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German Energy Agency

Stefan Siegemund, Brussels, October 2019

GLOBAL ALLIANCE POWERFUELS



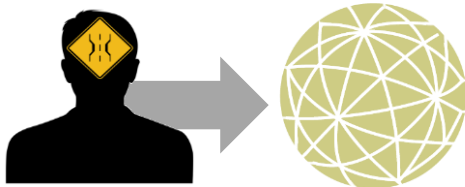
OVERVIEW GLOBAL ALLIANCE POWERFUELS

POWERFUELS

ENERGY TRANSITION'S MISSING LINK

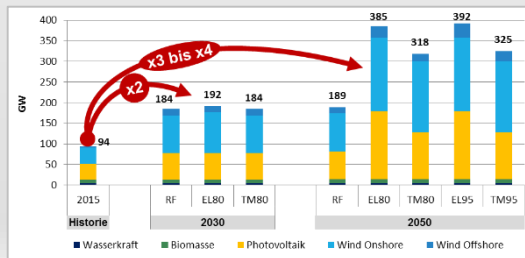
ENERGY EFFICIENCY

Re-adjusted energy efficiency strategy with systemic approach needed.



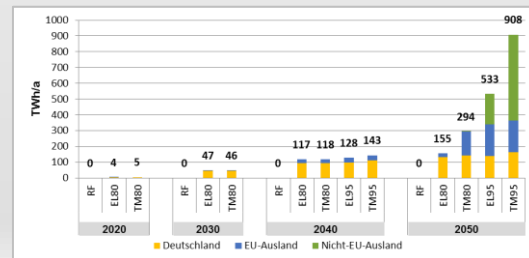
DIRECT RENEWABLE ENERGIES

Push RES power generation, define clear RES corridors, coordinate w/ grid expansion.

