

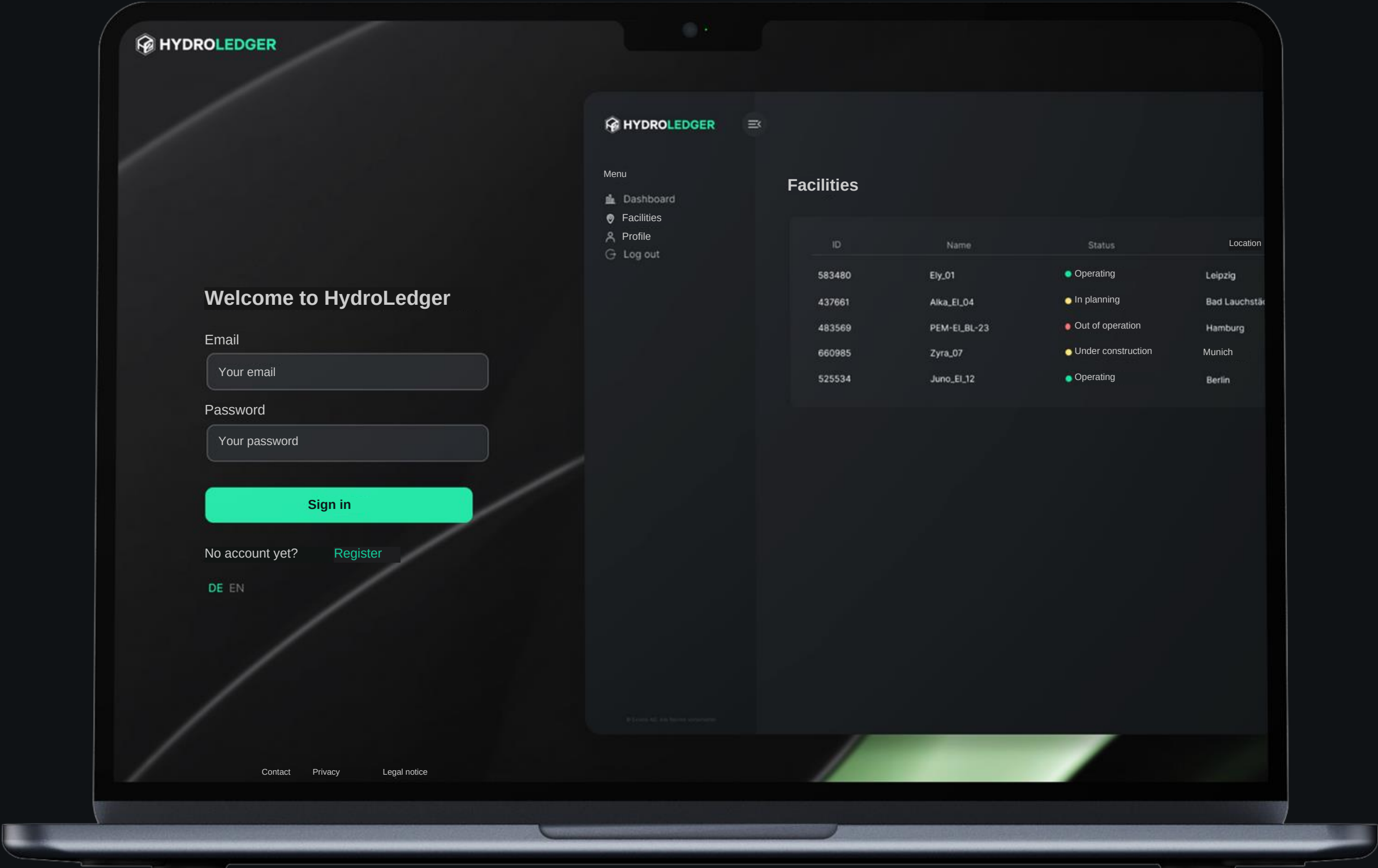


HYDROLEDGER

HydroLedger

Transparent value chain,
digital product passports, efficient
processes and compliance

