

Netzwerk für Zukunftstechnologien

1. Digitaler Tag der Offenen Tür Hamburg

Heiße Steine – der ETES-Speicher von Siemens Gamesa Renewable Energy und Hamburg Energie im Hamburger Hafen

Hamburg | 17. Juni 2020

Cluster Erneuerbare Energien Hamburg



SIEMENS Gamesa
RENEWABLE ENERGY



Agenda

16:00 Uhr: Begrüßung

Astrid Dose | EEHH

16:05 Uhr: Präsentation

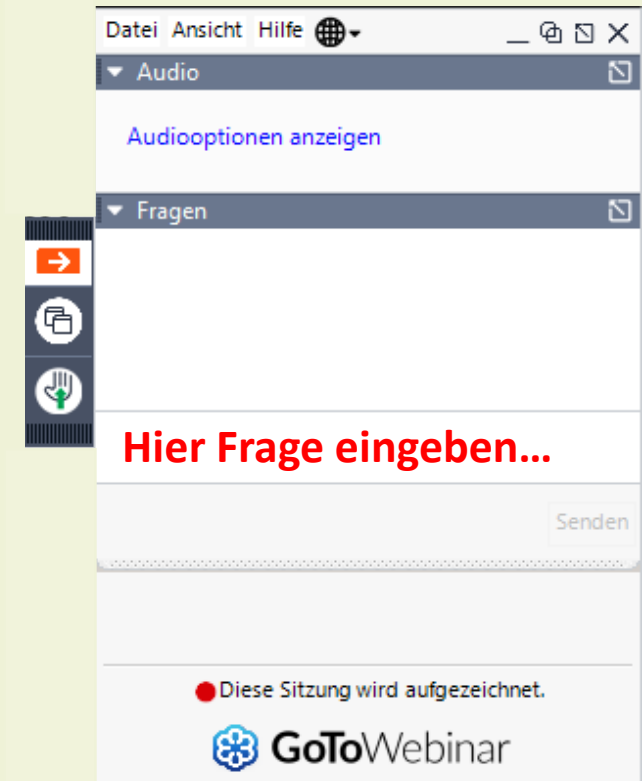
Maximilian Schumacher | Siemens Gamesa RE
Jannik Tröbst | Hamburg Energie GmbH

16:35 Uhr: Fragen des Online-Publikums

16:45 Uhr: Ende

Cluster Erneuerbare Energien Hamburg

Netzwerk für Zukunftstechnologien



Über uns

- **Gegründet 2010 auf Initiative der Hamburger Erneuerbare Energien Industrie und der Freien und Hansestadt Hamburg**
- **Netzwerkorganisation und Bindeglied zwischen Akteuren aus Wirtschaft, Forschung, Politik und Gesellschaft**
- **Aktuelle Angebote**
 - Webinare zu aktuellen Themen
 - Arbeit in Foren zu Finanzierung & Recht, Medien, Solar, Wärme etc.
 - Vermarktung von Themen der Mitglieder
- **Fokusthemen**
 - Offshore- und Onshore-Windenergie
 - Wärme
 - Sektorenkopplung
 - Speicherung

Möchten auch Sie Teil des Mitgliedernetzwerks des EEHH-Clusters werden? Weitere Informationen finden Sie [hier](#)



10 JAHRE
**RENEWABLE
ENERGY
HAMBURG**
ENERGIESYSTEME
DER ZUKUNFT

Morgen!

18. Juni 2020 16:00 Uhr

**Nachhaltig kommuniziert: Warum die
Krisenkommunikation auch eine Falle ist
und was in Transformationsphasen wirklich
zählt**

mit **Alexander Schwertner** | RAIKESCHWERTNER

[Hier anmelden!](#)



RAIKE SCHWERTNER GMBH
Agentur für Kommunikationsberatung

Unsere weiteren Webinare...

