Latentspeicher und deren Nutzen.

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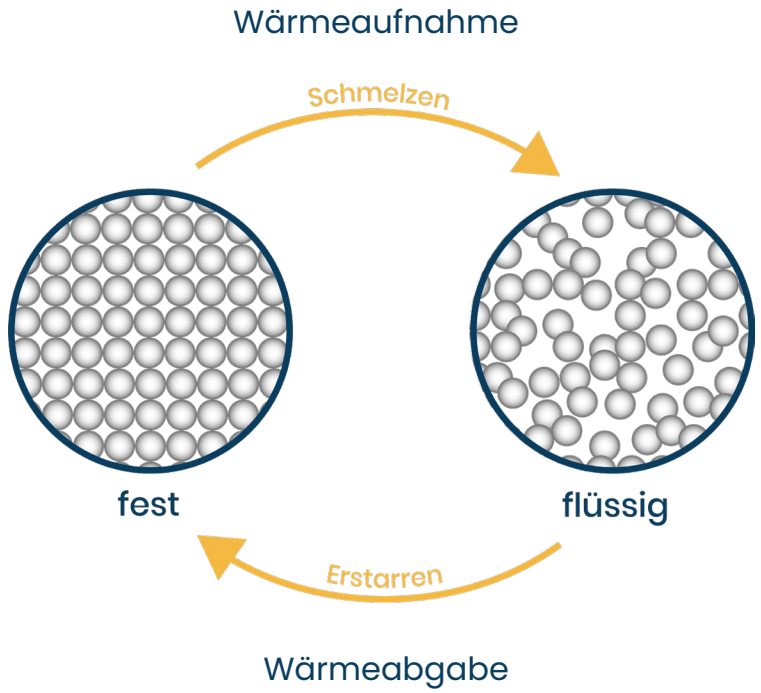
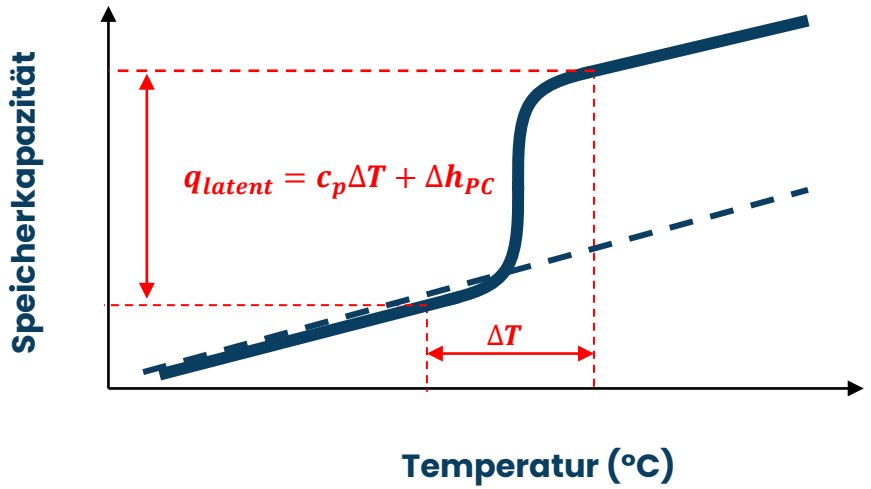
Latentwärmespeicher

Latentwärmepseicher nutzen den Phasenwechsel (fest/flüssig) zum speichern von thermischer Energie.
Die eingesetzten Materialien warden als **Phase Change Materials** (PCM) bezeichnet.

