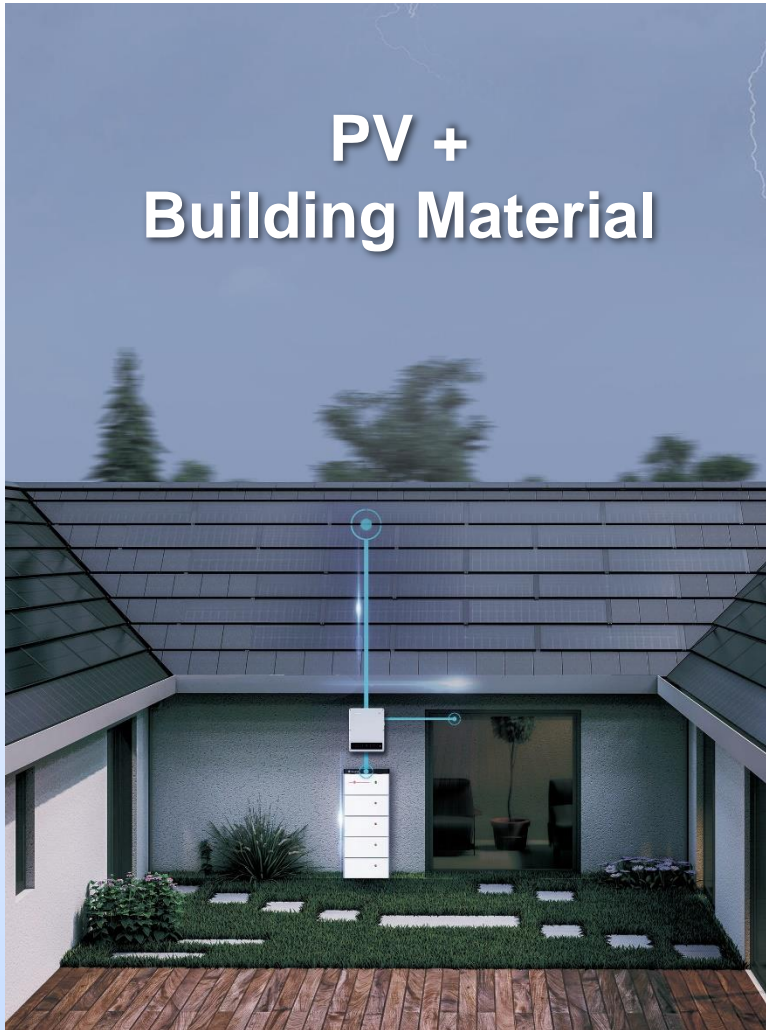


- Global storage deployments to nearly triple year-on-year, reaching 12 GW in 2021
- US and China will dominate global storage markets, accounting for 73% of total capacity to 2030 (GWh) with strong expectations for large scale projects
- EMEA significantly growing in residential and commercial applications, which are becoming on top of the political agenda.
- The growth in EMEA comes with new trends and use cases for PV+Storage

