

EUH2STARS

*Paving the way towards the future of
European underground hydrogen storage*

02.12.2025 | Benedikt Hasibar @grüingas 25
Biomass - Holzgas - Wasserstoff
2. bis 4. Dez. 2025 in Wels



European **U**nderground **H**ydrogen
STorAge Reference **S**ystem



Co-funded by
the European Union

*This project is supported by the Clean
Hydrogen Partnership and its members.*

RAG Austria AG

Unternehmensprofil

- Speichervolumen Arbeitsgas: ca. 72 TWh (6,2 Mrd. m³)

Summe der von RAG betriebenen Speicher

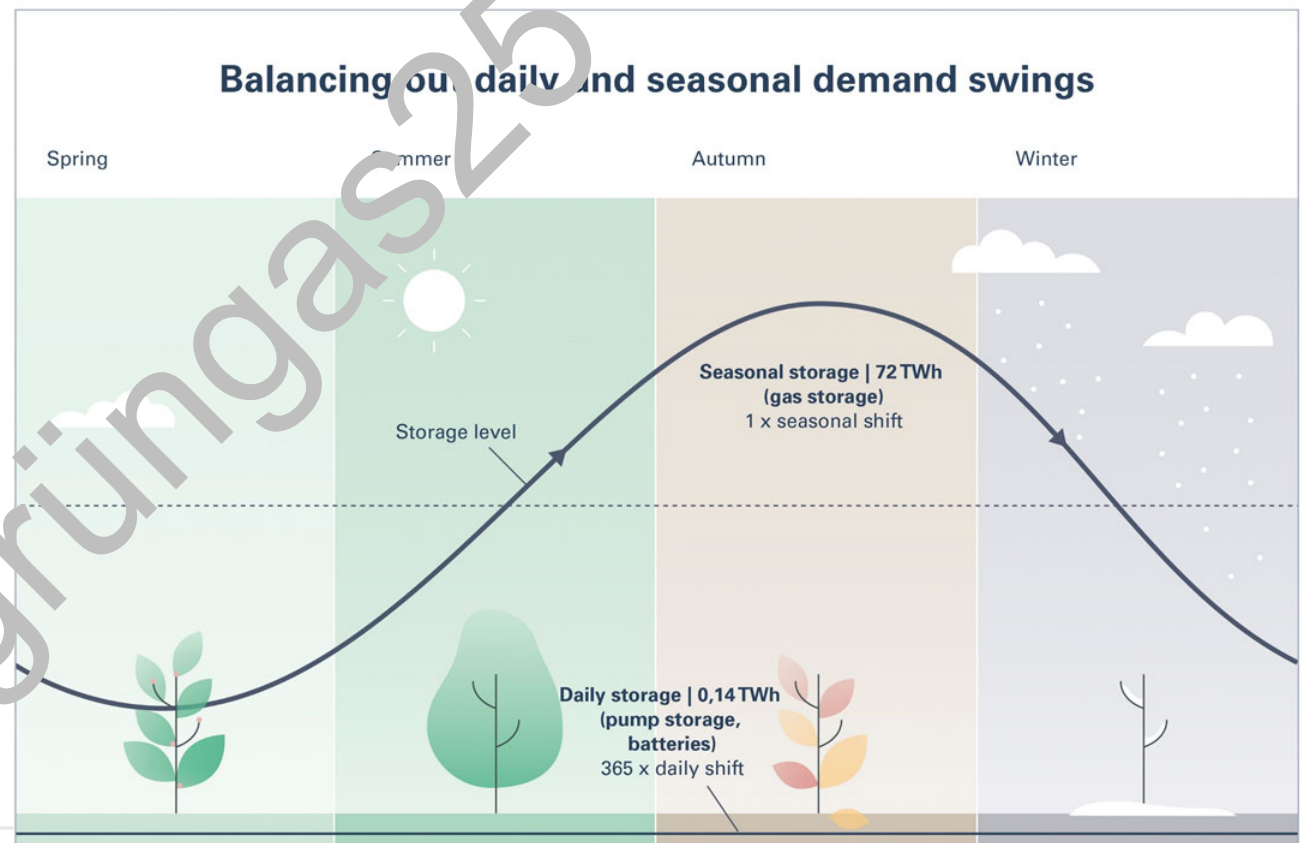
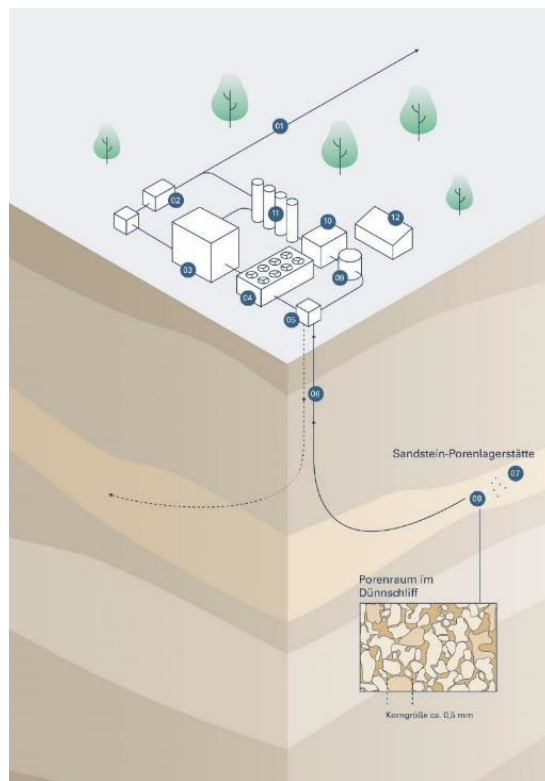
Arbeitsgasvolumen	71,8 TWh	6.226 Mio. m ³
Max. Ausspeicherkapazität	32,1 GW	2.783.900 m ³ /h
Max. Einspeicherkapazität	26,9 GW	329.300 m ³ /h