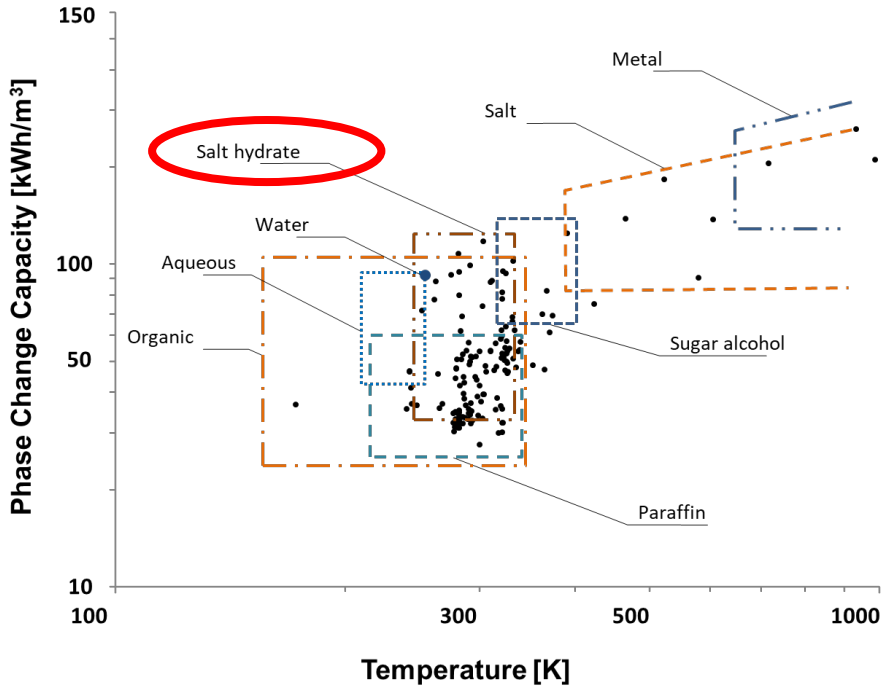


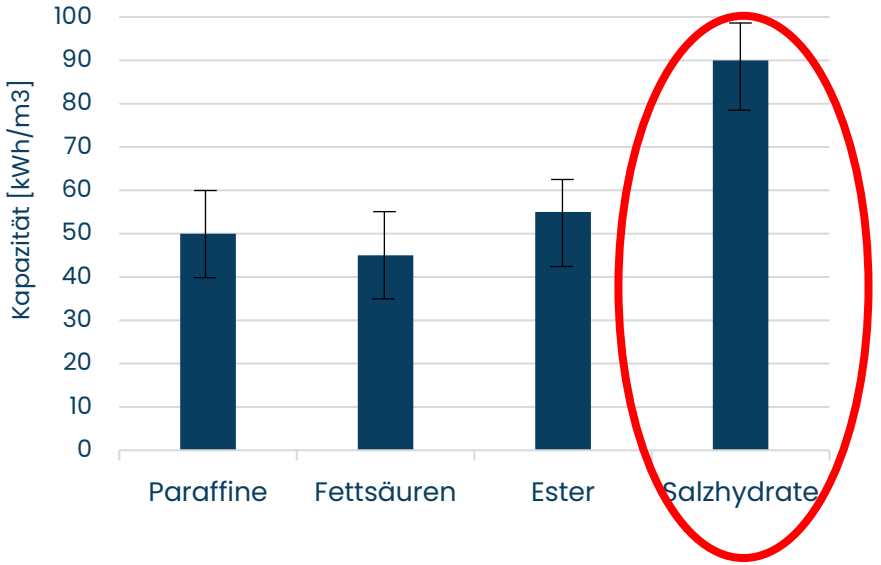


Durch Ausnutzung Phasenwechsel

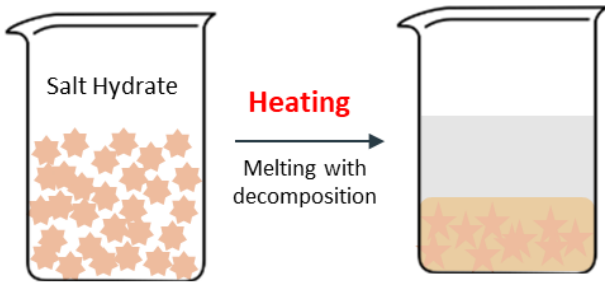
2-5 x höhere Speicherkapazität als Wasser.