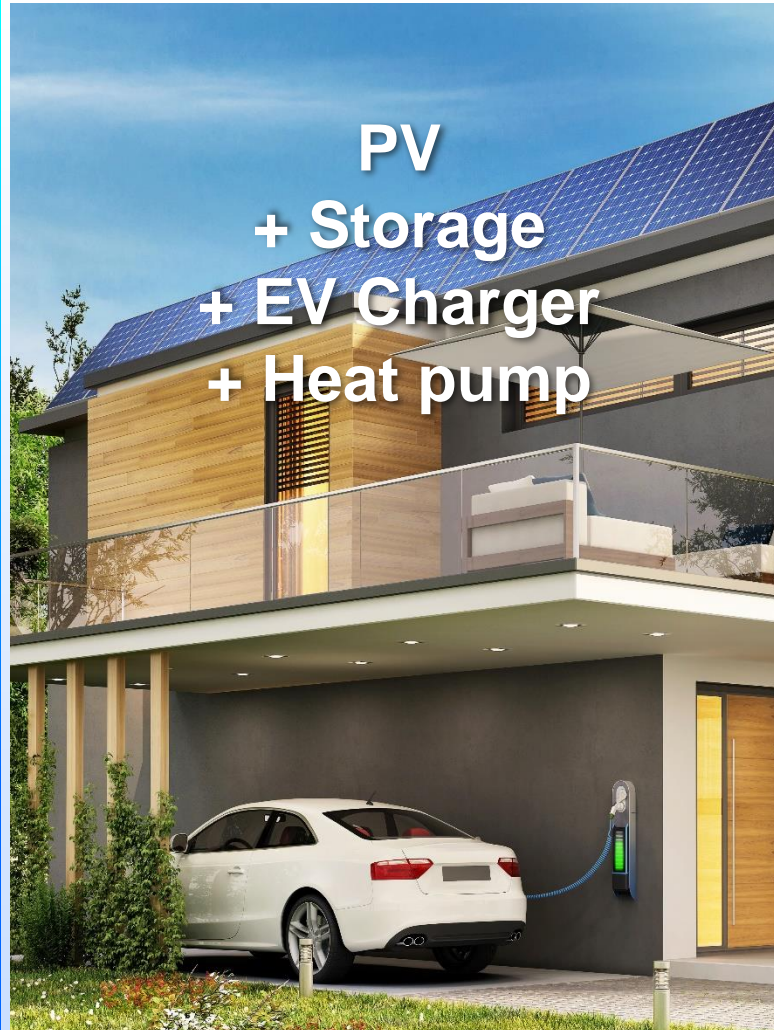
Smart Energy Integration

New use cases of PV + Storage

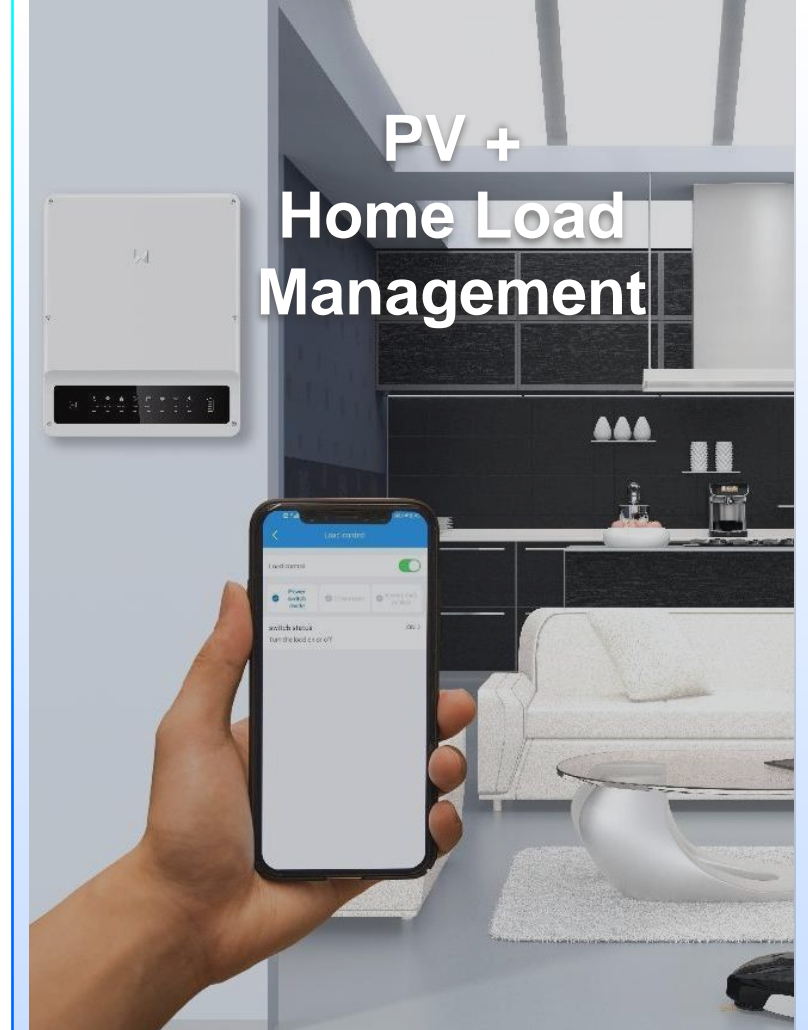
PV + Building Material



PV + Storage + EV Charger + Heat pump



