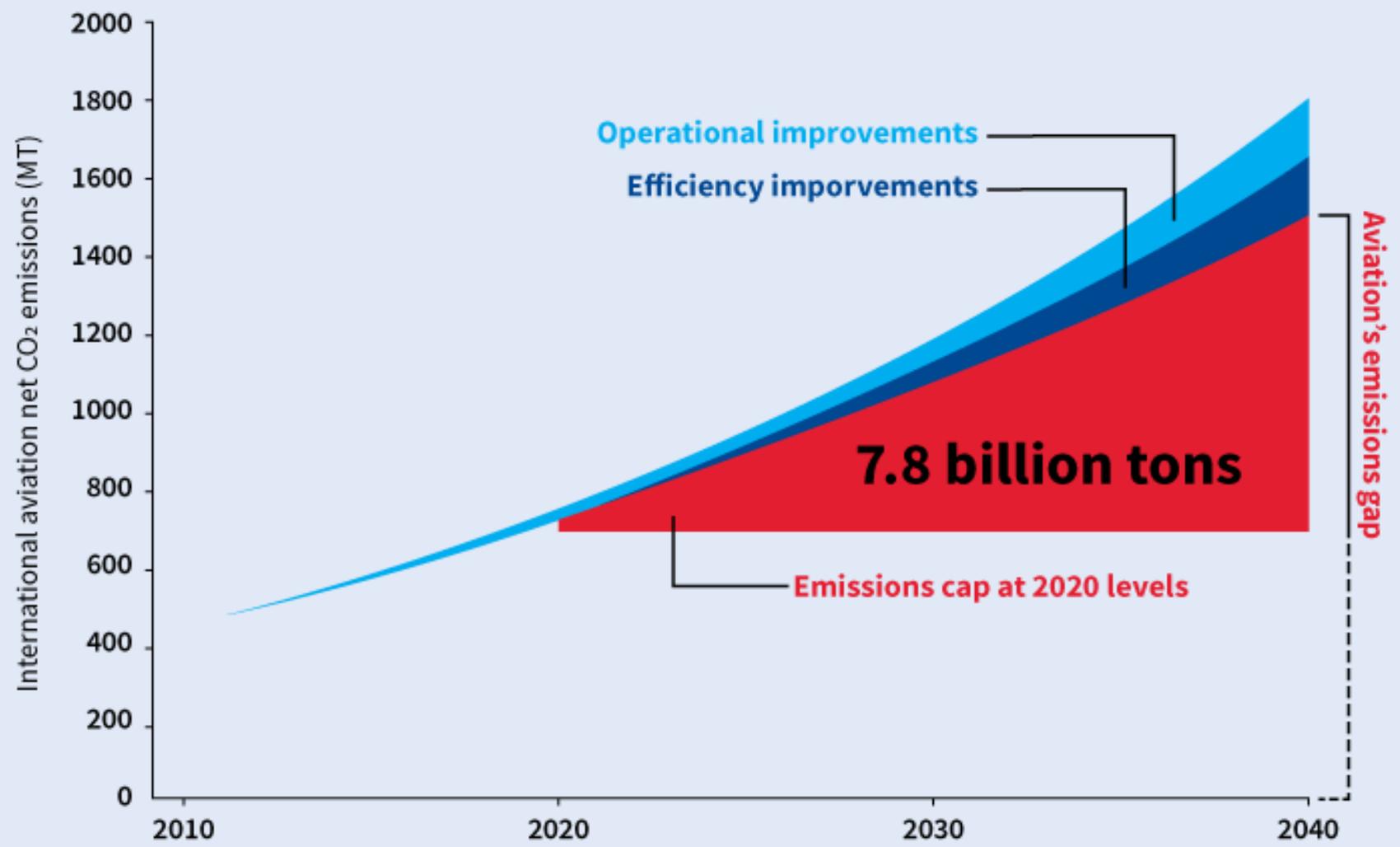




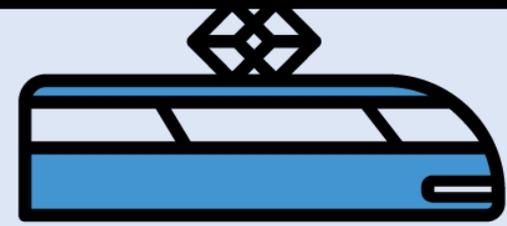
**CARBON PRICING
STRATEGIES FOR AVIATION**

How big is aviation's emission gap?

