



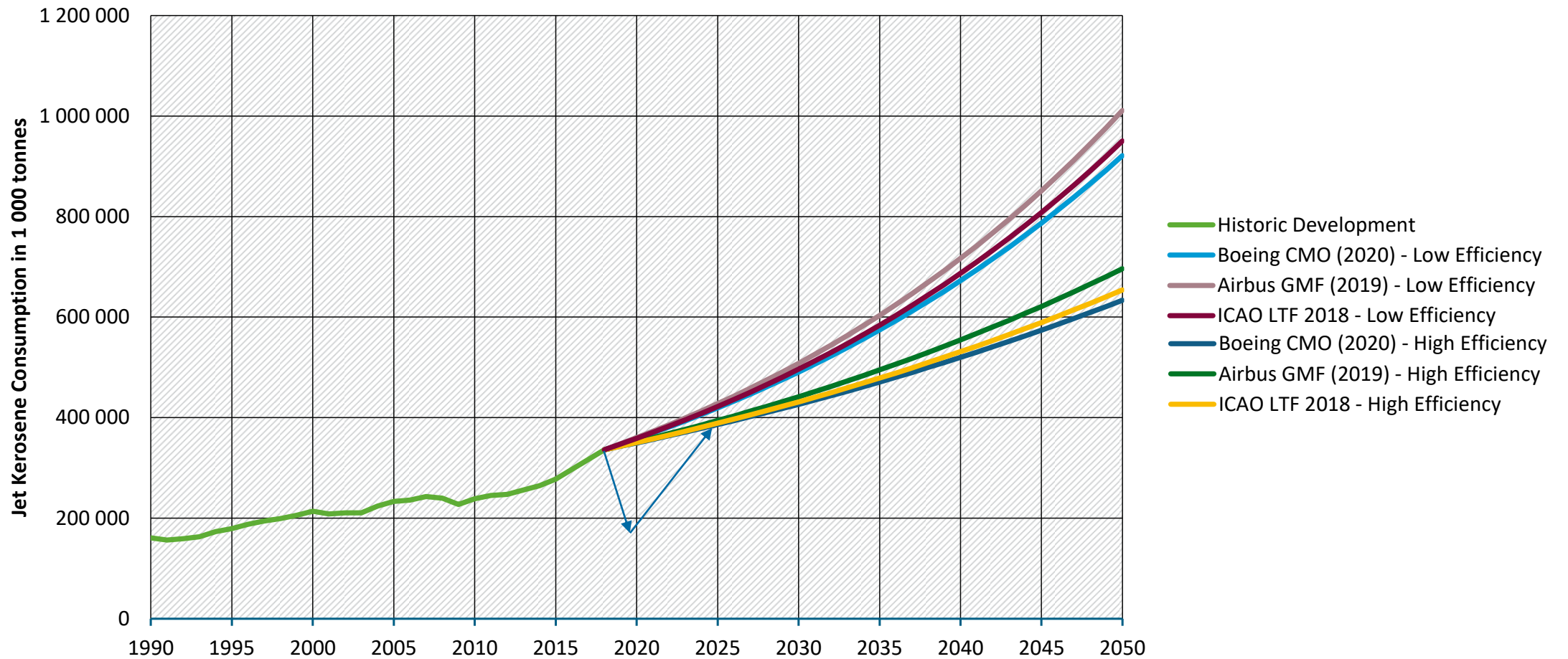
Potenziale von e-Fuels im Luftverkehr

Dekarbonisierung des Luftverkehrs

Wie kann die Luftfahrt nachhaltiger gestaltet werden?

