



## **Keynote 1: Powerfuel Hubs – an IPP Perspective**

Connecting Powerfuels Hubs – Annual Conference by the Global Alliance Powerfuels  
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## Bulk zero-carbon electricity



- **1,600 MW** of wind implemented in Germany, France and Poland
- **800 MW** on own balance sheet
- **2 TWh** annual electricity production
- **> €2 billion** equity & debt raised
- More than **700 employees**, mostly in structurally weak regions
- **> 5 GW wind/solar pipeline** in Germany, France, Poland, Spain, Ghana, S. Africa, Vietnam, Uruguay

## Green Power Fuels



- **MW scale** wind-hydrogen plant in operation since 2011 (**50 t/a**)
- **250 t/a** wind/solar-H2 for **6 fuel-cell trains** connecting **Berlin** to the region
- **210 MW of electrolyser** capacity in first round of H2-IPCEI (10% market share) linked to new H2-backbone
- Partner of CEMEX to make chemicals from **green hydrogen & cement-CO2**
- Partner of **Linde & Sasol** to participate in **H2Global** with green aviation fuel

## Security of supply



- **> 6,000 MW of renewables** in remote control at own 24/7 control centre
- **22 MW / 34 MWh battery** in operation to provide primary reserve
- More than **1,000 km of own medium- and high-voltage** grid in operation, plus several substations up to **220 kV**
- Fully integrated hybrid power plant approach (close to 1 GW electrical capacity operational north of Berlin) to take full **system responsibility**

# 500 Mt/a global H2 demand in 2050, thereof 60% tradable products

## Green Ammonia



Fertilizer



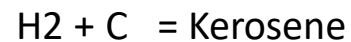
Global demand: 170 million t/a  
→ H2 demand: **30 million t/a**

