

More than hubs? Prosumers?

Requirements and opportunities of future energy hubs in a renewable world



POWERFUELS

Stefan Siegemund

Director – Alternative Energy Sources and Sustainable Mobility
German Energy Agency

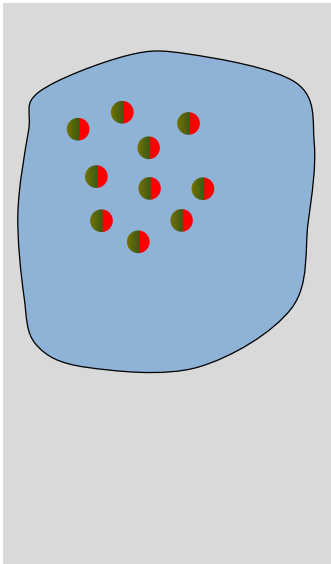
Powered by

dena
German Energy Agency

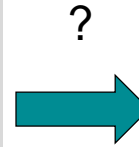
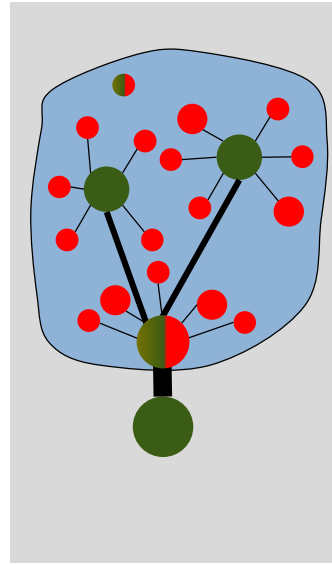
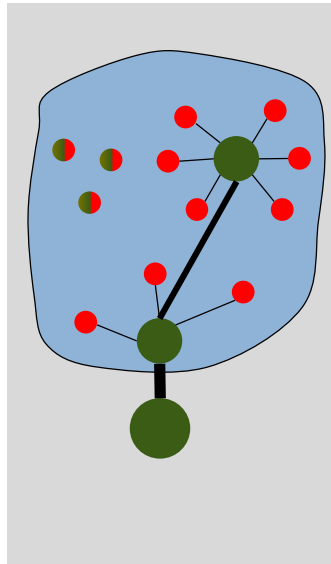
From prosumer to consumer to prosumer?