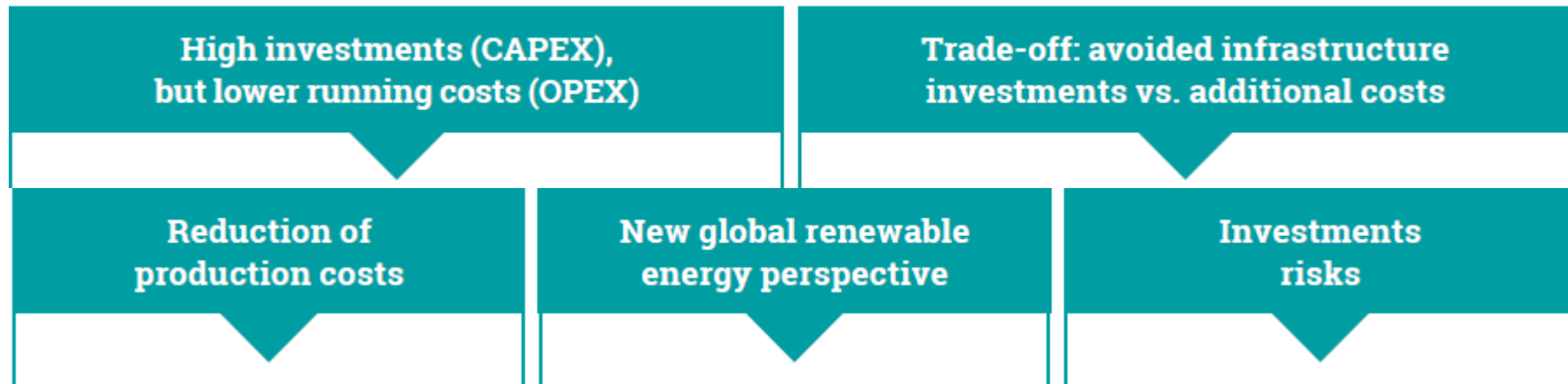


POWERFUELS

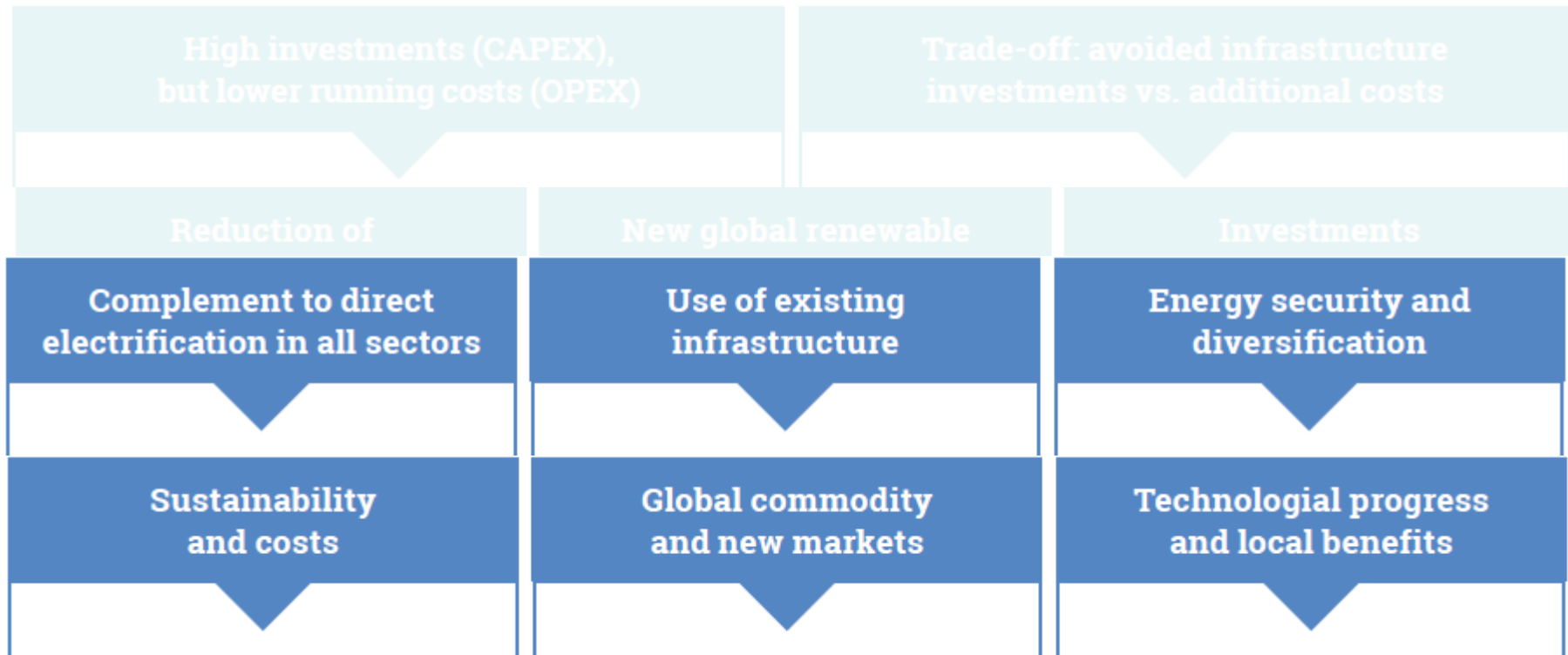
Establish a global market, design frameworks open to a range of technologies.



POWERFUELS CHALLENGES



POWERFUELS OPPORTUNITIES



5

PTL IN AIR TRANSPORT

STEFAN SIEGEMUND, OCTOBER 2019

Source: Global Alliance Powerfuels - Guidelines for Market Development
<https://www.dena.de/en/newsroom/meldungen/2019/global-alliance-powerfuels-presents-guidelines-for-market-development/>

www.powerfuels.org

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GLOBAL ALLIANCE POWER FUELS BACKGROUND



Initiated by dena in September 2018 together with renowned corporate partners.



Partners Network is a collaboration amongst global **initiatives, think tanks, associations and research institutions** to further enhance the discussion and development of Powerfuels globally.