- 10 Energie-Speicheranlagen (Erdgas und Wasserstoff)



- Unsere Dienstleistungen unterstützen den weiteren Ausbau der Erneuerbaren

Saisonal Energy Storage



Green Gas Technology @RAG



Seit 2013:

- 10 geförderte Projekte zur Produktion von H_2 und Speicherung in unterirdischen Porenlagerstätten
- 2 Patente dazu erteilt
- Nächster Schritt: Kommerzialisierung

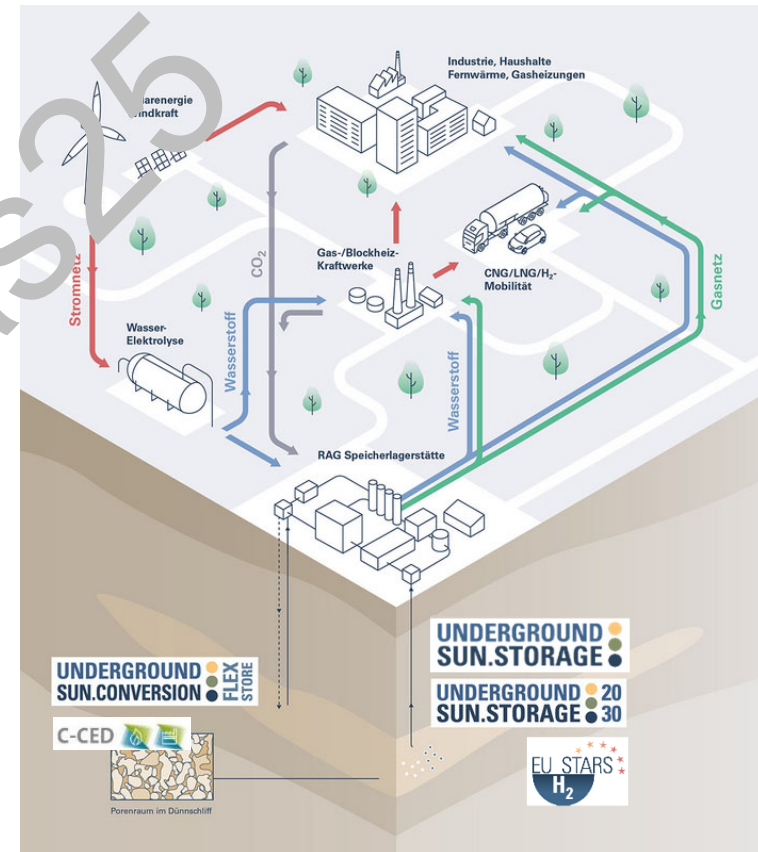
<https://www.rag-austria.at/forschung-innovation.html>