24. Juni 2020 9:30 Uhr

**Nutzen statt Abregeln: Grüner Wasserstoff
für Strom, Wärme und Verkehr**

mit **Tim Brandt** | Wind2Gas Energy

[Hier anmelden!](#)

7. Juli 2020 14:00 Uhr

Aktuelle Solarprojekte von SunOyster

mit **Dr. Carsten Corino** | SunOyster Systems

[Weitere Informationen in Kürze hier!](#)



NEW 4.0
Norddeutsche EnergieWende



wind2gas
energy



**RENEWABLE
ENERGY
HAMBURG**
ENERGIESYSTEME
DER ZUKUNFT



SunOyster®

Cluster Erneuerbare Energien Hamburg

Netzwerk für Zukunftstechnologien



SIEMENS Gamesa
RENEWABLE ENERGY

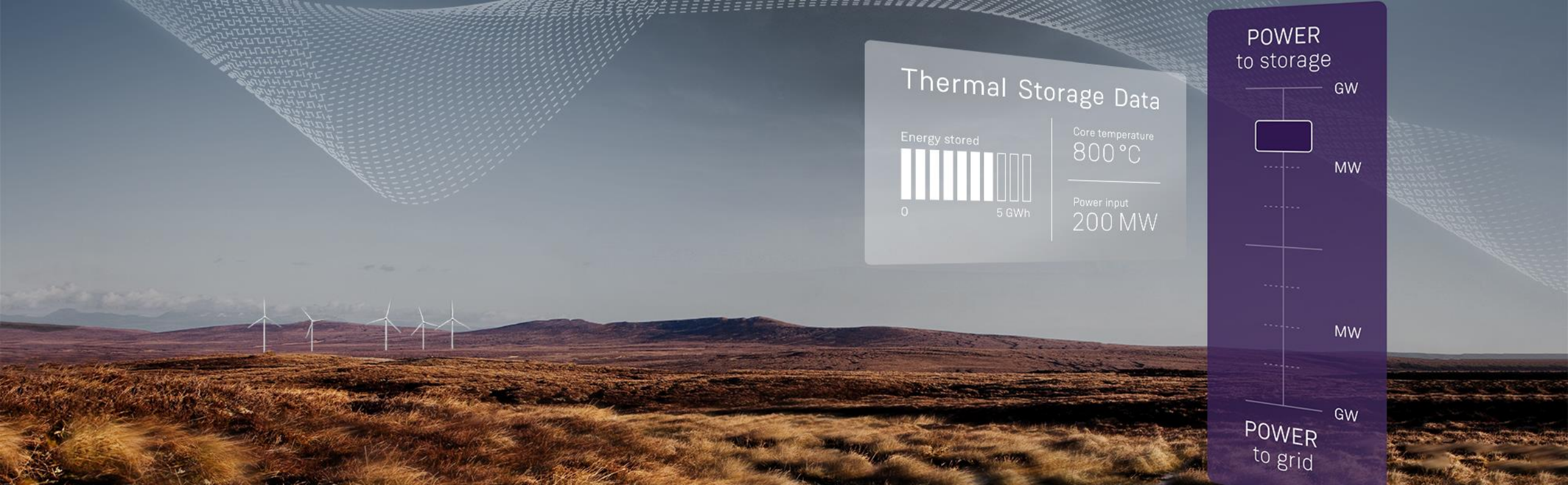


Ihr städtischer Energieversorger



Vielen Dank für Ihre Aufmerksamkeit!

