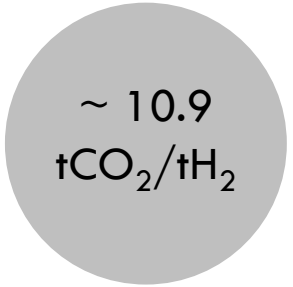
Powerfuels could increase or reduce GHG emissions to the atmosphere.

Strict criteria are necessary for achieving climate benefits and developing a sustainable business.

H_2 produced with **electricity from fossil gas combustion**



H_2 produced with **SMR of fossil gas** (grey hydrogen, current production and fossil comparator)

~ 0.5
tCO_2/tH_2

H_2 produced with **wind electricity**

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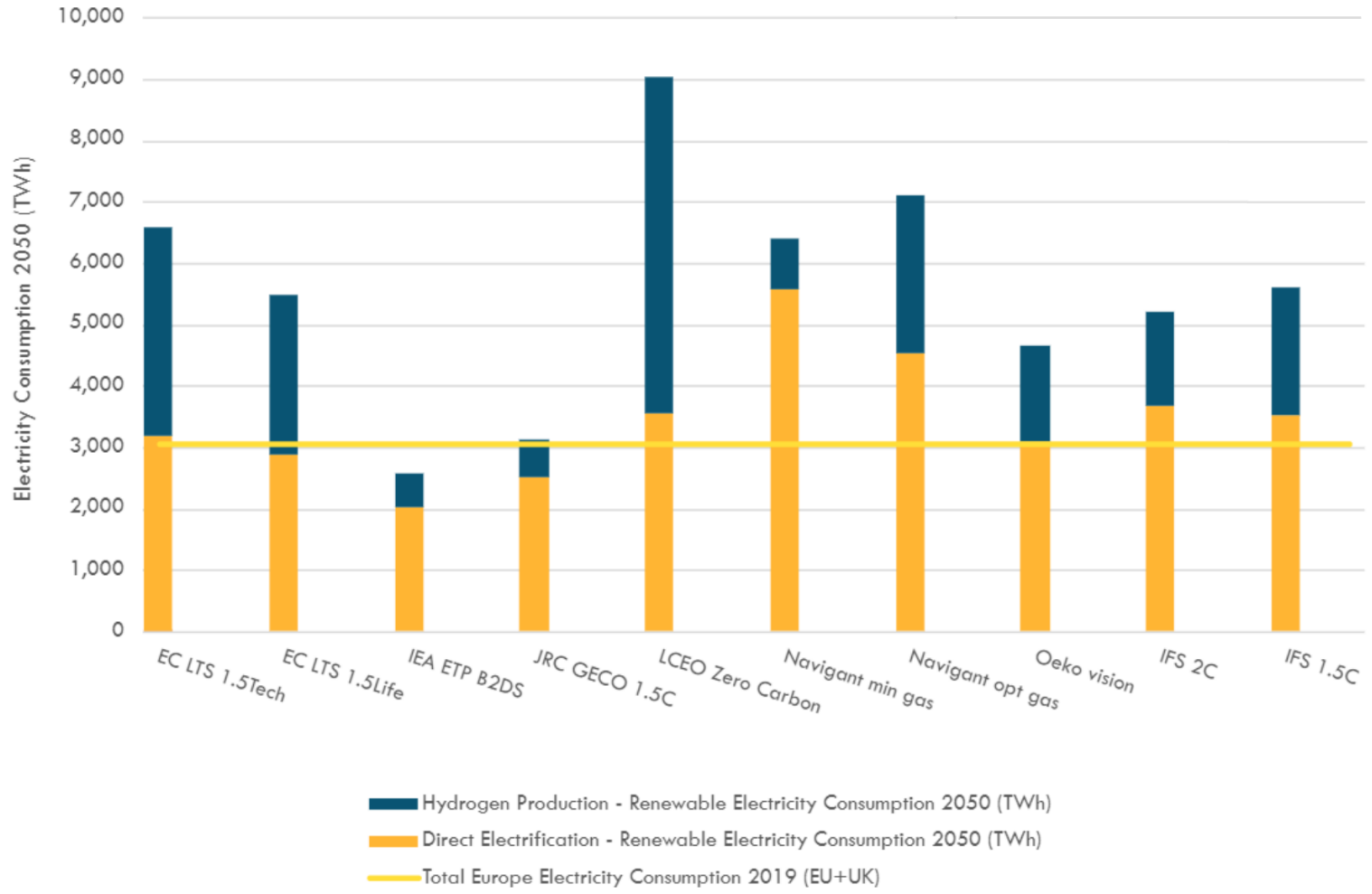
Deployment of additional renewables is needed for powerfuel production.

Using atmospheric CO_2 source (for hydrocarbon powerfuels) also improves their climate impact.



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Powerfuels should be used where direct electrification is not an option and most emissions can be abated.

Due to limited potential for hydrogen production, merit order for its end uses is needed.

Replacing all aviation fuel sold in DK with equivalent powerfuels

~ 25 TWh

~ 3 Million tonnes CO_2 saved (best case)

Replacing all cars in DK with Electric Vehicles (equivalent km)

~ 8 TWh

~ 6.5 Million tonnes CO_2 saved

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Main takeaways for green powerfuel production

1

Ensuring beneficial climate impact

- Hydrogen needs to be renewable
- CO_2 used needs to be atmospheric for the powerfuel to be potentially carbon neutral

2

Ensuring efficiency

- Low CO_2 reduction per unit of renewable electricity used
- Only to be used where other solutions are absent

3

Enabling clean deployment at scale

- Physical direct connection or virtual (strong link with RES production with PPAs) with additional RES needed

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