GLOBAL ALLIANCE POWER FUELS

MAIN GOALS

1

Raise awareness and acceptance of Powerfuels as missing link to reach global climate targets.

2

Support further **enhancement of regulatory frameworks** with a first focus on Europe as demand region.

3

Stimulate project development to globally enable production capacities on industrial scale, thus increasing cost competitiveness with fossil fuels.



MARKET DEVELOPMENT OF POWERFUELS

POWERFUELS MARKET DEVELOPMENT



Capacity is low

- Numerous pilot plants, but total capacity is low



Technology is ready

- Sunfire Power-to-Liquid plant in opened Dresden in 2014



Costs are high

- Costs of up to 4.5€ per litre

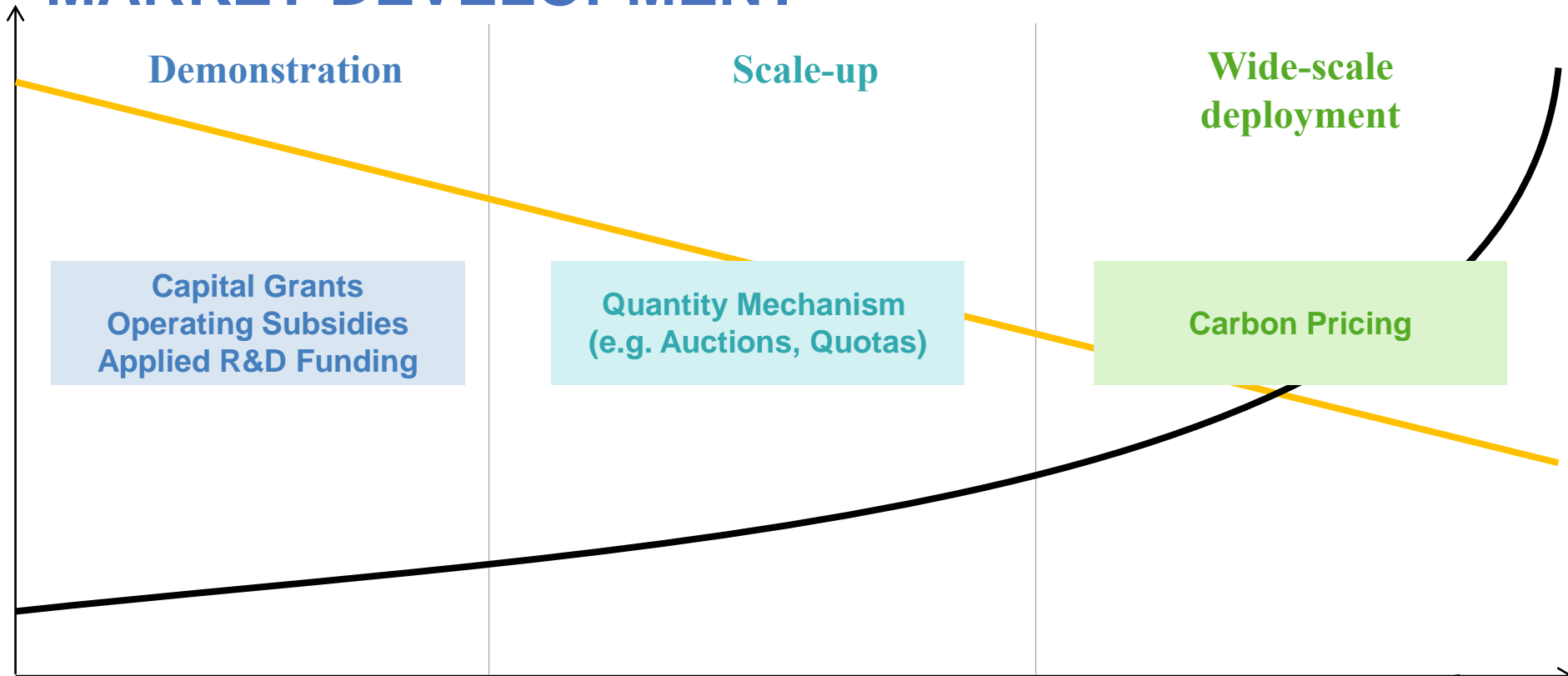


Sunfire Production Facility, Dresden

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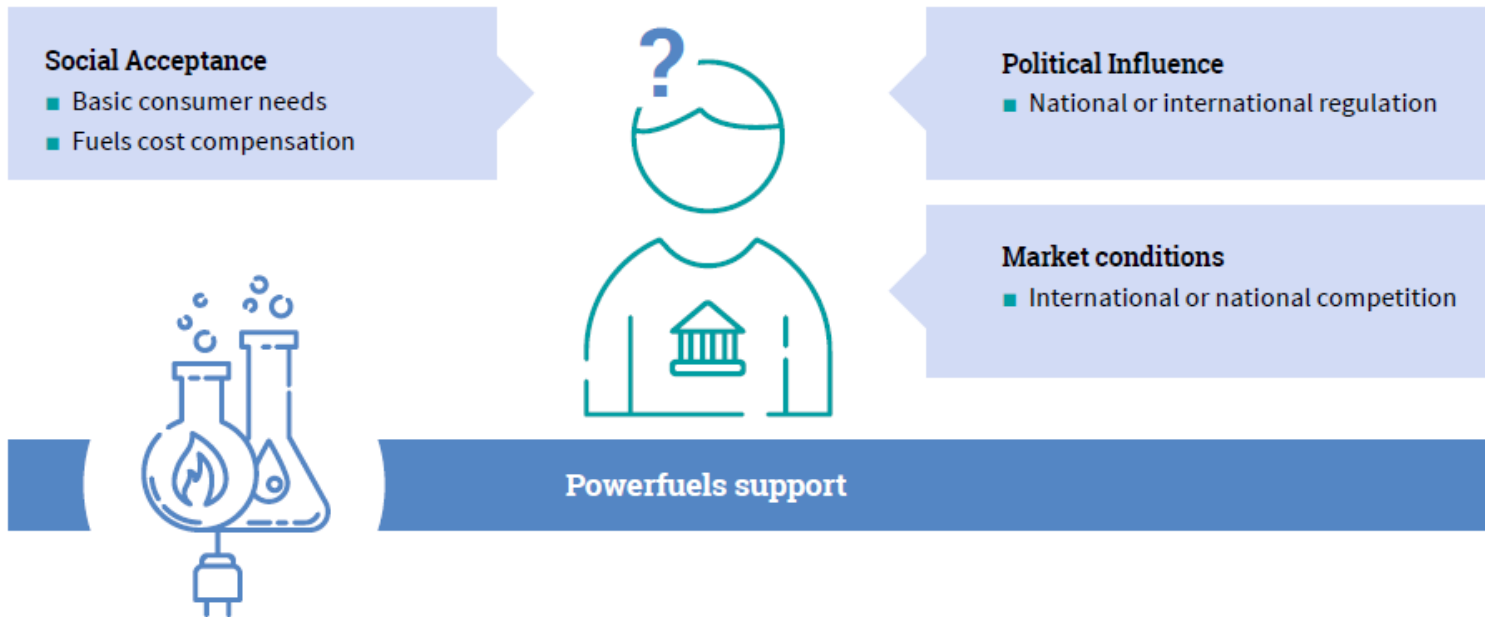
POWERFUELS MARKET DEVELOPMENT



POWERFUELS

START MARKET DEVELOPMENT – BUT HOW?

