PROLOGA

SOLUTION BRIEF

CLOUD FOR HYDROGEN
PRODUCTION AND SUPPLY MANAGEMENT

Available on SAP Store

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CLOUD FOR HYDROGEN
PRODUCTION AND SUPPLY MANAGEMENT

The energy transition requires innovative solutions to facilitate the shift to sustainable energy sources, such as green hydrogen. As a climate-friendly alternative to fossil fuels, hydrogen plays a key role in the future of energy supply. Companies must adapt and optimize their production and supply chains accordingly.

The Cloud for Hydrogen Production and Supply Management provides companies in the energy sector with a comprehensive solution for efficiently controlling and optimizing their hydrogen processes. This solution is fully integrated into the SAP Business Technology Platform (SAP BTP) and supports companies in advancing their digital transformation.

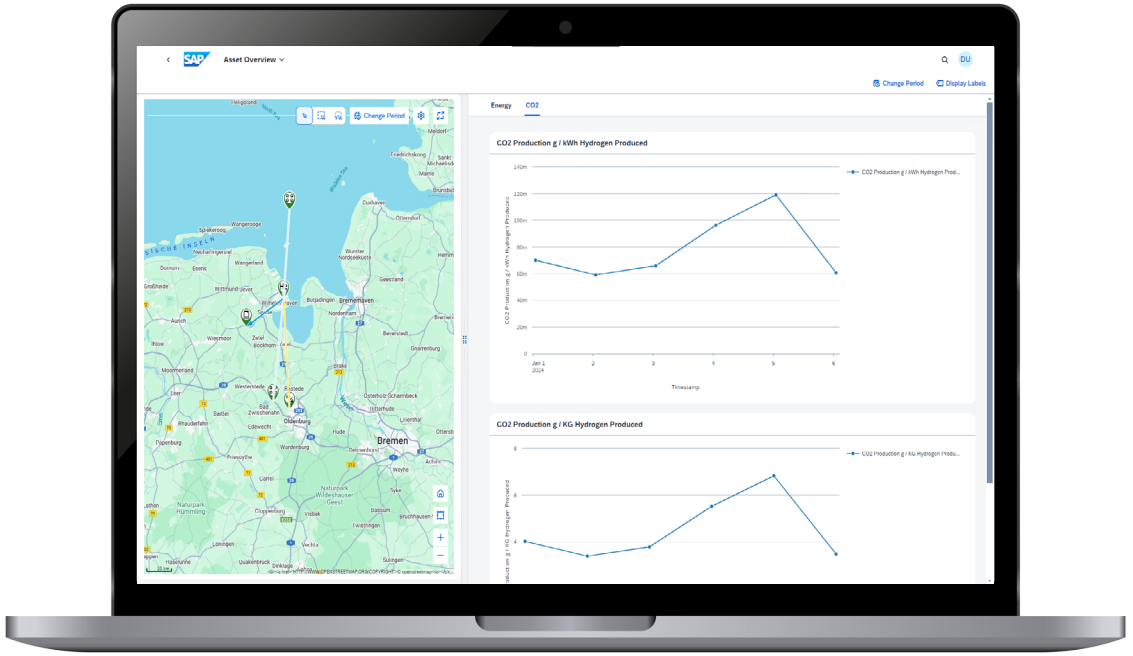

Figure: Plant and Asset overview

CHALLENGES

The implementation of hydrogen as a key energy carrier presents various challenges that companies must overcome to remain competitive and sustainable:

Regulatory Requirements & Transparency:

- Companies must comply with legal sustainability regulations.
- The CO_2 footprint of hydrogen production must be transparently recorded and documented.
- Certification systems and proof of origin are crucial for market access.

Dynamic Market Conditions:

- Hydrogen demand fluctuates significantly. Companies must be flexible to respond to market movements..

Process Complexity & Value Chain:

- The integration of renewable energy sources, electrolyzers, and storage systems requires seamless process control.
- Numerous stakeholders along the hydrogen value chain (e.g., producers, transportation grid operators, consumers) demand a standardized and connected solution.

Optimization of Transport & Storage:

- Hydrogen can be stored and transported in various forms (e.g., gaseous or liquid), requiring tailored logistics management.
- Minimizing high transmission and storage losses is essential.

Economic Viability & Scalability:

- Cost-intensive infrastructure investments require long-term investment security.
- Companies must be able to scale their production capacities flexibly.

Energy Efficiency & Cost Optimization:

- The electrolysis process is energy-intensive, making intelligent control essential to optimize energy sources.
- Grid-supporting control is a key factor in reducing operating costs.