PV + Home Load Management



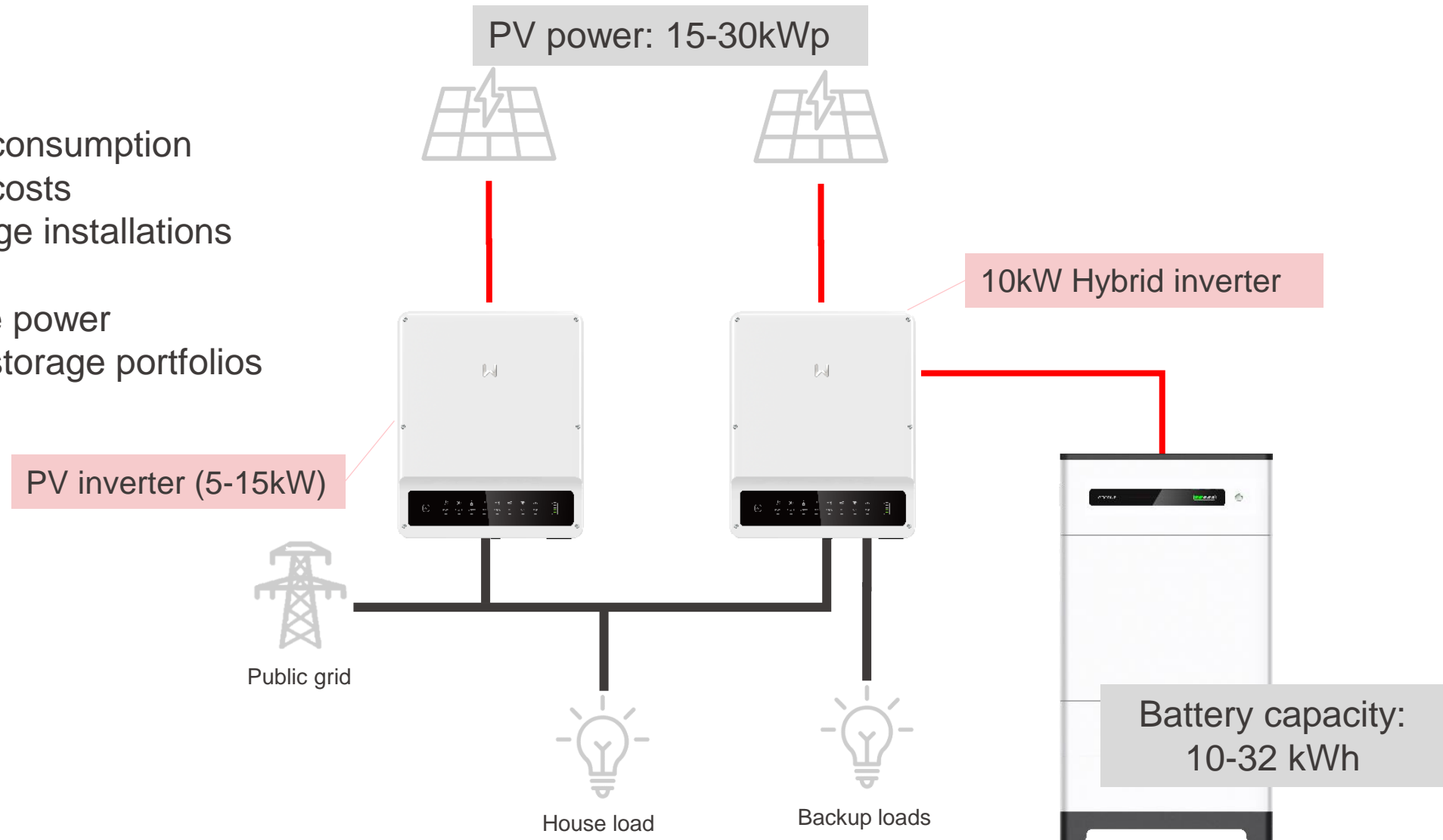
GoodWe overview of residential solutions



Residential installations trending to larger capacities

Trend drivers:

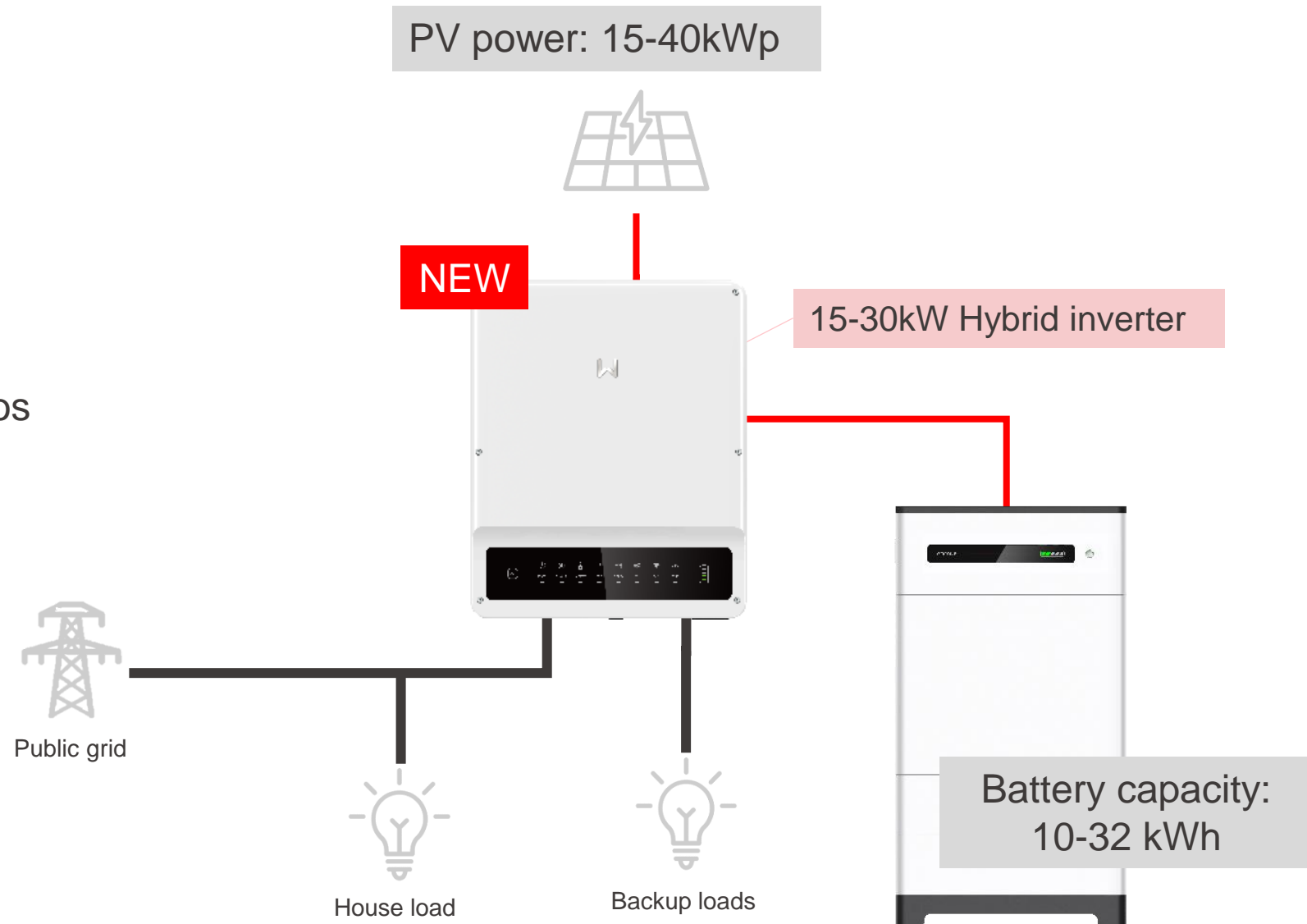
- Increasing electricity consumption
- Increasing electricity costs
- Better cost ratio of large installations
- Policy change
- Increasing PV module power
- Flexible inverter and storage portfolios