Shipping Fuel



Global demand: 500 million t/a  
→ H2 demand: **90 million t/a**

## Sustainable Aviation Fuel

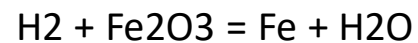


Aviation Fuel



Global demand: 400 million t/a  
→ H2 demand: **100 million t/a**

## Green Steel

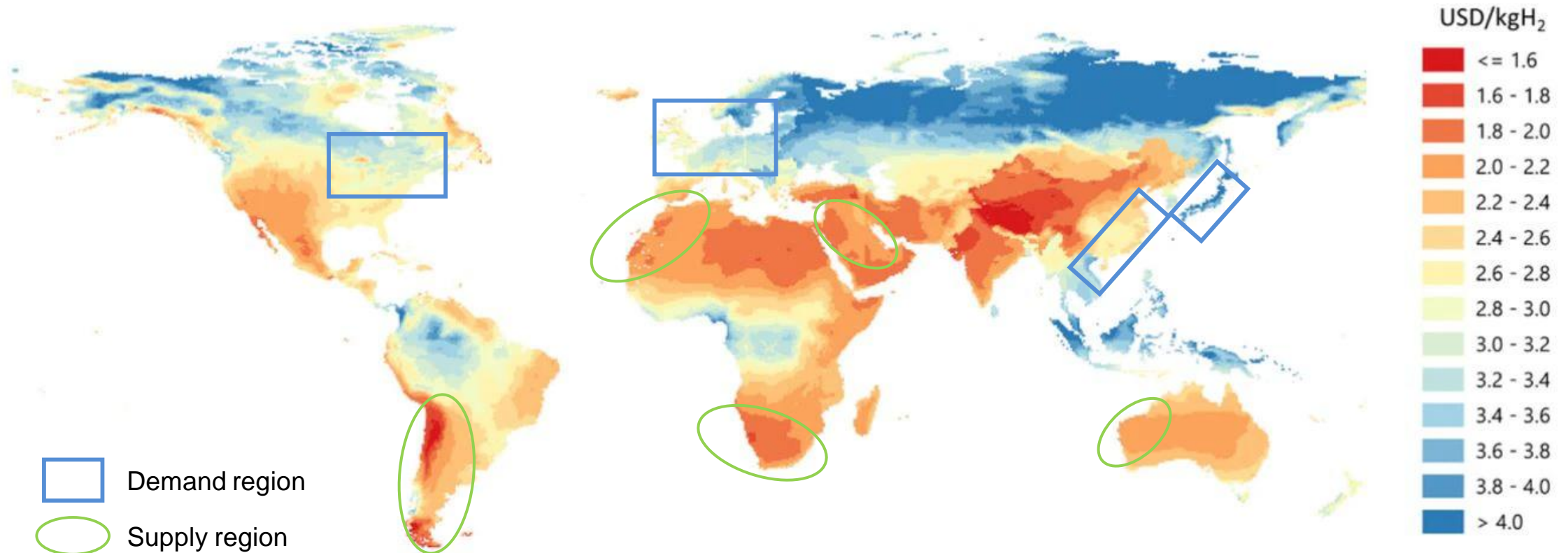


Green Steel



Global demand: 2 000 million tons/a  
→ H2 demand: **100 million t/a**

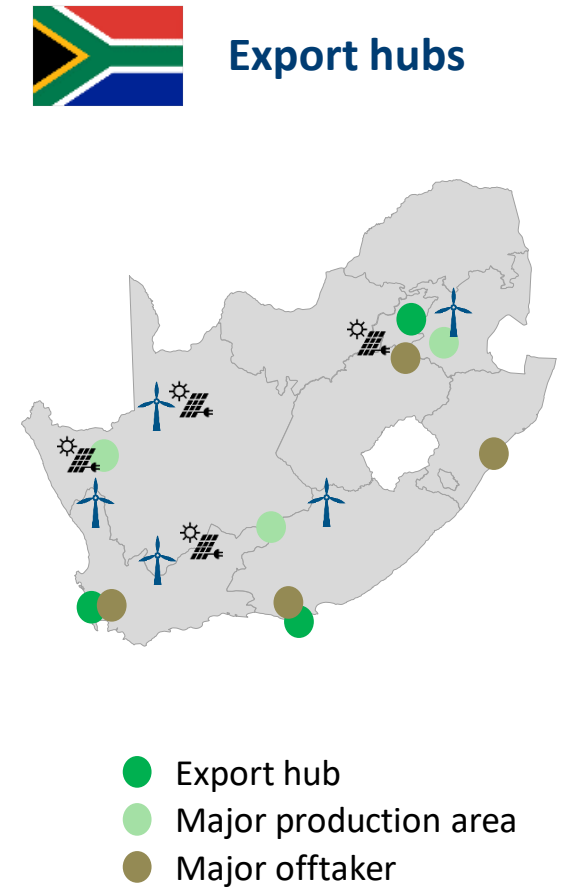
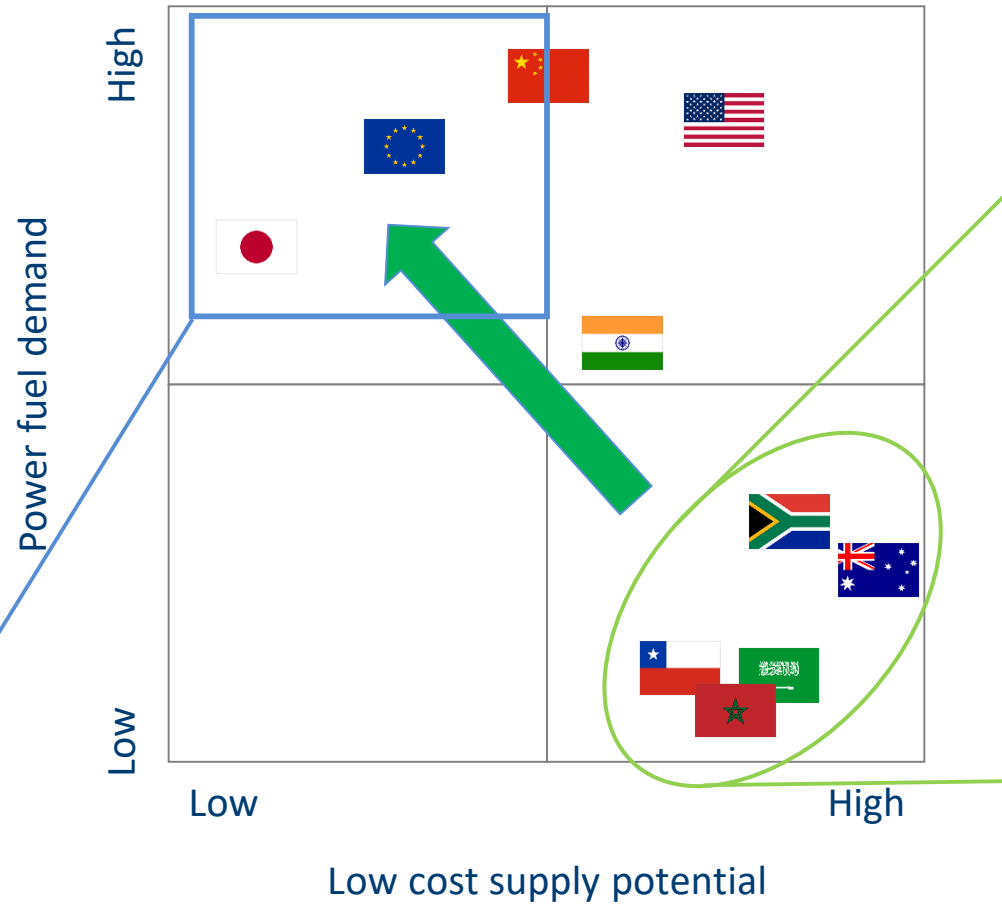