THE SOLUTION

The Cloud for Hydrogen Production and Supply Management offers specialized applications for controlling, analyzing, and optimizing hydrogen production and supply.

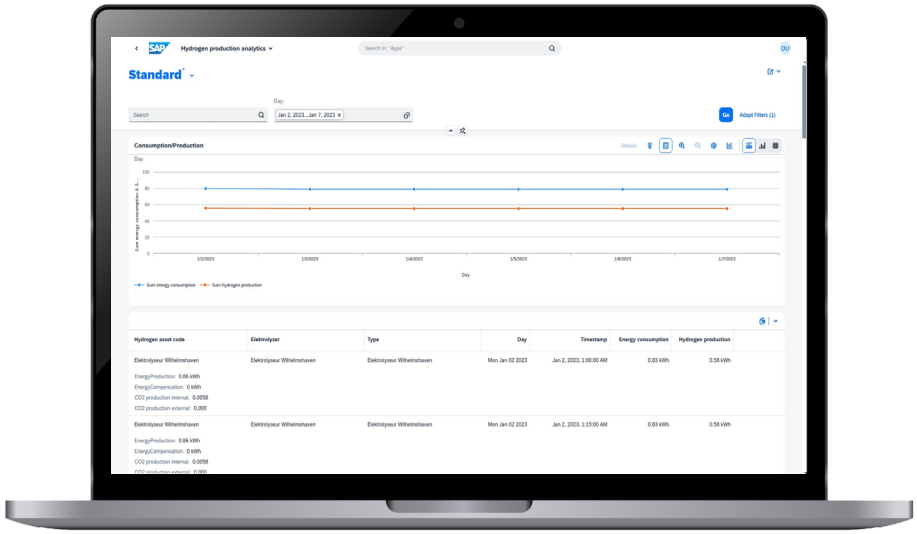

Figure.: Hydrogen production

1. **Integration of Renewable Energy Sources:**

   Capturing and managing electricity volumes from solar and wind power plants for efficient use in hydrogen production.

2. **CO_2 Balance Mapping:**

   Transparent recording and documentation of CO_2 emissions across the entire value chain to comply with regulatory requirements.

3. **Management of Electrolyzers and Storage Systems:**

   Optimizing production and storage capacities through effective plant and resource integration.

4. **Seamless Integration with SAP Cloud for Energy:**

   Centralized management and analysis of all relevant energy time series.

5. **Hydrogen Market Management:**

   Using standardized processes to effectively market and distribute hydrogen.