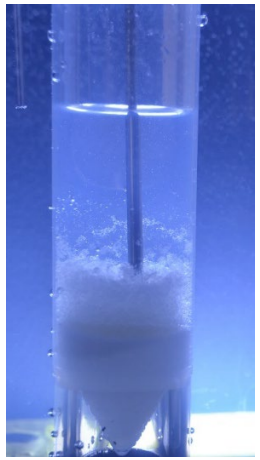
Phase Change Materials

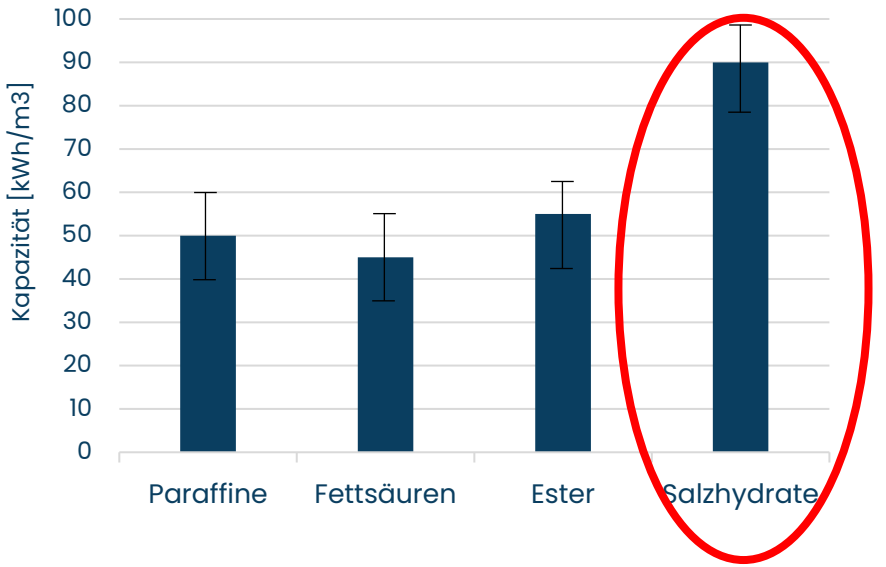


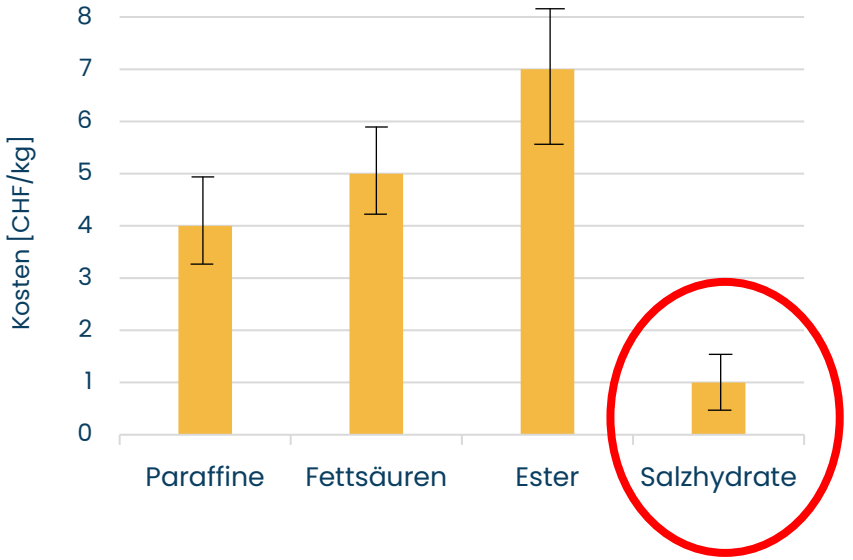


Phase Change Materials



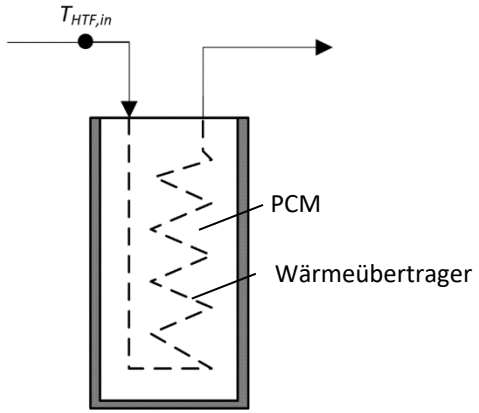




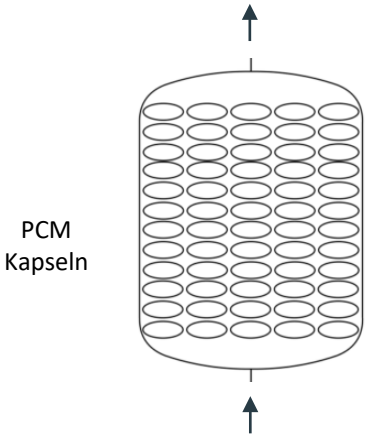


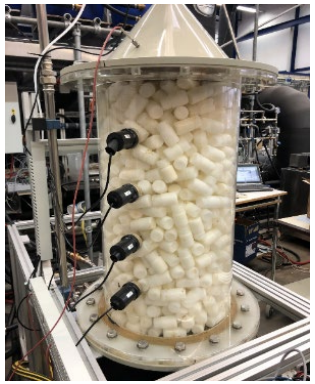
Wärmeübertrager - Konzepte

Innenliegender Wärmeübertrager

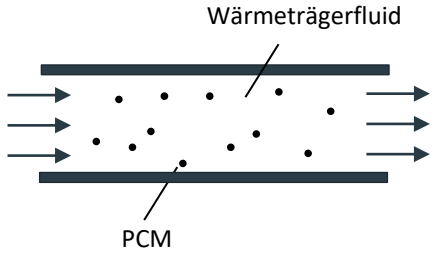


Verkapseltes PCM





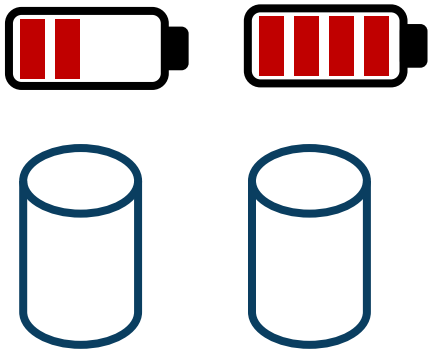
Phase Change Dispersions

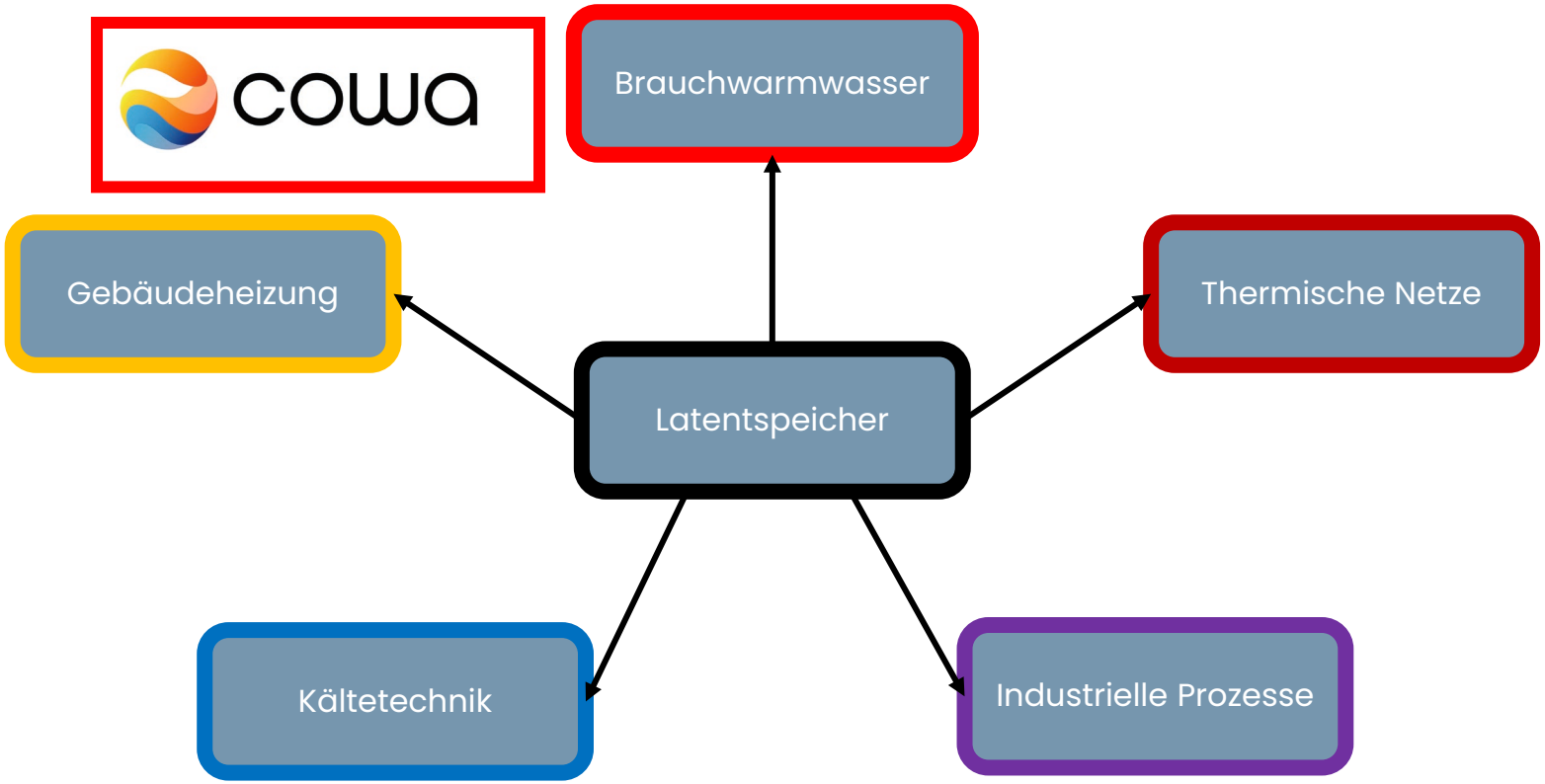


Anwendungen von Latentspeichern

Kompaktheit

Thermische Kapazität





Gebäude in Europa

- Heizung und Warmwasser grösster Verbraucher im Gebäude (>70%).
- 75% mit Öl und Gas.
- Wärmepumpe hat extremen Marktzuwachs (+ 4 mio HP in 2022).
- **Kombination von PV und Wärmepumpe.**