Factors influencing the choice of instruments to support powerfuels



POWERFUELS

SECTORAL FRAMEWORK FOR REGULATION

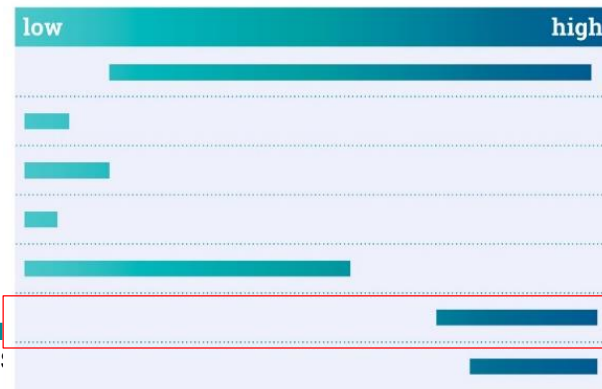
Effect on basic consumer needs



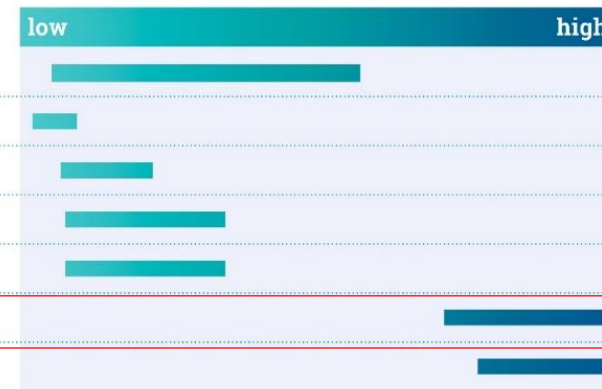
Inability to compensate high fuel costs



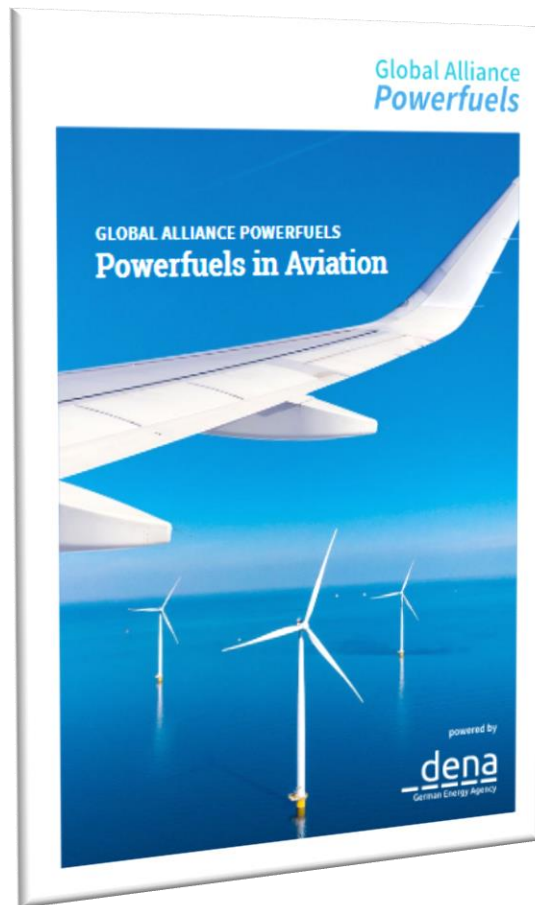
Importance of international competition



Importance of international regulation



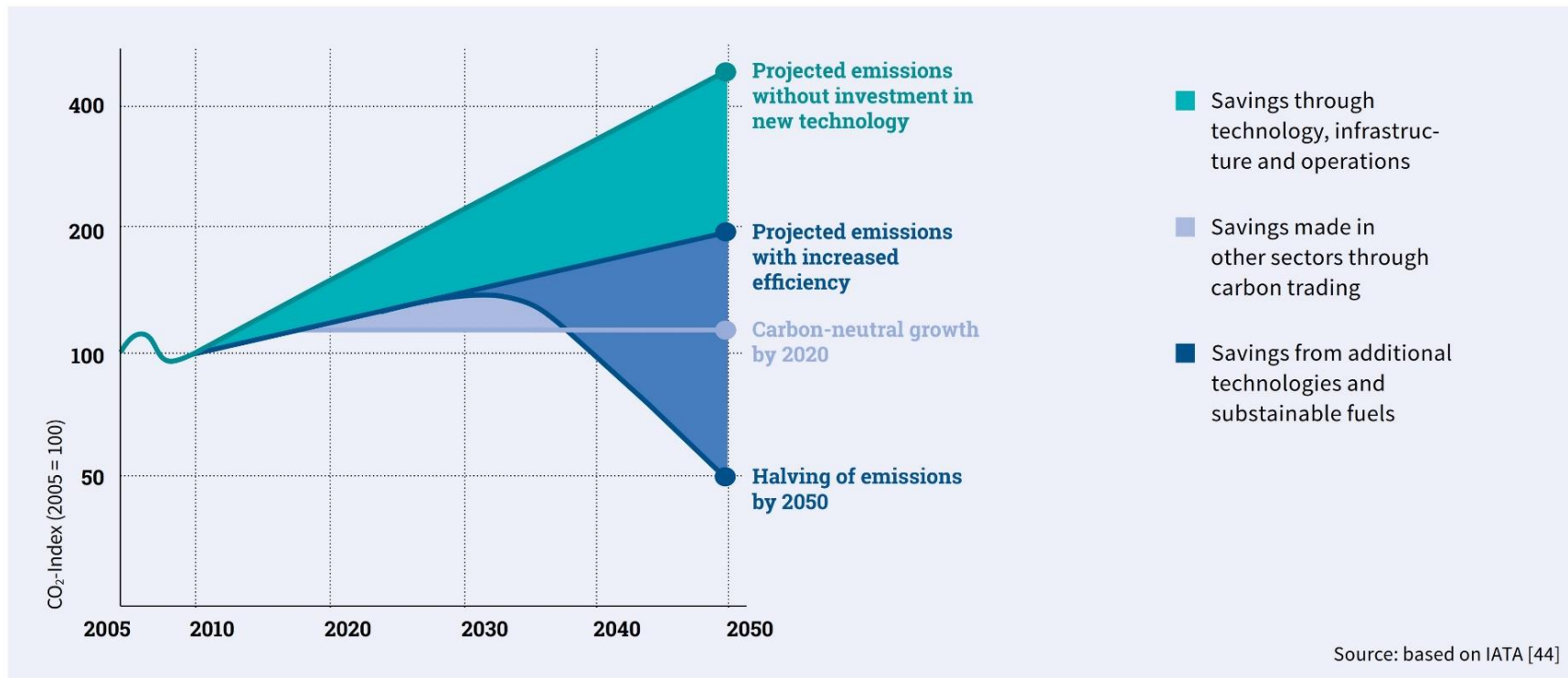
