2026

Sustainable Fuels Association

Green Energy Cluster

Bridging the Gap

Empowering Prosumers through Peer-to-Peer Renewable Energy Trading

Presented by

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Architecting Romania's Sustainable Energy Framework

1. The Hydrogen Strategy & Law 237/2023

- **Role:** Technical Drafting Partner.
- **Impact:** Directly contributed to the National Hydrogen Strategy and the substantiation of Law No. 237/2023 regarding the integration of hydrogen from renewable sources.
- **Key Outcome:** Defined the regulatory distinction for low-carbon vs. renewable hydrogen, enabling industrial offtake certainty.

2. The Biomethane Framework (CISC)

- **Role:** Lead Technical Convener.
- **Impact:** Active member of the Inter-ministerial Committee on Climate Change (CISC) working groups.
- **Key Outcome:** Orchestrated the industry response for OUG 163/2022 and the Biomethane Emergency Ordinance, unblocking grid injection standards and defining "Guarantees of Origin" for green gas.

3. AFIR Implementation (Mobility)

- **Role:** Strategic Validator.
- **Impact:** Official partner to the Department for Sustainable Development (DDD) and Ministry of Transport in mapping AFIR compliance.
- **Key Outcome: Validated the deployment map for TEN-T alternative fuel corridors, ensuring infrastructure targets match grid reality.**
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- **4. Union Database Regulatory Framework**
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- **Role: Active Contributor.**
- **Impact: Producing tokenization infrastructure for the EU Union Database — validating renewable resource traceability across complex value chains.**
- **Key Outcome: Real-world implementation feeding directly into the normative framework for Guarantees of Origin.**

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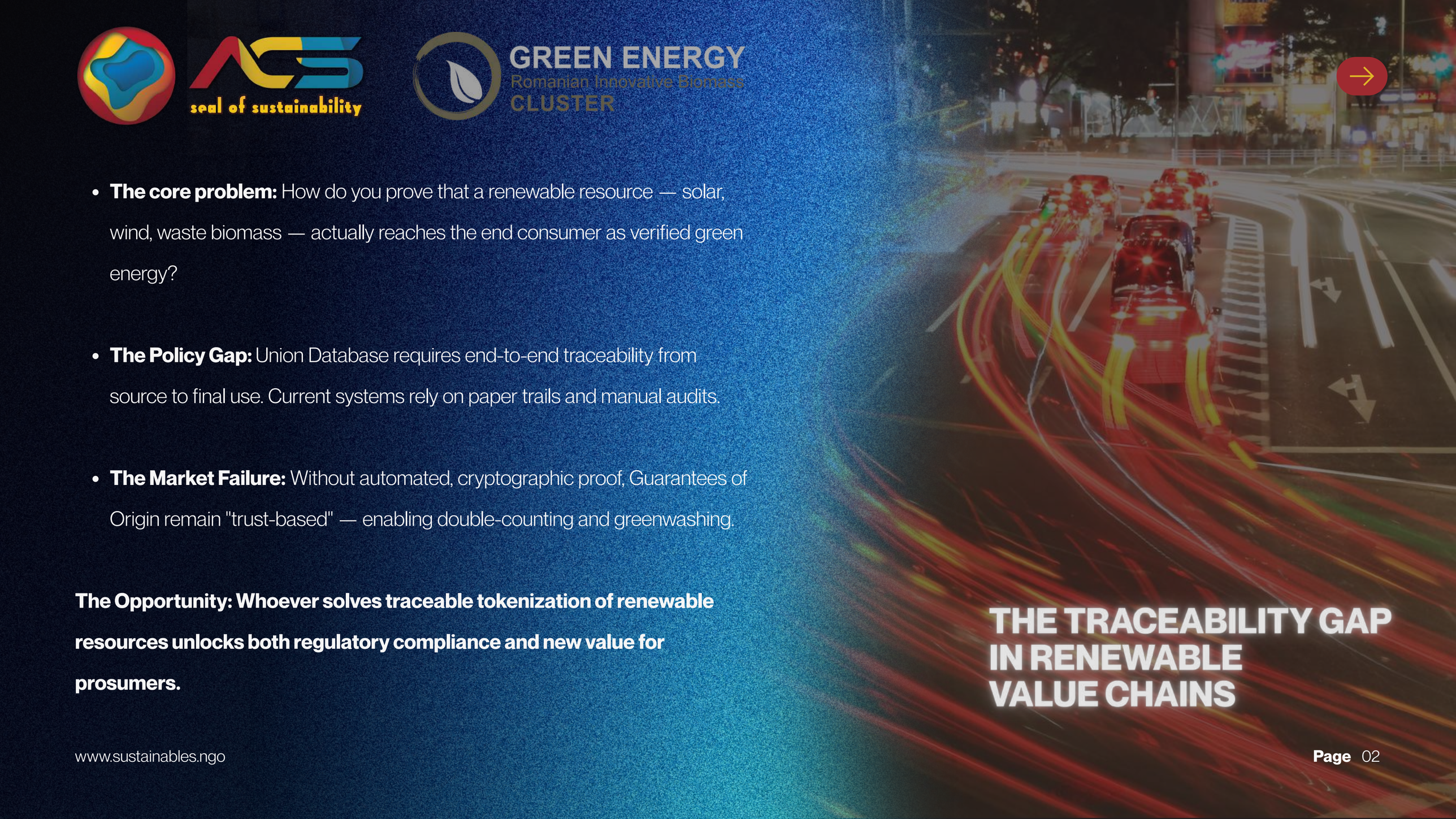