Kontakt: info@eehh.de | www.eehh.de



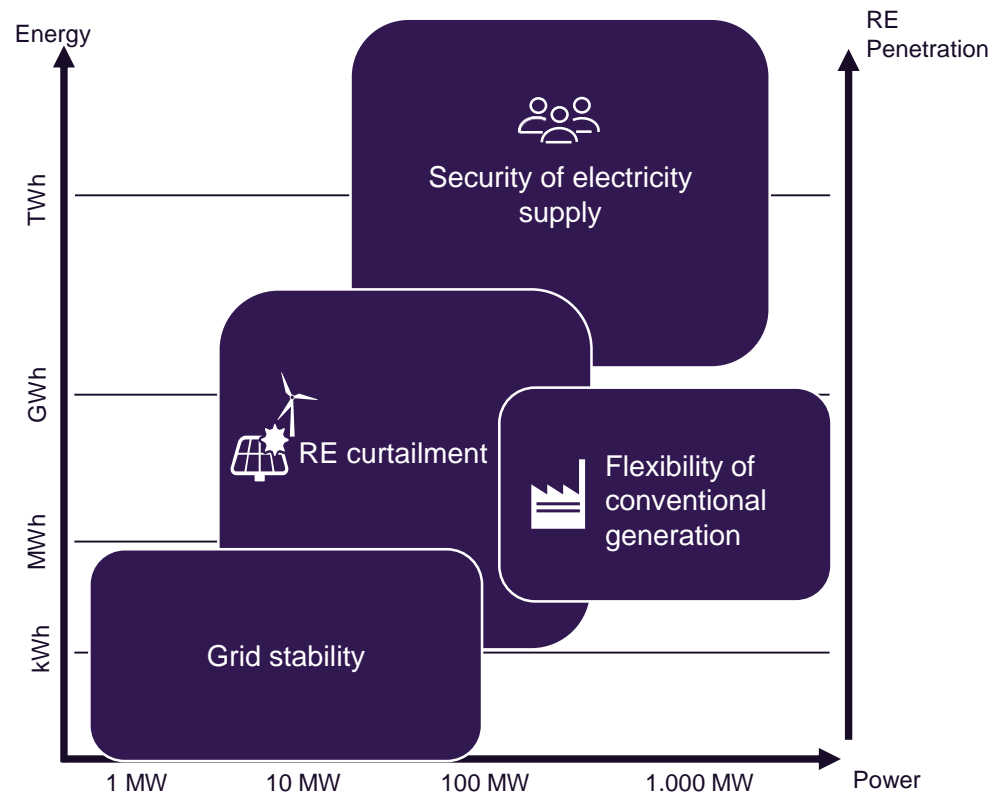
ETES

Electric Thermal Energy Storage

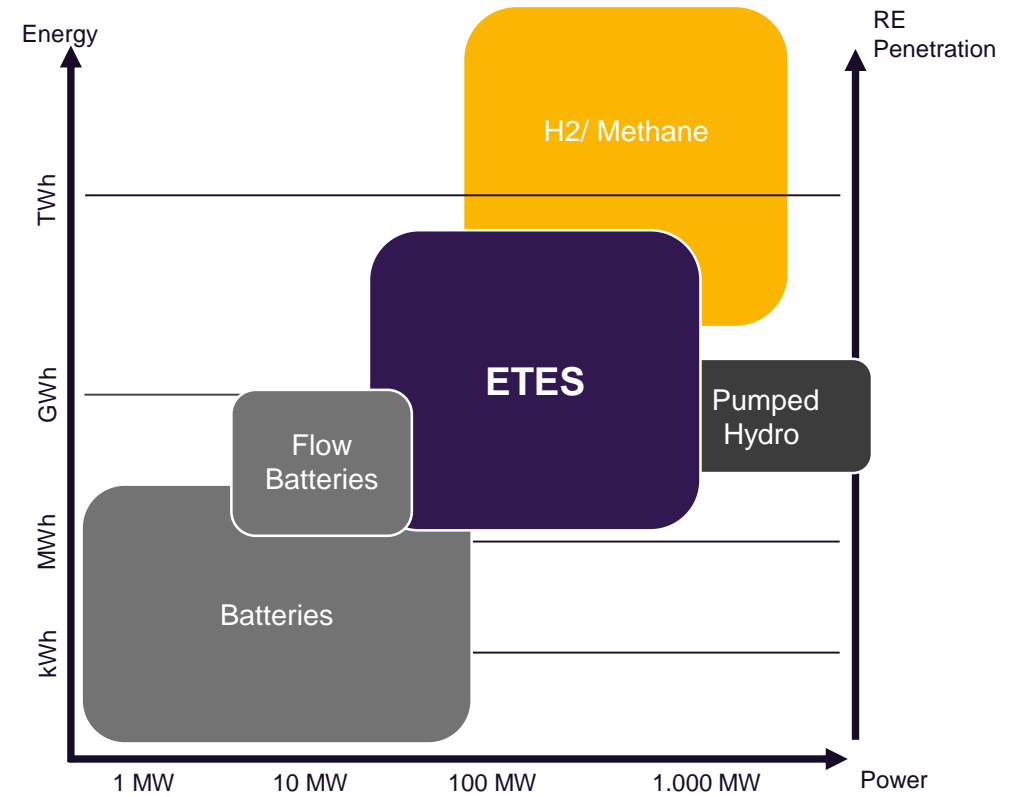
Digitaler Tag der offenen Tür EEHH-Cluster, 17.06.2020

Why does Siemens Gamesa develop a thermal energy storage?

