

## **Siemens Energy**

### 16. Göttinger Energietagung Das H2-Puzzel: Wie die Teile richtig setzen? Fachforum 3

Technische Fragen des Hochlaufs in einem integrierten Energiesystem Dynamische Wasserstoff-Erzeugung für die Einspeisung in das Gasnetz

13. Mai 2025 Uwe Neiß Stefan Engelshove





#### Projects on Elyzer P-300 platform Scale-up is happening





### Elyzer P-300 electrolyzer: Fast ramp-up time and renewablesproof flexibility



Startup behaviour of plant w/o gas management



# Future-proof flexible hydrogen production: Elyzer P- 300 plant supports renewable sources and offers grid services



### Infinitely variable plant operation

- Power controlled operation based on real power price with 15 min time frames (see example on right side)
- Dynamics: maximal ramp rate in array 10% per second power change possible
- Always fast ramp-up



#### Challenges for the new age of Integrated Energy System with Process Automation and Digitalization for a sustainable Future



An optimized and integrated energy system with new dynamics leverages automation and digitalization to ensure the highest levels of safety and reliability in supply.

Safe and reliable operation National processes may involve explosive components, safety measures have to be considered. Fall-back strategies in case of an asset failure need to be taken into account.

#### Energy syste

Combination of energy conversion units, energy storages, energy transfer lines, loads, renewables and others at multiple energy forms. Balancing operation!

Multi-modal and highest efficiency energy system

Lifecycle management

Cost reduction

emissions

( CO<sub>2</sub>

Industrial processes more and more require operation from several remote locations.

- Remote Access
- Maintenance Stations
- Operations Information Management System
  - Advanced Alarm Handling
  - Process Optimization with
    Digital Twin

#### Integration with automated

systems

Automation system should also be integrated **with other systems**, such as SCADA, MES and ERP to ensure seamless operation and visibility.

Industrial processes require a control system that covers the complete lifecycle of the plant (more than 20 years)

Cybersecurity for plant reliability

Highest cybersecurity standards need to be fulfilled throughout all asset according to international recognized standards.

• Serviceability for 20+ years

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Challenges for the new age of Integrated Energy System with Process Automation and Digitalization for a Sustainable Future





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#### **Your topic** Whom to talk to for details?





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# Thank you!