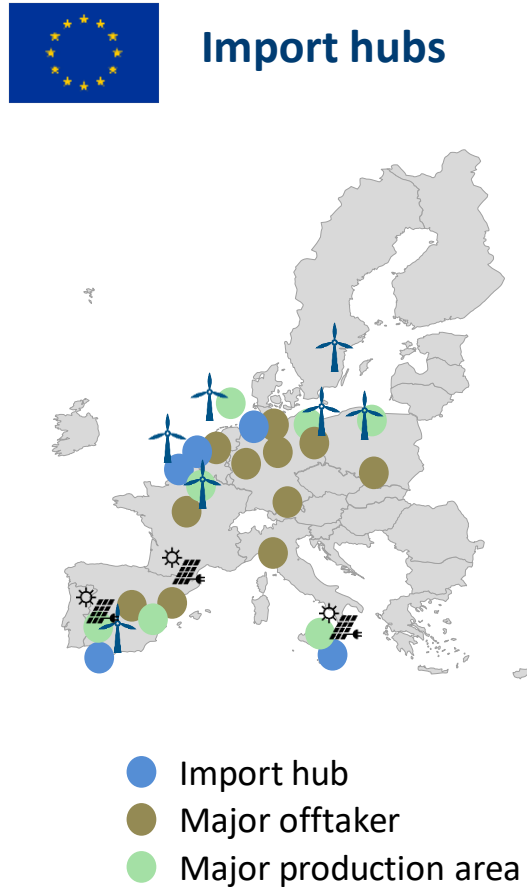
## Hydrogen costs from hybrid solar PV and onshore wind systems in the long term





# How to ramp up power fuel supply?

Illustrative figure



## How to bridge the gap?

### Demand scale-up

with some CAPEX invest for

- **Container ships** for NH3, methanol
- (Import harbor facility)
- (Transport pipeline)
- (Chemical plant)
- (Distribution infrastructure)

Offtaker seek for

- **Security** of supply (short-term)