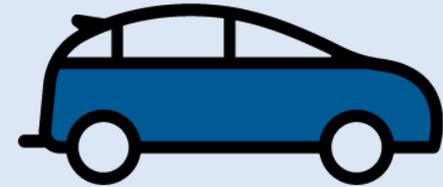


Carbon pricing of Europe's transport modes

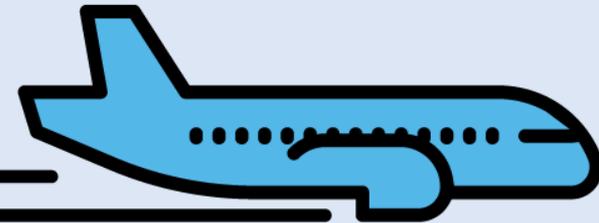
Electricity subject to 100% auctioning under EU ETS



Subject to, on average, 48c/litre fuel tax



Just 15% auctioning and no fuel tax



IEA CLEAN ENERGY PROGRESS (2017)

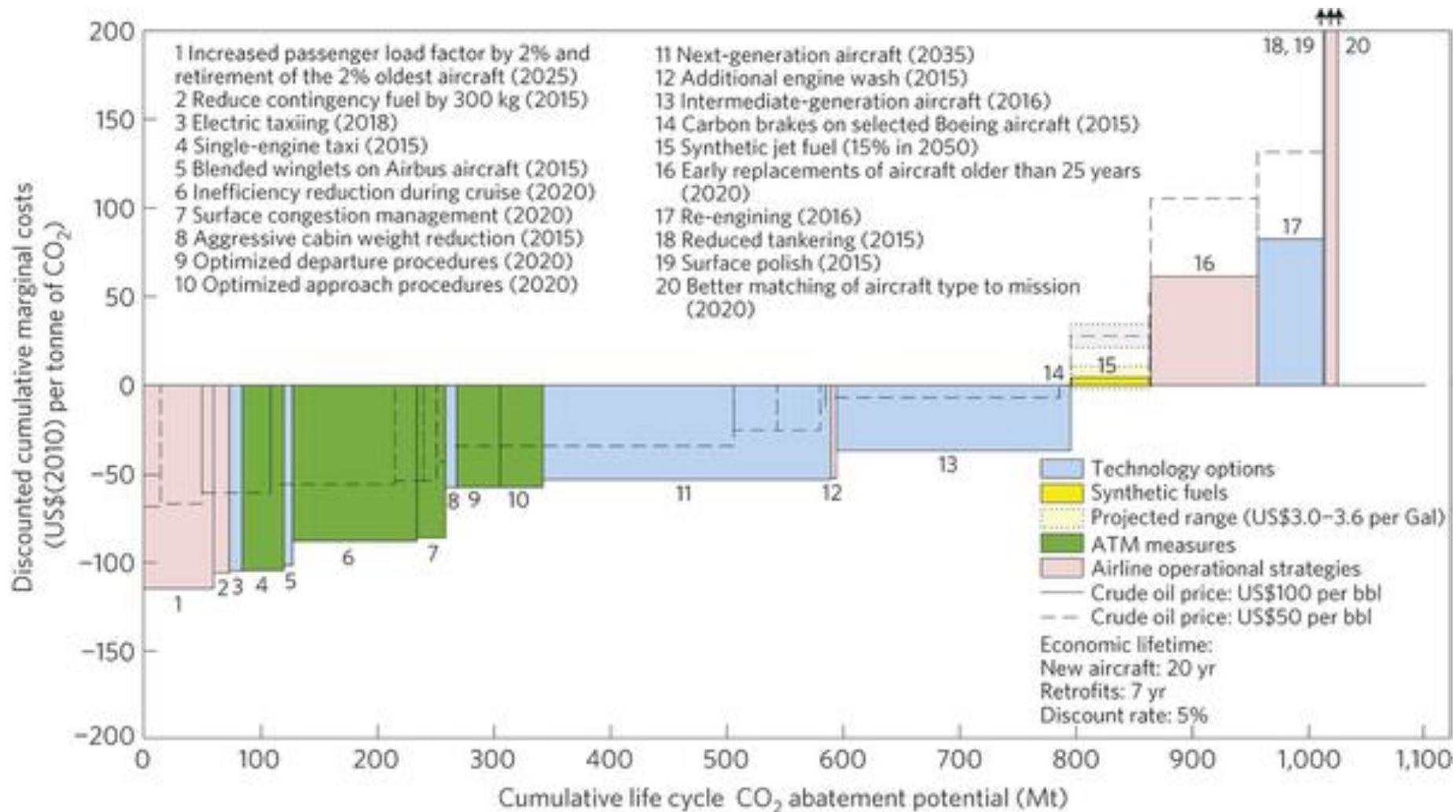
CORSIA

“The development of CORSIA has both positive and negative implications...these developments could come at the expense of reduced pressure for R&D solutions that could be achieved within the aviation industry itself.”

Recommendation

“A price on carbon is essential, and could be particularly effective in reducing GHG emissions from shipping and aviation, sectors that are currently subject to low or no fuel taxation.”

COST OF MITIGATION



IMPACT OF LOW OIL PRICES

Low Fuel Prices May Cause Airlines to Delay New Aircraft Orders

By Jason Clampet, Skift | Dec. 24, 2014

Now that oil prices have gone down, airlines may choose to delay orders on new aircraft and stick with older planes.

In Bloomberg's Aviation Outlook 2015, Bloomberg Intelligence's George Ferguson argues that as oil prices fall, airlines will slow down deliveries and fly airplanes longer. While fuel efficiency does make a difference, savings in fuel efficiencies will not make up for the cost of new aircraft.