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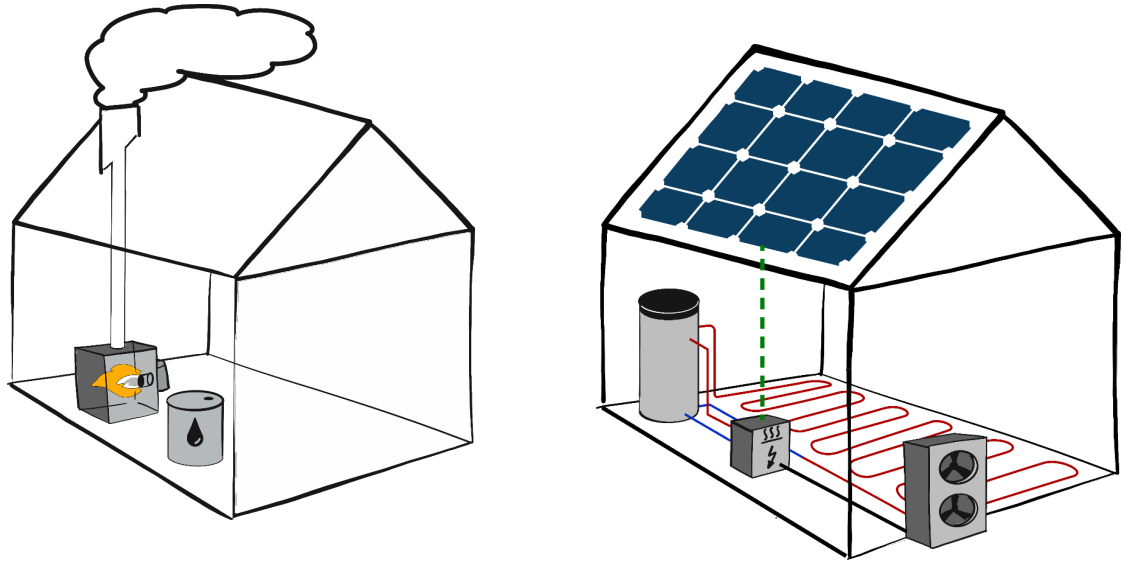
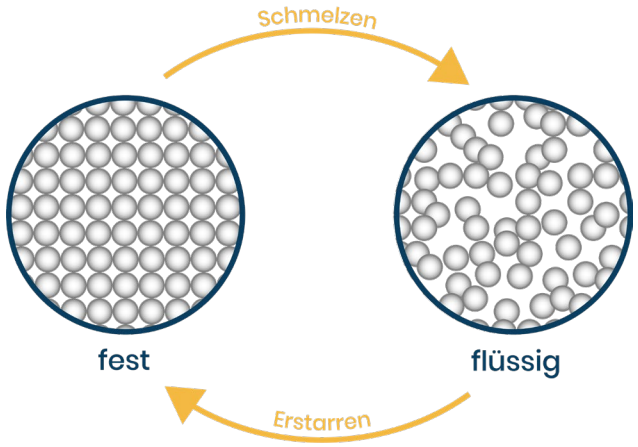
Die Wärmewende findet statt!



