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

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P3
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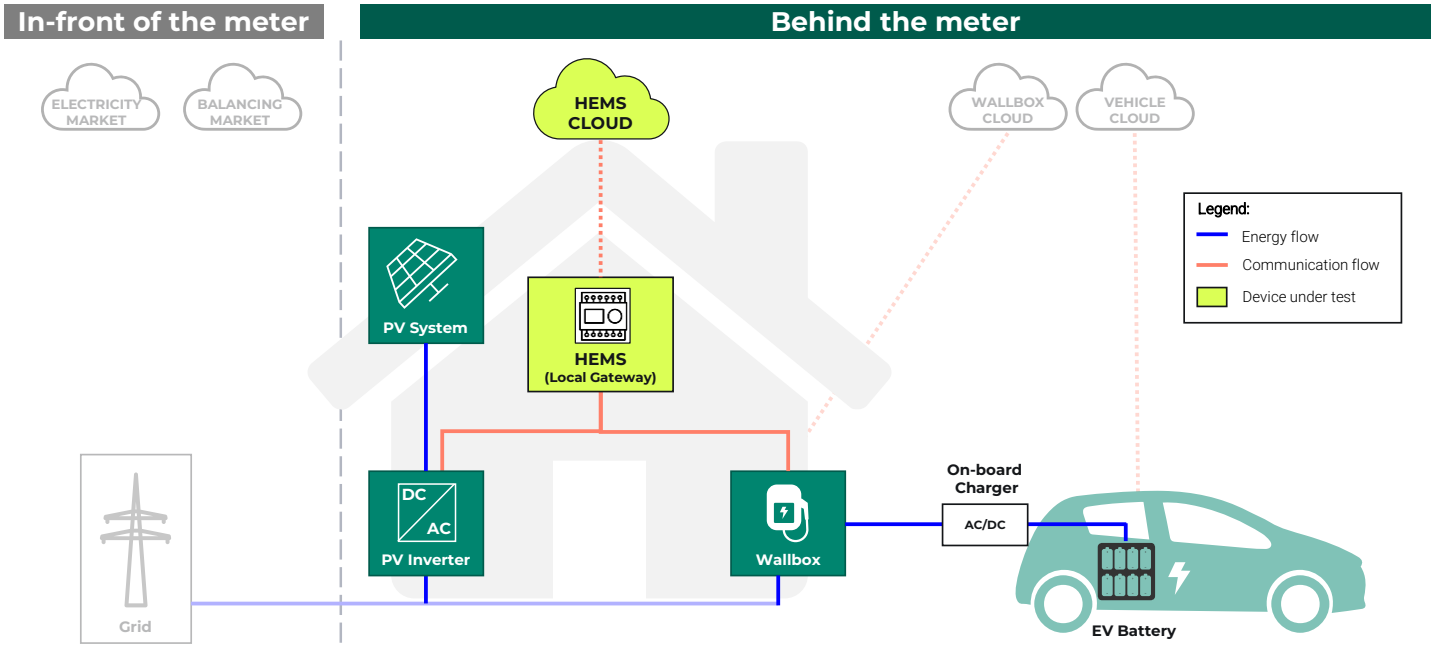
(H)EMS is the key element for smart charging to enable PV-optimized charging.