THE TRACEABILITY GAP IN RENEWABLE VALUE CHAINS

- **The core problem:** How do you prove that a renewable resource — solar, wind, waste biomass — actually reaches the end consumer as verified green energy?

- **The Policy Gap:** Union Database requires end-to-end traceability from source to final use. Current systems rely on paper trails and manual audits.

- **The Market Failure:** Without automated, cryptographic proof, Guarantees of Origin remain "trust-based" — enabling double-counting and greenwashing.

The Opportunity: Whoever solves traceable tokenization of renewable resources unlocks both regulatory compliance and new value for prosumers.

Hydrogen’s Strategic Role in Regional Mobility

Batteries work for the city center. For regional interconnection and heavy logistics, we need high-density molecules.

Strategic Function:

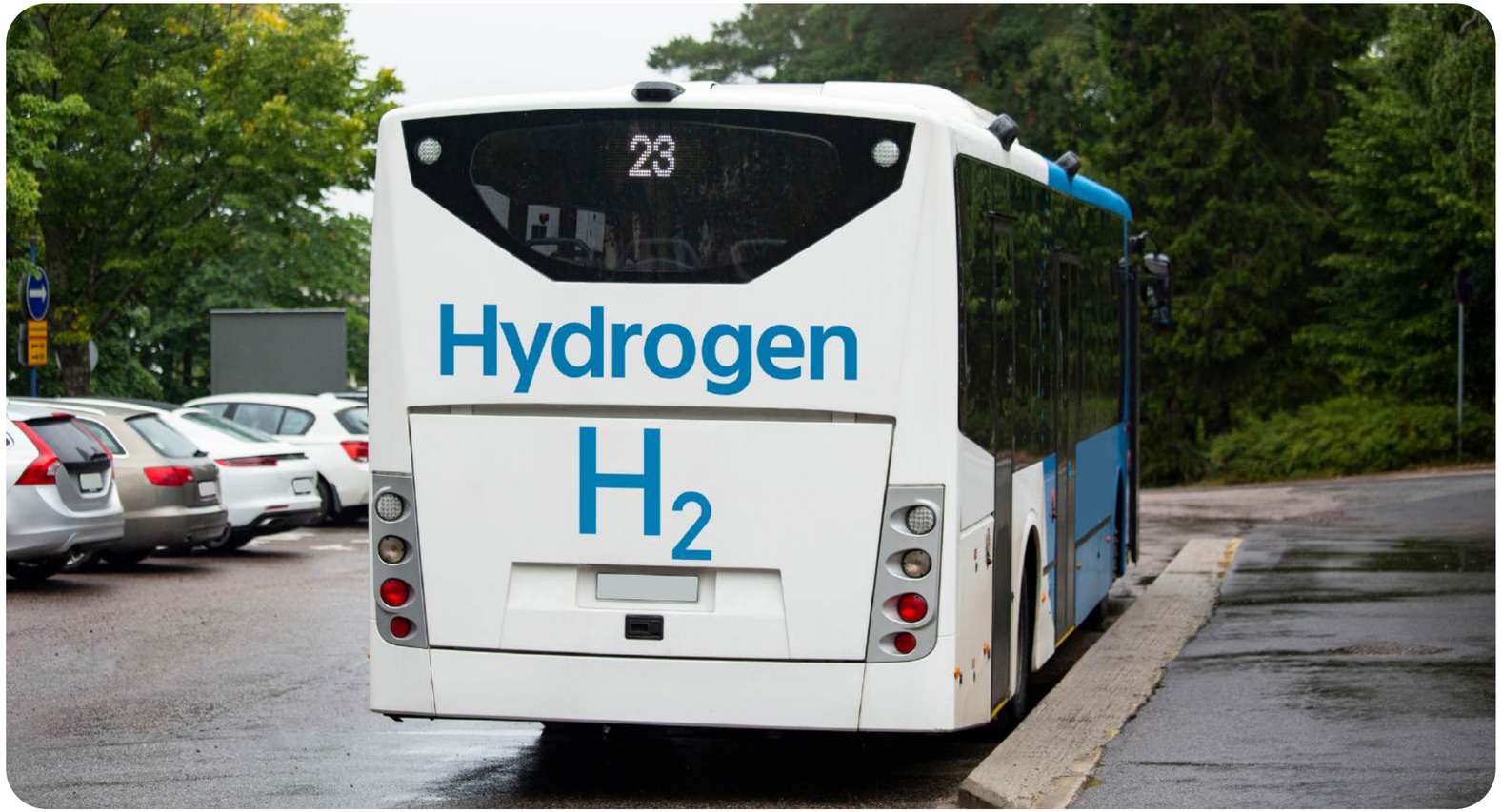
- **Buffer Storage:** H2 allows us to store renewable surplus from rural areas (wind/solar) and use it for local mobility.
- **AFIR Compliance:** Meeting the 2030 targets for refueling stations along TEN-T corridors.
- **Resilience:** A diversifier against grid outages or volatility.

Why Hydrogen? Resilience for the "Hard-to-Abate"

The Solution (H2-SECURE)

Presented within NRGCOM — Interreg Danube Region Programme (Call 3) | Greet CE

- **Decoupled Trust:** You trust the ledger, not the competitor.
- **Automated Security:** Real-time monitoring of critical infrastructure (NIS-2 Compliant).
- **Mobility Application: "**Roaming for Hydrogen"
- **Seamless certification** for trucks and buses accross the EU.



A decentralized governance platform that validates compliance without revealing trade secrets.

The Deployment Gap: Policy Ambition vs. Operational Reality

01.

The Mandate:

REPowerEU targets 10 Mt of domestic renewable hydrogen by 2030. RED III imposes binding RFNBO quotas for industry (42%) and transport (29%).

02.

The Reality:

We have created isolated "Hydrogen Valleys" (Islands of Excellence) but lack a unified "Continent of Trust."

03.

The Critical Failure:

Current infrastructure lacks the digital interoperability to prove compliance in real-time.