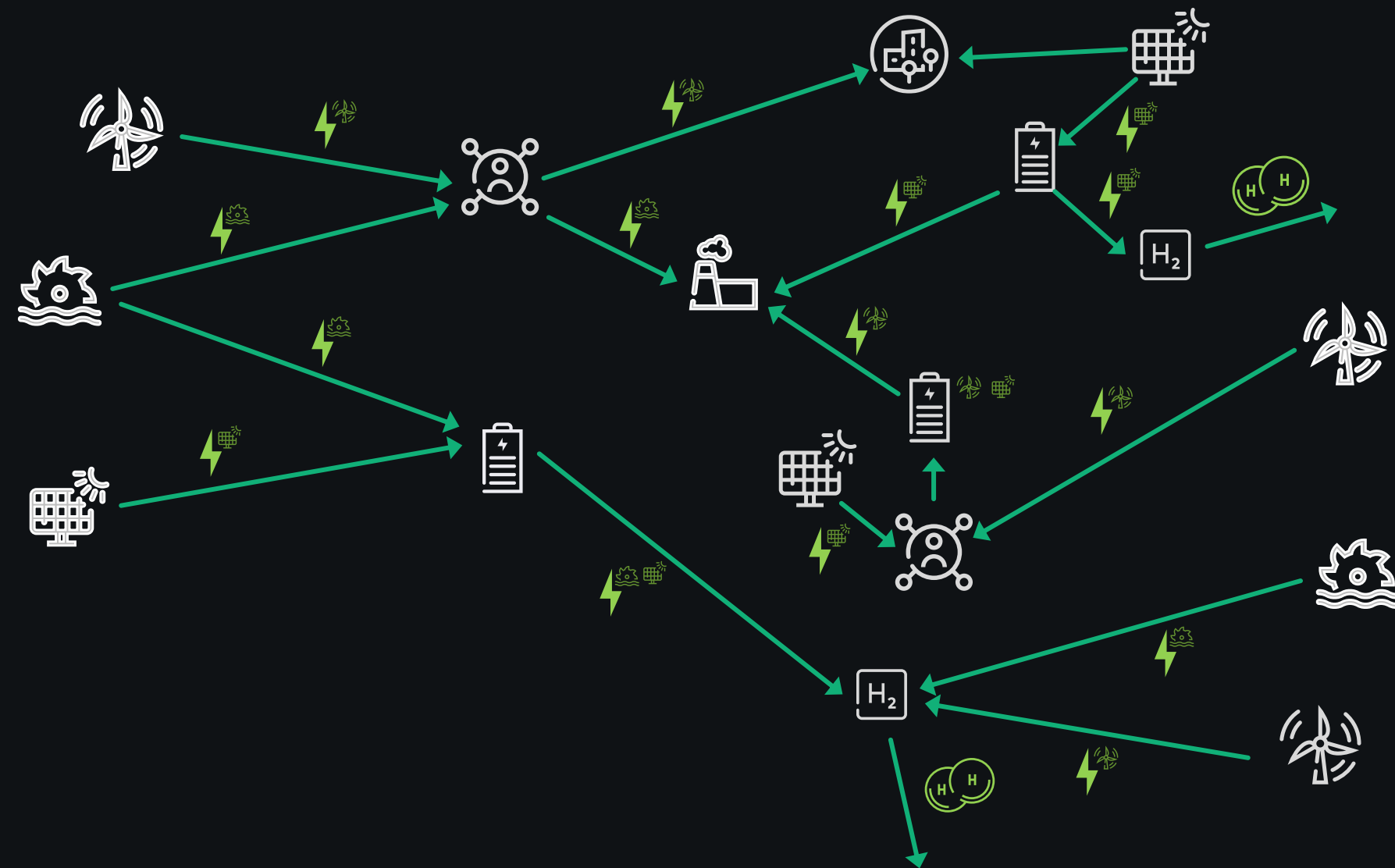
Funded by:



Problem

Evidence management in distributed energy systems

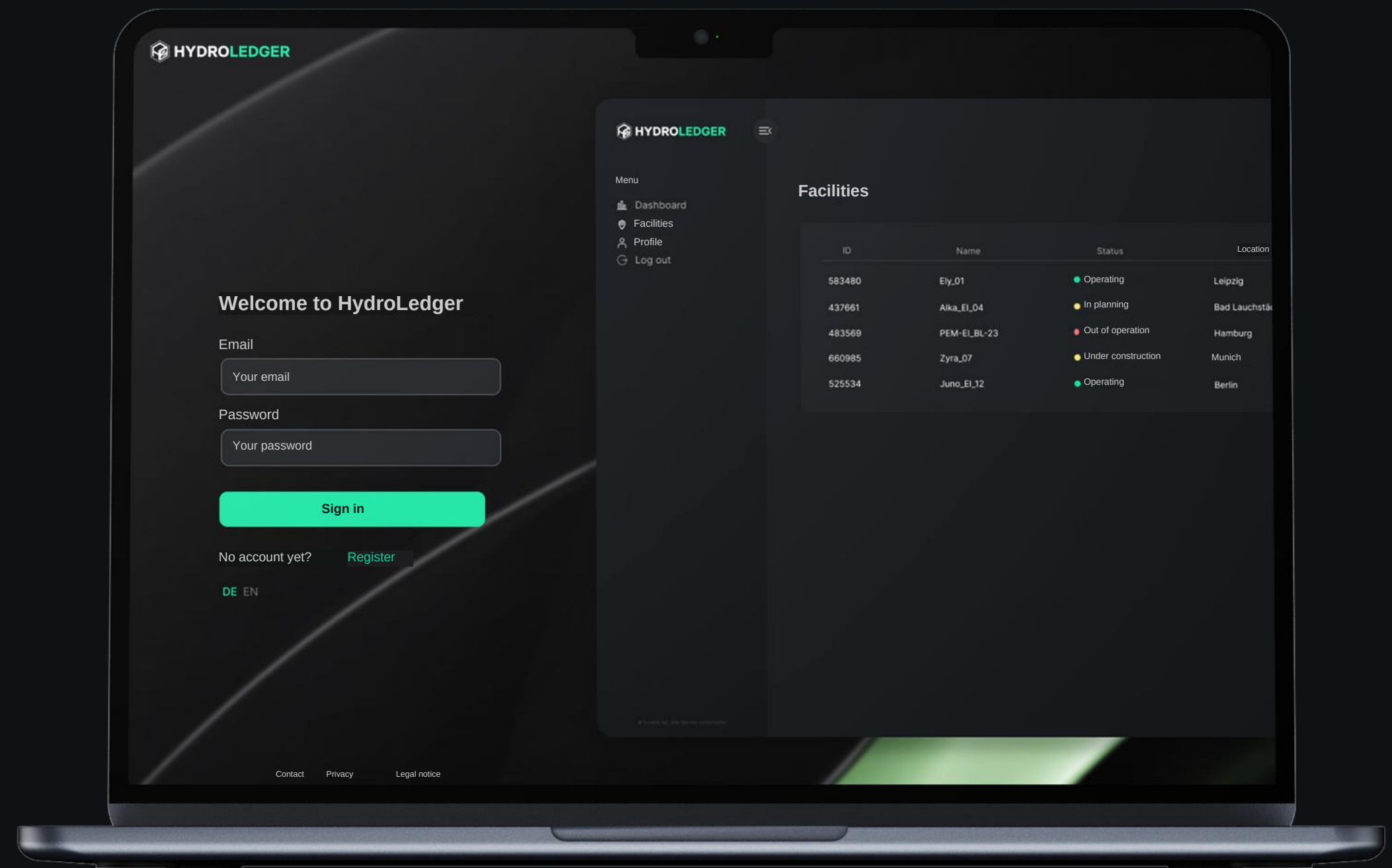
- Bureaucratic burden
- Time-consuming processes
- Lack of interoperability
- Data silos & interfaces
- Multiple platforms & accounts
- Complex CO₂ calculations
- Lack of standardization



Solution

Addressing a decentralized market with decentralized technology

- Automated compliance
- Complete documentation
- Interoperability
- Data consolidation
- Simplified evidence management
- CO₂ calculation
- Standardized digital product passports



Solution

Self-sovereign identities and verified attributes

- **Sovereignty:** Companies can independently register their production facilities and hydrogen batches.
- **Verified attributes:** Regulatory authorities confirm production data for the relevant accounting period.
- **Verified roles:** Market surveillance authorities verify participants and their permissions.
- **Transparency & openness:** All transactions are traceable and documented in secure, auditable records.
- **Pseudonymity & data protection:** Owners retain control of their data; only they can resolve the identifiers.