Simplified representation

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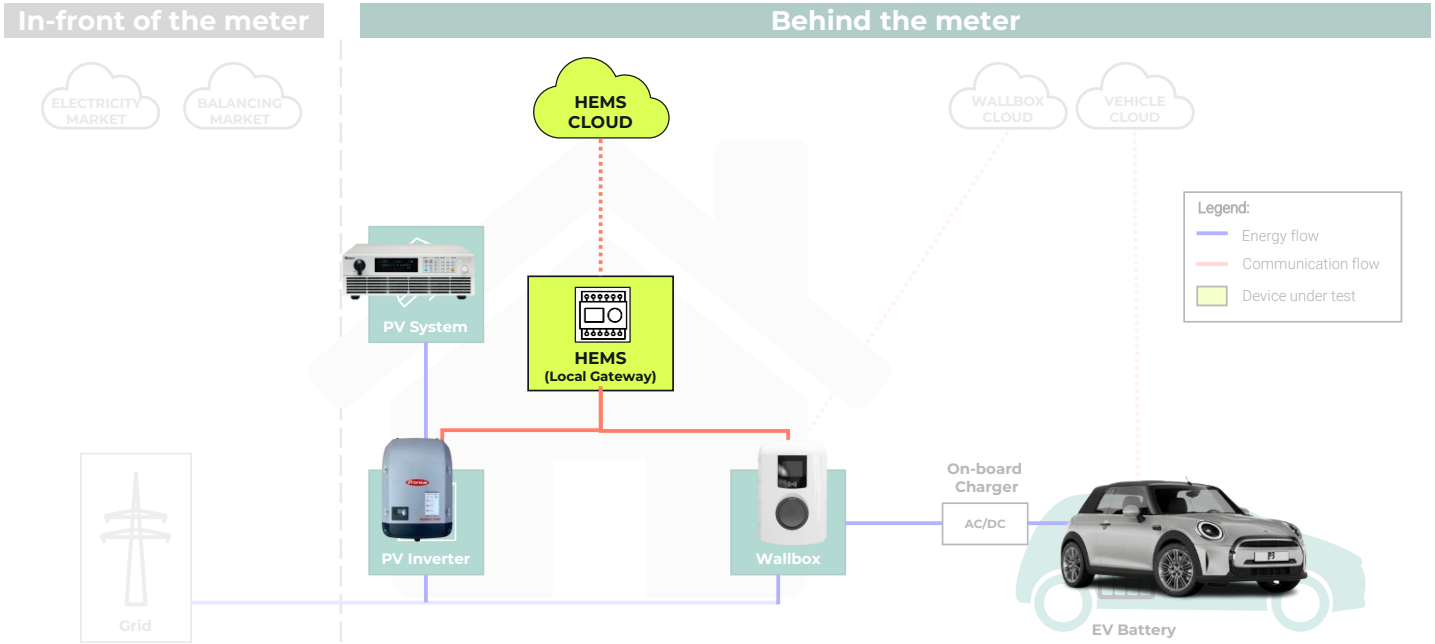

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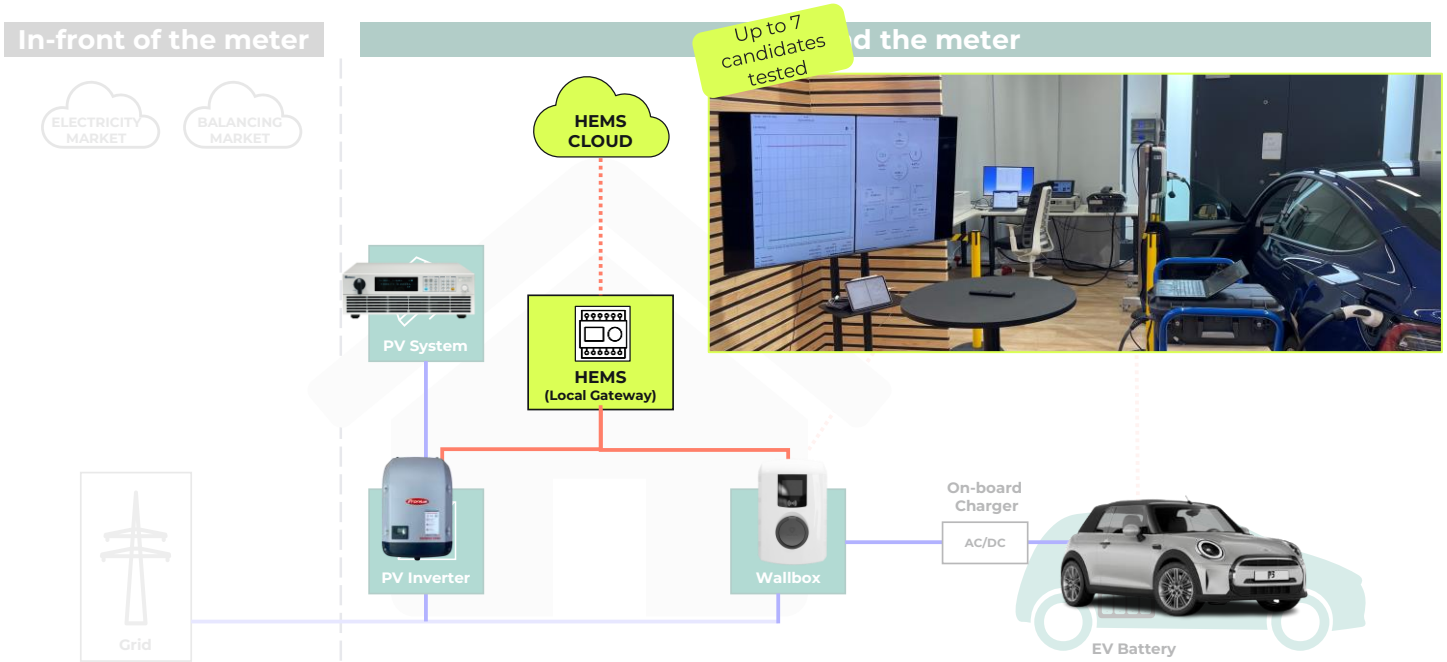