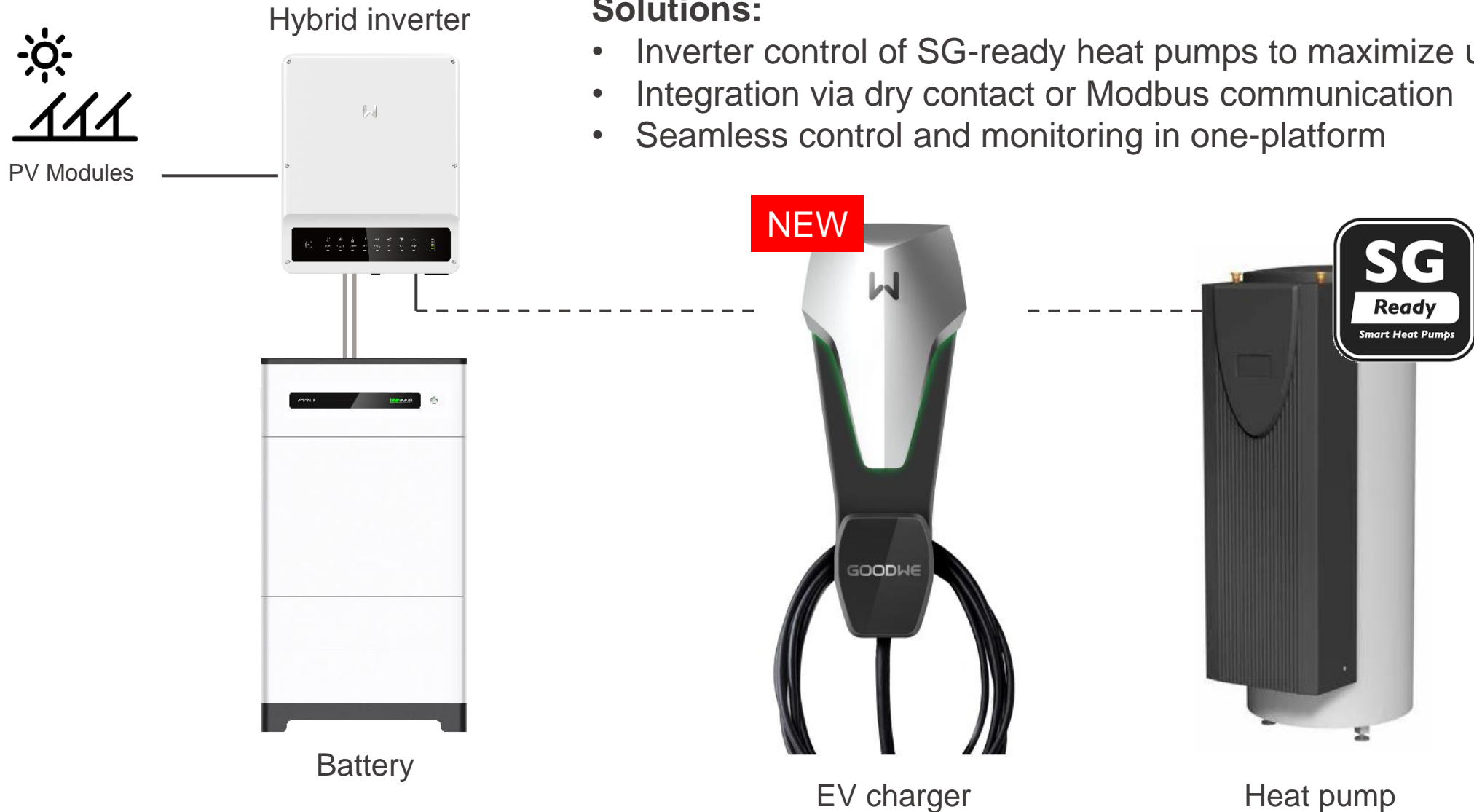
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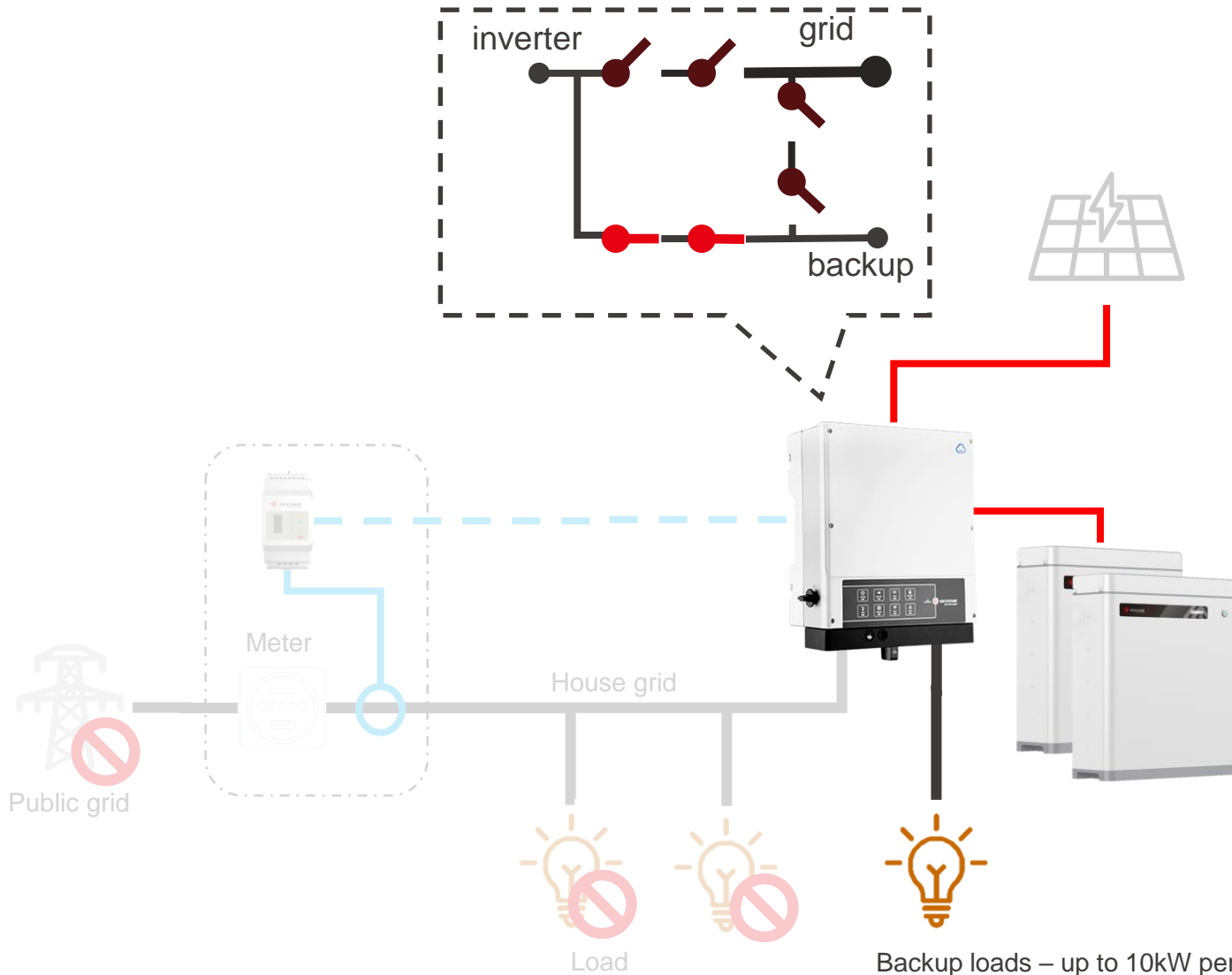
- Increasing electricity consumption
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- **New large hybrid solutions**