BOOSTER Speicher



Kapazität

2-3x höher als Wasser

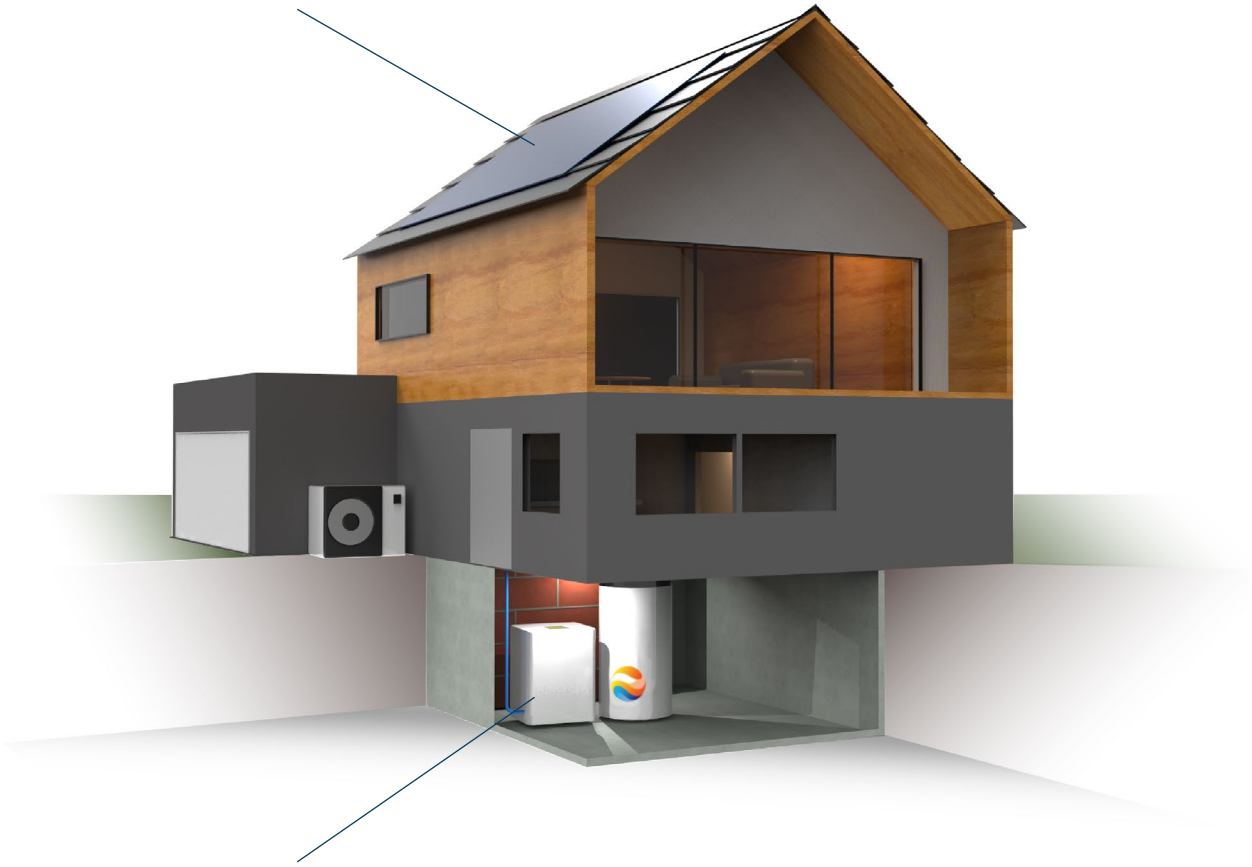
Einfachheit

Keine hydraulische Anpassungen notwendig

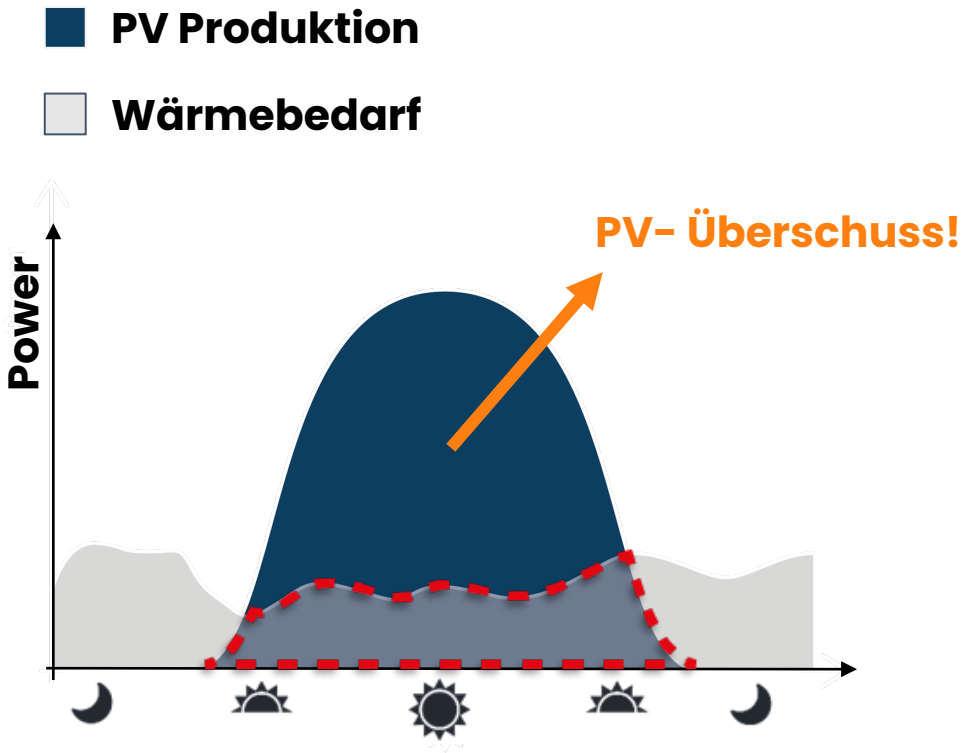
Nachhaltigkeit

Nicht-toxisch, rezyklierbar

Photovoltaik

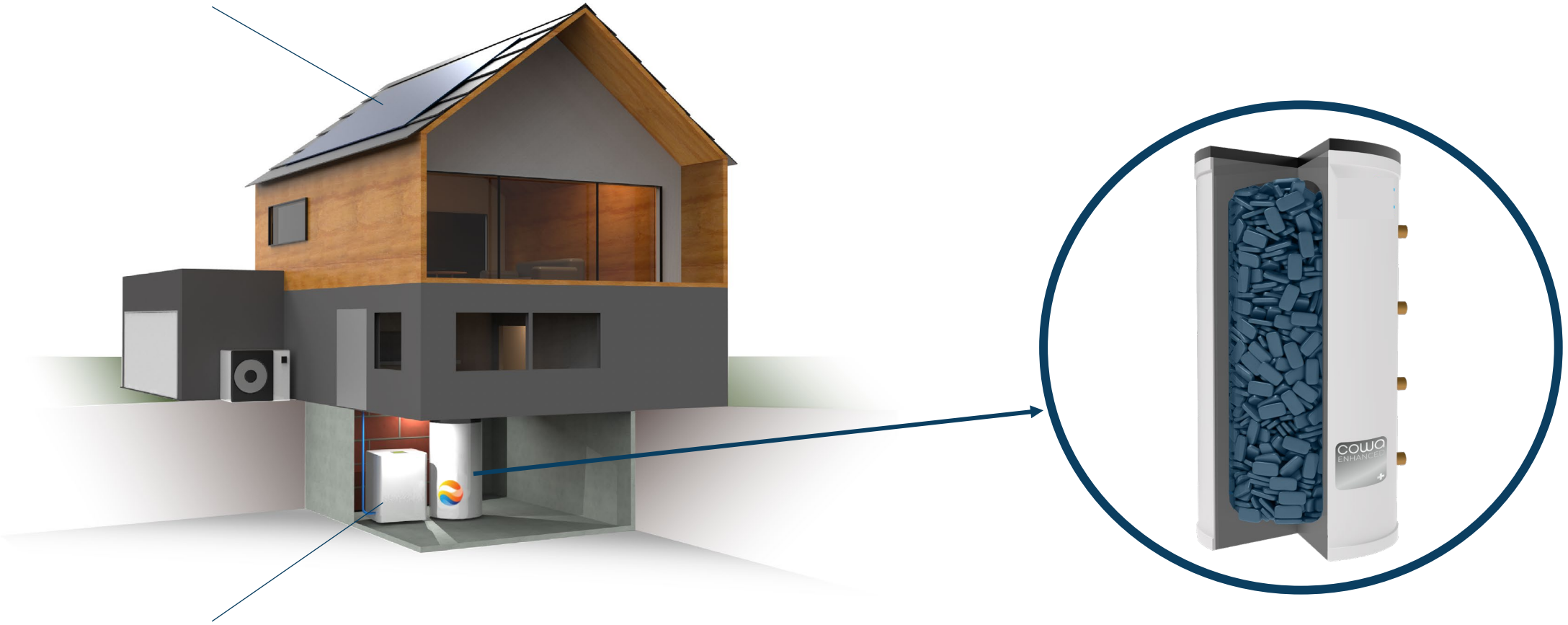


Wärmepumpe



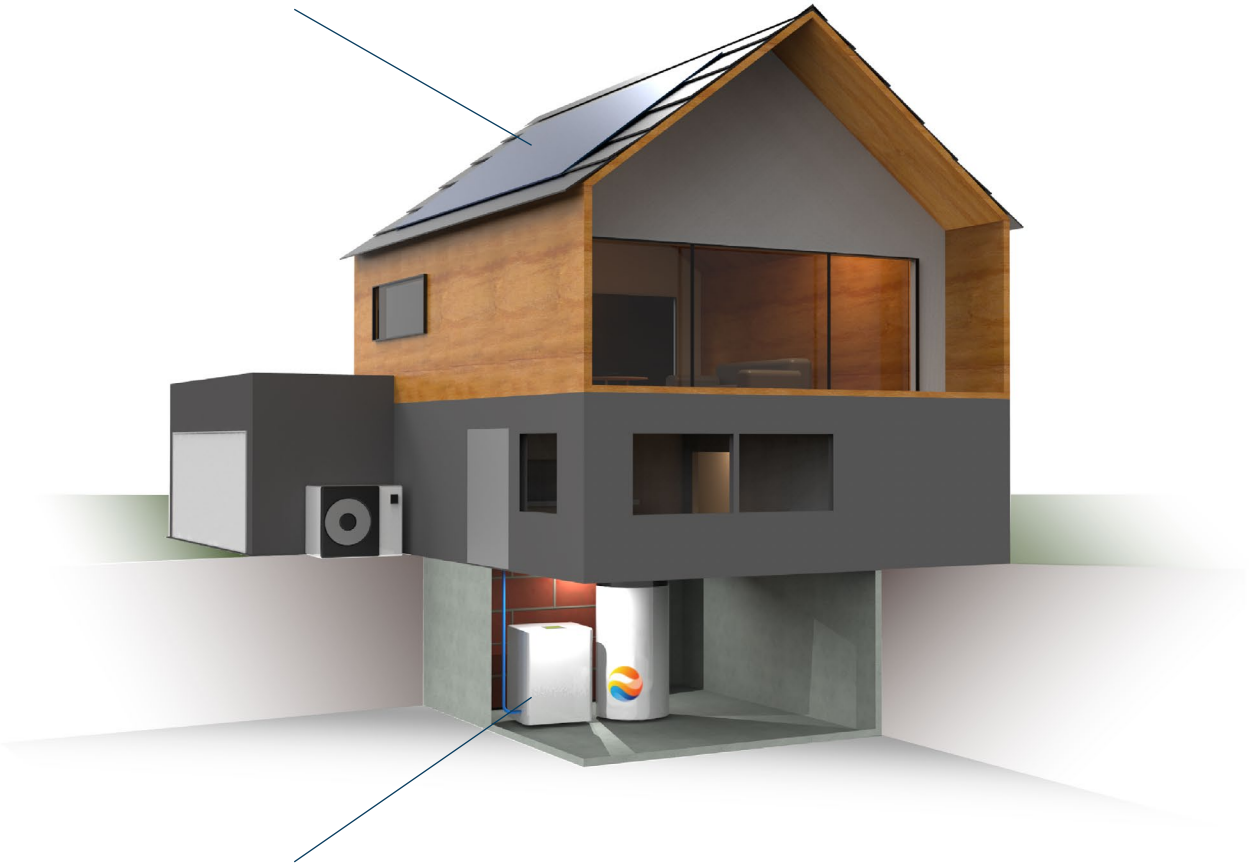
Tiefe Heizautarkie <20%.