<https://www.uss-2030.at/>

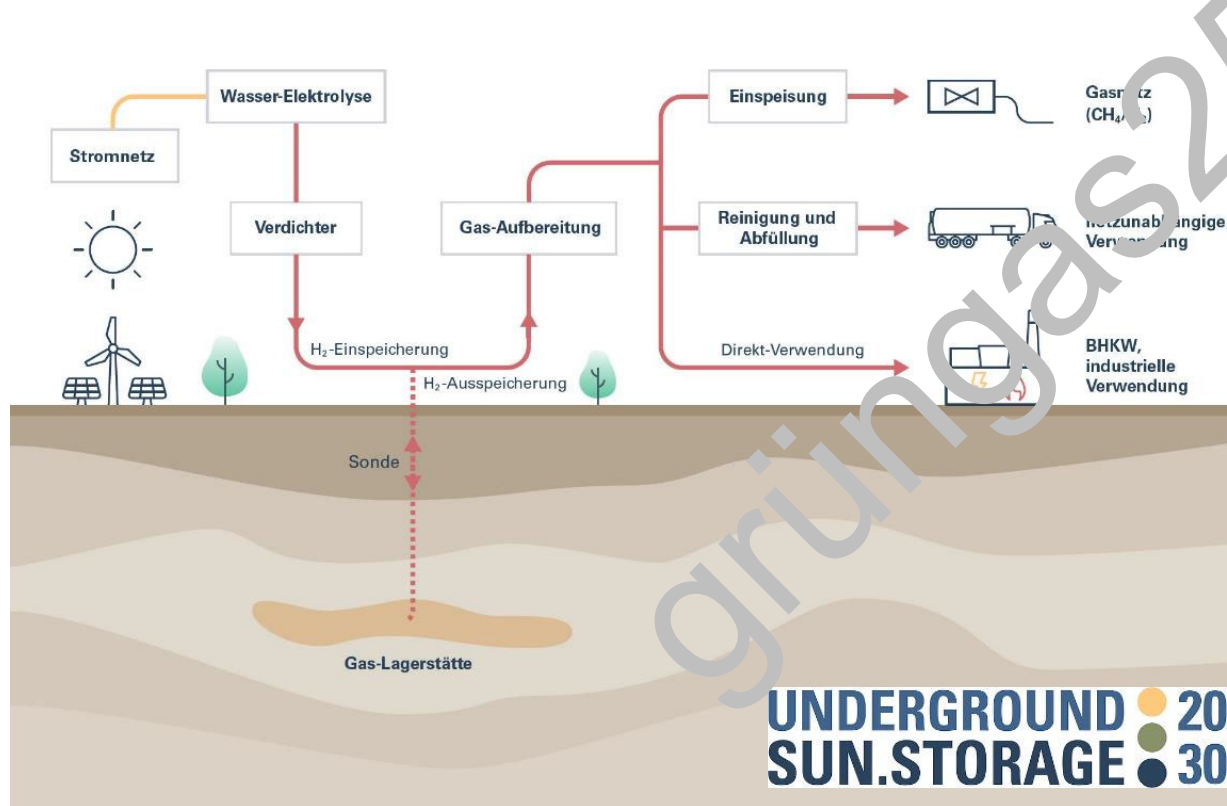
<https://www.euh2stars.eu/>

<https://www.wiva.at/project/c-ced/>

<https://seasonalstorage4eg.at/>



Demoprojekt – 100% H₂-Speicher Rubensdorf



- 30 kV Stromanschluss
- 2 MW PEM Elektrolyse (400 Nm³/h, 30bar)
- 2x 30 kW Kolbenkompressor
- 1.100 m tiefe Porenlagerstätte (1 Mio Nm³ @ ~70 bar)
- Trocknung
- H₂-Aufreinigung (Axiom)
- 8 km Pipelineverbindung
- H₂-Verwendung
 - H₂-BHKW
 - Einspeisung ins Erdgasnetz

