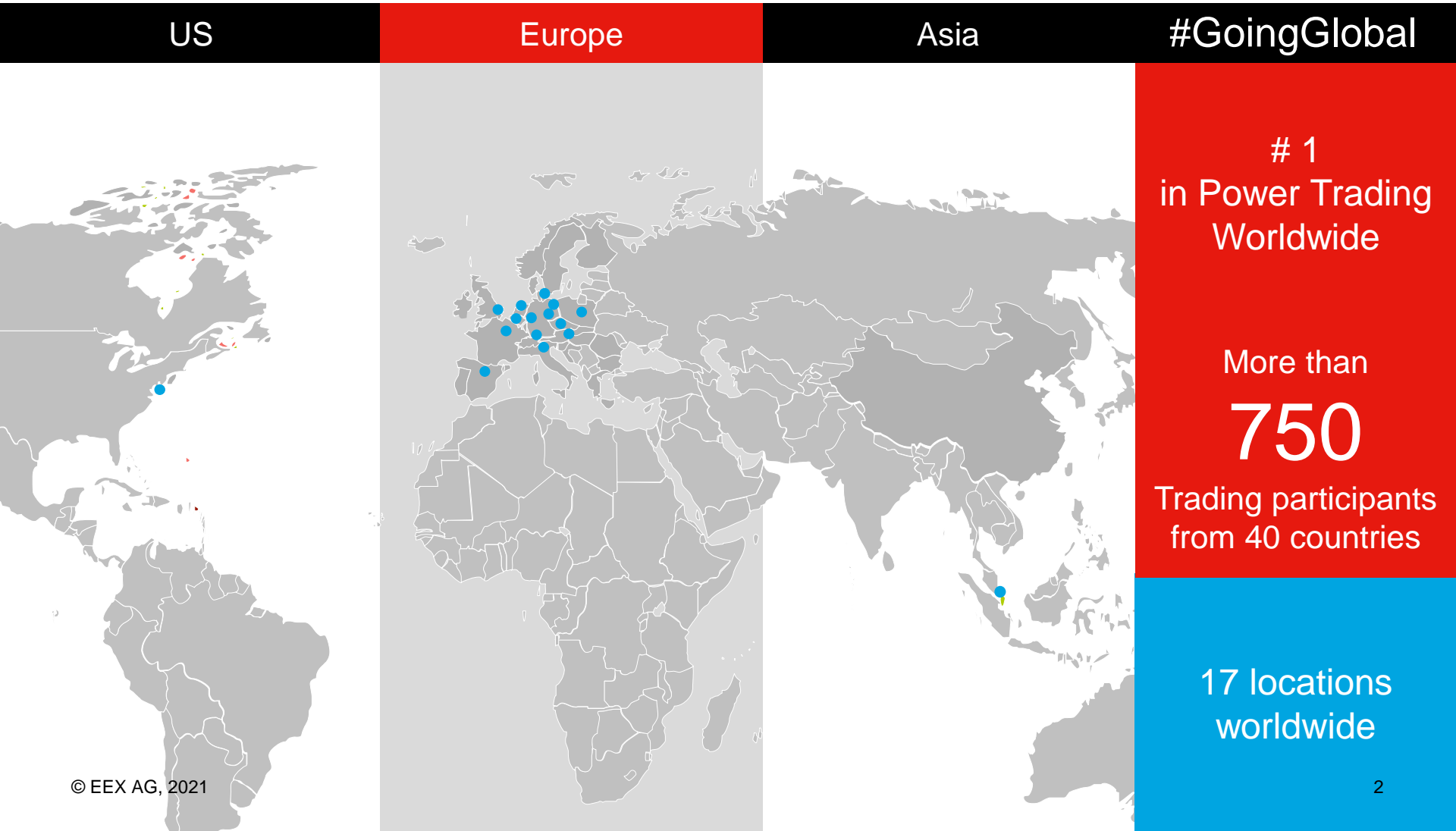


Green hydrogen Trading in Europe: Opportunities and requirements

November 2021

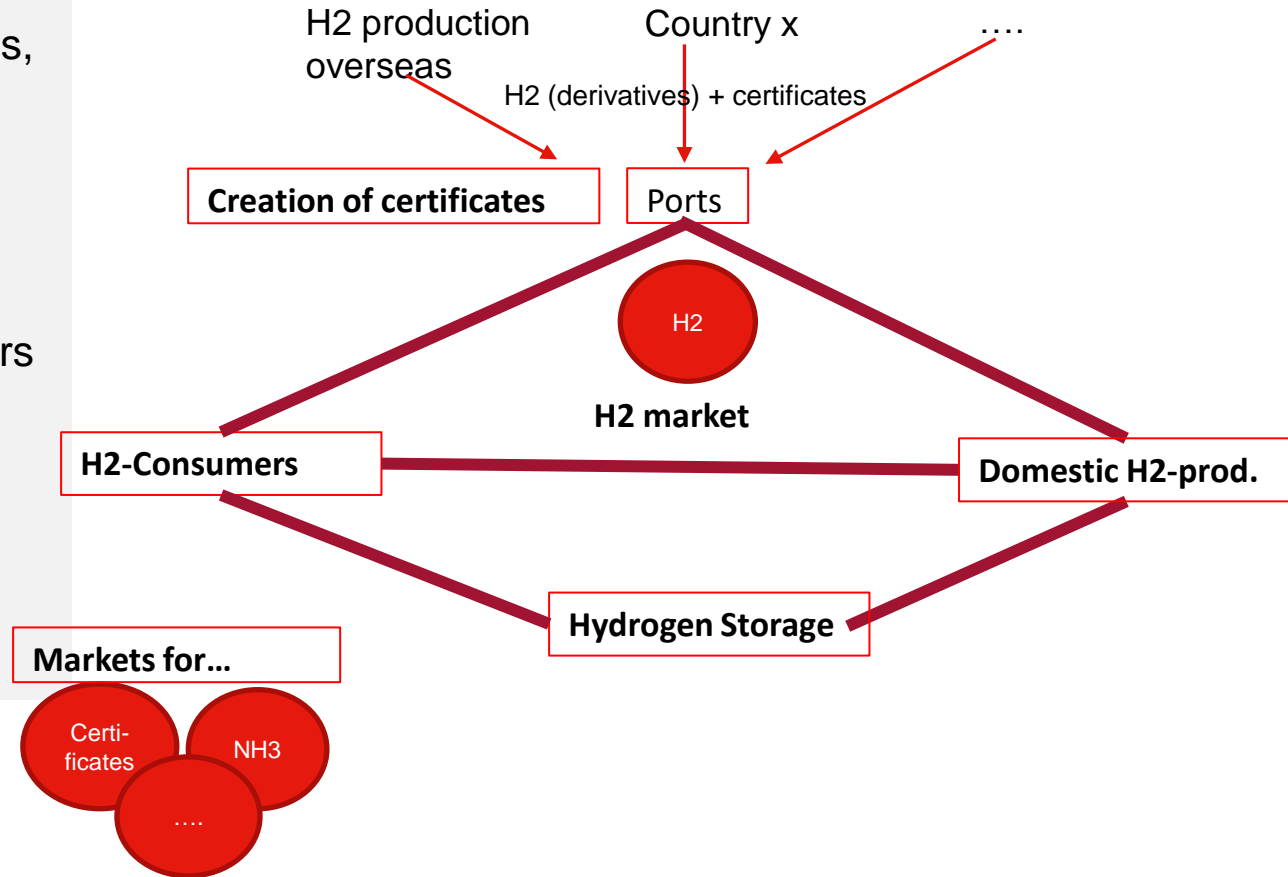
EEX Group – A Global Commodity Exchange



Benefits of trading green H2: Creating a global hydrogen market

H2-markets

- Provide transparency (prices, volumes)
- Income source
- Provide markets for certificates
- Provide a level playing field for producers and consumers
- Connect markets (H2, ammonia, certificates etc.) worldwide through market prices
- Security of supply through diversifying field of actors



International transport and trading of H2

GRID-BOUND H2

Continuous supply over a certain period of time (common in European power & gas markets)

Physical delivery through balancing group

Trading for a certain delivery period, market prices fixed for a fixed amount delivered over that period

In Europe: **From 2025 onwards H2 grids to be expected, then trading in grid-bound H2 can become technically viable**

TRANSPORT BY SHIP /OFF-GRID

H2-Transport as **Ammonia, PtX-products** (E-Methanol, E-Kerosine)

Physical delivery in pulses, similar to LNG through ships, trains, trucks (containers), at one point in time with a direct transfer (creation of central storage possible), market prices fixed for a fixed amount at one point in time

Technically viable on **short notice**

POTENTIAL MARKET SEGMENTS

Spot markets: Delivery right after or very shortly after trading. Requires a decent amount of physically available H2/Ammonia/PtX-fuel

Future markets: Delivery in the future at a price fixed today.

The role of certificates in H2-trading

- Certificates need to be a **trustworthy proof for the origin** of an energy carrier (in EU: Established in power and biogas) and are a central aspect of H2-trading
- In Europe there are **two systems**:
 - **Guarantees of Origin**: Tradable separately from physical energy carrier, interconnected infrastructure of so-called issuing bodies
 - **Mass balance**: Proof of sustainability (certificate) and physical energy carrier can only be transferred together.
- **International trade with certificates**:
 - **System** of mutual recognition and basic internationally harmonized rules necessary
 - **Technical infrastructure** to create trustworthy certificates, to transfer and cancel them required

Outlook

EUROPE

Various regulatory and legislative pieces under development that define the system and the characteristics of green hydrogen and PtX-products

INTERNATIONAL INITIATIVES

International initiatives and organisations are planning to establish international characteristics for green hydrogen trading

Green hydrogen was one of the core topics within COP26

Thank you for your attention!

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