Photovoltaik

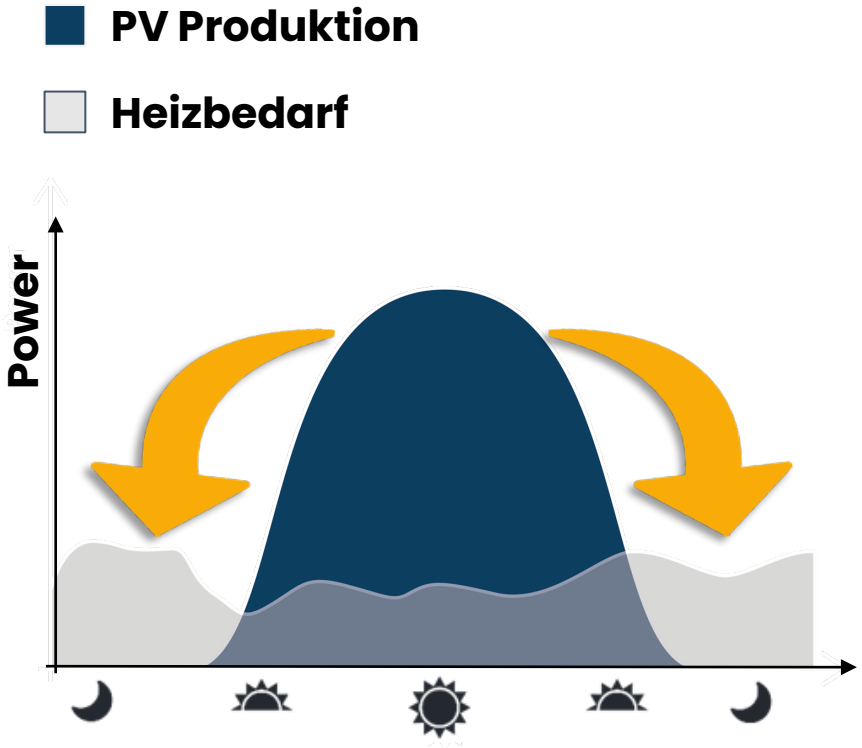


Wärmepumpe

Photovoltaik

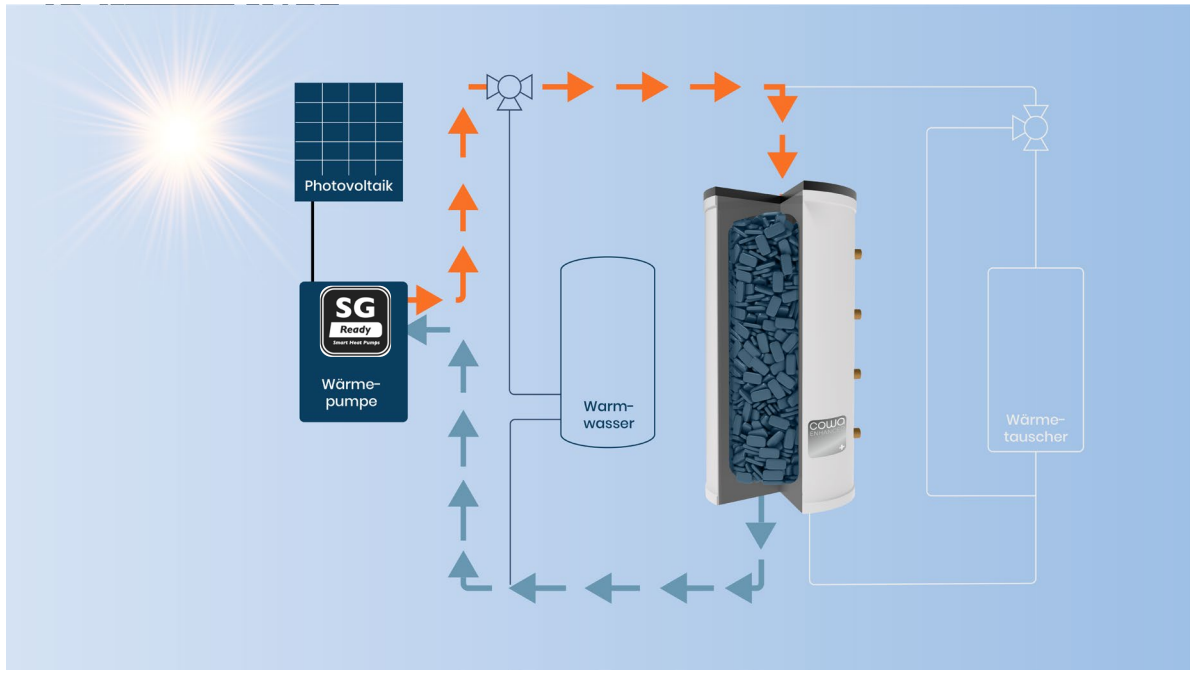


Wärmepumpe



Durch cowa BOOSTER Speicher erhöhte Kapazität zum PV Überschuss via WP zu speichern.