Pricing

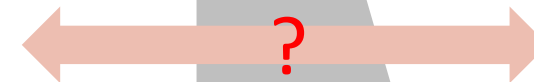
- **Competitive pricing** (short-term)
- **Flexibility** of supply without lock-in

Infrastructure

- Access to **import infrastructure**

Bilateral contracts

H2 Global



Exchange trade

### Supply scale up

needs CAPEX invest for

- Green electricity **generation capacity**
- **Electrolyzer** capacity
- H2 Pipeline
- **Chemical plant**, e.g. Fischer-Tropsch
- (Export harbor facility)

Producer seek for

- **Certainty** on offtake volume (mid-term)
- **Secure returns** on investment
- Flexibility of offtake ramp-up timing

Pricing

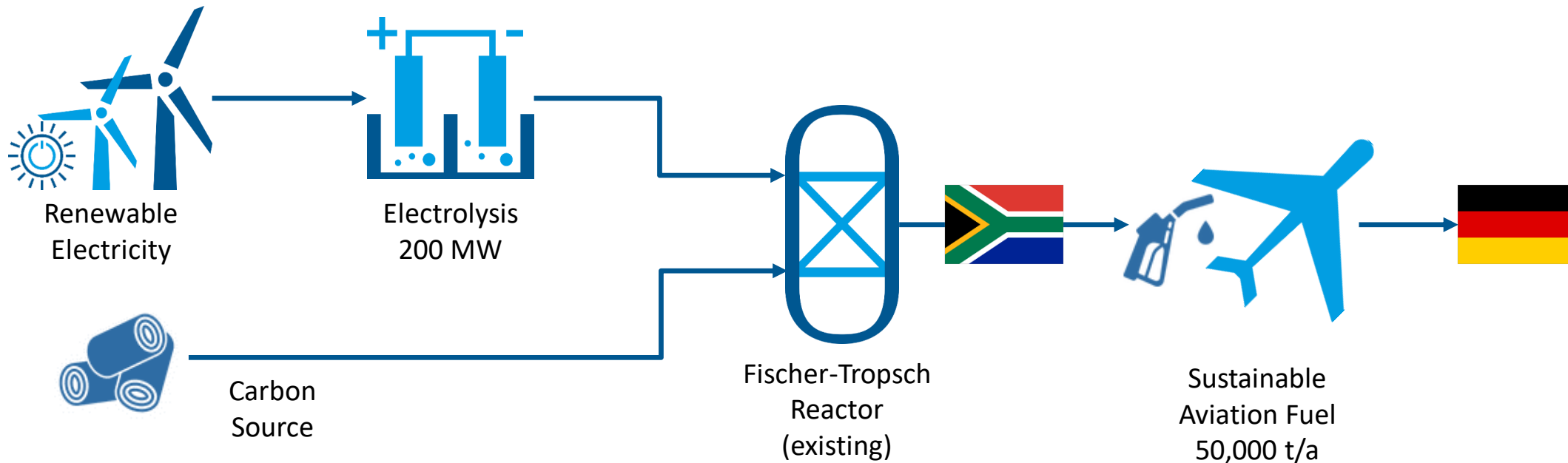
- Certainty on offtake price (mid-term)
- Access to **reliable customers**

Infrastructure

- Access to **export infrastructure**

Role of intermediary

# Intermediary H2Global to bridge gap between hubs



1. Which is the best way to kick-start development of **export hubs for power fuels**?
2. What is needed for industrial-size projects to **become bankable** in the light of a chicken and egg dilemma?
3. How to **foster innovation** and technology development without penalizing first movers?
4. How do we ensure that Europe get a **fair share of benefits** from financial support for global market creation?
5. How can we ensure a 100% **green product quality** along the value chain?
6. What are the advantages and disadvantages of long distance **transport vs. trading** of green product certificates?
7. How would Europe's **geopolitical role** benefit from a European led global power fuel market ramp-up?





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voraus

Thank you for your attention! Questions?



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