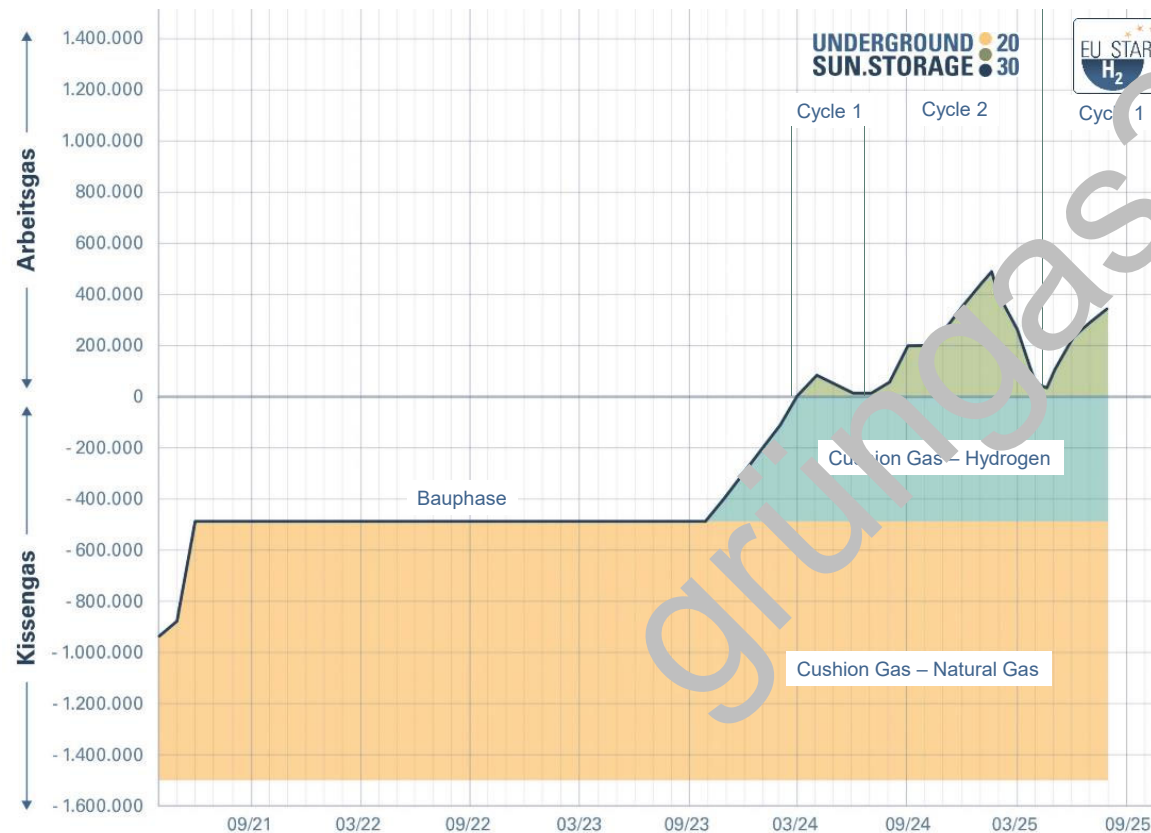
Demoprojekt – 100% H₂-Speicher Rubensdorf