Source: Global Alliance Powerfuels - Guidelines for Market Development
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AVIATION

AVIATION

NET GHG-EMISSION NEEDS SAF



AVIATION

ADVANTAGES POWERFUELS-JET FUELS VS BIOFUELS

Water demand per litre of jet fuel

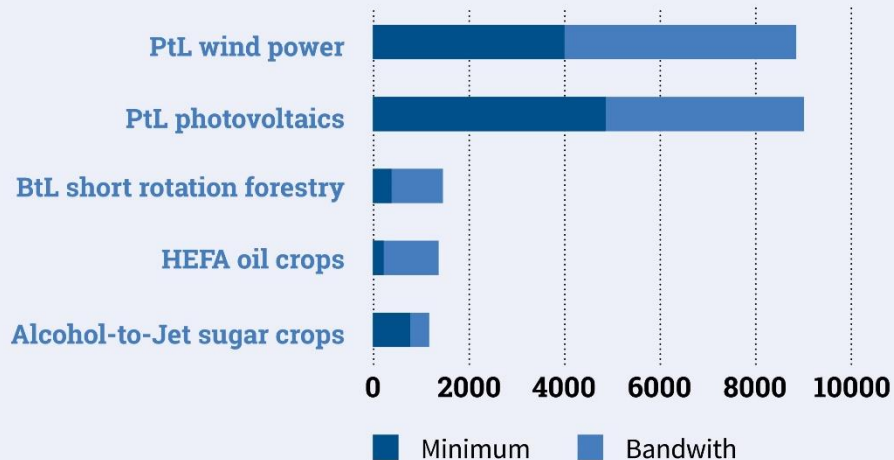
Powerfuels (PtL) water demand compared to selected biofuels (volumes representation, PtL water demand ~ 1.4 LH₂O/Ljetfuel)