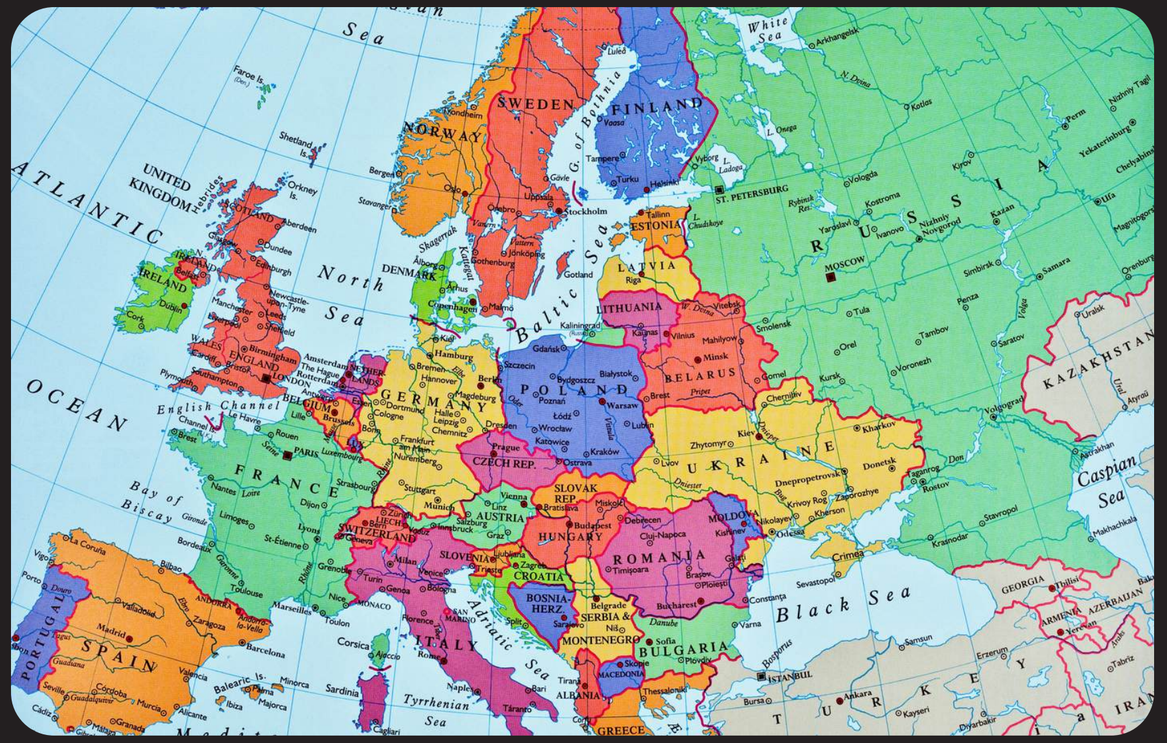
- **Physical Risk:** Unmonitored safety hazards in transit (NIS-2 gap).
- **Financial Risk:** Inability to certify "Green" status (RFNBO) across borders leads to "discounted molecules."

You cannot build a trans-European hydrogen backbone on analog trust systems.

Transparency Friction" in Supply Chains

A bus operator in Brussels will not know if the H2 coming from H_2 Highway Zeebrugge is truly green (RFNBO compliant).

Cross-border logistics (EU) are plagued by paper trails and "blind spots."



The Result:

Delayed investment and operational risk.

Islands of Excellence" (isolated H2 valleys) but no "Continent of Trust.

VOLTVERT

A decentralized governance platform that validates compliance without revealing trade secrets.

Decoupled Trust: You don't need to trust the competitor; you trust the ledger.
Automated Security: Real-time monitoring of critical infrastructure (NIS-2 Compliant).
Token Architecture: GoO (NFT) encapsulates the kWh Token (fractional MW, digitally attachable to products and services) and the CarbonClean Token (real-time CO2 avoidance accounting via CSRD/ESRS APIs).

VoltVert: The Regulatory Operating System

01.

The "Air-Gap" (Ground Truth):

IoT sensors connect directly to the ledger. If the molecule isn't measured, the token isn't minted. No human error.

02.

Hardcoded Compliance:

The CEN EN 16325:2022 standard is baked into the code. A non-compliant token effectively cannot exist.

03.

Atomic Settlement:

CSRD/ESRS Real-Time Compliance via API: DNK platform (Germany) and SGG/PNRR platform (Romania) for automated sustainability reporting.

Cryptographic Certification: Inverter → Electrolyzer → Union Database.