Integration of PV, Storage, EV and heat pump



Backup power – not only where grids are weak



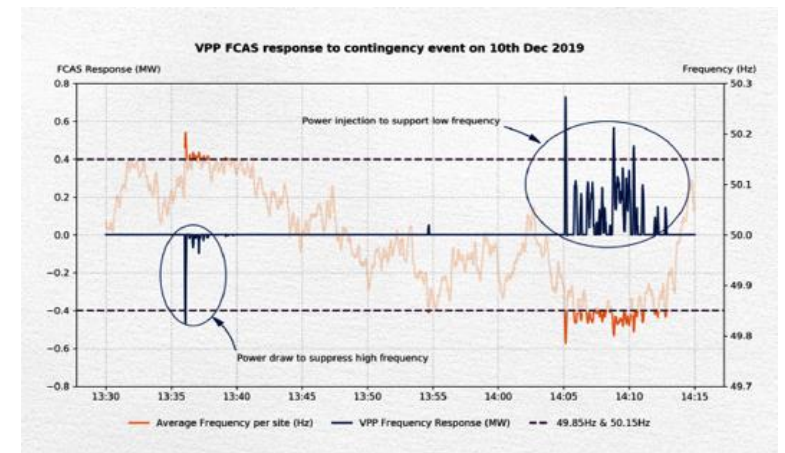
Trend drivers:

- Grid weakness in certain countries
- Aspiration for energetic independence
- Integrated solutions:
 - In all GoodWe storage inverters
 - Fully integrated in inverter
 - UPS level switching time <10ms
 - PV charging during backup

VIRTUAL POWER PLANT – Highest flexibility

GoodWe inverters are able to integrate Energy Management Systems via **MODBUS RTU/TCP/Sunspec** protocols, or remotely via **API** server.

GoodWe's VPP Practice in Australia – Frequency Control Ancillary Services (FCAS)



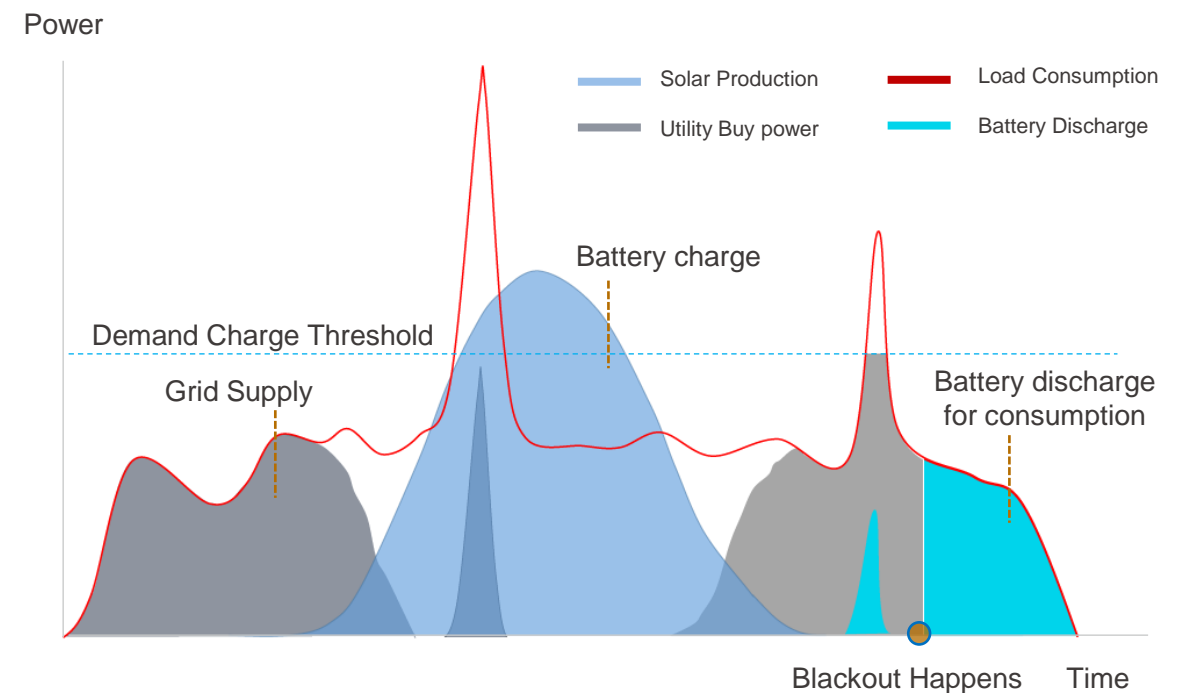
Commercial installations need flexible solutions