Source: LBST/BHL, 2016 [6]

*Hydro-processed Esters and Fatty Acid

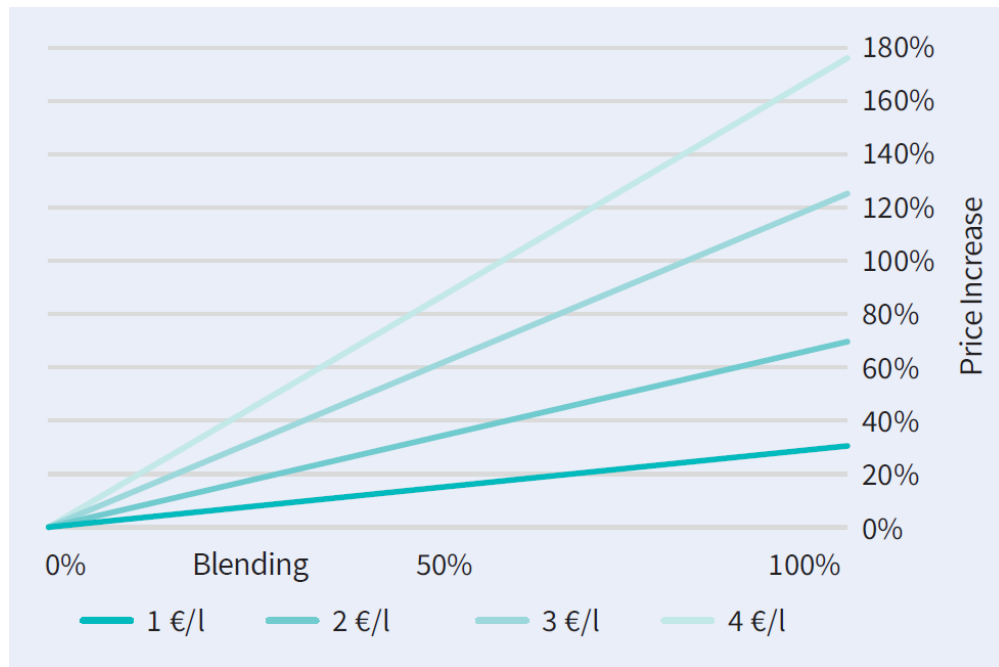
Achievable air mileage for an A320neo per ha of land (km/(ha*yr))



Source: LBST/BHL, 2016 [6]