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The Partner:

Messer – World's largest privately owned industrial gas specialist.

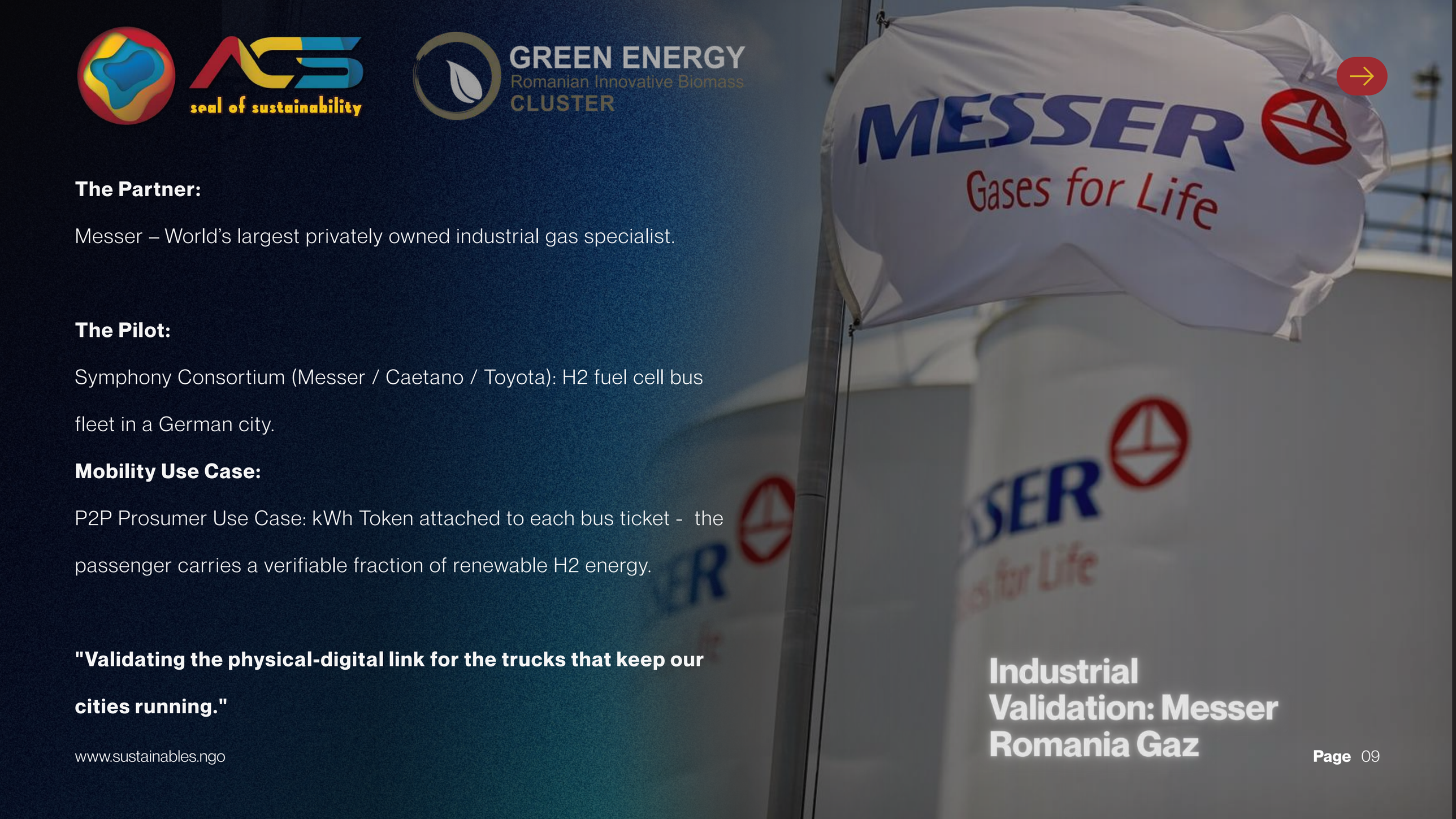
The Pilot:

Symphony Consortium (Messer / Caetano / Toyota): H2 fuel cell bus fleet in a German city.

