

Market readiness for Export of H2 & Derivatives

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WHY

- Green hydrogen is key for energy transition
- Indispensable for decarbonization

WHAT

- In-house PEM electrolysis technology
- Large Power-to-X-solutions enabled by the full Siemens Energy competence
- Digital twin and service concepts

HOW

- Secure technology leadership. Quality is key!
- Implement Giga factory
- Strong international partner ecosystem

We know-how to industrialize technologies!

Export of H2 & Derivatives

India Outlook

Key aspects (for large scale production & international distribution):

- **Cost Effectiveness (LCoH)** would be key differentiator!
- **Standardization** of international regulatory framework
- **Building operational experience & excellence!** For every piece of the PtX value chain...
- **Serviceability** across the value chain!

Key Enablers:

- Leverage India position of **local + export markets**
- Build on further **bilateral trade agreements & reliable partnerships**

Outlook for Siemens Energy gigawatt scaling

When will the technology be market-ready?

Key Aspects:

- Developing scalable **technology** platforms goes beyond the electrolyzer stack:
Focus on plants and vertical-specific plant solutions required to reduce costs for green hydrogen and its derivatives
- Gaining experience from **projects** in implementation:
As projects start scaling, feedback from commissioning and operations is crucial to prove reliability and improve performance for the projects to come
- Preparing the **value-add networks** and **supply chain** to scale:
Siemens Energy is leveraging already existing competences to scale fast
- Enabling **service infrastructure**:
Global setups close to customer support commissioning, operation and maintenance service

Projects completed or in implementation based on Silyzer 300

Scale-up is already happening

6 MW

8.5 MW

17.5 MW

50 MW

50 MW

70 MW

200 MW



H2Future Linz

- Green hydrogen for the steel making process
- Our partners: VERBUND, voestalpine, Austrian Power Grid (APG), TNO, K1-MET



Wunsiedel

- Green hydrogen for industry, grid services and mobility
- Our partners: Siemens AG, WUNH2, SWW Wunsiedel GmbH



Oberhausen

- Green hydrogen for Air Liquide pipeline infrastructure
- Our partner: Air Liquide



e-Methanol Kassø

- Green hydrogen for CO₂-neutral shipping at large-scale
- Our partner: European Energy



Chemical Company

- Hydrogen for chemical site



FlagshipONE

- Green hydrogen for CO₂-neutral shipping at large-scale
- Our partner: Ørsted



NormandHy

- Renewable electricity
- Engineering and Long Lead Started
- Our Partner: Air Liquide

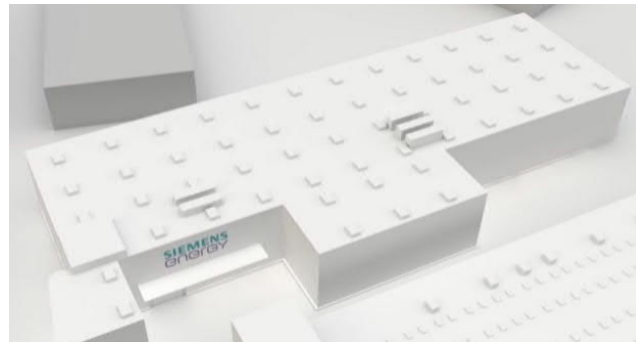
Ready to deliver large-scale electrolysis systems + capacity increase in Germany is locked and loaded



- Implementation of **modern robots**
- **Fully automated** production line
- **Industry 4.0 Digitalization** implemented



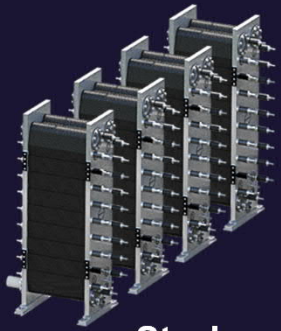
- **Inhouse design** allows for internal and external local packaging
- **Packaging** will be established depending on the development of the markets



- **Capacity growth plan locked-in** and layouts finalized
- **Additional 1 GW per year** depending on demand



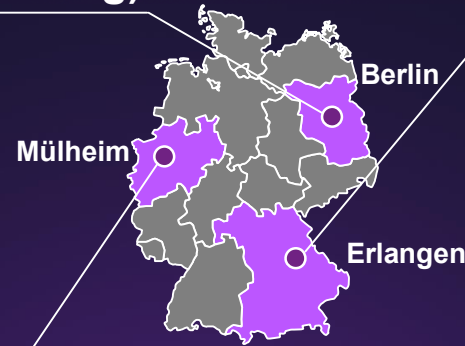
Industrial scale production of Electrolyzer with up to 1GW in 2023 and 3GW in 2025