Drivers of commercial storage installations:

- Self-consumption of PV to reduce electricity bill
- Peak-shaving of expensive power supply
- Back-up power
- Adapting to flexible electricity tariffs
- Adapting to specific local regulations and installation limits

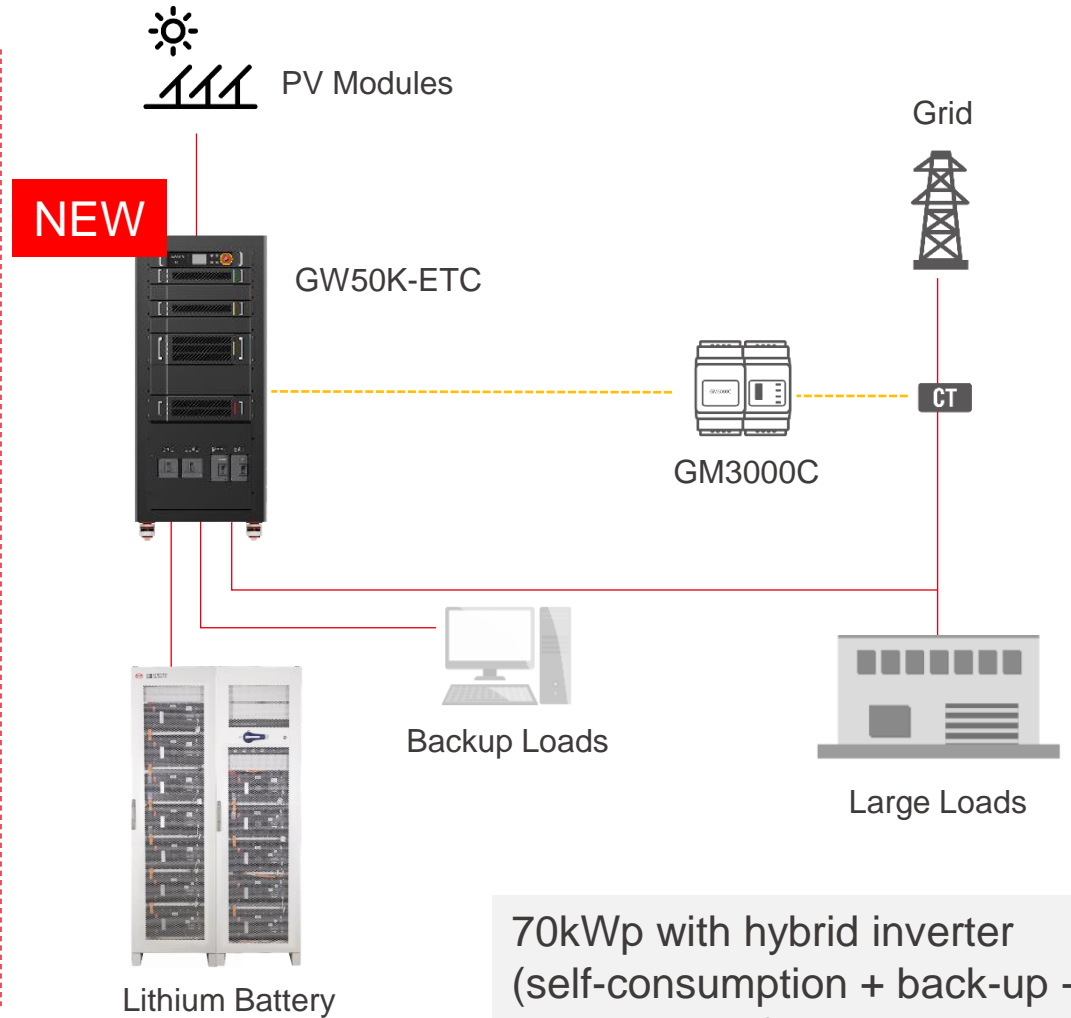
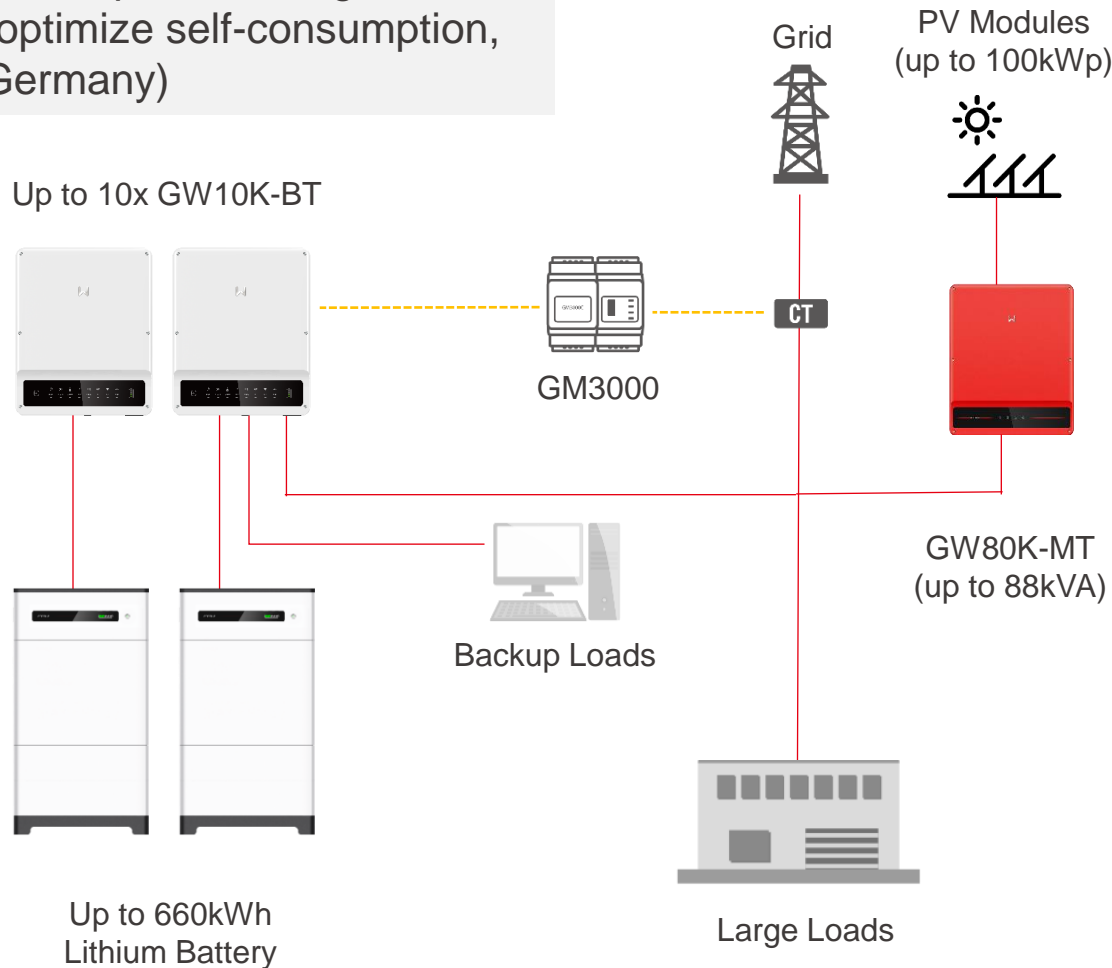
→ Need flexible inverter & storage solutions