Mobility Use Case:

P2P Prosumer Use Case: kWh Token attached to each bus ticket - the passenger carries a verifiable fraction of renewable H2 energy.

"Validating the physical-digital link for the trucks that keep our cities running."



Industrial Validation: Messer Romania Gaz

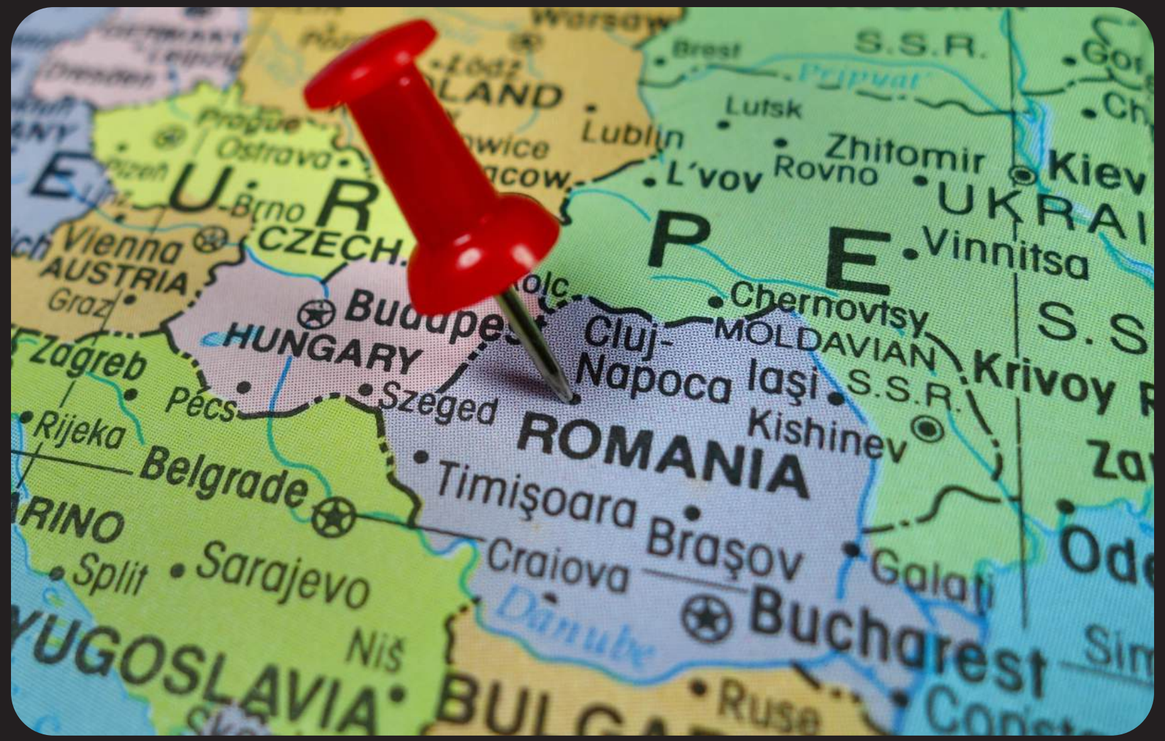
The Eastern European Validation Hub

Why Romania?

A strategic node on the Trans-Balkan Corridor with massive offshore wind & gas infrastructure.

The Vision:

NRGCOM Flagship Project (Danube Region Strategy, PA2 - Sustainable Energy). Romania as the EU's testing ground for renewable energy traceability.



The Outcome:

Scalable to any bio-resource: waste paper and cellulose residue validated as renewable biological energy — for biogenic carbon fuels or direct thermal use (e.g. cement production). Replicable across the Danube Region.

Social Impact: Democratizing energy access for underserved communities via Energy Communities (RED III).

FROM PILOT TO STANDARD

NRGCOM | Interreg Danube Region Programme | Greet CE | H2Secure

Building the digital trust layer for renewable energy traceability — from inverter to consumer, from Union Database to CSRD.

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