

Lessons learned from P3's EMS benchmark with focus on PV-optimized charging

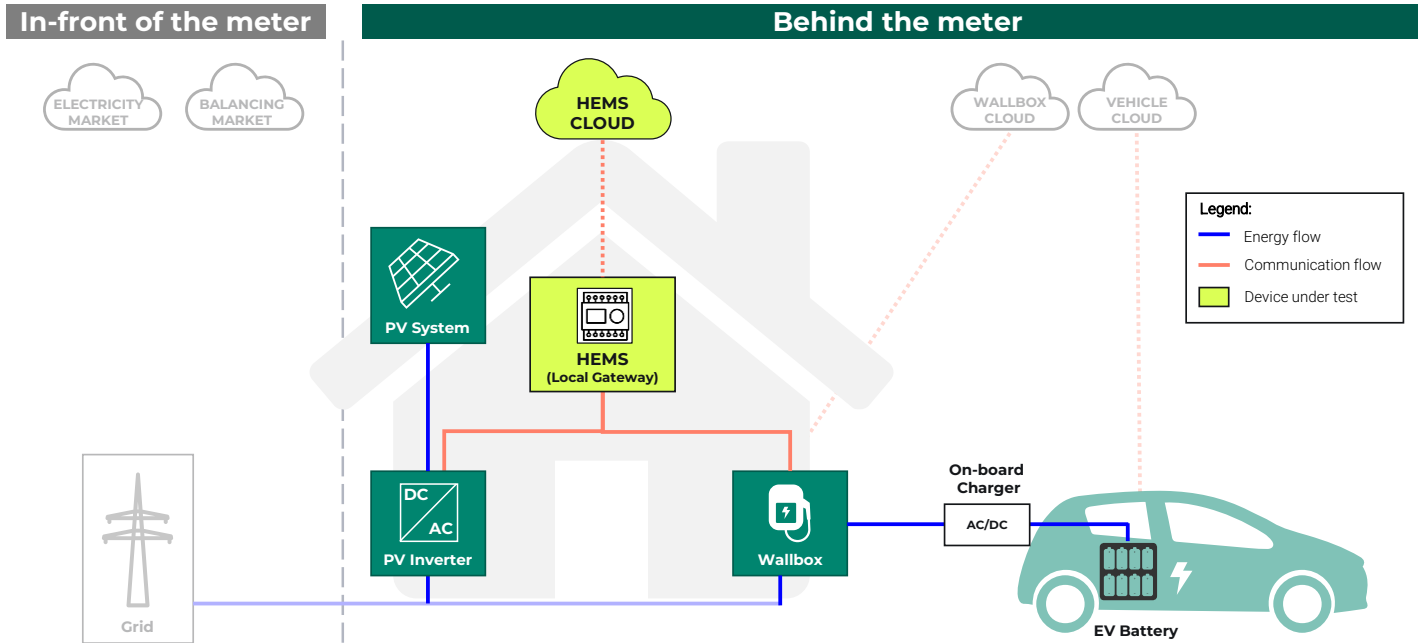
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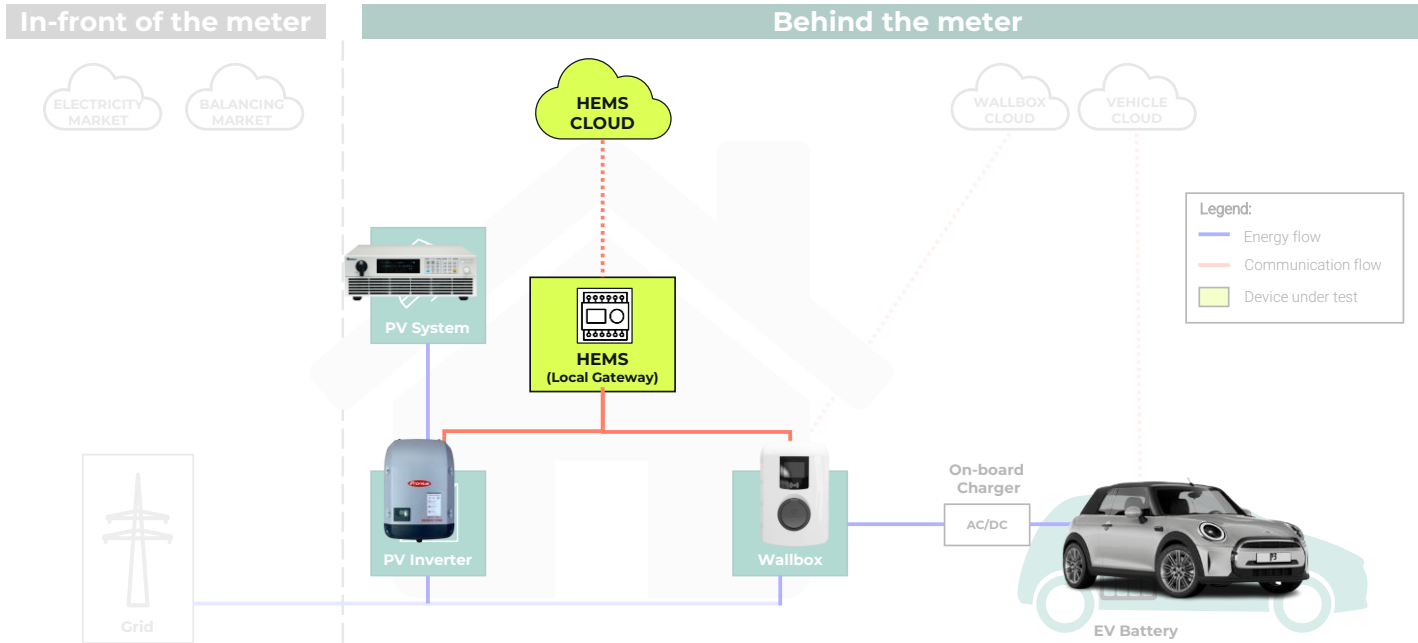