Aviation, Aerospace & Defense

AS OIL PRICES FALL, NEW AIRCRAFT LOSE COMPETITIVE EDGE

AUTHORS

Tim Hoyland, Partner
Andrew Medland, Principal

CORSIA aims to offset one-fifth of international aviation emissions



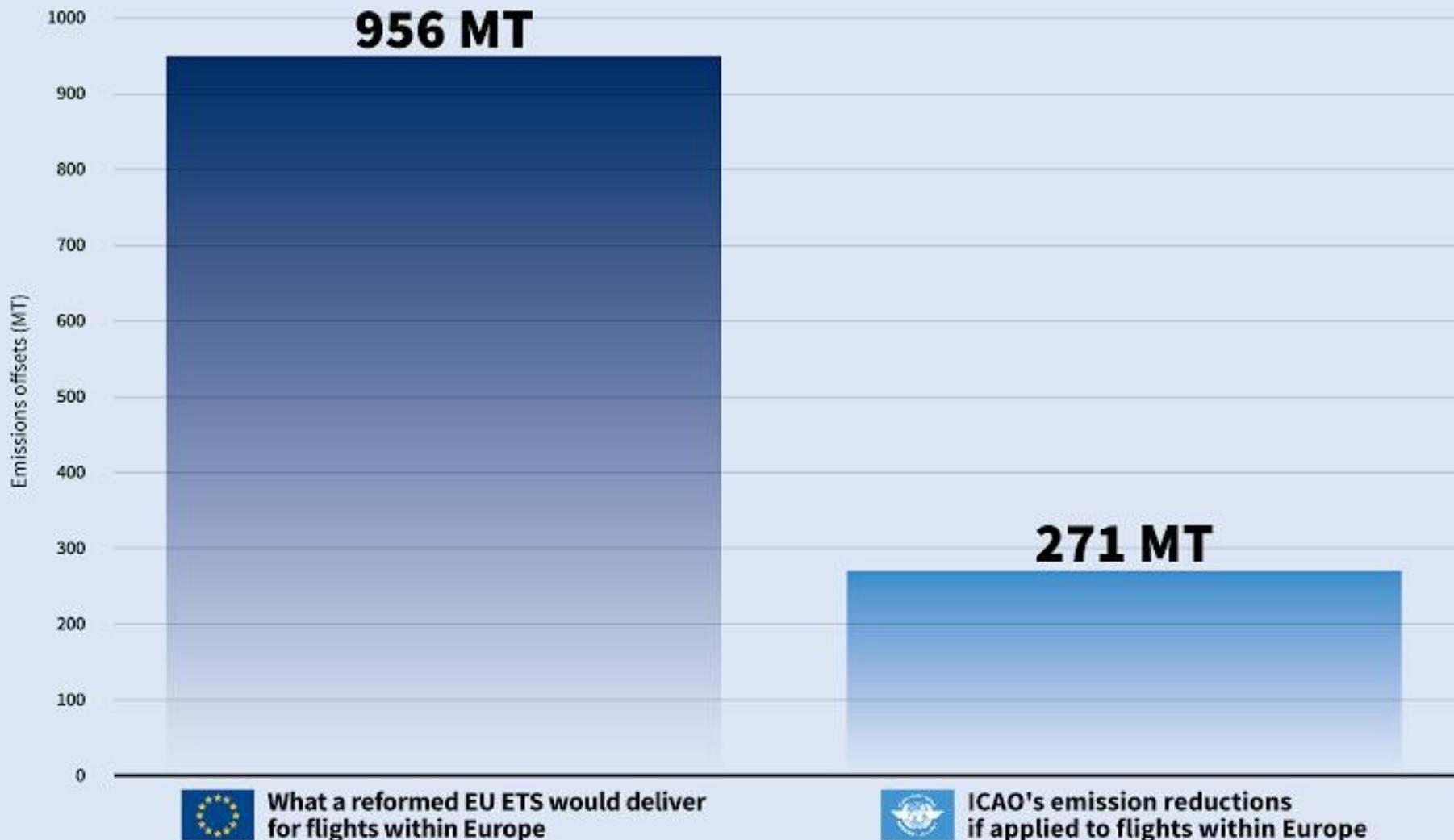
21.6%

CORSIA's weak plan will offset only 21.6% of global emissions between 2021-2035

EU ETS

- Launched in 2008 in response to inaction at ICAO
- Originally aimed to cover all flights within, and to and from, Europe
- However reduced in scope to cover only intra-EU flights
- Price of less than €5 insufficient to impact airline emission growth, though it works in that sense that it has bought 68.3m EUAs from other sectors
- Will decide in 2019 how EU ETS and CORSIA will interact post-2020

Which one really mitigates aviation's climate impact?



PLANNED CARBON PRICING

CANADA

- Starting at \$10CAD a tonne in 2018, increasing to \$50CAD a tonne in 2022 (€6.73/€33.65)
- Includes domestic aviation only – 85% of their aviation emissions
- No sign that it will permit offsets

CHINA

- Soon to be launched ETS will include domestic aviation – 66% of their aviation emissions
- Likely to include limited use of offsets

Mexico, New Zealand

CARBON PRICING OF INTERNATIONAL EMISSIONS

- Fuel tax prohibited by most, possibly all, air service agreements
- Kyoto Protocol was clear that ICAO had the lead in responding to emissions from international aviation; Paris unclear
- ECJ ruling upheld application of EU ETS to international aviation

If CORSIA fails to produce adequate carbon pricing signal, path open for extending regional carbon pricing schemes? Or will CORSIA ratchet-up?

CONCLUSION

- Demand for offsets will be impacted by overall efforts to mitigate aviation's climate impact
- International aviation needs carbon pricing to limit its climate impact: but CORSIA wont deliver such carbon pricing
- China and Canada are launching measures which will impact the debate
- Either CORSIA must ratchet up, or regional measures may be needed to be extended in some form