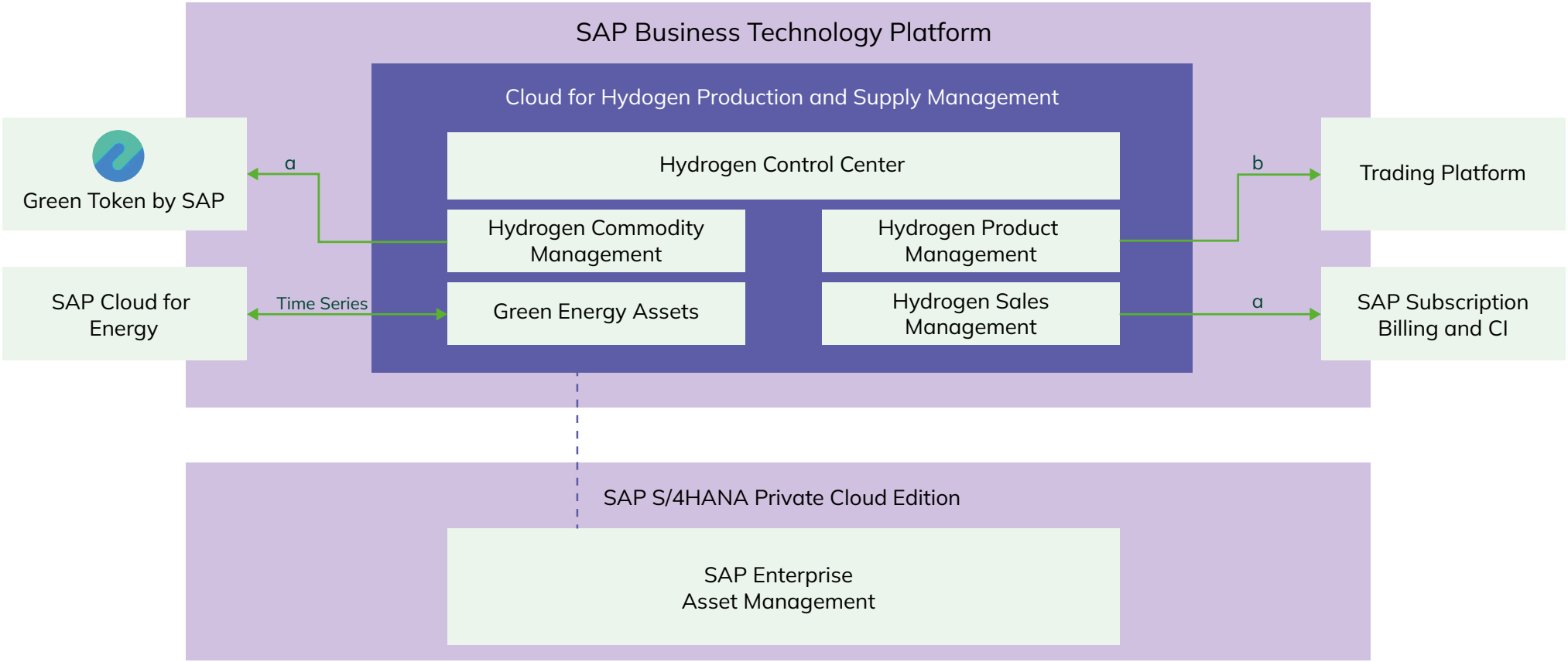

Figure: Solution design - Cloud-based end-to-end process coverage

BENEFITS

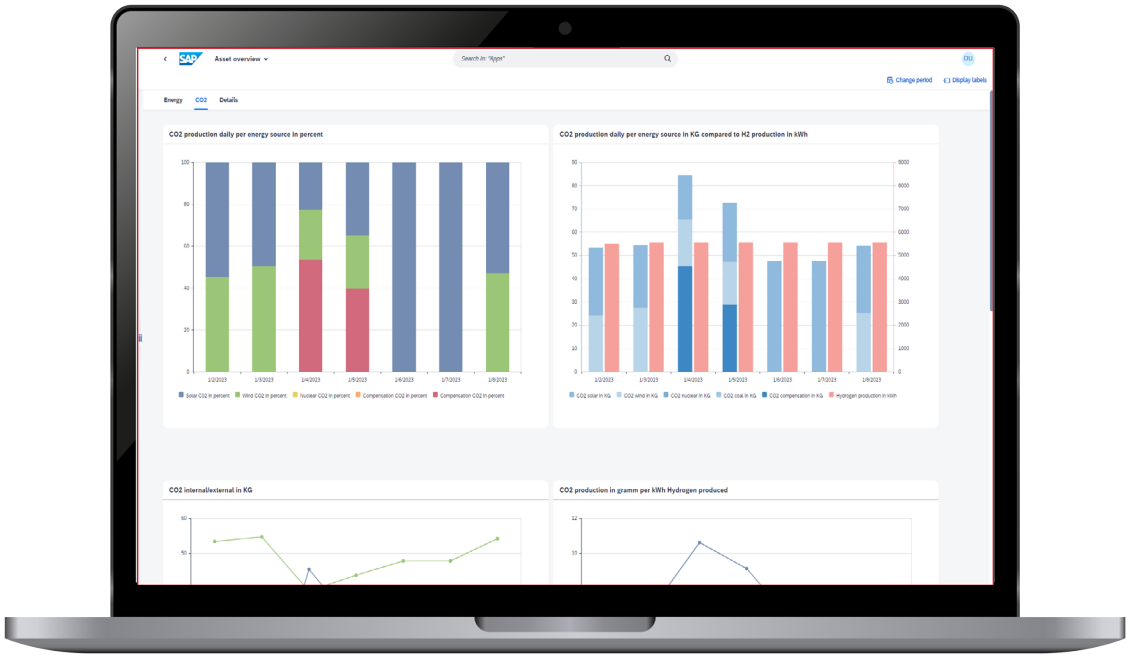

Figure: Asset Overview

- **Regulatory compliance::**
  CO_2 tracking provides relevant information
- **Transparent tracking:**
  Transparency across the supply chain regarding CO2 quantities using SAP Green Token
- **Efficient inventory management:**
  Precise and efficient management of hydrogen inventories.
- **Scalable cloud solution:**
  Adaptable to individual company needs and future requirements
- **Availability in the SAP Store:**
  Easily accessible and implementable as part of the SAP Industry Cloud portfolio.