The perspective of future energy supply and consumption

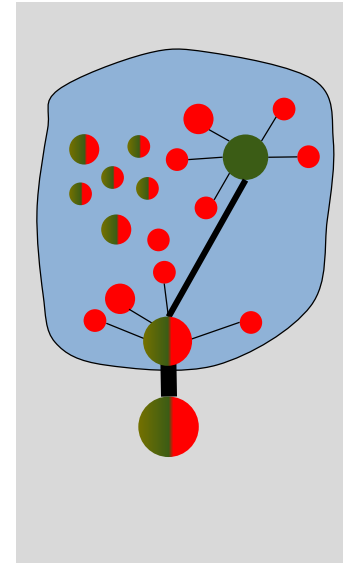
Past







Present



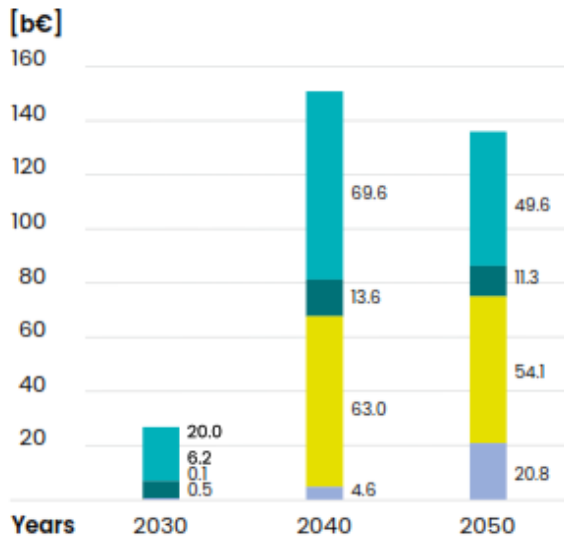
Future



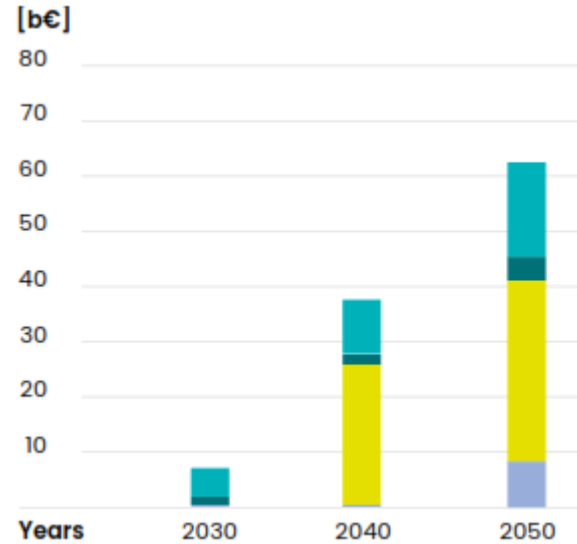
-  Local Prosumer
-  Local Consumption
-  Energy Hub: Production and Distribution
-  Energy Hub Prosumer: Production, Distribution, Consumption

Global trade results in significant cost savings compared to a self-supply scenario

Global cost reductions



Cost reductions in Europe



Legend

- SNG
- FT-fuels
- Hydrogen
- RE-Ammonia
- RE-Methanol

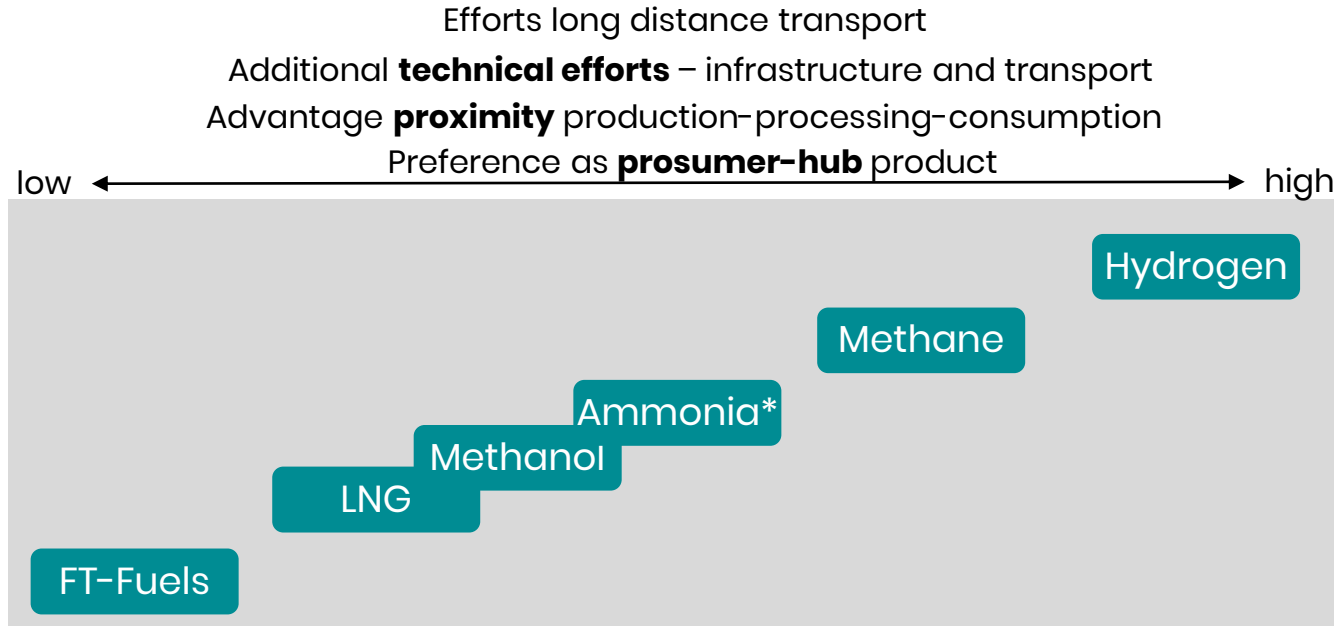
Potential cost reduction in European countries