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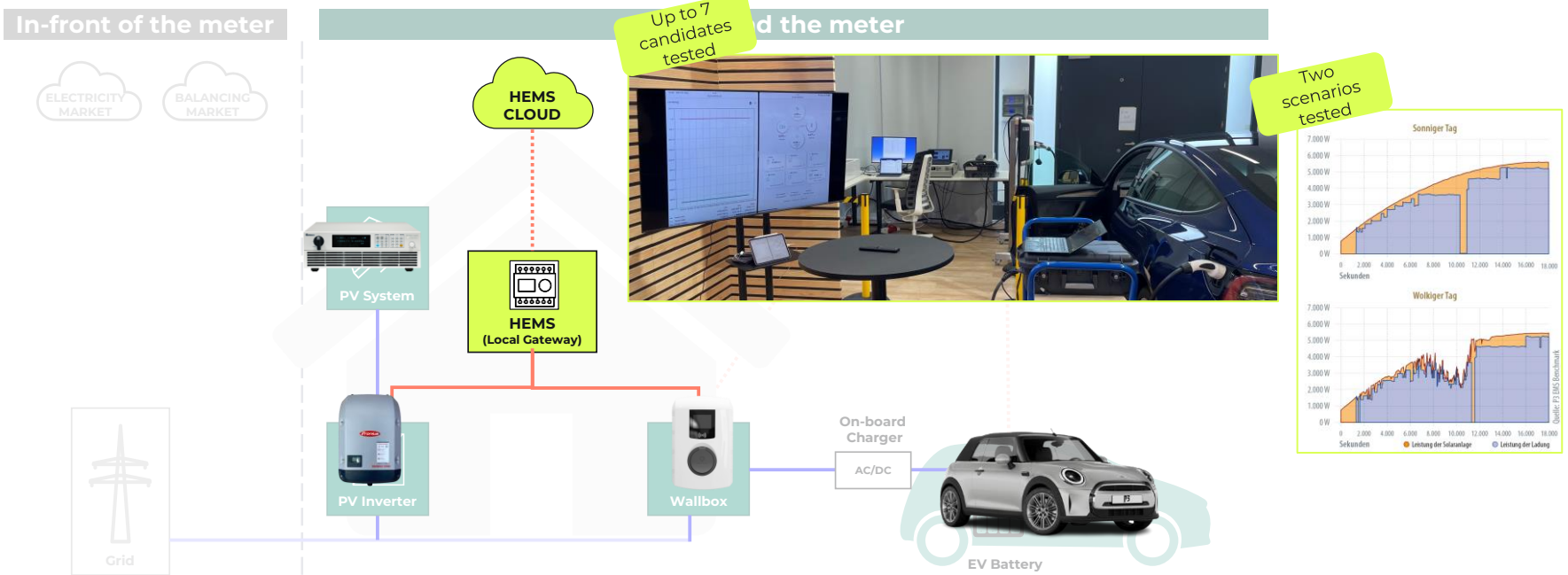