Martin Cames | Zoom | 03.02.2022

Fuel demand projections



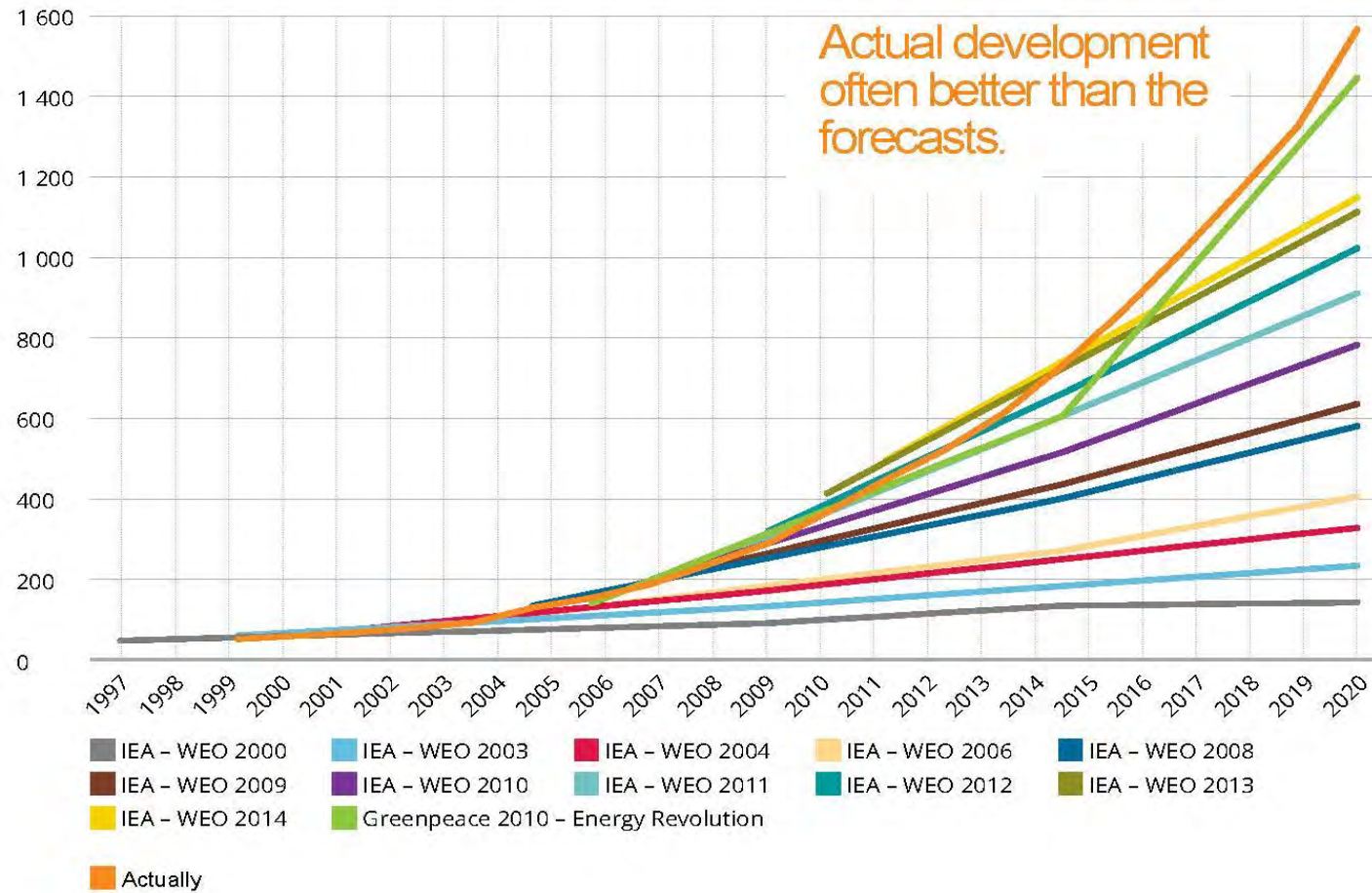
Challenge

Potential demand for renewable electricity for producing e-fuels

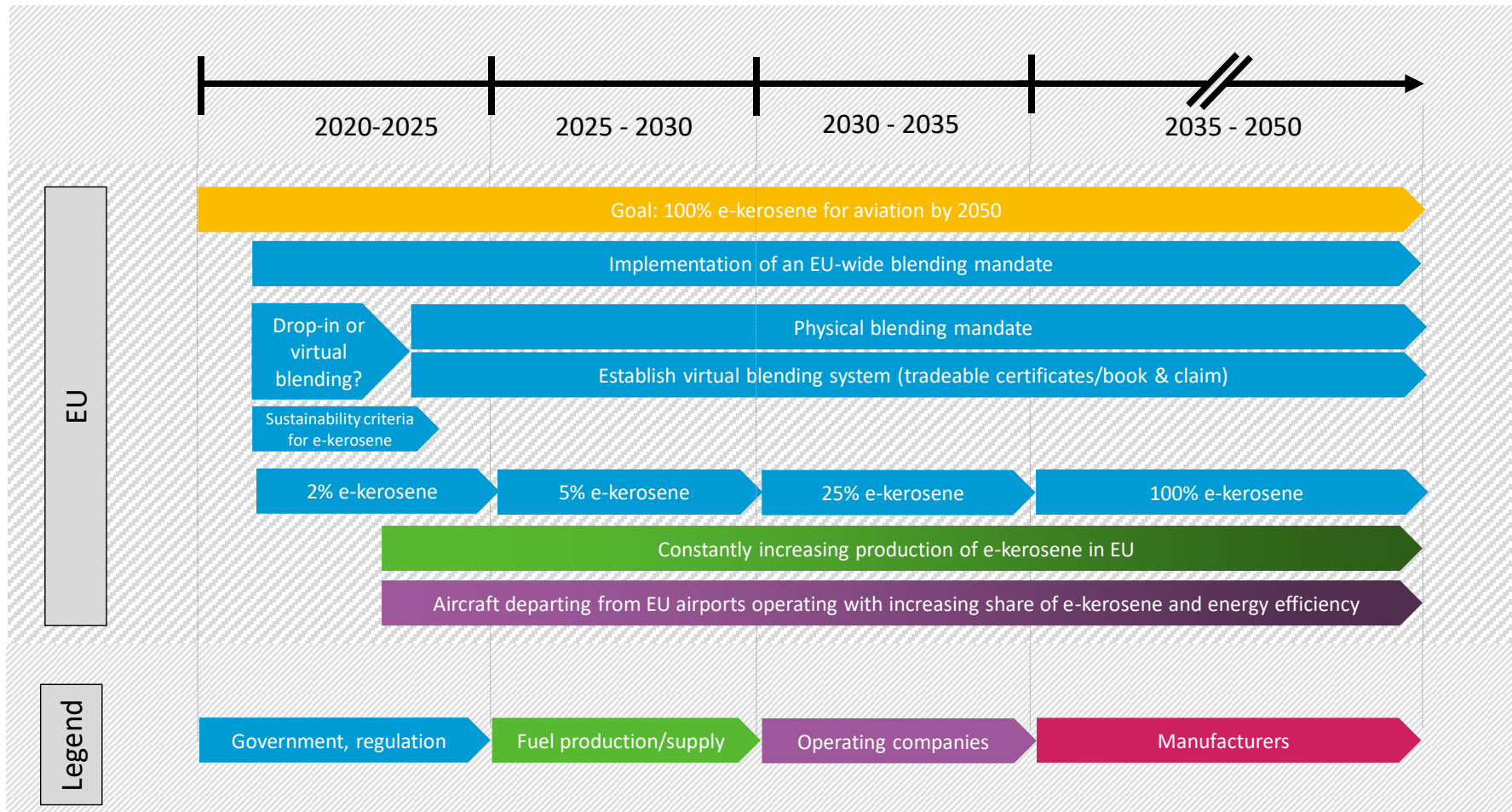
	Unit	2020	2025	2030	2035	2040	2045	2050
Aviation & Shipping								
High	PWh	15.2	17.5	20.1	22.8	25.8	28.7	32.2
Low	PWh	14.9	16.1	17.3	18.4	19.6	20.5	21.7
Aviation								
High	PWh	8.8	10.3	12.2	14.3	16.8	19.8	23.3
Low	PWh	8.6	9.5	10.6	11.7	13.0	14.4	16.0
Shipping								
High	PWh	6.4	7.2	7.9	8.4	9.0	8.9	8.9
Low	PWh	6.3	6.5	6.7	6.6	6.6	6.1	5.7

- Currently each sector would require the global renewable electricity generation to be supplied by e-fuels
- All additional PV and wind capacity added in the next 10 years would be required to supply e-fuel demand of aviation and shipping in 2050

Forecasts for the expansion of renewable energies



Aviation roadmap – European level



ReFuelEU Aviation

- Physical SAF quota at each major airport (advanced biofuels or e-fuels)
 - 2% in 2025 ... 63% of in 2050
 - Sub-quota for e-fuels (0,7%-28%)
 - Basis: total fuel consumption
- Avoidance of tankering
 - Modelling of kerosine demand for all departing flights (EASA)
 - 90% of fuel demand must to be uplifted in the EU
- Critical
 - Availability of bio-kerosine
 - Ambition: Quotas to low in 2050, should be 100% instead of 63%/28 SAF/e-fuels
 - More flexibility for operators (book & claim)
 - Non-CO₂ impacts: fuel quality standards for reducing aromatics

Takeaways

- A policy mix involving carbon pricing, standards, subsidies, etc. required
- Coordination at global level would be most effective IMO and ICAO would likely take more time than is available
- Forerunner activities at national or regional level are likely to accelerate the progress at international level
- ReFuelEU Aviation is part of the policy mix
 - Leakage through tankering addressed
 - Book & claim would provide more flexibility for operators
 - Overall ambition too low: 100% SAF by 2050 required (and possible)
 - Limited availability of Biomass: 100% e-Kerosin required by 2050
 - ReFuelEU could be used to address non-CO₂ impacts

Thank you for your attention!

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