15% - 30%



Globale trade & hubs

Which powerfuels will be traded? Which ones „prosumed“?

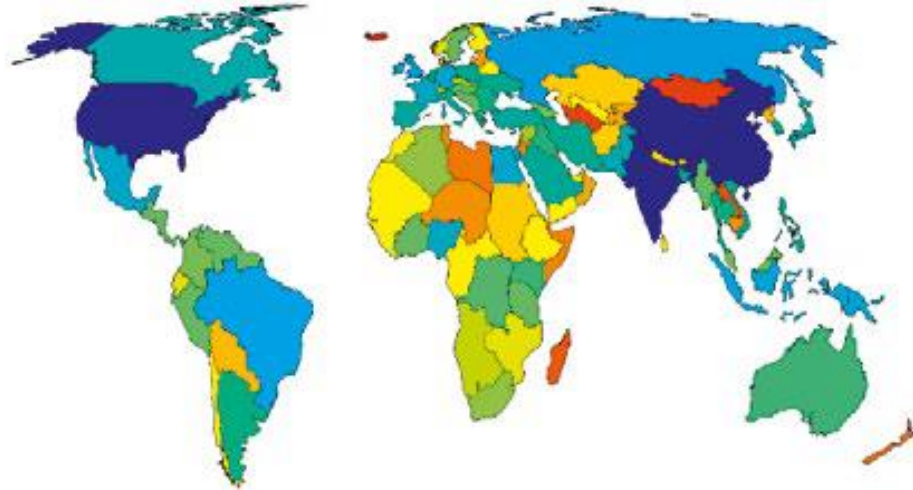


*efforts depend on the final use case

Powerfuels markets are highly diverse

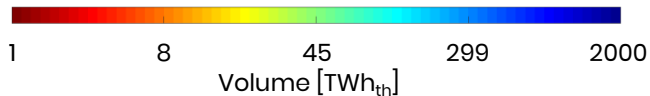
Diversity enables global trade streams

Global demand of hydrocarbon fuels in 2050

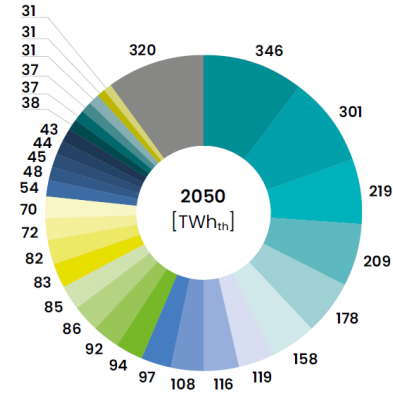


Global value = 10808 TWh_{th}

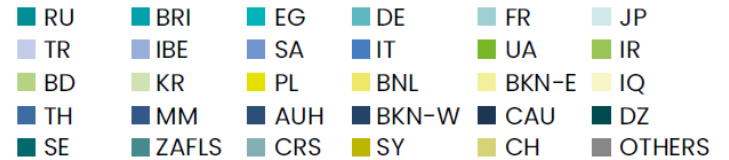
Synth. FT contribution = 94%, thereof 32% traded



FT-fuels importers in 2050



Importers are distributed widely, thereby enabling diverse, global trade streams.



Energy hubs and powerfuels

How can they benefit from each other?