(H)EMS is the key element for smart charging to enable PV-optimized charging.



Simplified representation

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Simplified representation

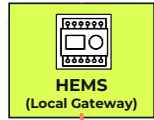
(H)EMS is the key element for smart charging to enable PV-optimized charging.

In-front of the meter

Behind the meter



Up to 7 candidates tested



Simplified representation

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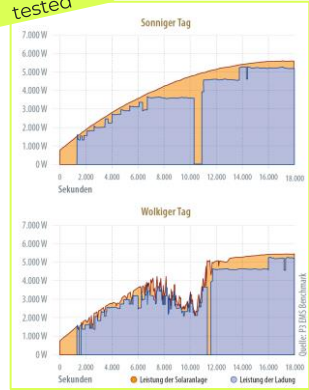
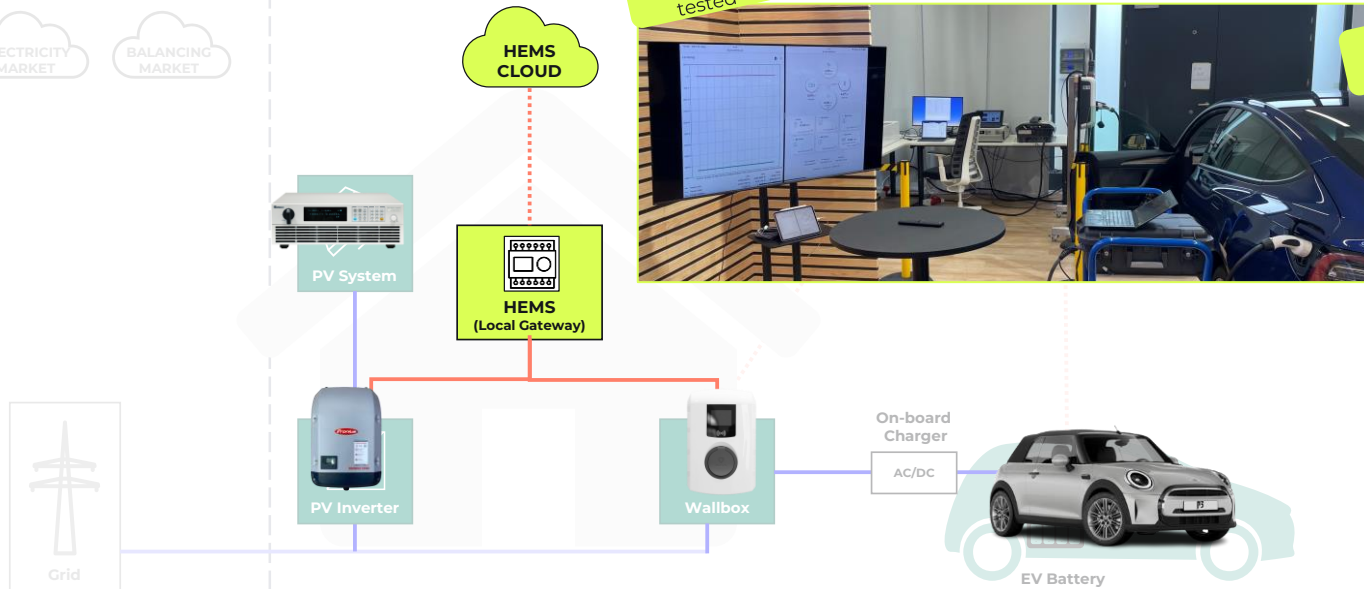
In-front of the meter



Behind the meter

Up to 7 candidates tested

Two scenarios tested



Simplified representation

(H)EMS is the key element for smart charging to enable PV-optimized charging.

In-front of the meter

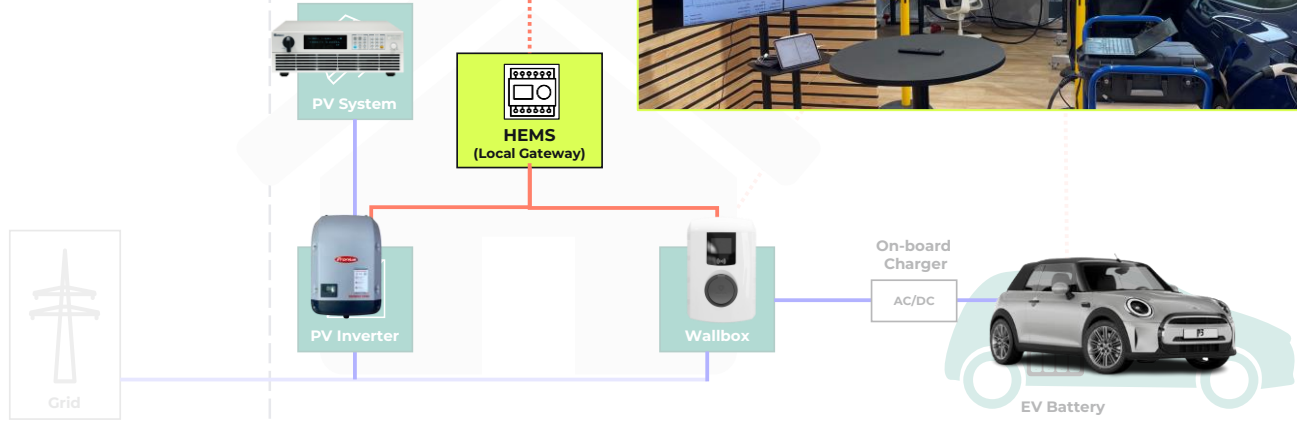
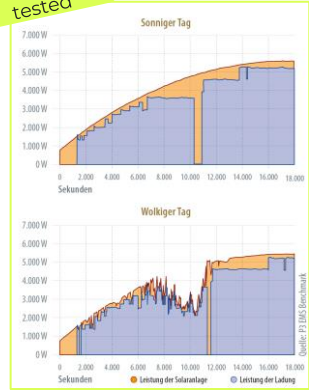
Behind the meter