Research Project

Goal

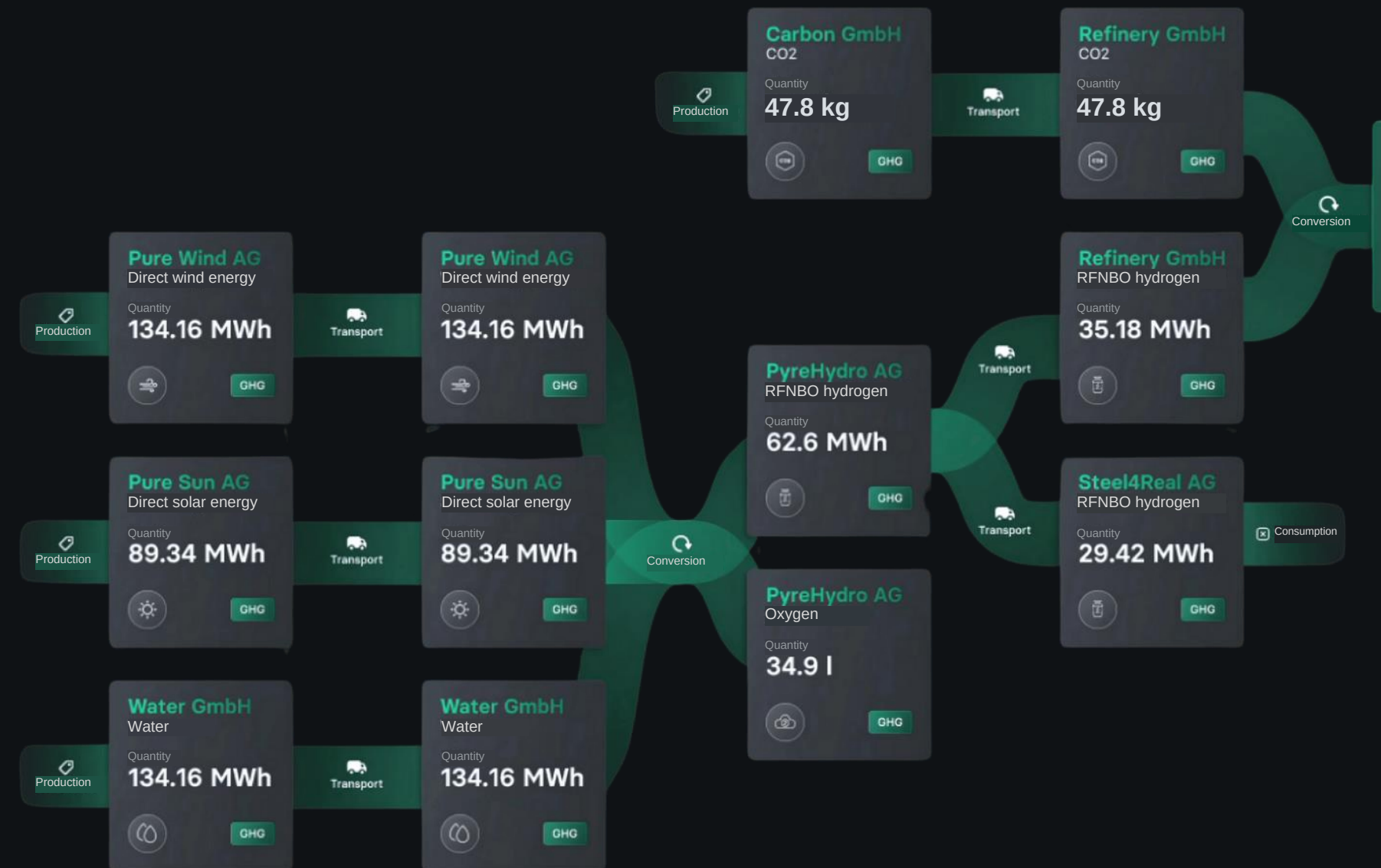
HydroLedger optimizes the hydrogen value chain through automated traceability and the integration of all stakeholders. We simplify auditing and lay the groundwork for a Proof of Sustainability (PoS) certificate, without conducting audits or issuing certificates ourselves.

Focus

Using tokenized batches and digital product passports, we meet requirements such as RED III and the delegated acts, including GHG accounting and mass balancing. Our solution provides complete, tamper-proof CO₂ documentation, updated with every transaction, ensuring compliance with sustainability criteria and regulatory requirements without the need to modify companies' IT infrastructure.