Stacks

PEM multi-Gigafactory (Stack Manufacturing)

- Joint Venture Manufacturing in Berlin
- Industrial scaling up to 1GW in 2023 and 3GW in 2025 (1 GW expansion each 12 month)
- Highly automated PEM manufacturing according to latest production standards

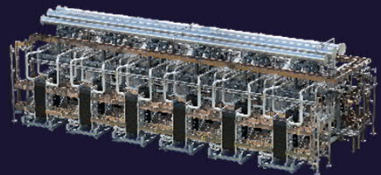


Product development

- R&D for electrolysis technology
- Operations, engineering, sales and service
- Partially automated PEM production (ending 2023)

Final Manufacturing & Packaging

- Siemens Energy internal and external partners for final manufacturing to prepare for optionality acc. Market trends
- Packager will be established locally in main markets to facilitate local value add

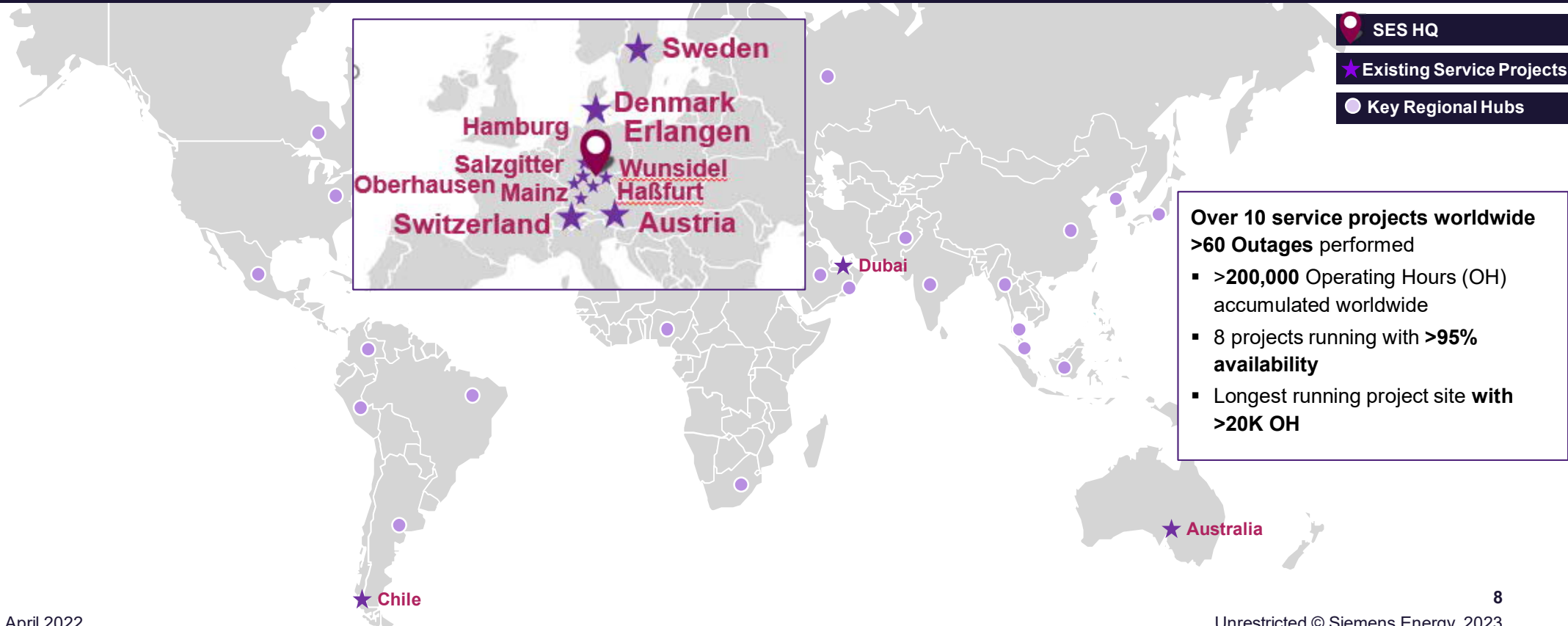


Array

Global Siemens Energy Network supports ramp-up of New Energy Business



90.000 employees in over 90 countries delivering ~1/6 of global energy supply



Thank you