GWh-scale storage solutions needed to solve majority of challenges



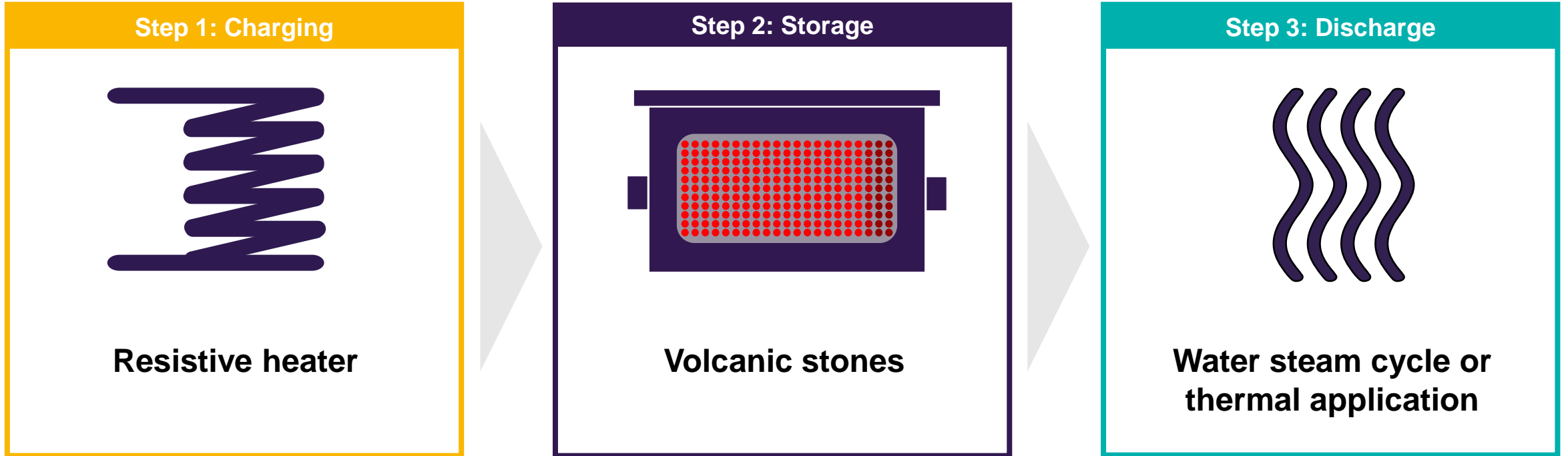
- Governments
- RE asset owners
- TSOs and DSOs
- Powerplant owners



- Electrochemical Storage
- Chemical Storage
- Thermal Storage
- Mechanical Storage