UNDERGROUND 20
SUN.STORAGE 30



Underground Sun Storage Rubensdorf: Betrieb

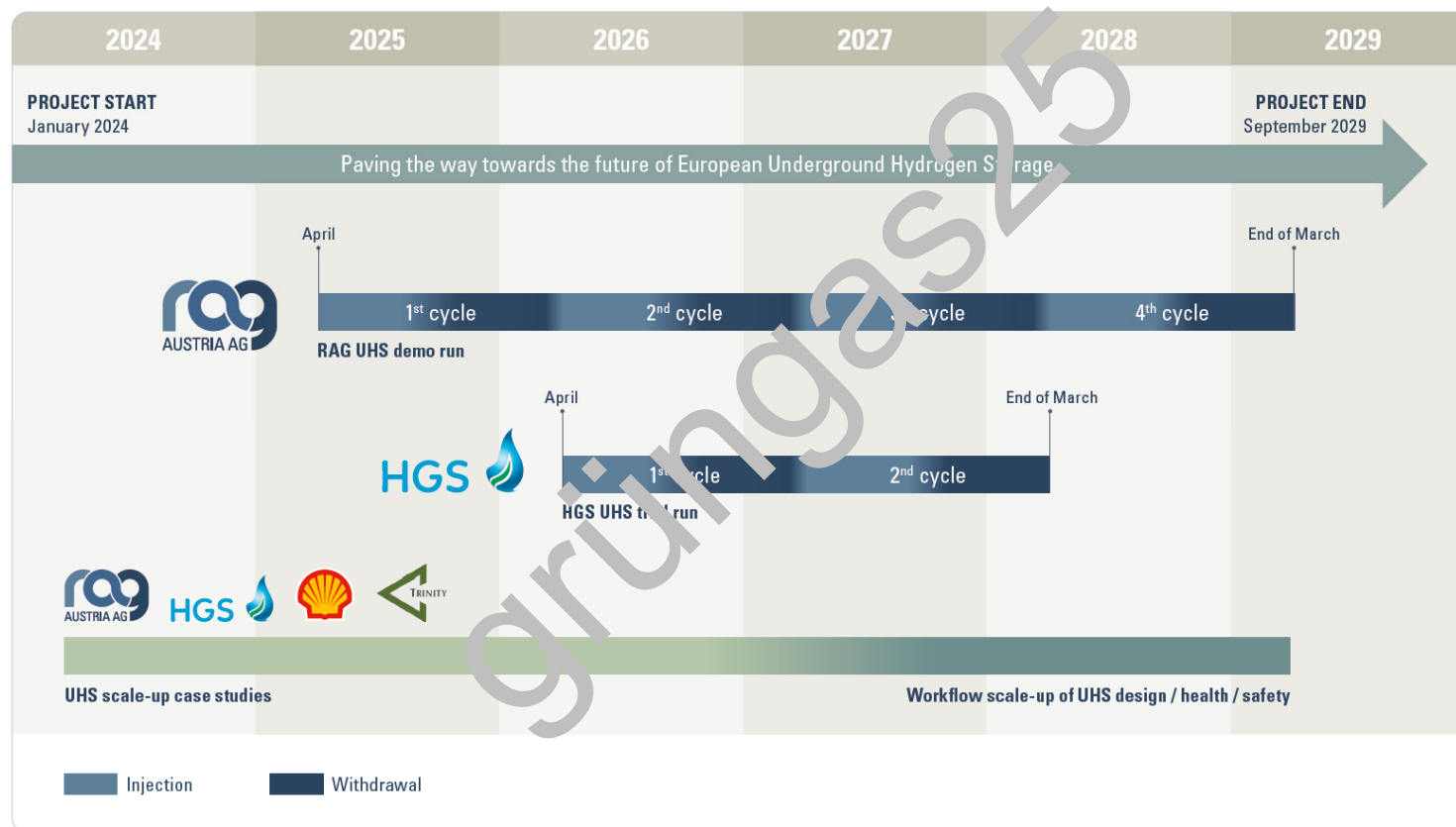


- Arbeitsgasvolumen: 1 Mio Nm³
- Noch nicht erreicht wegen technischer Verfügbarkeit H₂-Versorgung
- Speicherraten: 400-600 Nm³/h
- Aktuell läuft der 3. Zyklus

Map of Europe with EUH2STARS Consortium



Project Lifespan



EUH2STARS UHS Sites



UHS demonstrator site in Austria



*Underground Hydrogen Storage Demonstrator,
RAG Austria AG, Rubensdorf*

UHS replicator sites

- Austria



- Hungary



- The Netherlands



- Spain



Project status



- Operation of demonstrator in Rubensdorf started
 - First cycle: Injection completed in 09/2025, withdrawal starting 12/2025
- Basic engineering for replicator sites in Austria finished
 - existing natural gas storage site
 - newly developed UHS site
- MMV plan for UHS Rubensdorf published
- Storage profiles for UHS with local demands developed
- SEL assessment for UHS: First country-specific assessment finished



TRL
UHS
Depleted Reservoirs

TRL
Water
Electrolysis

TRL
UHS
Depleted Reservoirs

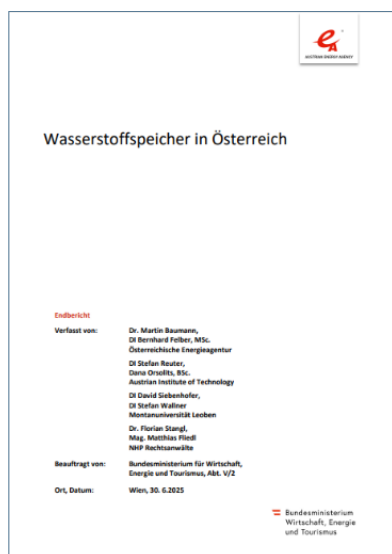
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TRL
UHS
Salt Caverns

Underground Hydrogen Storage in AT



Systemisch notwendig



<https://www.bmwet.gv.at/dam/jcr:b8f68e4d-ac2d-4175-a0fc-84b64a803e44/Wasserstoffspeicher%20in%20%C3%96sterreich.pdf>

Technisch machbar



Was fehlt?

Thank you for your attention!



European Underground Hydrogen
STorAge Reference System

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Disclaimer

Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the Clean Hydrogen Partnership. Neither the European Union nor the granting authority can be held responsible for them.

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