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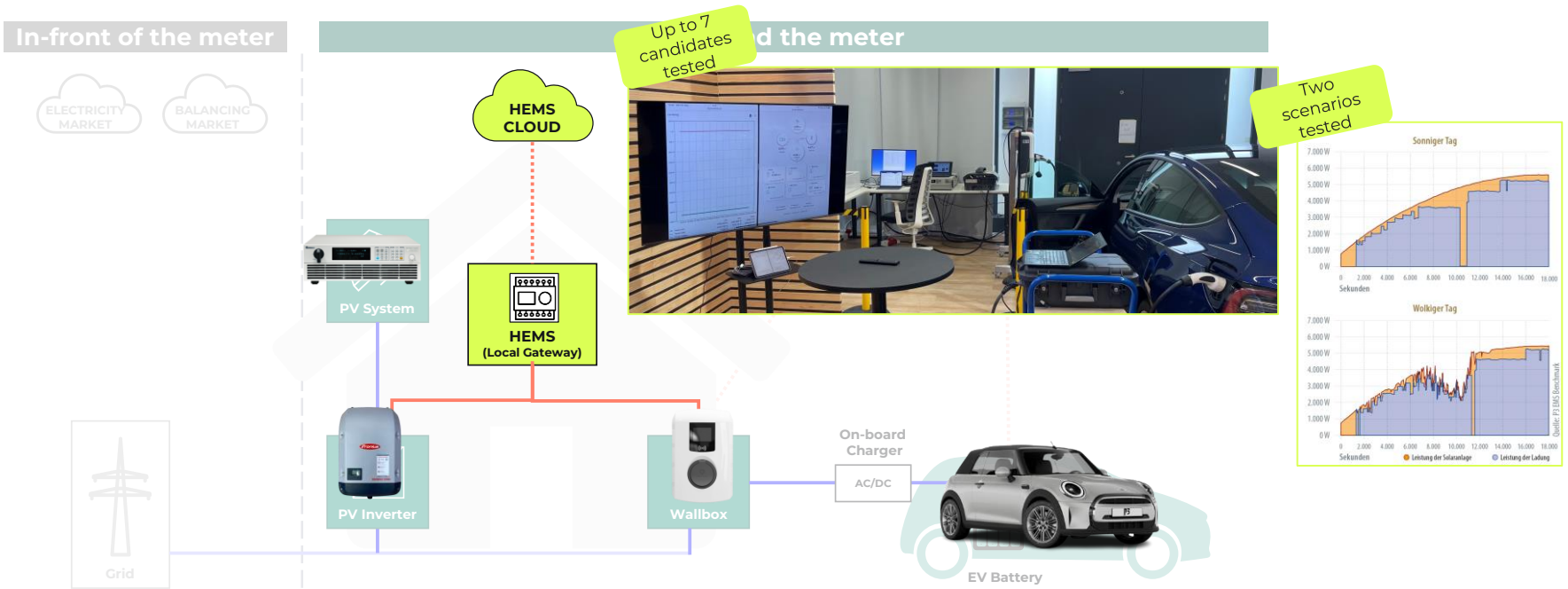
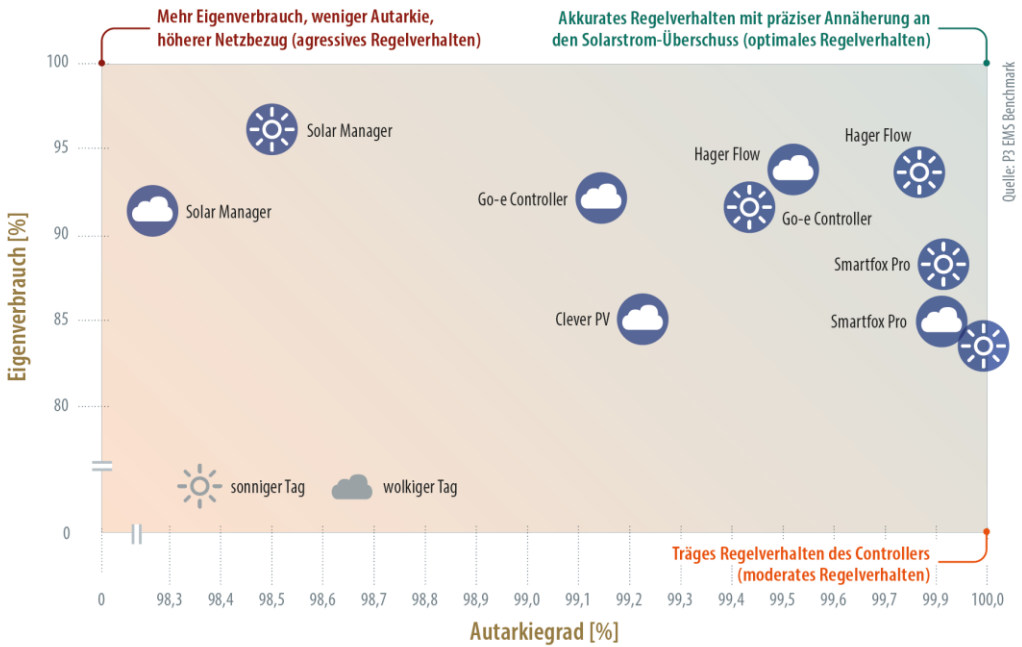


Simplified representation

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.

CONTACT

Questions? Feel free to get in contact.

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