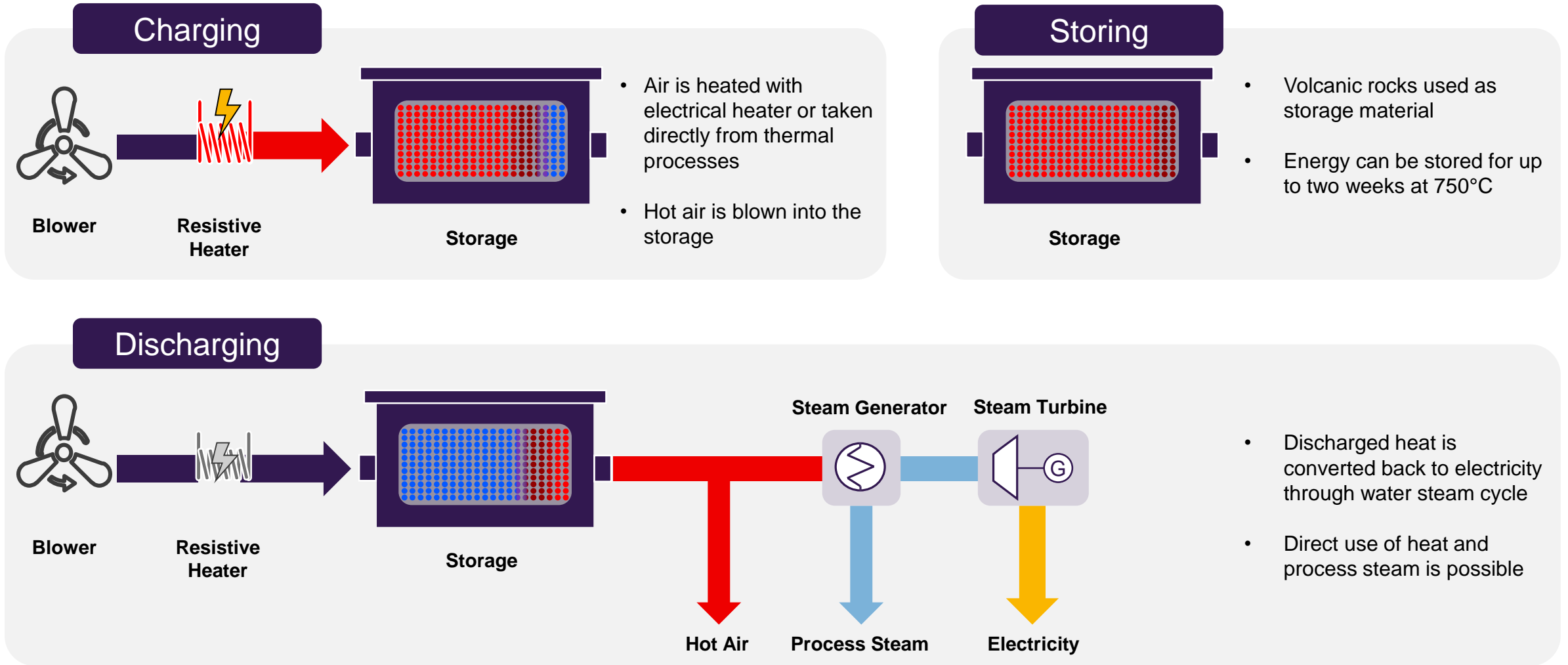
How does the ETES technology work?

ETES: Reliable working principle



Charging power, storage capacity and discharging power are independently scalable.

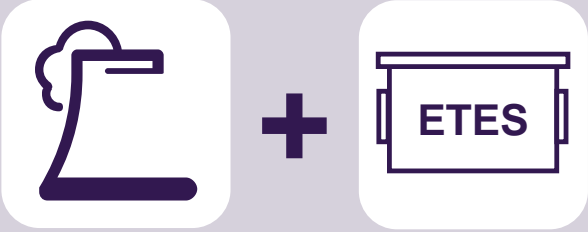
Technology working principle



For what can ETES be used for?

What can we do with ETES?

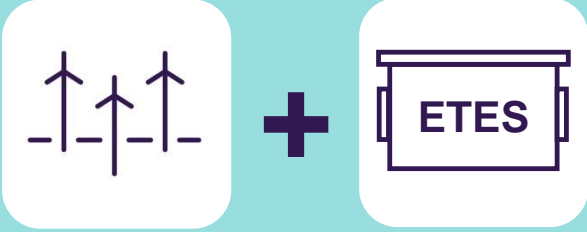
ETES:Switch



Conversion of power plants

- ETES for 2nd life conversion of power plants, reducing reliance on fossil fuels and increasing flexibility
- Allow continuation of operation and keep staff employed
- Minimize CAPEX investment by reusing major share of existing power plant equipment


ETES:Base



Universal stand-alone storage

- ETES greenfield application with electricity in, heat and/or electricity out, making use of high price fluctuations originating from high RE penetration
- Ensure dispatchability and predictability of energy production from renewables
- Allow renewable energies to provide baseload as well as ancillary services to support grid stability

ETES:Add



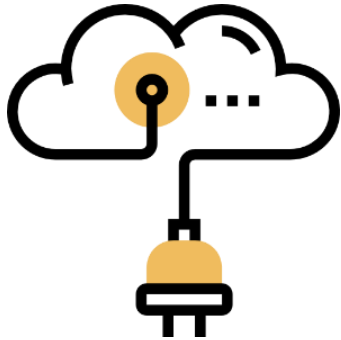
Added storage to existing heat cycles

- ETES for supply or use of industrial heat
- Add flexibility to industrial processes to profit from energy price volatility
- Materialize additional revenue streams for energy intensive industries (e.g. chemicals, paper or steel)

How does ETES look like in reality?