Water demand per litre of jet fuel and achievable air mileage

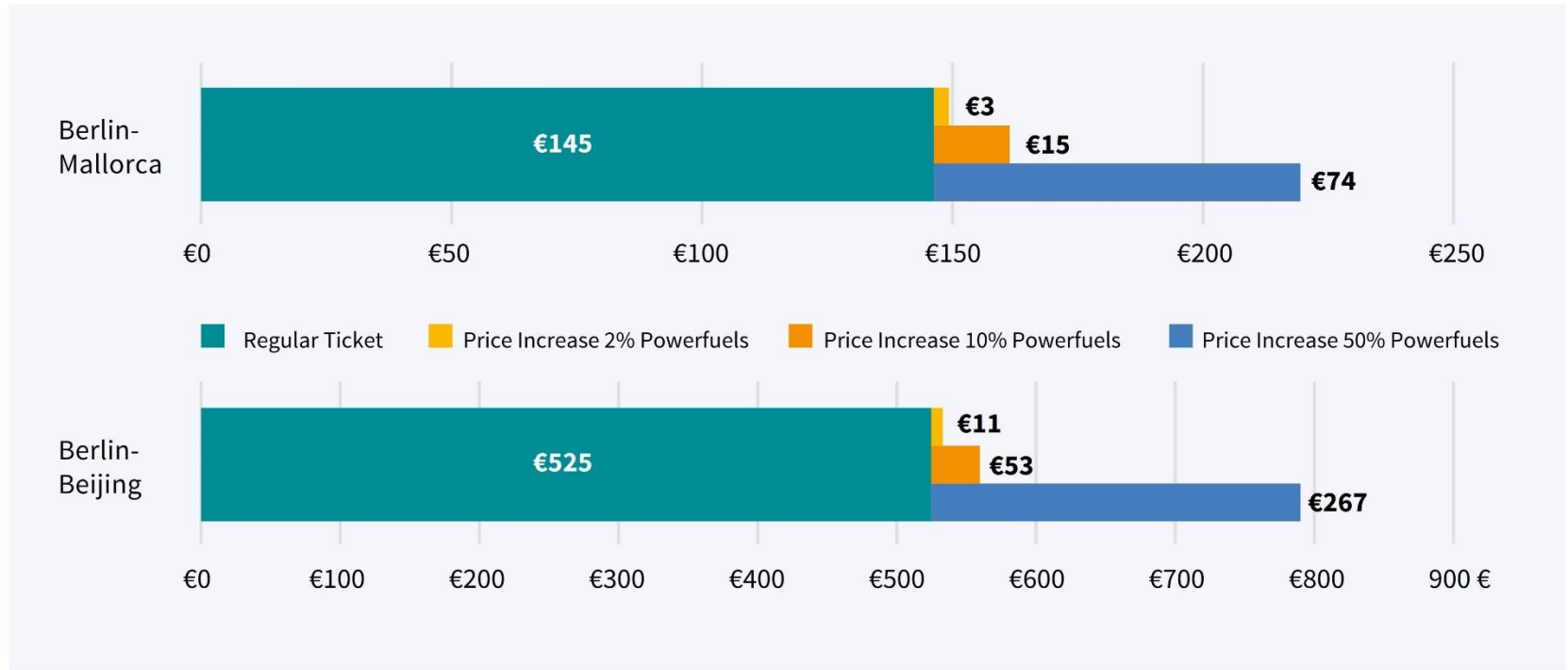
AVIATION COST CHALLENGES



Ticket price increases for different powerfuel cost estimates

AVIATION

TICKET PRICE IF POWERFUELS ARE BLENDED



Ticket price increase by blending conventional aviation fuel with different proportions of powerfuels

AVIATION GAP RECOMMENDATIONS

- Powerfuels should be **explicitly mentioned** and considered in the **ICAO Global Framework for Aviation Alternative Fuels** and the **IATA Sustainable Alternative Aviation Fuels Strategy**.
- ICAO member states should **define** for all airlines an increasing SAF/**powerfuels blending quota** starting with **at least 2 % in 2025**.
- It needs frontrunner markets/regions. But competitive disadvantage for progressive market players has to be avoided. **Revenues of national/regional instruments** may be used to support large scale powerfuels production, and it's use in aviation.

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SAVE THE DATE

GLOBAL ALLIANCE POWERFUELS BRUSSELS BRIEF: DEFINING SUSTAINABILITY STANDARDS FOR POWERFUELS.

Monday, 28th October 2019 – 4pm to 6pm

Venue: Landesvertretung Nordrhein-Westfalen

Rue Montoyer 47, 1000 Bruxelles, Belgium

www.powerfuels.org

THANK YOU FOR YOUR ATTENTION.

Stefan Siegemund

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