Up to 7 candidates tested



Two scenarios tested

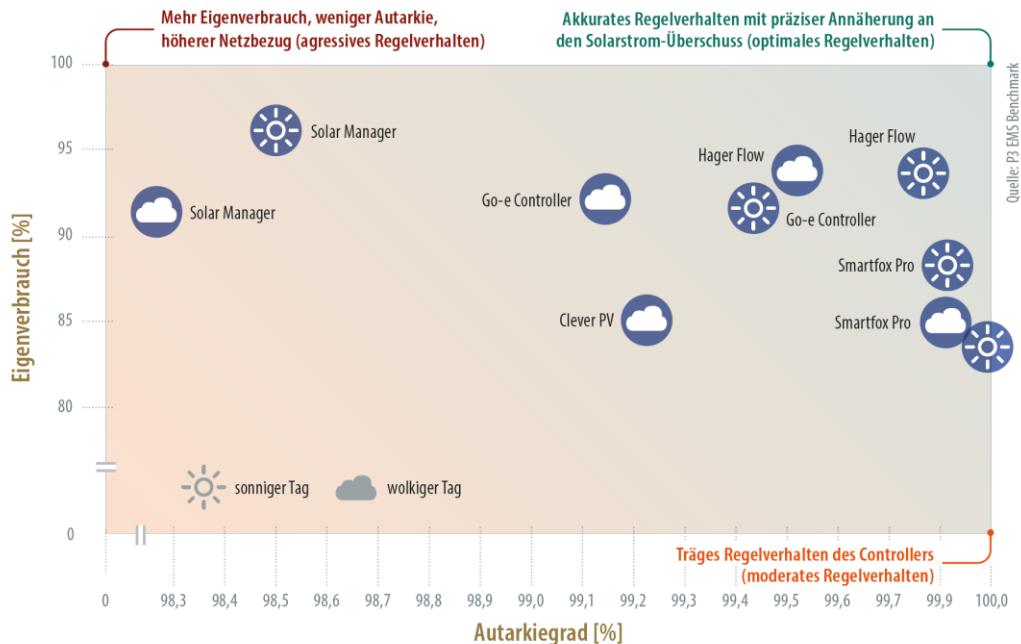


Simplified representation

Target configuration for EMS benchmark has been selected to ensure highest interoperability. Nevertheless, this configuration had to be changed 5 out of 7 times (1x PV inverter + wallbox; 4x wallbox only).

First results show differences in optimization performance for self-consumption and self-sufficiency.

EMS Benchmark Results with focus on self-consumption and self-sufficiency capabilities for PV-optimized charging



First Learnings

- Capabilities of phase switching are obvious
- Local gateway solutions benefit from less latency
- Agnostic (H)EMS overall perform a bit less optimized
- Self-sufficiency results are less diverse than self-consumption results

Lessons Learned from first EMS Benchmark



Lessons Learned

- 01 Interoperability is limited**
Newcomers are more likely to allow mix and match of components than the established OEMs.

- 02 Phase switching is key**
Due to benchmark focus on small scale solar (<10kW), using the power below the 3-phase AC-charging threshold boosts overall self-consumption

- 03 Self-sufficiency results less divers than self-consumption**
Control strategy in terms of feedback delay, regulation progressiveness and phase-switching pause is more likely to affect the self-consumption.

- 04 Local gateways are the current standard**
The majority of available (H)EMS rely on local HW, though a rising number of players offer solely cloud based solutions.

Questions? Feel free to get in contact.



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