CLOUD FOR HYDROGEN
PRODUCTION AND SUPPLY MANAGEMENT

The Cloud for Hydrogen Production and Supply Management is a groundbreaking solution for companies looking to digitally transform their hydrogen production and supply chains. It helps companies optimize processes and sustainably improve the entire value chain.

With this solution, companies can react flexibly to market changes, scale infrastructure as needed, and reduce operational costs through intelligent control. The seamless integration with SAP S/4HANA Utilities and the use of SAP Business Technology Platform enable a comprehensive, future-proof implementation of the hydrogen economy.

As part of the SAP Industry Cloud Portfolio, this solution supports companies in preparing for the challenges and opportunities of the hydrogen economy and shaping a sustainable energy future.

Learn more about the solution and schedule a personal demo with our experts:

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SAP Store - Cloud for Hydrogen Production and Supply Management

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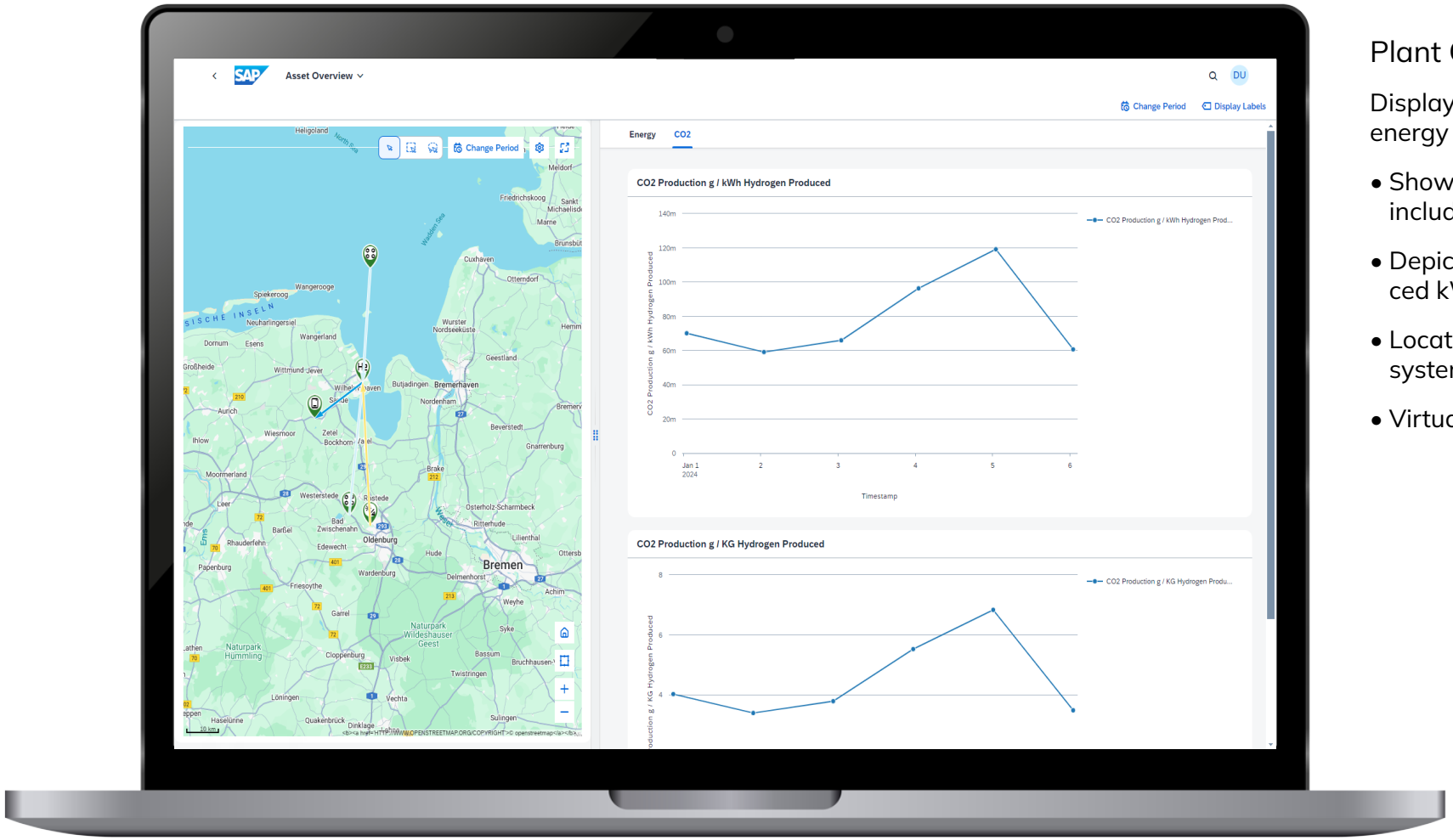
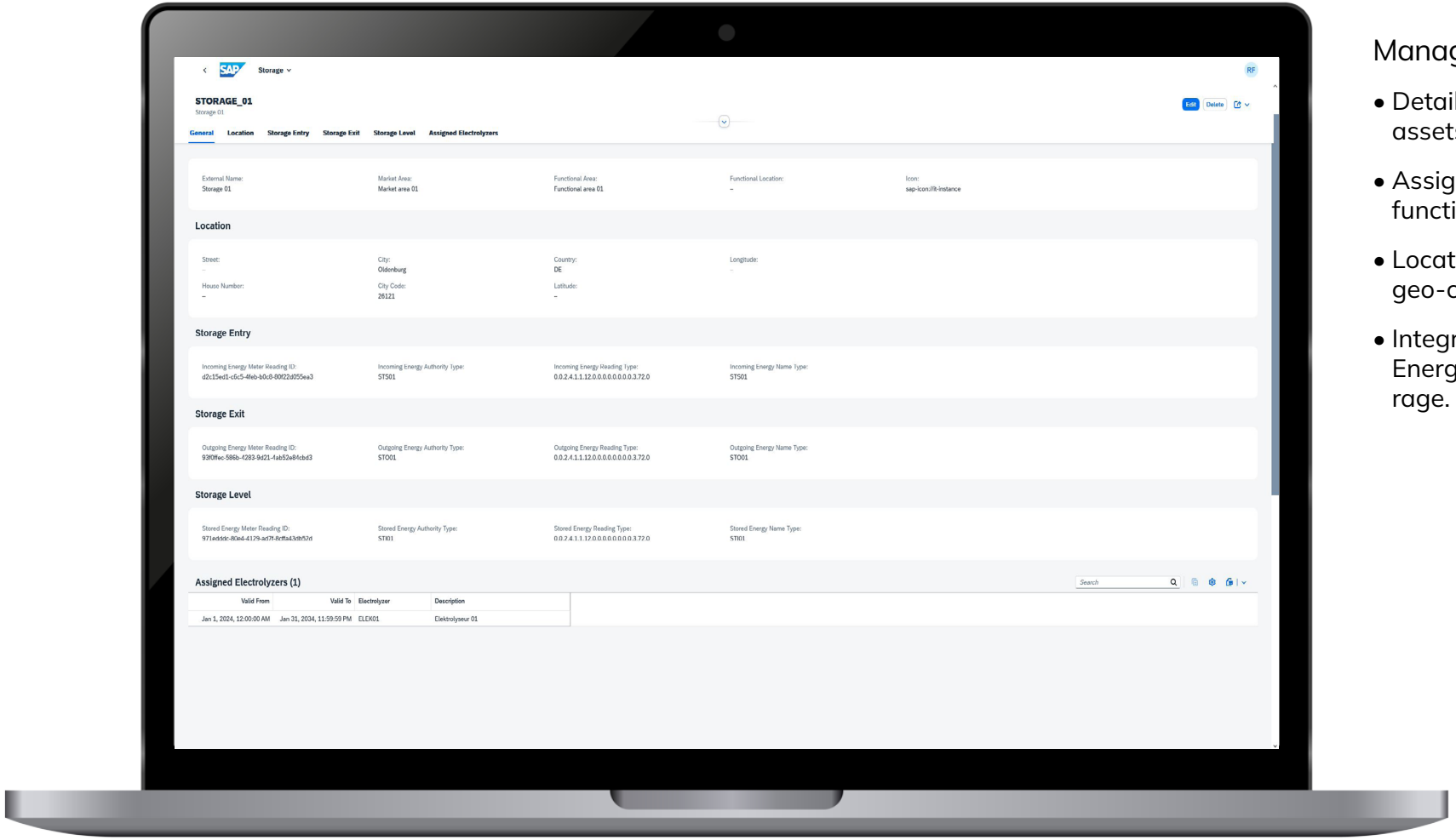


Plant Overview

Displays assets and produced energy volumes.

- Shows PV and wind power plants, including generated electricity.
- Depicts CO_2 volumes per produced kWh.
- Locates electrolyzers and storage systems.
- Virtually links assets together.

SCREENSHOTS



Managing Storage as an Asset:

- Detailed information on specific assets.
- Assignment to market areas, functional zones, etc.
- Location definition via address, geo-coordinates, etc.
- Integration with SAP Cloud for Energy for time series data storage.

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