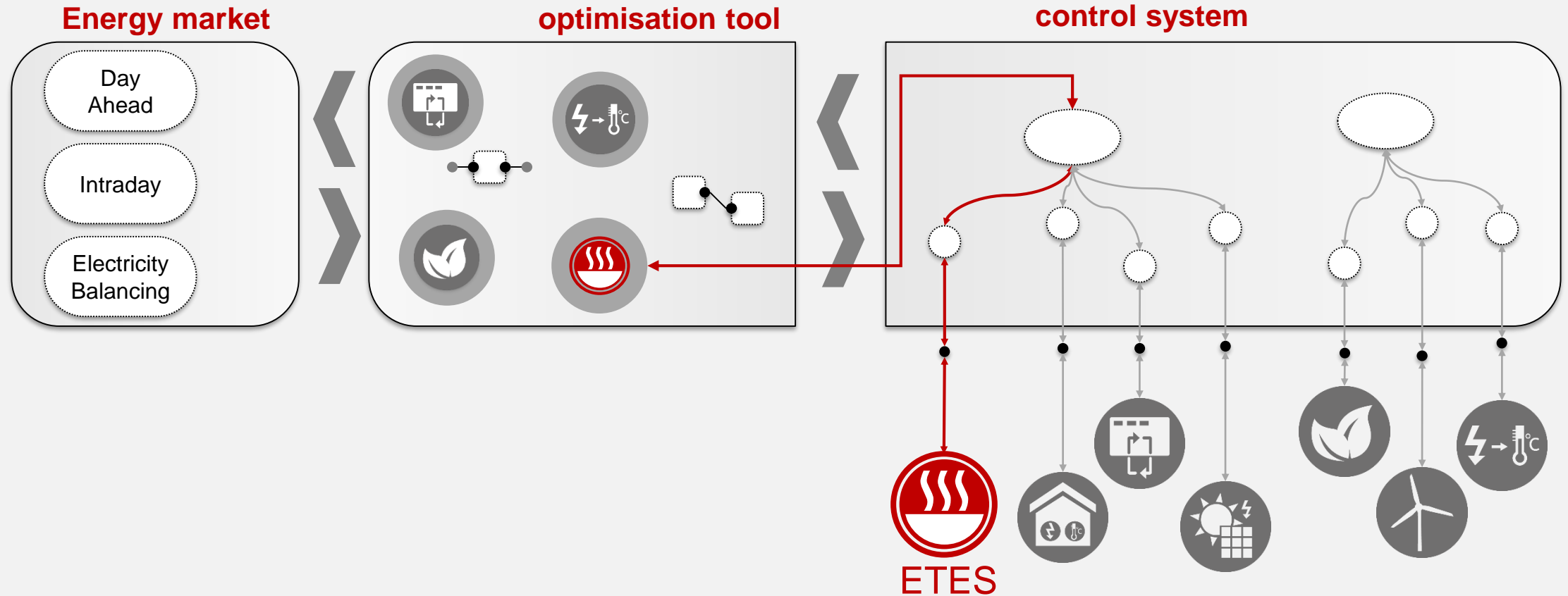
How to integrate the energy storage into a virtual power plant?

Integration of your storage device into a virtual power plant



- The virtual power plant of our partner HAMBURG ENERGIE is a digital control system which fully automatically connects the energy producer, storage device and consumer.
- Suitable and tested for integration of the ETES-technology
- By controlling the imbalance energy and control energy capacity the control system provides not only a stable grid operation but creates attractive marketing opportunities

system integration in practice



How can ETES be part of the energy market ?

integration in different markets

Day Ahead

Intraday

Electricity
Balancing

Regional
Energy
Markets

Steps towards successful market integration

regulatory integration



- Balancing group
- Pre-qualification
- Taxes and duties
- Energy Law

optimization and virtual power plant



- Integration into the optimization tool
- Trading on different markets
- Control via the virtual power plant
- Monitoring of operational optimization and trading



Mature & Ready

ETES is based on **80% existing** and mature technologies and has been validated in **130 MWh/5.4 MW** demonstration plant.



Adaptable & Flexible

ETES allows for **different inputs**, such as **electricity and heat**, and it provides multiple outputs as electricity, heat and steam.



Scalable & Modular

ETES is a **large-scale GWh storage solution** with low investment and operating costs due to significant economies of scale.



Economical & Sustainable

ETES **does not require environmentally or physically harmful material.**



Get in touch with us:

ETES@siemensgamesa.com

<https://www.siemensgamesa.com/etes>