Beladen



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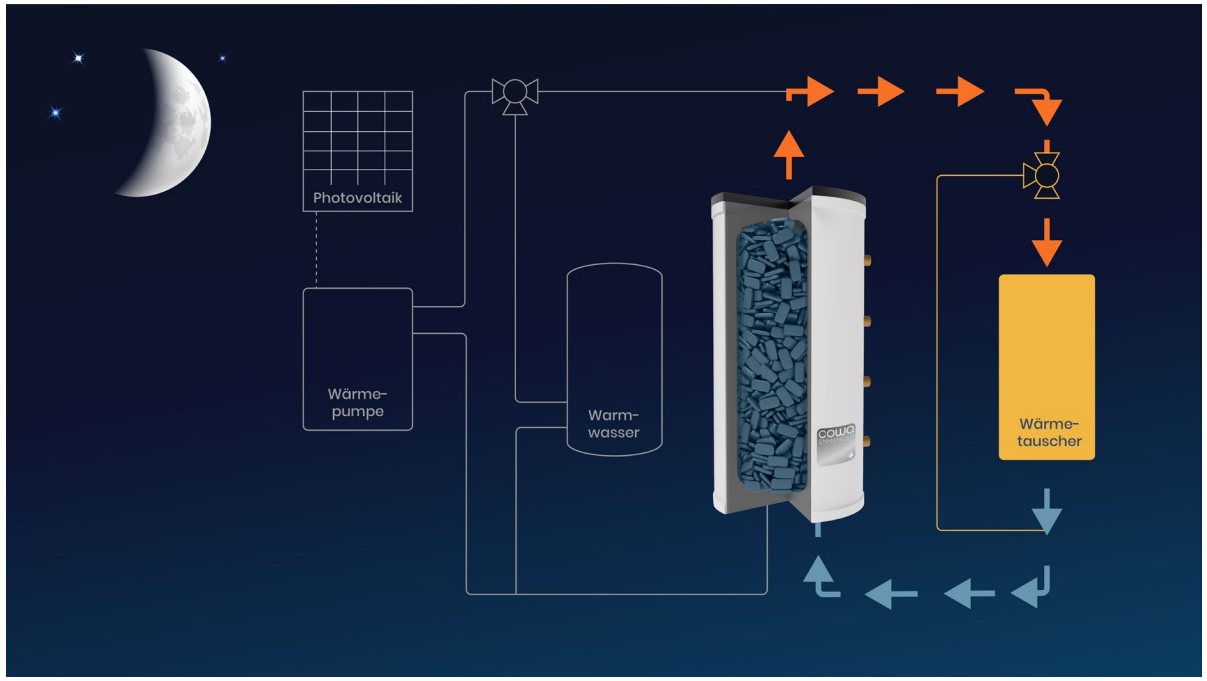
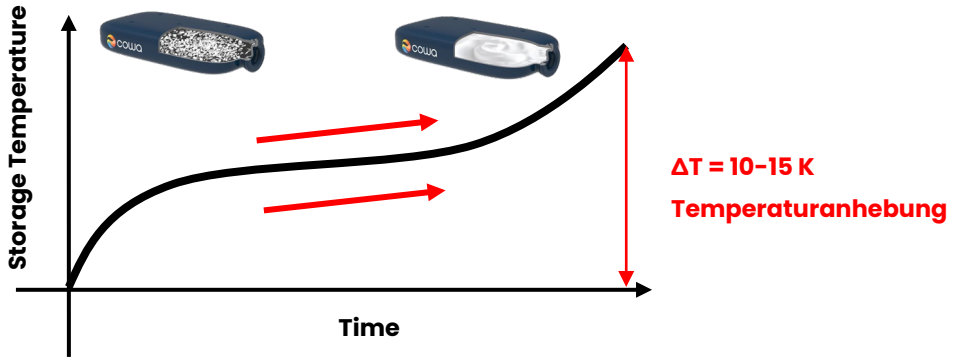
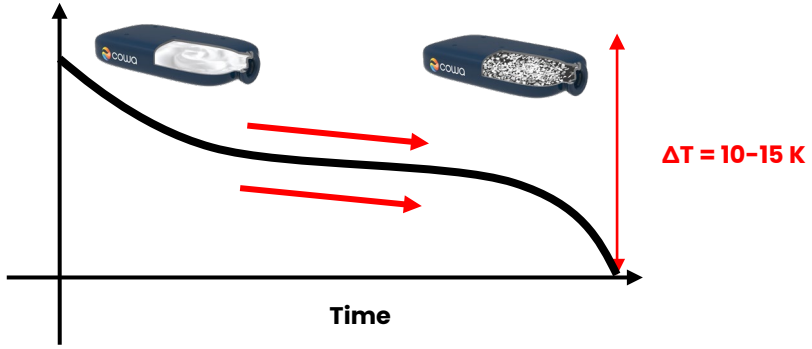






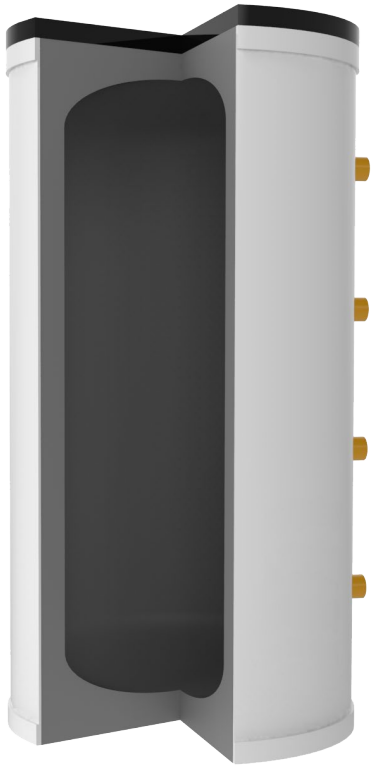
Reference Building (Pany GR)

Building:

PV-Power:	17 kWp
Heat Pump:	Oertli LSI 140 SHW-SG (5-14 kW)
Storage:	800 Liter
Capsules:	3800 Capsules Metlting Temp: 45°C
Storage Capacity: (ΔT = 20 K)	45 kWh (Factor 2.3 to water)

Heizsaison 21/22: Ohne BOOSTER Capsules

Kapazität: 18 kWh (ΔT = 20 K)