Powerfuel markets – How can hubs respond?

Old hubs and new locations

- + How can mature hubs adapt ?
- + What support and especially regulation should politics provide?
- + What will become new locations for hubs?
How can industry and politics support these hubs?
- + What sustainability criteria have to be considered?
- + More than exporting?
New energy world – new added value.

Hubs – How can they foster powerfuel markets?

Push of powerfuels

- + How can (mature) hubs coordinate and cooperate to foster a market development for powerfuels ?
- + Can the proximity of production and consumption create competitive advantages?
- + How can policy accompany initiatives of industry within and between hubs?

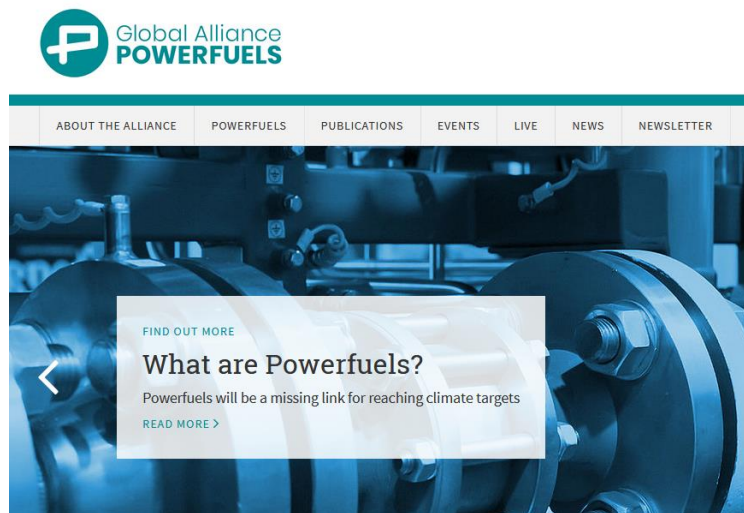
Key findings



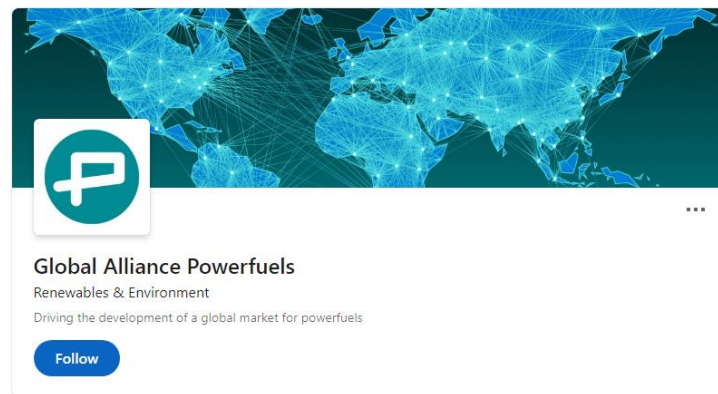
- + Future energy world creates new energy hubs
 - + Additional factors will play a key role for new locations and mature hubs
 - + Sustainability criteria and vertical added value have to be considered from the beginning
 - + Mature energy hubs has the chance to find a new role; cooperation could strengthen first powerfuel demand
- + **Energy Supply**
 - + **CO₂ availability – DAC/Point Sources**
 - + Water supply
 - + Trade and Export Infrastructure
 - + Energy and communication infrastructure
 - + Skilled labour
 - + Political stability
 - + Investment and planning security
 - + Consumption: framework for synergies of different industries

Find us online

Website



LinkedIn



About us

The strategic objective of the Alliance is to foster the development of a global market for powerfuels. The Alliance has three main goals: Raise awareness and acceptance of powerfuels as missing link to reach global climate targets; Support the further enhancement of regulatory frameworks with a first focus on Europe as demand region; Stimulate project development to globally enable production capacities on industrial scale, thus increasing cost competitiveness with fossil fuels.