ValueChain

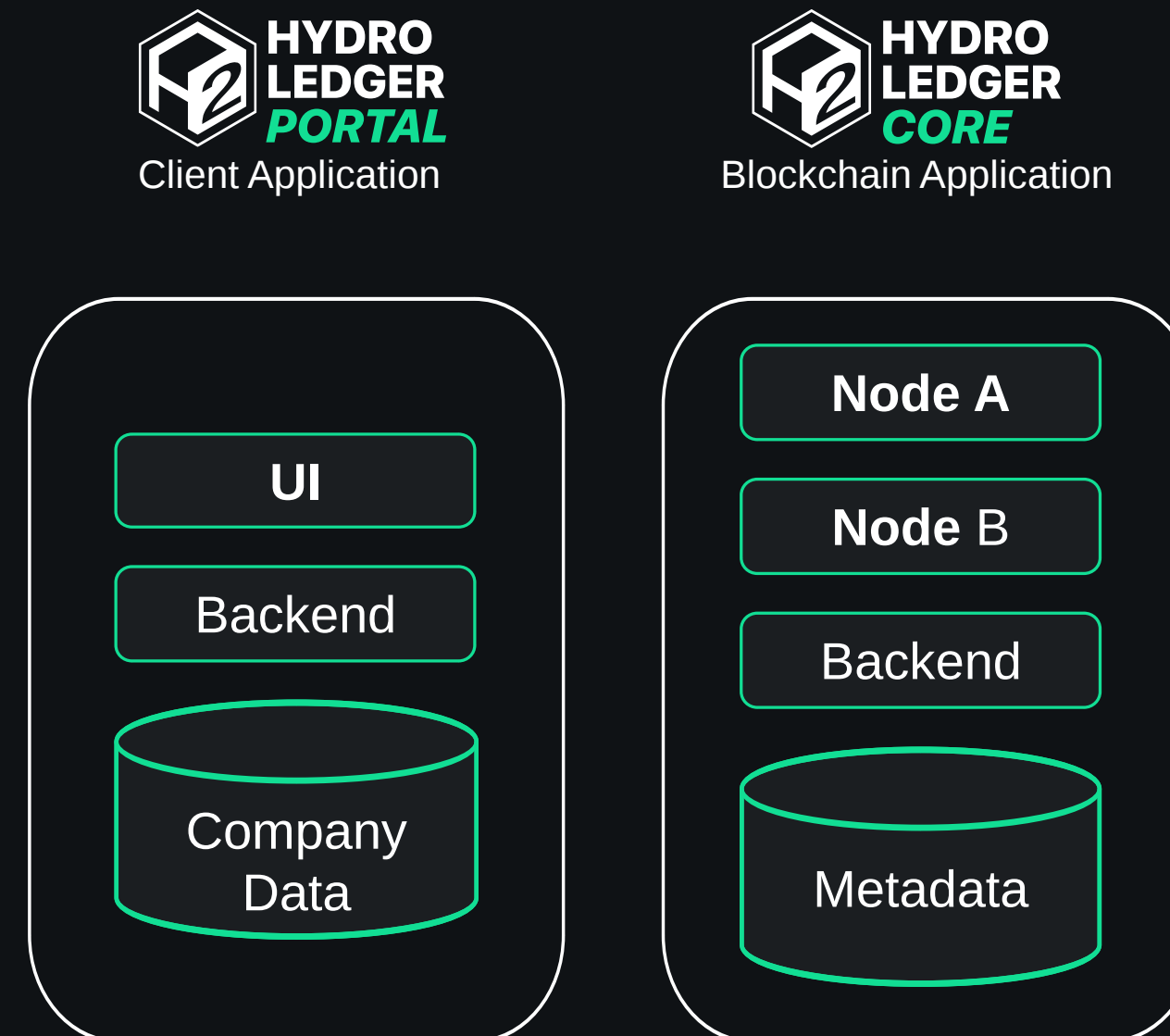
- Tokenization of raw materials
- Tokenization of hydrogen batches
- Dynamic metadata per token
- CO₂ calculation & accumulation
- Traceability & proof of origin
- Trading hydrogen tokens
- Mass balancing & certification
- Tamper-proof documentation
- Automated smart contracts



*illustrative example

Two Components

- Simple onboarding processes
- No blockchain knowledge required
- No transaction costs for companies
- No sensitive data stored on the blockchain
- High modularity & interoperability
- Scalable & adaptable
- Automated smart contracts
- Standardized digital identities (DIDs)
- High security & tamper resistance



Benefits

- **Early access to innovative technology** – Be a first mover with HydroLedger and actively shape the digital future of the hydrogen economy.
- **Free use of the MVP** – No license fees during the validation phase, with direct access to the platform and no investment risk.
- **Potential to optimize your processes** – Identify and test efficiency gains through automated documentation, CO₂ calculation and traceability.
- **Meeting regulatory requirements** – Complete audit trails for auditors and authorities through digital documentation and tamper-proof certificates.
- **Reduced bureaucratic burden** – Eliminate manual evidence preparation and simplify communication along the value chain.
- **No blockchain expertise required** – The client application is intuitive to use and requires no prior technical knowledge.