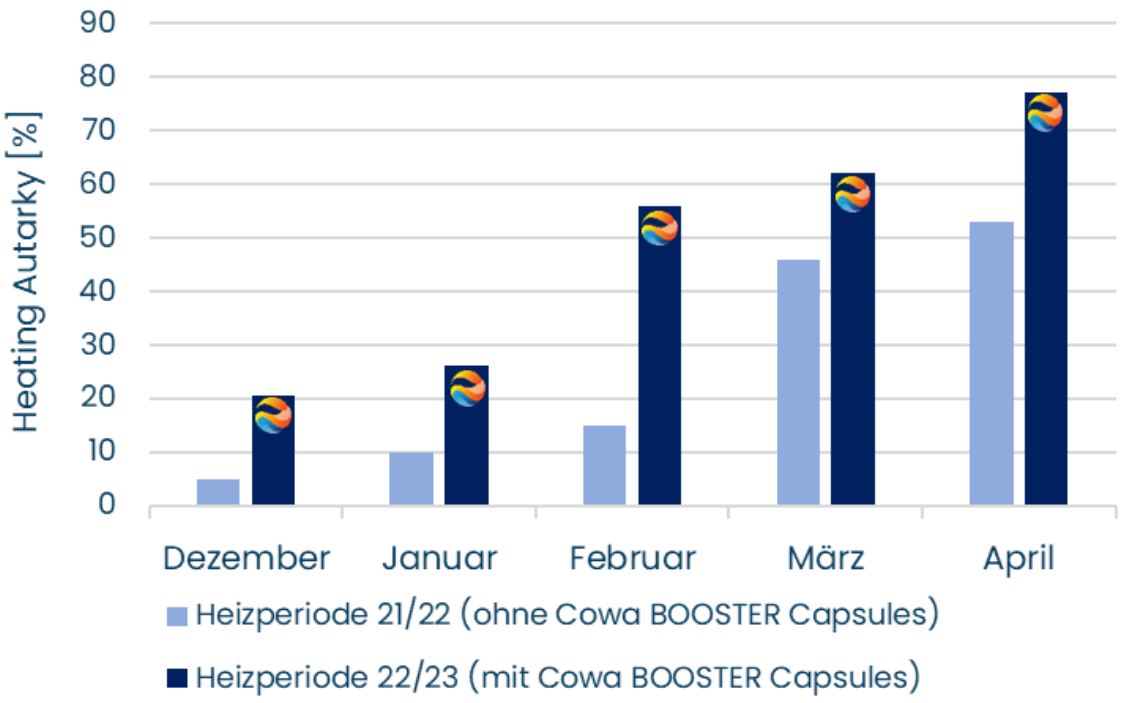
Heizsaison 22/23: Mit BOOSTER Capsules

Kapazität: 42 kWh (ΔT = 20 K)

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Bundesamt für Energie BFE
Swiss Federal Office of Energy SFOE

OST
Ostschweizer
Fachhochschule



Storage Capacity: 18 kWh (ΔT = 20 K)

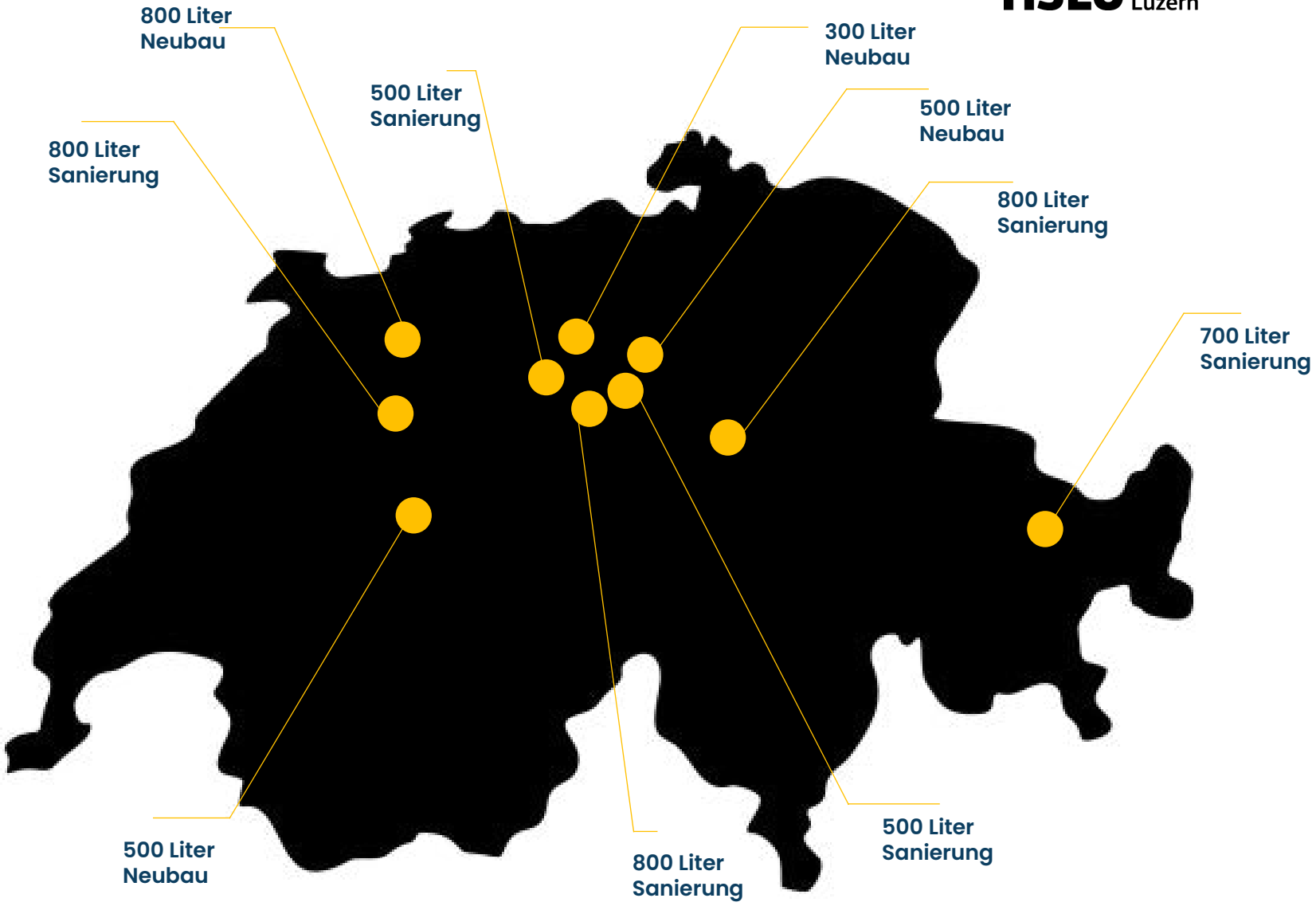
Heizautarkie 21/22: 25%

Storage Capacity: 42 kWh (ΔT = 20 K)

Mean value 22/23: 49%

Verdoppelung der Heizautarkie!

Anlagen 23/24



cowa

We BOOST renewables.

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ZAE BAYERN

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