Example of a commercial load curve with PV & Storage supply



Examples of commercial storage installations

100kWp with storage
(optimize self-consumption,
Germany)



Join GoodWe PLUS+ Installer Program for more details

What are the benefits of GoodWe PLUS+ for installers?



QUALIFIED AS
GOODWE **PLUS+** INSTALLERS



TECHNICAL HANDS-ON TRAINING
IN GOODWE PRODUCTS



FREE AUTOMATIC
WARRANTY EXTENSION ⁽¹⁾



EXCLUSIVE AFTER-SALES
AND WARRANTY BENEFITS ⁽²⁾

(1) Extension from 5 to 10 years for all on-grid inverters up to 20kW which are installed in the EU, UK, Norway, or Switzerland and which are connected to SEMS Portal.

(2) Please visit our website: <https://en.goodwe.com/warranty.asp> to get all information about warranty support.



THANK YOU

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Poll



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Fully PV-driven system to produce water, electricity, crops

by Emiliano Bellini



GoodWe: Global solar installations could exceed 240GW in 2022

by Vincent Shaw



**Most-read
online!**

Coming up next...

Wednesday, 16 March 2022

3:00 pm – 4:00 pm CET, Berlin

4:00 pm – 5:00 pm EET, Athens

Wednesday, 30 March 2022

10:00 am – 11:00 am CEST, Berlin

4:00 pm – 5:00 pm CST, Beijing

Many more to come!

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with remote
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certainty gap
through a new
partnership in
quality assurance
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**Thank you for
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